



FINAL

**Phase II Environmental Site Assessment Report
Troy Hill Park Parcels
Elkridge, Howard County, Maryland 21075**

Prepared for

Bureau of Environmental Services
Howard County Department of Public Works
9801 Broken Land Parkway
Columbia, Maryland 21046

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
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(410) 584-7000

October 2019
Revision 01 - March 2020
EA Project No. 1483560

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24 October 2019

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Date



24 October 2019

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CONTENTS

	<u>Page</u>
LIST OF FIGURES	ii
LIST OF TABLES	ii
LIST OF ACRONYMS AND ABBREVIATIONS	vi
EXECUTIVE SUMMARY	1
1. INTRODUCTION	1-1
1.1 PURPOSE AND SCOPE	1-1
2. BACKGROUND	2-1
2.1 SITE LOCATION AND DESCRIPTION	2-1
2.2 PREVIOUS INVESTIGATIONS	2-1
3. METHODOLOGY	3-1
3.1 SITE INVESTIGATION	3-1
3.1.1 Utility Avoidance.....	3-1
3.1.2 Sampling Methodology and Rationale.....	3-1
3.1.3 Sample Handling and Laboratory Analysis	3-9
3.1.3.1 Sample Nomenclature.....	3-10
3.1.3.2 Quality Control Samples.....	3-10
3.1.4 Equipment Decontamination	3-11
3.1.5 Investigation-Derived Waste	3-11
4. RESULTS	4-1
4.1 TEST PIT EXCAVATIONS.....	4-1
4.1.1 Subsurface Magnetic Anomaly Investigation.....	4-7
4.2 LABORATORY ANALYTICAL RESULTS	4-7
4.2.1 Sampling Results	4-8
4.2.2 Data Validation	4-9
5. HUMAN HEALTH RISK ASSESSMENT.....	5-1
5.1 CONCEPTUAL SITE MODEL	5-1
5.2 EXPOSURE ASSESSMENT	5-3
5.2.1 Exposure Intake Equations	5-3
5.2.2 Exposure Point Concentration	5-5

5.2.3	Selection of Exposure Parameters	5-6
5.3	TOXICITY ASSESSMENT	5-6
5.3.1	Dermal Exposures	5-7
5.4	RISK CHARACTERIZATION	5-8
5.4.1	Hazard Quotient for Non-Carcinogenic Effects	5-8
5.4.2	Carcinogenic Risks	5-9
5.4.3	Special Chemicals: Lead.....	5-9
5.4.4	Risk Characterization Results	5-10
6.	CONCLUSIONS.....	6-1
7.	REFERENCES	7-1
APPENDIX A: FIGURES		
APPENDIX B: TABLES		
APPENDIX C: STANDARD OPERATING PROCEDURES		
APPENDIX D: TEST PIT LOGS		
APPENDIX E: LABORATORY ANALYTICAL REPORTS		

LIST OF FIGURES

<u>Number</u>	<u>Title</u>
1	Subject Site Location (Appendix A)
2	Phase II ESA Investigation Areas (Appendix A)
3	Sample Locations and Screening Level Exceedances (Appendix A)

LIST OF TABLES

<u>Number</u>	<u>Title</u>
2-1	Subject Site Details
3-1	Sampling Rationale
4-1	Excavation Results Summary
4-2	Soil Analytical Results (Appendix B)
5-1	Medium-Specific Exposure Point Concentration Summary – Surface Soil Without REC 3C (Appendix B)
5-2	Medium-Specific Exposure Point Concentration Summary - Subsurface Soil Without REC 3C (Appendix B)

LIST OF TABLES (continued)

<u>Number</u>	<u>Title</u>
5-3	Medium-Specific Exposure Point Concentration Summary – Surface Soil - REC 3C (Appendix B)
5-4	Medium-Specific Exposure Point Concentration Summary - Subsurface Soil - REC 3C (Appendix B)
5-5	Values Used for Recreational User (Elementary School Aged Child) Daily Total Soil Intake Equations (Appendix B)
5-6	Values Used for Recreational User (Middle School Aged Child) Daily Total Soil Intake Equations (Appendix B)
5-7	Values Used for Recreational User (High School Aged Child) Daily Total Soil Intake Equations (Appendix B)
5-8	Values Used for Office/Commercial Worker Daily Total Soil Intake Equations (Appendix B)
5-9	Non-Cancer Toxicity Data – Oral/Dermal (Appendix B)
5-10	Non-Cancer Toxicity Data – Inhalation (Appendix B)
5-11	Cancer Toxicity Data – Oral/Dermal (Appendix B)
5-12	Cancer Toxicity Data – Inhalation (Appendix B)
5-13	Chemical-Specific Parameters for Dermal Contact (Appendix B)
5-14	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Elementary School Aged Child - Surface Soil Without REC 3C (Appendix B)
5-15	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Middle School Aged Child - Surface Soil Without REC 3C (Appendix B)
5-16	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, High School Aged Child - Surface Soil Without REC 3C (Appendix B)
5-17	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Adult - Surface Soil Without REC 3C (Appendix B)
5-18	Calculation of Air Concentrations Due to Dust Entrainment from Surface Soil W/O REC 3C (Appendix B)
5-19	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Elementary School Aged Child - Subsurface Soil Without REC 3C (Appendix B)
5-20	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Middle School Aged Child - Subsurface Soil Without REC 3C (Appendix B)
5-21	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, High School Aged Child - Subsurface Soil Without REC 3C (Appendix B)
5-22	Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Adult - Subsurface Soil Without REC 3C (Appendix B)

- 5-23 Calculation of Air Concentrations Due to Dust Entrainment from Subsurface Soil W/O REC 3C (Appendix B)
- 5-24 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Elementary School Aged Child - Surface Soil - REC 3C (Appendix B)
- 5-25 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Middle School Aged Child - Surface Soil - REC 3C (Appendix B)
- 5-26 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, High School Aged Child - Surface Soil - REC 3C (Appendix B)
- 5-27 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Adult - Surface Soil - REC 3C (Appendix B)
- 5-28 Calculation of Air Concentrations Due to Dust Entrainment from Surface Soil - 3C (Appendix B)
- 5-29 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Elementary School Aged Child - Subsurface Soil - REC 3C (Appendix B)
- 5-30 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Middle School Aged Child - Subsurface Soil - REC 3C (Appendix B)
- 5-31 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, High School Aged Child - Subsurface Soil - REC 3C (Appendix B)
- 5-32 Calculation of Chemical Cancer Risks and Non-Cancer Hazards Reasonable Maximum Exposure, Adult - Subsurface Soil - REC 3C (Appendix B)
- 5-33 Calculation of Air Concentrations Due to Dust Entrainment from Subsurface Soil - 3C (Appendix B)
- 5-34 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Elementary School Aged Child – Surface Soil Without REC 3C (Appendix B)
- 5-35 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Middle School Aged Child - Surface Soil Without REC 3C (Appendix B)
- 5-36 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, High School Aged Child - Surface Soil Without REC 3C (Appendix B)
- 5-37 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Adult - Surface Soil Without REC 3C (Appendix B)
- 5-38 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Elementary School Aged Child – Subsurface Soil Without REC 3C (Appendix B)
- 5-39 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Middle School Aged Child - Subsurface Soil Without REC 3C (Appendix B)

- 5-40 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, High School Aged Child - Subsurface Soil Without REC 3C (Appendix B)
- 5-41 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Adult - Subsurface Soil Without REC 3C (Appendix B)
- 5-42 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Elementary School Aged Child – Surface Soil - REC 3C (Appendix B)
- 5-43 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Middle School Aged Child - Surface Soil - REC 3C (Appendix B)
- 5-44 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, High School Aged Child - Surface Soil - REC 3C (Appendix B)
- 5-45 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Adult - Surface Soil - REC 3C (Appendix B)
- 5-46 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Elementary School Aged Child – Subsurface Soil - REC 3C (Appendix B)
- 5-47 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Middle School Aged Child - Subsurface Soil - REC 3C (Appendix B)
- 5-48 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, High School Aged Child - Subsurface Soil - REC 3C (Appendix B)
- 5-49 Summary of Receptor Risks and Hazards for COPCs, Reasonable Maximum Exposure, Adult - Subsurface Soil - REC 3C (Appendix B)
- 5-50 Summary of HHRA Results

LIST OF ACRONYMS AND ABBREVIATIONS

µg/kg	Microgram(s) per kilogram
µg/m ³	Microgram(s) per cubic meter
%	Percent
95%UCLM	95th percentile upper confidence limit on the mean
ABS	Dermal absorption factor
ADI	Average daily intake
AT	Averaging time
ATC	Anticipated Typical Concentration
bgs	Below ground surface
BW	Body weight
cm ²	Square centimeter(s)
COC	Chain-of-custody
COPC	Chemical of potential concern
DRO	Diesel range organics
EA	EA Engineering, Science, and Technology, Inc., PBC
EC	Exposure concentration
EF	Exposure frequency
EFH	Exposure Factors Handbook
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ESA	Environmental Site Assessment
ft	Foot (feet)
ft ³	Cubic foot (feet)
gal	Gallon(s)
GIABS	Gastrointestinal dermal absorption factor
GRO	Gasoline range organics
HHRA	Human health risk assessment
HQ	Hazard quotient
ID	Identification
IDW	Investigation-derived waste
IEUBK	Integrated Exposure Uptake Biokinetic Model
IUR	Inhalation unit risk

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

kg/mg	Kilogram(s) per milligram
LADI	Lifetime average daily intake
LOAEL	Lowest-observed-adverse-effect-level
MDE	Maryland Department of the Environment
mg/kg	Milligram(s) per kilogram
mg/m ³	Milligram(s) per cubic meter
No.	Number
NOAEL	No-observed-adverse-effect-level
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PEF	Particulate emissions factor
PID	Photoionization detector
ppm	Part(s) per million
QC	Quality control
RBA	Relative bioavailability
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RfC	Reference concentration
RfD	Reference dose
RL	Reporting limit
RPD	Relative percent difference
RSL	Regional Screening Level
SA	Surface area
SF	Slope factor
SOP	Standard Operating Procedure
TCL	Target Compound List
TH	Troy Hill
TPH	Total petroleum hydrocarbons
UF	Uncertainty factor
USGS	U.S. Geological Survey
UST	Underground storage tank
Weston	Weston Solutions, Inc.

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EXECUTIVE SUMMARY

EA Engineering, Science, and Technology, Inc., PBC (EA) completed a Phase II Environmental Site Assessment (ESA) of the Troy Hill Park parcels (the subject site). The subject site is located in Elkridge, Howard County, Maryland, and is composed of eight individual parcels totaling 100.948± acres within an area of mixed property use, including residential, industrial, and commercial properties (Figure 1). Each of the eight parcels had different historical uses, as described in the May 2019 Phase I ESA report. The majority of the subject site consists of unimproved wooded land, with the exception of Parcel 0561, which is currently developed as Troy Hill Park. Troy Hill Park is a Howard County recreational and sports complex that contains the remnants of the historical Troy Mansion. Howard County has expressed interest in potentially redeveloping the subject site as a school. The purpose of this investigation was to obtain additional environmental information to evaluate the Recognized Environmental Conditions (RECs) described in the May 2019 Phase I ESA and to assist Howard County with making informed decisions regarding the planned future use of the property.

Figure 2, included in Appendix A, depicts the areas of investigation. Multiple investigation areas were selected (Table 3-1) that are associated with the three RECs identified by the May 2019 EA Phase I ESA:

1. On Parcel 0342, an orchard was observed during the aerial photograph review between 1938 and 1952. Additionally, two orchards were observed on Parcel 0561 during the aerial photograph review between 1952 and 1963. Given the period of use of the orchard, applied orchard chemicals may have impacted the subject site.
2. Throughout currently undeveloped portions of the subject site, most notably on Parcels 0342, 0185, and 0345, evidence of onsite small-scale, large-scale, and nuisance trespasser-type waste disposal was observed. Findings ranged from isolated areas of waste tires and trash, to large areas that included: construction debris, discarded household items, automotive debris (e.g., oil filters, oil cans, tires), vehicular carcasses, and industrial items including abandoned paving equipment and 55-gallon drums. Additionally, Parcel 342 (previously the Nickel property), now void of most former wastes, contained extensive piles of waste until circa 2006–2007. The improper deposition of waste is likely to have resulted in a past release of hazardous substances or petroleum products at the subject site.
3. The site previously contained structures and improvements that are associated with features and activities with the potential for past release of hazardous materials or petroleum products, related to former wells and septic systems, remnant or former underground storage tanks, and onsite burning/fire training.

To assess site conditions, thirty-nine test pits were installed at the subject site. Soil samples were collected from the surface (0–2 feet below ground surface) and variable subsurface intervals. A total of 91 soil samples (82 parent and 9 duplicate samples) plus 1 sample of anomalous blue-

stained material were submitted for laboratory analysis. Sample analysis at each location was determined by site history.

The investigation also included assessment of anomalies listed in the 2003 Weston Solutions Inc. (Weston) geophysical investigation report as high priority and/or large magnetic anomalies. Seven anomalies were listed in the 2003 Weston report as high priority, and five anomalies were listed as low priority. As part of this investigation, test pits were installed to assess five of the seven high priority anomaly locations. Of the remaining two high priority locations, Weston Anomaly ID A12-2 was field-verified as a building foundation and Weston Anomaly ID P561-1 is located on a steep hillslope. This location was inaccessible for excavation activities and was therefore excluded from assessment. One test pit (TH-3B-TP01) indicated the presence of an underground storage tank, however, site observations indicated the tank was likely a relic underground septic tank versus a petroleum or chemical underground storage tank. Three of the five anomalies from the Weston report that were listed as low priority were also addressed as a part of this investigation at locations that were coincident with suspect surficial waste or installed to ensure adequate site coverage.

Results of laboratory analysis of soil samples indicated no metals were reported at concentrations greater than the U.S. Environmental Protection Agency (EPA) residential soil Regional Screening Levels (RSLs) or the Maryland Department of the Environment (MDE) Anticipated Typical Concentrations (ATCs) for Central Maryland, except for arsenic, lead, and hexavalent chromium.

- Arsenic was reported at concentrations greater than the MDE ATC of 4.9 milligrams per kilogram (mg/kg) in 19 soil samples (TH-3D-TP03-0-2, TH-3D-TP03-4-5, TH-1A-HA02-0-2, TH-2B-TP04-0-2, TH-2F-TP01-0-2, TH-2D-TP01-0-2, TH-3B-TP01-1.7 BLUE, TH-3B-TP01-0-2, TH-2D-TP04-0-2, TH-2C-TP01-4-5, TH-2G-TP01-0-2, TH-2G-TP02-0-2, TH-2B-TP07-4-5, TH-2B-TP03-4-5, TH-2B-TP03-0-2, TH-3D-TP04-2-3, TH-2A-TP03-4-5, TH-2A-TP03-0-2, and TH-2A-TP01-4-5). Reported arsenic concentrations were within an order of magnitude of the MDE ATC for Central Maryland and, therefore, may be considered a naturally occurring product of site geology.
- Lead was reported at a concentration greater than the EPA residential soil RSL of 400 mg/kg in one sample, TH-2D-TP01-0-2 (481 mg/kg).
- Hexavalent chromium was reported at concentrations greater than the EPA residential soil RSL of 0.3 mg/kg for 10 samples ranging from 0.313 to 1.47 mg/kg (TH-3D-TP02-0-2).

Reported total petroleum hydrocarbons (TPH) concentrations were less than the MDE residential soil cleanup standard (230 mg/kg) and ranged from 0.13 to 0.15 mg/kg TPH-gasoline range organics and from 9.6 to 167 mg/kg TPH-diesel range organics.

Reported concentrations of Target Compound List pesticides and herbicides were less than the EPA residential soil RSLs except for sample TH-3D-TP01-0-2. Dieldrin was detected in this sample at a reported concentration of 569 micrograms per kilogram (µg/kg), greater than the EPA residential soil RSL of 34 µg/kg.

Reported polycyclic aromatic hydrocarbon concentrations were less than the EPA residential soil RSLs in all but four samples. For sample TH-3C-TP04-0-2, concentrations of benzo[a]anthracene (1,440 µg/kg), benzo[b]fluoranthene (1,510 µg/kg), benzo[a]pyrene (1,480 µg/kg), dibenz[a,h]anthracene (273 µg/kg), and indeno[1,2,3-c,d]pyrene (1,160 µg/kg) were reported in exceedance of the EPA residential soil RSLs: 1,100 µg/kg, 1,100 µg/kg, 110 µg/kg, 110 µg/kg, and 1,100 µg/kg respectively. In addition, benzo[a]pyrene was reported at concentrations greater than the EPA residential soil RSL (110 µg/kg) for samples TH-3D-TP04-0-2 (242 µg/kg), TH-3C-TP03-0-2 (214 µg/kg), and TH-3C-TP02-0-2 (146 µg/kg).

Reported polychlorinated biphenyl concentrations were less than the EPA residential soil RSLs for all samples. Aroclor 1260 was detected in TH-3C-TP02-0-2 (100 µg/kg), and in TH-3C-TP04-0-2 (202 µg/kg) at reported concentrations less than the EPA residential soil RSL of 240 µg/kg.

Sample TH-3B-TP01-1.7 BLUE was collected from a discrete interval consisting of less than 0.5 cubic foot of an anomalous and isolated blue-stained material. This material was not observed at other locations at the subject site. For sample TH-3B-TP01-1.7 BLUE, concentrations of aluminum (152,000 mg/kg), arsenic (19.4 mg/kg), and copper (17,000 mg/kg) were reported in exceedance of the EPA residential soil RSLs (MDE ATC for Central Maryland for arsenic): 77,000 mg/kg, 4.9 mg/kg, and 3,100 mg/kg respectively. It is noted that the sample (TH-3B-TP01-1.7 BLUE) was not evaluated in the human health risk assessment (HHRA) because this sample is identified as anomalous and consisted of an isolated small quantity of material and the majority of the material was removed as part of sample collection.

As part of the HHRA approach, detected chemicals were compared to both risk-based screening values and the MDE ATCs. This HHRA evaluated potential concerns with chemicals detected in analytical results from soils of the Phase II ESA investigation. Future use of the subject site is anticipated to be a public school and recreation area. MDE groups schools into a Level 1 Public Recreational Area (High Frequency Use). A high frequency public recreational area is defined as any area that is available for recreational use by all populations at the highest potential exposure frequency. The analytes arsenic, hexavalent chromium, lead, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and dieldrin were evaluated by the HHRA to characterize the nature and magnitude of potential health risks to humans under anticipated current and future use scenarios for the subject site.

For sitewide surface and subsurface soil, the risk results for all receptors are less than the MDE remedial action levels. Findings of the Phase II ESA indicate that concentrations of evaluated analytes in surface and subsurface soils are acceptable for the intended use, per the MDE requirements and the EPA School Siting Guidelines (EPA 2011a), with the exception of the sample location with the maximum detection of lead, surface soil at TH-2D-TP01, may present a concern for potential receptor exposure. Therefore, surface soil lead impacts at TH-2D-TP-01 are recommended for offsite removal and proper disposal prior to or during site redevelopment, followed by confirmatory sampling. In addition, all debris and municipal waste is recommended for offsite removal and proper disposal prior to or during site redevelopment.

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1. INTRODUCTION

1.1 PURPOSE AND SCOPE

EA Engineering, Science, and Technology, Inc., PBC (EA) completed a Phase II Environmental Site Assessment (ESA) of the Troy Hill Park parcels (the subject site). The purpose of this investigation was to obtain additional environmental information to evaluate the Recognized Environmental Conditions (RECs) described in the May 2019 Phase I ESA and to assist Howard County with making informed decisions regarding the planned future use of the property.

EA conducted this Phase II ESA in accordance with EA Proposal 0752018, dated 8 July 2019, under the November 2010 Consulting Services Agreement CA#11-10, between Howard County, Maryland, and EA. This Phase II ESA was performed in accordance with Standard Practice for ESAs: Phase II ESA Process – ASTM International Standard E-1903-11 requirements. The investigation was focused on the assessment of potential impacts to surface and subsurface soil at multiple investigation areas associated with the RECs described in the Phase I ESA Report. To meet this objective, a 2-week field investigation was performed to install test pit excavations and to collect surface and subsurface soil samples for laboratory analysis.

Supporting documentation is provided in the appendices as follows:

- Appendix A – Figures
- Appendix B – Tables
- Appendix C – Standard Operating Procedures
- Appendix D – Test Pit Logs
- Appendix E – Laboratory Analytical Reports.

Note: Report Revision 01 was issued in March 2020 in response to an inconsistency identified by EA between the results for certain samples presented on Figure 3 versus the data tables. The data tables were confirmed to be correct and Figure 3 has been updated. No other portions of the report or its appendices were affected by the revision and the report was re-dated accordingly.

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2. BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The Troy Hill Park parcels are addressed as shown below in Table 1-1 and are located in Elkridge, Howard County, Maryland. The subject site is composed of eight individual parcels totaling 100.948± acres within an area of mixed property use, including residential, industrial, and commercial properties. Each of the eight parcels had different historical uses, as described in the May 2019 Phase I ESA report. The majority of the subject site consists of unimproved wooded land, with the exception of Parcel 0561, which is currently developed as Troy Hill Park. Troy Hill Park is a Howard County recreational and sports complex that contains the remnants of the historical Troy Mansion. The boundaries of the subject site are depicted on Figure 1 (Appendix A).

Table 2-1 Subject Site Details

Tax Map	Tax Parcel	Lot	Total Size of Parcel (acres)	Owner	Tax Address
37	0561	--	52.31	Howard County	6500 Mansion Lane
37	0342	--	1.305	Howard County	7196 Washington Boulevard
37	0135	A21	12.201	Howard County	6450 Mansion Lane
37	0135	A22	3.992	Howard County	6451 Mansion Lane
37	0185	--	10	Howard County	Private Road
37	0345	--	17.9047	Howard County	Route 100
37	0336	D	1.3353	Howard County	7054 Washington Boulevard
37	0190	--	1.9	Howard County	N Boulevard and Hanover Road

2.2 PREVIOUS INVESTIGATIONS

EA May 2019 Phase I ESA, Troy Hill Park Parcels, Elkridge, Maryland (EA 2019)

The Final Phase I ESA for the subject site was issued in May 2019 and identified the following RECs:

1. On Parcel 0342, an orchard was observed during the aerial photograph review between 1938 and 1952. Additionally, two orchards were observed on Parcel 0561 during the aerial photograph review between 1952 and 1963. Given the period of use of the orchard, applied orchard chemicals may have impacted the subject site.
2. Throughout currently undeveloped portions of the subject site, most notably on Parcels 0342, 0185, and 0345, evidence of onsite small-scale, large-scale, and nuisance trespasser-type waste disposal was observed. Findings ranged from isolated areas of waste tires and trash, to large areas that included: construction debris, discarded household items, automotive debris (e.g., oil filters, oil cans, tires), vehicular carcasses, and industrial items including abandoned paving equipment and 55-gallon (gal) drums. Additionally, Parcel 342 (previously the Nickel property), now void of most former wastes, contained extensive piles of waste until circa 2006–2007. The improper

deposition of wastes is likely to have resulted in a past release of hazardous substances or petroleum products at the subject site.

3. The site previously contained structures and improvements that are associated with features and activities with the potential for past release of hazardous materials or petroleum products, related to former wells and septic systems, remnant or former underground storage tanks (USTs), and onsite burning/fire training.

Geophysical Survey Results – 2003 Troy Hill Site Phase II prepared by Weston Solutions, Inc. (Weston 2003)

The 2003 geophysical survey included investigation of six of the twelve Areas of Concern identified in the 2002 Weston Phase I ESA. A geophysical investigation was performed by Weston between 2 December and 4 December 2002 within the Troy Hill Parcels 371, 0345, 186, and 0561. Electromagnetic (EM) and ground penetrating radar (GPR) methods were used to scan the subsurface and delineate and map anomalies indicative of buried subsurface cultural features, including potential underground storage tanks. A total of 12 anomalies were detected throughout the six AOCs investigated through geophysical methods at Troy Hill Parcels, seven of which were listed as high priority.

3. METHODOLOGY

3.1 SITE INVESTIGATION

Field activities followed requirements contained in EA's General Health and Safety Plan for Hazardous Waste and Environmental Services (EA 2018), as well as the site-specific Health and Safety Plan Addendum that was prepared prior to fieldwork. Level D personal protective equipment was used for the duration of the investigative activities.

3.1.1 Utility Avoidance

Prior to the start of fieldwork, EA contacted Miss Utility to request utility clearance and received Ticket Number 19470000. EA renewed the utility clearance request on 30 July and received Ticket Number 19518118.

3.1.2 Sampling Methodology and Rationale

The three RECs identified as potential sources of contamination during the Phase I ESA were developed into multiple investigation areas, based on the identified conditions and analytical requirements. The investigation areas are shown on Figure 2 and the sampling/investigation rationale for each area is presented in Table 3-1.

Investigation area 1C was initially developed based on the presence of a historical orchard; however, no intrusive activities were performed at this location due to its current improvement as a parking lot. Based on the RECs described in the Phase I ESA, the investigation was focused on identifying potential impacts to soils across the site through the installation of test pit excavations and the collection of discrete surface and subsurface soil samples.

The investigation also included an assessment of anomalies listed in the 2003 Weston geophysical investigation report as "high priority" and/or large magnetic anomalies. Seven anomalies were listed in the 2003 Weston report as high priority, and five anomalies were listed as low priority. As part of this investigation, test pits were installed to assess five of the seven high priority anomaly locations. Of the remaining two high priority locations, Weston Anomaly ID A12-2 was field-verified as a building foundation and Weston Anomaly ID P561-1 is located on a steep hillside. This location was inaccessible for excavation activities and was therefore excluded from assessment. Three of the five anomalies from the Weston report that were listed as low priority were also addressed as a part of this investigation at locations which were coincident with suspect surficial waste or were installed to ensure adequate site coverage..

Table 3-1 Sampling Rationale

REC¹ No. / Parcel		Description	Approach	Soil Analytes	No. Soil Samples	No. Test Pits
1A / 342	Historical Orchard at Parcel 0342 (Northeast Corner)	One orchard was observed during the aerial photograph review of Parcel 0342 between 1938 and 1952. Given the period of use of the orchard, applied orchard chemicals may have impacted the subject site. The area is estimated to be approximately 0.2 acre.	Collected discrete shallow soil samples from the footprint of the former orchards via hand auger.	Pesticides / herbicides, PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	2 Surface	0
2A / 342	Remnant Structures Dump Area at Parcel 0342	Extensive piles of waste were present at Parcel 0342 until circa 2006–2007 when waste was removed by the former property owner. Remnant waste observed during the site reconnaissance included a buried metal drum, drum lid, an empty 1-gal can, an empty drum, household debris, remnant structures, rusted metal, rusted metal equipment, and shingles. Area corresponds to Weston Anomaly identifications (IDs) P561-1 through P561-3. Parcel 342 is 1.3 acres.	Collected surface and subsurface soil samples distributed across Parcel 0342, biased to areas suspected to contain former waste. Attempted to identify Weston Anomalies IDs P561-2 and P561-3. Weston Anomaly ID P561-1 was inaccessible for excavation activities.	Pesticides / herbicides, PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	3 Surface 3 Subsurface	3

¹ REC No. presented herein are intended to cross-reference to the REC No. presented in the May 2019 EA Phase I ESA. The subsequent letter designations, e.g., 1A, were established during the Phase II ESA. The REC number/lettering was retained throughout to distinguish between areas investigated in the Phase II ESA.

Table 3-1 Sampling Rationale

REC¹ No. / Parcel		Description	Approach	Soil Analytes	No. Soil Samples	No. Test Pits
3D / 342	Fire Training/ Burning Area at Parcel 0342	A burn permit to conduct fire training was issued for Parcel 0342 (previously the Nickel property) in 2010. It is unknown if materials present circa 2006 proximal to the structures were also burned. No detail was available regarding the means or methods used in the burning and fire-fighting exercises; however, these activities generally have the potential to release hazardous substances or petroleum products. Parcel 342 is 1.3 acres.	Conducted visual assessments around the former building locations at Parcel 0342 where burning activities are suspected to have occurred. Collected surface and subsurface soil samples to evaluate suspect areas.	Pesticides / herbicides, PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	4 Surface 5 Subsurface	4
1B / 561	Historical Orchard at Parcel 0561 (North)	Two orchards were observed on Parcel 561 during the aerial photograph review of Parcel 0561 between 1952 and 1963. Given the period of use of the orchard, applied orchard chemicals may have impacted the subject site. The area is estimated to be approximately 0.3 acre.	Collected discrete shallow soil samples via hand auger from the footprint of the former orchards.	Pesticides / herbicides, RCRA Metals, hexavalent chromium	4 Surface	0
1C / 561	Historical Orchard at Parcel 0561 (South)	Two orchards were observed on Parcel 561 during the aerial photograph review of Parcel 0561 between 1952 and 1963. Given the period of use of the orchard, applied orchard chemicals may have impacted the subject site. The area is estimated to be approximately 0.5 acre.	The footprint of the former orchard is currently improved as a parking lot. Therefore, samples would be unlikely to represent the historical orchard surface soils; no soil samples were collected.	--	0	0

Table 3-1 Sampling Rationale

REC¹ No. / Parcel		Description	Approach	Soil Analytes	No. Soil Samples	No. Test Pits
2F / 185	Waste Deposition – Parcel 0185 (Northeastern Areas)	Remnants of a former residential structure and small outbuildings were observed within Parcel 0185. These remnants included: concrete blocks, steel posts, household debris, bottles, tires, rusted metal debris, two 5-gal rusted metal gas cans, empty small rusty drums/buckets and multiple rusted metal objects. The extent of this area is approximately 1 acre.	Installed a test pit to determine depth of waste. Collected surface and subsurface soil samples to evaluate suspect areas.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	1 Surface	1
					1 Subsurface	
3A / 185	Piping at Residential Structure Remnants – Parcel 0185	Remnants of a former residential structure were observed within the northern clearing of Parcel 0185. These remnants included: two pipes that could not be otherwise ruled out and are suspect UST pipes. One pipe is situated adjacent to chain-link fencing and was less than 1 ft high. The second is approximately 4 ft high, 2-inch diameter, and was observed near concrete blocks.	Conducted a magnetometer-assisted intrusive survey of this area before installation of a test pit. Determined terminus of the pipes and absence of USTs. Two of the three test pit locations were selected for investigation of suspect metal pipes. In the absence of evidence of USTs at these locations, no samples were collected.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	1 Surface 1 Subsurface	3
2G / 185	Waste Deposition – Parcel 0185 (Western/ Southern Areas)	Near the boundary with Parcel 0345 four empty 55-gal rusted drums, 5-gal empty buckets, household debris, construction debris, glass bottles, a truck diesel fuel tank, and other related debris was observed north of, and at the stream bank. The extent of this area is estimated as less than 1 acre.	Installed test pits to determine depth of waste. Collected surface and subsurface soil samples to evaluate suspect areas.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	2 Surface 2 Subsurface	2

Table 3-1 Sampling Rationale

REC¹ No. / Parcel		Description	Approach	Soil Analytes	No. Soil Samples	No. Test Pits
2B / 345	Waste Deposition – Discarded Vehicle Area Northern Portion of Parcel 345	Multiple areas with discarded waste were previously identified on Parcel 0345, including an area that contained junk vehicles in the northernmost portion of the parcel. Area includes corresponding Weston Anomaly ID A21-1 (Low Priority). The northern portion of the parcel (north of the stream) is approximately 10.5 acres.	Using an approximate grid to ensure adequate site coverage but biased to areas with current and historical surficial waste, installed test pits to determine depth of waste. Collected surface and subsurface soil samples to evaluate suspect areas. No test pits were installed to investigate Weston Anomaly ID A21-1. Based on the description included in the Weston report, this anomaly location is listed as low priority and was not likely to be associated with a UST; therefore, test pits in the vicinity were instead installed to ensure adequate site coverage.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	10 Surface 10 Subsurface	10
2C / 345	Waste Deposition – Waste on Southern Portion of Parcel 345 (Western Side)	The southern portion of the site contained surficial evidence of automotive waste, tires, and other partially buried wastes throughout. This portion of the parcel (far western portion south of the stream) is approximately 2 acres.	Biased to areas with current and historical surficial waste, installed test pits to determine depth of waste. Collected surface and subsurface soil samples to evaluate suspect areas.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	4 Surface 4 Subsurface	4

Table 3-1 Sampling Rationale

REC¹ No. / Parcel		Description	Approach	Soil Analytes	No. Soil Samples	No. Test Pits
2D / 345	Waste Deposition – Waste on Southern Portion of Parcel 345 (Middle Portion – Old Parcel 186 Lot 5/6 Area)	The southern portion of the site contained evidence of surficial and partially buried wastes throughout. A dilapidated former tow-behind trailer was observed surrounded by scrap metal, tires and construction debris, remains of paving equipment including waste such as household debris, scrap metal, construction debris, and car parts. This area corresponds to Weston Anomaly ID A8-1. This portion of the parcel (middle portion south of the stream) is approximately 2.5 acres.	Using an approximate grid to ensure adequate site coverage but biased to areas with current and historical surficial waste, installed test pits to determine depth of waste. Collected surface and subsurface soil samples to evaluate suspect areas. Attempted to identify Weston Anomaly ID A8-1.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	6 Surface 6 Subsurface	6
2E / 345	Waste Deposition – Waste on Southern Portion of Parcel 345 (Eastern Portion – Old Parcel 186 Lot 3/4 Area)	The southern portion of the site contained evidence of surficial and partially buried wastes throughout. A building foundation was observed and surrounded by scrap metal, tires and construction debris, remains of paving equipment including waste such as household debris, scrap metal, construction debris, and car parts. This portion of the parcel (eastern portion south of the stream) is approximately 3 acres.	Biased to areas with current and historical surficial waste, installed test pits to determine depth of waste. Collected surface and subsurface soil samples to evaluate suspect areas.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	1 Surface 1 Subsurface	1

Table 3-1 Sampling Rationale

REC¹ No. / Parcel		Description	Approach	Soil Analytes	No. Soil Samples	No. Test Pits
3B / 345	Suspect Fill Pipe/UST at Southern Portion of Parcel 345 (Old Parcel 186 Lot 5/6 Area)	The Weston Phase II ESA (2003) ground-penetrating radar investigation identified metallic anomalies in this area of the site. Previous Phase I ESA investigations identified a concrete and asphalt pad with a possible fill pipe for a UST near the southern corner of Parcel 186 Lots 5 and 6, adjacent to the Route 100 West entrance ramp from Washington Boulevard. The potential for a UST to remain at this location exists; this area corresponds to Weston Anomaly IDs A12-1 through A12-3. This portion of the parcel (middle portion south of the stream) is approximately 3 acres.	Conducted a magnetometer-assisted intrusive test pit investigation to search for the former concrete pad and/or former UST(s) and attempted to identify Weston Anomaly ID A12-1. Collected surface and subsurface soil samples to evaluate suspect areas. Collected a sample of anomalous potential source material. Weston Anomaly ID A12-2 was field-verified to be a partially buried building foundation; therefore, no test pit was installed at this location. No test pits were installed to investigate Weston Anomaly ID A12-3. Based on the description included in the Weston report, this anomaly location is listed as low priority and is not likely to be associated with a UST.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	1 Surface 1 Subsurface 1 potential source material	1

Table 3-1 Sampling Rationale

REC¹ No. / Parcel		Description	Approach	Soil Analytes	No. Soil Samples	No. Test Pits
3C / 345	Former USTs at Parcel 0345 (Eastern Portion – Old Parcel 186 Lot 3/4 Area)	Four USTs were removed from Parcel 0345 within the Maryland Route 1 and Route 100 right-of-way; two of the tanks were 1,000-gal USTs containing paint thinner and the other tanks were a 2,000-gal UST containing #2 oil and a waste oil tank (1,000 gal). The report indicated that USTs were perforated on top at several locations, but no evidence of product release was observed. Potential impacts to soil may be present as a result of the UST defects. These tanks are believed to have been located on the southern portion of Parcel 345. This area corresponds to Weston Anomaly IDs A5-1 through A5-4. This portion of the parcel (eastern portion south of the stream) is approximately 3 acres.	Attempted to identify Weston anomalies A5-1 through A5-4. It is estimated the historical USTs were in the area of the present-day ramp to Maryland Route 100. Test pits were installed at downgradient locations from the historical USTs. Collected surface and subsurface soil samples to evaluate suspect areas.	PAHs, PCBs, TPH DRO/GRO, RCRA Metals, hexavalent chromium	4 Surface 5 Subsurface	4
Notes: DRO = Diesel range organics GRO = Gasoline range organics PAH = Polycyclic aromatic hydrocarbon PCB = Polychlorinated biphenyl RCRA Metals = arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver TPH = Total petroleum hydrocarbons Weston = Weston Solutions, Inc.						

Soil sampling was conducted in accordance with EA Standard Operating Procedure (SOP) No. 025 for Soil Sampling (Appendix C). Field duplicate samples were collected 1 per 10 samples per analytical method. Observations (e.g., soil description, photoionization detector [PID] reading, visual staining, and olfactory evidence) were recorded on test pit logs (Appendix D).

At each test pit location, the observed soil stratum was logged and described for grain size, composition percentages, relative sorting, and color, and classified in accordance with the Unified Soil Classification System by field personnel. An aliquot of soil from each sample interval was bagged and the headspace was field screened for volatile organic compounds with a PID in accordance with EA SOP No. 011 for PID (Appendix C). In addition, visual/olfactory observations of potential impacts were recorded as warranted. Photographs were collected at each location to document the observations and sampling activities (Appendix D). Test pit locations were documented in the field using a Trimble® global positioning system unit and are presented on Figure 2 (Appendix A).

Thirty-nine test pits were installed at the subject site and soil samples were collected from the surface (0–2 feet [ft] below ground surface [bgs]) and variable subsurface intervals. At test pit locations where no subsurface waste was observed, the subsurface soil sample was collected from 4–5 ft bgs. At test pit locations where subsurface waste was observed, the subsurface soil sample was collected from the 1-ft interval below the deepest evidence of waste. Terminal depth of the test pit excavations was determined by field conditions and the objective of the investigation in the area. Six locations were investigated via hand auger for collection of surface samples. All samples were collected from discrete intervals.

At each test pit location where samples were collected, sampling involved scraping the excavator bucket along the sidewall of the excavation at the desired interval followed by collection of the sample using disposable scoops from the excavator bucket soils. Soils were homogenized in a plastic bag before being containerized into appropriate sample jars.

As noted in Table 3-1, in several areas, test pits were installed, but no sample was collected. For example, test pits in areas 3B and 3C were installed to assess previously identified magnetic anomalies (Weston 2003). If the source of the magnetic anomaly was not positively identified, these excavations were installed to a maximum achievable depth of approximately 12–13 ft bgs. Insufficient groundwater was encountered at these locations and no groundwater samples were collected. In the case of test pit locations selected solely for investigation of potential former USTs (TH-3A-TP01 and TP02), if no evidence of a UST was observed as a result of excavation, no samples were collected.

3.1.3 Sample Handling and Laboratory Analysis

Upon completion of sampling, the necessary entries on the chain-of-custody (COC) forms were completed by the field personnel. Turnaround time (standard 10-day) was noted on the COC for samples submitted to Maryland Spectral Services, Inc. The clean, laboratory-provided sample jars were labeled, filled, and placed into an iced cooler immediately after sampling. At the end

of the sampling day, the COC was placed in a waterproof plastic bag and taped to the inside lid of the cooler. Samples were subsequently submitted to Maryland Spectral Services, Inc.

Laboratory methods utilized by the receiving laboratory (Maryland Spectral Services, Inc.) are as follows:

- Resource Conservation and Recovery Act (RCRA) Total Metals: arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver by U.S. Environmental Protection Agency (EPA) Method 6020A
- Hexavalent chromium by EPA Method 7199
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM
- Polychlorinated biphenyls (PCBs) by EPA Method 8082A
- Total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by EPA Method 8015C
- TPH-diesel range organics (DRO) by EPA Method 8015C
- Target Compound List (TCL) organochlorine pesticides by EPA Method 8081B
- TCL herbicides by EPA Method 8151A.

The anomalous sample of blue material was submitted for an expanded analytical suite. Samples were submitted for the same analytes as above, except Target Analyte List metals (EPA Method 6020) were analyzed in lieu of RCRA metals, and pH was also included (EPA Method 9040B). Target Analyte List metals include the following: Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

3.1.3.1 Sample Nomenclature

Soil jars were labeled with a unique sample identification name to coincide with the Site (Troy Hill [TH]), the REC (2A), the test pit or hand auger location (TP01, HA01), and the depth interval (0-2). For example, the surface soil sample collected from the first test pit within REC 2A was named: TH-2A-TP01-0-2 and the first field duplicate sample was named DUP-1.

3.1.3.2 Quality Control Samples

9 field duplicate samples were submitted for laboratory analysis to monitor sampling and laboratory quality control (QC) of the 83 parent soil samples collected as part of this investigation. No QC sample was submitted for the anomalous blue material sample. A record of

QC samples was maintained as a part of the field sampling documentation in the field notebook. A brief description of the QC samples and collection procedures is provided below.

Field Duplicates

Field duplicates are co-located samples (collected at the same time from the same location using the same sampling procedures) that are analyzed to evaluate the precision of the sampling and analysis system. The field duplicate samples were collected at a rate of 1 per 10 and were submitted for laboratory analysis without indication of which investigative sample the duplicate represented. Field duplicates were analyzed for the same constituents as the parent samples.

3.1.4 Equipment Decontamination

Decontamination procedures followed EA SOP No. 005 for Field Decontamination (Appendix C). Non-dedicated sampling equipment (hand auger and hand tools) was decontaminated between collection of each sample. Decontamination of the excavator bucket was not performed between test pit excavations as per EA SOP No. 005 because no direct contact occurred between the bucket and the soil to be sampled.

3.1.5 Investigation-Derived Waste

Investigation-derived waste (IDW) consisted of small quantities (less than 100 milliliters per location) of decontamination water resulting from sampling activities. IDW from decontamination and sampling was not containerized and was discharged onsite. Unearthed soil and debris were backfilled and compacted on the same day as test pit installation; encountered waste materials were not segregated from soils during test pit activities. IDW such as used personal protective equipment, sample labels, and soiled paper towels was collected and disposed offsite as municipal trash.

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4. RESULTS

4.1 TEST PIT EXCAVATIONS

Test pit locations are shown on Figure 2 (Appendix A). Photographs of field investigation activities are provided in Appendix D. Field observations and descriptions of the soils observed during the investigation are presented in Appendix D and summarized in Table 4-1.

Table 4-1 Excavation Results Summary

REC No. / Parcel		Test Pit No.	Surface Observations	Subsurface Observations
2A	Remnant Structures Dump Area at Parcel 0342	2A-TP01	Vegetation. Sample collected from 0–2 ft bgs.	2A-TP01 was installed to investigate P561-3; no waste was observed in this test pit. 2A-TP-02 was installed to investigate P561-2; no waste was observed in this test pit. Scattered surficial debris was observed on the surface of 2A-TP-03, but no waste was observed in the subsurface. No elevated PID, staining, or olfactory evidence observed. Subsurface sample collected from 4–5 ft bgs. Total depth of 2A test pits = 5 ft bgs.
		2A-TP02	Vegetation. Sample collected from 0–2 ft bgs.	
		2A-TP03	Glass, concrete, brick, and asphalt waste. Sample collected from 0–2 ft bgs.	
2B	Waste Deposition – Discarded Vehicle Area Northern Portion of Parcel 345	2B-TP01	Remnant vehicle. Sample collected from 0–2 ft bgs.	No waste, elevated PID, staining, or olfactory evidence observed. Subsurface sample collected from 4–5 ft bgs. Total depth of 2B and 2C test pits = 5 ft bgs.
		2B-TP02	Vegetation. Sample collected from 0–2 ft bgs.	
		2B-TP03	Vegetation. Sample collected from 0–2 ft bgs.	
		2B-TP04	Vegetation. Sample collected from 0–2 ft bgs.	
		2B-TP05	Vegetation. Sample collected from 0–2 ft bgs.	
		2B-TP06	Soil with sparse vegetation. Sample collected from 0–2 ft bgs.	
		2B-TP07	Drainage area. Sample collected from 0–2 ft bgs.	
		2B-TP08	Vegetation. Sample collected from 0–2 ft bgs.	
		2B-TP09	Vegetation. Sample collected from 0–2 ft bgs.	
		2B-TP10	Vegetation. Sample collected from 0–2 ft bgs.	
2C	Waste Deposition – Waste on Southern Portion of Parcel 345 (Western Side)	2C-TP01	Motor oil cans, rusted gas cans, concrete. Sample collected from 0–2 ft bgs.	
		2C-TP02	Mounded non-native sand: tan, well sorted, clean. Sample collected from 0–2 ft bgs.	
		2C-TP03	Rusted 55-gal drum, automotive waste. Sample collected from 0–2 ft bgs.	
		2C-TP04	Vegetation. Sample collected from 0–2 ft bgs.	

Table 4-1 Excavation Results Summary

REC No. / Parcel		Test Pit No.	Surface Observations	Subsurface Observations
2D	Waste Deposition - Waste on Southern Portion of Parcel 345 (Middle Portion – Old Parcel 186 Lot 5/6 Area)	2D-TP01	Glass bottles and transite tile. Sample collected from 0–2 ft bgs.	No waste, elevated PID, staining, or olfactory evidence observed. Subsurface sample collected from 4–5 ft bgs. Total depth of test pit 2D-TP03 = 12 ft bgs. Total depth of other test pits = 5 ft bgs.
		2D-TP02	Bottles, tires, and municipal waste. Sample collected from 0–2 ft bgs.	
		2D-TP03	1.5 ft of mounded brick, concrete, metal pipe, and miscellaneous building materials. Sample collected from 0–2 ft bgs.	
		2D-TP04	Automotive waste, concrete, bottles, steel wire. Sample collected from 0–2 ft bgs.	
		2D-TP05	Tar hopper, tires, steel cable. Sample collected from 0–2 ft bgs.	
		2D-TP06	Two bulging rusted 55-gal drums, sparse vegetation, kitchen equipment/waste. Sample collected from 0–2 ft bgs.	No waste, elevated PID, staining, or olfactory evidence observed. Refusal encountered at 3.5 ft bgs – competent rock. Subsurface sample collected at deepest achievable interval (2–3 ft bgs). Results of the excavation indicate that anomaly A8-1 may be potentially associated with a former building foundation. Total depth of test pit = 3.5 ft bgs.
2E	Waste Deposition – Waste on Southern Portion of Parcel 345 (Eastern Portion – Old Parcel 186 Lot 3/4 Area)	2E-TP01	Concrete cinderblock. Sample collected from 0–2 ft bgs.	No waste, elevated PID, staining, or olfactory evidence observed. Subsurface sample collected from 4–5 ft bgs. Total depth of test pits = 5 ft bgs.
2F	Waste Deposition – Parcel 0185 (Northeastern Areas)	2F-TP01	Tires, automotive parts, rusted 5-gal drum. Maximum PID: 13.5 ppm from 0–1 ft bgs. Sample collected from 0–2 ft bgs.	
2G	Waste Deposition – Parcel 0185 (Western/Southern Areas)	2G-TP01	Municipal waste, tires, automotive parts, gas cans. Sample collected from 0–2 ft bgs.	
		2G-TP02	Four 55-gal drums, automotive waste, glass bottles. Sample collected from 0–2 ft bgs.	

Continued on next page.

Table 4-1 Excavation Results Summary

REC No. / Parcel		Test Pit No.	Surface Observations	Subsurface Observations
3A	Piping at Residential Structure Remnants – Parcel 0185	3A-TP01	Suspect metal pipe, chain-link fence, concrete walkway. No evidence of a UST observed – no sample collected.	Observed oyster shells and a 3-inch-long, 2-inch-diameter metal pipe filled with sand from 0–0.5 ft bgs. Suspect metal pipe determined to be installed as a gate stop. No evidence of a UST observed – no sample collected. Total depth of test pit = 5 ft bgs.
		3A-TP01 Offset	Vegetation and subsurface magnetic anomaly. No evidence of a UST observed – no sample collected.	Observed a vertical 1.5-ft-long, 2-inch-diameter metal pipe likely associated with the former chain-link fence. No evidence of a UST observed – no sample collected. Total depth of test pit = 3 bgs.
		3A-TP02	Suspect metal pipe, cinderblock, chain-link fence, miscellaneous building materials. No evidence of a UST observed – no sample collected.	4.6-ft-long, 2.5-inch-diameter suspect pipe found to be buried to 1.5 ft bgs with no connections or concrete foundation. Determined to be associated with former chain-link fence. No evidence of a UST observed – no sample collected. Total depth of test pit = 5 ft bgs.
		3A-TP03	Brick, cinderblock, municipal waste. Sample collected from 0–2 ft bgs.	No waste, elevated PID, staining, or olfactory evidence observed. Subsurface sample collected from 4–5 ft bgs. Total depth of test pit = 5 ft bgs.
3B	Suspect Fill Pipe/UST at Southern Portion of Parcel 345 (Old Parcel 186 Lot 3/4 Area)	3B-TP01	Vegetation and subsurface magnetic anomaly. Sample collected from 0–2 ft bgs.	Results of the excavation indicate anomaly A12-1 is resultant from a buried septic tank. 2-inch-diameter steel cap observed at 1.5 ft bgs. Sheet metal observed at 1.7 ft bgs. 4-ft-diameter steel tank lid observed at 1.8 ft bgs covering cylindrical concrete tank. 1.05-ft-long, 3-inch-diameter terracotta pipe and 55-gal drum collar observed adjacent to tank lid at 1.8 ft bgs. Blue-stained material observed just above the drum collar. 2-inch-diameter polyvinyl chloride pipe associated with tank observed trending northwest at 2 ft bgs. Lifted tank lid at 0915 on 7/31/19 – 0% lower explosive limit and 0.0 ppm. Observed water at 1.51 ft below tank lid. Sounded bottom of tank at 4.65 ft below tank lid. Tank determined to be septic. Samples collected from the anomalous blue material at 1.7 ft bgs and the interval below the tank from 6.8–7.8 ft bgs in the direction of the suspected drain field (northwest of the tank). Total depth of test pit = 7.8 ft bgs.

Table 4-1 Excavation Results Summary

REC No. / Parcel		Test Pit No.	Surface Observations	Subsurface Observations
3C	Former USTs at Parcel 0345 (Eastern Portion – Old Parcel 186 Lot 3/4 Area)	3C-TP01	1.5 ft mounded sand, municipal waste, and brick. Refuse odor. Sampled 0–2 ft bgs.	No waste, elevated PID, or staining observed. Refuse odor. Subsurface sample collected from 4–5 ft bgs. Observations indicate anomaly A5-4 is likely resultant from scattered metallic surface debris. Total depth of test pit = 5 ft bgs.
		3C-TP02	Broken concrete slab, boulders, steel debris. Sampled 0–2 ft bgs.	Asphalt observed from 1 to 1.5 ft bgs. Dark gray staining, slight degraded petroleum odor, and wood, metal, and glass bottles observed from 9–11 ft bgs. Some light gray staining from 11–13 ft bgs. Sample collected from deepest achievable interval (12–13 ft bgs) due to observed staining at depth. Observations indicate anomalies A5-1 through A5-3 are likely resultant from scattered metallic surface debris / buried metallic waste. Total depth of test pit = 13 ft bgs.
		3C-TP03	4-inch-thick concrete pad and building foundation. Surface sample collected from offset location.	Carburetor, copper pipe, 2-inch-diameter ball valve, and large metal D-ring observed beneath the surficial concrete pad. Refusal encountered at 2 ft bgs – buried 6-inch-thick concrete slab. Subsurface samples collected at offset location. Observations indicate anomalies A5-1 through A5-3 are likely resultant from scattered metallic surface debris / buried metallic waste. Total depth of test pit = 2 ft bgs.
		3C-TP03 Offset	Vegetation. Sampled 0–2 ft bgs.	Asphalt observed from 0.75–1 ft bgs. Concrete observed at 3.5 ft bgs at northern end of excavation. Truck tire observed at 6 ft bgs. Wood and root material observed from 8–8.5 ft bgs. Anomalous bluish-gray soil observed below the observed waste from 8.5–12 ft bgs. Subsurface sample collected at 8–8.5 ft bgs to characterize the waste observed at that interval. Additional subsurface sample collected at deepest achievable interval (10.5–11.5 ft bgs) to characterize discolored soil underlying the observed waste. Observations indicate anomalies A5-1 through A5-3 are likely resultant from scattered metallic surface debris / buried metallic waste. Total depth of test pit = 12 ft bgs.

Continued on next page.

Table 4-1 Excavation Results Summary

REC No. / Parcel		Test Pit No.	Surface Observations	Subsurface Observations
3C	Former USTs at Parcel 0345 (Eastern Portion – Old Parcel 186 Lot 3/4 Area)	3C-TP04	Vegetation and a ½-inch-thick, 1.25-ft by 7.5-ft steel plate. Sample collected from 0–2 ft bgs.	Steel pipe observed at 0.5 ft bgs. Asphalt observed at 1 ft bgs. Steel rod observed at 1.5 ft bgs. Concrete observed at 2 ft bgs at southern end of excavation. Buried cans and glass bottles observed at 3 ft bgs. Dark stained silt with tree limbs and charred organic material from 3.5–4.5 ft bgs. 4-inch-thick 2-ft by 3-ft concrete piece observed at 4 ft bgs. Empty vehicle fuel tank observed at 4.5 ft bgs. Black to dark gray staining with wood material observed from 4.5–8 ft bgs. Gray discoloration observed from 8–12 ft bgs. Subsurface sample collected at the deepest achievable interval (11–12 ft bgs) to characterize the discolored soil underlying the observed waste. Results of the excavations in Area 3C indicate that anomalies A5-1 through A5-3 are likely resultant from scattered metallic surface debris as well as buried metallic waste. Total depth of test pit = 12 ft bgs.
3D	Fire Training/Burning Area at Parcel 0342	3D-TP01	Vegetation. Sample collected from 0–2 ft bgs.	Wire, metal pipe, concrete block, and brick observed to 3 ft bgs. concrete rubble observed in northern end of excavation from 3–5 ft bgs. No elevated PID, staining, or olfactory evidence observed. Subsurface sample collected from 4–5 ft bgs. Total depth of test pit = 5 ft bgs.
		3D-TP02	Vegetation. Sample collected from 0–2 ft bgs.	Dark gray staining with glass, plastic sheeting, brick, and asphalt to 2 ft bgs. No waste, elevated PID, staining, or olfactory evidence observed below 2 ft bgs. Subsurface sample collected from 4–5 ft bgs. Total depth of test pit = 5 ft bgs.
		3D-TP03	Vegetation. Sample collected from 0–2 ft bgs.	Dark gray staining, slight odor, maximum PID: 25.5 ppm (without moisture filter). Concrete block, brick, rebar, and non-native stone observed. Refusal encountered at 4 ft bgs – concrete foundation. Subsurface sample collected from 3–4 ft bgs within interval at which waste was observed. Additional subsurface sample collected at offset location. Total depth of test pit = 4 ft bgs.
		3D-TP03 Offset	Vegetation. Surface sample collected from original location.	Slight gray staining and slight petroleum odor observed from 1–2 ft bgs. No waste or elevated PID readings. Subsurface sample collected from 4–5 ft bgs, the interval below the observed waste at the original test pit location. Total depth of test pit = 5 ft bgs.
		3D-TP04	Vegetation. Sample collected from 0-2 ft bgs.	Dark brown to gray staining, slight petroleum odor, maximum PID: 46.3 ppm (without moisture filter) from 1–2 ft bgs. No waste observed. Subsurface sample collected from 2–3 ft bgs, the interval below the observed suspect soil. Total depth of test pit = 3.5 ft bgs.
Note: ppm = Part(s) per million.				

4.1.1 Subsurface Magnetic Anomaly Investigation

Test pits in areas 2A, 3C, and one test pit each in areas 3B and 2D were installed to assess previously identified subsurface magnetic anomalies (Weston 2003) as described in Section 3.1.2 and Table 3-1. During this Phase II ESA at these locations, a magnetometer was used to screen the subsurface for substantial and continuous magnetic responses. Test pits were installed where the most significant responses were observed in an attempt to resolve the anomaly.

- Test pits TH-2A-TP01 and TH-2A-TP02 were installed to investigate Weston anomalies P561-2 (high priority) and P561-3 (low priority). No surficial or subsurface waste was observed in these test pits. However, results of the excavation at TH-2A-TP-03 indicated surficial metallic debris, which potentially correlates with the description of P561-3 (scattered surface debris). Anomaly ID P561-1 (high priority) is located on a steep hillslope. This location was inaccessible for excavation activities and was therefore excluded from assessment.
- Test pit TH-2D-TP06 was installed to investigate Weston anomaly A8-1 (low priority), which was characterized by a rectangular depression rather than anomalous magnetic signatures. Results of the excavation indicate that this location may be potentially associated with a former building foundation. Refusal was encountered at 3.5 ft bgs at competent saprolite. No subsurface waste was observed.
- Test pit TH-3B-TP01 was installed to investigate Weston anomaly A12-1 (high priority). Results of the excavation indicate that the magnetic anomaly at this location was resultant from a buried septic tank. The GPS location of the tank was recorded, and the soils replaced above the tank. No test pit was installed at Weston Anomaly location A12-2 (high priority) as the anomaly was field-verified as a building foundation.
- Test pit TH-3C-TP01 was installed to investigate Weston anomaly A5-4 (low priority). Results of the excavation indicate that the magnetic anomaly at this location is likely resultant from scattered metallic surface debris. No buried subsurface waste was observed.
- Test pits TH-3C-TP02 through TP04 were installed to investigate Weston anomalies A5-1 through A5-3 (high priority). Results of the excavations indicate that the magnetic anomalies at these locations are likely resultant from scattered metallic surface debris as well as buried metallic waste. Several steel objects were observed in the subsurface at the locations as described in Table 4-1, but no evidence of USTs was observed.

4.2 LABORATORY ANALYTICAL RESULTS

Analytical results from the sampling event (Appendix E) were compared to the current residential EPA Regional Screening Levels (RSLs) for soil and the Maryland Department of the Environment (MDE) Residential Soil Cleanup Standards. EPA does not have an RSL for TPH because TPH encompasses an entire group of hydrocarbons, rather than an individual chemical;

therefore, the October 2018 MDE Cleanup Standards for Soil and Groundwater were used for screening TPH results. Screening level exceedances are shown in Figure 3 (Appendix A) and Table 4-2 (Appendix B).

The U.S. Geological Survey (USGS) published the professional paper titled *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States* (USGS 1984), which provides reference levels of metals (i.e., background concentrations) in soil across Maryland. These data were included as an appendix to the MDE Cleanup Standards for Soil and Groundwater (MDE 2018) and were used to develop the MDE Anticipated Typical Concentrations (ATCs) for metals in soil. MDE ATCs are used to determine if observed concentrations of selected metals are consistent with the concentrations observed in other investigations throughout Maryland. MDE ATCs have been established for concentrations of metals: aluminum, arsenic, chromium (total), iron, manganese, thallium, and vanadium. In Table 4-2 and Figure 3, the MDE ATC was also included as a screening value for arsenic for samples with arsenic concentrations that exceeded the US EPA RSL at the subject site.

4.2.1 Sampling Results

A total of 91 soil samples (82 parent and 9 duplicate samples) plus 1 sample of anomalous blue-stained material were submitted for laboratory analysis. Sample analysis at each location was determined by site history. Figure 3 includes sample results that were greater than the applicable screening levels. Tabulated analytical results are presented in Table 4-2 (Appendix B). For Figure 3 and the discussions below, the greater reported analyte concentration between parent and duplicate samples was retained. Sample TH-3B-TP01-1.7 BLUE was collected from a discrete interval consisting of less than 0.5 cubic foot (ft³) of an anomalous and isolated blue-stained material. This sample is not representative of the vertical soil profile at test pit location TH-3B-TP01 and is, therefore, discussed separately within this section.

All soil samples were analyzed for RCRA metals, plus hexavalent chromium. No metals were reported at concentrations greater than the EPA residential soil RSLs or the MDE ATC for Central Maryland, except for arsenic, lead, and hexavalent chromium.

- Arsenic was reported at concentrations greater than the EPA residential soil RSL of 0.68 milligram per kilogram (mg/kg) in all samples. Arsenic was reported at concentrations greater than the MDE ATC of 4.9 mg/kg in 19 soil samples (TH-3D-TP03-0-2, TH-3D-TP03-4-5, TH-1A-HA02-0-2, TH-2B-TP04-0-2, TH-2F-TP01-0-2, TH-2D-TP01-0-2, TH-3B-TP01-1.7 BLUE, TH-3B-TP01-0-2, TH-2D-TP04-0-2, TH-2C-TP01-4-5, TH-2G-TP01-0-2, TH-2G-TP02-0-2, TH-2B-TP07-4-5, TH-2B-TP03-4-5, TH-2B-TP03-0-2, TH-3D-TP04-2-3, TH-2A-TP03-4-5, TH-2A-TP03-0-2, and TH-2A-TP01-4-5). Reported arsenic concentrations were within an order of magnitude of the MDE ATC for Central Maryland and, therefore, may be considered a naturally occurring product of site geology.
- Lead was reported at a concentration greater than the EPA residential soil RSL of 400 mg/kg in one sample, TH-2D-TP01-0-2 (481 mg/kg).

- Hexavalent chromium was reported at concentrations greater than the EPA residential soil RSL of 0.3 mg/kg for 10 samples ranging from 0.313 to 1.47 mg/kg (TH-3D-TP02-0-2).

A total of 78 soil samples were analyzed for TPH-DRO and TPH-GRO. Reported TPH concentrations were less than the MDE residential soil cleanup standard and ranged from 0.13 to 0.15 mg/kg TPH-GRO and from 9.6 to 167 mg/kg TPH-DRO.

A total of 21 soil samples were analyzed for TCL pesticides and herbicides. Reported concentrations of TCL pesticides and herbicides were less than the EPA residential soil RSLs except for sample TH-3D-TP01-0-2. Dieldrin was detected in this sample at a reported concentration of 569 micrograms per kilogram (µg/kg), greater than the EPA residential soil RSL of 34 µg/kg.

A total of 78 soil samples were analyzed for PAHs. Reported PAH concentrations were less than the EPA residential soil RSLs for all but four samples. For sample TH-3C-TP04-0-2, concentrations of benzo[a]anthracene (1,440 µg/kg), benzo[b]fluoranthene (1,510 µg/kg), benzo[a]pyrene (1,480 µg/kg), dibenz[a,h]anthracene (273 µg/kg), and indeno[1,2,3-c,d]pyrene (1,160 µg/kg) were reported in exceedance of the EPA residential soil RSLs: 1,100 µg/kg, 1,100 µg/kg, 110 µg/kg, 110 µg/kg, and 1,100 µg/kg respectively. In addition, benzo[a]pyrene was reported at concentrations greater than the EPA residential soil RSL (110 µg/kg) for samples TH-3D-TP04-0-2 (242 µg/kg), TH-3C-TP03-0-2 (214 µg/kg), and TH-3C-TP02-0-2 (146 µg/kg).

A total of 78 soil samples were analyzed for PCBs. Reported PCB concentrations were less than the EPA residential soil RSLs for all samples. Aroclor 1260 was detected in TH-3C-TP02-0-2 (100 µg/kg) and in TH-3C-TP04-0-2 (202 µg/kg) at reported concentrations less than the EPA residential soil RSL of 240 µg/kg.

Sample TH-3B-TP01-1.7 BLUE was collected from a discrete interval consisting of less than approximately 0.5 ft³ of anomalous and isolated blue-stained material. This material was not observed at other locations at the subject site and the majority of the material was removed as part of sample collection. For sample TH-3B-TP01-1.7 BLUE, concentrations of aluminum (152,000 mg/kg), arsenic (19.4 mg/kg), and copper (17,000 mg/kg) were reported in exceedance of the EPA residential soil RSLs (MDE ATC for Central Maryland for arsenic): 77,000 mg/kg, 4.9 mg/kg, and 3,100 mg/kg respectively.

4.2.2 Data Validation

A formal data validation process was not required for this project. However, the data were reviewed for completeness and usability by the EA Data Manager. EA received nine sample delivery groups from Maryland Spectral Services, Inc. for the Phase II ESA at the subject site. The data packages were complete, and all samples were analyzed for the requested methods. There were no major issues identified for any of the data during review.

Relative percent difference (RPD) values were calculated for field duplicate pairs DUP-1/TH-1A-HA02-0-2, DUP-2/TH-3D-TP04-0-2, DUP-3/TH-2B-TP05-0-2, DUP-4/TH-3A-TP03-0-7, DUP-5/TH-2D-TP05-4-5, DUP-6/TH-3B-TP01-6.8-7.8, DUP-7/TH-3C-TP01-0-2, DUP-8/TH-3C-TP03-10.5-11.5, and DUP-9/TH-3C-TP03-8-8.5. The RPD values for parent and field duplicate samples were less than 40 percent (%) for the majority of the analytes. Only 14 RPDs were slightly greater than 40%, including anthracene, benzo[a]anthracene, benzo[b]fluoranthene, pyrene, arsenic, barium, chromium, lead, mercury, selenium, and hexavalent chromium. No RPDs were greater than 100%. None of the RPD values for parent and field duplicate samples resulted in qualification of the data, and all of the data were sufficiently precise for use.

There were minor laboratory QC issues listed in the laboratory reports. The common issue was surrogate samples with recoveries outside QC limits. None of the minor laboratory QC issues resulted in qualification of the data, and the usability of the data for decision-making was not impaired.

5. HUMAN HEALTH RISK ASSESSMENT

As shown in Tables 4-2 and 4-3, analytes that exceed the screening criteria at the site include arsenic, hexavalent chromium, lead, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and dieldrin. These analytes were evaluated further in a human health risk assessment (HHRA). The HHRA characterizes the nature and magnitude of potential health risks to humans from analytes with concentrations greater than screening criteria under anticipated current and future use scenarios for the subject site. When an analyte is detected at a concentration less than its residential soil screening level, exposure is not expected to result in health effects or concerns, and the analyte is not evaluated further. Analytes detected at concentrations that exceed residential soil screening levels do not necessarily represent a health concern. Instead, the results of the screening identify those analytes that warrant a more detailed, site-specific evaluation to determine whether health effects may occur. As a result, the HHRA evaluated the concentrations of the nine analytes mentioned above across the subject site.

This HHRA only evaluated potential concerns with chemicals detected in analytical results from soils of the Phase II ESA investigation. It is noted that the sample (TH-3B-TP01-1.7 BLUE) was not evaluated in the HHRA. This sample was collected from a discrete interval consisting of less than approximately 0.5 ft³ of an anomalous and isolated blue-stained material. This material was not observed at any other location at the subject site. Additionally, this sample is not representative of the vertical soil profile at test pit location TH-3B-TP01 and the majority of the material was removed as part of sample collection.

Soil samples were collected to assess overall distribution of potential contaminants at the site. Based upon the sample results, area REC 3C was evaluated separately in the HHRA due to higher concentrations of PAHs in samples collected in this area. The evaluation of REC 3C separately from the remainder of the site provides a protective evaluation of potential receptor exposures to PAHs in this area. It is noted that this area was proximal to the location of former USTs. Additionally, asphalt was observed in some of the test pits, which may be a source of elevated PAHs. The HHRA evaluated the site in two areas: REC 3C and remainder REC areas.

The risk assessment follows the risk assessment methodology and guidance as recommended by the EPA (1989, 2009) and MDE (2018). Risks determined in the HHRA are considered baseline risks associated with exposure to media evaluated at the subject site. The baseline risk assumes no means of exposure reduction and evaluates the reasonable maximum exposure that has the potential to occur at the subject site based upon EPA guidance (1989). Therefore, HHRA results are considered potential and should be used as a guideline in making risk management decisions.

5.1 CONCEPTUAL SITE MODEL

A conceptual site model was developed to identify all complete, potentially complete, or incomplete exposure pathways for the subject site, for current and anticipated future land uses. An exposure pathway is the course a chemical or physical agent takes from a source to a receptor. The conceptual site model evaluates the potential sources of contamination, routes of

migration, and potential receptors under the current and anticipated future use of the subject site. Exposure pathways begin from potential source areas and progress through the environment via various fate and transport processes to potential human receptors. A completed exposure pathway requires the following four components:

- A source and mechanism of chemical release to the environment
- An environmental transport medium for the released chemical
- A point of potential human contact with the contaminated medium
- A human exposure route at the point of exposure.

All four components must exist for an exposure pathway to be complete and for exposure to occur. Incomplete exposure pathways do not result in actual human exposure and are not a concern for human health. All four components must exist for an exposure pathway to be complete and for exposure to occur. Incomplete exposure pathways do not result in actual human exposure and are not a concern for human health.

Currently, the majority of the subject site consists of unimproved wooded land, with the exception of Parcel 0561, which is currently developed as Troy Hill Park. Troy Hill Park is a Howard County recreational and sports complex that contains the remnants of the historical Troy Mansion. The subject site is bounded to the north and northwest by Interstate 95 and the exit/entrance ramps to Route 100, to the east by an unnamed stream beyond which is an industrial area, to the south by the ramp from southbound Washington Boulevard to westbound Route 100, and to the west by westbound Route 100. Howard County has identified future use of the subject site as a potential school site and/or recreational complex. It is anticipated that the subject site and any associated future uses (i.e., a school facility) will fall under the category identified by MDE in the Cleanup Standards as Level 1: Public Recreational Areas (High Frequency Use) (MDE 2018). This level of public recreational area includes playgrounds, schools, golf courses, and picnic areas. These areas are available to a range of age groups at a high exposure frequency. The exposure frequency assumed for this type of receptor is 250 days per year (MDE 2018). Future use of the subject site is not expected to include residences.

Due to the potential for various age groups to visit the subject site, age ranges were grouped to mimic typical age ranges that correspond to specific school types (e.g., elementary, middle, and high). These age ranges would account for use of the subject site as a potential school as well as provide an indication of the typical age groups that may use the subject site for athletic fields or other recreational activities. The elementary school receptor was assumed from kindergarten to 5th grade with an age range of 5 to 11 years. The middle school receptor was assumed from 6th through 8th grade with an age range of 11 to 14 years. The high school receptor was assumed from 9th through 12th grade with an age range of 14 to 18 years. It is reiterated that the future use of the subject site has not been determined, and the age ranges identified in the HHRA are assumed to account for all potential recreational uses that may occur. Additionally, an adult was also assumed to account for workers or an adult who may also frequent the subject site for recreational uses. An adult is assumed at an age greater than 18 years.

Because the subject site will be used for recreational uses, as defined by MDE, trespassers may also potentially access the area. However, a recreational user is expected to have higher contact at a longer duration than a trespasser. The assessment of a recreational user adequately accounts for any trespasser exposure that may occur.

Typically, recreational users are not expected to dig at depths greater than 2 ft bgs. However, chemicals of potential concern (COPCs) were detected in samples collected within the 0 to 2 ft bgs depth and at depths greater than 2 ft bgs. Because re-use of the site may require excavation and soil movement, the potential receptors were evaluated for exposure to COPCs in the surface (i.e., 0 to 2 ft bgs) and subsurface (greater than 2 ft bgs).

5.2 EXPOSURE ASSESSMENT

To determine potential concerns for human health, an estimate of chemical intake or exposure is calculated. Two different measures of intake are calculated, depending on the nature of the effect being evaluated. When evaluating longer-term (i.e., chronic) exposures to chemicals that produce adverse non-carcinogenic effects, intakes are averaged over the period of exposure (i.e., the averaging time [AT]) (EPA 1989). This measure of intake is referred to as the average daily intake (ADI) and is a less than lifetime exposure. For chemicals that produce carcinogenic effects, intakes are averaged over an entire lifetime and are referred to as the lifetime average daily intake (LADI) (EPA 1989).

5.2.1 Exposure Intake Equations

Intake for the incidental ingestion of soil was estimated using the following equation:

$$(L)ADI = \frac{EPC \times IR \times EF \times ED \times CF \times RBA}{BW \times AT}$$

where:

- $(L)ADI$ = (Lifetime) Average Daily Intake (mg/kg-day)
- EPC = Chemical concentration in soil (mg/kg)
- IR = Ingestion Rate (mg/day)
- EF = Exposure Frequency (days/year)
- ED = Exposure Duration (years)
- CF = Conversion Factor (10^{-6} kilogram per milligram [kg/mg])
- RBA = Relative Bioavailability factor (unitless) (0.6 for arsenic, 1 for all other COPCs)
- BW = Body Weight (kilograms)
- AT = Averaging Time (days)
 - For non-carcinogens, $AT = ED \times 365$ days/year
 - For carcinogens, $AT = 70$ years $\times 365$ days/year.

It is noted that the intake for incidental ingestion of arsenic in soil was adjusted by a relative bioavailability (RBA) factor of 0.6. For chemicals where the medium of exposure differs from

the medium of exposure associated with the toxicity value, an adjustment to the exposure intake or toxicity value can be made (MDE 2013). The toxicity values for the analytes are based upon exposure to the analytes in water; however, exposures at the subject site are for exposure to the analytes in soil. To assume that the bioavailability of the analytes in soil is equal to that in water would result in an overestimate of potential risks. In accordance with EPA guidance, the RBA was applied to only the ingestion exposure route to account for lower bioavailability of the analytes in soil (EPA 2012).

Exposure associated with dermal contact with soil was estimated based upon the following equation:

$$(L)ADI = \frac{EPC \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT}$$

where:

- $(L)ADI$ = (Lifetime) Average Daily Intake (mg/kg-day)
- EPC = Chemical concentration in soil (mg/kg)
- SA = Surface Area for contact (square centimeters [cm^2])
- AF = Skin Adherence Factor ($\text{mg}/\text{cm}^2\text{-event}$)
- ABS = Absorption factor (dimensionless)
- EF = Exposure Frequency (days/year)
- ED = Exposure Duration (years)
- CF = Conversion Factor (10^{-6} kg/mg)
- BW = Body Weight (kilograms)
- AT = Averaging time (days)
 - For non-carcinogens, $AT = ED \times 365$ days/year
 - For carcinogens, $AT = 70$ years $\times 365$ days/year.

For inhalation, exposure concentrations (ECs) are calculated. ECs are time-weighted average concentrations from contaminant concentrations in air, adjusted based on the characteristics of the exposure scenario being evaluated.

The equation to calculate inhalation exposure concentration from soil is given below (EPA 2009):

$$EC = \frac{EPC \times ET \times EF \times ED \times CF_1}{AT \times CF_2}$$

where:

- EC = Exposure Concentration (milligrams per cubic meter [mg/m^3])
- EPC = Concentration of a chemical in air (mg/m^3)
- = Concentration of chemical in soil/particulate emissions factor (PEF)
- ET = Exposure Time (hours/day)
- EF = Exposure Frequency (days/year)
- ED = Exposure Duration (years)

- AT = Averaging Time (days)
For non-carcinogens $AT = ED \times 365 \text{ days/year}$
For carcinogens $AT = 70 \text{ years (lifetime)} \times 365 \text{ days/year} = 25,550 \text{ days}$
 CF_1 = Conversion Factor (1,000 micrograms per milligram) (applied to carcinogenic intakes only)
 CF_2 = Conversion Factor (24 hours/day).

The particulate emissions factor (PEF) relates the concentration of a chemical in soil with the concentration of dust particles in air and is used in determining the intake for inhalation of soil particulate exposures. Maryland's PEF default value of 7.8×10^7 was used (MDE 2018).

5.2.2 Exposure Point Concentration

The final step in the estimation of intake is the determination of the exposure point concentration (EPC). For the HHRA, the EPC represents the concentration of COPC in the media of concern that a potential receptor is expected to contact over a designated exposure period. Site receptors are assumed to move randomly across areas of the subject site over an exposure time, so COPC concentrations are represented by a conservative estimate of the average concentration of the area of exposure. Because the entire site is expected for similar reuses, it would have been appropriate to assess the entire site as one exposure area, but since higher concentrations were found in REC 3C than the rest of the area, two different areas were used. The first included the entire area except for REC 3C and the second included only REC 3C.

The COPC concentrations are represented by the 95th percentile upper confidence limit on the mean (95%UCLM), which represents a conservative estimate of the average concentration (EPA 1989). The 95%UCLM represents the concentration of COPCs in soil that a potential receptor is expected to contact over a designated exposure period. When determining the 95%UCLM, all soil sample results from the designated exposure areas were evaluated. The 95%UCLM was determined through the EPA ProUCL program version 5.1.02 (EPA 2016). The EPA ProUCL program determines the distribution, sample size, variance, and recommended 95%UCLM of each COPC (EPA 2016). For COPCs with less than five samples and/or five detected concentrations, the maximum detected concentration is used in accordance with EPA guidance (1989). Tables 5-1 through 5-4 in Appendix B present the EPCs for each chemical evaluated in each exposure area. Outputs from the ProUCL program are provided in Appendix B.

For the statistical determination of the 95%UCLM, the following data evaluation procedures were followed:

- Analytical results bearing the U qualifier (indicating that the analyte was not detected at the given reporting limit [RL]) were retained in the data set and considered non-detects (i.e., were assessed at the given RL).
- For duplicate samples, if both samples showed that the analyte was present, the greater concentration of the two detected concentrations was retained; if only one sample

indicated that the analyte was present, the detected concentration was retained for analysis and the non-detect value was discarded.

5.2.3 Selection of Exposure Parameters

The second step in quantifying intake requires the identification of exposure parameters. Exposure parameters include rates of contact (e.g., ingestion rates, skin surface areas, etc.), exposure frequency (EF) and duration, body weight (BW), and AT. The contact rate reflects the amount of contaminated media contacted per unit time or event. EF and duration are used to estimate the total time of exposure to COPC in media of concern. The BW represents the average BW over an exposure period (EPA 1989). Specific exposure parameters for each receptor are chosen based on EPA guidance (EPA 1989, 1991a, 1991b, 2004, 2011, 2014, 2016) and MDE guidance (2018). Exposure parameters for each receptor are presented in Tables 5-5 through 5-8 in Appendix B.

The exposure frequency of 250 days per year is based upon MDE guidance (2018) for the potential site use. For all age ranges except the adult recreational user, the exposure duration is based upon the age range evaluated. For the adult recreational user, an exposure duration of 20 years was assumed based upon typical exposure durations for adult residents (EPA 2011b, 2019). The ingestion rate for recreational users' exposure to soil is based upon ingestion rates presented in multiple EPA guidance documents and is assumed at 100 mg/kg based upon the age ranges evaluated in the HHRA (EPA 1991a, 1991b, 2011, 2014, 2019).

Dermal exposure to soil is assumed for exposed body surface areas only. The surface area (SA) available for contact is presented in the EPA Risk Assessment Guidelines for Superfund Part E guidance and generally assumes hands, forearms, head, lower legs, and feet. The recommended SA for each age range, except the adult recreational user, was taken from Table 7-2 of the EPA *Exposure Factors Handbook* (EFH) (EPA 2011b). For the determination of the SA of the lower leg, the lower leg was assumed as 40% of the total surface area of the leg. The SA for the forearms was determined based upon the mean proportion of the total skin SA by body part presented on Table 7-8 of EPA's EFH and the total body surface area presented on Table 7-1 of EPA's EFH (EPA 2011b). For the adult recreational user, the SA set forth for an adult resident of 6,032 cm² was assumed (EPA 2019).

The inhalation of soil particulates assumes an 8-hour day. The adult recreational user was assumed to weigh 80 kilograms, and the BW for all other age range recreational users was taken from Table 8-1 of EPA's EFH based upon the age range evaluated (EPA 2011b).

5.3 TOXICITY ASSESSMENT

The toxicity assessment considers the types of potential adverse health effects associated with exposures to chemicals, the relationship between the magnitude of exposure and potential adverse effects, and related uncertainties, such as the weight of evidence of a particular chemical's carcinogenicity in humans. EPA guidance (EPA 1989) specifies that the assessment be accomplished in two steps: hazard identification and dose-response assessment.

Hazard identification is the process of determining whether studies demonstrate that exposure to a COPC may cause the incidence of an adverse effect. EPA specifies the dose-response assessment, which involves: (1) EPA's quantitative evaluation of the existing toxicity information, and (2) EPA's characterization of the relationship between the dose of the chemical administered or received, and the incidence of potentially adverse health effects in the exposed population. From this quantitative dose-response relationship, specific toxicity values are derived by EPA that can be used to estimate the incidence of potentially adverse effects occurring in humans at different exposure levels (EPA 1989).

For all chemicals, the non-carcinogenic effects are typically judged to have a threshold daily dose below which deleterious or harmful effects are unlikely to occur. This concentration is called the no-observed-adverse-effect-level (NOAEL), and may be derived from either animal laboratory experiments or human epidemiology investigations (usually workplace studies). Uncertainty factors (UFs) are applied to the NOAELs to account for specific types of uncertainty inherent in extrapolation from the available data. The UFs are default factors used in operationally deriving the reference dose (RfD) and reference concentration (RfC) from experimental data. The UFs are intended to account for: (1) variation in susceptibility among the members of the human population (i.e., inter-individual or intraspecies variability); (2) uncertainty in extrapolating animal data to humans (i.e., interspecies uncertainty); (3) uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure (i.e., extrapolating from subchronic to chronic exposure); (4) uncertainty in extrapolating from a lowest-observed-adverse-effect-level (LOAEL) rather than from a NOAEL; and (5) uncertainty associated with extrapolation when the database is incomplete. Tables 5-9 and 5-10 present the non-carcinogenic toxicity values for all chemicals evaluated in this HHRA.

Unlike non-carcinogens, carcinogens are generally assumed to have no threshold. For a carcinogen, there is presumed to be no level of exposure below which carcinogenic effects will not manifest themselves. This "non-threshold" concept supports the idea that there are small, finite probabilities of inducing a carcinogenic response associated with every level of exposure to a potential carcinogen. EPA uses a two-part evaluation for carcinogenic effects. This evaluation includes the assignment of a weight-of-evidence classification and the quantification of a cancer toxic potency concentration. Quantification is expressed as a slope factor (SF) for oral and dermal exposures and an inhalation unit risk (IUR) for inhalation exposures, which reflects the dose-response data for the carcinogenic endpoint(s) (EPA 1989, 2009). Tables 5-11 and 5-12 present the carcinogenic toxicity values for the analytes evaluated.

5.3.1 Dermal Exposures

Toxicity values specific to dermal exposures are not available and require adjustment of the oral toxicity values (oral RfDs or SFs). This adjustment accounts for the difference between the daily intake dose through dermal contact as opposed to ingestion. Most toxicity values are based on the actual administered dose and must be corrected for the percent of chemical-specific absorption that occurs across the gastrointestinal tract prior to use in dermal contact risk assessment (EPA 1989, 2004). EPA recommends utilizing oral absorption efficiency factors in converting oral toxicity values to dermal toxicity values (EPA 2004). This adjustment accounts

for the absorption efficiency in the “critical study,” which is utilized in determining the RfD and SF. Where oral absorption in the critical study is essentially complete (i.e., 100%), the absorbed dose is equivalent to the administered dose, and no adjustment of oral toxicity values is necessary when evaluating dermal exposures. When gastrointestinal absorption of a chemical in the critical study is poor (e.g., 1%), the absorbed dose is much smaller than the administered dose, and toxicity values for dermal exposure are adjusted to account for the difference in the absorbed dose relative to the administered dose. To account for the differences between the administered (oral) and the absorbed (dermal) dose, RfDs and SFs are modified by the gastrointestinal dermal absorption factor (GIABS). Table 5-13 in Appendix B presents the chemical-specific parameters for dermal contact.

In addition to the GIABS modification of the toxicity values for dermal contact, dermal contact rates are also evaluated based upon a chemical’s ability to be absorbed through the skin surface. For soil, EPA has identified a dermal absorption factor (ABS) that is chemical-specific. The ABS value reflects the desorption of a chemical from soil and the absorption of the chemical across the skin and into the blood stream. Recommended values are presented that take into account ranges of values that result from different soil types, loading rates, chemical concentrations, and other conditions.

5.4 RISK CHARACTERIZATION

In risk characterization, the calculated chemical intakes (Section 5.2) and toxicity values (Section 5.3) are used to quantitatively estimate both carcinogenic and non-carcinogenic risks. Risks are calculated for each potential receptor.

5.4.1 Hazard Quotient for Non-Carcinogenic Effects

The potential human health risks associated with exposures to non-carcinogenic COPCs are calculated by comparing the ADI with the chemical-specific RfD, as per EPA Guidance (EPA 1989). A hazard quotient (HQ) is derived for each COPC, as shown in the equation below:

$$HQ = \frac{EC}{RfC} \quad \text{or}$$

$$HQ = \frac{ADI}{RfD}$$

where:

- HQ = Hazard Quotient; ratio of average daily intake level to acceptable daily intake level (unitless)
- EC = Exposure Concentration (microgram per cubic meter [$\mu\text{g}/\text{m}^3$])
- ADI = Calculated non-carcinogenic average daily intake (mg/kg-day)
- RfD = Reference dose (mg/kg-day)
- RfC = Reference concentration (mg/ m^3).

If the average daily dose exceeds the RfD or RfC, the HQ will exceed a ratio of 1.0 and there may be concern that potential adverse systemic health effects will be observed in the exposed populations. If the ADI does not exceed the RfD or the RfC, the HQ will not exceed 1.0 and there will be no concern that potential adverse systemic health effects will be observed in the exposed populations. In general, the greater the value of the HQ above 1.0, the greater the level of concern. However, the HQ does not represent a statistical probability that an adverse health effect will occur. MDE has identified an acceptable non-carcinogenic hazard of 1.

5.4.2 Carcinogenic Risks

Carcinogenic risk is calculated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. The numerical estimate of excess lifetime cancer risk is calculated by multiplying the LADI by the risk per unit dose (SF).

This is shown in the following equation:

$$\begin{aligned} \text{Risk} &= \text{LADI} \times \text{SF} \quad \text{or} \\ \text{Risk} &= \text{EC} \times \text{IUR} \end{aligned}$$

where:

- Risk* = Unitless estimate for the probability of an exposed individual developing cancer
- LADI* = Lifetime cancer average daily intake (mg/kg-day)
- SF* = Cancer Slope Factor (mg/kg-day)⁻¹
- EC* = Exposure Concentration (µg/m³)
- IUR* = Inhalation Unit Risk (µg/m³)⁻¹.

Because the SF and the IUR are considered to be upper-bound estimates of risk per increment of dose or concentration respectively, this method provides a conservative estimate of risk. It should be noted that the interpretation of the significance of the cancer risk estimate is based on the appropriate public policy. MDE has identified a cancer risk level of 10⁻⁵ as the level where remedial actions should be considered.

5.4.3 Special Chemicals: Lead

Lead is classified as a B2-probable human carcinogen. However, EPA has not published an SF or IUR for quantifying carcinogenic risks. Lead is not regulated as a carcinogen because it appears to be more potent as a toxicant to the hemopoietic system by inhibiting heme synthesis. Blood-lead levels are the indicator of excess lead exposure in humans. The EPA residential soil RSL and the MDE residential soil cleanup value were determined based upon EPA's Integrated Exposure Uptake Biokinetic Model (IEUBK) lead model, which evaluates potential blood-lead levels of lead due to intake of lead from soil and other environmental media (EPA 1994). EPA recommends the use of the arithmetic mean of soil lead concentrations from representative exposure areas of children in the IEUBK model (EPA 1994). It is noted that the exposure areas are generally considered a "typical" residential lot, playground area, or other areas that children are likely to frequent. Because a site layout has not been determined and the overall site areas is larger than exposure areas identified for the IEUBK model, the detected lead soil concentrations

were compared to the EPA RSL and MDE residential soil cleanup value to determine if potential receptors' exposure to lead in soil levels are considered acceptable at the site. The assessment of individual lead detections provides a protective evaluation for children who may visit any area of the site during future uses.

5.4.4 Risk Characterization Results

Risk calculations are presented in Tables 5-14 through 5-33. Estimates of cumulative risks across all pathways for non-carcinogenic and carcinogenic effects are presented in Tables 5-34 through 5-49. Tables 5-1 through 5-49 are located in Appendix B, while Table 5-50, below, presents a summary of the HHRA results.

Table 5-50 Summary of HHRA Results

Receptor	Carcinogenic Risk	Non-carcinogenic Hazard	Table No.
Surface Soil – not including REC 3C			
Elementary School Age Recreational User	5×10^{-6}	0.08	Table 5-34
Middle School Age Recreational User	4×10^{-6}	0.07	Table 5-35
High School Age Recreational User	2×10^{-6}	0.05	Table 5-36
Adult Recreational User	5×10^{-6}	0.03	Table 5-37
Subsurface Soil – not including REC 3C			
Elementary School Age Recreational User	9×10^{-7}	0.02	Table 5-38
Middle School Age Recreational User	3×10^{-7}	0.01	Table 5-39
High School Age Recreational User	3×10^{-7}	0.01	Table 5-40
Adult Recreational User	1×10^{-6}	0.009	Table 5-41
Surface Soil – REC 3C			
Elementary School Age Recreational User	3×10^{-6}	0.05	Table 5-42
Middle School Age Recreational User	1×10^{-6}	0.03	Table 5-43
High School Age Recreational User	1×10^{-6}	0.03	Table 5-44
Adult Recreational User	2×10^{-6}	0.02	Table 5-45
Subsurface Soil – REC 3C			
Elementary School Age Recreational User	1×10^{-6}	0.03	Table 5-46
Middle School Age Recreational User	3×10^{-7}	0.02	Table 5-47
High School Age Recreational User	4×10^{-7}	0.01	Table 5-48
Adult Recreational User	1×10^{-6}	0.009	Table 5-49

The carcinogenic risk results for all receptors are less than the MDE remedial action level of 10^{-5} . Non-carcinogenic hazards for all receptors are less than the MDE target threshold of 1. This reveals that overall exposures across the subject site are not a concern for human health.

For lead, only the maximum detected concentration (481 mg/kg at TH-2D-TP01-0-2) exceeds the EPA residential soil and MDE residential cleanup value of 400 mg/kg. The next highest detection of lead was 242 mg/kg at sample location TH-3C-TP04-0-2. The only exceedance within sample location TH-2D-TP01 was within the surface soil, noted to be below glass bottles and transient tiles. This location within the top 2 ft of soil may present a concern for exposure to lead. All other lead detections would not present a concern for potential receptors exposure.

6. CONCLUSIONS

This Phase II ESA was focused on the assessment of potential impacts to surface and subsurface soil from both historical and current site operations. As part of the HHRA approach, detected chemicals in surface and subsurface soils were compared to both risk-based screening values and the MDE ATCs. This HHRA evaluated potential concerns with chemicals detected in analytical results from soils of the Phase II ESA investigation. It is noted that the sample (TH-3B-TP01-1.7 BLUE) was not evaluated in the HHRA because this sample is identified as anomalous and consisted of an isolated small quantity of material.

Future use of the subject site is anticipated to be a public school and recreation area. MDE groups schools into a Level 1 Public Recreational Area (High Frequency Use). A high frequency public recreational area is defined as any area that is available for recreational use by all populations at the highest potential exposure frequency. The following analytes; arsenic, hexavalent chromium, lead, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and dieldrin were evaluated by the HHRA to characterizes the nature and magnitude of potential health risks to humans under anticipated current and future use scenarios for the subject site.

For sitewide surface and subsurface soil, the risk results for all receptors are less than the MDE remedial action levels. Findings of the Phase II ESA indicate that concentrations of evaluated analytes in surface and subsurface soils are acceptable for the intended use, per the MDE requirements and the EPA School Siting Guidelines (EPA 2011a), and the sample location with the maximum detection of lead (surface soil at TH-2D-TP01) may present a concern for potential receptor exposure. Therefore, surface soil lead impacts at TH-2D-TP-01 are recommended for offsite removal and proper disposal prior to or during site redevelopment, followed by confirmatory sampling. In addition, all debris and municipal waste is recommended for offsite removal and proper disposal prior to or during site redevelopment.

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7. REFERENCES

The following sources of information were consulted as a part of this ESA:

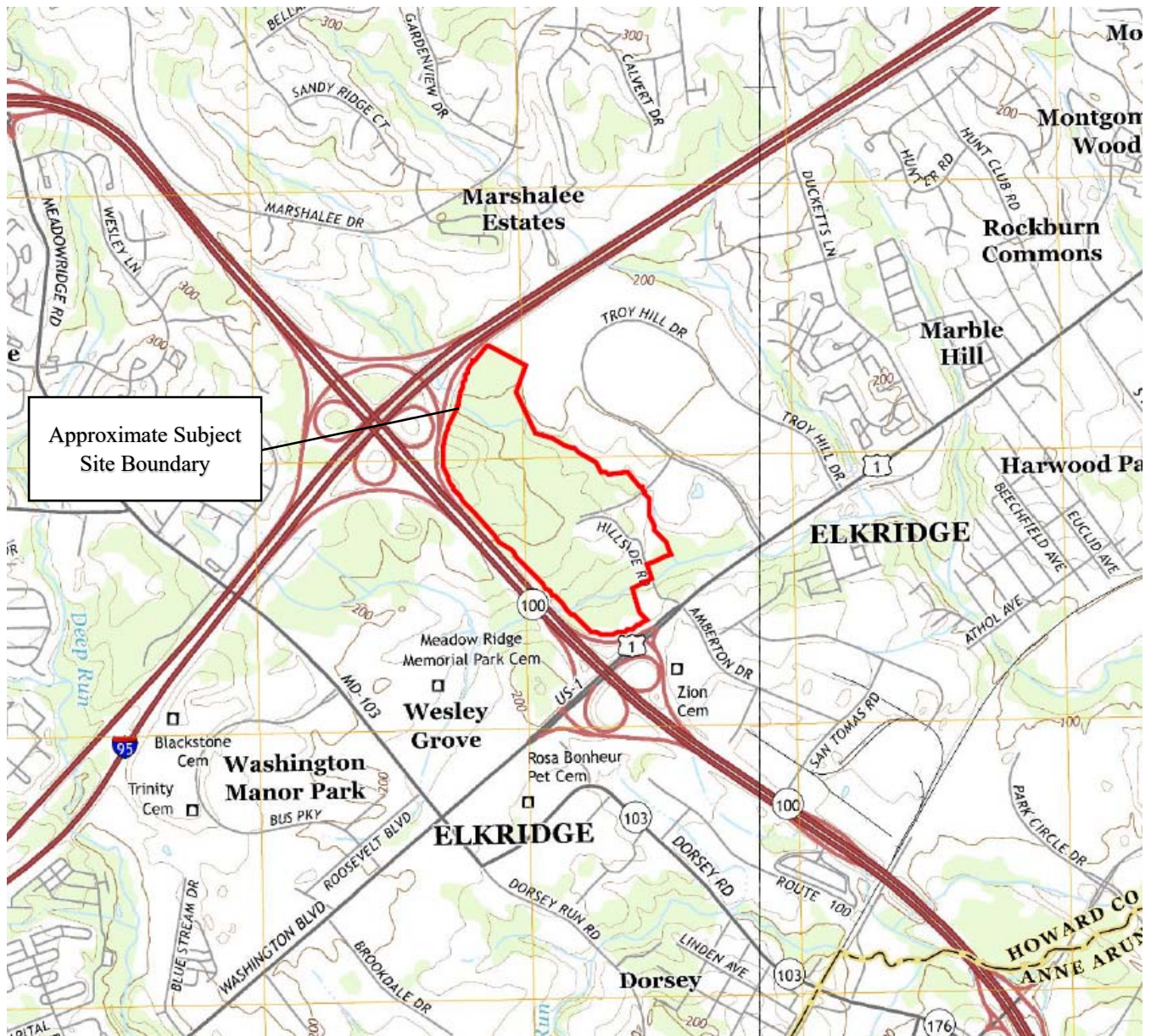
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Appendix A

Figures

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Reference: US Geological Survey Savage/Relay 7.5-Minute Quadrangle Topographic Map, 2014, EDR, Inc.

**Troy Hill Park Parcels
Elkridge, Maryland**

Figure 1

Subject Site Location



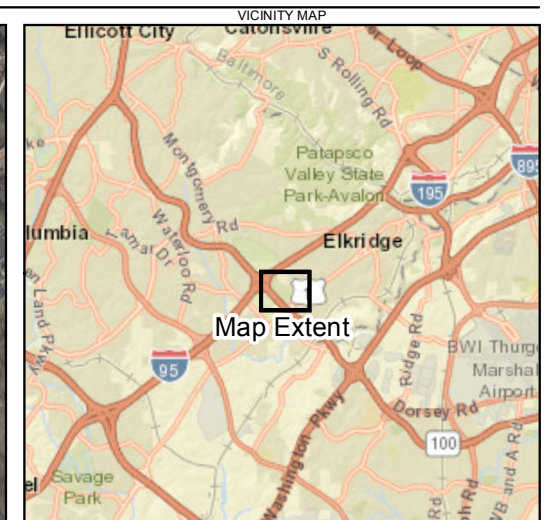
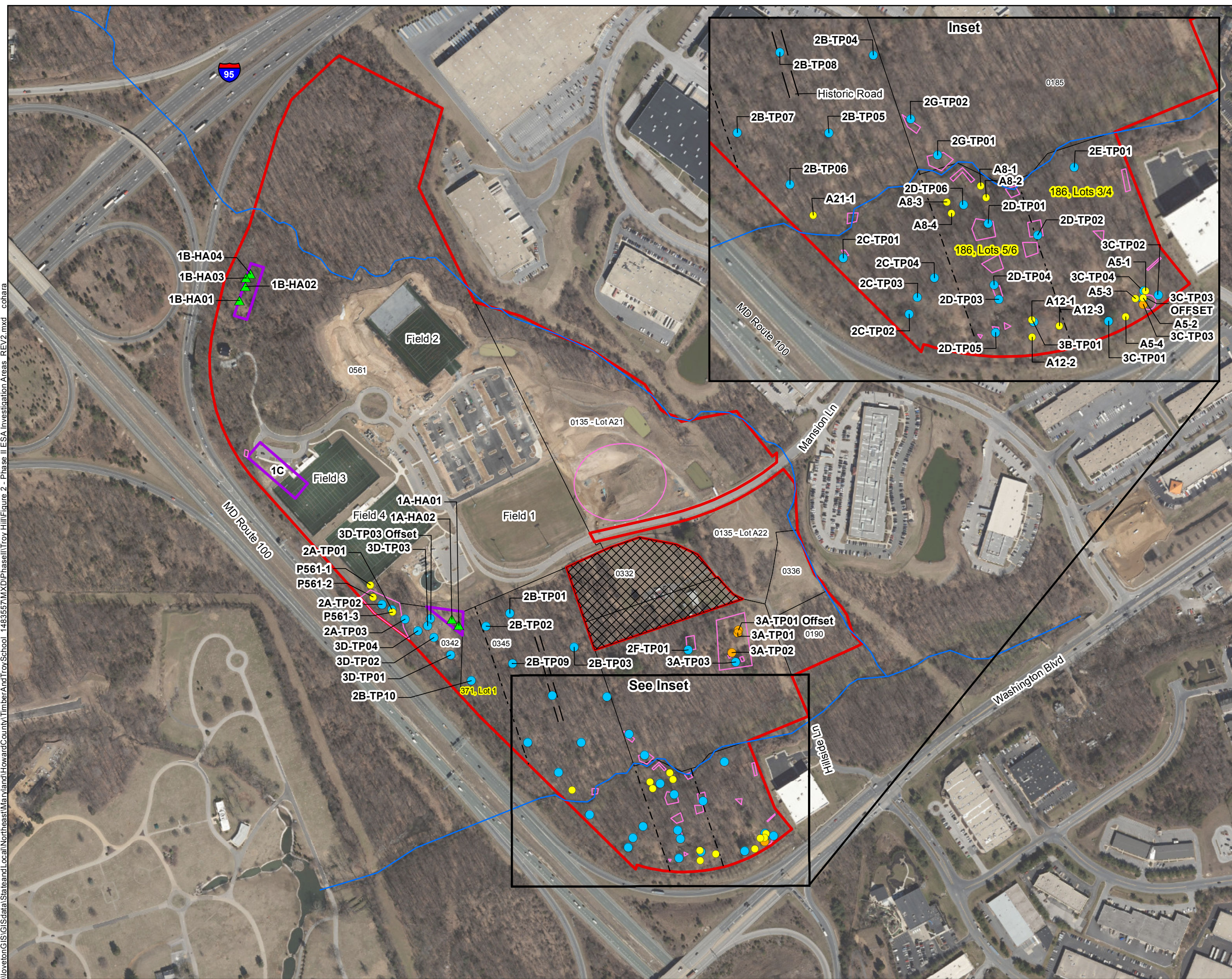
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\\loveton\GIS\GISData\StateandLocal\Northeast\Maryland\HowardCounty\TimberAndTroy\HillFigure 2 - Phase II ESA Investigation Areas REV2.mxd cohara



- Legend**
- ▲ Hand Auger Sample Location
 - Test Pit Sample Location
 - Test Pit (No Sample Collected)
 - 0190 Current Parcel Number
 - 371 Former Parcel Number
 - Weston Subsurface Magnetic Anomaly Point
 - ~ Stream
 - Approximate Historical Orchard Boundary
 - Site Features
 - Parcel Boundary
 - ▨ Private Property
 - Approximate Subject Site Boundary
 - - - Approximate Former Parcel Boundary

Map Date: 10/10/2019
Source: MD Imap 2017
Projection: NAD 1983 State Plane Maryland FIPS 1900 Feet

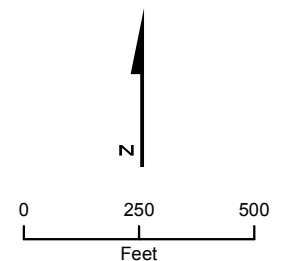
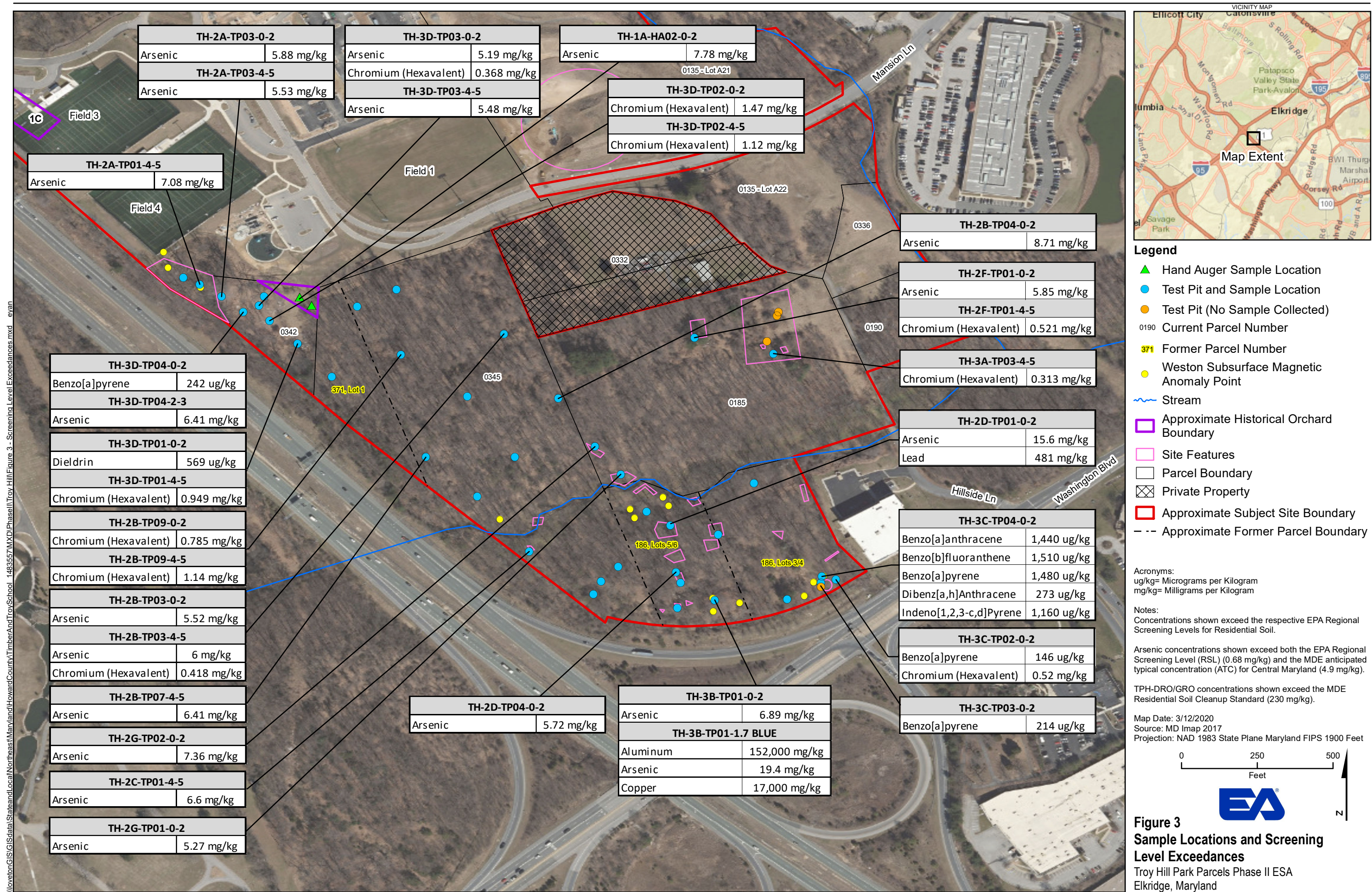


Figure 2
Phase II ESA Investigation Areas
Troy Hill Park Parcels Phase II ESA
Elkridge, Maryland

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Appendix B

Tables

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Table 4-2: Soil Analytical Results
Troy Hill Park Parcels Phase II ESA

Troy Hill Park Parcels Phase II ESA					Sample Name	TH-1A-HA01-0-2	TH-1A-HA02-0-2	DUP-1	TH-1B-HA01-0-2	TH-1B-HA02-0-2	TH-1B-HA03-0-2	TH-1B-HA04-0-2	TH-2A-TP01-0-2	TH-2A-TP01-4-5	TH-2A-TP02-0-2	TH-2A-TP02-4-5
Lab Sample ID:					Sample Date	9072217-05	9072217-06	9072217-07	9072217-01	9072217-02	9072217-03	9072217-04	9072317-12	9072317-13	9072317-10	9072317-11
Parent Sample Code						7/22/2019	7/22/2019	7/22/2019	7/22/2019	7/22/2019	7/22/2019	7/22/2019	7/23/2019	7/23/2019	7/23/2019	7/23/2019
						TH-1A-HA02-0-2										
Analyte	CAS #	MDE Residential Soil	EPA RSL Residential Soil	Units												
SVOCs (8270D-SIM)																
Acenaphthene	83-32-9	360000	3600000	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Acenaphthylene	208-96-8	NSL	3600000	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Anthracene	120-12-7	1800000	18000000	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Benzo[a]anthracene	56-55-3	1100	1100	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Benzo[b]fluoranthene	205-99-2	1100	1100	ug/kg	12.2	15.5	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Benzo[k]fluoranthene	207-08-9	11000	11000	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Benzo[g,h,i]Perylene	191-24-2	NSL	1800000	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Benzo[a]pyrene	50-32-8	110	110	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Chrysene	218-01-9	110000	110000	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Dibenz[a,h]Anthracene	53-70-3	110	110	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Fluoranthene	206-44-0	240000	2400000	ug/kg	15.6	13.6	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Fluorene	86-73-7	240000	2400000	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Indeno[1,2,3-c,d]Pyrene	193-39-5	1100	1100	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Naphthalene	91-20-3	3800	3800	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Phenanthrene	85-01-8	180000	3800	ug/kg	<11.9 U	<11.4 U	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Pyrene	129-00-0	180000	1800000	ug/kg	14	13.5	<11.1 U	--	--	--	--	--	<11.2 U	<11.5 U	<12.2 U	<11.2 U
Total Petroleum Hydrocarbons (5030/8015C)																
TPH-GRO (C6-C10)	TPH-GRO	230	NSL	mg/kg	<0.12 U	<0.11 U	<0.11 U	--	--	--	--	--	<0.11 U	<0.11 U	<0.12 U	<0.11 U
TPH-DRO (C10-C28)	TPH-DRO	230	NSL	mg/kg	12	11.4	12.7	--	--	--	--	--	15.7	<9.2 U	<9.8 U	<9.0 U
Chlorinated Pesticides (8081B)																
Aldrin	309-00-2	39	39	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
alpha-BHC	319-84-6	86	86	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
beta-BHC	319-85-7	300	300	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
delta-BHC	319-86-8	NSL	86	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
alpha-Chlordane	5103-71-9	NSL	1700	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
gamma-Chlordane	5103-74-2	NSL	1700	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
4,4-DDD	72-54-8	190	1900	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
4,4-DDE	72-55-9	2000	2000	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
4,4-DDT	50-29-3	1900	1900	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
Dieldrin	60-57-1	34	34	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
Endosulfan I	959-98-8	47000	470000	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
Endosulfan II	33213-65-9	47000	470000	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
Endosulfan sulfate	1031-07-8	47000	380000	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
Endrin	72-20-8	1900	19000	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
Endrin aldehyde	7421-93-4	NSL	19000	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
Endrin ketone	53494-70-5	NSL	19000	ug/kg	<7.98 U	<7.61 U	<7.44 U	<7.05 U	<7.20 U	<7.28 U	<7.36 U	<7.53 U	<7.70 U	<7.70 U	<8.17 U	<7.53 U
Heptachlor	76-44-8	130	130	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
Heptachlor epoxide	1024-57-3	70	70	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
Gamma-BHC (Lindane)	58-89-9	570	570	ug/kg	<3.93 U	<3.75 U	<3.67 U	<3.47 U	<3.55 U	<3.59 U	<3.63 U	<3.71 U	<3.79 U	<3.79 U	<4.02 U	<3.71 U
Methoxychlor	72-43-5	32000	320000	ug/kg	<39.3 U	<37.5 U	<36.7 U	<34.7 U	<35.5 U	<35.9 U	<36.3 U	<37.1 U	<37.9 U	<37.9 U	<40.2 U	<37.1 U
Toxaphene	8001-35-2	490	490	ug/kg	<79.8 U	<76.1 U	<74.4 U	<70.5 U	<72.0 U	<72.8 U	<73.6 U	<75.3 U	<77.0 U	<77.0 U	<81.7 U	<75.3 U
PCBs (3540/8082A)																
Aroclor 1016	12674-11-2	410	4100	ug/kg	<98.8 U	<94.3 U	<92.2 U	--	--	--	--	--	<93.3 U	<95.4 U	<101 U	<93.3 U
Aroclor 1221	11104-28-2	200	200	ug/kg	<202 U	<193 U	<189 U	--	--	--	--	--	<191 U	<195 U	<207 U	<191 U
Aroclor 1232	11141-16-5	170	170	ug/kg	<98.8 U	<94.3 U	<92.2 U</									

Table 4-2: Soil Analytical Results
Troy Hill Park Parcels Phase II ESA

Table 4-2: Soil Analytical Results					Sample Name	TH-2A-TP03-0-2	TH-2A-TP03-4-5	TH-2B-TP01-0-2	TH-2B-TP01-4-5	TH-2B-TP02-0-2	TH-2B-TP02-4-5	TH-2B-TP03-0-2	TH-2B-TP03-4-5	TH-2B-TP04-0-2	TH-2B-TP04-4-5	TH-2B-TP05-0-2
Troy Hill Park Parcels Phase II ESA					Lab Sample ID:	9072317-08	9072317-09	9072436-07	9072436-08	9072436-05	9072436-06	9072536-01	9072536-02	9072436-15	9072436-16	9072436-13
					Sample Date	7/23/2019	7/23/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/25/2019	7/25/2019	7/24/2019	7/24/2019	7/24/2019
					Parent Sample Code											
Analyte	CAS #	MDE Residential Soil	EPA RSL Residential Soil	Units												
SVOCs (8270D-SIM)																
Acenaphthene	83-32-9	360000	3600000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Acenaphthylene	208-96-8	NSL	3600000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Anthracene	120-12-7	1800000	18000000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Benzo[a]anthracene	56-55-3	1100	1100	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Benzo[b]fluoranthene	205-99-2	1100	1100	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Benzo[k]fluoranthene	207-08-9	11000	11000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Benzo[g,h,i]Perylene	191-24-2	NSL	1800000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Benzo[a]pyrene	50-32-8	110	110	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Chrysene	218-01-9	110000	110000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Dibenz[a,h]Anthracene	53-70-3	110	110	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Fluoranthene	206-44-0	240000	2400000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Fluorene	86-73-7	240000	2400000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Indeno[1,2,3-c,d]Pyrene	193-39-5	1100	1100	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Naphthalene	91-20-3	3800	3800	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Phenanthrene	85-01-8	180000	3800	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Pyrene	129-00-0	180000	1800000	ug/kg	<10.6 U	<11.1 U	<11.0 U	<11.0 U	<12.5 U	<12.7 U	<12.2 U	<12.5 U	<11.5 U	<13.0 U	<12.8 U	<12.8 U
Total Petroleum Hydrocarbons (5030/8015C)																
TPH-GRO (C6-C10)	TPH-GRO	230	NSL	mg/kg	<0.11 U	<0.11 U	<0.11 U	<0.11 U	0.13	<0.13 U	<0.12 U	<0.13 U	<0.11 U	<0.13 U	<0.13 U	<0.13 U
TPH-DRO (C10-C28)	TPH-DRO	230	NSL	mg/kg	<8.5 U	<8.9 U	9.6	<8.8 U	20.9	<10.1 U	<9.8 U	<10.0 U	<9.2 U	<10.4 U	10.8	
Chlorinated Pesticides (8081B)																
Aldrin	309-00-2	39	39	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
alpha-BHC	319-84-6	86	86	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
beta-BHC	319-85-7	300	300	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
delta-BHC	319-86-8	NSL	86	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
alpha-Chlordane	5103-71-9	NSL	1700	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	5103-74-2	NSL	1700	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
4,4-DDD	72-54-8	190	1900	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
4,4-DDE	72-55-9	2000	2000	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
4,4-DDT	50-29-3	1900	1900	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
Dieldrin	60-57-1	34	34	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
Endosulfan I	959-98-8	47000	470000	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
Endosulfan II	33213-65-9	47000	470000	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
Endosulfan sulfate	1031-07-8	47000	380000	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
Endrin	72-20-8	1900	19000	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	NSL	19000	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
Endrin ketone	53494-70-5	NSL	19000	ug/kg	<7.13 U	<7.44 U	--	--	--	--	--	--	--	--	--	--
Heptachlor	76-44-8	130	130	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	1024-57-3	70	70	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
Gamma-BHC (Lindane)	58-89-9	570	570	ug/kg	<3.51 U	<3.67 U	--	--	--	--	--	--	--	--	--	--
Methoxychlor	72-43-5	32000	320000	ug/kg	<35.1 U	<36.7 U	--	--	--	--	--	--	--	--	--	--
Toxaphene	8001-35-2	490	490	ug/kg	<71.3 U	<74.4 U	--	--	--	--	--	--	--	--	--	--
PCBs (3540/8082A)																
Aroclor 1016	12674-11-2	410	4100	ug/kg	<88.3 U	<92.2 U	<91.2 U	<91.2 U	<104 U	<105 U	<101 U	<104 U	<95.4 U	<108 U	<106 U	<106 U
Aroclor 1221	11104-28-2	200	200	ug/kg	<181 U	<189 U	<187 U	<187 U	<213 U	<215 U	<207 U	<213 U	<195 U	<221 U	<218 U	<218 U
Aroclor 1232	11141-16-5	170	170	ug/kg	<88.3 U	<92.2 U	<91.2 U	<91.2 U	<104 U	<105 U	<101 U	<104 U	<95.4 U	<108 U	<106 U	<106 U
Aroclor 1242	53469-21-9	230	230	ug/kg	<88.3 U	<92.2 U	<91.2 U	<91.2 U	<104 U	<105 U	<101 U	<104 U	<95.4 U	<108 U	<106 U	<106 U
Aroclor 1248	12672-29-6	230	230	ug/kg	<88.3 U	<92.2 U	<91.2 U	<91.2 U	<104 U	<105 U	<101 U	<104 U	<95.4 U	<108 U	<106 U	<106 U
Aroclor 1254	11097-69-1	120	240	ug/kg	<88.3 U	<92.2 U	<91.2 U	<91.2 U	<104 U	<105 U	<101 U	<104 U	<95.4 U	<108 U	<106	

Table 4-2: Soil Analytical Results
Troy Hill Park Parcels Phase II ESA

					Sample Name	TH-2B-TP10-4-5	TH-2C-TP01-0-2	TH-2C-TP01-4-5	TH-2C-TP02-0-2	TH-2C-TP02-4-5	TH-2C-TP03-0-2	TH-2C-TP03-4-5	TH-2C-TP04-0-2	TH-2C-TP04-4-5	TH-2D-TP01-0-2	TH-2D-TP01-4-5
					Lab Sample ID:	9072436-04	9072620-07	9072620-08	9072903-03	9072903-04	9072903-01	9072903-02	9072620-09	9072620-10	9073020-01	9073020-02
					Sample Date	7/24/2019	7/26/2019	7/26/2019	7/29/2019	7/29/2019	7/29/2019	7/29/2019	7/26/2019	7/26/2019	7/30/2019	7/30/2019
					Parent Sample Code											
Analyte	CAS #	MDE Residential Soil	EPA RSL Residential Soil	Units												
SVOCs (8270D-SIM)																
Acenaphthene	83-32-9	360000	3600000	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	<12.5 U	<13.2 U
Acenaphthylene	208-96-8	NSL	3600000	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	<12.5 U	<13.2 U
Anthracene	120-12-7	1800000	18000000	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	<12.5 U	<13.2 U
Benzo[a]anthracene	56-55-3	1100	1100	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	15.4	<13.2 U
Benzo[b]fluoranthene	205-99-2	1100	1100	ug/kg	<13.2 U	13.4	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	27.8	<13.2 U
Benzo[k]fluoranthene	207-08-9	11000	11000	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	<12.5 U	<13.2 U
Benzo[g,h,i]Perylene	191-24-2	NSL	1800000	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	20.9	<13.2 U
Benzo[a]pyrene	50-32-8	110	110	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	18.7	<13.2 U
Chrysene	218-01-9	110000	110000	ug/kg	<13.2 U	11.8	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	26.9	<13.2 U
Dibenz[a,h]Anthracene	53-70-3	110	110	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	<12.5 U	<13.2 U
Fluoranthene	206-44-0	240000	2400000	ug/kg	<13.2 U	18.1	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	32	<13.2 U
Fluorene	86-73-7	240000	2400000	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	<12.5 U	<13.2 U
Indeno[1,2,3-c,d]Pyrene	193-39-5	1100	1100	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	17	<13.2 U
Naphthalene	91-20-3	3800	3800	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	<12.5 U	<13.2 U
Phenanthrene	85-01-8	180000	3800	ug/kg	<13.2 U	<10.9 U	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	18.2	<13.2 U
Pyrene	129-00-0	180000	1800000	ug/kg	<13.2 U	17.4	<12.3 U	<13.0 U	<13.0 U	<13.0 U	<11.8 U	<13.2 U	<13.0 U	<13.7 U	34.4	<13.2 U
Total Petroleum Hydrocarbons (5030/8015C)																
TPH-GRO (C6-C10)	TPH-GRO	230	NSL	mg/kg	<0.13 U	<0.11 U	<0.12 U	<0.13 U	<0.13 U	<0.13 U	<0.12 U	<0.13 U	<0.13 U	<0.14 U	<0.13 U	<0.13 U
TPH-DRO (C10-C28)	TPH-DRO	230	NSL	mg/kg	<10.5 U	<8.7 U	<9.9 U	<10.4 U	<10.4 U	<10.4 U	<9.4 U	<10.5 U	<10.4 U	<11.0 U	32.3	<10.5 U
Chlorinated Pesticides (8081B)																
Aldrin	309-00-2	39	39	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
alpha-BHC	319-84-6	86	86	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
beta-BHC	319-85-7	300	300	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
delta-BHC	319-86-8	NSL	86	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
alpha-Chlordane	5103-71-9	NSL	1700	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	5103-74-2	NSL	1700	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
4,4-DDD	72-54-8	190	1900	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
4,4-DDE	72-55-9	2000	2000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
4,4-DDT	50-29-3	1900	1900	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	60-57-1	34	34	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan I	959-98-8	47000	470000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan II	33213-65-9	47000	470000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan sulfate	1031-07-8	47000	380000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	72-20-8	1900	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	NSL	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin ketone	53494-70-5	NSL	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	76-44-8	130	130	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	1024-57-3	70	70	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Gamma-BHC (Lindane)	58-89-9	570	570	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	72-43-5	32000	320000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	8001-35-2	490	490	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (3540/8082A)																
Aroclor 1016	12674-11-2	410	4100	ug/kg	<109 U	<90.2 U	<102 U	<108 U	<108 U	<108 U	<97.6 U	<109 U	<108 U	<114 U	<104 U	<109 U
Aroclor 1221	11104-28-2	200	200	ug/kg	<224 U	<185 U	<210 U	<221 U	<221 U	<221 U	<200 U	<224 U	<221 U	<233 U	<213 U	<224 U
Aroclor 1232	11141-16-5	170	170	ug/kg	<109 U	<90.2 U	<102 U	<108 U	<108 U	<108 U	<97.6 U	<109 U	<108 U	<114 U	<104 U	<109 U
Aroclor 1242	53469-21-9	230	230	ug/kg	<109 U	<90.2 U	<102 U	<108 U	<108 U	<108 U	<97.6 U	<109 U	<108 U	<114 U	<104 U	<109 U
Aroclor 1248	12672-29-6	230	230	ug/kg	<109 U	<90.2 U	<102 U	<108 U	<108 U	<108 U	<97.6 U	<109 U	<108 U	<114 U	<104 U	<109 U
Aroclor 1254	11097-69-1	120	240	ug/kg	<109 U	<90.2 U	<102 U	<108 U	<108 U	<108 U	<97.6 U	<109 U	<108 U	<114 U	<104 U	<109 U
Aroclor 1260	11096-82-5	240	240	ug/kg	<109 U	<90.2 U	<102 U	<108 U	<108 U	<108 U	<97.6 U	<109 U	<108 U	<114 U	<104 U	<109 U
Aroclor 1262	37324-23-5	NSL	240	ug/kg	<109 U	<90.2 U	<102 U	<108 U	<108 U	<108 U	<97.6 U	<109 U	<108 U	<114 U	<104 U	<109 U
Aroclor 1268	11100-14-4	NSL	240	ug/kg	<											

Table 4-2: Soil Analytical Results
Troy Hill Park Parcels Phase II ESA

Troy Hill Park Parcels Phase II ESA					Sample Name	TH-2E-TP01-0-2	TH-2E-TP01-4-5	TH-2F-TP01-0-2	TH-2F-TP01-4-5	TH-2G-TP01-0-2	TH-2G-TP01-4-5	TH-2G-TP02-0-2	TH-2G-TP02-4-5	TH-3A-TP03-0-7	DUP-4	TH-3A-TP03-4-5
					Lab Sample ID:	9073020-05	9073020-06	9072620-03	9072620-04	9072536-09	9072536-10	9072536-07	9072536-08	9072620-01	9072620-11	9072620-02
					Sample Date	7/30/2019	7/30/2019	7/26/2019	7/26/2019	7/25/2019	7/25/2019	7/25/2019	7/25/2019	7/26/2019	7/26/2019	7/26/2019
					Parent Sample Code										TH-3A-TP03-0-7	
Analyte	CAS #	MDE Residential Soil	EPA RSL Residential Soil	Units												
SVOCs (8270D-SIM)																
Acenaphthene	83-32-9	360000	3600000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Acenaphthylene	208-96-8	NSL	3600000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Anthracene	120-12-7	1800000	18000000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Benzo[a]anthracene	56-55-3	1100	1100	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Benzo[b]fluoranthene	205-99-2	1100	1100	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Benzo[k]fluoranthene	207-08-9	11000	11000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Benzo[g,h,i]Perylene	191-24-2	NSL	1800000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Benzo[a]pyrene	50-32-8	110	110	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Chrysene	218-01-9	110000	110000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Dibenz[a,h]Anthracene	53-70-3	110	110	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Fluoranthene	206-44-0	240000	2400000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Fluorene	86-73-7	240000	2400000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Indeno[1,2,3-c,d]Pyrene	193-39-5	1100	1100	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Naphthalene	91-20-3	3800	3800	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Phenanthrene	85-01-8	180000	3800	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Pyrene	129-00-0	180000	1800000	ug/kg	<11.6 U	<11.6 U	<13.5 U	<12.7 U	<11.6 U	<12.0 U	<11.8 U	<13.3 U	<12.2 U	<12.8 U	<14.3 U	
Total Petroleum Hydrocarbons (5030/8015C)																
TPH-GRO (C6-C10)	TPH-GRO	230	NSL	mg/kg	<0.12 U	<0.12 U	<0.14 U	<0.13 U	<0.12 U	<0.12 U	<0.12 U	<0.13 U	<0.12 U	<0.13 U	<0.14 U	
TPH-DRO (C10-C28)	TPH-DRO	230	NSL	mg/kg	<9.3 U	<9.3 U	11	10.9	10.8	<9.6 U	<9.4 U	<10.7 U	<9.8 U	14.2	<11.4 U	
Chlorinated Pesticides (8081B)																
Aldrin	309-00-2	39	39	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
alpha-BHC	319-84-6	86	86	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
beta-BHC	319-85-7	300	300	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
delta-BHC	319-86-8	NSL	86	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
alpha-Chlordane	5103-71-9	NSL	1700	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
gamma-Chlordane	5103-74-2	NSL	1700	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
4,4-DDD	72-54-8	190	1900	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
4,4-DDE	72-55-9	2000	2000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
4,4-DDT	50-29-3	1900	1900	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Dieldrin	60-57-1	34	34	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Endosulfan I	959-98-8	47000	470000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Endosulfan II	33213-65-9	47000	470000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Endosulfan sulfate	1031-07-8	47000	380000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Endrin	72-20-8	1900	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Endrin aldehyde	7421-93-4	NSL	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Endrin ketone	53494-70-5	NSL	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Heptachlor	76-44-8	130	130	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Heptachlor epoxide	1024-57-3	70	70	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Gamma-BHC (Lindane)	58-89-9	570	570	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Methoxychlor	72-43-5	32000	320000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
Toxaphene	8001-35-2	490	490	ug/kg	--	--	--	--	--	--	--	--	--	--	--	
PCBs (3540/8082A)																
Aroclor 1016	12674-11-2	410	4100	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Aroclor 1221	11104-28-2	200	200	ug/kg	<198 U	<198 U	<230 U	<215 U	<198 U	<205 U	<200 U	<227 U	<207 U	<218 U	<243 U	
Aroclor 1232	11141-16-5	170	170	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Aroclor 1242	53469-21-9	230	230	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Aroclor 1248	12672-29-6	230	230	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Aroclor 1254	11097-69-1	120	240	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Aroclor 1260	11096-82-5	240	240	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Aroclor 1262	37324-23-5	NSL	240	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Aroclor 1268	11100-14-4	NSL	240	ug/kg	<96.5 U	<96.5 U	<112 U	<105 U	<96.5 U	<100 U	<97.6 U	<111 U	<101 U	<106 U	<119 U	
Chlorinated Herbicides (8151A)																
2,4-D	</															

Table 4-2: Soil Analytical Results
Troy Hill Park Parcels Phase II ESA

Troy Hill Park Parcels Phase II ESA					Sample Name	TH-3B-TP01-0-2	TH-3B-TP01-6.8-7.8	DUP-6	TH-3B-TP01-1.7 BLUE	TH-3C-TP01-0-2	DUP-7	TH-3C-TP01-4-5	TH-3C-TP02-0-2	TH-3C-TP02-12-13	TH-3C-TP03-0-2	TH-3C-TP03-10.5-11.5
					Lab Sample ID:	9073116-01	9073116-02	9073116-06	9073116-03	9073116-04	9073116-07	9073116-05	9080108-06	9080108-07	9080108-01	9080108-03
					Sample Date	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	8/1/2019	8/1/2019	8/1/2019	8/1/2019
					Parent Sample Code			TH-3B-TP01-6.8-7.8			TH-3C-TP01-0-2					
Analyte	CAS #	MDE Residential Soil	EPA RSL Residential Soil	Units												
SVOCs (8270D-SIM)																
Acenaphthene	83-32-9	360000	3600000	ug/kg	<10.6 U	<10.8 U	<10.8 U	--	<10.3 U	<10.4 U	<14.1 U	<10.9 U	<11.9 U		11.4	<11.2 U
Acenaphthylene	208-96-8	NSL	3600000	ug/kg	<10.6 U	<10.8 U	<10.8 U	--	<10.3 U	<10.4 U	<14.1 U	114	<11.9 U	<11.9 U	200	<11.2 U
Anthracene	120-12-7	1800000	18000000	ug/kg	<10.6 U	<10.8 U	<10.8 U	--	<10.3 U	<10.4 U	<14.1 U	60.5	<11.9 U	<11.9 U	85.6	<11.2 U
Benzo[a]anthracene	56-55-3	1100	1100	ug/kg	20.9	<10.8 U	<10.8 U	--	20.9	<10.4 U	<14.1 U	143	<11.9 U	<11.9 U	173	<11.2 U
Benzo[b]fluoranthene	205-99-2	1100	1100	ug/kg	33.2	<10.8 U	<10.8 U	--	27.8	15	<14.1 U	163	<11.9 U	<11.9 U	223	<11.2 U
Benzo[k]fluoranthene	207-08-9	11000	11000	ug/kg	<10.6 U	<10.8 U	<10.8 U	--	<10.3 U	<10.4 U	<14.1 U	54.1	<11.9 U	<11.9 U	56.9	<11.2 U
Benzo[g,h,i]Perylene	191-24-2	NSL	1800000	ug/kg	21.7	<10.8 U	<10.8 U	--	10.6	13.3	<14.1 U	125	<11.9 U	<11.9 U	222	<11.2 U
Benzo[a]pyrene	50-32-8	110	110	ug/kg	21.3	<10.8 U	<10.8 U	--	14.3	12.3	<14.1 U	146	<11.9 U	<11.9 U	214	<11.2 U
Chrysene	218-01-9	110000	110000	ug/kg	30.3	<10.8 U	<10.8 U	--	27.1	<10.4 U	<14.1 U	168	<11.9 U	<11.9 U	198	<11.2 U
Dibenz[a,h]Anthracene	53-70-3	110	110	ug/kg	<10.6 U	<10.8 U	<10.8 U	--	<10.3 U	<10.4 U	<14.1 U	25.2	<11.9 U	<11.9 U	42.3	<11.2 U
Fluoranthene	206-44-0	240000	2400000	ug/kg	41.1	<10.8 U	<10.8 U	--	43.7	<10.4 U	<14.1 U	166	<11.9 U	<11.9 U	188	<11.2 U
Fluorene	86-73-7	240000	2400000	ug/kg	<10.6 U	<10.8 U	<10.8 U	--	<10.3 U	<10.4 U	<14.1 U	24.5	<11.9 U	<11.9 U	52.5	<11.2 U
Indeno[1,2,3-c,d]Pyrene	193-39-5	1100	1100	ug/kg	19.8	<10.8 U	<10.8 U	--	12.1	12	<14.1 U	117	<11.9 U	<11.9 U	189	<11.2 U
Naphthalene	91-20-3	3800	3800	ug/kg	<10.6 U	<10.8 U	<10.8 U	--	<10.3 U	<10.4 U	<14.1 U	17.5	<11.9 U	<11.9 U	28.3	<11.2 U
Phenanthrene	85-01-8	180000	3800	ug/kg	17.8	<10.8 U	<10.8 U	--	12.8	<10.4 U	<14.1 U	112	<11.9 U	<11.9 U	170	<11.2 U
Pyrene	129-00-0	180000	1800000	ug/kg	40.5	<10.8 U	<10.8 U	--	35.9	12	<14.1 U	269	<11.9 U	<11.9 U	312	<11.2 U
Total Petroleum Hydrocarbons (5030/8015C)																
TPH-GRO (C6-C10)	TPH-GRO	230	NSL	mg/kg	<0.11 U	<0.11 U	<0.11 U	--	<0.10 U	<0.10 U	<0.14 U	<0.11 U	<0.12 U	<0.12 U	<0.10 U	<0.11 U
TPH-DRO (C10-C28)	TPH-DRO	230	NSL	mg/kg	27.5	<8.6 U	<8.6 U	--	<8.2 U	<8.3 U	<11.3 U	70.5	<9.5 U	<9.5 U	67.8	<9.0 U
Chlorinated Pesticides (8081B)																
Aldrin	309-00-2	39	39	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
alpha-BHC	319-84-6	86	86	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
beta-BHC	319-85-7	300	300	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
delta-BHC	319-86-8	NSL	86	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
alpha-Chlordane	5103-71-9	NSL	1700	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
gamma-Chlordane	5103-74-2	NSL	1700	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
4,4-DDD	72-54-8	190	1900	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
4,4-DDE	72-55-9	2000	2000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
4,4-DDT	50-29-3	1900	1900	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	60-57-1	34	34	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan I	959-98-8	47000	470000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan II	33213-65-9	47000	470000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan sulfate	1031-07-8	47000	380000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	72-20-8	1900	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	NSL	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Endrin ketone	53494-70-5	NSL	19000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	76-44-8	130	130	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	1024-57-3	70	70	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Gamma-BHC (Lindane)	58-89-9	570	570	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	72-43-5	32000	320000	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	8001-35-2	490	490	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (3540/8082A)																
Aroclor 1016	12674-11-2	410	4100	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Aroclor 1221	11104-28-2	200	200	ug/kg	<181 U	<183 U	<183 U	--	<175 U	<177 U	<239 U	<170 U	<170 U	<170 U	<170 U	<170 U
Aroclor 1232	11141-16-5	170	170	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Aroclor 1242	53469-21-9	230	230	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Aroclor 1248	12672-29-6	230	230	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Aroclor 1254	11097-69-1	120	240	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Aroclor 1260	11096-82-5	240	240	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	100	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Aroclor 1262	37324-23-5	NSL	240	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Aroclor 1268	11100-14-4	NSL	240	ug/kg	<88.3 U	<89.2 U	<89.2 U	--	<85.6 U	<86.5 U	<117 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U	<83.0 U
Chlorinated Herbicides (8151A)																
2,4-D	94-75-7	70000	700000	ug/kg	--	--	--	--	--	--	--	--	--			

Table 4-2: Soil Analytical Results
Troy Hill Park Parcels Phase II ESA

Troy Hill Park Parcels Phase II ESA					Sample Name	DUP-8	TH-3C-TP03-8-8.5	DUP-9	TH-3C-TP04-0-2	TH-3C-TP04-0-2	TH-3C-TP04-11-12	TH-3D-TP01-0-2	TH-3D-TP01-4-5	TH-3D-TP02-0-2	TH-3D-TP02-4-5	TH-3D-TP03-4-5
					Lab Sample ID:	9080108-08	9080108-02	9080108-09	9080108-04	9080108-04RE1	9080108-05	9072436-01	9072436-02	9072317-01	9072317-02	9072317-03
					Sample Date	8/1/2019	8/1/2019	8/1/2019	8/1/2019	8/1/2019	8/1/2019	7/24/2019	7/24/2019	7/23/2019	7/23/2019	7/23/2019
Parent Sample Code					TH-3C-TP03-10.5-11.5		TH-3C-TP03-8-8.5									
Analyte	CAS #	MDE Residential Soil	EPA RSL Residential Soil	Units												
SVOCs (8270D-SIM)																
Acenaphthene	83-32-9	360000	3600000	ug/kg	<11.0 U	<11.2 U	<11.4 U	--	<105 U	<10.9 U	<11.2 U	<12.0 U	<11.8 U	<13.9 U	<12.2 U	<12.2 U
Acenaphthylene	208-96-8	NSL	3600000	ug/kg	<11.0 U	<11.2 U	<11.4 U	--	1490	<10.9 U	<11.2 U	<12.0 U	<11.8 U	<13.9 U	<12.2 U	<12.2 U
Anthracene	120-12-7	1800000	18000000	ug/kg	<11.0 U	<11.2 U	<11.4 U	--	671	<10.9 U	<11.2 U	<12.0 U	<11.8 U	<13.9 U	<12.2 U	<12.2 U
Benzo[a]anthracene	56-55-3	1100	1100	ug/kg	<11.0 U	18.7	15.1	--	1440	<10.9 U	<11.2 U	<12.0 U	29.2	<13.9 U	<12.2 U	<12.2 U
Benzo[b]fluoranthene	205-99-2	1100	1100	ug/kg	<11.0 U	30.2	27.3	--	1510	<10.9 U	<11.2 U	<12.0 U	37.3	<13.9 U	<12.2 U	<12.2 U
Benzo[k]fluoranthene	207-08-9	11000	11000	ug/kg	<11.0 U	<11.2 U	<11.4 U	--	422	<10.9 U	<11.2 U	<12.0 U	15.3	<13.9 U	<12.2 U	<12.2 U
Benzo[g,h,i]Perylene	191-24-2	NSL	1800000	ug/kg	<11.0 U	17.3	14.5	--	1330	<10.9 U	<11.2 U	<12.0 U	18.3	<13.9 U	<12.2 U	<12.2 U
Benzo[a]pyrene	50-32-8	110	110	ug/kg	<11.0 U	20.7	16.9	--	1480	<10.9 U	<11.2 U	<12.0 U	25.7	<13.9 U	<12.2 U	<12.2 U
Chrysene	218-01-9	110000	110000	ug/kg	<11.0 U	30.7	25.1	--	1530	<10.9 U	<11.2 U	<12.0 U	34.7	<13.9 U	<12.2 U	<12.2 U
Dibenz[a,h]Anthracene	53-70-3	110	110	ug/kg	<11.0 U	<11.2 U	<11.4 U	--	273	<10.9 U	<11.2 U	<12.0 U	<11.8 U	<13.9 U	<12.2 U	<12.2 U
Fluoranthene	206-44-0	240000	2400000	ug/kg	14.6	38.5	30.7	--	1800	<10.9 U	<11.2 U	<12.0 U	54.1	<13.9 U	<12.2 U	<12.2 U
Fluorene	86-73-7	240000	2400000	ug/kg	<11.0 U	<11.2 U	<11.4 U	--	422	<10.9 U	<11.2 U	<12.0 U	<11.8 U	<13.9 U	<12.2 U	<12.2 U
Indeno[1,2,3-c,d]Pyrene	193-39-5	1100	1100	ug/kg	<11.0 U	17.4	15	--	1160	<10.9 U	<11.2 U	<12.0 U	19.5	<13.9 U	<12.2 U	<12.2 U
Naphthalene	91-20-3	3800	3800	ug/kg	<11.0 U	<11.2 U	<11.4 U	--	162	<10.9 U	<11.2 U	<12.0 U	<11.8 U	<13.9 U	<12.2 U	<12.2 U
Phenanthrene	85-01-8	180000	3800	ug/kg	<11.0 U	21.2	16.5	--	2040	<10.9 U	<11.2 U	<12.0 U	23.5	<13.9 U	<12.2 U	<12.2 U
Pyrene	129-00-0	180000	1800000	ug/kg	22.4	43.8	35	--	3060	<10.9 U	<11.2 U	<12.0 U	51.4	<13.9 U	<12.2 U	<12.2 U
Total Petroleum Hydrocarbons (5030/8015C)																
TPH-GRO (C6-C10)	TPH-GRO	230	NSL	mg/kg	<0.11 U	<0.11 U	<0.11 U	<0.11 U	--	<0.11 U	<0.11 U	<0.12 U	<0.12 U	<0.14 U	<0.12 U	<0.12 U
TPH-DRO (C10-C28)	TPH-DRO	230	NSL	mg/kg	<8.8 U	22.9	17.3	167	--	<8.7 U	<9.0 U	<9.6 U	<9.4 U	<11.1 U	18.9	
Chlorinated Pesticides (8081B)																
Aldrin	309-00-2	39	39	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
alpha-BHC	319-84-6	86	86	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
beta-BHC	319-85-7	300	300	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
delta-BHC	319-86-8	NSL	86	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
alpha-Chlordane	5103-71-9	NSL	1700	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
gamma-Chlordane	5103-74-2	NSL	1700	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
4,4-DDD	72-54-8	190	1900	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
4,4-DDE	72-55-9	2000	2000	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
4,4-DDT	50-29-3	1900	1900	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
Dieldrin	60-57-1	34	34	ug/kg	--	--	--	--	--	--	569	30.8	<7.88 U	<9.31 U	<8.17 U	<8.17 U
Endosulfan I	959-98-8	47000	470000	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
Endosulfan II	33213-65-9	47000	470000	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
Endosulfan sulfate	1031-07-8	47000	380000	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
Endrin	72-20-8	1900	19000	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
Endrin aldehyde	7421-93-4	NSL	19000	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
Endrin ketone	53494-70-5	NSL	19000	ug/kg	--	--	--	--	--	--	<75.3 U	<8.07 U	<7.88 U	<9.31 U	<8.17 U	<8.17 U
Heptachlor	76-44-8	130	130	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
Heptachlor epoxide	1024-57-3	70	70	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
Gamma-BHC (Lindane)	58-89-9	570	570	ug/kg	--	--	--	--	--	--	<37.1 U	<3.98 U	<3.88 U	<4.58 U	<4.02 U	<4.02 U
Methoxychlor	72-43-5	32000	320000	ug/kg	--	--	--	--	--	--	<371 U	<39.8 U	<38.8 U	<45.8 U	<40.2 U	<40.2 U
Toxaphene	8001-35-2	490	490	ug/kg	--	--	--	--	--	--	<753 U	<80.7 U	<78.8 U	<93.1 U	<81.7 U	<81.7 U
PCBs (3540/8082A)																
Aroclor 1016	12674-11-2	410	4100	ug/kg	<83.0 U	<83.0 U	<83.0 U	<83.0 U	--	<83.0 U	<93.3 U	<100 U	<97.6 U	<115 U	<101 U	<101 U
Aroclor 1221	11104-28-2	200	200	ug/kg	<170 U	<170 U	<170 U	<170 U	--	<170 U	<191 U	<205 U	<200 U	<236 U	<207 U	<207 U
Aroclor 1232	11141-16-5	170	170	ug/kg	<83.0 U	<83.0 U										

Table 4-2: Soil Analytical Results
Troy Hill Park Parcels Phase II ESA

					Sample Name	TH-3D-TP03-0-2	TH-3D-TP03-3-4	TH-3D-TP04-0-2	DUP-2	TH-3D-TP04-2-3
					Lab Sample ID:	9072317-04	9072317-05	9072317-06	9072317-14	9072317-07
					Sample Date	7/23/2019	7/23/2019	7/23/2019	7/23/2019	7/23/2019
					Parent Sample Code				TH-3D-TP04-0-2	
Analyte	CAS #	MDE Residential Soil	EPA RSL Residential Soil	Units						
SVOCs (8270D-SIM)										
Acenaphthene	83-32-9	360000	3600000	ug/kg	<12.0 U	<12.7 U	<11.5 U	<11.6 U	<11.8 U	
Acenaphthylene	208-96-8	NSL	3600000	ug/kg	<12.0 U	<12.7 U	<11.5 U	<11.6 U	<11.8 U	
Anthracene	120-12-7	1800000	18000000	ug/kg	<12.0 U	<12.7 U	18.8	29.6	<11.8 U	
Benzo[a]anthracene	56-55-3	1100	1100	ug/kg	<12.0 U	<12.7 U	188	305	<11.8 U	
Benzo[b]fluoranthene	205-99-2	1100	1100	ug/kg	<12.0 U	<12.7 U	237	319	<11.8 U	
Benzo[k]fluoranthene	207-08-9	11000	11000	ug/kg	<12.0 U	<12.7 U	97.2	131	<11.8 U	
Benzo[g,h,i]Perylene	191-24-2	NSL	1800000	ug/kg	<12.0 U	<12.7 U	105	144	<11.8 U	
Benzo[a]pyrene	50-32-8	110	110	ug/kg	<12.0 U	<12.7 U	168	242	<11.8 U	
Chrysene	218-01-9	110000	110000	ug/kg	<12.0 U	<12.7 U	233	329	<11.8 U	
Dibenz[a,h]Anthracene	53-70-3	110	110	ug/kg	<12.0 U	<12.7 U	22.8	33.8	<11.8 U	
Fluoranthene	206-44-0	240000	2400000	ug/kg	<12.0 U	<12.7 U	340	362	<11.8 U	
Fluorene	86-73-7	240000	2400000	ug/kg	<12.0 U	<12.7 U	<11.5 U	<11.6 U	<11.8 U	
Indeno[1,2,3-c,d]Pyrene	193-39-5	1100	1100	ug/kg	<12.0 U	<12.7 U	116	162	<11.8 U	
Naphthalene	91-20-3	3800	3800	ug/kg	<12.0 U	<12.7 U	<11.5 U	<11.6 U	<11.8 U	
Phenanthrene	85-01-8	180000	3800	ug/kg	<12.0 U	<12.7 U	133	105	<11.8 U	
Pyrene	129-00-0	180000	1800000	ug/kg	<12.0 U	<12.7 U	345	418	<11.8 U	
Total Petroleum Hydrocarbons (5030/8015C)										
TPH-GRO (C6-C10)	TPH-GRO	230	NSL	mg/kg	<0.12 U	<0.13 U	<0.11 U	<0.12 U	<0.12 U	
TPH-DRO (C10-C28)	TPH-DRO	230	NSL	mg/kg	<9.6 U	<10.1 U	40.3	34.8	<9.4 U	
Chlorinated Pesticides (8081B)										
Aldrin	309-00-2	39	39	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
alpha-BHC	319-84-6	86	86	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
beta-BHC	319-85-7	300	300	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
delta-BHC	319-86-8	NSL	86	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
alpha-Chlordane	5103-71-9	NSL	1700	ug/kg	<3.98 U	<4.18 U	10.6	10.3	<3.88 U	
gamma-Chlordane	5103-74-2	NSL	1700	ug/kg	<3.98 U	<4.18 U	6.52	6.26	<3.88 U	
4,4-DDD	72-54-8	190	1900	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
4,4-DDE	72-55-9	2000	2000	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
4,4-DDT	50-29-3	1900	1900	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
Dieldrin	60-57-1	34	34	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
Endosulfan I	959-98-8	47000	470000	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
Endosulfan II	33213-65-9	47000	470000	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
Endosulfan sulfate	1031-07-8	47000	380000	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
Endrin	72-20-8	1900	19000	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
Endrin aldehyde	7421-93-4	NSL	19000	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
Endrin ketone	53494-70-5	NSL	19000	ug/kg	<8.07 U	<8.48 U	<7.70 U	<7.79 U	<7.88 U	
Heptachlor	76-44-8	130	130	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
Heptachlor epoxide	1024-57-3	70	70	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
Gamma-BHC (Lindane)	58-89-9	570	570	ug/kg	<3.98 U	<4.18 U	<3.79 U	<3.84 U	<3.88 U	
Methoxychlor	72-43-5	32000	320000	ug/kg	<39.8 U	<41.8 U	<37.9 U	<38.4 U	<38.8 U	
Toxaphene	8001-35-2	490	490	ug/kg	<80.7 U	<84.8 U	<77.0 U	<77.9 U	<78.8 U	
PCBs (3540/8082A)										
Aroclor 1016	12674-11-2	410	4100	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Aroclor 1221	11104-28-2	200	200	ug/kg	<205 U	<215 U	<195 U	<198 U	<200 U	
Aroclor 1232	11141-16-5	170	170	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Aroclor 1242	53469-21-9	230	230	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Aroclor 1248	12672-29-6	230	230	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Aroclor 1254	11097-69-1	120	240	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Aroclor 1260	11096-82-5	240	240	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Aroclor 1262	37324-23-5	NSL	240	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Aroclor 1268	11100-14-4	NSL	240	ug/kg	<100 U	<105 U	<95.4 U	<96.5 U	<97.6 U	
Chlorinated Herbicides (8151A)										
2,4-D	94-75-7	70000	700000	ug/kg	<48.2 U	<50.6 U	<46.0 U	<46.5 U	<47.1 U	
2,4-DB	94-82-6	NSL	1900000	ug/kg	<48.2 U	<50.6 U	<46.0 U	<46.5 U	<47.1 U	
2,2-Dichloropropionic Acid	75-99-0	190000	1900000	ug/kg	<96.4 U	<101 U	<92.0 U	<93.0 U	<94.1 U	
Dicamba	1918-00-9	NSL	1900000	ug/kg	<48.2 U	<50.6 U	<46.0 U	<46.5 U	<47.1 U	
Dichlorprop	120-36-5	NSL	NSL	ug/kg	<48.2 U	<50.6 U	<46.0 U	<46.5 U	<47.1 U	
Dinoseb	88-85-7	6300	63000	ug/kg	<48.2 U	<50.6 U	<46.0 U	<46.5 U	<47.1 U	
MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	94-74-6	NSL	32000	ug/kg	<9640 U	<10100 U	<9200 U	<9300 U	<9410 U	
MCPP	93-65-2	NSL	63000	ug/kg	<9640 U	<10100 U	<9200 U	<9300 U	<9410 U	
2,4,5-T	93-76-5	NSL	630000	ug/kg	<48.2 U	<50.6 U	<46.0 U	<46.5 U	<47.1 U	
2,4,5-TP (Silvex)	93-72-1	51000	510000	ug/kg	<48.2 U	<50.6 U	<46.0 U	<46.5 U	<47.1 U	
Total Metals (3050B/6020A)										
Aluminum	7429-90-5	7700	77000	mg/kg	--	--	--	--	--	
Antimony	7440-36-0	3.1	31	mg/kg	--	--	--	--	--	
Arsenic	7440-38-2	0.68	0.68	mg/kg	5.19	4.35	1.95	3.14	6.41	
Barium	7440-39-3	15000	15000	mg/kg	46.2	79.9	30.7	46.7	24.3	
Beryllium	7440-41-7	16	160	mg/kg	--	--	--	--	--	
Cadmium	7440-43-9	7.11	71	mg/kg	<0.301 U	<0.316 U	0.401	0.45	<0.294 U	
Calcium	7440-70-2	NSL	NSL	mg/kg	--	--	--	--	--	
Chromium	7440-47-3	NSL	120000	mg/kg	26.6	18.6	7.81	13.4	22.3	
Cobalt	7440-48-4	NSL	23	mg/kg	--	--	--	--	--	
Copper	7440-50-8	310	3100	mg/kg	--	--	--	--	--	
Iron	7439-89-6	5500	55000	mg/kg	--	--	--	--	--	
Lead	7439-92-1	400	400	mg/kg	10.1	21.9	28.3	19.6	8.07	
Magnesium	7439-95-4	NSL	NSL	mg/kg	--	--	--	--	--	
Manganese	7439-96-5	180	1800	mg/kg	--	--	--	--	--	
Mercury	7439-97-6	1.1	11	mg/kg	0.0382	0.0474	0.0227	0.0213	0.0186	
Nickel	7440-02-0	150	1500	mg/kg	--	--	--	--	--	
Potassium	7440-09-7	NSL	NSL	mg/kg	--	--	--	--	--	
Selenium	7782-49-2	39	390	mg/kg	2.1	1.99	0.515	1.03	1.38	
Silver	7440-22-4	39	390	mg/kg	<0.301 U	<0.316 U	<0.287 U	<0.291 U	<0.294 U	
Sodium	7440-23-5	NSL	NSL	mg/kg	--	--	--	--	--	
Thallium	7440-28-0	0.078	0.78	mg/kg	--	--	--	--	--	
Vanadium	7440-62-2	39	390	mg/kg	--	--	--	--	--	
Zinc	7440-66-6	2300	23000	mg/kg	--	--	--	--	--	
Hexavalent Chromium (7199)										
Chromium (Hexavalent)	18540-29-9	0.3	0.3	mg/kg	0.368	0.153	<0.0868 U	<0.0896 U	0.117	
Other Parameters										
Percent Solids (Wet Chemistry)	TS	NSL	NSL	%	84	78.3	87.1	87.6	84.5	
Percent Solids (ASTM D2216-05)	TS	NSL	NSL	%	83	79	87	86	85	
pH	pH	NSL	NSL	pH Units	--	--	--	--	--	

Notes:
U = Indicates the analyte was not detected greater than the laboratory reporting limit.
ug/kg= Micrograms per Kilogram
mg/kg= Milligrams per Kilogram
-- = Not analyzed
Maryland Dept. of Environment October 2018 Soil Standards Residential Clean-up Standard
USEPA Regional Screening Level (RSL) for Residential Soil (TR=1E-06, HQ=1) MAY 2019
Cells exceeding the MDE Residential Soil Criteria are Bolded
Cells exceeding the EPA Regional Screening Level (RSL) for Residential Soil are shaded gray
Cells exceeding the Central Maryland ATC for arsenic (4.9 mg/kg) are shown in red font

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TABLE 5-1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
PHASE II ESA - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future Medium: Soil Exposure Medium: Surface Soil, Air Exposure Point: Troy Hill Park

Chemical of Potential Concern	Units	Mean Detected Concentration	95% UCLM	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Metals									
Arsenic	mg/kg	4.45E+00	5.18E+00	1.56E+01		mg/kg	5.18E+00	95%UCLM-G	ProUCL
Chromium (Hexavalent)	mg/kg	2.64E-01	3.59E-01	1.47E+00		mg/kg	3.59E-01	95%UCLM-KMC	ProUCL
Lead	mg/kg	3.42E+01	4.36E+01	4.81E+02		mg/kg	3.42E+01	Mean	USEPA 1994
SVOCs									
Benzo[a]pyrene	mg/kg	7.69E-02	NA	2.42E-01		mg/kg	2.42E-01	Maximum Detected	N < 5
Pesticides									
Dieldrin	mg/kg	5.69E-01	NA	5.69E-01		mg/kg	5.69E-01	Maximum Detected	N <5

Note: Statistics calculated by the EPA program ProUCL.

95%UCLM-G indicates that the 95 percent upper confidence limit on the mean is based on the approximate or adjusted gamma distribution.

95%UCLM-KMC indicates that the 95 percent upper confidence limit on the mean is based on the non-parametric Kaplan-Meier (KM) Chebyshev test.

N < 5 indicates that the number of detects is less than 5, so the maximum detected value was used.

USEPA 1994 = The arithmetic mean is used per USEPA lead model guidance (USEPA 1994).

NA = Not Applicable

TABLE 5-2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
PHASE II ESA - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Subsurface Soil, Air
Exposure Point: Troy Hill Park

Chemical of Potential Concern	Units	Mean Detected Concentration	95% UCLM	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Metals									
Arsenic	mg/kg	3.08E+00	3.71E+00	7.08E+00		mg/kg	3.71E+00	95%UCLM-G	ProUCL
Chromium (Hexavalent)	mg/kg	3.39E-01	2.79E-01	1.14E+00		mg/kg	2.79E-01	95%UCLM-L	ProUCL

Note: Statistics calculated by the EPA program ProUCL.

95%UCLM-G indicates that the 95 percent upper confidence limit on the mean is based on the approximate or adjusted gamma distribution.

95%UCLM-L indicates that the 95 percent upper confidence limit on the mean is based on the Land (H) statistic for lognormal distributions.

TABLE 5-3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
PHASE II ESA - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future Medium: Soil Exposure Medium: Surface Soil, Air Exposure Point: Troy Hill Park - 3C

Chemical of Potential Concern	Units	Mean Detected Concentration	95% UCLM	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Metals									
Arsenic	mg/kg	3.06E+00	NA	4.46E+00		mg/kg	4.46E+00	Maximum Detected	N < 5
Chromium (Hexavalent)	mg/kg	2.83E-01	NA	5.20E-01		mg/kg	5.20E-01	Maximum Detected	N < 5
SVOCs									
Benzo[a]anthracene	mg/kg	4.44E-01	NA	1.44E+00		mg/kg	1.44E+00	Maximum Detected	N < 5
Benzo[b]fluoranthene	mg/kg	4.81E-01	NA	1.51E+00		mg/kg	1.51E+00	Maximum Detected	N < 5
Benzo[a]pyrene	mg/kg	4.64E-01	NA	1.48E+00		mg/kg	1.48E+00	Maximum Detected	N < 5
Dibenz[a,h]anthracene	mg/kg	1.14E-01	NA	2.73E+00		mg/kg	2.73E+00	Maximum Detected	N < 5
Indeno[1,2,3-c,d]pyrene	mg/kg	3.70E-01	NA	1.16E+00		mg/kg	1.16E+00	Maximum Detected	N < 5

Note: Statistics calculated by the EPA program ProUCL.

N < 5 indicates that the number of detects is less than 5, so the maximum detected value was used.

NA = Not Applicable

TABLE 5-4
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
PHASE II ESA - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future Medium: Soil Exposure Medium: Subsurface Soil, Air Exposure Point: Troy Hill Park - 3C

Chemical of Potential Concern	Units	Mean Detected Concentration	95% UCLM	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Metals									
Arsenic	mg/kg	2.73E+00	4.15E+00	4.67E+00		mg/kg	4.15E+00	95%UCLM-N	ProUCL

Note: Statistics calculated by the EPA program ProUCL.

95%UCLM-N indicates that the 95 percent upper confidence limit on the mean is based on the student's t-test for normal distributions.

**TABLE 5-5
VALUES USED FOR RECREATIONAL USER (ELEMENTARY SCHOOL AGED CHILD) DAILY TOTAL SOIL INTAKE EQUATIONS
TROY HILL PARK, ELKRIDGE, MARYLAND**

Scenario Timeframe: Future Medium: Soil Exposure Medium: Soil, Air Exposure Point: Troy Hill Park, Elkridge, MD Receptor Population: Recreational User Receptor Age: Elementary Child (5 to 11 years)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/Reference	Intake Equation / Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	Chronic Daily Intake (CDI) (mg/kg/day) = CS x CR x EF x ED x CF / (BW x AT)
	CR	Ingestion Rate	mg/day	100	U.S. EPA 2011	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	6	BPJ (1)	
	BW	Body Weight	kg	32	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	2,190	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	CDI (mg/kg/day) = CS x SA x AF x ABS x EF x ED x CF / (BW x AT)
	SA	Surface Area for Contact	cm ² /event	3,734	U.S. EPA 2011 (2)	
	AF	Adherence Factor	mg/cm ²	0.2	U.S. EPA 2004 (3)	
	EF	Exposure Frequency	event/yr	250	MDE 2018	
	ED	Exposure Duration	yr	6	BPJ (1)	
	BW	Body Weight	kg	32	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	2,190	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
	ABS	Dermal Absorption Fraction	unitless	Chemical-Specific	U.S. EPA 2004 (4)	
Inhalation	CA	Chemical Concentration in Air	mg/m ³	Chemical-Specific	Chemical-Specific	Exposure Concentration (µg/m ³ or mg/m ³) = CA x CF ₁ x ET x EF x ED / AT x CF ₂ Note: CF ₁ only used in carcinogenic intake calculations
	CF ₁	Conversion Factor	µg/mg	1,000	U.S. EPA 2009	
	ET	Exposure Time	hr/day	8	U.S. EPA 2009	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	6	BPJ (1)	
	BW	Body Weight	kg	32	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	2,190	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF ₂	Conversion Factor	hour/day	24	U.S. EPA 2009	

- (1) Exposure duration assumed for an elementary school child based upon grade level of K-5th grade (approximate age range of 5 years to 11 years).
 (2) Taken from Tables 7-2 and 7-8 of U.S. EPA 2011, weighted average of mean values for head, hands, forearms, lower legs, and feet for male and females birth to less than 6 years of age.
 (3) Taken from Exhibit 3-4 of USEPA 2004.
 (4) Taken from Exhibit 3-4 of USEPA 2004.

BPJ = Best Professional Judgment

U.S. EPA = United States Environmental Protection Agency

CDI = chronic daily intake

mg/kg = milligrams per kilogram

kg/mg = kilograms per milligram

mg/cm² = milligrams per square centimeter

mg/day = milligrams per day

day/yr = days per year

RME = Reasonable Maximum Exposure

mg/m³ = milligram per cubic meter

µg/m³ = micrograms per cubic meter

cm²/event = square centimeters per event

µg/mg = microgram per milligram

kg = kilogram

hr/day = hours per day

TABLE 5-6
VALUES USED FOR RECREATIONAL USER (MIDDLE SCHOOL AGED CHILD) DAILY TOTAL SOIL INTAKE EQUATIONS
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil, Air
Exposure Point: Troy Hill Park, Elkridge, MD Receptor
Population: Recreational User
Receptor Age: Middle School Child (11 to 14 years)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/Reference	Intake Equation / Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	$CDI \text{ (mg/kg/day)} = CS \times CR \times EF \times ED \times CF / (BW \times AT)$
	CR	Ingestion Rate	mg/day	100	U.S. EPA 2011	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	3	BPJ (1)	
	BW	Body Weight	kg	57	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	1,095	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	$CDI \text{ (mg/kg/day)} = CS \times SA \times AF \times ABS \times EF \times ED \times CF / (BW \times AT)$
	SA	Surface Area for Contact	cm ² /event	5,307	U.S. EPA 2011 (2)	
	AF	Adherence Factor	mg/cm ²	0.2	U.S. EPA 2004 (3)	
	EF	Exposure Frequency	event/yr	250	MDE 2018	
	ED	Exposure Duration	yr	3	BPJ (1)	
	BW	Body Weight	kg	57	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	1,095	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
	ABS	Dermal Absorption Fraction	unitless	Chemical-Specific	U.S. EPA 2004 (4)	
Inhalation	CA	Chemical Concentration in Air	mg/m ³	Chemical-Specific	Chemical-Specific	$\text{Exposure Concentration } (\mu\text{g/m}^3 \text{ or mg/m}^3) = CA \times CF_1 \times ET \times EF \times ED / AT \times CF_2$ Note: CF₁ only used in carcinogenic intake calculations
	CF ₁	Conversion Factor	μg/mg	1,000	U.S. EPA 2009	
	ET	Exposure Time	hr/day	8	U.S. EPA 2009	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	3	BPJ (1)	
	BW	Body Weight	kg	57	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	1,095	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF ₂	Conversion Factor	hour/day	24	U.S. EPA 2009	

(1) Exposure duration assumed for an middle school child based upon grade level of 6th-8th grade (approximate age range of 11 years to 14 years).

(2) Taken from Tables 7-2 and 7-8 of U.S. EPA 2011, weighted average of mean values for head, hands, forearms, lower legs, and feet for male and females birth to less than 6 years of age.

(3) Taken from Exhibit 3-3 of USEPA 2004 assuming a child playing in dry soil ages 8 to 12 years.

(4) Taken from Exhibit 3-4 of USEPA 2004.

U.S. EPA = United States Environmental Protection Agency

CDI = chronic daily intake

mg/kg = milligrams per kilogram

kg/mg = kilograms per milligram

mg/cm² = milligrams per square centimeter

mg/day = milligrams per day

day/yr = days per year

RME = Reasonable Maximum Exposure

mg/m³ = milligram per cubic meter

μg/m³ = micrograms per cubic meter

cm²/event = square centimeters per event

μg/mg = microgram per milligram

kg = kilogram

hr/day = hours per day

TABLE 5-7
VALUES USED FOR RECREATIONAL USER (HIGH SCHOOL AGED CHILD) DAILY TOTAL SOIL INTAKE EQUATIONS
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil, Air
Exposure Point: Troy Hill Park, ElkrIDGE, MD Receptor
Population: Recreational User
Receptor Age: High School Child (14 to 18 years)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/Reference	Intake Equation / Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	$CDI (mg/kg/day) = CS \times CR \times EF \times ED \times CF / (BW \times AT)$
	CR	Ingestion Rate	mg/day	100	U.S. EPA 2011	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	4	BPJ (1)	
	BW	Body Weight	kg	64	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	1,460	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	$CDI (mg/kg/day) = CS \times SA \times AF \times ABS \times EF \times ED \times CF / (BW \times AT)$
	SA	Surface Area for Contact	cm ² /event	5,561	U.S. EPA 2011 (2)	
	AF	Adherence Factor	mg/cm ²	0.2	U.S. EPA 2004 (3)	
	EF	Exposure Frequency	event/yr	250	MDE 2018	
	ED	Exposure Duration	yr	4	BPJ (1)	
	BW	Body Weight	kg	64	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	1,460	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
	ABS	Dermal Absorption Fraction	unitless	Chemical-Specific	U.S. EPA 2004 (4)	
Inhalation	CA	Chemical Concentration in Air	mg/m ³	Chemical-Specific	Chemical-Specific	$Exposure\ Concentration\ (\mu g/m^3\ or\ mg/m^3) = CA \times CF_1 \times ET \times EF \times ED / AT \times CF_2$ Note: CF₁ only used in carcinogenic intake calculations
	CF ₁	Conversion Factor	μg/mg	1,000	U.S. EPA 2009	
	ET	Exposure Time	hr/day	8	U.S. EPA 2009	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	4	BPJ (1)	
	BW	Body Weight	kg	64	U.S. EPA 2011	
	AT-NC	Averaging time - Noncancer	days	1,460	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF ₂	Conversion Factor	hour/day	24	U.S. EPA 2009	

(1) Exposure duration assumed for an high school child based upon grade level of 9th-12th grade (approximate age range of 14 years to 18 years).

(2) Taken from Tables 7-2 and 7-8 of U.S. EPA 2011, weighted average of mean values for head, hands, forearms, lower legs, and feet for male and females birth to less than 6 years of age.

(3) Taken from Exhibit 3-3 of USEPA 2004 assuming a child playing in dry soil ages 8 to 12 years.

(4) Taken from Exhibit 3-4 of USEPA 2004.

U.S. EPA = United States Environmental Protection Agency

CDI = chronic daily intake

mg/kg = milligrams per kilogram

kg/mg = kilograms per milligram

mg/cm² = milligrams per square centimeter

mg/day = milligrams per day

day/yr = days per year

RME = Reasonable Maximum Exposure

mg/m³ = milligram per cubic meter

μg/m³ = micrograms per cubic meter

cm²/event = square centimeters per event

μg/mg = microgram per milligram

kg = kilogram

hr/day = hours per day

TABLE 5-8
VALUES USED FOR OFFICE/COMMERCIAL WORKER DAILY SURFACE SOIL INTAKE EQUATIONS
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil, Air
Exposure Point: Troy Hill Park, ElkrIDGE, MD Receptor
Population: Recreational User
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/Reference	Intake Equation / Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	$CDI (mg/kg/day) = \frac{CS \times CR \times EF \times ED \times CF}{(BW \times AT)}$
	CR	Ingestion Rate	mg/day	100	U.S. EPA 2011	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	20	U.S. EPA 2019	
	BW	Body Weight	kg	80	U.S. EPA 2014	
	AT-NC	Averaging time - Noncancer	days	7,300	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Chemical-Specific	$CDI (mg/kg/day) = \frac{CS \times SA \times AF \times ABS \times EF \times ED \times CF}{(BW \times AT)}$
	SA	Surface Area for Contact	cm ² /event	6,032	U.S. EPA 2011, 2019 (1)	
	AF	Adherence Factor	mg/cm ²	0.07	U.S. EPA 2004 (1)	
	EF	Exposure Frequency	event/yr	250	MDE 2018	
	ED	Exposure Duration	yr	20	U.S. EPA 2019	
	BW	Body Weight	kg	80	U.S. EPA 2014	
	AT-NC	Averaging time - Noncancer	days	7,300	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF	Conversion Factor	kg/mg	1.0E-06	U.S. EPA 1989	
	ABS	Dermal Absorption Fraction	unitless	Chemical-Specific	U.S. EPA 2004 (2)	
Inhalation	CA	Chemical Concentration in Air	mg/m ³	Chemical-Specific	Chemical-Specific	$Exposure\ Concentration\ (\mu g/m^3) = \frac{CA \times CF_1 \times ET \times EF \times ED}{AT \times CF_2}$
	CF ₁	Conversion Factor	μg/mg	1,000	U.S. EPA 2009	
	ET	Exposure Time	hr/day	8	U.S. EPA 2009	
	EF	Exposure Frequency	day/yr	250	MDE 2018	
	ED	Exposure Duration	yr	20	U.S. EPA 2019	
	BW	Body Weight	kg	80	U.S. EPA 2014	
	AT-NC	Averaging time - Noncancer	days	7,300	U.S. EPA 1989	
	AT-C	Averaging Time - Cancer	days	25,550	U.S. EPA 1989	
	CF ₂	Conversion Factor	hour/day	24	U.S. EPA 2009	

(1) Taken from Tables 7-2 and 7-12, weighted average of mean values for head, hands, forearms, lower legs, and feet for male and female older than 21 years of age.

(2) Taken from Exhibit 3-4 of USEPA 2004.

U.S. EPA = United States Environmental Protection Agency

CDI = chronic daily intake

mg/kg = milligrams per kilogram

kg/mg = kilograms per milligram

mg/cm² = milligrams per square centimeter

mg/day = milligrams per day

day/yr = days per year

RME = Reasonable Maximum Exposure

mg/m³ = milligram per cubic meter

μg/m³ = micrograms per cubic meter

cm²/event = square centimeters per event

μg/mg = microgram per milligram

kg = kilogram

hr/day = hours per day

TABLE 5-9
NON-CANCER TOXICITY DATA - ORAL/DERMAL
TROY HILL PARK, ELKRIDGE, MARYLAND

Constituents of Potential Concern	Chronic/ Subchronic	Oral RfD Value (mg/kg-day)	Oral to Dermal Adjustment Factor (GI ABS) ⁽¹⁾	Adjusted Dermal RfD ⁽²⁾ (mg/kg bw-day)	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ ⁽³⁾ (mm/dd/yy)
Inorganics								
ARSENIC	Chronic	3.0E-04	1	3.0E-04	Skin, Cardiovascular	3/1	IRIS	8/21/2019
CHROMIUM, HEXAVALENT	Chronic	3.0E-03	0.025	7.5E-05	None	300/1	IRIS	8/21/2019
PAHs								
BENZ(A)ANTHRACENE	NA	NA	1	NA	NA	NA	IRIS	8/25/2019
BENZO(B)FLUORANTHENE	NA	NA	1	NA	NA	NA	IRIS	8/22/2019
BENZO(A)PYRENE	Chronic	3.00E-04	1	3.00E-04	Developmental System	300/1	IRIS	8/21/2019
DIBENZ(A,H)ANTHRACENE	NA	NA	1	NA	NA	NA	IRIS	8/22/2019
INDENO(1,2,3-C,D)PYRENE	NA	NA	1	NA	NA	NA	IRIS	8/25/2019
Pesticides/PCBs								
DIELDRIN	Chronic	5.00E-05	1	5.00E-05	Liver	100/1	IRIS	8/21/2019

RfD = Reference Dose

mg/kg bw-day = milligram per kilogram body weight-day

GI ABS = Gastrointestinal Absorption Fraction

(1) Taken from USEPA 2004 Guidance.

(2) Dermal toxicological values adjusted from oral values using USEPA 2004 recommended chemical-specific gastrointestinal absorption factors (GI ABS). RfDs are multiplied by the GI ABS.

(3) IRIS - Integrated Risk Information System. For IRIS values, the date IRIS was searched is provided. Available at: <http://www.epa.gov/iris/>

TABLE 5-10
NON-CANCER TOXICITY DATA - INHALATION
TROY HILL PARK, ELKRIDGE, MARYLAND

Constituents of Potential Concern	Chronic/ Subchronic	Value Inhalation (RfC) (mg/m ³)	Primary Target Organ	Combined Uncertainty/ Modifying Factors	Sources of RfC Target Organ	Dates ⁽¹⁾ (mm/dd/yy)
Inorganics						
ARSENIC	Chronic	1.5E-05	Cardiovascular System	30/1	CalEPA	7/31/2019
CHROMIUM, HEXAVALENT	Chronic	1.0E-04	Blood	300/1	IRIS	8/21/2019
PAHs						
BENZ(A)ANTHRACENE	NA	NA	NA	NA	IRIS	8/21/2019
BENZO(B)FLUORANTHENE	Chronic	NA	NA	NA	IRIS	8/22/2019
BENZO(A)PYRENE	Chronic	2.00E-06	Developmental System	3000/1	IRIS	8/21/2019
DIBENZ(A,H)ANTHRACENE	Chronic	NA	NA	NA	IRIS	8/22/2019
INDENO(1,2,3-C,D)PYRENE	NA	NA	NA	NA	IRIS	8/21/2019
Pesticides/PCBs						
DIELDRIN	NA	NA	NA	NA	IRIS	8/22/2019

RfC = Reference Concentration

mg/m³ = milligrams per cubic meter

(1) CalEPA - California Environmental Protection Agency. For CalEPA values, the date searched is provided.

TABLE 5-11
CANCER TOXICITY DATA - ORAL/DERMAL
TROY HILL PARK, ELKRIDGE, MARYLAND

Constituents of Potential Concern	Oral Cancer Slope Factor	Oral to Dermal Adjustment Factor (GI ABS) ⁽¹⁾	Absorbed Cancer Slope Factor for Dermal ⁽²⁾	Units	Weight of Evidence/ Cancer Guideline Description	Mutagenic Compound	Source	Date ⁽³⁾ (mm/dd/yy)
Inorganics								
ARSENIC	1.5E+00	1	1.5E+00	per (mg/kg-day)	A		IRIS	8/21/2019
CHROMIUM, HEXAVALENT	5.00E-01	0.025	2.00E+01	per (mg/kg-day)	D	M	IRIS	8/22/2019
PAHs								
BENZ(A)ANTHRACENE	1.00E-01	1	1.00E-01	per (mg/kg-day)	B2	M	IRIS	8/21/2019
BENZO(B)FLUORANTHENE	1.00E-01	1	1.00E-01	per (mg/kg-day)	B2	M	IRIS	8/21/2019
BENZO(A)PYRENE	1.00E+00	1	1.00E+00	per (mg/kg-day)	A	M	IRIS	8/21/2019
DIBENZ(A,H)ANTHRACENE	1.00E+00	1	1.00E+00	per (mg/kg-day)	B2	M	IRIS	8/21/2019
INDENO(1,2,3-C,D)PYRENE	1.00E-01	1	1.00E-01	per (mg/kg-day)	B2	M	IRIS	8/21/2019
Pesticides/PCBs								
DIELDRIN	1.60E+01	1	1.60E+01	per (mg/kg-day)	B2		IRIS	8/21/2019

NA = Not Available

mg/kg-day = milligram per kilogram-day

GI ABS = Gastrointestinal Absorption Fraction

Weight of Evidence: A - Known human carcinogen

B1 - Probable human carcinogen -
indicate that limited human data are available

B2 - Probable human carcinogen -
indicates sufficient evidence in animals
and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

(1) Taken from USEPA 2004 Guidance.

(2) Dermal Toxicological values adjusted from oral values using USEPA 2004 recommended chemical-specific gastrointestinal absorption factors (GI ABS). Cancer slope factors are divided by the GI ABS.

(3) IRIS - Integrated Risk Information System. For IRIS values, the date IRIS was searched is provided.

Available at: <http://www.epa.gov/iris/>

TABLE 5-12
CANCER TOXICITY DATA - INHALATION
TROY HILL PARK, ELKRIDGE, MARYLAND

Constituents of Potential Concern	Unit Risk		Weight of Evidence/Cancer Guideline Description	Mutagenic	Unit Risk	
	Value	Units			Source	Date ⁽¹⁾
Inorganics						
ARSENIC	4.3E-03	(ug/m ³) ⁻¹	A		IRIS	8/21/2019
CHROMIUM, HEXAVALENT	1.2E-02	(ug/m ³) ⁻¹	A		IRIS	8/21/2019
PAHs						
BENZ(A)ANTHRACENE	6.00E-05	(ug/m ³) ⁻¹	B2	M	IRIS	8/21/2019
BENZO(B)FLUORANTHENE	6.00E-05	(ug/m ³) ⁻¹	B2	M	IRIS	8/21/2019
BENZO(A)PYRENE	6.00E-04	(ug/m ³) ⁻¹	A	M	IRIS	8/21/2019
DIBENZ(A,H)ANTHRACENE	6.00E-04	(ug/m ³) ⁻¹	B2	M	IRIS	8/21/2019
INDENO(1,2,3-C,D)PYRENE	6.00E-05	(ug/m ³) ⁻¹	B2	M	IRIS	8/21/2019
Pesticides/PCBs						
DIELDRIN	4.60E-03	(ug/m ³) ⁻¹	B2		IRIS	8/21/2019

NA = Not Available

Weight of Evidence: A - Known human carcinogen

B1 - Probable human carcinogen -
indicate that limited human data are available

B2 - Probable human carcinogen -
indicates sufficient evidence in animals
and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

(1) IRIS - Integrated Risk Information System. For IRIS values, the date IRIS was searched is provided. Available at:
<http://www.epa.gov/iris/>

TABLE 5-13
CHEMICAL-SPECIFIC PARAMETERS FOR DERMAL CONTACT
TROY HILL PARK, ELKRIDGE, MARYLAND

Constituents of Potential Concern	Absorption Factor	Reference	GI ABS	Reference
Inorganics				
ARSENIC	0.03	U.S. EPA, 2004	1	U.S. EPA, 2004
CHROMIUM, HEXAVALENT	NA	U.S. EPA, 2004	0.025	U.S. EPA, 2004
PAHs				
BENZ(A)ANTHRACENE	0.13	U.S. EPA, 2004	1	U.S. EPA, 2004
BENZO(B)FLUORANTHENE	0.13	U.S. EPA, 2004	1	U.S. EPA, 2004
BENZO(A)PYRENE	0.13	U.S. EPA, 2004	1	U.S. EPA, 2004
DIBENZ(A,H)ANTHRACENE	0.13	U.S. EPA, 2004	1	U.S. EPA, 2004
INDENO(1,2,3-C,D)PYRENE	0.13	U.S. EPA, 2004	1	U.S. EPA, 2004
Pesticides/PCBs				
DIELDRIN	0.1	U.S. EPA, 2004	1	U.S. EPA, 2004

NA = Data not available.

GI ABS = Gastrointestinal Absorption Fraction

U.S. EPA, 2004 = U.S. Environmental Protection Agency, 2004. *Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment).* Final Guidance.

TABLE 5-14
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics	5.18E+00	(mg/kg)	5.74E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	8.6E-07	6.69E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	2.2E-02	
				CHROMIUM, HEXAVALENT	3.59E-01	(mg/kg)	6.63E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	3.3E-08	7.73E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	2.6E-04	
				PAHs													
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	1.34E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	1.3E-07	5.21E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.7E-03	
				Pesticides/PCBs													
			DIELDRIN	5.69E-01	(mg/kg)	1.05E-07	(mg/kg-day)	1.6E+01	per (mg/kg-day)	1.7E-06	1.23E-06	(mg/kg-day)	5.0E-05	(mg/kg-day)	2.5E-02		
			Exp. Route Total													4.9E-02	
			Dermal ¹	Inorganics	5.18E+00	(mg/kg)	2.14E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	3.2E-07	2.50E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	8.3E-03	
				CHROMIUM, HEXAVALENT	3.59E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--	
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	1.30E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	1.3E-07	5.06E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.7E-03	
	Pesticides/PCBs																
	DIELDRIN	5.69E-01	(mg/kg)	7.84E-08	(mg/kg-day)	1.6E+01	per (mg/kg-day)	1.3E-06	9.15E-07	(mg/kg-day)	5.0E-05	(mg/kg-day)	1.8E-02				
	Exp. Route Total													2.8E-02			
	Exposure Point Total													7.7E-02			
	Exposure Medium Total													7.7E-02			
	Air	Troy Hill Park	Inhalation	Inorganics	6.64E-08	(mg/m ³)	1.30E-06	(ug/m ³)	4.3E-03	per (ug/m ³)	5.6E-09	1.52E-08	(mg/m ³)	1.5E-05	(mg/m ³)	1.0E-03	
				CHROMIUM, HEXAVALENT	4.60E-09	(mg/m ³)	9.01E-08	(ug/m ³)	8.4E-02	per (ug/m ³)	7.6E-09	1.05E-09	(mg/m ³)	1.0E-04	(mg/m ³)	1.1E-05	
PAHs																	
BENZO(A)PYRENE				3.10E-09	(mg/m ³)	1.82E-07	(ug/m ³)	6.0E-04	per (ug/m ³)	1.1E-10	7.08E-10	(mg/m ³)	2.0E-06	(mg/m ³)	3.5E-04		
Pesticides/PCBs																	
DIELDRIN				7.29E-09	(mg/m ³)	2.59E-06	(ug/m ³)	4.60E-02	per (ug/m ³)	1.2E-07	1.26E-06	(mg/m3)	NA	(mg/m3)	--		
Exp. Route Total													1.4E-03				
Exposure Point Total													1.4E-03				
Exposure Medium Total													1.4E-03				
Soil Total													7.9E-02				
				Total of Receptor Risks Across All Media					4.5E-06				Total of Receptor Hazards Across All Media				7.9E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-15
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics												
				ARSENIC	5.18E+00	(mg/kg)	1.61E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.4E-07	3.75E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.2E-02
				CHROMIUM, HEXAVALENT	3.59E-01	(mg/kg)	6.63E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	3.3E-08	7.73E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	2.6E-04
				PAHs												
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	3.75E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	3.8E-08	2.92E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	9.7E-04
			Dermal ¹	Pesticides/PCBs												
				DIELDRIN	5.69E-01	(mg/kg)	1.05E-07	(mg/kg-day)	1.6E+01	per (mg/kg-day)	1.7E-06	1.23E-06	(mg/kg-day)	5.0E-05	(mg/kg-day)	2.5E-02
				Exp. Route Total							2.0E-06					3.8E-02
				Inorganics												
				ARSENIC	5.18E+00	(mg/kg)	8.52E-08	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.3E-07	1.99E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	6.6E-03
				CHROMIUM, HEXAVALENT	3.59E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--
				PAHs												
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	5.18E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	5.2E-08	4.03E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.3E-03
				Pesticides/PCBs												
				DIELDRIN	5.69E-01	(mg/kg)	7.84E-08	(mg/kg-day)	1.6E+01	per (mg/kg-day)	1.3E-06	9.15E-07	(mg/kg-day)	5.0E-05	(mg/kg-day)	1.8E-02
			Exp. Route Total								1.4E-06					2.6E-02
			Exposure Point Total								3.4E-06					6.5E-02
			Exposure Medium Total								3.4E-06					6.5E-02
Air	Troy Hill Park	Inhalation		Inorganics												
				ARSENIC	6.64E-08	(mg/m ³)	6.50E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	2.8E-09	1.52E-08	(mg/m ³)	1.5E-05	(mg/m ³)	1.0E-03
				CHROMIUM, HEXAVALENT	4.60E-09	(mg/m ³)	9.01E-08	(ug/m ³)	8.4E-02	per (ug/m ³)	7.6E-09	1.05E-09	(mg/m ³)	1.0E-04	(mg/m ³)	1.1E-05
				PAHs												
				BENZO(A)PYRENE	3.10E-09	(mg/m ³)	9.11E-08	(ug/m ³)	6.0E-04	per (ug/m ³)	5.5E-11	7.08E-10	(mg/m ³)	2.0E-06	(mg/m ³)	3.5E-04
				Pesticides/PCBs												
				DIELDRIN	7.29E-09	(mg/m ³)	2.59E-06	(ug/m ³)	4.60E-02	per (ug/m ³)	1.2E-07	1.26E-06	(mg/m3)	NA	(mg/m3)	--
				Exp. Route Total							1.3E-07					1.4E-03
			Exposure Point Total								1.3E-07					1.4E-03
			Exposure Medium Total								1.3E-07					1.4E-03
			Soil Total								3.6E-06					6.6E-02
			Total of Receptor Risks Across All Media								3.6E-06					6.6E-02
			Total of Receptor Hazards Across All Media													6.6E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-16
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics												
				ARSENIC	5.18E+00	(mg/kg)	1.89E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.8E-07	3.32E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.1E-02
				CHROMIUM, HEXAVALENT	3.59E-01	(mg/kg)	2.19E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	1.1E-08	3.83E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	1.3E-04
				PAHs												
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	2.95E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	3.0E-08	2.58E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	8.6E-04
			Ingestion	Pesticides/PCBs												
				DIELDRIN	5.69E-01	(mg/kg)	3.47E-08	(mg/kg-day)	1.6E+01	per (mg/kg-day)	5.6E-07	6.07E-07	(mg/kg-day)	5.0E-05	(mg/kg-day)	1.2E-02
				Exp. Route Total							8.8E-07					2.4E-02
			Dermal ¹	Inorganics												
				ARSENIC	5.18E+00	(mg/kg)	1.05E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.6E-07	1.84E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	6.1E-03
				CHROMIUM, HEXAVALENT	3.59E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--
				PAHs												
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	4.27E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	4.3E-08	3.73E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.2E-03
			Dermal ¹	Pesticides/PCBs												
				DIELDRIN	5.69E-01	(mg/kg)	3.86E-08	(mg/kg-day)	1.6E+01	per (mg/kg-day)	6.2E-07	6.75E-07	(mg/kg-day)	5.0E-05	(mg/kg-day)	1.4E-02
				Exp. Route Total							8.2E-07					2.1E-02
			Exposure Point Total								1.7E-06					4.5E-02
			Exposure Medium Total								1.7E-06					4.5E-02
Air	Troy Hill Park	Inhalation	Inhalation	Inorganics												
				ARSENIC	6.64E-08	(mg/m ³)	8.66E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	3.7E-09	1.52E-08	(mg/m ³)	1.5E-05	(mg/m ³)	1.0E-03
				CHROMIUM, HEXAVALENT	4.60E-09	(mg/m ³)	6.00E-08	(ug/m ³)	8.4E-02	per (ug/m ³)	5.0E-09	1.05E-09	(mg/m ³)	1.0E-04	(mg/m ³)	1.1E-05
				PAHs												
				BENZO(A)PYRENE	3.10E-09	(mg/m ³)	8.10E-08	(ug/m ³)	6.0E-04	per (ug/m ³)	4.9E-11	7.08E-10	(mg/m ³)	2.0E-06	(mg/m ³)	3.5E-04
			Inhalation	Pesticides/PCBs												
				DIELDRIN	7.29E-09	(mg/m ³)	8.54E-07	(ug/m3)	4.60E-02	per (ug/m3)	3.9E-08	6.23E-07	(mg/m ³)	NA	(mg/m ³)	--
				Exp. Route Total							4.8E-08					1.4E-03
			Exposure Point Total								4.8E-08					1.4E-03
			Exposure Medium Total								4.8E-08					1.4E-03
			Soil Total								1.7E-06					4.6E-02
			Total of Receptor Risks Across All Media								1.7E-06	Total of Receptor Hazards Across All Media				4.6E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-17
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Constituent of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient¹	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics	5.18E+00	(mg/kg)	7.60E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.1E-06	2.66E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	8.9E-03	
				ARSENIC	3.59E-01	(mg/kg)	8.78E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	4.4E-08	3.07E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	1.0E-04	
				PAHs													
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	5.92E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	5.9E-08	2.07E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	6.9E-04	
				Pesticides/PCBs													
			DIELDRIN	5.69E-01	(mg/kg)	1.39E-07	(mg/kg-day)	1.6E+01	per (mg/kg-day)	2.2E-06	4.87E-07	(mg/kg-day)	5.0E-05	(mg/kg-day)	9.7E-03		
			Exp. Route Total							3.5E-06					1.9E-02		
			Dermal¹	Inorganics	5.18E+00	(mg/kg)	1.61E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.4E-07	5.62E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.9E-03	
				ARSENIC	3.59E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--	
				PAHs													
				BENZO(A)PYRENE	2.42E-01	(mg/kg)	3.25E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	3.2E-08	1.14E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	3.8E-04	
				Pesticides/PCBs													
			DIELDRIN	5.69E-01	(mg/kg)	5.88E-08	(mg/kg-day)	1.6E+01	per (mg/kg-day)	9.4E-07	2.06E-07	(mg/kg-day)	5.0E-05	(mg/kg-day)	4.1E-03		
			Exp. Route Total							1.2E-06					6.4E-03		
			Exposure Point Total							4.7E-06					2.6E-02		
			Exposure Medium Total							4.7E-06					2.6E-02		
	Air	Troy Hill Park	Inhalation	Inorganics	6.64E-08	(mg/m³)	4.33E-06	(ug/m³)	4.3E-03	per (ug/m³)	1.9E-08	1.52E-08	(ug/m³)	1.5E-05	(mg/m³)	1.0E-03	
ARSENIC				4.60E-09	(mg/m³)	3.00E-07	(ug/m³)	8.4E-02	per (ug/m³)	2.5E-08	1.05E-09	(mg/m³)	1.0E-04	(mg/m³)	1.1E-05		
PAHs																	
BENZO(A)PYRENE				3.10E-09	(mg/m³)	2.02E-07	(ug/m³)	6.0E-04	per (ug/m³)	1.2E-10	7.08E-10	(mg/m³)	2.0E-06	(mg/m³)	3.5E-04		
Pesticides/PCBs																	
DIELDRIN			7.29E-09	(mg/m³)	3.43E-06	(ug/m3)	4.60E-02	per (ug/m3)	1.6E-07	5.00E-07	(mg/m3)	NA	(mg/m3)	--			
Exp. Route Total								2.0E-07					1.4E-03				
Exposure Point Total							2.0E-07					1.4E-03					
Exposure Medium Total							2.0E-07					1.4E-03					
Soil Total												4.9E-06					2.7E-02
Total of Receptor Risks Across All Media											4.9E-06	Total of Receptor Hazards Across All Media					2.7E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-18
CALCULATIONS OF AIR CONCENTRATIONS DUE TO DUST ENTRAINMENT FROM SURFACE SOIL W/O REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Model Equations:			Particulate Emmision Factor $PEF = Q/C \times [(3,600 \text{ s/h})/((.36 \times (1 - V) \times (Um/Ut)^3 \times F(x)))] =$	7.80E+07
			Air Concentration $C_{air} = C_{soil}/PEF$	
Where,				
	Q/C =	5.61E+01 g/m ² -s per kg/m ³	Inverse Mean Concentration at Center of 0.05 square source	
	V =	5.00E-01 unitless	Default, USEPA 2019	
	Um =	4.69E+00 m/s	Mean annual wind speed, USEPA 2019	
	Ut =	1.13E+01 m/s	Equivalent threshold value of windspeed at 7 m, USEPA 2019	
	F(x) =	1.94E-01 unitless	Default, USEPA 2019	
Reference for the model:				
USEPA 1996. <i>USEPA Soil Screening Guidance: Technical Background Document</i> . Office of Emergency and Remedial Response.				
USEPA 2019. <i>Regional Screening Level, User's Guide</i> . Available at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm .				
Chemical	Csoil, Surface Soil	Cair, Surface Soil Particulate		
	RME EPC	RME EPC		
	mg/kg	mg/m ³		
Inorganics				
ARSENIC	5.18E+00	6.64E-08		
CHROMIUM, HEXAVALENT	3.59E-01	4.60E-09		
PAHs				
BENZO(A)PYRENE	2.42E-01	3.10E-09		
Pesticides/PCBs				
DIELDRIN	5.69E-01	7.29E-09		

TABLE 5-19
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics	3.71E+00	(mg/kg)	4.11E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	6.2E-07	4.79E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.6E-02		
				ARSENIC CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	5.15E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	2.6E-08	6.01E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	2.0E-04		
			Exp. Route Total									6.4E-07					1.6E-02	
			Dermal ¹	Inorganics	3.71E+00	(mg/kg)	1.53E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.3E-07	1.79E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	6.0E-03		
				ARSENIC CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--		
			Exp. Route Total									2.3E-07					6.0E-03	
			Exposure Point Total										8.7E-07					2.2E-02
			Exposure Medium Total										8.7E-07					2.2E-02
			Air	Troy Hill Park	Inhalation	Inorganics	4.76E-08	(mg/m ³)	9.31E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	4.0E-09	1.09E-08	(mg/m ³)	1.5E-05	(mg/m ³)	7.2E-04
		ARSENIC CHROMIUM, HEXAVALENT				3.58E-09	(mg/m ³)	7.00E-08	(ug/m ³)	8.4E-02	per (ug/m ³)	5.9E-09	8.17E-10	(mg/m ³)	1.0E-04	(mg/m ³)	8.2E-06	
	Exp. Route Total									9.9E-09					7.3E-04			
	Exposure Point Total												9.9E-09					7.3E-04
	Exposure Medium Total												9.9E-09					7.3E-04
	Soil Total											8.8E-07						2.3E-02
	Total of Receptor Risks Across All Media											8.8E-07	Total of Receptor Hazards Across All Media					2.3E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-20
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD:
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLANE

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics													
				ARSENIC	3.71E+00	(mg/kg)	1.15E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.7E-07	2.68E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	8.9E-03	
				CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	5.15E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	2.6E-08	6.01E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	2.0E-04	
			Exp. Route Total								2.0E-07					9.1E-03	
			Dermal ¹	Inorganics													
				ARSENIC	3.71E+00	(mg/kg)	6.11E-08	(mg/kg-day)	1.5E+00	per (mg/kg-day)	9.2E-08	1.42E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	4.7E-03	
				CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--	
			Exp. Route Total								9.2E-08					4.7E-03	
			Exposure Point Total								2.9E-07					1.4E-02	
	Exposure Medium Total								2.9E-07					1.4E-02			
	Air	Troy Hill Park	Inhalation	Inorganics													
				ARSENIC	4.76E-08	(mg/m ³)	4.65E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	2.0E-09	1.09E-08	(mg/m ³)	1.5E-05	(mg/m ³)	7.2E-04	
				CHROMIUM, HEXAVALENT	3.58E-09	(mg/m ³)	7.00E-08	(ug/m ³)	8.4E-02	per (ug/m ³)	5.9E-09	8.17E-10	(mg/m ³)	1.0E-04	(mg/m ³)	8.2E-06	
			Exp. Route Total								7.9E-09					7.3E-04	
			Exposure Point Total								7.9E-09					7.3E-04	
Exposure Medium Total								7.9E-09					7.3E-04				
Soil Total											3.0E-07				1.5E-02		
						Total of Receptor Risks Across All Media					3.0E-07	Total of Receptor Hazards Across All Media					1.5E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-21
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELK RIDGE, MARYLANE

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics													
				ARSENIC	3.71E+00	(mg/kg)	1.36E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.0E-07	2.37E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	7.9E-03	
				CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	1.70E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	8.5E-09	2.98E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	9.9E-05	
			Exp. Route Total							2.1E-07					8.0E-03		
			Dermal ¹	Inorganics													
				ARSENIC	3.71E+00	(mg/kg)	7.55E-08	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.1E-07	1.32E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	4.4E-03	
				CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--	
			Exp. Route Total							1.1E-07					4.4E-03		
			Exposure Point Total							3.3E-07					1.2E-02		
			Exposure Medium Total							3.3E-07					1.2E-02		
	Air	Troy Hill Park	Inhalation	Inorganics													
				ARSENIC	4.76E-08	(mg/m ³)	6.21E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	2.7E-09	1.09E-08	(mg/m ³)	1.5E-05	(mg/m ³)	7.2E-04	
				CHROMIUM, HEXAVALENT	3.58E-09	(mg/m ³)	4.67E-08	(ug/m ³)	8.4E-02	per (ug/m ³)	3.9E-09	8.17E-10	(mg/m ³)	1.0E-04	(mg/m ³)	8.2E-06	
			Exp. Route Total							6.6E-09					7.3E-04		
	Exposure Point Total							6.6E-09					7.3E-04				
	Exposure Medium Total							6.6E-09					7.3E-04				
Soil Total												3.3E-07					1.3E-02
							Total of Receptor Risks Across All Media					3.3E-07	Total of Receptor Hazards Across All Media				1.3E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-22
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD:
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Constituent of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient ¹		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics	3.71E+00	(mg/kg)	5.45E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	8.2E-07	1.91E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	6.4E-03		
				ARSENIC CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	6.82E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	3.4E-08	2.39E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	8.0E-05		
			Exp. Route Total										8.5E-07					6.4E-03
			Dermal ¹	Inorganics	3.71E+00	(mg/kg)	1.15E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.7E-07	4.02E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.3E-03		
				ARSENIC CHROMIUM, HEXAVALENT	2.79E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--		
			Exp. Route Total										1.7E-07					1.3E-03
			Exposure Point Total										1.0E-06					7.8E-03
			Exposure Medium Total										1.0E-06					7.8E-03
			Air	Troy Hill Park	Inhalation	Inorganics	4.76E-08	(mg/m ³)	3.10E-06	(ug/m ³)	4.3E-03	per (ug/m ³)	1.3E-08	1.09E-08	(ug/m ³)	1.5E-05	(mg/m ³)	7.2E-04
						ARSENIC CHROMIUM, HEXAVALENT	3.58E-09	(mg/m ³)	2.33E-07	(ug/m ³)	8.4E-02	per (ug/m ³)	2.0E-08	8.17E-10	(mg/m ³)	1.0E-04	(mg/m ³)	8.2E-06
	Exp. Route Total												3.3E-08					7.3E-04
	Exposure Point Total										3.3E-08					7.3E-04		
	Exposure Medium Total										3.3E-08					7.3E-04		
	Soil Total										1.1E-06					8.5E-03		
	Total of Receptor Risks Across All Media											1.1E-06	Total of Receptor Hazards Across All Media					8.5E-03

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-23
CALCULATIONS OF AIR CONCENTRATIONS DUE TO DUST ENTRAINMENT FROM SUBSURFACE SOIL W/O REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Model Equations:			Particulate Emmision Factor $PEF = Q/C \times [(3,600 \text{ s/h})/ (.36 \times (1 - V) \times (Um/Ut)^3 \times F(x))]$ =	7.80E+07
			Air Concentration $C_{air} = C_{soil}/PEF$	
Where,				
	Q/C =	5.61E+01 $\text{g/m}^2\text{-s per kg/m}^3$	Inverse Mean Concentration at Center of 0.05 square source	
	V =	5.00E-01 unitless	Default, USEPA 2019	
	Um =	4.69E+00 m/s	Mean annual wind speed, USEPA 2019	
	Ut =	1.13E+01 m/s	Equivalent threshold value of windspeed at 7 m, USEPA 2019	
	$F(x)$ =	1.94E-01 unitless	Default, USEPA 2019	
Reference for the model:				
USEPA 1996. <i>USEPA Soil Screening Guidance: Technical Background Document</i> . Office of Emergency and Remedial Response.				
USEPA 2019. <i>Regional Screening Level, User's Guide</i> . Available at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm .				
Chemical	Csoil, Surface Soil	Cair, Surface Soil Particulate		
	RME EPC	RME EPC		
	mg/kg	mg/m ³		
Inorganics				
ARSENIC	3.71E+00	4.76E-08		
CHROMIUM, HEXAVALENT	2.79E-01	3.58E-09		

TABLE 5-24
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD:
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations								
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient				
							Value	Units	Value	Units		Value	Units	Value	Units					
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics																
				ARSENIC	4.46E+00	(mg/kg)	4.94E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	7.4E-07	5.76E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.9E-02				
				CHROMIUM, HEXAVALENT	5.20E-01	(mg/kg)	9.60E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	4.8E-08	1.12E-06	(mg/kg-day)	3.0E-03	(mg/kg-day)	3.7E-04				
				PAHs																
				BENZ(A)ANTHRACENE	1.44E+00	(mg/kg)	7.98E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	8.0E-08	3.10E-06	(mg/kg-day)	NA	(mg/kg-day)	--				
				BENZO(B)FLUORANTHENE	1.51E+00	(mg/kg)	8.36E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	8.4E-08	3.25E-06	(mg/kg-day)	NA	(mg/kg-day)	--				
				BENZO(A)PYRENE	1.48E+00	(mg/kg)	8.20E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	8.2E-07	3.19E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.1E-02				
				DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	1.51E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	1.5E-07	5.88E-07	(mg/kg-day)	NA	(mg/kg-day)	--				
				INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	6.42E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	6.4E-08	2.50E-06	(mg/kg-day)	NA	(mg/kg-day)	--				
				Exp. Route Total						2.0E-06						3.0E-02				
			Dermal ¹	Inorganics																
				ARSENIC	4.46E+00	(mg/kg)	1.84E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.8E-07	2.15E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	7.2E-03				
				CHROMIUM, HEXAVALENT	5.20E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--				
				PAHs																
				BENZ(A)ANTHRACENE	1.44E+00	(mg/kg)	7.74E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	7.7E-08	3.01E-06	(mg/kg-day)	NA	(mg/kg-day)	--				
				BENZO(B)FLUORANTHENE	1.51E+00	(mg/kg)	8.12E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	8.1E-08	3.16E-06	(mg/kg-day)	NA	(mg/kg-day)	--				
				BENZO(A)PYRENE	1.48E+00	(mg/kg)	7.96E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	8.0E-07	3.09E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.0E-02				
			DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	1.47E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	1.5E-07	5.71E-07	(mg/kg-day)	NA	(mg/kg-day)	--					
			INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	6.24E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	6.2E-08	2.43E-06	(mg/kg-day)	NA	(mg/kg-day)	--					
			Exp. Route Total						1.4E-06						1.7E-02					
			Exposure Point Total											3.4E-06						4.8E-02
			Exposure Medium Total											3.4E-06						4.8E-02
Air	Troy Hill Park	Inhalation	Inorganics																	
			ARSENIC	5.72E-08	(mg/m ³)	1.12E-06	(ug/m ³)	4.3E-03	per (ug/m ³)	4.8E-09	1.31E-08	(mg/m ³)	1.5E-05	(mg/m ³)	8.7E-04					
			CHROMIUM, HEXAVALENT	6.67E-09	(mg/m ³)	1.30E-07	(ug/m ³)	8.4E-02	per (ug/m ³)	1.1E-08	1.52E-09	(mg/m ³)	1.0E-04	(mg/m ³)	1.5E-05					
			PAHs																	
			BENZ(A)ANTHRACENE	1.85E-08	(mg/m ³)	1.08E-06	(ug/m ³)	6.0E-05	per (ug/m ³)	6.5E-11	4.21E-09	(mg/m ³)	NA	(mg/m ³)	--					
			BENZO(B)FLUORANTHENE	1.94E-08	(mg/m ³)	1.14E-06	(ug/m ³)	6.0E-05	per (ug/m ³)	6.8E-11	4.42E-09	(mg/m ³)	NA	(mg/m ³)	--					
			BENZO(A)PYRENE	1.90E-08	(mg/m ³)	1.11E-06	(ug/m ³)	6.0E-04	per (ug/m ³)	6.7E-10	4.33E-09	(mg/m ³)	2.0E-06	(mg/m ³)	2.2E-03					
			DIBENZ(A,H)ANTHRACENE	3.50E-09	(mg/m ³)	2.05E-07	(ug/m ³)	6.0E-04	per (ug/m ³)	1.2E-10	7.99E-10	(mg/m ³)	NA	(mg/m ³)	--					
			INDENO(1,2,3-C,D)PYRENE	1.49E-08	(mg/m ³)	8.73E-07	(ug/m ³)	6.0E-05	per (ug/m ³)	5.2E-11	3.40E-09	(mg/m ³)	NA	(mg/m ³)	--					
			Exp. Route Total						1.7E-08						3.1E-03					
		Exposure Point Total											1.7E-08						3.1E-03	
		Exposure Medium Total											1.7E-08						3.1E-03	
		Soil Total											3.4E-06						5.1E-02	
								Total of Receptor Risks Across All Media					3.4E-06	Total of Receptor Hazards Across All Media					5.1E-02	

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-25
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations												
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient								
							Value	Units	Value	Units		Value	Units	Value	Units									
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics																				
				ARSENIC	4.46E+00	(mg/kg)	1.38E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.1E-07	3.23E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.1E-02								
				CHROMIUM, HEXAVALENT	5.20E-01	(mg/kg)	9.60E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	4.8E-08	1.12E-06	(mg/kg-day)	3.0E-03	(mg/kg-day)	3.7E-04								
				PAHs																				
				BENZ(A)ANTHRACENE	1.44E+00	(mg/kg)	2.23E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.2E-08	3.10E-06	(mg/kg-day)	NA	(mg/kg-day)	--								
				BENZO(B)FLUORANTHENE	1.51E+00	(mg/kg)	2.34E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.3E-08	3.25E-06	(mg/kg-day)	NA	(mg/kg-day)	--								
				BENZO(A)PYRENE	1.48E+00	(mg/kg)	2.29E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	2.3E-07	1.78E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	5.9E-03								
				DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	4.23E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	4.2E-08	5.88E-07	(mg/kg-day)	NA	(mg/kg-day)	--								
				INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	1.80E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	1.8E-08	2.50E-06	(mg/kg-day)	NA	(mg/kg-day)	--								
				Exp. Route Total						5.9E-07					1.7E-02									
				Dermal ¹	Inorganics																			
					ARSENIC	4.46E+00	(mg/kg)	7.34E-08	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.1E-07	1.71E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	5.7E-03							
			CHROMIUM, HEXAVALENT		5.20E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--								
			PAHs																					
			BENZ(A)ANTHRACENE		1.44E+00	(mg/kg)	3.08E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	3.1E-08	3.01E-06	(mg/kg-day)	NA	(mg/kg-day)	--								
			BENZO(B)FLUORANTHENE		1.51E+00	(mg/kg)	3.23E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	3.2E-08	3.16E-06	(mg/kg-day)	NA	(mg/kg-day)	--								
			BENZO(A)PYRENE	1.48E+00	(mg/kg)	3.17E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	3.2E-07	2.46E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	8.2E-03									
			DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	5.84E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	5.8E-08	5.71E-07	(mg/kg-day)	NA	(mg/kg-day)	--									
			INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	2.48E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.5E-08	2.43E-06	(mg/kg-day)	NA	(mg/kg-day)	--									
			Exp. Route Total						5.7E-07					1.4E-02										
			Exposure Point Total						1.2E-06					3.1E-02										
			Exposure Medium Total						1.2E-06					3.1E-02										
			Air	Troy Hill Park	Inhalation	Inorganics																		
						ARSENIC	5.72E-08	(mg/m ³)	5.59E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	2.4E-09	1.31E-08	(mg/m ³)	1.5E-05	(mg/m ³)	8.7E-04						
						CHROMIUM, HEXAVALENT	6.67E-09	(mg/m ³)	1.30E-07	(ug/m ³)	8.4E-02	per (ug/m ³)	1.1E-08	1.52E-09	(mg/m ³)	1.0E-04	(mg/m ³)	1.5E-05						
						PAHs																		
						BENZ(A)ANTHRACENE	1.85E-08	(mg/m ³)	5.42E-07	(ug/m ³)	6.0E-05	per (ug/m ³)	3.3E-11	4.21E-09	(mg/m ³)	NA	(mg/m ³)	--						
BENZO(B)FLUORANTHENE	1.94E-08	(mg/m ³)				5.68E-07	(ug/m ³)	6.0E-05	per (ug/m ³)	3.4E-11	4.42E-09	(mg/m ³)	NA	(mg/m ³)	--									
BENZO(A)PYRENE	1.90E-08	(mg/m ³)				5.57E-07	(ug/m ³)	6.0E-04	per (ug/m ³)	3.3E-10	4.33E-09	(mg/m ³)	2.0E-06	(mg/m ³)	2.2E-03									
DIBENZ(A,H)ANTHRACENE	3.50E-09	(mg/m ³)				1.03E-07	(ug/m ³)	6.0E-04	per (ug/m ³)	6.2E-11	7.99E-10	(mg/m ³)	NA	(mg/m ³)	--									
INDENO(1,2,3-C,D)PYRENE	1.49E-08	(mg/m ³)				4.37E-07	(ug/m ³)	6.0E-05	per (ug/m ³)	2.6E-11	3.40E-09	(mg/m ³)	NA	(mg/m ³)	--									
Exp. Route Total						1.4E-08					3.1E-03													
Exposure Point Total						1.4E-08					3.1E-03													
Exposure Medium Total						1.4E-08					3.1E-03													
Soil Total						1.2E-06					3.4E-02													
Total of Receptor Risks Across All Media											1.2E-06					Total of Receptor Hazards Across All Media					3.4E-02			

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-26
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics														
				ARSENIC	4.46E+00	(mg/kg)	1.63E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.4E-07	2.85E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	9.5E-03		
				CHROMIUM, HEXAVALENT	5.20E-01	(mg/kg)	3.17E-08	(mg/kg-day)	5.0E-01	per (mg/kg-day)	1.6E-08	5.55E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	1.8E-04		
				PAHs														
				BENZ(A)ANTHRACENE	1.44E+00	(mg/kg)	1.76E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	1.8E-08	1.54E-06	(mg/kg-day)	NA	(mg/kg-day)	--		
				BENZO(B)FLUORANTHENE	1.51E+00	(mg/kg)	1.84E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	1.8E-08	1.61E-06	(mg/kg-day)	NA	(mg/kg-day)	--		
				BENZO(A)PYRENE	1.48E+00	(mg/kg)	1.80E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	1.8E-07	1.58E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	5.3E-03		
				DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	4.99E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	5.0E-08	2.91E-07	(mg/kg-day)	NA	(mg/kg-day)	--		
				INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	1.41E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	1.4E-08	1.24E-06	(mg/kg-day)	NA	(mg/kg-day)	--		
				Exp. Route Total											5.4E-07			
			Dermal ¹	Inorganics														
				ARSENIC	4.46E+00	(mg/kg)	9.07E-08	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.4E-07	1.59E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	5.3E-03		
				CHROMIUM, HEXAVALENT	5.20E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--		
				PAHs														
				BENZ(A)ANTHRACENE	1.44E+00	(mg/kg)	2.54E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.5E-08	2.22E-06	(mg/kg-day)	NA	(mg/kg-day)	--		
				BENZO(B)FLUORANTHENE	1.51E+00	(mg/kg)	2.66E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.7E-08	2.33E-06	(mg/kg-day)	NA	(mg/kg-day)	--		
				BENZO(A)PYRENE	1.48E+00	(mg/kg)	2.61E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	2.6E-07	2.28E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	7.6E-03		
			DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	4.81E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	4.8E-08	4.21E-07	(mg/kg-day)	NA	(mg/kg-day)	--			
			INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	2.04E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.0E-08	1.79E-06	(mg/kg-day)	NA	(mg/kg-day)	--			
			Exp. Route Total											5.2E-07				1.3E-02
			Exposure Point Total											1.1E-06				2.8E-02
			Exposure Medium Total											1.1E-06				2.8E-02
Air	Troy Hill Park	Inhalation	Inorganics															
			ARSENIC	5.72E-08	(mg/m ³)	7.46E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	3.2E-09	1.31E-08	(mg/m ³)	1.5E-05	(mg/m ³)	8.7E-04			
			CHROMIUM, HEXAVALENT	6.67E-09	(mg/m ³)	8.70E-08	(ug/m ³)	8.4E-02	per (ug/m ³)	7.3E-09	1.52E-09	(mg/m ³)	1.0E-04	(mg/m ³)	1.5E-05			
			PAHs															
			BENZ(A)ANTHRACENE	1.85E-08	(mg/m ³)	4.82E-07	(ug/m ³)	6.0E-05	per (ug/m ³)	2.9E-11	4.21E-09	(mg/m ³)	NA	(mg/m ³)	--			
			BENZO(B)FLUORANTHENE	1.94E-08	(mg/m ³)	5.05E-07	(ug/m ³)	6.0E-05	per (ug/m ³)	3.0E-11	4.42E-09	(mg/m ³)	NA	(mg/m ³)	--			
			BENZO(A)PYRENE	1.90E-08	(mg/m ³)	4.95E-07	(ug/m ³)	6.0E-04	per (ug/m ³)	3.0E-10	4.33E-09	(mg/m ³)	2.0E-06	(mg/m ³)	2.2E-03			
			DIBENZ(A,H)ANTHRACENE	3.50E-09	(mg/m ³)	9.13E-08	(ug/m ³)	6.0E-04	per (ug/m ³)	5.5E-11	7.99E-10	(mg/m ³)	NA	(mg/m ³)	--			
			INDENO(1,2,3-C,D)PYRENE	1.49E-08	(mg/m ³)	3.88E-07	(ug/m ³)	6.0E-05	per (ug/m ³)	2.3E-11	3.40E-09	(mg/m ³)	NA	(mg/m ³)	--			
			Exp. Route Total											1.1E-08				3.1E-03
		Exposure Point Total											1.1E-08				3.1E-03	
		Exposure Medium Total											1.1E-08				3.1E-03	
		Soil Total											1.1E-06				3.1E-02	
		Total of Receptor Risks Across All Media											1.1E-06	Total of Receptor Hazards Across All Media				

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-27
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLANE

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Constituent of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient ¹	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Surface Soil	Troy Hill Park	Ingestion	Inorganics													
				ARSENIC	4.46E+00	(mg/kg)	6.55E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	9.8E-07	2.29E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	7.6E-03	
				CHROMIUM, HEXAVALENT	5.20E-01	(mg/kg)	1.27E-07	(mg/kg-day)	5.0E-01	per (mg/kg-day)	6.4E-08	4.45E-07	(mg/kg-day)	3.0E-03	(mg/kg-day)	1.5E-04	
				PAHs													
				BENZ(A)ANTHRACENE	1.44E+00	(mg/kg)	3.52E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	3.5E-08	1.23E-06	(mg/kg-day)	NA	(mg/kg-day)	--	
				BENZO(B)FLUORANTHENE	1.51E+00	(mg/kg)	3.69E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	3.7E-08	1.29E-06	(mg/kg-day)	NA	(mg/kg-day)	--	
				BENZO(A)PYRENE	1.48E+00	(mg/kg)	3.62E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	3.6E-07	1.27E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	4.2E-03	
				DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	6.68E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	6.7E-08	2.34E-07	(mg/kg-day)	NA	(mg/kg-day)	--	
				INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	2.84E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.8E-08	9.93E-07	(mg/kg-day)	NA	(mg/kg-day)	--	
				Exp. Route Total							1.6E-06					1.2E-02	
			Dermal ¹	Inorganics													
				ARSENIC	4.46E+00	(mg/kg)	1.38E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.1E-07	4.84E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.6E-03	
				CHROMIUM, HEXAVALENT	5.20E-01	(mg/kg)	NA	(mg/kg-day)	2.0E+01	per (mg/kg-day)	--	NA	(mg/kg-day)	7.5E-05	(mg/kg-day)	--	
				PAHs													
				BENZ(A)ANTHRACENE	1.44E+00	(mg/kg)	1.93E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	1.9E-08	6.77E-07	(mg/kg-day)	NA	(mg/kg-day)	--	
				BENZO(B)FLUORANTHENE	1.51E+00	(mg/kg)	2.03E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	2.0E-08	7.10E-07	(mg/kg-day)	NA	(mg/kg-day)	--	
			BENZO(A)PYRENE	1.48E+00	(mg/kg)	1.99E-07	(mg/kg-day)	1.0E+00	per (mg/kg-day)	2.0E-07	6.96E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	2.3E-03		
			DIBENZ(A,H)ANTHRACENE	2.73E-01	(mg/kg)	3.67E-08	(mg/kg-day)	1.0E+00	per (mg/kg-day)	3.7E-08	1.28E-07	(mg/kg-day)	NA	(mg/kg-day)	--		
			INDENO(1,2,3-C,D)PYRENE	1.16E+00	(mg/kg)	1.56E-07	(mg/kg-day)	1.0E-01	per (mg/kg-day)	1.6E-08	5.45E-07	(mg/kg-day)	NA	(mg/kg-day)	--		
			Exp. Route Total							5.0E-07					3.9E-03		
			Exposure Point Total							2.1E-06					1.6E-02		
		Exposure Medium Total							2.1E-06					1.6E-02			
Air	Troy Hill Park	Inhalation	Inorganics														
			ARSENIC	5.72E-08	(mg/m ³)	3.73E-06	(ug/m ³)	4.3E-03	per (ug/m ³)	1.6E-08	1.31E-08	(ug/m ³)	1.5E-05	(mg/m ³)	8.7E-04		
			CHROMIUM, HEXAVALENT	6.67E-09	(mg/m ³)	4.35E-07	(ug/m ³)	8.4E-02	per (ug/m ³)	3.7E-08	1.52E-09	(mg/m ³)	1.0E-04	(mg/m ³)	1.5E-05		
			PAHs														
			BENZ(A)ANTHRACENE	1.85E-08	(mg/m ³)	8.67E-06	(ug/m3)	6.0E-05	per (ug/m3)	5.2E-10	1.26E-06	(mg/m3)	NA	(mg/m3)	--		
			BENZO(B)FLUORANTHENE	1.94E-08	(mg/m ³)	9.09E-06	(ug/m3)	6.0E-05	per (ug/m3)	5.5E-10	1.33E-06	(mg/m3)	NA	(mg/m3)	--		
			BENZO(A)PYRENE	1.90E-08	(mg/m ³)	1.24E-06	(ug/m ³)	6.0E-04	per (ug/m ³)	7.4E-10	4.33E-09	(mg/m ³)	2.0E-06	(mg/m ³)	2.2E-03		
			DIBENZ(A,H)ANTHRACENE	3.50E-09	(mg/m ³)	1.64E-06	(ug/m3)	6.0E-04	per (ug/m3)	9.9E-10	2.40E-07	(mg/m3)	NA	(mg/m3)	--		
			INDENO(1,2,3-C,D)PYRENE	1.49E-08	(mg/m ³)	6.98E-06	(ug/m3)	6.0E-05	per (ug/m3)	4.2E-10	1.02E-06	(mg/m3)	NA	(mg/m3)	--		
			Exp. Route Total							5.6E-08				3.1E-03			
			Exposure Point Total							5.6E-08				3.1E-03			
		Exposure Medium Total							5.6E-08				3.1E-03				
Soil Total							2.1E-06				1.9E-02						
Total of Receptor Risks Across All Media											2.1E-06	Total of Receptor Hazards Across All Media					1.9E-02

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-28
CALCULATIONS OF AIR CONCENTRATIONS DUE TO DUST ENTRAINMENT FROM SURFACE SOIL - 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Model Equations:			Particulate Emmision Factor $PEF = Q/C \times [(3,600 \text{ s/h})/((.36 \times (1 - V) \times (U_m/U_t)^3 \times F(x)))] =$	7.80E+07
			Air Concentration $C_{air} = C_{soil}/PEF$	
Where,				
	Q/C =	5.61E+01 g/m ² -s per kg/m ³	Inverse Mean Concentration at Center of 0.05 square source	
	V =	5.00E-01 unitless	Default, USEPA 2019	
	U _m =	4.69E+00 m/s	Mean annual wind speed, USEPA 2019	
	U _t =	1.13E+01 m/s	Equivalent threshold value of windspeed at 7 m, USEPA 2019	
	F(x) =	1.94E-01 unitless	Default, USEPA 2019	
Reference for the model:				
USEPA 1996. <i>USEPA Soil Screening Guidance: Technical Background Document</i> . Office of Emergency and Remedial Response.				
USEPA 2019. <i>Regional Screening Level, User's Guide</i> . Available at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm .				
Chemical	C_{soil}, Surface Soil	C_{air}, Surface Soil Particulate		
	RME EPC	RME EPC		
	mg/kg	mg/m ³		
Inorganics				
ARSENIC	4.46E+00	5.72E-08		
CHROMIUM, HEXAVALENT	5.20E-01	6.67E-09		
PAHs				
BENZ(A)ANTHRACENE	1.44E+00	1.85E-08		
BENZO(B)FLUORANTHENE	1.51E+00	1.94E-08		
BENZO(A)PYRENE	1.48E+00	1.90E-08		
DIBENZ(A,H)ANTHRACENE	2.73E-01	3.50E-09		
INDENO(1,2,3-C,D)PYRENE	1.16E+00	1.49E-08		

TABLE 5-29
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics	4.15E+00	(mg/kg)	4.60E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	6.9E-07	5.36E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.8E-02
			Exp. Route Total							6.9E-07					1.8E-02	
			Dermal ¹	Inorganics	4.15E+00	(mg/kg)	1.72E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.6E-07	2.00E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	6.7E-03
			Exp. Route Total								2.6E-07				6.7E-03	
		Exposure Point Total								9.5E-07				2.5E-02		
		Exposure Medium Total								9.5E-07				2.5E-02		
	Air	Troy Hill Park	Inhalation	Inorganics	5.32E-08	(mg/m ³)	1.04E-06	(ug/m ³)	4.3E-03	per (ug/m ³)	4.5E-09	1.21E-08	(mg/m ³)	1.5E-05	(mg/m ³)	8.1E-04
			Exp. Route Total								4.5E-09				8.1E-04	
		Exposure Point Total									4.5E-09				8.1E-04	
		Exposure Medium Total									4.5E-09				8.1E-04	
	Soil Total										9.5E-07				2.5E-02	
	Total of Receptor Risks Across All Media											9.5E-07	Total of Receptor Hazards Across All Media			

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance
EPC = Exposure Point Concentration
CSF = Cancer Slope Factor
RfD = Reference Dose
RfC = Reference Concentration

TABLE 5-30
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Age Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations											
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient							
							Value	Units	Value	Units		Value	Units	Value	Units								
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics ARSENIC	4.15E+00	(mg/kg)	1.29E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.9E-07	3.00E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.0E-02							
			Exp. Route Total						1.9E-07				1.0E-02										
			Dermal ¹	Inorganics ARSENIC	4.15E+00	(mg/kg)	6.83E-08	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.0E-07	1.59E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	5.3E-03							
			Exp. Route Total						1.0E-07				5.3E-03										
			Exposure Point Total						3.0E-07				1.5E-02										
			Exposure Medium Total						3.0E-07				1.5E-02										
	Air	Troy Hill Park	Inhalation	Inorganics ARSENIC	5.32E-08	(mg/m ³)	5.21E-07	(ug/m ³)	4.3E-03	per (ug/m ³)	2.2E-09	1.21E-08	(mg/m ³)	1.5E-05	(mg/m ³)	8.1E-04							
			Exp. Route Total						2.2E-09				8.1E-04										
			Exposure Point Total						2.2E-09				8.1E-04										
			Exposure Medium Total						2.2E-09				8.1E-04										
	Soil Total							3.0E-07				1.6E-02											
								Total of Receptor Risks Across All Media				3.0E-07				Total of Receptor Hazards Across All Media				1.6E-02			

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-31
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics ARSENIC	4.15E+00	(mg/kg)	1.52E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	2.3E-07	2.66E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	8.9E-03
			Exp. Route Total									2.3E-07				8.9E-03
			Dermal ¹	Inorganics ARSENIC	4.15E+00	(mg/kg)	8.44E-08	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.3E-07	1.48E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	4.9E-03
			Exp. Route Total									1.3E-07				4.9E-03
		Exposure Point Total									3.5E-07				1.4E-02	
		Exposure Medium Total									3.5E-07				1.4E-02	
	Air	Troy Hill Park	Inhalation	Inorganics ARSENIC	5.32E-08	(mg/m³)	6.94E-07	(ug/m³)	4.3E-03	per (ug/m³)	3.0E-09	1.21E-08	(mg/m³)	1.5E-05	(mg/m³)	8.1E-04
			Exp. Route Total									3.0E-09				8.1E-04
			Exposure Point Total									3.0E-09				8.1E-04
			Exposure Medium Total									3.0E-09				8.1E-04
	Soil Total										3.6E-07				1.5E-02	
								Total of Receptor Risks Across All Media			3.6E-07	Total of Receptor Hazards Across All Media			1.5E-02	

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-32
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARD:
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Constituent of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations					
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient ¹	
							Value	Units	Value	Units		Value	Units	Value	Units		
Soil	Subsurface Soil	Troy Hill Park	Ingestion	Inorganics	4.15E+00	(mg/kg)	6.09E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	9.1E-07	2.13E-06	(mg/kg-day)	3.0E-04	(mg/kg-day)	7.1E-03	
			Exp. Route Total						9.1E-07					7.1E-03			
			Dermal ¹	Inorganics													
			ARSENIC	4.15E+00	(mg/kg)	1.29E-07	(mg/kg-day)	1.5E+00	per (mg/kg-day)	1.9E-07	4.50E-07	(mg/kg-day)	3.0E-04	(mg/kg-day)	1.5E-03		
			Exp. Route Total							1.9E-07					1.5E-03		
			Exposure Point Total							1.1E-06					8.6E-03		
	Exposure Medium Total											1.1E-06			8.6E-03		
	Air	Troy Hill Park	Inhalation	Inorganics													
			ARSENIC	5.32E-08	(mg/m ³)	3.47E-06	(ug/m ³)	4.3E-03	per (ug/m ³)	1.5E-08	1.21E-08	(ug/m ³)	1.5E-05	(mg/m ³)	8.1E-04		
			Exp. Route Total							1.5E-08					8.1E-04		
			Exposure Point Total							1.5E-08					8.1E-04		
			Exposure Medium Total												1.5E-08		8.1E-04
			Soil Total											1.1E-06			9.4E-03
Total of Receptor Risks Across All Media											1.1E-06	Total of Receptor Hazards Across All Media				9.4E-03	

1) Dermal intake is "NA" due to no published dermal absorption factor. Please see Table 5-13 and U.S. EPA 2004 guidance.

EPC = Exposure Point Concentration

CSF = Cancer Slope Factor

RfD = Reference Dose

RfC = Reference Concentration

TABLE 5-33
CALCULATIONS OF AIR CONCENTRATIONS DUE TO DUST ENTRAINMENT FROM SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Model Equations:		Particulate Emmission Factor $PEF = Q/C \times [(3,600 \text{ s/h})/ (.36 \times (1- V) \times (Um/Ut))'$	7.80E+07
		Air Concentration $C_{air} = C_{soil}/PEF$	
Where,			
	$Q/C =$	5.61E+01 $\text{g/m}^2\text{-s per kg/m}^3$	Inverse Mean Concentration at Center of 0.05 square source
	$V =$	5.00E-01 unitless	Default, USEPA 2019
	$Um =$	4.69E+00 m/s	Mean annual wind speed, USEPA 2019
	$Ut =$	1.13E+01 m/s	Equivalent threshold value of windspeed at 7 m, USEPA 2019
	$F(x) =$	1.94E-01 unitless	Default, USEPA 2019
Reference for the model:			
USEPA 1996. <i>USEPA Soil Screening Guidance: Technical Background Document</i> . Office of Emergency and Remedial Response.			
USEPA 2019. <i>Regional Screening Level, User's Guide</i> . Available at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm .			
Chemical	Csoil, Surface Soil	Surface Soil	
	RME EPC	RME EPC	
	mg/kg	mg/m ³	
Inorganics			
ARSENIC	4.15E+00	5.32E-08	

TABLE 5-34
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Aged Child (5 to 11 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient								
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total				
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics									
			ARSENIC	8.6E-07	3.2E-07	5.6E-09	1.2E-06	ARSENIC	Skin, Cardiovascular None	2.2E-02	8.3E-03	1.0E-03	3.2E-02				
			CHROMIUM, HEXAVALENT	3.3E-08	--	7.6E-09	4.1E-08	CHROMIUM, HEXAVALENT		2.6E-04	--	1.1E-05	2.7E-04				
			PAHs					PAHs									
			BENZO(A)PYRENE	1.3E-07	1.3E-07	1.1E-10	2.6E-07	BENZO(A)PYRENE	Developmental	1.7E-03	1.7E-03	3.5E-04	3.8E-03				
			Pesticides/PCBs					Pesticides/PCBs									
			DIELDRIN	1.7E-06	1.3E-06	1.2E-07	3.1E-06	DIELDRIN	Liver	2.5E-02	1.8E-02	--	4.3E-02				
(Total)	2.7E-06	1.7E-06	1.3E-07	4.5E-06		(Total)	4.9E-02	2.8E-02	1.4E-03	7.9E-02							
Total Risk Across Surface Soil				4.5E-06				Total Hazard Index Across Surface Soil					7.9E-02				
Total Risk Across All Media and All Exposure Routes							5E-06		Total Hazard Index Across All Media and All Exposure Routes							0.08	

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-35
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Aged Child (11 to 14 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	2.4E-07	1.3E-07	2.8E-09	3.7E-07	ARSENIC	Skin, Cardiovascular	1.2E-02	6.6E-03	1.0E-03	2.0E-02
			CHROMIUM, HEXAVALENT	3.3E-08	--	7.6E-09	4.1E-08	CHROMIUM, HEXAVALENT	None	2.6E-04	--	1.1E-05	2.7E-04
			PAHs					PAHs					
			BENZO(A)PYRENE	3.8E-08	5.2E-08	5.5E-11	8.9E-08	BENZO(A)PYRENE	Developmental	9.7E-04	1.3E-03	3.5E-04	2.7E-03
			Pesticides/PCBs					Pesticides/PCBs					
			DIELDRIN	1.7E-06	1.3E-06	1.2E-07	3.1E-06	DIELDRIN	Liver	2.5E-02	1.8E-02	--	4.3E-02
			(Total)	2.0E-06	1.4E-06	1.3E-07	3.6E-06	(Total)		3.8E-02	2.6E-02	1.4E-03	6.6E-02
Total Risk Across Surface Soil				3.6E-06				Total Hazard Index Across Surface Soil					6.6E-02
Total Risk Across All Media and All Exposure Routes				4E-06				Total Hazard Index Across All Media and All Exposure Routes					0.07

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-36
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child (14 to 18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	2.8E-07	1.6E-07	3.7E-09	4.5E-07	ARSENIC	Skin, Cardiovascular	1.1E-02	6.1E-03	1.0E-03	1.8E-02
			CHROMIUM, HEXAVALENT	1.1E-08	--	5.0E-09	1.6E-08	CHROMIUM, HEXAVALENT	None	1.3E-04	--	1.1E-05	1.4E-04
			PAHs					PAHs					
			BENZO(A)PYRENE	3.0E-08	4.3E-08	4.9E-11	7.2E-08	BENZO(A)PYRENE	Developmental	8.6E-04	1.2E-03	3.5E-04	2.5E-03
			Pesticides/PCBs					Pesticides/PCBs					
			DIELDRIN	5.6E-07	6.2E-07	3.9E-08	1.2E-06	DIELDRIN	Liver	1.2E-02	1.4E-02	--	2.6E-02
			(Total)	8.8E-07	8.2E-07	4.8E-08	1.7E-06	(Total)		2.4E-02	2.1E-02	1.4E-03	4.6E-02
Total Risk Across Surface Soil				1.7E-06				Total Hazard Index Across Surface Soil					4.6E-02
Total Risk Across All Media and All Exposure Routes				2E-06				Total Hazard Index Across All Media and All Exposure Routes					0.05

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-37
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (>18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	1.1E-06	2.4E-07	1.9E-08	1.4E-06	ARSENIC	Skin, Cardiovascular	8.9E-03	1.9E-03	1.0E-03	1.2E-02
			CHROMIUM, HEXAVALENT	4.4E-08	--	2.5E-08	6.9E-08	CHROMIUM, HEXAVALENT	None	1.0E-04	--	1.1E-05	1.1E-04
			PAHs					PAHs					
			BENZO(A)PYRENE	5.9E-08	3.2E-08	1.2E-10	9.2E-08	BENZO(A)PYRENE	Developmental	6.9E-04	3.8E-04	3.5E-04	1.4E-03
			Pesticides/PCBs					Pesticides/PCBs					
			DIELDRIN	2.2E-06	9.4E-07	1.6E-07	3.3E-06	DIELDRIN	Liver	9.7E-03	4.1E-03	--	1.4E-02
			(Total)	3.5E-06	1.2E-06	2.0E-07	4.9E-06	(Total)		1.9E-02	6.4E-03	1.4E-03	2.7E-02
Total Risk Across Surface Soil				4.9E-06				Total Hazard Index Across Surface Soil					2.7E-02
Total Risk Across All Media and All Exposure Routes				5E-06				Total Hazard Index Across All Media and All Exposure Routes					0.03

NA = Not applicable due to no toxicity values.
-- = No risks calculated for this exposure pathway.

TABLE 5-38
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Aged Child (5 to 11 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	6.2E-07	2.3E-07	4.0E-09	8.5E-07	ARSENIC	Skin, Cardiovascular	1.6E-02	6.0E-03	7.2E-04	2.3E-02
			CHROMIUM, HEXAVALENT	2.6E-08	--	5.9E-09	3.2E-08	CHROMIUM, HEXAVALENT	None	2.0E-04	--	8.2E-06	2.1E-04
			(Total)	6.4E-07	2.3E-07	9.9E-09	8.8E-07	(Total)	1.6E-02	6.0E-03	7.3E-04	2.3E-02	
Total Risk Across Subsurface Soil							8.8E-07	Total Hazard Index Across Subsurface Soil					2.3E-02
Total Risk Across All Media and All Exposure Routes							9E-07	Total Hazard Index Across All Media and All Exposure Routes					0.02

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-39
 REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
 REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL
 TROY HILL PARK, ELKBRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Aged Child (11 to 14 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient						
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total		
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics							
			ARSENIC	1.7E-07	9.2E-08	2.0E-09	2.7E-07	ARSENIC	Skin, Cardiovascular	8.9E-03	4.7E-03	7.2E-04	1.4E-02		
			CHROMIUM, HEXAVALENT	2.6E-08	--	5.9E-09	3.2E-08	CHROMIUM, HEXAVALENT	None	2.0E-04	--	8.2E-06	2.1E-04		
(Total)				2.0E-07	9.2E-08	7.9E-09	3.0E-07	(Total)				9.1E-03	4.7E-03	7.3E-04	1.5E-02
Total Risk Across Subsurface Soil							3.0E-07	Total Hazard Index Across Subsurface Soil							1.5E-02
Total Risk Across All Media and All Exposure Routes							3E-07	Total Hazard Index Across All Media and All Exposure Routes							0.01

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-40
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child (14 to 18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	2.0E-07	1.1E-07	2.7E-09	3.2E-07	ARSENIC	Skin, Cardiovascular	7.9E-03	4.4E-03	7.2E-04	1.3E-02
			CHROMIUM, HEXAVALENT	8.5E-09	--	3.9E-09	1.2E-08	CHROMIUM, HEXAVALENT	None	9.9E-05	--	8.2E-06	1.1E-04
			(Total)	2.1E-07	1.1E-07	6.6E-09	3.3E-07	(Total)		8.0E-03	4.4E-03	7.3E-04	1.3E-02
Total Risk Across Subsurface Soil							3.3E-07	Total Hazard Index Across Subsurface Soil					1.3E-02
Total Risk Across All Media and All Exposure Routes							3E-07	Total Hazard Index Across All Media and All Exposure Routes					0.01

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-41
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL WITHOUT REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (>18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	8.2E-07	1.7E-07	1.3E-08	1.0E-06	ARSENIC	Skin, Cardiovascular	6.4E-03	1.3E-03	7.2E-04	8.4E-03
			CHROMIUM, HEXAVALENT	3.4E-08	--	2.0E-08	5.4E-08	CHROMIUM, HEXAVALENT	None	8.0E-05	--	8.2E-06	8.8E-05
			(Total)	8.5E-07	1.7E-07	3.3E-08	1.1E-06	(Total)	6.4E-03	1.3E-03	7.3E-04	8.5E-03	
Total Risk Across Subsurface Soil							1.1E-06	Total Hazard Index Across Subsurface Soil					8.5E-03
Total Risk Across All Media and All Exposure Routes							1E-06	Total Hazard Index Across All Media and All Exposure Routes					0.009

NA = Not applicable due to no toxicity values.
-- = No risks calculated for this exposure pathway.

TABLE 5-42
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Aged Child (5 to 11 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	7.4E-07	2.8E-07	4.8E-09	1.0E-06	ARSENIC	Skin, Cardiovascular	1.9E-02	7.2E-03	8.7E-04	2.7E-02
			CHROMIUM, HEXAVALENT	4.8E-08	--	1.1E-08	5.9E-08	CHROMIUM, HEXAVALENT	None	3.7E-04	--	1.5E-05	3.9E-04
			PAHs					PAHs					
			BENZ(A)ANTHRACENE	8.0E-08	7.7E-08	6.5E-11	1.6E-07	BENZ(A)ANTHRACENE	NA	--	--	--	NA
			BENZO(B)FLUORANTHENE	8.4E-08	8.1E-08	6.8E-11	1.6E-07	BENZO(B)FLUORANTHENE	NA	--	--	--	NA
			BENZO(A)PYRENE	8.2E-07	8.0E-07	6.7E-10	1.6E-06	BENZO(A)PYRENE	Developmental System	1.1E-02	1.0E-02	2.2E-03	2.3E-02
			DIBENZ(A,H)ANTHRACENE	1.5E-07	1.5E-07	1.2E-10	3.0E-07	DIBENZ(A,H)ANTHRACENE	NA	--	--	--	NA
			INDENO(1,2,3-C,D)PYRENE	6.4E-08	6.2E-08	5.2E-11	1.3E-07	INDENO(1,2,3-C,D)PYRENE	NA	--	--	--	NA
			(Total)	2.0E-06	1.4E-06	1.7E-08	3.4E-06	(Total)	3.0E-02	1.7E-02	3.1E-03	5.1E-02	
Total Risk Across Surface Soil				3.4E-06				Total Hazard Index Across Surface Soil					5.1E-02
Total Risk Across All Media and All Exposure Routes				3E-06				Total Hazard Index Across All Media and All Exposure Routes					0.05

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-43
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Aged Child (11 to 14 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	2.1E-07	1.1E-07	2.4E-09	3.2E-07	ARSENIC	Skin, Cardiovascular	1.1E-02	5.7E-03	8.7E-04	1.7E-02
			CHROMIUM, HEXAVALENT	4.8E-08	--	1.1E-08	5.9E-08	CHROMIUM, HEXAVALENT	None	3.7E-04	--	1.5E-05	3.9E-04
			PAHs					PAHs					
			BENZ(A)ANTHRACENE	2.2E-08	3.1E-08	3.3E-11	5.3E-08	BENZ(A)ANTHRACENE	NA	--	--	--	NA
			BENZO(B)FLUORANTHENE	2.3E-08	3.2E-08	3.4E-11	5.6E-08	BENZO(B)FLUORANTHENE	NA	--	--	--	NA
			BENZO(A)PYRENE	2.3E-07	3.2E-07	3.3E-10	5.5E-07	BENZO(A)PYRENE	Developmental System	5.9E-03	8.2E-03	2.2E-03	1.6E-02
			DIBENZ(A,H)ANTHRACENE	4.2E-08	5.8E-08	6.2E-11	1.0E-07	DIBENZ(A,H)ANTHRACENE	NA	--	--	--	NA
			INDENO(1,2,3-C,D)PYRENE	1.8E-08	2.5E-08	2.6E-11	4.3E-08	INDENO(1,2,3-C,D)PYRENE	NA	--	--	--	NA
			(Total)	5.9E-07	5.7E-07	1.4E-08	1.2E-06		(Total)	1.7E-02	1.4E-02	3.1E-03	3.4E-02
Total Risk Across Surface Soil				1.2E-06				Total Hazard Index Across Surface Soil					3.4E-02
Total Risk Across All Media and All Exposure Routes				1E-06				Total Hazard Index Across All Media and All Exposure Routes					0.03

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-44
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child (14 to 18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient						
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total		
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics							
			ARSENIC	2.4E-07	1.4E-07	3.2E-09	3.8E-07	ARSENIC	Skin, Cardiovascular	9.5E-03	5.3E-03	8.7E-04	1.6E-02		
			CHROMIUM, HEXAVALENT	1.6E-08	--	7.3E-09	2.3E-08	CHROMIUM, HEXAVALENT	None	1.8E-04	--	1.5E-05	2.0E-04		
			PAHs					PAHs							
			BENZ(A)ANTHRACENE	1.8E-08	2.5E-08	2.9E-11	4.3E-08	BENZ(A)ANTHRACENE	NA	--	--	--	NA		
			BENZO(B)FLUORANTHENE	1.8E-08	2.7E-08	3.0E-11	4.5E-08	BENZO(B)FLUORANTHENE	NA	--	--	--	NA		
			BENZO(A)PYRENE	1.8E-07	2.6E-07	3.0E-10	4.4E-07	BENZO(A)PYRENE	Developmental System	5.3E-03	7.6E-03	2.2E-03	1.5E-02		
			DIBENZ(A,H)ANTHRACENE	5.0E-08	4.8E-08	5.5E-11	9.8E-08	DIBENZ(A,H)ANTHRACENE	NA	--	--	--	NA		
			INDENO(1,2,3-C,D)PYRENE	1.4E-08	2.0E-08	2.3E-11	3.5E-08	INDENO(1,2,3-C,D)PYRENE	NA	--	--	--	NA		
			(Total)	5.4E-07	5.2E-07	1.1E-08	1.1E-06				(Total)	1.5E-02	1.3E-02	3.1E-03	3.1E-02
			Total Risk Across Surface Soil			1.1E-06	Total Hazard Index Across Surface Soil							3.1E-02	
Total Risk Across All Media and All Exposure Routes						1E-06	Total Hazard Index Across All Media and All Exposure Routes							0.03	

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-45
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SURFACE SOIL - REC 3C
TROY HILL PARK, ELKBRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (>18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	9.8E-07	2.1E-07	1.6E-08	1.2E-06	ARSENIC	Skin, Cardiovascular	7.6E-03	1.6E-03	8.7E-04	1.0E-02
			CHROMIUM, HEXAVALENT	6.4E-08	--	3.7E-08	1.0E-07	CHROMIUM, HEXAVALENT	None	1.5E-04	--	1.5E-05	1.6E-04
			PAHs					PAHs					
			BENZ(A)ANTHRACENE	3.5E-08	1.9E-08	5.2E-10	5.5E-08	BENZ(A)ANTHRACENE	NA	--	--	--	NA
			BENZO(B)FLUORANTHENE	3.7E-08	2.0E-08	5.5E-10	5.8E-08	BENZO(B)FLUORANTHENE	NA	--	--	--	NA
			BENZO(A)PYRENE	3.6E-07	2.0E-07	7.4E-10	5.6E-07	BENZO(A)PYRENE	Developmental System	4.2E-03	2.3E-03	2.2E-03	8.7E-03
			DIBENZ(A,H)ANTHRACENE	6.7E-08	3.7E-08	9.9E-10	1.0E-07	DIBENZ(A,H)ANTHRACENE	NA	--	--	--	NA
			INDENO(1,2,3-C,D)PYRENE	2.8E-08	1.6E-08	4.2E-10	4.4E-08	INDENO(1,2,3-C,D)PYRENE	NA	--	--	--	NA
			(Total)	1.6E-06	5.0E-07	5.6E-08	2.1E-06	(Total)	1.2E-02	3.9E-03	3.1E-03	1.9E-02	
Total Risk Across Surface Soil				2.1E-06				Total Hazard Index Across Surface Soil				1.9E-02	
Total Risk Across All Media and All Exposure Routes				2E-06				Total Hazard Index Across All Media and All Exposure Routes				0.02	

NA = Not applicable due to no toxicity values.
-- = No risks calculated for this exposure pathway.

TABLE 5-46
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Elementary School Aged Child (5 to 11 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	6.9E-07	2.6E-07	4.5E-09	9.5E-07	ARSENIC	Skin, Cardiovascular	1.8E-02	6.7E-03	8.1E-04	2.5E-02
			(Total)	6.9E-07	2.6E-07	4.5E-09	9.5E-07	(Total)	1.8E-02	6.7E-03	8.1E-04	2.5E-02	
Total Risk Across Subsurface Soil							9.5E-07	Total Hazard Index Across Subsurface Soil					2.5E-02
Total Risk Across All Media and All Exposure Routes							1E-06	Total Hazard Index Across All Media and All Exposure Routes					0.03

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-47
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Middle School Aged Child (11 to 14 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	1.9E-07	1.0E-07	2.2E-09	3.0E-07	ARSENIC	Skin, Cardiovascular	1.0E-02	5.3E-03	8.1E-04	1.6E-02
			(Total)	1.9E-07	1.0E-07	2.2E-09	3.0E-07	(Total)	1.0E-02	5.3E-03	8.1E-04	1.6E-02	
Total Risk Across Subsurface Soil							3.0E-07	Total Hazard Index Across Subsurface Soil					1.6E-02
Total Risk Across All Media and All Exposure Routes							3E-07	Total Hazard Index Across All Media and All Exposure Routes					0.02

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-48
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: High School Aged Child (14 to 18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	2.3E-07	1.3E-07	3.0E-09	3.6E-07	ARSENIC	Skin, Cardiovascular	8.9E-03	4.9E-03	8.1E-04	1.5E-02
			(Total)	2.3E-07	1.3E-07	3.0E-09	3.6E-07		(Total)	8.9E-03	4.9E-03	8.1E-04	1.5E-02
Total Risk Across Subsurface Soil							3.6E-07	Total Hazard Index Across Subsurface Soil					1.5E-02
Total Risk Across All Media and All Exposure Routes							4E-07	Total Hazard Index Across All Media and All Exposure Routes					0.01

NA = Not applicable due to no toxicity values.

-- = No risks calculated for this exposure pathway.

TABLE 5-49
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE - SUBSURFACE SOIL - REC 3C
TROY HILL PARK, ELKRIDGE, MARYLAND

Location: Troy Hill Park
Scenario Timeframe: Future
Receptor Population: Recreational User
Receptor Age: Adult (>18 years)

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Dermal	Inhalation	Exposure Routes Total		Primary Target Organ	Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Subsurface Soil	Troy Hill Park	Inorganics					Inorganics					
			ARSENIC	9.1E-07	1.9E-07	1.5E-08	1.1E-06	ARSENIC	Skin, Cardiovascular	7.1E-03	1.5E-03	8.1E-04	9.4E-03
			(Total)	9.1E-07	1.9E-07	1.5E-08	1.1E-06	(Total)	7.1E-03	1.5E-03	8.1E-04	9.4E-03	
Total Risk Across Subsurface Soil							1.1E-06	Total Hazard Index Across Subsurface Soil					9.4E-03
Total Risk Across All Media and All Exposure Routes							1E-06	Total Hazard Index Across All Media and All Exposure Routes					0.009

NA = Not applicable due to no toxicity values.
-- = No risks calculated for this exposure pathway.

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Appendix C

Standard Operating Procedures

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Standard Operating Procedure No. 005 for Field Decontamination

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031

Revision 2
September 2018

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PROJECT-SPECIFIC VARIANCE FORM

This form is to be completed to indicate if there are any client-, project-, or site-specific variances to this Standard Operating Procedure (SOP) (**also check Box A**), or if this SOP is being used with no changes (**only check Box B**).

- ☐ A. Variances required; cite section(s) of the SOP to which there is a variance
- ☐ B. No variances

[illegible]

Project Manager (Name)

Project Manager (Signature)

Date _____

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CONTENTS

	<u>Page</u>
DOCUMENT REVISION HISTORY	ii
1. SCOPE AND APPLICATION	1
1.1 MATERIALS.....	1
1.2 PROCEDURE.....	1
1.2.1 Sample Bottles	2
1.2.2 Personnel Decontamination	2
1.2.3 Non-Dedicated Equipment.....	2
2. PRECAUTIONS	7
3. REFERENCES	7

DOCUMENT REVISION HISTORY

ORIGINAL (MASTER) DOCUMENT REVISION HISTORY				
Revision Number	Revision Date	Revision Summary	Revised By	Reviewed By
1	25 September 2018	Systematic update and review	Cristina Radu, Amanda Kohn	Matthew Bowman

1. SCOPE AND APPLICATION

All personnel or equipment involved in intrusive sampling, or that enter a hazardous waste site, must be thoroughly decontaminated prior to leaving the site to minimize the spread of contamination and prevent adverse health effects. This Standard Operating Procedure (SOP) describes the normal decontamination of sampling equipment and site personnel. Specific projects and programs may have additional decontamination requirements. Refer to the planning document(s) for additional site-specific requirements.

As a good practice, sampling at a site should be conducted moving from least to most impacted locations to minimize the potential for cross-contamination. It is advisable to use disposable tools and personal protective equipment to the extent possible such that decontamination is not necessary. If disposable equipment cannot be used, all attempts will be made to minimize the need for decontamination by using dedicated equipment when practical.

1.1 MATERIALS

The following materials may be required:

0.01 normal (N) hydrochloric acid	Non-phosphate laboratory detergent (Liquinox)
0.10 N nitric acid	Plastic garbage bags
Aluminum foil or clean plastic sheeting	Plastic sheeting, buckets, etc. to collect washwater and rinsates
Approved water (deionized, potable, etc.)	Pressure sprayer, spray bottles, brushes, laboratory wipes, disposable cloth (shop towel or similar)
High performance liquid chromatography (HPLC)-grade water ^(a)	Reagent grade alcohol ^(b)
a. For the purpose of this SOP, HPLC-grade water is considered equivalent to “deionized ultra-filtered water,” “reagent-grade distilled water,” and “deionized organic-free water.” The end product is water that is pure with no spurious ions or organics to contaminate the sample. The method of generation is left to the individual contractor. b. For the purpose of this SOP, the term “reagent grade alcohol” refers to either pesticide grade isopropanol or reagent grade methanol.	

1.2 PROCEDURE

All reusable (non-dedicated) equipment that contacts or could potentially contact environmental samples shall be decontaminated prior to use at a site, between sampling locations, and at the completion of sampling events before leaving the site. Decontamination procedures are conducted in the Contaminant Reduction Zone, which may or may not be contiguous to the Exclusion Zone. The Contaminant Reduction Zone should be located on a level, preferably paved surface, either in an area upwind of the investigation/sampling area or in an area believed to be free of surface contamination. Care must be employed when moving contaminated tools and equipment to the Contaminant Reduction Zone to prevent the spread of contamination.

Specially designated and properly built decontamination pads may be built at a centralized location to accommodate larger pieces of equipment. The pads are built such that any water produced during the decontamination process can be contained and pumped into

investigative-derived waste holding containers (i.e., frac tank, 55-gallon drum, etc.) for waste profiling and disposal.

For other field equipment, the Contaminant Reduction Zone may be a mobile decontamination station set up in the vicinity of the Exclusion Zone or sampling location. Plastic sheeting will be used to create a clean surface for the sampling and decontamination equipment to be placed upon.

1.2.1 Sample Bottles

At the completion of each sampling activity, the exterior surfaces of the sample bottles must be decontaminated as follows:

- Ensure the bottle lids are on tight.
- Wipe the outside of the bottle with a paper towel to remove gross contamination.

1.2.2 Personnel Decontamination

Review the Health and Safety Plan for the appropriate decontamination of site personnel and reusable personal protective equipment, such as protective suits used at highly contaminated sites, respirators, safety boots, safety glasses, etc. Decontamination will be conducted in a designated Contaminant Reduction Zone as per the Health and Safety Plan and the general decontamination procedures outlined further in this SOP.

1.2.3 Non-Dedicated Equipment

Reasonable attempts will be made to minimize the need for decontamination by using dedicated equipment when practical.

All reusable (non-dedicated) equipment that contacts or could potentially contact environmental samples shall be decontaminated prior to use at a site, between sampling locations, and at the completion of sampling events before leaving the site. Decontamination shall be conducted at a central decontamination station (i.e., decontamination pad) or at the sampling location.

Decontamination stations should be located on a level, preferably paved surface, either in an area upwind of the investigation area or in an area believed to be free of surface contamination. Plastic sheeting will be used to create a clean surface for the sampling and decontamination equipment to be placed upon.

Used decontamination solutions will be disposed of properly according to the site-specific Health and Safety Plan or applicable planning documents.

1.2.3.1 Field Monitoring and Testing Equipment

Water quality meters and temperature, pH, conductivity, redox, and dissolved oxygen probes will be cleaned per the manufacturer's instructions. If no such specifications exist, remove gross contamination and triple rinse probe with HPLC-grade water. If downhole probes are used, wipe the wetted portion of the cable with a clean laboratory wipe or disposable cloth (shop towel or similar) that has been soaked with non-phosphate laboratory detergent solution to remove gross contamination and rinse with approved water.

Electronic water level indicators, weighted tapes, measuring tapes transducers, level loggers, etc. will be decontaminated after each use as follows:

- Wipe the wetted or contaminated portion of the tape or cable and the probe with a clean laboratory wipe or disposable cloth (shop towel or similar) that has been soaked with non-phosphate laboratory detergent solution to remove gross contamination. Rinse cloth in the solution and continue wiping until tape or cable is clean.
- Wipe with a second wipe or cloth or rinse with HPLC-grade water to remove soap residue.
- Dry tape with a third cloth (or laboratory wipe) and rewind into case or on spool, or re-coil tape.

Other field monitoring or measuring equipment such as beakers and graduated cylinders used to measure flow rates; flow-through cells used for monitoring water quality parameters; piezometers used to determine water levels; packers, mechanical slug device, and downhole equipment used during aquifer (hydraulic) testing; etc. will be decontaminated by washing with a non-phosphate laboratory detergent solution, followed by approved water and HPLC-grade water rinse.

1.2.3.2 Bladder Pumps

Non-dedicated bladder pumps with disposable bladders will be decontaminated as follows:

- Disconnect tubing from pump.
- Completely disassemble the pump, being careful to note the initial position of and retain any springs and loose ball checks.
- Discard the pump bladder.
- Clean all parts in the same manner as provided in Section 1.2.3.1.
- Install a new Teflon[®] bladder and reassemble pump.

- Store pump in a clean, dedicated polyvinyl chloride, polytetrafluorethylene (PTFE), or low density polyethylene (for perfluorooctanesulfonic acid/per- and polyfluoroalkyl substances sampling) storage container.

1.2.3.3 Grundfos Redi-Flow® or Similar Submersible Pumps

Non-dedicated Grundfos Redi-Flow® and similar pumps will be disassembled and decontaminated per the manufacturer's instructions on an as-needed basis (i.e., where high concentrations and an elevated risk of cross-contamination exist). Due to the challenges associated with pump decontamination, if possible, consider designating one pump for sampling in highly contaminated areas and a second pump for sampling non-impacted areas or areas with lower contaminant concentrations. In most cases, the pumps will be decontaminated following the procedures below.

The pump and support cable/electrical wires that come in contact with water will be decontaminated via pumping as detailed below. To avoid electrical shock, always disconnect power from the pump when handling the pump body during decontamination procedures.

- Disconnect sample tubing from pump.
- Decontaminate the wetted portion of the cable/electrical wires by washing with non-phosphate laboratory detergent solution, followed by approved water and HPLC-grade water rinse. Coil cable/electrical wires on spools or clean plastic sheeting.
- Scrub the exterior of the pump to remove gross (visible) contamination, using appropriate brush(es), approved water, and non-phosphate detergent (steam cleaning may be substituted for detergent scrub).
- Transfer pump to rinse bucket filled with approved water. Rinse by pumping no less than nine volumes or a minimum of 5 minutes of approved water.
- Rinse pump exterior with reagent grade alcohol.
- Rinse pump exterior with HPLC-grade water.
- Rinse pump exterior with 0.10 N nitric acid solution
- Rinse pump exterior with HPLC-grade water.
- Allow pump to air dry.
- Wrap pump in aluminum foil or clean plastic sheeting, or store in a clean, dedicated polyvinyl chloride or PTFE storage container.
- Prior to reusing pump, rinse exterior again with HPLC-grade water.

1.2.3.4 Other Liquid Sampling Equipment

Other sampling equipment used to collect surface water, groundwater, non-aqueous phase liquid (NAPL), or other liquid samples includes but is not limited to PTFE double-check valve bailers, dip samplers (whether bucket, long-handled, or short-handled), discrete interval stainless-steel samplers, ball check valves and foot valves, and labware (i.e., beakers, graduated cylinders, vials, and other containers that are used to hold samples for field measurements/screening and water chemistry). This equipment will be decontaminated after each use as follows:

- Discard all ropes, tubing, etc. used in sampling in a properly marked sealable container, or as directed by the Health and Safety Plan. NOTE: No tubing is to be used in conjunction with a bailer in collecting samples.
- Wash sampling equipment with non-phosphate laboratory detergent and approved water solution using appropriate brush(es), laboratory wipes, or disposable cloth (shop towel or similar) to remove gross (visible) contamination.
- Rinse with approved water.
- Rinse with reagent grade alcohol.
- Rinse with HPLC-grade water.
- Rinse with 0.10 N nitric acid solution using a spray bottle. This rinse may be eliminated if inorganic compounds such as metals are not being sampled/are not a contaminant of concern.
- Rinse with HPLC-grade water.
- Allow equipment to air dry. If sampling equipment has just been used for purging and is being decontaminated prior to sampling, do not air dry. Double rinse with HPLC-grade water and proceed to collect samples.
- Wrap equipment in aluminum foil or clean plastic sheeting, or store in a clean, dedicated polyvinyl chloride or PTFE storage container.
- Rinse equipment with HPLC-grade water immediately prior to re-use.

1.2.3.5 Solid Materials Samplers

Solid materials samplers include soil and sediment sampling probes, augers, trowels, shovels, sludge samplers, and other sampling equipment (e.g., core tubes, grab samples, core catchers, core liners, scoops, spoons, etc.), which will be decontaminated as follows:

- Scrub the sampler to remove gross (visible) contamination, using appropriate brush(es), approved water, and non-phosphate laboratory detergent (steam cleaning may be substituted for detergent scrub).
- Rinse off detergent with approved water.
- Rinse sampler with reagent grade alcohol.
- Rinse sampler with HPLC-grade water.
- For non-metallic samplers only, rinse sampler with 0.10 N nitric acid solution.
- For non-metallic samplers only, rinse sampler with HPLC-grade water.
- Allow sampler to air dry.
- Wrap sampler in aluminum foil or clean plastic sheeting, or store in a new zip-seal bag (size permitting) or clean, dedicated polyvinyl chloride or PTFE storage container.
- Rinse sampler with HPLC-grade water immediately prior to re-use.

For larger sediment sampling equipment, if sediment can be collected from the interior of a sampling device and away from potentially contaminated surfaces of the sampler, a site water rinse may be sufficient between stations. A site water rinse may also be sufficient for vessel surfaces between sample locations. However, all tools and equipment coming into contact with the sample should be decontaminated in accordance with the procedures above. Washwater from decontamination activities should be collected and disposed of properly.

1.2.3.6 Other Sampling and Measurement Probes

Soil (or sediment) gas sampling probes will be decontaminated as solids sampling devices.

1.2.3.7 Drilling Rigs, Sediment Sampling Vessels, and Other Heavy Equipment

All drilling rigs, sediment sampling vessels, and associated equipment such as augers, drill casing, rods, samplers, tools, recirculation tank, and water tank (inside and out) will be decontaminated prior to site entry after over-the-road mobilization and immediately upon departure from a site after drilling a hole. Supplementary cleaning will be performed prior to site entry when there is a likelihood that contamination has accumulated on tires and as spatter or dust on the way from one site to the next.

- Place contaminated equipment in an enclosure (i.e., existing wash pad, decontamination pad, etc.) designed to contain all decontamination residues (water, sludge, etc.).

- Steam clean equipment until all dirt, mud, grease, asphaltic, bituminous, or other encrusting coating materials (with the exception of manufacturer-applied paint) have been removed.
- Water used will be taken from an approved source.
- Containerize decontamination fluids in 55-gallon drums; sample; characterize; and, based on sample results, dispose of all decontamination residues properly.

Other heavy equipment includes use of backhoes, excavators, skid steers, etc. If heavy equipment is utilized during field activities (i.e., a backhoe for test pitting), the bucket should not come in contact with soil to be sampled. If the bucket contacts the soil to be sampled, then it should be decontaminated between sample locations, following the same procedures as listed above for a drill rig.

1.2.3.8 Ice Chests and Reusable Shipping Containers

Scrub exterior/interior with approved brush and Liquinox detergent. Rinse off detergent with approved water. Let air dry and properly store until re-use.

NOTE: If container/ice chest is severely contaminated, clean as thoroughly as possible, render unusable, and properly dispose of.

2. PRECAUTIONS

Segregate all waste streams as specified in the sampling documents and store investigation-derived waste properly. Dispose of all washwater, rinse water, rinsates, and other sampling wastes (tubing, plastic sheeting, etc.) in properly marked, sealable containers, or as directed by the Health and Safety Plan or applicable planning documents.

Once a piece of equipment has been decontaminated, be careful to keep it in such condition until needed.

3. REFERENCES

Site-specific Health and Safety Plan and/or applicable planning documents.

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Standard Operating Procedure No. 011 for Photoionization Detector

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031

Revision 0
December 2014

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CONTENTS

	<u>Page</u>
1. SCOPE AND APPLICATION.....	1
2. MATERIALS	1
3. STARTUP/CALIBRATION PROCEDURE	1
4. BATTERY CHARGING.....	2
5. PRECAUTIONS.....	2
6. REFERENCES	2

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1. SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to delineate protocols for field operations with the photoionization detector (MiniRae). The photoionization detector uses an ultraviolet emitting lamp designed to detect, measure, and display the total concentration of airborne ionizable gases and vapors. This information is used to determine control measures such as protection and action levels.

Use of brand names in this SOP is not intended as endorsement or mandate that a given brand be used. Alternate equivalent brands of detectors, sensors, meters, etc. are acceptable. If alternate equipment is to be used, the contractor will provide applicable and comparable SOPs for the maintenance and calibration of same.

2. MATERIALS

The following materials may be required:

Battery pack	Tedlar bag
Calibration gas (100 ppm isobutylene)	Tygon tubing
Microtip/MiniRae	Regulator

3. STARTUP/CALIBRATION PROCEDURE

Turn the instrument on by pressing the back of the power switch located on the handle of the instrument.

The message "Warming up now, please wait" will be displayed for up to 3 minutes. After normal display appears, the instrument is ready for calibration.

Fill a Tedlar bag with the desired calibration gas (usually 100 ppm Isobutylene).

Press SETUP button and select the desired Cal Memory using the arrow keys (normally set to 200 ppm). Press EXIT button to leave setup function.

Press CAL button and expose instrument to Zero Gas. (Usually clean outdoor air will be suitable. If any doubt exists as to the cleanliness of the background air a commercial source of zero gas should be used.)

The instrument then asks for the Span Gas concentration. Enter the known span gas concentration and then connect the Tedlar bag containing the Span Gas.

NOTE: The span gas concentration is dependent upon both the concentration of the span gas used and the rating of the UV lamp in the instrument at time of calibration. If using 100 ppm isobutylene and the standard 10.6 eV lamp, the span gas concentration will be 56 ppm.

Press enter and the instrument sets its sensitivity. Once the display reverts to normal, the instrument is calibrated and ready for use. Remove the Span Gas from the inlet probe. The instrument should be calibrated at least once a day.

4. BATTERY CHARGING

Ensure instrument is off. Set the voltage selector switch on the bottom of the battery charger to the appropriate AC line voltage. Press the release button on the bottom of the instrument and remove the battery pack by sliding it backwards. Plug charger into the battery pack and then into an AC outlet and allow the battery to charge for at least 8 hours. After charging, remove the charger, first from the outlet then from the battery pack, and slide the battery pack back onto the instrument.

5. PRECAUTIONS

Instrument does not carry an Intrinsic Safety Rating and must not be used in a hazardous location where flammable concentrations of gases or vapors are constantly present.

All calibration, maintenance, and servicing of this device, including battery charging, must be performed in a safe area away from hazardous locations.

Do not open or mutilate battery cells. Do not defeat proper polarity orientation between the battery pack and battery charger. Substitution of components may affect safety rating.

6. REFERENCES

Instrument User's Manual.



Standard Operating Procedure No. 025 for Soil Sampling

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031

Revision 0
December 2014

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CONTENTS

	<u>Page</u>
1. SCOPE AND APPLICATION.....	1
2. MATERIALS	1
3. PROCEDURE	1
3.1 Subsurface Samples	1
3.2 Surficial Soil Samples.....	2
4. MAINTENANCE.....	2
5. PRECAUTIONS.....	2
6. REFERENCES	2

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1. SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure is to delineate protocols for sampling surface and subsurface soils. Soil samples give an indication of the area and depth of site contamination, so a representative sample is very important.

2. MATERIALS

The following materials may be required:

Bucket auger or push tube sampler	Split-spoon, Shelby tube, or core barrel sampler
Drill rig and associated equipment	Stainless steel bowl
Personal protective equipment as required by the Health and Safety Plan	Stainless steel spoon, trowel, knife, spatula (as needed)

3. PROCEDURE

3.1 SUBSURFACE SAMPLES

Don personal protective equipment. Collect split-spoon, core barrel, or Shelby Tube samples during drilling. Upon opening sampler, or extruding sample, immediately screen soil for volatile organic compounds using either a photoionization detector or flame ionization detector. If sampling for volatile organic compounds, determining the area of highest concentration, use a stainless steel knife, trowel, or laboratory spatula to peel and sample this area. Log the sample in the Field Logbook while it is still in the sampler. Peel and transfer the remaining sample in a decontaminated stainless steel bowl. Mix thoroughly with a decontaminated stainless steel spoon or trowel. Place the sample into the required number of sample jars. Preserve samples as required. Discard any remaining sample into the drums being used for collection of cuttings. Decon sampling implements. All borings will be abandoned.

NOTE: If sample recoveries are poor, it may be necessary to composite samples before placing them in jars. In this case, the procedure will be the same, except that two split-spoon samples will be mixed together. The Field Logbook should clearly state that the samples have been composited, which samples were composited, and why the compositing was done.

Samples taken for geotechnical analysis will be undisturbed samples, collected using a thin-walled (Shelby tube) sampler.

3.2 SURFICIAL SOIL SAMPLES

Don personal protective equipment. Remove vegetative mat. Collect a sample from under the vegetative mat with a stainless steel trowel, push tube sampler, or bucket auger. If a representative sample is desired over the depth of a shallow hole or if several shallow samples are to be taken to represent an area, composite as follows:

- As each sample is collected, place a standard volume in a stainless steel bowl.
- After all samples from each hole or area are in the bucket, homogenize the sample thoroughly with a decontaminated stainless steel spoon or spatula.

If no compositing is to occur, place sample directly into the sample jars. Place the leftover soil in the auger borings and holes left by sampling. If necessary, add clean sand to bring the subsampling areas back to original grade. Replace the vegetative mat over the disturbed areas. Samples for volatile organic compounds will not be composited. A separate sample will be taken from a central location of the area being composited and transferred directly from the sampler to the sample container. Preserve samples as required. Decon sampling implements.

4. MAINTENANCE

Not applicable.

5. PRECAUTIONS

Refer to the Health and Safety Plan.

Soil samples will not include vegetative matter, rocks, or pebbles, unless the latter are part of the overall soil matrix.

6. REFERENCES

ASTM International. Method D1586-84, Penetration Test and Split-Barrel Sampling of Soils.

———. Method D1587-83, Thin Walled Sampling of Soils.

Department of the Army, Office of the Chief of Engineers. 1972. Engineer Manual 1110-2-1907 Soil Sampling. 31 March.

Appendix D

Test Pit Logs

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EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park		
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2A-TP01				
TEST PIT LOG GPS Location: X: 1380108.262 (ft) Y: 556031.8101 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.				Sheet 1 of 1				
				Water Level Time Date Reference								
				Surface Conditions: Grass.				Excavation				
				Final Disposition: Backfilled and compacted.				Start Date 7/23/19 Time 0830		Finish Date 7/23/19 Time 0900		
				Lithology and Other Notes:								
Depth (ft bgs)				USGS		PID (ppm)		Sample ID		PEAT: dark brown, organic rich silt and root material.		
0 - 0.5				PT		--		TH-2A-TP01-0-2		SILT: light brown, loose, dry, non-cohesive.		
0.5 - 3				ML		12.9				CLAY: mottled light gray to light brown, dense, non-plastic, dry.		
3 - 5				CL		17.3		TH-2A-TP01-4-5				
										NOTE: No surficial or subsurface waste observed. Recorded PID readings at this location without moisture filter.		
L (ft): 6				W (ft): 2		D (ft): 5		Insert photo below showing at least two points of reference.				
 Surface Conditions  Excavation												

Logged by: Michael Thornton

Date: 7/23/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works		Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000		Test Pit # TH-2A-TP03			
TEST PIT LOG GPS Location: X: 1380164.19 (ft) Y: 555991.0152 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Sheet 1 of 1	
				Time		Date		Excavation	
				Reference		Surface Conditions: Glass, concrete, brick, and asphalt waste.		Start Date 7/23/19	
				Final Disposition: Backfilled and compacted.		Time 0930		Finish Date 7/23/19	
				Lithology and Other Notes:					
Depth (ft bgs)				USGS		PID (ppm)		Sample ID	
0 - 0.5				PT		--		TH-2A-TP03-0-2	
0.5 - 1.5				ML		4.0		SILT: light brown, non-cohesive, dry; 10% round quartz gravel.	
1.5 - 2.5				ML		--		SILT: brown to orange, non-cohesive, dry; 10% round quartz gravel; 10% medium grained, well sorted, sub-rounded sand.	
2.5 - 5				ML		--		CLAYEY SILT: mottled brown to orange, dry, non-cohesive, slightly plastic.	
								NOTE: No subsurface waste observed below 0.5 ft bgs. Recorded PID readings at this location without moisture filter.	
L (ft): 6				W (ft): 2		D (ft): 5		Insert photo below showing at least two points of reference.	
 Surface Conditions  Excavation									

Logged by: Michael Thornton

Date: 7/23/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2B-TP01			
TEST PIT LOG GPS Location: X: 1380612.584 (ft) Y: 556015.7521 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Time		Date	
				Reference		Surface Conditions: Remnant vehicle.		Start		Finish	
Depth (ft bgs)		USGS	PID (ppm)	Sample ID		Final Disposition: Backfilled and compacted.				Excavation Date 7/24/19 Time 0940	
0 - 1		PT	--	TH-2B-TP01-0-2		Lithology and Other Notes: PEAT: dark brown organic rich silt and root material, slightly moist, soft, non-cohesive.					
1 - 4.5		ML	0.0	TH-2B-TP01-4-5		SILT: brown, stiff, dry, non-cohesive.					
4.5 - 5		ML	0.0			CLAYEY SILT: white and brown, stiff, dry, non-cohesive, slightly micaceous, saprolitic. Lens of sub- rounded gravel pebbles at 4.5 ft bgs.					
						NOTE: No subsurface waste observed.					
L (ft):	6	W (ft):	2	D (ft):	5	Insert photo below showing at least two points of reference.					
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/24/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2B-TP03			
TEST PIT LOG GPS Location: X: 1380888.752 (ft) Y: 555870.6083 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Time		Date	
				Reference		Surface Conditions: Grass.		Start		Finish	
Depth (ft bgs)		USGS	PID (ppm)	Sample ID		Final Disposition: Backfilled and compacted.				Excavation Date 7/25/19 Time 0730	
0 - 0.5		PT	--	TH-2B-TP03-0-2		Lithology and Other Notes: PEAT: dark brown organic rich silt and root material, soft, slightly moist, non-cohesive.					
0.5 - 4.5		ML	0.0	TH-2B-TP03-4-5		SILT: reddish brown, stiff, dry, non-cohesive.					
4.5 - 5		ML	0.0			SILT: tan, slightly soft, slightly moist, non-cohesive; 10% sub-rounded gravel pebbles at 4.5 ft bgs. Saprolitic, remnant schistose texture.					
						NOTE: No surficial or subsurface waste observed.					
L (ft):	6	W (ft):	2	D (ft):	5	Insert photo below showing at least two points of reference.					
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/25/2019

Excavation Contractor: EA

Excavator: Scott Underwood

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2B-TP06			
TEST PIT LOG GPS Location: X: 1380821.307 (ft) Y: 555335.676 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Time		Date	
				Reference		Surface Conditions: Soil with sparse vegetation.		Start		Finish	
Depth (ft bgs)		USGS	PID (ppm)	Sample ID		Final Disposition: Backfilled and compacted.				Excavation Date 7/25/19 Time 0915	
0 - 1						PT		--		TH-2B-TP06-0-2	
1 - 4						ML		0.0		SILT: brown, stiff, dry, non-cohesive.	
4 - 5						ML		0.0		SILT: tan and light orange, slightly stiff, dry, non-cohesive, saprolitic, remnant schistose texture.	
										NOTE: No surficial or subsurface waste observed.	
L (ft):		6	W (ft):		2	D (ft):		5	Insert photo below showing at least two points of reference.		



Surface Conditions



Excavation

Logged by: Michael Thornton

Date: 7/25/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2B-TP07			
TEST PIT LOG GPS Location: X: 1380689.349 (ft) Y: 555464.2614 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Time		Date	
				Reference		Surface Conditions: Drainage area.		Start		Finish	
Depth (ft bgs)		USGS	PID (ppm)	Sample ID		Final Disposition: Backfilled and compacted.				Excavation Date 7/25/19 Time 0830	
0 - 0.5		PT	--	TH-2B-TP07-0-2		Lithology and Other Notes: PEAT: dark brown organic rich silt and root material, soft, dry, non-cohesive; 20% sub-rounded quartz gravel pebbles.					
0.5 0 2.5		ML/GW	0.0			SILT and GRAVEL: reddish brown, dry, non-cohesive, slightly stiff silt; 10% sub-rounded quartz gravel cobbles and boulders. Potential paleochannel.					
2.5 - 5		ML	0.0	TH-2B-TP07-4-5		SILT: tan, dark gray, brown, red, laminar in part, slightly stiff, non-cohesive, saprolitic, remnant schistose texture.					
						NOTE: No surficial or subsurface waste observed.					
L (ft): 6		W (ft): 2		D (ft): 5		Insert photo below showing at least two points of reference.					
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/25/2019

Excavation Contractor: EA

Excavator: Scott Underwood

Logged by: Michael Thornton Date: 7/24/2019

Excavation Contractor: EA Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2C-TP02			
TEST PIT LOG GPS Location: X: 1381120.03 (ft) Y: 555014.3184 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Time		Sheet 1 of 1	
				Reference		Date		Excavation			
				Surface Conditions: Mounded non-native sand: tan well sorted, clean.				Start		Finish	
				Final Disposition: Backfilled and compacted.				Date 7/29/19		Date 7/29/19	
				Lithology and Other Notes:				Time 0940		Time 1015	
Depth (ft bgs)	USGS	PID (ppm)	Sample ID	PEAT: dark brown organic rich silt and root material, dry, soft, non-cohesive.							
0 - 0.5	PT	--	TH-2C-TP02-0-2	SILT: brown, dry, non-cohesive, slightly stiff.							
0.5 - 2	ML	0.0		CLAYEY SILT: light brown, with brown inclusions, dry stiff, non-cohesive.							
2 - 5	ML	0.0	TH-2C-TP02-4-5								
				NOTE: No subsurface waste observed.							
L (ft):	6	W (ft):	2	D (ft):	5	Insert photo below showing at least two points of reference.					
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/29/2019

Excavation Contractor: EA

Excavator: Jeff Smith

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2C-TP04			
TEST PIT LOG GPS Location: X: 1381182.936 (ft) Y: 555104.2358 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Time		Sheet 1 of 1	
				Reference		Date		Excavation			
				Surface Conditions: Grass.				Start		Finish	
				Final Disposition: Backfilled and compacted.				Date 7/26/19		Date 7/26/19	
				Lithology and Other Notes:				Time 1200		Time 1225	
Depth (ft bgs)				USGS		PID (ppm)		Sample ID		SILT: brown, dry, non-cohesive, soft; some root material; 20% sub-angular gravel pebbles and cobbles.	
0 - 1				ML		--		TH-2C-TP04-0-2		SILT: light brown, dry, non-cohesive, slightly stiff.	
1 - 3				ML		0.0				SILT: light brown, red (iron oxide), dry, soft to slightly stiff, non-cohesive.	
3 - 5				ML		0.0		TH-2C-TP04-4-5			
										NOTE: No surficial or subsurface waste observed.	
L (ft): 6				W (ft): 2		D (ft): 5		Insert photo below showing at least two points of reference.			
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/26/2019

Excavation Contractor: EA

Excavator: Scott Underwood

Logged by: Michael Thornton Date: 7/30/2019

Excavation Contractor: EA Excavator: Jeff Smith

Logged by: Michael Thornton Date: 7/29/2019

Excavation Contractor: EA Excavator: Jeff Smith

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2D-TP05			
TEST PIT LOG GPS Location: X: 1381335.704 (ft) Y: 554969.6675 (ft) Z: N/A (ft MSL) Reference Elevation: N/A Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Time		Date	
				Reference		Surface Conditions: Tar hopper, tires, steel cable.		Start		Finish	
Depth (ft bgs)		USGS	PID (ppm)	Sample ID		Final Disposition: Backfilled and compacted.				Excavation Date 7/29/19 Time 1430	
0 - 1						PT		--		TH-2D-TP05-0-2	
1 - 2						ML/GW/ SP		0.0		PEAT: dark brown organic rich silt and root material, dry, non-cohesive, soft.	
2 - 5						SP		0.0		TH-2D-TP05-4-5 (Parent DUP-5)	
										NOTE: No subsurface waste observed.	
L (ft): 8						W (ft): 2		D (ft): 5		Insert photo below showing at least two points of reference.	
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/29/2019

Excavation Contractor: EA

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2E-TP01			
TEST PIT LOG GPS Location: X: 1381531.137 (ft) Y: 555380.9066 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.				Sheet 1 of 1			
				Water Level Time Date Reference							
				Surface Conditions: Concrete cinderblock.				Excavation			
				Final Disposition: Backfilled and compacted.				Start			
								Date			
								7/30/19			
								Time			
								1030			
								Date			
								7/30/19			
								Time			
								1110			
				Lithology and Other Notes:							
Depth (ft bgs)				USGS		PID (ppm)		Sample ID		PEAT: dark brown organic rich silt and root material, dry, non-cohesive, soft.	
0 - 0.5				PT		--		TH-2E-TP01-0-2		SILT: brown, dry, slightly stiff, non-cohesive, with occasional large fragments of competent saprolitic gneiss.	
0.5 - 4				ML		0.0				SILT: reddish brown to gray, dry, non-cohesive, slightly soft, with some small iron concretions and some large fragments of competent saprolitic gneiss.	
4 - 5				ML		0.0		TH-2E-TP01-4-5			
										NOTE: No subsurface waste observed.	
L (ft): 8				W (ft): 2		D (ft): 5		Insert photo below showing at least two points of reference.			
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/30/2019

Excavation Contractor: EA

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park		
				Excavation Method: Mini Excavator 15000				Test Pit # TH-2F-TP01				
TEST PIT LOG GPS Location: X: 1381377.052 (ft) Y: 555859.337 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.				Sheet 1 of 1				
				Water Level Time Date Reference								
				Surface Conditions: Tires, auto parts, rusted 5-gallon drum.				Start Date 7/26/19 Time 0855		Finish Date 7/26/19 Time 0940		
Depth (ft bgs)		USGS	PID (ppm)	Sample ID		Final Disposition: Backfilled and compacted.						
0 - 1		PT	13.5	TH-2F-TP01-0-2		Lithology and Other Notes:						
1 - 3		ML	0.0			PEAT: dark brown organic rich silt and root material, dry, non-cohesive, soft.						
3 - 5		ML	0.0			SILT: reddish brown, dry, slightly stiff, non-cohesive.						
				TH-2F-TP01-4-5		SILT: red and orange with tan inclusions, hard, dry, saprolitic.						
						NOTE: No subsurface waste observed below 1 ft bgs.						
L (ft):		6	W (ft):	2	D (ft):	5	Insert photo below showing at least two points of reference.					
 Surface Conditions  Excavation												

Logged by: Michael Thornton

Date: 7/26/2019

Excavation Contractor: EA

Excavator: Scott Underwood

Excavator: Scott Underwood

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works		Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000		Test Pit # TH-3A-TP01			
TEST PIT LOG GPS Location: X: 1381588.036 (ft) Y: 555932.5944 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Sheet 1 of 1	
				Time		Date		Reference	
				Surface Conditions: Suspect metal pipe, chain-link fence, concrete walkway.		Date 7/25/19 Time 1300		Date 7/25/19 Time 1405	
Final Disposition: Backfilled and compacted.									
Lithology and Other Notes:									
0 - 0.5				PT		--		PEAT: dark brown organic rich sil and root material, dry, non-cohesive, soft. Observed oyster shells and a 3-inch long, 2-inch diameter metal pipe filled with sand and gravel.	
0.5 - 2				ML		--		SILT: brown, stiff, dry, non-cohesive silt; some large angular fragments of competent rock (fill) and competent saprolite.	
2 - 4				Saprolite		--		SAPROLITE: tan, brown, gray, laminar in part, stiff to hard, dry; some large angular fragments of competent rock.	
4 - 5				Bedrock		--		WEATHERED BEDROCK: slightly friable weathered gneiss predominantly consisting of feldspar, quartz and amphibole.	
								NOTE: No subsurface waste observed below 0.5 ft bgs. No evidence of a UST observed. Suspect metal pipe determined to be installed as a gate stop.	
								NOTE: Offset 5 ft north and advance to 3 ft bgs to investigate a magnetic anomaly. Observed a vertical 1.5-ft long, 2-inch diameter metal pipe likely associated with the former metal fence. No evidence of a UST observed at the offset location.	
L (ft): 6				W (ft): 4		D (ft): 5		Insert photo below showing at least two points of reference.	



Surface Conditions



Excavation

Logged by: Michael Thornton

Date: 7/25/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
TEST PIT LOG GPS Location: X: 1381430.804 (ft) Y: 554995.7 (ft) Z: N/A (ft MSL) Reference Elevation: N/A Reference Desc: N/A				Excavation Method: Mini Excavator 15000						Test Pit #	
				Sampling Method: Discrete interval from excavator bucket.						TH-3B-TP01	
				Water Level						Sheet 1 of 1	
				Time						Excavation	
				Date						Start	
				Reference						Finish	
				Surface Conditions: Grass and subsurface magnetic anomaly.						Date	
										7/30/19	
										Time	
										1230	
										Date	
										7/31/19	
										Time	
										1115	
Depth (ft bgs)				USGS		PID (ppm)		Sample ID		Final Disposition: Tank lid replaced and covered with plywood. Backfilled and compacted.	
0 - 0.5				PT		--		TH-3B-TP01-0-2		Lithology and Other Notes:	
										PEAT: dark brown organic rich silt and root material, dry, non-cohesive, soft.	
0.5 - 7.8				SP		0.0		TH-3B-TP01-1.7-BLUE		SILTY SAND: brown, reddish brown, tan, fine to medium-grained, well sorted, sub-angular, predominantly loose with some slight silty cohesion.	
								TH-3B-TP01-6.8-7.8 (Parent DUP-6)			
										NOTE: 2-inch diameter steel cap observed at 1.5 ft bgs. Sheet metal observed at 1.7 ft bgs. 4-ft diameter steel tank lid observed at 1.8 ft bgs covering cylindrical concrete tank. 1.05-ft long, 3-inch diameter terracotta pipe and 55-gallon drum collar observed adjacent to tank lid at 1.8 ft bgs. Blue-stained material observed just above drum collar. 2-inch diameter PVC pipe associated with tank observed trending northwest at 2 ft bgs. Lifted tank lid at 0915 on 7/31/19 - 0% LEL and 0.0 ppm. Observed water at 1.51 ft below tank lid. Sounded bottom of tank at 4.65 ft below tank lid. Tank determined to be septic. Excavated to 3 ft bgs in all directions from tank and to 7.8 ft bgs to the northwest of the tank in the direction of the drainfield as evidenced by the orientation of the buried effluent pipe.	
L (ft): 8				W (ft): 2		D (ft): 7.8		Insert photo below showing at least two points of reference.			
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 7/30/2019 - 7/31/2019

Excavation Contractor: EA

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works		Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-3C-TP02	
TEST PIT LOG GPS Location: X: 1381741.75 (ft) Y: 555063.6828 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.				Sheet 1 of 1	
				Water Level Time Date Reference					
				Surface Conditions: Broken concrete slab, boulders, steel debris.				Start Date 8/1/19 Time 1310	
				Final Disposition: Backfilled and compacted.				Finish Date 8/1/19 Time 1440	
				Lithology and Other Notes:					
0 - 0.5				PT		--		TH-3C-TP02-0-2	
0.5 - 9				ML/GW		0.0		SILT and GRAVEL: brown, dry, non-cohesive, stiff silt; 30% sub-rounded, quartz gravel pebbles and cobbles. Asphalt observed at 1 ft to 1.5 ft bgs.	
9 - 11				CH/GW Waste		0.0		CLAY, GRAVEL, and WASTE: dark gray, sandy, slightly wet, moderately plastic clay with gravel pebbles. Wood, metal, and glass bottles observed. Slight degraded petroleum odor observed.	
11 - 12.5				CH		0.0		CLAY: light gray, brown, highly plastic, moist, micaceous, fat clay.	
12.5 - 13				SP/CH		0.0		Sand and CLAY: light gray, tan, fine-grained, well sorted, loose, wet sand with fat clay matrix/clayey cohesion.	
								NOTE: Limit of excavator reach at 13 ft bgs. Test pit left open for 30 minutes to observe for water infiltration - insufficient volume, no groundwater sample collected. Trace perched water observed at 10.5 ft bgs.	
L (ft):		8		W (ft):		2		D (ft): 13	
Insert photo below showing at least two points of reference.									
 Surface Conditions  Excavation									

Logged by: Michael Thornton

Date: 8/1/2019

Excavation Contractor: EA

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC				Job No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-3C-TP03 Offset			
TEST PIT LOG GPS Location: X: 1381703.457 (ft) Y: 555053.3944 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.				Sheet 1 of 1			
				Water Level Time Date Reference				Excavation Start Finish			
				Surface Conditions: Grass.				Date 8/1/19 Time 0815			
				Final Disposition: Backfilled and compacted.				Date 8/1/19 Time 1000			
				Lithology and Other Notes:							
Depth (ft bgs)				USGS		PID (ppm)		Sample ID		PEAT: dark brown organic rich silt and root material, dry, non-cohesive, soft.	
0 - 0.75				PT		0.0		TH-3C-TP03-0-2		ASPHALT	
0.75 - 1				Asphalt		0.0				SILT and GRAVEL: brown, dry, non-cohesive, stiff silt; 30% sub-rounded quartz gravel pebbles and cobbles. Concrete observed at 3.5 ft bgs at northern end of excavation. Truck tire observed at 6 ft bgs.	
1 - 8				ML/GW		0.0				SILTY SAND: dark brown, medium-grained, well sorted, sub-angular, silty cohesion. Wood and root material observed.	
8 - 8.5				SP/Waste		0.0		TH-3C-TP03-8-8.5 (Parent DUP-9)		SANDY CLAY: bluish gray, moist to wet at base, moderately plastic clay; medium-grained, well sorted, sub-angular sand and trace sub-rounded quartz gravel pebbles.	
8.5 - 12				CH		0		TH-3C-TP03-10.5-11.5 (Parent DUP-8)			
										NOTE: Location is an offset of the original TH-3C-TP03. Limit of excavator reach at 12 ft bgs. Test pit left open for 30 minutes to observe for water infiltration - none observed, no groundwater sample collected.	
L (ft):		8		W (ft):		2		D (ft):		12	
Insert photo below showing at least two points of reference.											
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 8/1/2019

Excavation Contractor: EA

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC TEST PIT LOG GPS Location: X: 1381705.287 (ft) Y: 555074.2809 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000						Test Pit # TH-3C-TP04	
				Sampling Method: Discrete interval from excavator bucket.							
				Water Level						Sheet 1 of 1	
Time								Excavation			
Date								Start Finish			
Reference								Date Date			
								8/1/19 8/1/19			
								Time Time			
								1015 1135			
Depth (ft bgs)				USGS	PID (ppm)	Sample ID	Surface Conditions: Grass and a 1/2-inch thick, 1.25-ft by 7.5-ft steel plate.				
0 - 0.5				PT	--	TH-3C-TP04-0-2	Final Disposition: Backfilled and compacted.				
0.5 - 3.5				ML/GW	0.0		Lithology and Other Notes:				
3.5 - 4.5				ML/Waste	0.0		PEAT: brown organic rich silt and root material, dry, non-cohesive, soft. Steel pipe observed at 0.5 ft bgs.				
4.5 - 8				CH/Waste	1.6		SAND, SILT, and GRAVEL: light brown, dry, slightly stiff, non-cohesive silt; medium-grained, well sorted, sub-angular sand; 30% sub-rounded gravel pebbles and cobbles. Asphalt observed at 1 ft bgs. Steel rod observed at 1.5 ft bgs. Concrete observed at 2 ft bgs at southern end of excavation. Buried cans and glass bottles at 3 ft bgs.				
8 - 10				SP	0.0		SILT and Waste: dark stained silt with tree limbs and charred organic material. 4-inch thick 2-ft by 3-ft concrete piece observed at 4 ft bgs. Empty vehicle fuel tank observed at 4.5 ft bgs.				
10 - 12				SP/GW	0.0	TH-3C-TP04-11-12	CLAY and Waste: black to dark gray, moderately plastic clay with wood material				
							CLAYEY SAND: gray, medium-grained, well sorted, sub-angular, clayey cohesion; trace quartz gravel pebbles.				
							NOTE: Limit of excavator reach at 12 ft bgs. Test pit left open for 30 minutes to observe for water infiltration - insufficient volume, no groundwater sample collected.				
L (ft):		8	W (ft):		2	D (ft):		12		Insert photo below showing at least two points of reference.	
 Surface Conditions  Excavation											

Logged by: Michael Thornton

Date: 8/1/2019

Excavation Contractor: EA

Excavator: Jeff Smith

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park		
				Excavation Method: Mini Excavator 15000				Test Pit # TH-3D-TP01				
TEST PIT LOG GPS Location: X: 1380359.594 (ft) Y: 555836.6717 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.				Sheet 1 of 1				
				Water Level Time Date Reference				Excavation Start Finish				
				Surface Conditions: Grass.				Date 7/24/19 Time 0730				
				Final Disposition: Backfilled and compacted.				Date 7/24/19 Time 0810				
				Lithology and Other Notes:								
Depth (ft bgs)				USGS		PID (ppm)		Sample ID		SILT: light brown, slightly moist, low plasticity; 20% rounded quartz gravel pebbles.		
0 - 0.5				ML		--		TH-3D-TP01-0-2				
0.5 - 3				SP/GW (Fill)		0.0				SILT, SAND, and GRAVEL (Fill): dark brown to brown, slightly moist, non-cohesive silt; 30% well-sorted, medium-grained, sub-angular sand; 30% rounded gravel pebbles. Wire, metal pipe, concrete block, and brick observed.		
3 - 5				CL		0.0		TH-3D-TP01-4-5		CLAY: mottled light gray to reddish brown, slightly moist, slightly plastic, firm. Concrete rubble observed in northern end of excavation from 3 - 5 ft bgs.		
										NOTE: No subsurface waste observed below 3 ft bgs in southern portion of the excavation. Concrete rubble observed in northern end of excavation from 3 - 5 ft bgs.		
L (ft): 6				W (ft): 4		D (ft): 5		Insert photo below showing at least two points of reference.				



Surface Conditions



Excavation

Logged by: Michael Thornton

Date: 7/24/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works		Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000		Test Pit # TH-3D-TP02			
TEST PIT LOG GPS Location: X: 1380288.081 (ft) Y: 555911.9531 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Sheet 1 of 1	
				Reference		Date		Excavation	
				Surface Conditions: Grass.		Start		Finish	
				Final Disposition: Backfilled and compacted.		Date 7/23/19 Time 1400		Date 7/23/19 Time 1435	
				Lithology and Other Notes:					
Depth (ft bgs)				USGS		PID (ppm)		Sample ID	
0 - 0.5				ML		--		TH-3D-TP02-0-2	
0.5 - 2				SP/GW (Fill)		35.6		SAND and GRAVEL (Fill): tan to brown, stained dark gray on western sidewall; well sorted, medium-grained, sub-angular sand; 25% sub-angular gravel. Glass, plastic sheeting, brick, and asphalt observed.	
2 - 2.5				ML		--		SILT: dark brown, slightly moist, slightly plastic.	
2.5 - 3.5				MH		--		CLAYEY SILT: brown to orange, firm, slightly moist, moderately plastic.	
3.5 - 5				CL		0		CLAY: mottled orange to light gray, dense, non-plastic, dry; 10% round quartz gravel pebbles.	
								TH-3D-TP02-4-5	
								NOTE: No subsurface waste observed below 2 ft bgs. Recorded PID readings at this location without moisture filter.	
L (ft): 6				W (ft): 2		D (ft): 5		Insert photo below showing at least two points of reference.	
 Surface Conditions  Excavation									

Logged by: Michael Thornton

Date: 7/23/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works		Location: Troy Hill Park																																																
				Excavation Method: Mini Excavator 15000		Test Pit # TH-3D-TP03																																																		
TEST PIT LOG GPS Location: X: 1380261.101 (ft) Y: 555962.4904 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.		Water Level		Sheet 1 of 1																																																
				Reference		Time		Date		Excavation																																														
				Surface Conditions: Grass.		Start		Finish																																																
				Final Disposition: Backfilled and compacted.		Date 7/23/19		Date 7/23/19																																																
						Time 1105		Time 1225																																																
<table border="1"> <thead> <tr> <th>Depth (ft bgs)</th> <th>USGS</th> <th>PID (ppm)</th> <th>Sample ID</th> </tr> </thead> <tbody> <tr> <td>0 - 1.5</td> <td>MH</td> <td>--</td> <td rowspan="2">TH-3D-TP03-0-2</td> </tr> <tr> <td>1.5 - 2</td> <td>SP/GW (Fill)</td> <td>25.5</td> </tr> <tr> <td>2 - 4</td> <td>(Waste)</td> <td>0.0</td> <td>TH-3D-TP03-3-4</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>				Depth (ft bgs)	USGS	PID (ppm)	Sample ID	0 - 1.5	MH	--	TH-3D-TP03-0-2	1.5 - 2	SP/GW (Fill)	25.5	2 - 4	(Waste)	0.0	TH-3D-TP03-3-4																																	Lithology and Other Notes: CLAYEY SILT: light brown, moderately plastic, moist, firm. Trace plastic and wood debris observed at 0.5 to 0.7 ft bgs in southwest corner. SILT, SAND, and GRAVEL (Fill): dark brown, moist, slightly plastic silt; tan, well sorted, sub-angular, medium-grained sand; sub-angular gravel pebbles. Slight odor observed. Brick and non-native stone consisting of cemented round quartz pebbles and cobbles observed. Buried Waste: dark gray stained concrete block, brick, rebar. Refusal encountered at 4 ft bgs - concrete foundation.					
Depth (ft bgs)	USGS	PID (ppm)	Sample ID																																																					
0 - 1.5	MH	--	TH-3D-TP03-0-2																																																					
1.5 - 2	SP/GW (Fill)	25.5																																																						
2 - 4	(Waste)	0.0	TH-3D-TP03-3-4																																																					
				NOTE: Offset test pit 15 ft north and collect sample from 4 - 5 ft bgs. Recorded PID readings at this location without moisture filter.																																																				
L (ft):	6	W (ft):	2	D (ft):	4	Insert photo below showing at least two points of reference.																																																		
 Surface Conditions  Excavation																																																								

Logged by: Michael Thornton

Date: 7/23/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC TEST PIT LOG GPS Location: X: 1380273.807 (ft) Y: 555992.8932 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park			
				Excavation Method: Mini Excavator 15000								Test Pit #	
				Sampling Method: Discrete interval from excavator bucket.								TH-3D-TP03 Offset	
				Water Level								Sheet 1 of 1	
Time								Date		Excavation			
Date								Reference		Start	Finish		
Reference								Surface Conditions: Grass.		Date 7/23/19 Time 1230	Date 7/23/19 Time 1255		
Depth (ft bgs)				USGS	PID (ppm)	Sample ID		Final Disposition: Backfilled and compacted.					
0 - 1				ML	--	TH-3D-TP03-4-5		Lithology and Other Notes:					
1 - 2				ML	--			SILT: light brown, moist, low plasticity.					
2 - 5				ML	3.5			SILT: dark brown to gray, slight petroleum odor , moist, low plasticity.					
								CLAYEY SILT: mottled light gray to orange, dry, non-cohesive, dense.					
								NOTE: Location is offset due to refusal encountered at 4 ft bgs at original TH-3D-TP03. Recorded PID readings at this location without moisture filter.					
L (ft): 6				W (ft): 2	D (ft): 5		Insert photo below showing at least two points of reference.						
 Surface Conditions  Excavation													

Logged by: Michael Thornton

Date: 7/23/2019

Excavation Contractor: EA

Excavator: Scott Underwood

EA Engineering, Science, and Technology, Inc., PBC				Job. No. 1483560		Client: Howard County Department of Public Works				Location: Troy Hill Park	
				Excavation Method: Mini Excavator 15000				Test Pit # TH-3D-TP04			
TEST PIT LOG GPS Location: X: 1380220.51 (ft) Y: 555939.852 (ft) Reference Elevation: Z: N/A (ft MSL) Reference Desc: N/A				Sampling Method: Discrete interval from excavator bucket.				Sheet 1 of 1			
				Water Level Time Date Reference				Excavation Start Finish			
Surface Conditions: Grass.				Final Disposition: Backfilled and compacted.				Date 7/23/19 Time 1015			
Lithology and Other Notes:				CLAYEY SILT: mottled light gray to orange, moist, moderately plastic, dense.							
CLAYEY SILT: mottled light gray to orange, moist, moderately plastic, dense.				CLAYEY SILT: mottled light gray to orange, moist, moderately plastic, dense.							
SAND and GRAVEL (Fill): stained dark brown to gray, slight petroleum odor , 50% poorly sorted, sub-angular, fine to coarse sand; 50% sub-angular gravel pebbles to cobbles.				SAND and GRAVEL (Fill): stained dark brown to gray, slight petroleum odor , 50% poorly sorted, sub-angular, fine to coarse sand; 50% sub-angular gravel pebbles to cobbles.							
CLAYEY SILT: mottled light gray to orange, moist, moderately plastic, dense.				CLAYEY SILT: mottled light gray to orange, moist, moderately plastic, dense.							
NOTE: No subsurface waste observed below 2 ft bgs. Recorded PID readings at this location without moisture filter.				NOTE: No subsurface waste observed below 2 ft bgs. Recorded PID readings at this location without moisture filter.							
L (ft): 6				W (ft): 2				D (ft): 3.5			
Insert photo below showing at least two points of reference.											
											
Surface Conditions						Excavation					

Logged by: Michael Thornton

Date: 7/23/2019

Excavation Contractor: EA

Excavator: Scott Underwood

Appendix E

Laboratory Analytical Reports

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31 July 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/22/19 15:40.

Please visit our website at www.mdspectral.com for a complete listing of our accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rabecka Koons
Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-1B-HA01-0-2		9072217-01	Soil	07/22/19 13:00	07/22/19 15:40
TH-1B-HA02-0-2		9072217-02	Soil	07/22/19 13:15	07/22/19 15:40
TH-1B-HA03-0-2		9072217-03	Soil	07/22/19 13:30	07/22/19 15:40
TH-1B-HA04-0-2		9072217-04	Soil	07/22/19 13:45	07/22/19 15:40
TH-1A-HA01-0-2		9072217-05	Soil	07/22/19 14:45	07/22/19 15:40
TH-1A-HA02-0-2		9072217-06	Soil	07/22/19 14:30	07/22/19 15:40
DUP-1		9072217-07	Soil	07/22/19 08:00	07/22/19 15:40



Rabecka Koons, Quality Assurance Officer

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Baltimore MD 21227
410-247-7600
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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA01-0-2

9072217-01 (Soil)
Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	95		%			1	07/27/19	07/28/19 13:13	AM
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
alpha-BHC	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
beta-BHC	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
delta-BHC	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
alpha-Chlordane	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
gamma-Chlordane	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
4,4'-DDD	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
4,4'-DDE	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
4,4'-DDT	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
Dieldrin	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
Endosulfan I	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
Endosulfan II	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
Endosulfan sulfate	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
Endrin	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
Endrin aldehyde	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
Endrin ketone	ND		ug/kg dry	7.05	7.05	1	07/23/19	07/25/19 06:35	SJA
Heptachlor	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
Heptachlor epoxide	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.47	3.47	1	07/23/19	07/25/19 06:35	SJA
Methoxychlor	ND		ug/kg dry	34.7	34.7	1	07/23/19	07/25/19 06:35	SJA
Toxaphene	ND		ug/kg dry	70.5	70.5	1	07/23/19	07/25/19 06:35	SJA
<i>Surrogate: Tetrachloro-m-xylene</i>			<i>40-150</i>	<i>77 %</i>	<i>07/23/19</i>		<i>07/25/19 06:35</i>		
<i>Surrogate: Decachlorobiphenyl</i>			<i>40-150</i>	<i>91 %</i>	<i>07/23/19</i>		<i>07/25/19 06:35</i>		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA01-0-2

9072217-01 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	42.1	42.1	1	07/24/19	07/30/19 21:12	SJA
2,4-DB	ND		ug/kg dry	42.1	42.1	1	07/24/19	07/30/19 21:12	SJA
Dalapon	ND		ug/kg dry	84.2	84.2	1	07/24/19	07/30/19 21:12	SJA
Dicamba	ND		ug/kg dry	42.1	42.1	1	07/24/19	07/30/19 21:12	SJA
Dichlorprop	ND		ug/kg dry	42.1	42.1	1	07/24/19	07/30/19 21:12	SJA
Dinoseb	ND		ug/kg dry	42.1	42.1	1	07/24/19	07/30/19 21:12	SJA
MCPA	ND		ug/kg dry	8420	8420	1	07/24/19	07/30/19 21:12	SJA
MCPP	ND		ug/kg dry	8420	8420	1	07/24/19	07/30/19 21:12	SJA
2,4,5-T	ND		ug/kg dry	42.1	42.1	1	07/24/19	07/30/19 21:12	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	42.1	42.1	1	07/24/19	07/30/19 21:12	SJA
<i>Surrogate: DCAA</i>									
			50-150	76 %		07/24/19	07/30/19 21:12		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.62		mg/kg dry	0.263	0.263	1	07/29/19	07/30/19 17:35	VVD
Barium	32.7		mg/kg dry	0.263	0.263	1	07/29/19	07/30/19 17:35	VVD
Cadmium	ND		mg/kg dry	0.263	0.263	1	07/29/19	07/30/19 17:35	VVD
Chromium	8.43		mg/kg dry	0.263	0.263	1	07/29/19	07/30/19 17:35	VVD
Lead	36.9		mg/kg dry	0.263	0.263	1	07/29/19	07/30/19 17:35	VVD
Mercury	0.0402		mg/kg dry	0.0132	0.0132	1	07/29/19	07/30/19 17:35	VVD
Selenium	1.72		mg/kg dry	0.263	0.263	1	07/29/19	07/30/19 17:35	VVD
Silver	ND		mg/kg dry	0.263	0.263	1	07/29/19	07/30/19 17:35	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0844	0.0844	1	07/23/19	07/24/19 15:01	FRD

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA01-0-2

9072217-01 (Soil)
Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Wet Chemistry Performed at Enviro-Chem									
% Solids	92.5		%	1.00	1.00	1	07/23/19	07/23/19 14:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA02-0-2

9072217-02 (Soil)
Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	93		%			1	07/27/19	07/28/19 13:13	AM
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
alpha-BHC	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
beta-BHC	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
delta-BHC	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
alpha-Chlordane	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
gamma-Chlordane	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
4,4'-DDD	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
4,4'-DDE	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
4,4'-DDT	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
Dieldrin	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
Endosulfan I	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
Endosulfan II	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
Endosulfan sulfate	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
Endrin	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
Endrin aldehyde	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
Endrin ketone	ND		ug/kg dry	7.20	7.20	1	07/23/19	07/25/19 07:03	SJA
Heptachlor	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
Heptachlor epoxide	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.55	3.55	1	07/23/19	07/25/19 07:03	SJA
Methoxychlor	ND		ug/kg dry	35.5	35.5	1	07/23/19	07/25/19 07:03	SJA
Toxaphene	ND		ug/kg dry	72.0	72.0	1	07/23/19	07/25/19 07:03	SJA
Surrogate: Tetrachloro-m-xylene			40-150	82 %			07/23/19	07/25/19 07:03	
Surrogate: Decachlorobiphenyl			40-150	99 %			07/23/19	07/25/19 07:03	

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA02-0-2

9072217-02 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	43.0	43.0	1	07/24/19	07/30/19 21:49	SJA
2,4-DB	ND		ug/kg dry	43.0	43.0	1	07/24/19	07/30/19 21:49	SJA
Dalapon	ND		ug/kg dry	86.0	86.0	1	07/24/19	07/30/19 21:49	SJA
Dicamba	ND		ug/kg dry	43.0	43.0	1	07/24/19	07/30/19 21:49	SJA
Dichlorprop	ND		ug/kg dry	43.0	43.0	1	07/24/19	07/30/19 21:49	SJA
Dinoseb	ND		ug/kg dry	43.0	43.0	1	07/24/19	07/30/19 21:49	SJA
MCPA	ND		ug/kg dry	8600	8600	1	07/24/19	07/30/19 21:49	SJA
MCPP	ND		ug/kg dry	8600	8600	1	07/24/19	07/30/19 21:49	SJA
2,4,5-T	ND		ug/kg dry	43.0	43.0	1	07/24/19	07/30/19 21:49	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	43.0	43.0	1	07/24/19	07/30/19 21:49	SJA
<i>Surrogate: DCAA</i>									
			50-150	79 %		07/24/19	07/30/19 21:49		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.57		mg/kg dry	0.269	0.269	1	07/29/19	07/30/19 17:37	VVD
Barium	53.4		mg/kg dry	0.269	0.269	1	07/29/19	07/30/19 17:37	VVD
Cadmium	ND		mg/kg dry	0.269	0.269	1	07/29/19	07/30/19 17:37	VVD
Chromium	14.1		mg/kg dry	0.269	0.269	1	07/29/19	07/30/19 17:37	VVD
Lead	23.7		mg/kg dry	0.269	0.269	1	07/29/19	07/30/19 17:37	VVD
Mercury	0.0556		mg/kg dry	0.0134	0.0134	1	07/29/19	07/30/19 17:37	VVD
Selenium	2.09		mg/kg dry	0.269	0.269	1	07/29/19	07/30/19 17:37	VVD
Silver	ND		mg/kg dry	0.269	0.269	1	07/29/19	07/30/19 17:37	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0839	0.0839	1	07/23/19	07/24/19 15:13	FRD

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA02-0-2

9072217-02 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Wet Chemistry Performed at Enviro-Chem									
% Solids	93.6		%	1.00	1.00	1	07/23/19	07/23/19 14:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA03-0-2

9072217-03 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	92		%			1	07/27/19	07/28/19 13:13	AM
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
alpha-BHC	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
beta-BHC	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
delta-BHC	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
alpha-Chlordane	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
gamma-Chlordane	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
4,4'-DDD	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
4,4'-DDE	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
4,4'-DDT	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
Dieldrin	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
Endosulfan I	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
Endosulfan II	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
Endosulfan sulfate	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
Endrin	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
Endrin aldehyde	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
Endrin ketone	ND		ug/kg dry	7.28	7.28	1	07/23/19	07/25/19 07:30	SJA
Heptachlor	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
Heptachlor epoxide	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.59	3.59	1	07/23/19	07/25/19 07:30	SJA
Methoxychlor	ND		ug/kg dry	35.9	35.9	1	07/23/19	07/25/19 07:30	SJA
Toxaphene	ND		ug/kg dry	72.8	72.8	1	07/23/19	07/25/19 07:30	SJA
Surrogate: Tetrachloro-m-xylene			40-150	80 %			07/23/19	07/25/19 07:30	
Surrogate: Decachlorobiphenyl			40-150	85 %			07/23/19	07/25/19 07:30	

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Project: Troy Hill Park Phase II

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Reported:
07/31/19 14:37

TH-1B-HA03-0-2

9072217-03 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	43.5	43.5	1	07/24/19	07/30/19 22:24	SJA
2,4-DB	ND		ug/kg dry	43.5	43.5	1	07/24/19	07/30/19 22:24	SJA
Dalapon	ND		ug/kg dry	87.0	87.0	1	07/24/19	07/30/19 22:24	SJA
Dicamba	ND		ug/kg dry	43.5	43.5	1	07/24/19	07/30/19 22:24	SJA
Dichlorprop	ND		ug/kg dry	43.5	43.5	1	07/24/19	07/30/19 22:24	SJA
Dinoseb	ND		ug/kg dry	43.5	43.5	1	07/24/19	07/30/19 22:24	SJA
MCPA	ND		ug/kg dry	8700	8700	1	07/24/19	07/30/19 22:24	SJA
MCPD	ND		ug/kg dry	8700	8700	1	07/24/19	07/30/19 22:24	SJA
2,4,5-T	ND		ug/kg dry	43.5	43.5	1	07/24/19	07/30/19 22:24	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	43.5	43.5	1	07/24/19	07/30/19 22:24	SJA
<i>Surrogate: DCAA</i>									
			50-150	75 %		07/24/19	07/30/19 22:24		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.69		mg/kg dry	0.272	0.272	1	07/29/19	07/30/19 17:40	VVD
Barium	44.2		mg/kg dry	0.272	0.272	1	07/29/19	07/30/19 17:40	VVD
Cadmium	ND		mg/kg dry	0.272	0.272	1	07/29/19	07/30/19 17:40	VVD
Chromium	12.7		mg/kg dry	0.272	0.272	1	07/29/19	07/30/19 17:40	VVD
Lead	13.8		mg/kg dry	0.272	0.272	1	07/29/19	07/30/19 17:40	VVD
Mercury	0.0408		mg/kg dry	0.0136	0.0136	1	07/29/19	07/30/19 17:40	VVD
Selenium	3.20		mg/kg dry	0.272	0.272	1	07/29/19	07/30/19 17:40	VVD
Silver	ND		mg/kg dry	0.272	0.272	1	07/29/19	07/30/19 17:40	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0860	0.0860	1	07/23/19	07/24/19 15:25	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA03-0-2

9072217-03 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

Wet Chemistry Performed at Enviro-Chem

% Solids	92.8		%	1.00	1.00	1	07/23/19	07/23/19 14:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA04-0-2

9072217-04 (Soil)
Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	91		%			1	07/27/19	07/28/19 13:13	AM
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
alpha-BHC	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
beta-BHC	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
delta-BHC	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
alpha-Chlordane	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
gamma-Chlordane	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
4,4'-DDD	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
4,4'-DDE	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
4,4'-DDT	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
Dieldrin	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
Endosulfan I	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
Endosulfan II	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
Endosulfan sulfate	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
Endrin	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
Endrin aldehyde	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
Endrin ketone	ND		ug/kg dry	7.36	7.36	1	07/23/19	07/25/19 07:58	SJA
Heptachlor	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
Heptachlor epoxide	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.63	3.63	1	07/23/19	07/25/19 07:58	SJA
Methoxychlor	ND		ug/kg dry	36.3	36.3	1	07/23/19	07/25/19 07:58	SJA
Toxaphene	ND		ug/kg dry	73.6	73.6	1	07/23/19	07/25/19 07:58	SJA
Surrogate: Tetrachloro-m-xylene			40-150	84 %		07/23/19	07/25/19 07:58		
Surrogate: Decachlorobiphenyl			40-150	89 %		07/23/19	07/25/19 07:58		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA04-0-2

9072217-04 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	44.0	44.0	1	07/24/19	07/30/19 23:00	SJA
2,4-DB	ND		ug/kg dry	44.0	44.0	1	07/24/19	07/30/19 23:00	SJA
Dalapon	ND		ug/kg dry	87.9	87.9	1	07/24/19	07/30/19 23:00	SJA
Dicamba	ND		ug/kg dry	44.0	44.0	1	07/24/19	07/30/19 23:00	SJA
Dichlorprop	ND		ug/kg dry	44.0	44.0	1	07/24/19	07/30/19 23:00	SJA
Dinoseb	ND		ug/kg dry	44.0	44.0	1	07/24/19	07/30/19 23:00	SJA
MCPA	ND		ug/kg dry	8790	8790	1	07/24/19	07/30/19 23:00	SJA
MCPD	ND		ug/kg dry	8790	8790	1	07/24/19	07/30/19 23:00	SJA
2,4,5-T	ND		ug/kg dry	44.0	44.0	1	07/24/19	07/30/19 23:00	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	44.0	44.0	1	07/24/19	07/30/19 23:00	SJA
<i>Surrogate: DCAA</i>									
			50-150	81 %		07/24/19	07/30/19 23:00		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.73		mg/kg dry	0.275	0.275	1	07/29/19	07/30/19 17:42	VVD
Barium	47.1		mg/kg dry	0.275	0.275	1	07/29/19	07/30/19 17:42	VVD
Cadmium	ND		mg/kg dry	0.275	0.275	1	07/29/19	07/30/19 17:42	VVD
Chromium	14.5		mg/kg dry	0.275	0.275	1	07/29/19	07/30/19 17:42	VVD
Lead	25.1		mg/kg dry	0.275	0.275	1	07/29/19	07/30/19 17:42	VVD
Mercury	0.0515		mg/kg dry	0.0137	0.0137	1	07/29/19	07/30/19 17:42	VVD
Selenium	2.49		mg/kg dry	0.275	0.275	1	07/29/19	07/30/19 17:42	VVD
Silver	ND		mg/kg dry	0.275	0.275	1	07/29/19	07/30/19 17:42	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0875	0.0875	1	07/23/19	07/24/19 16:01	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1B-HA04-0-2

9072217-04 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Wet Chemistry Performed at Enviro-Chem									
% Solids	91.0		%	1.00	1.00	1	07/23/19	07/23/19 14:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1A-HA01-0-2

9072217-05 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Acenaphthylene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Anthracene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Benzo[a]anthracene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Benzo[b]fluoranthene	12.2		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Benzo[a]pyrene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Chrysene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Fluoranthene	15.6		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Fluorene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Naphthalene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Phenanthrene	ND		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Pyrene	14.0		ug/kg dry	11.9	11.9	1	07/25/19	07/26/19 11:14	WB
Surrogate: Nitrobenzene-d5		23-120		96 %	07/25/19		07/26/19 11:14		
Surrogate: 2-Fluorobiphenyl		30-115		99 %	07/25/19		07/26/19 11:14		
Surrogate: Terphenyl-d14		18-137		113 %	07/25/19		07/26/19 11:14		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/27/19	07/27/19 15:49	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	12.0		mg/kg dry	9.5	9.5	1	07/24/19	07/26/19 03:03	SJA
Surrogate: o-Terphenyl		70-130		88 %	07/24/19		07/26/19 03:03		

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1A-HA01-0-2

9072217-05 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	84		%			1	07/27/19	07/28/19 13:13	AM
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
alpha-BHC	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
beta-BHC	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
delta-BHC	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
alpha-Chlordane	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
gamma-Chlordane	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
4,4'-DDD	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
4,4'-DDE	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
4,4'-DDT	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
Dieldrin	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
Endosulfan I	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
Endosulfan II	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
Endosulfan sulfate	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
Endrin	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
Endrin aldehyde	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
Endrin ketone	ND		ug/kg dry	7.98	7.98	1	07/23/19	07/25/19 08:26	SJA
Heptachlor	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
Heptachlor epoxide	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.93	3.93	1	07/23/19	07/25/19 08:26	SJA
Methoxychlor	ND		ug/kg dry	39.3	39.3	1	07/23/19	07/25/19 08:26	SJA
Toxaphene	ND		ug/kg dry	79.8	79.8	1	07/23/19	07/25/19 08:26	SJA
Surrogate: Tetrachloro-m-xylene			40-150	85 %			07/23/19	07/25/19 08:26	
Surrogate: Decachlorobiphenyl			40-150	90 %			07/23/19	07/25/19 08:26	

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1A-HA01-0-2

9072217-05 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1221	ND		ug/kg dry	202	202	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1232	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1242	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1248	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1254	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1260	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1262	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Aroclor-1268	ND		ug/kg dry	98.8	98.8	1	07/23/19	07/25/19 08:26	SJA
Surrogate: Tetrachloro-m-xylene			40-150	85 %		07/23/19	07/25/19 08:26		
Surrogate: Decachlorobiphenyl			40-150	90 %		07/23/19	07/25/19 08:26		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	47.6	47.6	1	07/24/19	07/30/19 23:35	SJA
2,4-DB	ND		ug/kg dry	47.6	47.6	1	07/24/19	07/30/19 23:35	SJA
Dalapon	ND		ug/kg dry	95.2	95.2	1	07/24/19	07/30/19 23:35	SJA
Dicamba	ND		ug/kg dry	47.6	47.6	1	07/24/19	07/30/19 23:35	SJA
Dichlorprop	ND		ug/kg dry	47.6	47.6	1	07/24/19	07/30/19 23:35	SJA
Dinoseb	ND		ug/kg dry	47.6	47.6	1	07/24/19	07/30/19 23:35	SJA
MCPA	ND		ug/kg dry	9520	9520	1	07/24/19	07/30/19 23:35	SJA
MCPP	ND		ug/kg dry	9520	9520	1	07/24/19	07/30/19 23:35	SJA
2,4,5-T	ND		ug/kg dry	47.6	47.6	1	07/24/19	07/30/19 23:35	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	47.6	47.6	1	07/24/19	07/30/19 23:35	SJA
Surrogate: DCAA			50-150	71 %		07/24/19	07/30/19 23:35		

Rabecka Koons

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1A-HA01-0-2

9072217-05 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.96		mg/kg dry	0.298	0.298	1	07/29/19	07/30/19 17:50	VVD
Barium	52.7		mg/kg dry	0.298	0.298	1	07/29/19	07/30/19 17:50	VVD
Cadmium	1.15		mg/kg dry	0.298	0.298	1	07/29/19	07/30/19 17:50	VVD
Chromium	14.6		mg/kg dry	0.298	0.298	1	07/29/19	07/30/19 17:50	VVD
Lead	17.3		mg/kg dry	0.298	0.298	1	07/29/19	07/30/19 17:50	VVD
Mercury	0.0331		mg/kg dry	0.0149	0.0149	1	07/29/19	07/30/19 17:50	VVD
Selenium	1.62		mg/kg dry	0.298	0.298	1	07/29/19	07/30/19 17:50	VVD
Silver	ND		mg/kg dry	0.298	0.298	1	07/29/19	07/30/19 17:50	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0913	0.0913	1	07/23/19	07/24/19 16:13	FRD
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.7		%	1.00	1.00	1	07/23/19	07/23/19 14:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1A-HA02-0-2

9072217-06 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Acenaphthylene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Anthracene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Benzo[a]anthracene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Benzo[b]fluoranthene	15.5		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Benzo[a]pyrene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Chrysene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Fluoranthene	13.6		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Fluorene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Naphthalene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Phenanthrene	ND		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Pyrene	13.5		ug/kg dry	11.4	11.4	1	07/25/19	07/26/19 11:37	WB
Surrogate: Nitrobenzene-d5		23-120		88 %	07/25/19		07/26/19 11:37		
Surrogate: 2-Fluorobiphenyl		30-115		80 %	07/25/19		07/26/19 11:37		
Surrogate: Terphenyl-d14		18-137		109 %	07/25/19		07/26/19 11:37		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/27/19	07/27/19 16:23	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	11.4		mg/kg dry	9.1	9.1	1	07/24/19	07/26/19 03:29	SJA
Surrogate: o-Terphenyl		70-130		93 %	07/24/19		07/26/19 03:29		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1A-HA02-0-2

9072217-06 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	88		%			1	07/27/19	07/28/19 13:13	AM
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
alpha-BHC	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
beta-BHC	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
delta-BHC	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
alpha-Chlordane	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
gamma-Chlordane	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
4,4'-DDD	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
4,4'-DDE	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
4,4'-DDT	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
Dieldrin	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
Endosulfan I	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
Endosulfan II	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
Endosulfan sulfate	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
Endrin	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
Endrin aldehyde	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
Endrin ketone	ND		ug/kg dry	7.61	7.61	1	07/23/19	07/25/19 08:53	SJA
Heptachlor	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
Heptachlor epoxide	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.75	3.75	1	07/23/19	07/25/19 08:53	SJA
Methoxychlor	ND		ug/kg dry	37.5	37.5	1	07/23/19	07/25/19 08:53	SJA
Toxaphene	ND		ug/kg dry	76.1	76.1	1	07/23/19	07/25/19 08:53	SJA
Surrogate: Tetrachloro-m-xylene			40-150	83 %			07/23/19	07/25/19 08:53	
Surrogate: Decachlorobiphenyl			40-150	93 %			07/23/19	07/25/19 08:53	

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TH-1A-HA02-0-2

9072217-06 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1221	ND		ug/kg dry	193	193	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1232	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1242	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1248	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1254	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1260	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1262	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Aroclor-1268	ND		ug/kg dry	94.3	94.3	1	07/23/19	07/25/19 08:53	SJA
Surrogate: Tetrachloro-m-xylene			40-150	83 %		07/23/19		07/25/19 08:53	
Surrogate: Decachlorobiphenyl			40-150	93 %		07/23/19		07/25/19 08:53	
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	45.5	45.5	1	07/24/19	07/31/19 00:11	SJA
2,4-DB	ND		ug/kg dry	45.5	45.5	1	07/24/19	07/31/19 00:11	SJA
Dalapon	ND		ug/kg dry	90.9	90.9	1	07/24/19	07/31/19 00:11	SJA
Dicamba	ND		ug/kg dry	45.5	45.5	1	07/24/19	07/31/19 00:11	SJA
Dichlorprop	ND		ug/kg dry	45.5	45.5	1	07/24/19	07/31/19 00:11	SJA
Dinoseb	ND		ug/kg dry	45.5	45.5	1	07/24/19	07/31/19 00:11	SJA
MCPA	ND		ug/kg dry	9090	9090	1	07/24/19	07/31/19 00:11	SJA
MCPP	ND		ug/kg dry	9090	9090	1	07/24/19	07/31/19 00:11	SJA
2,4,5-T	ND		ug/kg dry	45.5	45.5	1	07/24/19	07/31/19 00:11	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	45.5	45.5	1	07/24/19	07/31/19 00:11	SJA
Surrogate: DCAA			50-150	77 %		07/24/19		07/31/19 00:11	

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TH-1A-HA02-0-2

9072217-06 (Soil)

Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	7.78		mg/kg dry	0.284	0.284	1	07/29/19	07/30/19 17:53	VVD
Barium	51.2		mg/kg dry	0.284	0.284	1	07/29/19	07/30/19 17:53	VVD
Cadmium	ND		mg/kg dry	0.284	0.284	1	07/29/19	07/30/19 17:53	VVD
Chromium	15.2		mg/kg dry	0.284	0.284	1	07/29/19	07/30/19 17:53	VVD
Lead	22.5		mg/kg dry	0.284	0.284	1	07/29/19	07/30/19 17:53	VVD
Mercury	0.0324		mg/kg dry	0.0142	0.0142	1	07/29/19	07/30/19 17:53	VVD
Selenium	2.43		mg/kg dry	0.284	0.284	1	07/29/19	07/30/19 17:53	VVD
Silver	ND		mg/kg dry	0.284	0.284	1	07/29/19	07/30/19 17:53	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0865	0.0865	1	07/23/19	07/24/19 16:25	FRD
Wet Chemistry Performed at Enviro-Chem									
% Solids	89.5		%	1.00	1.00	1	07/23/19	07/23/19 14:35	FRD

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

DUP-1

9072217-07 (Soil)
Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Acenaphthylene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Anthracene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Benzo[a]anthracene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Benzo[a]pyrene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Chrysene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Fluoranthene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Fluorene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Naphthalene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Phenanthrene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Pyrene	ND		ug/kg dry	11.1	11.1	1	07/25/19	07/26/19 12:00	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	07/25/19		07/26/19 12:00		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	07/25/19		07/26/19 12:00		
Surrogate: Terphenyl-d14		18-137		88 %	07/25/19		07/26/19 12:00		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/27/19	07/27/19 16:56	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	12.7		mg/kg dry	8.9	8.9	1	07/24/19	07/26/19 03:55	SJA
Surrogate: o-Terphenyl		70-130		104 %	07/24/19		07/26/19 03:55		

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DUP-1

9072217-07 (Soil)
Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	90		%			1	07/27/19	07/28/19 13:13	AM
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
alpha-BHC	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
beta-BHC	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
delta-BHC	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
alpha-Chlordane	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
gamma-Chlordane	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
4,4'-DDD	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
4,4'-DDE	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
4,4'-DDT	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
Dieldrin	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
Endosulfan I	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
Endosulfan II	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
Endosulfan sulfate	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
Endrin	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
Endrin aldehyde	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
Endrin ketone	ND		ug/kg dry	7.44	7.44	1	07/23/19	07/25/19 09:21	SJA
Heptachlor	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
Heptachlor epoxide	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.67	3.67	1	07/23/19	07/25/19 09:21	SJA
Methoxychlor	ND		ug/kg dry	36.7	36.7	1	07/23/19	07/25/19 09:21	SJA
Toxaphene	ND		ug/kg dry	74.4	74.4	1	07/23/19	07/25/19 09:21	SJA
Surrogate: Tetrachloro-m-xylene			40-150	80 %			07/23/19	07/25/19 09:21	
Surrogate: Decachlorobiphenyl			40-150	89 %			07/23/19	07/25/19 09:21	

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Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1221	ND		ug/kg dry	189	189	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1232	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1242	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1248	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1254	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1260	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1262	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Aroclor-1268	ND		ug/kg dry	92.2	92.2	1	07/23/19	07/25/19 09:21	SJA
Surrogate: Tetrachloro-m-xylene			40-150	80 %		07/23/19	07/25/19 09:21		
Surrogate: Decachlorobiphenyl			40-150	89 %		07/23/19	07/25/19 09:21		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	44.4	44.4	1	07/24/19	07/31/19 00:46	SJA
2,4-DB	ND		ug/kg dry	44.4	44.4	1	07/24/19	07/31/19 00:46	SJA
Dalapon	ND		ug/kg dry	88.9	88.9	1	07/24/19	07/31/19 00:46	SJA
Dicamba	ND		ug/kg dry	44.4	44.4	1	07/24/19	07/31/19 00:46	SJA
Dichlorprop	ND		ug/kg dry	44.4	44.4	1	07/24/19	07/31/19 00:46	SJA
Dinoseb	ND		ug/kg dry	44.4	44.4	1	07/24/19	07/31/19 00:46	SJA
MCPA	ND		ug/kg dry	8890	8890	1	07/24/19	07/31/19 00:46	SJA
MCPP	ND		ug/kg dry	8890	8890	1	07/24/19	07/31/19 00:46	SJA
2,4,5-T	ND		ug/kg dry	44.4	44.4	1	07/24/19	07/31/19 00:46	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	44.4	44.4	1	07/24/19	07/31/19 00:46	SJA
Surrogate: DCAA			50-150	82 %		07/24/19	07/31/19 00:46		

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9072217-07 (Soil)
Sample Date: 07/22/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	5.94		mg/kg dry	0.278	0.278	1	07/29/19	07/30/19 17:55	VVD
Barium	45.5		mg/kg dry	0.278	0.278	1	07/29/19	07/30/19 17:55	VVD
Cadmium	ND		mg/kg dry	0.278	0.278	1	07/29/19	07/30/19 17:55	VVD
Chromium	18.5		mg/kg dry	0.278	0.278	1	07/29/19	07/30/19 17:55	VVD
Lead	16.2		mg/kg dry	0.278	0.278	1	07/29/19	07/30/19 17:55	VVD
Mercury	0.0254		mg/kg dry	0.0139	0.0139	1	07/29/19	07/30/19 17:55	VVD
Selenium	1.93		mg/kg dry	0.278	0.278	1	07/29/19	07/30/19 17:55	VVD
Silver	ND		mg/kg dry	0.278	0.278	1	07/29/19	07/30/19 17:55	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0891	0.0891	1	07/23/19	07/24/19 16:37	FRD
Wet Chemistry Performed at Enviro-Chem									
% Solids	88.2		%	1.00	1.00	1	07/23/19	07/23/19 14:35	FRD

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Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907357 - 3540-GCMS(Soxhlet)

Blank (B907357-BLK1)

Prepared: 07/25/19 Analyzed: 07/26/19

Acenaphthene	ND		10.0	ug/kg wet						
Acenaphthylene	ND		10.0	ug/kg wet						
Anthracene	ND		10.0	ug/kg wet						
Benzo[a]anthracene	ND		10.0	ug/kg wet						
Benzo[b]fluoranthene	ND		10.0	ug/kg wet						
Benzo[k]fluoranthene	ND		10.0	ug/kg wet						
Benzo[ghi]perylene	ND		10.0	ug/kg wet						
Benzo[a]pyrene	ND		10.0	ug/kg wet						
Chrysene	ND		10.0	ug/kg wet						
Dibenzo[a,h]anthracene	ND		10.0	ug/kg wet						
Fluoranthene	ND		10.0	ug/kg wet						
Fluorene	ND		10.0	ug/kg wet						
Indeno[1,2,3-cd]pyrene	ND		10.0	ug/kg wet						
1-Methylnaphthalene	ND		10.0	ug/kg wet						
2-Methylnaphthalene	ND		10.0	ug/kg wet						
N-Nitroso-di-n-propylamine	ND		10.0	ug/kg wet						
Naphthalene	ND		10.0	ug/kg wet						
Phenanthrene	ND		10.0	ug/kg wet						
Pyrene	ND		10.0	ug/kg wet						
Surrogate: Nitrobenzene-d5	34.2			ug/kg wet	50.0		68	23-120		
Surrogate: 2-Fluorobiphenyl	36.7			ug/kg wet	50.0		73	30-115		
Surrogate: Terphenyl-d14	42.8			ug/kg wet	50.0		86	18-137		

LCS (B907357-BS1)

Prepared: 07/25/19 Analyzed: 07/26/19

Acenaphthene	19		10.0	ug/kg wet	25.0		76	50-130		
Acenaphthylene	13		10.0	ug/kg wet	25.0		51	50-130		
Anthracene	14		10.0	ug/kg wet	25.0		57	50-130		
Benzo[a]anthracene	15		10.0	ug/kg wet	25.0		61	50-130		
Benzo[b]fluoranthene	15		10.0	ug/kg wet	25.0		60	50-130		
Benzo[k]fluoranthene	14		10.0	ug/kg wet	25.0		58	50-130		
Benzo[ghi]perylene	14		10.0	ug/kg wet	25.0		55	50-130		
Benzo[a]pyrene	13		10.0	ug/kg wet	25.0		54	50-130		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907357 - 3540-GCMS(Soxhlet)

LCS (B907357-BS1)

Prepared: 07/25/19 Analyzed: 07/26/19

Chrysene	16		10.0	ug/kg wet	25.0		62	50-130		
Dibenzo[a,h]anthracene	14		10.0	ug/kg wet	25.0		56	50-130		
Fluoranthene	16		10.0	ug/kg wet	25.0		65	50-130		
Fluorene	17		10.0	ug/kg wet	25.0		69	50-130		
Indeno[1,2,3-cd]pyrene	13		10.0	ug/kg wet	25.0		53	50-130		
1-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
2-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
N-Nitroso-di-n-propylamine	12		10.0	ug/kg wet	25.0		49	50-130		
Naphthalene	15		10.0	ug/kg wet	25.0		58	50-130		
Phenanthrene	15		10.0	ug/kg wet	25.0		60	50-130		
Pyrene	16		10.0	ug/kg wet	25.0		64	50-130		
Surrogate: Nitrobenzene-d5	34.0			ug/kg wet	50.0		68	23-120		
Surrogate: 2-Fluorobiphenyl	36.3			ug/kg wet	50.0		73	30-115		
Surrogate: Terphenyl-d14	44.8			ug/kg wet	50.0		90	18-137		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

GASOLINE RANGE ORGANICS BY EPA 5030/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907391 - 5030-GC

Blank (B907391-BLK1)

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	413			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	416			ug/L	400		104	85-115		

LCS (B907391-BS1)

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	0.35		0.10	mg/kg wet	0.290		120	70-130		
Surrogate: a,a,a-Trifluorotoluene	411			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	413			ug/L	400		103	85-115		

Duplicate (B907391-DUP1)

Source: 9072436-17

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	ND		0.10	mg/kg wet		ND			20	
Surrogate: a,a,a-Trifluorotoluene	415			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	400			ug/L	400		100	85-115		

Matrix Spike (B907391-MS1)

Source: 9072436-17

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	0.33		0.10	mg/kg wet	0.290	ND	115	70-130		
Surrogate: a,a,a-Trifluorotoluene	415			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	417			ug/L	400		104	85-115		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

DIESEL RANGE ORGANICS BY EPA 3540/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B907334 - 3540-GC(Soxhlet)										
Blank (B907334-BLK1)					Prepared: 07/24/19 Analyzed: 07/25/19					
Diesel-Range Organics	ND		8.0	mg/kg wet						
Surrogate: o-Terphenyl	1.84			mg/kg wet	2.00		92	70-130		
LCS (B907334-BS1)					Prepared: 07/24/19 Analyzed: 07/25/19					
Diesel-Range Organics	16.8		8.0	mg/kg wet	20.0		84	60-130		
Surrogate: o-Terphenyl	1.76			mg/kg wet	2.00		88	70-130		
Duplicate (B907334-DUP1)					Source: 9072435-03		Prepared: 07/24/19 Analyzed: 07/25/19			
Diesel-Range Organics	352		19.3	mg/kg dry		311			12	20
Surrogate: o-Terphenyl	1.96			mg/kg dry	2.41		81	70-130		
Matrix Spike (B907334-MS1)					Source: 9072435-01		Prepared: 07/24/19 Analyzed: 07/25/19			
Diesel-Range Organics	262		9.6	mg/kg dry	24.1	163	412	60-120		
Surrogate: o-Terphenyl	2.08			mg/kg dry	2.41		86	70-130		

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Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907312 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907312-BLK1)

Prepared: 07/23/19 Analyzed: 07/25/19

Aldrin	ND		3.30	ug/kg wet						
alpha-BHC	ND		3.30	ug/kg wet						
beta-BHC	ND		3.30	ug/kg wet						
delta-BHC	ND		3.30	ug/kg wet						
alpha-Chlordane	ND		3.30	ug/kg wet						
gamma-Chlordane	ND		3.30	ug/kg wet						
4,4'-DDD	ND		6.70	ug/kg wet						
4,4'-DDE	ND		6.70	ug/kg wet						
4,4'-DDT	ND		6.70	ug/kg wet						
Dieldrin	ND		6.70	ug/kg wet						
Endosulfan I	ND		3.30	ug/kg wet						
Endosulfan II	ND		6.70	ug/kg wet						
Endosulfan sulfate	ND		6.70	ug/kg wet						
Endrin	ND		6.70	ug/kg wet						
Endrin aldehyde	ND		6.70	ug/kg wet						
Endrin ketone	ND		6.70	ug/kg wet						
Heptachlor	ND		3.30	ug/kg wet						
Heptachlor epoxide	ND		3.30	ug/kg wet						
Lindane (gamma-BHC)	ND		3.30	ug/kg wet						
Methoxychlor	ND		33.0	ug/kg wet						
Toxaphene	ND		67.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	47.9			ug/kg wet	66.7		72	40-150		
Surrogate: Decachlorobiphenyl	60.5			ug/kg wet	66.7		91	40-150		

LCS (B907312-BS1)

Prepared: 07/23/19 Analyzed: 07/25/19

Aldrin	5.24		3.30	ug/kg wet	6.73		78	70-130		
alpha-BHC	4.65		3.30	ug/kg wet	6.67		70	70-130		
beta-BHC	7.30		3.30	ug/kg wet	6.67		110	70-130		
delta-BHC	5.91		3.30	ug/kg wet	6.67		89	70-130		
alpha-Chlordane	6.46		3.30	ug/kg wet	6.73		96	70-130		
gamma-Chlordane	6.86		3.30	ug/kg wet	6.73		102	70-130		
4,4'-DDD	11.9		6.70	ug/kg wet	13.3		89	70-130		

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907312 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907312-BS1)

Prepared: 07/23/19 Analyzed: 07/25/19

4,4'-DDE	11.7		6.70	ug/kg wet	13.4		87	70-130		
4,4'-DDT	15.3		6.70	ug/kg wet	13.4		114	70-130		
Dieldrin	12.2		6.70	ug/kg wet	13.3		91	70-130		
Endosulfan I	5.97		3.30	ug/kg wet	6.67		90	70-130		
Endosulfan II	12.9		6.70	ug/kg wet	13.4		97	70-130		
Endosulfan sulfate	15.0		6.70	ug/kg wet	13.3		112	70-130		
Endrin	13.7		6.70	ug/kg wet	13.5		101	70-130		
Endrin aldehyde	21.7		6.70	ug/kg wet	13.4		162	70-130		
Endrin ketone	14.5		6.70	ug/kg wet	13.4		108	70-130		
Heptachlor	5.96		3.30	ug/kg wet	6.73		89	70-130		
Heptachlor epoxide	6.21		3.30	ug/kg wet	6.67		93	70-130		
Lindane (gamma-BHC)	5.65		3.30	ug/kg wet	6.67		85	70-130		
Methoxychlor	77.5		33.0	ug/kg wet	67.3		115	70-130		
Surrogate: Tetrachloro-m-xylene	44.6			ug/kg wet	66.7		67	40-130		
Surrogate: Decachlorobiphenyl	60.7			ug/kg wet	66.7		91	40-130		

LCS (B907312-BS2)

Prepared: 07/23/19 Analyzed: 07/25/19

Aldrin	ND		3.30	ug/kg wet				70-130		
alpha-BHC	ND		3.30	ug/kg wet				70-130		
beta-BHC	ND		3.30	ug/kg wet				70-130		
delta-BHC	ND		3.30	ug/kg wet				70-130		
alpha-Chlordane	ND		3.30	ug/kg wet				70-130		
gamma-Chlordane	ND		3.30	ug/kg wet				70-130		
4,4'-DDD	ND		6.70	ug/kg wet				70-130		
4,4'-DDE	ND		6.70	ug/kg wet				70-130		
4,4'-DDT	ND		6.70	ug/kg wet				70-130		
Dieldrin	ND		6.70	ug/kg wet				70-130		
Endosulfan I	ND		3.30	ug/kg wet				70-130		
Endosulfan II	ND		6.70	ug/kg wet				70-130		
Endosulfan sulfate	ND		6.70	ug/kg wet				70-130		
Endrin	ND		6.70	ug/kg wet				70-130		
Endrin aldehyde	ND		6.70	ug/kg wet				70-130		

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Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
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CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907312 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907312-BS2)

Prepared: 07/23/19 Analyzed: 07/25/19

Endrin ketone	ND		6.70	ug/kg wet				70-130		
Heptachlor	ND		3.30	ug/kg wet				70-130		
Heptachlor epoxide	ND		3.30	ug/kg wet				70-130		
Lindane (gamma-BHC)	ND		3.30	ug/kg wet				70-130		
Methoxychlor	ND		33.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	48.5			ug/kg wet	66.7		73	40-130		
Surrogate: Decachlorobiphenyl	63.0			ug/kg wet	66.7		95	40-130		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
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POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907312 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907312-BLK1)

Prepared: 07/23/19 Analyzed: 07/25/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	47.9			ug/kg wet	66.7		72	40-150		
Surrogate: Decachlorobiphenyl	60.5			ug/kg wet	66.7		91	40-150		

LCS (B907312-BS1)

Prepared: 07/23/19 Analyzed: 07/25/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		
Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	44.6			ug/kg wet	66.7		67	50-150		
Surrogate: Decachlorobiphenyl	60.7			ug/kg wet	66.7		91	50-150		

LCS (B907312-BS2)

Prepared: 07/23/19 Analyzed: 07/25/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	619		83.0	ug/kg wet	667		93	70-130		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907312 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907312-BS2)

Prepared: 07/23/19 Analyzed: 07/25/19

Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	48.5			ug/kg wet	66.7		73	50-150		
Surrogate: Decachlorobiphenyl	63.0			ug/kg wet	66.7		95	50-150		

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907323 - 8151(Herbicides)

Blank (B907323-BLK1)

Prepared: 07/24/19 Analyzed: 07/30/19

2,4-D	ND		40.0	ug/kg wet						
2,4-DB	ND		40.0	ug/kg wet						
Dalapon	ND		80.0	ug/kg wet						
Dicamba	ND		40.0	ug/kg wet						
Dichlorprop	ND		40.0	ug/kg wet						
Dinoseb	ND		40.0	ug/kg wet						
MCPA	ND		8000	ug/kg wet						
MCPP	ND		8000	ug/kg wet						
2,4,5-T	ND		40.0	ug/kg wet						
2,4,5-TP (Silvex)	ND		40.0	ug/kg wet						
Surrogate: DCAA	337			ug/kg wet	500		67	50-150		

LCS (B907323-BS1)

Prepared: 07/24/19 Analyzed: 07/30/19

2,4-D	489		40.0	ug/kg wet	500		98	15-150		
2,4-DB	572		40.0	ug/kg wet	500		114	15-150		
Dalapon	572		80.0	ug/kg wet	1000		57	15-150		
Dicamba	441		40.0	ug/kg wet	500		88	15-150		
Dichlorprop	611		40.0	ug/kg wet	500		122	15-150		
Dinoseb	69.1		40.0	ug/kg wet	500		14	15-150		
MCPA	30100		8000	ug/kg wet	80000		38	15-150		
MCPP	35600		8000	ug/kg wet	80000		45	15-150		
2,4,5-T	454		40.0	ug/kg wet	500		91	15-150		
2,4,5-TP (Silvex)	454		40.0	ug/kg wet	500		91	15-150		
Surrogate: DCAA	391			ug/kg wet	500		78	50-150		

Duplicate (B907323-DUP1)

Source: 9072217-01

Prepared: 07/24/19 Analyzed: 07/30/19

2,4-D	ND		42.1	ug/kg dry		ND			200	
2,4-DB	368		42.1	ug/kg dry		ND			200	
Dalapon	ND		84.2	ug/kg dry		ND			200	
Dicamba	ND		42.1	ug/kg dry		ND			200	
Dichlorprop	ND		42.1	ug/kg dry		ND			200	
Dinoseb	ND		42.1	ug/kg dry		ND			200	

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907323 - 8151(Herbicides)

Duplicate (B907323-DUP1)		Source: 9072217-01		Prepared: 07/24/19		Analyzed: 07/30/19	
MCPA	ND	8420	ug/kg dry	ND			200
MCPP	ND	8420	ug/kg dry	ND			200
2,4,5-T	ND	42.1	ug/kg dry	ND			200
2,4,5-TP (Silvex)	ND	42.1	ug/kg dry	ND			200
Surrogate: DCAA	388		ug/kg dry	526	74	50-150	

Matrix Spike (B907323-MS1)		Source: 9072217-02		Prepared: 07/24/19		Analyzed: 07/30/19	
2,4-D	605	43.0	ug/kg dry	538	ND	112	10-150
2,4-DB	747	43.0	ug/kg dry	538	ND	139	10-150
Dalapon	524	86.0	ug/kg dry	1080	ND	49	10-150
Dicamba	507	43.0	ug/kg dry	538	ND	94	10-150
Dichlorprop	696	43.0	ug/kg dry	538	ND	130	10-150
Dinoseb	160	43.0	ug/kg dry	538	ND	30	10-150
MCPA	35400	8600	ug/kg dry	86000	ND	41	10-150
MCPP	49400	8600	ug/kg dry	86000	ND	57	10-150
2,4,5-T	558	43.0	ug/kg dry	538	ND	104	10-150
2,4,5-TP (Silvex)	540	43.0	ug/kg dry	538	ND	100	10-150
Surrogate: DCAA	463		ug/kg dry	538	86	50-150	

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907417 - 3050B-Metals Digestion

Blank (B907417-BLK1)

Prepared: 07/29/19 Analyzed: 07/30/19

Arsenic	ND		0.250	mg/kg wet						
Barium	ND		0.250	mg/kg wet						
Cadmium	ND		0.250	mg/kg wet						
Chromium	ND		0.250	mg/kg wet						
Lead	ND		0.250	mg/kg wet						
Mercury	ND		0.0125	mg/kg wet						
Selenium	ND		0.250	mg/kg wet						
Silver	ND		0.250	mg/kg wet						

LCS (B907417-BS1)

Prepared: 07/29/19 Analyzed: 07/30/19

Arsenic	1.34		0.250	mg/kg wet	1.25		107	80-120		
Barium	1.22		0.250	mg/kg wet	1.25		98	80-120		
Cadmium	1.32		0.250	mg/kg wet	1.25		106	80-120		
Chromium	1.30		0.250	mg/kg wet	1.25		104	80-120		
Lead	1.21		0.250	mg/kg wet	1.25		97	80-120		
Mercury	0.0611		0.0125	mg/kg wet	0.0625		98	80-120		
Selenium	1.29		0.250	mg/kg wet	1.25		103	80-120		
Silver	1.37		0.250	mg/kg wet	1.25		110	80-120		

Duplicate (B907417-DUP1)

Source: 9072210-01

Prepared: 07/29/19 Analyzed: 07/30/19

Arsenic	4.20		0.269	mg/kg dry		5.66		30	200	
Barium	74.7		0.269	mg/kg dry		62.7		17	200	
Cadmium	0.332		0.269	mg/kg dry		0.663		67	200	
Chromium	24.7		0.269	mg/kg dry		25.2		2	200	
Lead	42.0		0.269	mg/kg dry		54.9		27	200	
Mercury	0.0444		0.0134	mg/kg dry		0.0490		10	200	
Selenium	1.34		0.269	mg/kg dry		1.53		13	200	
Silver	ND		0.269	mg/kg dry		ND			200	

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907417 - 3050B-Metals Digestion

Matrix Spike (B907417-MS1)		Source: 9072210-01		Prepared: 07/29/19		Analyzed: 07/30/19				
Arsenic	6.69	QM-06	0.269	mg/kg dry	2.69	5.66	38	80-120		
Barium	58.4	QM-06	0.269	mg/kg dry	2.69	62.7	NR	80-120		
Cadmium	3.18		0.269	mg/kg dry	2.69	0.663	94	80-120		
Chromium	28.5	QM-06	0.269	mg/kg dry	2.69	25.2	122	80-120		
Lead	47.3	QM-06	0.269	mg/kg dry	2.69	54.9	NR	80-120		
Mercury	0.174		0.0134	mg/kg dry	0.134	0.0490	93	80-120		
Selenium	3.94		0.269	mg/kg dry	2.69	1.53	90	80-120		
Silver	2.93		0.269	mg/kg dry	2.69	ND	109	80-120		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

Chromium VI by EPA 7199 - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit
Batch B9G0177 - EPA 3060									
Blank (B9G0177-BLK1)					Prepared: 07/23/19 Analyzed: 07/24/19				
Chromium VI	ND		0.0800	mg/kg wet					
LCS (B9G0177-BS1)					Prepared: 07/23/19 Analyzed: 07/24/19				
Chromium VI	3.97		0.0800	mg/kg wet	4.00	99.4	80-120		
Duplicate (B9G0177-DUP1)					Source: E059629-01 Prepared: 07/23/19 Analyzed: 07/24/19				
Chromium VI	0.235		0.0884	mg/kg dry	0.246			4.69	20
Matrix Spike (B9G0177-MS1)					Source: E059629-01 Prepared: 07/23/19 Analyzed: 07/24/19				
Chromium VI	4.51		0.0857	mg/kg dry	4.28	0.246	99.4	75-125	
Matrix Spike (B9G0177-MS2)					Source: E059629-01 Prepared: 07/23/19 Analyzed: 07/24/19				
Chromium VI	1420		4.37	mg/kg dry	1500	ND	95.1	75-125	
Post Spike (B9G0177-PS1)					Source: E059629-01 Prepared: 07/23/19 Analyzed: 07/24/19				
Chromium VI	101			ug/L	100	2.78	97.9	80-120	

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

Wet Chemistry - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B9G0184 - No Prep WC

Duplicate (B9G0184-DUP1)

Source: 9072217-01

Prepared & Analyzed: 07/23/19

% Solids	93.0		1.00	%		92.5			0.501	20

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
07/31/19 14:37

Notes and Definitions

QM-06	Due to noted non-homogeneity of the QC sample matrix, the MS/MSD did not provide reliable results for accuracy and precision. Sample results for the QC batch were accepted based on LCS/LCSD percent recoveries and RPD values.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Rabecka Koons, Quality Assurance Officer

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SUBCONTRACT ORDER
Maryland Spectral Services

9072217

59632

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons
Reporting Email: Reporting@mdspectral.com

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone: (410) 472-1112
Fax: (410) 472-1116

Auto-log Sent
Date/Initial
7/22/19 / RA

Due 4:00 PM 07/31/19

Laboratory ID Comments

Sample ID: 9072217-01 TH-1B-HA01-0-2 Soil Sampled:07/22/19 13:00

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072217-02 TH-1B-HA02-0-2 Soil Sampled:07/22/19 13:15

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072217-03 TH-1B-HA03-0-2 Soil Sampled:07/22/19 13:30

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072217-04 TH-1B-HA04-0-2 Soil Sampled:07/22/19 13:45

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Released By: [Signature] Date: 7/23/19 8:21
Received By: FRD Date: 7/23/19 8:21

Released By: _____ Date: _____ Received By: _____ Date: _____

SUBCONTRACT ORDER
Maryland Spectral Services

9072217

59632

Due 4:00 PM 07/31/19

Laboratory ID

Comments

Sample ID: 9072217-05

TH-1A-HA01-0-2

Soil

Sampled:07/22/19 14:45

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072217-06

TH-1A-HA02-0-2

Soil

Sampled:07/22/19 14:30

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072217-07

DUP-1

Soil

Sampled:07/22/19 08:00

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Released By 

8.21

7/23/19

Date

FRD

Received By

7/23/19 821

Date

Released By

Date

Received By

Date

01 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/23/19 15:35.

Please visit our website at www.mdspectral.com for a complete listing of our accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rabecka Koons
Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-3D-TP02-0-2		9072317-01	Soil	07/23/19 14:15	07/23/19 15:35
TH-3D-TP02-4-5		9072317-02	Soil	07/23/19 14:30	07/23/19 15:35
TH-3D-TP03-4-5		9072317-03	Soil	07/23/19 12:50	07/23/19 15:35
TH-3D-TP03-0-2		9072317-04	Soil	07/23/19 11:20	07/23/19 15:35
TH-3D-TP03-3-4		9072317-05	Soil	07/23/19 12:15	07/23/19 15:35
TH-3D-TP04-0-2		9072317-06	Soil	07/23/19 10:35	07/23/19 15:35
TH-3D-TP04-2-3		9072317-07	Soil	07/23/19 10:45	07/23/19 15:35
TH-2A-TP03-0-2		9072317-08	Soil	07/23/19 09:40	07/23/19 15:35
TH-2A-TP03-4-5		9072317-09	Soil	07/23/19 09:55	07/23/19 15:35
TH-2A-TP02-0-2		9072317-10	Soil	07/23/19 07:50	07/23/19 15:35
TH-2A-TP02-4-5		9072317-11	Soil	07/23/19 08:00	07/23/19 15:35
TH-2A-TP01-0-2		9072317-12	Soil	07/23/19 08:40	07/23/19 15:35
TH-2A-TP01-4-5		9072317-13	Soil	07/23/19 08:50	07/23/19 15:35
DUP-2		9072317-14	Soil	07/23/19 08:00	07/23/19 15:35

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-0-2

9072317-01 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Acenaphthylene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Anthracene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Benzo[a]anthracene	29.2		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Benzo[b]fluoranthene	37.3		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Benzo[k]fluoranthene	15.3		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Benzo[ghi]perylene	18.3		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Benzo[a]pyrene	25.7		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Chrysene	34.7		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Fluoranthene	54.1		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Fluorene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Indeno[1,2,3-cd]pyrene	19.5		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Naphthalene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Phenanthrene	23.5		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Pyrene	51.4		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 12:11	WB
Surrogate: Nitrobenzene-d5		23-120		62 %	07/30/19		07/31/19 12:11		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	07/30/19		07/31/19 12:11		
Surrogate: Terphenyl-d14		18-137		81 %	07/30/19		07/31/19 12:11		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/26/19	07/26/19 16:07	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.4	9.4	1	07/30/19	07/31/19 14:28	SJA
Surrogate: o-Terphenyl		70-130		77 %	07/30/19		07/31/19 14:28		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-0-2

9072317-01 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	85		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
alpha-BHC	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
beta-BHC	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
delta-BHC	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
alpha-Chlordane	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
gamma-Chlordane	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
4,4'-DDD	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
4,4'-DDE	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
4,4'-DDT	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
Dieldrin	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
Endosulfan I	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
Endosulfan II	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
Endosulfan sulfate	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
Endrin	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
Endrin aldehyde	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
Endrin ketone	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 04:46	SJA
Heptachlor	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
Heptachlor epoxide	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 04:46	SJA
Methoxychlor	ND		ug/kg dry	38.8	38.8	1	07/27/19	07/29/19 04:46	SJA
Toxaphene	ND		ug/kg dry	78.8	78.8	1	07/27/19	07/29/19 04:46	SJA
Surrogate: Tetrachloro-m-xylene		40-150		71 %			07/27/19	07/29/19 04:46	
Surrogate: Decachlorobiphenyl		40-150		78 %			07/27/19	07/29/19 04:46	

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-0-2

9072317-01 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1221	ND		ug/kg dry	200	200	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1232	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1242	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1248	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1254	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1260	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1262	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Aroclor-1268	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 04:46	SJA
Surrogate: Tetrachloro-m-xylene			40-150	71 %	07/27/19		07/29/19 04:46		
Surrogate: Decachlorobiphenyl			40-150	78 %	07/27/19		07/29/19 04:46		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 04:19	SJA
2,4-DB	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 04:19	SJA
Dalapon	ND		ug/kg dry	94.1	94.1	1	07/29/19	07/31/19 04:19	SJA
Dicamba	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 04:19	SJA
Dichlorprop	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 04:19	SJA
Dinoseb	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 04:19	SJA
MCPA	ND		ug/kg dry	9410	9410	1	07/29/19	07/31/19 04:19	SJA
MCPP	ND		ug/kg dry	9410	9410	1	07/29/19	07/31/19 04:19	SJA
2,4,5-T	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 04:19	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 04:19	SJA
Surrogate: DCAA			50-150	76 %	07/29/19		07/31/19 04:19		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-0-2

9072317-01 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.74		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 17:29	VVD
Barium	24.3		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 17:29	VVD
Cadmium	ND		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 17:29	VVD
Chromium	10.7		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 17:29	VVD
Lead	6.40		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 17:29	VVD
Mercury	ND		mg/kg dry	0.0147	0.0147	1	07/30/19	07/31/19 17:29	VVD
Selenium	0.927		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 17:29	VVD
Silver	ND		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 17:29	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	1.47		mg/kg dry	0.0941	0.0941	1	07/25/19	07/25/19 19:11	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	85.6		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-4-5

9072317-02 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Acenaphthylene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Anthracene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Benzo[a]anthracene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Benzo[a]pyrene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Chrysene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Fluoranthene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Fluorene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Naphthalene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Phenanthrene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Pyrene	ND		ug/kg dry	13.9	13.9	1	07/30/19	07/31/19 12:34	WB
Surrogate: Nitrobenzene-d5		23-120		68 %	07/30/19		07/31/19 12:34		
Surrogate: 2-Fluorobiphenyl		30-115		61 %	07/30/19		07/31/19 12:34		
Surrogate: Terphenyl-d14		18-137		56 %	07/30/19		07/31/19 12:34		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	07/26/19	07/26/19 16:37	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	11.1	11.1	1	07/30/19	07/31/19 14:54	SJA
Surrogate: o-Terphenyl		70-130		73 %	07/30/19		07/31/19 14:54		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-4-5

9072317-02 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	72		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
alpha-BHC	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
beta-BHC	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
delta-BHC	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
alpha-Chlordane	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
gamma-Chlordane	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
4,4'-DDD	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
4,4'-DDE	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
4,4'-DDT	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
Dieldrin	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
Endosulfan I	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
Endosulfan II	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
Endosulfan sulfate	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
Endrin	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
Endrin aldehyde	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
Endrin ketone	ND		ug/kg dry	9.31	9.31	1	07/27/19	07/29/19 05:14	SJA
Heptachlor	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
Heptachlor epoxide	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	4.58	4.58	1	07/27/19	07/29/19 05:14	SJA
Methoxychlor	ND		ug/kg dry	45.8	45.8	1	07/27/19	07/29/19 05:14	SJA
Toxaphene	ND		ug/kg dry	93.1	93.1	1	07/27/19	07/29/19 05:14	SJA
Surrogate: Tetrachloro-m-xylene		40-150		73 %			07/27/19	07/29/19 05:14	
Surrogate: Decachlorobiphenyl		40-150		80 %			07/27/19	07/29/19 05:14	

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-4-5

9072317-02 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1221	ND		ug/kg dry	236	236	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1232	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1242	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1248	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1254	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1260	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1262	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Aroclor-1268	ND		ug/kg dry	115	115	1	07/27/19	07/29/19 05:14	SJA
Surrogate: Tetrachloro-m-xylene			40-150	73 %	07/27/19		07/29/19 05:14		
Surrogate: Decachlorobiphenyl			40-150	80 %	07/27/19		07/29/19 05:14		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	55.6	55.6	1	07/29/19	07/31/19 04:55	SJA
2,4-DB	ND		ug/kg dry	55.6	55.6	1	07/29/19	07/31/19 04:55	SJA
Dalapon	ND		ug/kg dry	111	111	1	07/29/19	07/31/19 04:55	SJA
Dicamba	ND		ug/kg dry	55.6	55.6	1	07/29/19	07/31/19 04:55	SJA
Dichlorprop	ND		ug/kg dry	55.6	55.6	1	07/29/19	07/31/19 04:55	SJA
Dinoseb	ND		ug/kg dry	55.6	55.6	1	07/29/19	07/31/19 04:55	SJA
MCPA	ND		ug/kg dry	11100	11100	1	07/29/19	07/31/19 04:55	SJA
MCPP	ND		ug/kg dry	11100	11100	1	07/29/19	07/31/19 04:55	SJA
2,4,5-T	ND		ug/kg dry	55.6	55.6	1	07/29/19	07/31/19 04:55	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	55.6	55.6	1	07/29/19	07/31/19 04:55	SJA
Surrogate: DCAA			50-150	77 %	07/29/19		07/31/19 04:55		

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Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP02-4-5

9072317-02 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.68		mg/kg dry	0.347	0.347	1	07/30/19	07/31/19 18:17	VVD
Barium	53.1		mg/kg dry	0.347	0.347	1	07/30/19	07/31/19 18:17	VVD
Cadmium	ND		mg/kg dry	0.347	0.347	1	07/30/19	07/31/19 18:17	VVD
Chromium	44.8		mg/kg dry	0.347	0.347	1	07/30/19	07/31/19 18:17	VVD
Lead	7.64		mg/kg dry	0.347	0.347	1	07/30/19	07/31/19 18:17	VVD
Mercury	0.0242		mg/kg dry	0.0174	0.0174	1	07/30/19	07/31/19 18:17	VVD
Selenium	1.73		mg/kg dry	0.347	0.347	1	07/30/19	07/31/19 18:17	VVD
Silver	ND		mg/kg dry	0.347	0.347	1	07/30/19	07/31/19 18:17	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	1.12		mg/kg dry	0.109	0.109	1	07/25/19	07/25/19 20:11	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	72.3		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-4-5

9072317-03 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Acenaphthylene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Anthracene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Benzo[a]anthracene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Benzo[a]pyrene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Chrysene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Fluoranthene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Fluorene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Naphthalene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Phenanthrene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Pyrene	ND		ug/kg dry	12.0	12.0	1	07/30/19	07/31/19 12:57	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	07/30/19		07/31/19 12:57		
Surrogate: 2-Fluorobiphenyl		30-115		55 %	07/30/19		07/31/19 12:57		
Surrogate: Terphenyl-d14		18-137		63 %	07/30/19		07/31/19 12:57		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/26/19	07/26/19 17:18	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.6	9.6	1	07/30/19	07/31/19 15:21	SJA
Surrogate: o-Terphenyl		70-130		77 %	07/30/19		07/31/19 15:21		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-4-5

9072317-03 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	83		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
alpha-BHC	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
beta-BHC	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
delta-BHC	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
alpha-Chlordane	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
gamma-Chlordane	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
4,4'-DDD	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
4,4'-DDE	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
4,4'-DDT	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
Dieldrin	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
Endosulfan I	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
Endosulfan II	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
Endosulfan sulfate	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
Endrin	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
Endrin aldehyde	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
Endrin ketone	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 05:41	SJA
Heptachlor	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
Heptachlor epoxide	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 05:41	SJA
Methoxychlor	ND		ug/kg dry	39.8	39.8	1	07/27/19	07/29/19 05:41	SJA
Toxaphene	ND		ug/kg dry	80.7	80.7	1	07/27/19	07/29/19 05:41	SJA
Surrogate: Tetrachloro-m-xylene			40-150	79 %			07/27/19	07/29/19 05:41	
Surrogate: Decachlorobiphenyl			40-150	91 %			07/27/19	07/29/19 05:41	

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-4-5

9072317-03 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1221	ND		ug/kg dry	205	205	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1232	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1242	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1248	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1254	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1260	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1262	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Aroclor-1268	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 05:41	SJA
Surrogate: Tetrachloro-m-xylene			40-150	79 %	07/27/19		07/29/19 05:41		
Surrogate: Decachlorobiphenyl			40-150	91 %	07/27/19		07/29/19 05:41		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	48.2	48.2	1	07/29/19	07/31/19 05:32	SJA
2,4-DB	ND		ug/kg dry	48.2	48.2	1	07/29/19	07/31/19 05:32	SJA
Dalapon	ND		ug/kg dry	96.4	96.4	1	07/29/19	07/31/19 05:32	SJA
Dicamba	ND		ug/kg dry	48.2	48.2	1	07/29/19	07/31/19 05:32	SJA
Dichlorprop	ND		ug/kg dry	48.2	48.2	1	07/29/19	07/31/19 05:32	SJA
Dinoseb	ND		ug/kg dry	48.2	48.2	1	07/29/19	07/31/19 05:32	SJA
MCPA	ND		ug/kg dry	9640	9640	1	07/29/19	07/31/19 05:32	SJA
MCPP	ND		ug/kg dry	9640	9640	1	07/29/19	07/31/19 05:32	SJA
2,4,5-T	ND		ug/kg dry	48.2	48.2	1	07/29/19	07/31/19 05:32	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	48.2	48.2	1	07/29/19	07/31/19 05:32	SJA
Surrogate: DCAA			50-150	81 %	07/29/19		07/31/19 05:32		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-4-5

9072317-03 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	5.19		mg/kg dry	0.301	0.301	1	07/30/19	07/31/19 15:32	VVD
Barium	46.2		mg/kg dry	0.301	0.301	1	07/30/19	07/31/19 15:32	VVD
Cadmium	ND		mg/kg dry	0.301	0.301	1	07/30/19	07/31/19 15:32	VVD
Chromium	26.6		mg/kg dry	0.301	0.301	1	07/30/19	07/31/19 15:32	VVD
Lead	10.1		mg/kg dry	0.301	0.301	1	07/30/19	07/31/19 15:32	VVD
Mercury	0.0382		mg/kg dry	0.0151	0.0151	1	07/30/19	07/31/19 15:32	VVD
Selenium	2.10		mg/kg dry	0.301	0.301	1	07/30/19	07/31/19 15:32	VVD
Silver	ND		mg/kg dry	0.301	0.301	1	07/30/19	07/31/19 15:32	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.368		mg/kg dry	0.0951	0.0951	1	07/25/19	07/25/19 20:23	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.0		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-0-2

9072317-04 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Acenaphthylene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Anthracene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Benzo[a]anthracene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Benzo[a]pyrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Chrysene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Fluoranthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Fluorene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Naphthalene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Phenanthrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Pyrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 13:20	WB
Surrogate: Nitrobenzene-d5			23-120	63 %	07/30/19		07/31/19 13:20		
Surrogate: 2-Fluorobiphenyl			30-115	66 %	07/30/19		07/31/19 13:20		
Surrogate: Terphenyl-d14			18-137	82 %	07/30/19		07/31/19 13:20		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/26/19	07/26/19 17:48	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	18.9		mg/kg dry	9.8	9.8	1	07/30/19	07/31/19 15:47	SJA
Surrogate: o-Terphenyl			70-130	79 %	07/30/19		07/31/19 15:47		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-0-2

9072317-04 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	82		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
alpha-BHC	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
beta-BHC	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
delta-BHC	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
alpha-Chlordane	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
gamma-Chlordane	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
4,4'-DDD	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
4,4'-DDE	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
4,4'-DDT	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
Dieldrin	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
Endosulfan I	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
Endosulfan II	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
Endosulfan sulfate	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
Endrin	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
Endrin aldehyde	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
Endrin ketone	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 06:09	SJA
Heptachlor	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
Heptachlor epoxide	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 06:09	SJA
Methoxychlor	ND		ug/kg dry	40.2	40.2	1	07/27/19	07/29/19 06:09	SJA
Toxaphene	ND		ug/kg dry	81.7	81.7	1	07/27/19	07/29/19 06:09	SJA
Surrogate: Tetrachloro-m-xylene		40-150		72 %			07/27/19	07/29/19 06:09	
Surrogate: Decachlorobiphenyl		40-150		81 %			07/27/19	07/29/19 06:09	

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Project: Troy Hill Park Phase II

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Project Manager: Vicki Pitman

Reported:
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TH-3D-TP03-0-2

9072317-04 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1221	ND		ug/kg dry	207	207	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1232	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1242	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1248	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1254	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1260	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1262	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Aroclor-1268	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 06:09	SJA
Surrogate: Tetrachloro-m-xylene			40-150	72 %	07/27/19		07/29/19 06:09		
Surrogate: Decachlorobiphenyl			40-150	81 %	07/27/19		07/29/19 06:09		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 06:09	SJA
2,4-DB	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 06:09	SJA
Dalapon	ND		ug/kg dry	97.6	97.6	1	07/29/19	07/31/19 06:09	SJA
Dicamba	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 06:09	SJA
Dichlorprop	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 06:09	SJA
Dinoseb	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 06:09	SJA
MCPA	ND		ug/kg dry	9760	9760	1	07/29/19	07/31/19 06:09	SJA
MCPP	ND		ug/kg dry	9760	9760	1	07/29/19	07/31/19 06:09	SJA
2,4,5-T	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 06:09	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 06:09	SJA
Surrogate: DCAA			50-150	84 %	07/29/19		07/31/19 06:09		

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-0-2

9072317-04 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	5.48		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:40	VVD
Barium	169		mg/kg dry	1.52	1.52	5	07/30/19	07/31/19 17:27	VVD
Cadmium	0.478		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:40	VVD
Chromium	24.1		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:40	VVD
Lead	32.9		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:40	VVD
Mercury	0.0314		mg/kg dry	0.0152	0.0152	1	07/30/19	07/31/19 15:40	VVD
Selenium	2.49		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:40	VVD
Silver	ND		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:40	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.171		mg/kg dry	0.0903	0.0903	1	07/25/19	07/25/19 20:35	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	83.0		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-3-4

9072317-05 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Acenaphthylene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Anthracene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Benzo[a]anthracene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Benzo[a]pyrene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Chrysene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Fluoranthene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Fluorene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Naphthalene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Phenanthrene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Pyrene	ND		ug/kg dry	12.7	12.7	1	07/30/19	07/31/19 13:44	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	07/30/19		07/31/19 13:44		
Surrogate: 2-Fluorobiphenyl		30-115		68 %	07/30/19		07/31/19 13:44		
Surrogate: Terphenyl-d14		18-137		91 %	07/30/19		07/31/19 13:44		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/26/19	07/26/19 18:18	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.1	10.1	1	07/30/19	07/31/19 16:14	SJA
Surrogate: o-Terphenyl		70-130		92 %	07/30/19		07/31/19 16:14		

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TH-3D-TP03-3-4

9072317-05 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	79		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
alpha-BHC	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
beta-BHC	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
delta-BHC	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
alpha-Chlordane	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
gamma-Chlordane	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
4,4'-DDD	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
4,4'-DDE	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
4,4'-DDT	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
Dieldrin	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
Endosulfan I	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
Endosulfan II	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
Endosulfan sulfate	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
Endrin	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
Endrin aldehyde	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
Endrin ketone	ND		ug/kg dry	8.48	8.48	1	07/27/19	07/29/19 06:37	SJA
Heptachlor	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
Heptachlor epoxide	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	4.18	4.18	1	07/27/19	07/29/19 06:37	SJA
Methoxychlor	ND		ug/kg dry	41.8	41.8	1	07/27/19	07/29/19 06:37	SJA
Toxaphene	ND		ug/kg dry	84.8	84.8	1	07/27/19	07/29/19 06:37	SJA
Surrogate: Tetrachloro-m-xylene		40-150		79 %			07/27/19	07/29/19 06:37	
Surrogate: Decachlorobiphenyl		40-150		88 %			07/27/19	07/29/19 06:37	

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9072317-05 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1221	ND		ug/kg dry	215	215	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1232	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1242	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1248	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1254	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1260	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1262	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Aroclor-1268	ND		ug/kg dry	105	105	1	07/27/19	07/29/19 06:37	SJA
Surrogate: Tetrachloro-m-xylene			40-150	79 %	07/27/19		07/29/19 06:37		
Surrogate: Decachlorobiphenyl			40-150	88 %	07/27/19		07/29/19 06:37		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	50.6	50.6	1	07/29/19	07/31/19 06:45	SJA
2,4-DB	ND		ug/kg dry	50.6	50.6	1	07/29/19	07/31/19 06:45	SJA
Dalapon	ND		ug/kg dry	101	101	1	07/29/19	07/31/19 06:45	SJA
Dicamba	ND		ug/kg dry	50.6	50.6	1	07/29/19	07/31/19 06:45	SJA
Dichlorprop	ND		ug/kg dry	50.6	50.6	1	07/29/19	07/31/19 06:45	SJA
Dinoseb	ND		ug/kg dry	50.6	50.6	1	07/29/19	07/31/19 06:45	SJA
MCPA	ND		ug/kg dry	10100	10100	1	07/29/19	07/31/19 06:45	SJA
MCPP	ND		ug/kg dry	10100	10100	1	07/29/19	07/31/19 06:45	SJA
2,4,5-T	ND		ug/kg dry	50.6	50.6	1	07/29/19	07/31/19 06:45	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	50.6	50.6	1	07/29/19	07/31/19 06:45	SJA
Surrogate: DCAA			50-150	84 %	07/29/19		07/31/19 06:45		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP03-3-4

9072317-05 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.35		mg/kg dry	0.316	0.316	1	07/30/19	07/31/19 15:42	VVD
Barium	79.9		mg/kg dry	0.316	0.316	1	07/30/19	07/31/19 15:42	VVD
Cadmium	ND		mg/kg dry	0.316	0.316	1	07/30/19	07/31/19 15:42	VVD
Chromium	18.6		mg/kg dry	0.316	0.316	1	07/30/19	07/31/19 15:42	VVD
Lead	21.9		mg/kg dry	0.316	0.316	1	07/30/19	07/31/19 15:42	VVD
Mercury	0.0474		mg/kg dry	0.0158	0.0158	1	07/30/19	07/31/19 15:42	VVD
Selenium	1.99		mg/kg dry	0.316	0.316	1	07/30/19	07/31/19 15:42	VVD
Silver	ND		mg/kg dry	0.316	0.316	1	07/30/19	07/31/19 15:42	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.153		mg/kg dry	0.0859	0.0859	1	07/25/19	07/25/19 21:10	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	78.3		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP04-0-2

9072317-06 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Acenaphthylene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Anthracene	18.8		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Benzo[a]anthracene	188		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Benzo[b]fluoranthene	237		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Benzo[k]fluoranthene	97.2		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Benzo[ghi]perylene	105		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Benzo[a]pyrene	168		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Chrysene	233		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Dibenzo[a,h]anthracene	22.8		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Fluoranthene	340		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Fluorene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Indeno[1,2,3-cd]pyrene	116		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Naphthalene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Phenanthrene	133		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Pyrene	345		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 14:07	WB
Surrogate: Nitrobenzene-d5		23-120		71 %	07/30/19		07/31/19 14:07		
Surrogate: 2-Fluorobiphenyl		30-115		72 %	07/30/19		07/31/19 14:07		
Surrogate: Terphenyl-d14		18-137		93 %	07/30/19		07/31/19 14:07		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/26/19	07/26/19 18:48	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	40.3		mg/kg dry	18.4	18.4	1	07/30/19	07/31/19 16:40	SJA
Surrogate: o-Terphenyl		70-130		79 %	07/30/19		07/31/19 16:40		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP04-0-2

9072317-06 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	87		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
alpha-BHC	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
beta-BHC	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
delta-BHC	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
alpha-Chlordane	10.6		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
gamma-Chlordane	6.52		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
4,4'-DDD	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
4,4'-DDE	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
4,4'-DDT	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
Dieldrin	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
Endosulfan I	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
Endosulfan II	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
Endosulfan sulfate	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
Endrin	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
Endrin aldehyde	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
Endrin ketone	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 07:04	SJA
Heptachlor	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
Heptachlor epoxide	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 07:04	SJA
Methoxychlor	ND		ug/kg dry	37.9	37.9	1	07/27/19	07/29/19 07:04	SJA
Toxaphene	ND		ug/kg dry	77.0	77.0	1	07/27/19	07/29/19 07:04	SJA
Surrogate: Tetrachloro-m-xylene			40-150	84 %			07/27/19	07/29/19 07:04	
Surrogate: Decachlorobiphenyl			40-150	98 %			07/27/19	07/29/19 07:04	

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP04-0-2

9072317-06 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1221	ND		ug/kg dry	195	195	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1232	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1242	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1248	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1254	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1260	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1262	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Aroclor-1268	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 07:04	SJA
Surrogate: Tetrachloro-m-xylene			40-150	84 %	07/27/19	07/29/19 07:04			
Surrogate: Decachlorobiphenyl			40-150	98 %	07/27/19	07/29/19 07:04			
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 07:21	SJA
2,4-DB	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 07:21	SJA
Dalapon	ND		ug/kg dry	92.0	92.0	1	07/29/19	07/31/19 07:21	SJA
Dicamba	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 07:21	SJA
Dichlorprop	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 07:21	SJA
Dinoseb	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 07:21	SJA
MCPA	ND		ug/kg dry	9200	9200	1	07/29/19	07/31/19 07:21	SJA
MCPP	ND		ug/kg dry	9200	9200	1	07/29/19	07/31/19 07:21	SJA
2,4,5-T	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 07:21	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 07:21	SJA
Surrogate: DCAA			50-150	83 %	07/29/19	07/31/19 07:21			

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP04-0-2

9072317-06 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.95		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 15:45	VVD
Barium	30.7		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 15:45	VVD
Cadmium	0.401		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 15:45	VVD
Chromium	7.81		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 15:45	VVD
Lead	28.3		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 15:45	VVD
Mercury	0.0227		mg/kg dry	0.0144	0.0144	1	07/30/19	07/31/19 15:45	VVD
Selenium	0.515		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 15:45	VVD
Silver	ND		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 15:45	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0868	0.0868	1	07/25/19	07/25/19 21:22	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.1		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP04-2-3

9072317-07 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Acenaphthylene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Anthracene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Benzo[a]anthracene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Benzo[a]pyrene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Chrysene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Fluoranthene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Fluorene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Naphthalene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Phenanthrene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Pyrene	ND		ug/kg dry	11.8	11.8	1	07/30/19	07/31/19 14:30	WB
Surrogate: Nitrobenzene-d5		23-120		61 %	07/30/19		07/31/19 14:30		
Surrogate: 2-Fluorobiphenyl		30-115		61 %	07/30/19		07/31/19 14:30		
Surrogate: Terphenyl-d14		18-137		83 %	07/30/19		07/31/19 14:30		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/26/19	07/26/19 19:18	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.4	9.4	1	07/30/19	07/31/19 17:07	SJA
Surrogate: o-Terphenyl		70-130		71 %	07/30/19		07/31/19 17:07		

Rabecka Koons

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Project: Troy Hill Park Phase II

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Reported:
08/01/19 16:49

TH-3D-TP04-2-3

9072317-07 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	85		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
alpha-BHC	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
beta-BHC	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
delta-BHC	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
alpha-Chlordane	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
gamma-Chlordane	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
4,4'-DDD	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
4,4'-DDE	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
4,4'-DDT	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
Dieldrin	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
Endosulfan I	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
Endosulfan II	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
Endosulfan sulfate	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
Endrin	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
Endrin aldehyde	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
Endrin ketone	ND		ug/kg dry	7.88	7.88	1	07/27/19	07/29/19 07:32	SJA
Heptachlor	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
Heptachlor epoxide	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.88	3.88	1	07/27/19	07/29/19 07:32	SJA
Methoxychlor	ND		ug/kg dry	38.8	38.8	1	07/27/19	07/29/19 07:32	SJA
Toxaphene	ND		ug/kg dry	78.8	78.8	1	07/27/19	07/29/19 07:32	SJA
Surrogate: Tetrachloro-m-xylene			40-150	72 %			07/27/19	07/29/19 07:32	
Surrogate: Decachlorobiphenyl			40-150	84 %			07/27/19	07/29/19 07:32	

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Project: Troy Hill Park Phase II

Project Number: 1483560
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08/01/19 16:49

TH-3D-TP04-2-3

9072317-07 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1221	ND		ug/kg dry	200	200	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1232	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1242	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1248	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1254	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1260	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1262	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Aroclor-1268	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 07:32	SJA
Surrogate: Tetrachloro-m-xylene			40-150	72 %		07/27/19	07/29/19 07:32		
Surrogate: Decachlorobiphenyl			40-150	84 %		07/27/19	07/29/19 07:32		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 07:57	SJA
2,4-DB	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 07:57	SJA
Dalapon	ND		ug/kg dry	94.1	94.1	1	07/29/19	07/31/19 07:57	SJA
Dicamba	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 07:57	SJA
Dichlorprop	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 07:57	SJA
Dinoseb	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 07:57	SJA
MCPA	ND		ug/kg dry	9410	9410	1	07/29/19	07/31/19 07:57	SJA
MCPP	ND		ug/kg dry	9410	9410	1	07/29/19	07/31/19 07:57	SJA
2,4,5-T	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 07:57	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	47.1	47.1	1	07/29/19	07/31/19 07:57	SJA
Surrogate: DCAA			50-150	80 %		07/29/19	07/31/19 07:57		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-3D-TP04-2-3

9072317-07 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	6.41		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 15:47	VVD
Barium	24.3		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 15:47	VVD
Cadmium	ND		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 15:47	VVD
Chromium	22.3		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 15:47	VVD
Lead	8.07		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 15:47	VVD
Mercury	0.0186		mg/kg dry	0.0147	0.0147	1	07/30/19	07/31/19 15:47	VVD
Selenium	1.38		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 15:47	VVD
Silver	ND		mg/kg dry	0.294	0.294	1	07/30/19	07/31/19 15:47	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.117		mg/kg dry	0.0877	0.0877	1	07/25/19	07/25/19 21:34	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.5		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-0-2

9072317-08 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Acenaphthylene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Anthracene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Benzo[a]anthracene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Benzo[a]pyrene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Chrysene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Fluoranthene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Fluorene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Naphthalene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Phenanthrene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Pyrene	ND		ug/kg dry	10.6	10.6	1	07/30/19	07/31/19 14:52	WB
Surrogate: Nitrobenzene-d5		23-120		67 %	07/30/19		07/31/19 14:52		
Surrogate: 2-Fluorobiphenyl		30-115		75 %	07/30/19		07/31/19 14:52		
Surrogate: Terphenyl-d14		18-137		88 %	07/30/19		07/31/19 14:52		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/26/19	07/26/19 19:48	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.5	8.5	1	07/30/19	07/31/19 17:33	SJA
Surrogate: o-Terphenyl		70-130		89 %	07/30/19		07/31/19 17:33		

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-0-2

9072317-08 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	94		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
alpha-BHC	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
beta-BHC	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
delta-BHC	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
alpha-Chlordane	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
gamma-Chlordane	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
4,4'-DDD	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
4,4'-DDE	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
4,4'-DDT	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
Dieldrin	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
Endosulfan I	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
Endosulfan II	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
Endosulfan sulfate	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
Endrin	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
Endrin aldehyde	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
Endrin ketone	ND		ug/kg dry	7.13	7.13	1	07/27/19	07/29/19 07:59	SJA
Heptachlor	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
Heptachlor epoxide	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.51	3.51	1	07/27/19	07/29/19 07:59	SJA
Methoxychlor	ND		ug/kg dry	35.1	35.1	1	07/27/19	07/29/19 07:59	SJA
Toxaphene	ND		ug/kg dry	71.3	71.3	1	07/27/19	07/29/19 07:59	SJA
Surrogate: Tetrachloro-m-xylene			40-150	76 %			07/27/19	07/29/19 07:59	
Surrogate: Decachlorobiphenyl			40-150	87 %			07/27/19	07/29/19 07:59	

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-0-2

9072317-08 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1221	ND		ug/kg dry	181	181	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1232	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1242	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1248	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1254	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1260	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1262	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
Aroclor-1268	ND		ug/kg dry	88.3	88.3	1	07/27/19	07/29/19 07:59	SJA
<i>Surrogate: Tetrachloro-m-xylene</i>			40-150	76 %	07/27/19		07/29/19 07:59		
<i>Surrogate: Decachlorobiphenyl</i>			40-150	87 %	07/27/19		07/29/19 07:59		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	42.6	42.6	1	07/29/19	07/31/19 08:33	SJA
2,4-DB	ND		ug/kg dry	42.6	42.6	1	07/29/19	07/31/19 08:33	SJA
Dalapon	ND		ug/kg dry	85.1	85.1	1	07/29/19	07/31/19 08:33	SJA
Dicamba	ND		ug/kg dry	42.6	42.6	1	07/29/19	07/31/19 08:33	SJA
Dichlorprop	ND		ug/kg dry	42.6	42.6	1	07/29/19	07/31/19 08:33	SJA
Dinoseb	ND		ug/kg dry	42.6	42.6	1	07/29/19	07/31/19 08:33	SJA
MCPA	ND		ug/kg dry	8510	8510	1	07/29/19	07/31/19 08:33	SJA
MCPP	ND		ug/kg dry	8510	8510	1	07/29/19	07/31/19 08:33	SJA
2,4,5-T	ND		ug/kg dry	42.6	42.6	1	07/29/19	07/31/19 08:33	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	42.6	42.6	1	07/29/19	07/31/19 08:33	SJA
<i>Surrogate: DCAA</i>			50-150	83 %	07/29/19		07/31/19 08:33		

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-0-2

9072317-08 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	5.88		mg/kg dry	0.266	0.266	1	07/30/19	07/31/19 15:50	VVD
Barium	17.0		mg/kg dry	0.266	0.266	1	07/30/19	07/31/19 15:50	VVD
Cadmium	ND		mg/kg dry	0.266	0.266	1	07/30/19	07/31/19 15:50	VVD
Chromium	18.2		mg/kg dry	0.266	0.266	1	07/30/19	07/31/19 15:50	VVD
Lead	6.89		mg/kg dry	0.266	0.266	1	07/30/19	07/31/19 15:50	VVD
Mercury	ND		mg/kg dry	0.0133	0.0133	1	07/30/19	07/31/19 15:50	VVD
Selenium	1.04		mg/kg dry	0.266	0.266	1	07/30/19	07/31/19 15:50	VVD
Silver	ND		mg/kg dry	0.266	0.266	1	07/30/19	07/31/19 15:50	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.278		mg/kg dry	0.0832	0.0832	1	07/25/19	07/25/19 21:46	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	91.1		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-4-5

9072317-09 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Acenaphthylene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Anthracene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Benzo[a]anthracene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Benzo[a]pyrene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Chrysene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Fluoranthene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Fluorene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Naphthalene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Phenanthrene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Pyrene	ND		ug/kg dry	11.1	11.1	1	07/30/19	07/31/19 15:15	WB
Surrogate: Nitrobenzene-d5		23-120		70 %	07/30/19		07/31/19 15:15		
Surrogate: 2-Fluorobiphenyl		30-115		74 %	07/30/19		07/31/19 15:15		
Surrogate: Terphenyl-d14		18-137		92 %	07/30/19		07/31/19 15:15		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/27/19	07/27/19 15:40	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.9	8.9	1	07/30/19	07/31/19 18:00	SJA
Surrogate: o-Terphenyl		70-130		73 %	07/30/19		07/31/19 18:00		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-4-5

9072317-09 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	90		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
alpha-BHC	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
beta-BHC	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
delta-BHC	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
alpha-Chlordane	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
gamma-Chlordane	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
4,4'-DDD	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
4,4'-DDE	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
4,4'-DDT	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
Dieldrin	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
Endosulfan I	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
Endosulfan II	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
Endosulfan sulfate	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
Endrin	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
Endrin aldehyde	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
Endrin ketone	ND		ug/kg dry	7.44	7.44	1	07/27/19	07/29/19 08:27	SJA
Heptachlor	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
Heptachlor epoxide	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.67	3.67	1	07/27/19	07/29/19 08:27	SJA
Methoxychlor	ND		ug/kg dry	36.7	36.7	1	07/27/19	07/29/19 08:27	SJA
Toxaphene	ND		ug/kg dry	74.4	74.4	1	07/27/19	07/29/19 08:27	SJA
Surrogate: Tetrachloro-m-xylene			40-150	76 %			07/27/19	07/29/19 08:27	
Surrogate: Decachlorobiphenyl			40-150	91 %			07/27/19	07/29/19 08:27	

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-4-5

9072317-09 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1221	ND		ug/kg dry	189	189	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1232	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1242	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1248	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1254	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1260	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1262	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Aroclor-1268	ND		ug/kg dry	92.2	92.2	1	07/27/19	07/29/19 08:27	SJA
Surrogate: Tetrachloro-m-xylene			40-150	76 %	07/27/19		07/29/19 08:27		
Surrogate: Decachlorobiphenyl			40-150	91 %	07/27/19		07/29/19 08:27		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	44.4	44.4	1	07/29/19	07/31/19 09:09	SJA
2,4-DB	ND		ug/kg dry	44.4	44.4	1	07/29/19	07/31/19 09:09	SJA
Dalapon	ND		ug/kg dry	88.9	88.9	1	07/29/19	07/31/19 09:09	SJA
Dicamba	ND		ug/kg dry	44.4	44.4	1	07/29/19	07/31/19 09:09	SJA
Dichlorprop	ND		ug/kg dry	44.4	44.4	1	07/29/19	07/31/19 09:09	SJA
Dinoseb	ND		ug/kg dry	44.4	44.4	1	07/29/19	07/31/19 09:09	SJA
MCPA	ND		ug/kg dry	8890	8890	1	07/29/19	07/31/19 09:09	SJA
MCPP	ND		ug/kg dry	8890	8890	1	07/29/19	07/31/19 09:09	SJA
2,4,5-T	ND		ug/kg dry	44.4	44.4	1	07/29/19	07/31/19 09:09	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	44.4	44.4	1	07/29/19	07/31/19 09:09	SJA
Surrogate: DCAA			50-150	68 %	07/29/19		07/31/19 09:09		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP03-4-5

9072317-09 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	5.53		mg/kg dry	0.278	0.278	1	07/30/19	07/31/19 15:53	VVD
Barium	63.1		mg/kg dry	0.278	0.278	1	07/30/19	07/31/19 15:53	VVD
Cadmium	ND		mg/kg dry	0.278	0.278	1	07/30/19	07/31/19 15:53	VVD
Chromium	21.9		mg/kg dry	0.278	0.278	1	07/30/19	07/31/19 15:53	VVD
Lead	8.71		mg/kg dry	0.278	0.278	1	07/30/19	07/31/19 15:53	VVD
Mercury	ND		mg/kg dry	0.0139	0.0139	1	07/30/19	07/31/19 15:53	VVD
Selenium	3.08		mg/kg dry	0.278	0.278	1	07/30/19	07/31/19 15:53	VVD
Silver	ND		mg/kg dry	0.278	0.278	1	07/30/19	07/31/19 15:53	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.0880		mg/kg dry	0.0855	0.0855	1	07/25/19	07/25/19 21:58	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.7		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-0-2

9072317-10 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Acenaphthylene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Anthracene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Benzo[a]anthracene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Benzo[a]pyrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Chrysene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Fluoranthene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Fluorene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Naphthalene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Phenanthrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Pyrene	ND		ug/kg dry	12.2	12.2	1	07/30/19	07/31/19 15:38	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	07/30/19		07/31/19 15:38		
Surrogate: 2-Fluorobiphenyl		30-115		66 %	07/30/19		07/31/19 15:38		
Surrogate: Terphenyl-d14		18-137		84 %	07/30/19		07/31/19 15:38		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/27/19	07/27/19 16:10	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.8	9.8	1	07/30/19	07/31/19 18:26	SJA
Surrogate: o-Terphenyl		70-130		65 %	07/30/19		07/31/19 18:26		S-FAIL

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-0-2

9072317-10 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	82		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
alpha-BHC	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
beta-BHC	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
delta-BHC	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
alpha-Chlordane	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
gamma-Chlordane	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
4,4'-DDD	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
4,4'-DDE	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
4,4'-DDT	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
Dieldrin	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
Endosulfan I	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
Endosulfan II	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
Endosulfan sulfate	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
Endrin	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
Endrin aldehyde	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
Endrin ketone	ND		ug/kg dry	8.17	8.17	1	07/27/19	07/29/19 08:55	SJA
Heptachlor	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
Heptachlor epoxide	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	4.02	4.02	1	07/27/19	07/29/19 08:55	SJA
Methoxychlor	ND		ug/kg dry	40.2	40.2	1	07/27/19	07/29/19 08:55	SJA
Toxaphene	ND		ug/kg dry	81.7	81.7	1	07/27/19	07/29/19 08:55	SJA
Surrogate: Tetrachloro-m-xylene			40-150	71 %			07/27/19	07/29/19 08:55	
Surrogate: Decachlorobiphenyl			40-150	81 %			07/27/19	07/29/19 08:55	

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-0-2

9072317-10 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1221	ND		ug/kg dry	207	207	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1232	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1242	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1248	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1254	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1260	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1262	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Aroclor-1268	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 08:55	SJA
Surrogate: Tetrachloro-m-xylene			40-150	71 %	07/27/19		07/29/19 08:55		
Surrogate: Decachlorobiphenyl			40-150	81 %	07/27/19		07/29/19 08:55		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 09:44	SJA
2,4-DB	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 09:44	SJA
Dalapon	ND		ug/kg dry	97.6	97.6	1	07/29/19	07/31/19 09:44	SJA
Dicamba	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 09:44	SJA
Dichlorprop	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 09:44	SJA
Dinoseb	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 09:44	SJA
MCPA	ND		ug/kg dry	9760	9760	1	07/29/19	07/31/19 09:44	SJA
MCPP	ND		ug/kg dry	9760	9760	1	07/29/19	07/31/19 09:44	SJA
2,4,5-T	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 09:44	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	48.8	48.8	1	07/29/19	07/31/19 09:44	SJA
Surrogate: DCAA			50-150	84 %	07/29/19		07/31/19 09:44		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-0-2

9072317-10 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.32		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:55	VVD
Barium	43.8		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:55	VVD
Cadmium	ND		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:55	VVD
Chromium	17.8		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:55	VVD
Lead	15.6		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:55	VVD
Mercury	0.0259		mg/kg dry	0.0152	0.0152	1	07/30/19	07/31/19 15:55	VVD
Selenium	1.93		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:55	VVD
Silver	ND		mg/kg dry	0.305	0.305	1	07/30/19	07/31/19 15:55	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.101	0.101	1	07/25/19	07/25/19 22:10	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	81.0		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-4-5

9072317-11 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Acenaphthylene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Anthracene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Benzo[a]anthracene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Benzo[a]pyrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Chrysene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Fluorene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Naphthalene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Phenanthrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Pyrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:01	WB
Surrogate: Nitrobenzene-d5		23-120		69 %	07/30/19		07/31/19 16:01		
Surrogate: 2-Fluorobiphenyl		30-115		71 %	07/30/19		07/31/19 16:01		
Surrogate: Terphenyl-d14		18-137		83 %	07/30/19		07/31/19 16:01		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/27/19	07/27/19 16:41	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.0	9.0	1	07/30/19	07/31/19 18:53	SJA
Surrogate: o-Terphenyl		70-130		79 %	07/30/19		07/31/19 18:53		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-4-5

9072317-11 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	89		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
alpha-BHC	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
beta-BHC	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
delta-BHC	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
alpha-Chlordane	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
gamma-Chlordane	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
4,4'-DDD	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
4,4'-DDE	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
4,4'-DDT	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
Dieldrin	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
Endosulfan I	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
Endosulfan II	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
Endosulfan sulfate	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
Endrin	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
Endrin aldehyde	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
Endrin ketone	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 09:23	SJA
Heptachlor	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
Heptachlor epoxide	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 09:23	SJA
Methoxychlor	ND		ug/kg dry	37.1	37.1	1	07/27/19	07/29/19 09:23	SJA
Toxaphene	ND		ug/kg dry	75.3	75.3	1	07/27/19	07/29/19 09:23	SJA
Surrogate: Tetrachloro-m-xylene			40-150	73 %			07/27/19	07/29/19 09:23	
Surrogate: Decachlorobiphenyl			40-150	86 %			07/27/19	07/29/19 09:23	

Rabecka Koons

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Project: Troy Hill Park Phase II

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Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-4-5

9072317-11 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1221	ND		ug/kg dry	191	191	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1232	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1242	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1248	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1254	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1260	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1262	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Aroclor-1268	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 09:23	SJA
Surrogate: Tetrachloro-m-xylene			40-150	73 %	07/27/19	07/29/19 09:23			
Surrogate: Decachlorobiphenyl			40-150	86 %	07/27/19	07/29/19 09:23			
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:21	SJA
2,4-DB	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:21	SJA
Dalapon	ND		ug/kg dry	89.9	89.9	1	07/29/19	07/31/19 10:21	SJA
Dicamba	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:21	SJA
Dichlorprop	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:21	SJA
Dinoseb	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:21	SJA
MCPA	ND		ug/kg dry	8990	8990	1	07/29/19	07/31/19 10:21	SJA
MCPP	ND		ug/kg dry	8990	8990	1	07/29/19	07/31/19 10:21	SJA
2,4,5-T	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:21	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:21	SJA
Surrogate: DCAA			50-150	82 %	07/29/19	07/31/19 10:21			

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP02-4-5

9072317-11 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.53		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 15:58	VVD
Barium	33.5		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 15:58	VVD
Cadmium	ND		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 15:58	VVD
Chromium	19.7		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 15:58	VVD
Lead	9.66		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 15:58	VVD
Mercury	ND		mg/kg dry	0.0140	0.0140	1	07/30/19	07/31/19 15:58	VVD
Selenium	2.88		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 15:58	VVD
Silver	ND		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 15:58	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0890	0.0890	1	07/25/19	07/25/19 22:22	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	86.9		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-0-2

9072317-12 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Acenaphthylene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Anthracene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Benzo[a]anthracene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Benzo[a]pyrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Chrysene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Fluorene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Naphthalene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Phenanthrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Pyrene	ND		ug/kg dry	11.2	11.2	1	07/30/19	07/31/19 16:24	WB
Surrogate: Nitrobenzene-d5		23-120		74 %	07/30/19		07/31/19 16:24		
Surrogate: 2-Fluorobiphenyl		30-115		82 %	07/30/19		07/31/19 16:24		
Surrogate: Terphenyl-d14		18-137		86 %	07/30/19		07/31/19 16:24		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/27/19	07/27/19 17:11	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	15.7		mg/kg dry	9.0	9.0	1	07/30/19	07/31/19 19:19	SJA
Surrogate: o-Terphenyl		70-130		97 %	07/30/19		07/31/19 19:19		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-0-2

9072317-12 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	89		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
alpha-BHC	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
beta-BHC	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
delta-BHC	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
alpha-Chlordane	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
gamma-Chlordane	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
4,4'-DDD	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
4,4'-DDE	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
4,4'-DDT	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
Dieldrin	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
Endosulfan I	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
Endosulfan II	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
Endosulfan sulfate	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
Endrin	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
Endrin aldehyde	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
Endrin ketone	ND		ug/kg dry	7.53	7.53	1	07/27/19	07/29/19 13:04	SJA
Heptachlor	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
Heptachlor epoxide	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.71	3.71	1	07/27/19	07/29/19 13:04	SJA
Methoxychlor	ND		ug/kg dry	37.1	37.1	1	07/27/19	07/29/19 13:04	SJA
Toxaphene	ND		ug/kg dry	75.3	75.3	1	07/27/19	07/29/19 13:04	SJA
Surrogate: Tetrachloro-m-xylene		40-150		77 %			07/27/19	07/29/19 13:04	
Surrogate: Decachlorobiphenyl		40-150		98 %			07/27/19	07/29/19 13:04	

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-0-2

9072317-12 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1221	ND		ug/kg dry	191	191	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1232	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1242	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1248	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1254	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1260	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1262	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Aroclor-1268	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 13:04	SJA
Surrogate: Tetrachloro-m-xylene			40-150	77 %	07/27/19	07/29/19 13:04			
Surrogate: Decachlorobiphenyl			40-150	98 %	07/27/19	07/29/19 13:04			
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:58	SJA
2,4-DB	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:58	SJA
Dalapon	ND		ug/kg dry	89.9	89.9	1	07/29/19	07/31/19 10:58	SJA
Dicamba	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:58	SJA
Dichlorprop	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:58	SJA
Dinoseb	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:58	SJA
MCPA	ND		ug/kg dry	8990	8990	1	07/29/19	07/31/19 10:58	SJA
MCP	ND		ug/kg dry	8990	8990	1	07/29/19	07/31/19 10:58	SJA
2,4,5-T	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:58	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	44.9	44.9	1	07/29/19	07/31/19 10:58	SJA
Surrogate: DCAA			50-150	84 %	07/29/19	07/31/19 10:58			

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-0-2

9072317-12 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.37		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 16:00	VVD
Barium	35.2		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 16:00	VVD
Cadmium	ND		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 16:00	VVD
Chromium	16.1		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 16:00	VVD
Lead	20.9		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 16:00	VVD
Mercury	0.0415		mg/kg dry	0.0140	0.0140	1	07/30/19	07/31/19 16:00	VVD
Selenium	2.11		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 16:00	VVD
Silver	ND		mg/kg dry	0.281	0.281	1	07/30/19	07/31/19 16:00	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.215		mg/kg dry	0.0843	0.0843	1	07/25/19	07/25/19 22:34	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	91.0		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-4-5

9072317-13 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Acenaphthylene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Anthracene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Benzo[a]anthracene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Benzo[a]pyrene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Chrysene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Fluoranthene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Fluorene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Naphthalene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Phenanthrene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Pyrene	ND		ug/kg dry	11.5	11.5	1	07/30/19	07/31/19 16:47	WB
Surrogate: Nitrobenzene-d5		23-120		67 %	07/30/19		07/31/19 16:47		
Surrogate: 2-Fluorobiphenyl		30-115		72 %	07/30/19		07/31/19 16:47		
Surrogate: Terphenyl-d14		18-137		80 %	07/30/19		07/31/19 16:47		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/29/19	07/29/19 18:40	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.2	9.2	1	07/30/19	07/31/19 19:45	SJA
Surrogate: o-Terphenyl		70-130		76 %	07/30/19		07/31/19 19:45		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-4-5

9072317-13 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	87		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
alpha-BHC	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
beta-BHC	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
delta-BHC	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
alpha-Chlordane	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
gamma-Chlordane	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
4,4'-DDD	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
4,4'-DDE	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
4,4'-DDT	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
Dieldrin	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
Endosulfan I	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
Endosulfan II	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
Endosulfan sulfate	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
Endrin	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
Endrin aldehyde	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
Endrin ketone	ND		ug/kg dry	7.70	7.70	1	07/27/19	07/29/19 13:31	SJA
Heptachlor	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
Heptachlor epoxide	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.79	3.79	1	07/27/19	07/29/19 13:31	SJA
Methoxychlor	ND		ug/kg dry	37.9	37.9	1	07/27/19	07/29/19 13:31	SJA
Toxaphene	ND		ug/kg dry	77.0	77.0	1	07/27/19	07/29/19 13:31	SJA
Surrogate: Tetrachloro-m-xylene			40-150	68 %			07/27/19	07/29/19 13:31	
Surrogate: Decachlorobiphenyl			40-150	86 %			07/27/19	07/29/19 13:31	

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-4-5

9072317-13 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1221	ND		ug/kg dry	195	195	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1232	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1242	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1248	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1254	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1260	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1262	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Aroclor-1268	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 13:31	SJA
Surrogate: Tetrachloro-m-xylene			40-150	68 %		07/27/19	07/29/19 13:31		
Surrogate: Decachlorobiphenyl			40-150	86 %		07/27/19	07/29/19 13:31		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 11:35	SJA
2,4-DB	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 11:35	SJA
Dalapon	ND		ug/kg dry	92.0	92.0	1	07/29/19	07/31/19 11:35	SJA
Dicamba	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 11:35	SJA
Dichlorprop	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 11:35	SJA
Dinoseb	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 11:35	SJA
MCPA	ND		ug/kg dry	9200	9200	1	07/29/19	07/31/19 11:35	SJA
MCPP	ND		ug/kg dry	9200	9200	1	07/29/19	07/31/19 11:35	SJA
2,4,5-T	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 11:35	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	46.0	46.0	1	07/29/19	07/31/19 11:35	SJA
Surrogate: DCAA			50-150	81 %		07/29/19	07/31/19 11:35		

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Project: Troy Hill Park Phase II

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Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TH-2A-TP01-4-5

9072317-13 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	7.08		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 16:03	VVD
Barium	28.3		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 16:03	VVD
Cadmium	ND		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 16:03	VVD
Chromium	38.2		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 16:03	VVD
Lead	9.64		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 16:03	VVD
Mercury	ND		mg/kg dry	0.0144	0.0144	1	07/30/19	07/31/19 16:03	VVD
Selenium	2.07		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 16:03	VVD
Silver	ND		mg/kg dry	0.287	0.287	1	07/30/19	07/31/19 16:03	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.118		mg/kg dry	0.0788	0.0788	1	07/25/19	07/25/19 22:46	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.9		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

DUP-2

9072317-14 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Acenaphthylene	ND		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Anthracene	29.6		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Benzo[a]anthracene	305		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Benzo[b]fluoranthene	319		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Benzo[k]fluoranthene	131		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Benzo[ghi]perylene	144		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Benzo[a]pyrene	242		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Chrysene	329		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Dibenzo[a,h]anthracene	33.8		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Fluoranthene	362		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Fluorene	ND		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Indeno[1,2,3-cd]pyrene	162		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Naphthalene	ND		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Phenanthrene	105		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Pyrene	418		ug/kg dry	11.6	11.6	1	07/30/19	07/31/19 17:10	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	07/30/19		07/31/19 17:10		
Surrogate: 2-Fluorobiphenyl		30-115		74 %	07/30/19		07/31/19 17:10		
Surrogate: Terphenyl-d14		18-137		105 %	07/30/19		07/31/19 17:10		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/29/19	07/29/19 19:10	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	34.8		mg/kg dry	9.3	9.3	1	07/30/19	07/31/19 20:12	SJA
Surrogate: o-Terphenyl		70-130		97 %	07/30/19		07/31/19 20:12		

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

DUP-2

9072317-14 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	86		%			1	07/28/19	07/30/19 09:39	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
alpha-BHC	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
beta-BHC	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
delta-BHC	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
alpha-Chlordane	10.3		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
gamma-Chlordane	6.26		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
4,4'-DDD	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
4,4'-DDE	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
4,4'-DDT	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
Dieldrin	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
Endosulfan I	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
Endosulfan II	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
Endosulfan sulfate	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
Endrin	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
Endrin aldehyde	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
Endrin ketone	ND		ug/kg dry	7.79	7.79	1	07/27/19	07/29/19 13:59	SJA
Heptachlor	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
Heptachlor epoxide	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.84	3.84	1	07/27/19	07/29/19 13:59	SJA
Methoxychlor	ND		ug/kg dry	38.4	38.4	1	07/27/19	07/29/19 13:59	SJA
Toxaphene	ND		ug/kg dry	77.9	77.9	1	07/27/19	07/29/19 13:59	SJA
Surrogate: Tetrachloro-m-xylene			40-150	77 %	07/27/19		07/29/19 13:59		
Surrogate: Decachlorobiphenyl			40-150	93 %	07/27/19		07/29/19 13:59		

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9072317-14 (Soil)

Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 13:59	SJA
Surrogate: Tetrachloro-m-xylene			40-150	77 %	07/27/19	07/29/19 13:59			
Surrogate: Decachlorobiphenyl			40-150	93 %	07/27/19	07/29/19 13:59			
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	46.5	46.5	1	07/29/19	07/31/19 12:13	SJA
2,4-DB	ND		ug/kg dry	46.5	46.5	1	07/29/19	07/31/19 12:13	SJA
Dalapon	ND		ug/kg dry	93.0	93.0	1	07/29/19	07/31/19 12:13	SJA
Dicamba	ND		ug/kg dry	46.5	46.5	1	07/29/19	07/31/19 12:13	SJA
Dichlorprop	ND		ug/kg dry	46.5	46.5	1	07/29/19	07/31/19 12:13	SJA
Dinoseb	ND		ug/kg dry	46.5	46.5	1	07/29/19	07/31/19 12:13	SJA
MCPA	ND		ug/kg dry	9300	9300	1	07/29/19	07/31/19 12:13	SJA
MCPP	ND		ug/kg dry	9300	9300	1	07/29/19	07/31/19 12:13	SJA
2,4,5-T	ND		ug/kg dry	46.5	46.5	1	07/29/19	07/31/19 12:13	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	46.5	46.5	1	07/29/19	07/31/19 12:13	SJA
Surrogate: DCAA			50-150	85 %	07/29/19	07/31/19 12:13			

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DUP-2

9072317-14 (Soil)
Sample Date: 07/23/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.14		mg/kg dry	0.291	0.291	1	07/30/19	07/31/19 16:11	VVD
Barium	46.7		mg/kg dry	0.291	0.291	1	07/30/19	07/31/19 16:11	VVD
Cadmium	0.450		mg/kg dry	0.291	0.291	1	07/30/19	07/31/19 16:11	VVD
Chromium	13.4		mg/kg dry	0.291	0.291	1	07/30/19	07/31/19 16:11	VVD
Lead	19.6		mg/kg dry	0.291	0.291	1	07/30/19	07/31/19 16:11	VVD
Mercury	0.0213		mg/kg dry	0.0145	0.0145	1	07/30/19	07/31/19 16:11	VVD
Selenium	1.03		mg/kg dry	0.291	0.291	1	07/30/19	07/31/19 16:11	VVD
Silver	ND		mg/kg dry	0.291	0.291	1	07/30/19	07/31/19 16:11	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0896	0.0896	1	07/25/19	07/25/19 22:58	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.6		%	1.00	1.00	1	07/25/19	07/25/19 15:35	FRD

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Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907431 - 3540-GCMS(Soxhlet)

Blank (B907431-BLK1)

Prepared: 07/30/19 Analyzed: 07/31/19

Acenaphthene	ND		10.0	ug/kg wet						
Acenaphthylene	ND		10.0	ug/kg wet						
Anthracene	ND		10.0	ug/kg wet						
Benzo[a]anthracene	ND		10.0	ug/kg wet						
Benzo[b]fluoranthene	ND		10.0	ug/kg wet						
Benzo[k]fluoranthene	ND		10.0	ug/kg wet						
Benzo[ghi]perylene	ND		10.0	ug/kg wet						
Benzo[a]pyrene	ND		10.0	ug/kg wet						
Chrysene	ND		10.0	ug/kg wet						
Dibenzo[a,h]anthracene	ND		10.0	ug/kg wet						
Fluoranthene	ND		10.0	ug/kg wet						
Fluorene	ND		10.0	ug/kg wet						
Indeno[1,2,3-cd]pyrene	ND		10.0	ug/kg wet						
1-Methylnaphthalene	ND		10.0	ug/kg wet						
2-Methylnaphthalene	ND		10.0	ug/kg wet						
N-Nitroso-di-n-propylamine	ND		10.0	ug/kg wet						
Naphthalene	ND		10.0	ug/kg wet						
Phenanthrene	ND		10.0	ug/kg wet						
Pyrene	ND		10.0	ug/kg wet						
Surrogate: Nitrobenzene-d5	35.8			ug/kg wet	50.0		72	23-120		
Surrogate: 2-Fluorobiphenyl	37.5			ug/kg wet	50.0		75	30-115		
Surrogate: Terphenyl-d14	45.7			ug/kg wet	50.0		91	18-137		

LCS (B907431-BS1)

Prepared: 07/30/19 Analyzed: 07/31/19

Acenaphthene	19		10.0	ug/kg wet	25.0		75	50-130		
Acenaphthylene	19		10.0	ug/kg wet	25.0		75	50-130		
Anthracene	18		10.0	ug/kg wet	25.0		73	50-130		
Benzo[a]anthracene	19		10.0	ug/kg wet	25.0		78	50-130		
Benzo[b]fluoranthene	18		10.0	ug/kg wet	25.0		72	50-130		
Benzo[k]fluoranthene	19		10.0	ug/kg wet	25.0		77	50-130		
Benzo[ghi]perylene	18		10.0	ug/kg wet	25.0		72	50-130		
Benzo[a]pyrene	17		10.0	ug/kg wet	25.0		69	50-130		

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Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907431 - 3540-GCMS(Soxhlet)

LCS (B907431-BS1)

Prepared: 07/30/19 Analyzed: 07/31/19

Chrysene	19		10.0	ug/kg wet	25.0		76	50-130		
Dibenzo[a,h]anthracene	18		10.0	ug/kg wet	25.0		71	50-130		
Fluoranthene	20		10.0	ug/kg wet	25.0		82	50-130		
Fluorene	18		10.0	ug/kg wet	25.0		71	50-130		
Indeno[1,2,3-cd]pyrene	18		10.0	ug/kg wet	25.0		71	50-130		
1-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
2-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
N-Nitroso-di-n-propylamine	15		10.0	ug/kg wet	25.0		61	50-130		
Naphthalene	19		10.0	ug/kg wet	25.0		75	50-130		
Phenanthrene	19		10.0	ug/kg wet	25.0		76	50-130		
Pyrene	19		10.0	ug/kg wet	25.0		78	50-130		
Surrogate: Nitrobenzene-d5	34.6			ug/kg wet	50.0		69	23-120		
Surrogate: 2-Fluorobiphenyl	37.5			ug/kg wet	50.0		75	30-115		
Surrogate: Terphenyl-d14	44.6			ug/kg wet	50.0		89	18-137		

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

GASOLINE RANGE ORGANICS BY EPA 5030/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907374 - 5030-GC

Blank (B907374-BLK1)

Prepared & Analyzed: 07/26/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	421			ug/L	400		105	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	421			ug/L	400		105	85-115		

LCS (B907374-BS1)

Prepared & Analyzed: 07/26/19

Gasoline-Range Organics	0.19		0.10	mg/kg wet	0.145		130	70-130		
Surrogate: a,a,a-Trifluorotoluene	423			ug/L	400		106	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	423			ug/L	400		106	85-115		

Batch B907392 - 5030-GC

Blank (B907392-BLK1)

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	417			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	417			ug/L	400		104	85-115		

LCS (B907392-BS1)

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	0.20		0.10	mg/kg wet	0.145		139	70-130		
Surrogate: a,a,a-Trifluorotoluene	412			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	412			ug/L	400		103	85-115		

Batch B907407 - 5030-GC

Blank (B907407-BLK1)

Prepared & Analyzed: 07/29/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	408			ug/L	400		102	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	408			ug/L	400		102	85-115		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

GASOLINE RANGE ORGANICS BY EPA 5030/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907407 - 5030-GC

LCS (B907407-BS1)

Prepared & Analyzed: 07/29/19

Gasoline-Range Organics	0.16		0.10	mg/kg wet	0.145		111	70-130		
Surrogate: a,a,a-Trifluorotoluene	407			ug/L	400		102	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	407			ug/L	400		102	85-115		

Duplicate (B907407-DUP1)

Source: 9072317-14

Prepared & Analyzed: 07/29/19

Gasoline-Range Organics	ND		0.12	mg/kg dry		ND			20	
Surrogate: a,a,a-Trifluorotoluene	421			ug/L	400		105	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	421			ug/L	400		105	85-115		

Matrix Spike (B907407-MS1)

Source: 9072317-14

Prepared & Analyzed: 07/29/19

Gasoline-Range Organics	0.10		0.12	mg/kg dry	0.169	ND	61	70-130		
Surrogate: a,a,a-Trifluorotoluene	411			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	411			ug/L	400		103	85-115		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

DIESEL RANGE ORGANICS BY EPA 3540/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B907430 - 3540-GC(Soxhlet)										
Blank (B907430-BLK1)					Prepared: 07/30/19 Analyzed: 07/31/19					
Diesel-Range Organics	ND		8.0	mg/kg wet						
Surrogate: o-Terphenyl	1.69			mg/kg wet	2.00		84	70-130		
LCS (B907430-BS1)					Prepared: 07/30/19 Analyzed: 07/31/19					
Diesel-Range Organics	20.0		8.0	mg/kg wet	20.0		100	60-130		
Surrogate: o-Terphenyl	2.03			mg/kg wet	2.00		101	70-130		
Duplicate (B907430-DUP1)					Source: 9073005-01		Prepared: 07/30/19 Analyzed: 07/31/19			
Diesel-Range Organics	2900		203	mg/kg dry		3120			7	20
Surrogate: o-Terphenyl	0.00	S-01		mg/kg dry	2.53			70-130		
Matrix Spike (B907430-MS1)					Source: 9072317-01		Prepared: 07/30/19 Analyzed: 07/31/19			
Diesel-Range Organics	25.3		9.4	mg/kg dry	23.5	ND	107	60-120		
Surrogate: o-Terphenyl	2.24			mg/kg dry	2.35		95	70-130		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	ND		3.30	ug/kg wet						
alpha-BHC	ND		3.30	ug/kg wet						
beta-BHC	ND		3.30	ug/kg wet						
delta-BHC	ND		3.30	ug/kg wet						
alpha-Chlordane	ND		3.30	ug/kg wet						
gamma-Chlordane	ND		3.30	ug/kg wet						
4,4'-DDD	ND		6.70	ug/kg wet						
4,4'-DDE	ND		6.70	ug/kg wet						
4,4'-DDT	ND		6.70	ug/kg wet						
Dieldrin	ND		6.70	ug/kg wet						
Endosulfan I	ND		3.30	ug/kg wet						
Endosulfan II	ND		6.70	ug/kg wet						
Endosulfan sulfate	ND		6.70	ug/kg wet						
Endrin	ND		6.70	ug/kg wet						
Endrin aldehyde	ND		6.70	ug/kg wet						
Endrin ketone	ND		6.70	ug/kg wet						
Heptachlor	ND		3.30	ug/kg wet						
Heptachlor epoxide	ND		3.30	ug/kg wet						
Lindane (gamma-BHC)	ND		3.30	ug/kg wet						
Methoxychlor	ND		33.0	ug/kg wet						
Toxaphene	ND		67.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	54.3			ug/kg wet	66.7		82	40-150		
Surrogate: Decachlorobiphenyl	58.6			ug/kg wet	66.7		88	40-150		

Blank (B907387-BLK2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	ND		3.30	ug/kg wet						
alpha-BHC	ND		3.30	ug/kg wet						
beta-BHC	ND		3.30	ug/kg wet						
delta-BHC	ND		3.30	ug/kg wet						
alpha-Chlordane	ND		3.30	ug/kg wet						
gamma-Chlordane	ND		3.30	ug/kg wet						
4,4'-DDD	ND		6.70	ug/kg wet						

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK2)

Prepared: 07/27/19 Analyzed: 07/29/19

4,4'-DDE	ND		6.70	ug/kg wet						
4,4'-DDT	ND		6.70	ug/kg wet						
Dieldrin	ND		6.70	ug/kg wet						
Endosulfan I	ND		3.30	ug/kg wet						
Endosulfan II	ND		6.70	ug/kg wet						
Endosulfan sulfate	ND		6.70	ug/kg wet						
Endrin	ND		6.70	ug/kg wet						
Endrin aldehyde	ND		6.70	ug/kg wet						
Endrin ketone	ND		6.70	ug/kg wet						
Heptachlor	ND		3.30	ug/kg wet						
Heptachlor epoxide	ND		3.30	ug/kg wet						
Lindane (gamma-BHC)	ND		3.30	ug/kg wet						
Methoxychlor	ND		33.0	ug/kg wet						
Toxaphene	ND		67.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	52.1			ug/kg wet	66.7		78	40-150		
Surrogate: Decachlorobiphenyl	62.0			ug/kg wet	66.7		93	40-150		

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	5.46		3.30	ug/kg wet	6.73		81	70-130		
alpha-BHC	5.11		3.30	ug/kg wet	6.67		77	70-130		
beta-BHC	6.94		3.30	ug/kg wet	6.67		104	70-130		
delta-BHC	4.70		3.30	ug/kg wet	6.67		70	70-130		
alpha-Chlordane	6.34		3.30	ug/kg wet	6.73		94	70-130		
gamma-Chlordane	6.17		3.30	ug/kg wet	6.73		92	70-130		
4,4'-DDD	11.9		6.70	ug/kg wet	13.3		89	70-130		
4,4'-DDE	11.8		6.70	ug/kg wet	13.4		88	70-130		
4,4'-DDT	13.2		6.70	ug/kg wet	13.4		98	70-130		
Dieldrin	11.9		6.70	ug/kg wet	13.3		90	70-130		
Endosulfan I	5.94		3.30	ug/kg wet	6.67		89	70-130		
Endosulfan II	12.0		6.70	ug/kg wet	13.4		89	70-130		
Endosulfan sulfate	13.9		6.70	ug/kg wet	13.3		104	70-130		
Endrin	13.7		6.70	ug/kg wet	13.5		101	70-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Endrin aldehyde	15.3		6.70	ug/kg wet	13.4		114	70-130		
Endrin ketone	12.8		6.70	ug/kg wet	13.4		96	70-130		
Heptachlor	6.12		3.30	ug/kg wet	6.73		91	70-130		
Heptachlor epoxide	6.00		3.30	ug/kg wet	6.67		90	70-130		
Lindane (gamma-BHC)	5.74		3.30	ug/kg wet	6.67		86	70-130		
Methoxychlor	74.8		33.0	ug/kg wet	67.3		111	70-130		
Surrogate: Tetrachloro-m-xylene	50.6			ug/kg wet	66.7		76	40-130		
Surrogate: Decachlorobiphenyl	54.5			ug/kg wet	66.7		82	40-130		

LCS (B907387-BS2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	ND		3.30	ug/kg wet				70-130		
alpha-BHC	ND		3.30	ug/kg wet				70-130		
beta-BHC	ND		3.30	ug/kg wet				70-130		
delta-BHC	ND		3.30	ug/kg wet				70-130		
alpha-Chlordane	ND		3.30	ug/kg wet				70-130		
gamma-Chlordane	ND		3.30	ug/kg wet				70-130		
4,4'-DDD	ND		6.70	ug/kg wet				70-130		
4,4'-DDE	ND		6.70	ug/kg wet				70-130		
4,4'-DDT	ND		6.70	ug/kg wet				70-130		
Dieldrin	ND		6.70	ug/kg wet				70-130		
Endosulfan I	ND		3.30	ug/kg wet				70-130		
Endosulfan II	ND		6.70	ug/kg wet				70-130		
Endosulfan sulfate	ND		6.70	ug/kg wet				70-130		
Endrin	ND		6.70	ug/kg wet				70-130		
Endrin aldehyde	ND		6.70	ug/kg wet				70-130		
Endrin ketone	ND		6.70	ug/kg wet				70-130		
Heptachlor	ND		3.30	ug/kg wet				70-130		
Heptachlor epoxide	ND		3.30	ug/kg wet				70-130		
Lindane (gamma-BHC)	ND		3.30	ug/kg wet				70-130		
Methoxychlor	ND		33.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.1			ug/kg wet	66.7		75	40-130		
Surrogate: Decachlorobiphenyl	56.3			ug/kg wet	66.7		85	40-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	54.3			ug/kg wet	66.7		82	40-150		
Surrogate: Decachlorobiphenyl	58.6			ug/kg wet	66.7		88	40-150		

Blank (B907387-BLK2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	52.1			ug/kg wet	66.7		78	40-150		
Surrogate: Decachlorobiphenyl	62.0			ug/kg wet	66.7		93	40-150		

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.6			ug/kg wet	66.7		76	50-150		
Surrogate: Decachlorobiphenyl	54.5			ug/kg wet	66.7		82	50-150		

LCS (B907387-BS2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	563		83.0	ug/kg wet	667		84	70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		
Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.1			ug/kg wet	66.7		75	50-150		
Surrogate: Decachlorobiphenyl	56.3			ug/kg wet	66.7		85	50-150		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907400 - 8151(Herbicides)

Blank (B907400-BLK1)

Prepared: 07/29/19 Analyzed: 07/31/19

2,4-D	ND		40.0	ug/kg wet						
2,4-DB	ND		40.0	ug/kg wet						
Dalapon	ND		80.0	ug/kg wet						
Dicamba	ND		40.0	ug/kg wet						
Dichlorprop	ND		40.0	ug/kg wet						
Dinoseb	ND		40.0	ug/kg wet						
MCPA	ND		8000	ug/kg wet						
MCP	ND		8000	ug/kg wet						
2,4,5-T	ND		40.0	ug/kg wet						
2,4,5-TP (Silvex)	ND		40.0	ug/kg wet						
Surrogate: DCAA	423			ug/kg wet	500		85	50-150		

LCS (B907400-BS1)

Prepared: 07/29/19 Analyzed: 07/31/19

2,4-D	500		40.0	ug/kg wet	500		100	15-150		
2,4-DB	545		40.0	ug/kg wet	500		109	15-150		
Dalapon	557		80.0	ug/kg wet	1000		56	15-150		
Dicamba	465		40.0	ug/kg wet	500		93	15-150		
Dichlorprop	580		40.0	ug/kg wet	500		116	15-150		
Dinoseb	93.3		40.0	ug/kg wet	500		19	15-150		
MCPA	31500		8000	ug/kg wet	80000		39	15-150		
MCP	43400		8000	ug/kg wet	80000		54	15-150		
2,4,5-T	483		40.0	ug/kg wet	500		97	15-150		
2,4,5-TP (Silvex)	489		40.0	ug/kg wet	500		98	15-150		
Surrogate: DCAA	426			ug/kg wet	500		85	50-150		

Duplicate (B907400-DUP1)

Source: 9072317-03

Prepared: 07/29/19 Analyzed: 07/31/19

2,4-D	ND		48.2	ug/kg dry		ND			200	
2,4-DB	ND		48.2	ug/kg dry		ND			200	
Dalapon	ND		96.4	ug/kg dry		ND			200	
Dicamba	ND		48.2	ug/kg dry		ND			200	
Dichlorprop	ND		48.2	ug/kg dry		ND			200	
Dinoseb	ND		48.2	ug/kg dry		ND			200	

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907400 - 8151(Herbicides)

Duplicate (B907400-DUP1)		Source: 9072317-03			Prepared: 07/29/19		Analyzed: 07/31/19			
MCPA	ND	9640	ug/kg dry	ND					200	
MCPP	ND	9640	ug/kg dry	ND					200	
2,4,5-T	ND	48.2	ug/kg dry	ND					200	
2,4,5-TP (Silvex)	ND	48.2	ug/kg dry	ND					200	
Surrogate: DCAA	457		ug/kg dry	602		76		50-150		

Matrix Spike (B907400-MS1)		Source: 9072317-10			Prepared: 07/29/19		Analyzed: 07/31/19			
2,4-D	647	48.8	ug/kg dry	610	ND	106		10-150		
2,4-DB	792	48.8	ug/kg dry	610	ND	130		10-150		
Dalapon	698	97.6	ug/kg dry	1220	ND	57		10-150		
Dicamba	605	48.8	ug/kg dry	610	ND	99		10-150		
Dichlorprop	785	48.8	ug/kg dry	610	ND	129		10-150		
Dinoseb	223	48.8	ug/kg dry	610	ND	37		10-150		
MCPA	42200	9760	ug/kg dry	97600	ND	43		10-150		
MCPP	56000	9760	ug/kg dry	97600	ND	57		10-150		
2,4,5-T	644	48.8	ug/kg dry	610	ND	106		10-150		
2,4,5-TP (Silvex)	644	48.8	ug/kg dry	610	ND	106		10-150		
Surrogate: DCAA	545		ug/kg dry	610		89		50-150		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907436 - 3050B-Metals Digestion

Blank (B907436-BLK1)

Prepared: 07/30/19 Analyzed: 07/31/19

Arsenic	ND		0.250	mg/kg wet						
Barium	ND		0.250	mg/kg wet						
Cadmium	ND		0.250	mg/kg wet						
Chromium	ND		0.250	mg/kg wet						
Lead	ND		0.250	mg/kg wet						
Mercury	ND		0.0125	mg/kg wet						
Selenium	ND		0.250	mg/kg wet						
Silver	ND		0.250	mg/kg wet						

Blank (B907436-BLK2)

Prepared: 07/30/19 Analyzed: 07/31/19

Arsenic	ND		0.250	mg/kg wet						
Barium	ND		0.250	mg/kg wet						
Cadmium	ND		0.250	mg/kg wet						
Chromium	ND		0.250	mg/kg wet						
Lead	ND		0.250	mg/kg wet						
Mercury	ND		0.0125	mg/kg wet						
Selenium	ND		0.250	mg/kg wet						
Silver	ND		0.250	mg/kg wet						

LCS (B907436-BS1)

Prepared: 07/30/19 Analyzed: 07/31/19

Arsenic	1.36		0.250	mg/kg wet	1.25		109	80-120		
Barium	1.26		0.250	mg/kg wet	1.25		101	80-120		
Cadmium	1.33		0.250	mg/kg wet	1.25		107	80-120		
Chromium	1.35		0.250	mg/kg wet	1.25		108	80-120		
Lead	1.22		0.250	mg/kg wet	1.25		98	80-120		
Mercury	0.0629		0.0125	mg/kg wet	0.0625		101	80-120		
Selenium	1.21		0.250	mg/kg wet	1.25		97	80-120		
Silver	1.40		0.250	mg/kg wet	1.25		112	80-120		

Rabecka Koons

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907436 - 3050B-Metals Digestion

LCS (B907436-BS2)

Prepared: 07/30/19 Analyzed: 07/31/19

Arsenic	1.22		0.250	mg/kg wet	1.25		98	80-120		
Barium	1.11		0.250	mg/kg wet	1.25		89	80-120		
Cadmium	1.23		0.250	mg/kg wet	1.25		99	80-120		
Chromium	1.18		0.250	mg/kg wet	1.25		95	80-120		
Lead	1.21		0.250	mg/kg wet	1.25		97	80-120		
Mercury	0.0604		0.0125	mg/kg wet	0.0625		97	80-120		
Selenium	1.07		0.250	mg/kg wet	1.25		86	80-120		
Silver	1.35		0.250	mg/kg wet	1.25		108	80-120		

Duplicate (B907436-DUP1)

Source: 9072317-01

Prepared: 07/30/19 Analyzed: 07/31/19

Arsenic	6.68		0.294	mg/kg dry	1.74			118	200
Barium	38.4		0.294	mg/kg dry	24.3			45	200
Cadmium	ND		0.294	mg/kg dry	ND				200
Chromium	30.9		0.294	mg/kg dry	10.7			97	200
Lead	13.0		0.294	mg/kg dry	6.40			68	200
Mercury	0.0177		0.0147	mg/kg dry	ND				200
Selenium	1.42		0.294	mg/kg dry	0.927			42	200
Silver	ND		0.294	mg/kg dry	ND				200

Duplicate (B907436-DUP2)

Source: 9072902-01

Prepared: 07/30/19 Analyzed: 07/31/19

Arsenic	7.99		0.275	mg/kg dry	6.13			26	200
Barium	110		0.275	mg/kg dry	71.0			43	200
Cadmium	0.594		0.275	mg/kg dry	5.06			158	200
Chromium	40.3		0.275	mg/kg dry	22.9			55	200
Lead	498	E	0.275	mg/kg dry	516			4	200
Mercury	3.58	E	0.0137	mg/kg dry	4.54			24	200
Selenium	2.24		0.275	mg/kg dry	1.97				200
Silver	0.504		0.275	mg/kg dry	0.605				200

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907436 - 3050B-Metals Digestion

Matrix Spike (B907436-MS1)		Source: 9072317-01		Prepared: 07/30/19		Analyzed: 07/31/19	
Arsenic	7.21	0.294	mg/kg dry	2.94	1.74	186	80-120
Barium	40.3	0.294	mg/kg dry	2.94	24.3	545	80-120
Cadmium	3.26	0.294	mg/kg dry	2.94	ND	111	80-120
Chromium	24.5	0.294	mg/kg dry	2.94	10.7	470	80-120
Lead	13.6	0.294	mg/kg dry	2.94	6.40	244	80-120
Mercury	0.165	0.0147	mg/kg dry	0.147	ND	113	80-120
Selenium	4.00	0.294	mg/kg dry	2.94	0.927	104	80-120
Silver	3.40	0.294	mg/kg dry	2.94	ND	115	80-120

Matrix Spike (B907436-MS2)		Source: 9072902-01		Prepared: 07/30/19		Analyzed: 07/31/19		
Arsenic	11.7		0.275	mg/kg dry	2.75	6.13	204	80-120
Barium	101		0.275	mg/kg dry	2.75	71.0	NR	80-120
Cadmium	3.96		0.275	mg/kg dry	2.75	5.06	NR	80-120
Chromium	33.6		0.275	mg/kg dry	2.75	22.9	390	80-120
Lead	691	E	0.275	mg/kg dry	2.75	516	NR	80-120
Mercury	4.29	E	0.0137	mg/kg dry	0.137	4.54	NR	80-120
Selenium	4.41		0.275	mg/kg dry	2.75	1.97	89	80-120
Silver	3.64		0.275	mg/kg dry	2.75	0.605	110	80-120

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

Chromium VI by EPA 7199 - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit
Batch B9G0197 - EPA 3060								
Blank (B9G0197-BLK1)			Prepared & Analyzed: 07/25/19					
Chromium VI	ND		0.0800	mg/kg wet				
LCS (B9G0197-BS1)			Prepared & Analyzed: 07/25/19					
Chromium VI	3.72		0.0800	mg/kg wet	4.00	93.0	80-120	
Duplicate (B9G0197-DUP1)			Source: 9072317-01		Prepared & Analyzed: 07/25/19			
Chromium VI	0.114		0.0868	mg/kg dry	1.47		171	20
Matrix Spike (B9G0197-MS1)			Source: 9072317-01		Prepared & Analyzed: 07/25/19			
Chromium VI	4.12		0.0941	mg/kg dry	4.70	1.47	56.3	75-125
Matrix Spike (B9G0197-MS2)			Source: 9072317-01		Prepared & Analyzed: 07/25/19			
Chromium VI	1930		4.61	mg/kg dry	2530	ND	76.0	75-125
Post Spike (B9G0197-PS1)			Source: 9072317-01		Prepared & Analyzed: 07/25/19			
Chromium VI	113			ug/L	100	15.7	97.2	80-120

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

Wet Chemistry - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B9G0203 - No Prep WC

Duplicate (B9G0203-DUP1)

Source: 9072317-01

Prepared & Analyzed: 07/25/19

% Solids	85.4		1.00	%		85.6			0.262	20

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/01/19 16:49

Notes and Definitions

S-FAIL	Surrogate recovery was outside of established QC limits
S-01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Company Name: EA Engineering			Project Manager: Vicki Pittman			Analysis Requested										CHAIN-OF-CUSTODY RECORD													
Project Name: Troy Hill Park Phase II			Project ID: 1483560			P.O. Number: 19511			No. of Containers			VOCs EPA 8260B TCL Herbicides EPA 8151A TCL Pesticides EPA 8081B TPH GRO/DRO EPA 8015M PCBs EPA 8082A PAHs EPA 8270D SIM Cr+6 EPA 7199 RCRA Metals (8) EPA 6020A							Maryland Spectral Services, Inc. 1500 Caton Center Drive, Suite G Baltimore, MD 21227 410-247-7600 • Fax 410-247-7602 labman@mdspectral.com Matrix Codes: NW (nonpotable water) PW (potable water)										
Sampler(s): Michael Thornton			Date			Time			Water			Soil			Other			Preservative: 1+ 1 HCL, H ₂ SO ₄ , Methanol, Na ₂ S ₂ O ₃ , NaHCO ₃			Field pH, Residual Chlorine, QC Request, Trip Blank, Field Blank			MSS Lab ID					
TH-3D-TP02-0-2			7/23/19			1415			X			X			X			X			X			907237-01			-02		
TH-3D-TP02-4-5			1430																								-03		
TH-3D-TP03-4-5			1250																								-01		
TH-3D-TP03-0-2			1120																								-05		
TH-3D-TP03-3-4			1215																								-06		
TH-3D-TP04-0-2			1035																								-07		
TH-3D-TP04-2-3			1045																								-08		
TH-2A-TP03-0-2			0940																								-09		
TH-2A-TP03-4-5			0955																								-10		
TH-2A-TP02-0-2			0750			✓			✓			✓			✓			✓			✓			✓			✓		
Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 7/23/19			Received by: (Signature) <i>Rachel Horner</i>			Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>			Date/Time 7/23/19			Received by: (Signature) <i>Rachel Horner</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>		
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Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>			Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>			Date/Time 7/23/19			Received by: (Signature) <i>Rachel Horner</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>		
Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>			Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>			Date/Time 7/23/19			Received by: (Signature) <i>Rachel Horner</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>		
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Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 1535			Received by: (Signature) <i>Rachel Horner</i>			Relinqu																				

[illegible]

SUBCONTRACT ORDER
Maryland Spectral Services

9072317

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc.
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone: (410) 472-1112
Fax: (410) 472-1116

Auto-log Sent

Date/Initial

9/27/19 / SDA

7/23/19

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons

Reports Email: Reporting@mespectral.com

Due 4:00 PM 08/01/19

Laboratory ID

Comments

Sample ID: 9072317-01

TH-3D-TP02-0-2

Soil

Sampled: 07/23/19 14:15

7199- (Chromium 6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072317-02

TH-3D-TP02-4-5

Soil

Sampled: 07/23/19 14:30

7199- (Chromium 6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072317-03

TH-3D-TP03-4-5

Soil

Sampled: 07/23/19 12:50

7199- (Chromium 6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072317-04

TH-3D-TP03-0-2

Soil

Sampled: 07/23/19 11:20

7199- (Chromium 6)

Containers Supplied:

Glass Jar, 4 oz (C)

Received By: *[Signature]* Date: 7/24/19

Received By: FRD Date: 7/24/19

Received By: Date: 1557

SUBCONTRACT ORDER
Maryland Spectral Services

9072317

Laboratory ID

Due 4:00 PM 08/01/19

Sample ID: 9072317-05

TH-3D-TP03-3-4

Soil

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072317-06

TH-3D-TP04-0-2

Soil

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072317-07

TH-3D-TP04-2-3

Soil

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072317-08

TH-2A-TP03-0-2

Soil

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072317-09

TH-2A-TP03-4-5

Soil

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Released By

Date

Received By

Date

Released By

Date

Received By

Date

541659

Sub J. 7/24/19 1515
Released By: [Signature] Date: 7/24/19
Received By: [Signature] Date: 7/24/19

59659

SUBCONTRACT ORDER
Maryland Spectral Services

9072317

Due 4:00 PM 08/01/19		Laboratory ID	Comments
Sample ID: 9072317-10	TH-2A-TP02-0-2	Soil	Sampled: 07/23/19 07:50
7199- (Chromium 6)			
Containers Supplied: Glass Jar, 4 oz (C)			
Sample ID: 9072317-11	TH-2A-TP02-4-5	Soil	Sampled: 07/23/19 08:00
7199- (Chromium 6)			
Containers Supplied: Glass Jar, 4 oz (C)			
Sample ID: 9072317-12	TH-2A-TP01-0-2	Soil	Sampled: 07/23/19 08:40
7199- (Chromium 6)			
Containers Supplied: Glass Jar, 4 oz (C)			
Sample ID: 9072317-13	TH-2A-TP01-4-5	Soil	Sampled: 07/23/19 08:50
7199- (Chromium 6)			
Containers Supplied: Glass Jar, 4 oz (C)			
Sample ID: 9072317-14	DUP-2	Soil	Sampled: 07/23/19 08:00
7199- (Chromium 6)			
Containers Supplied: Glass Jar, 4 oz (C)			

Received By: *[Signature]* Date: 7/24/19 1515
Received By: *[Signature]* Date: 7/24/19 1557

5965R

SUBCONTRACT ORDER
Maryland Spectral Services

9072317

Laboratory ID

Due 4:00 PM 08/01/19

Comments

Sampled: 07/23/19 11:20

Soil

TH-3D-TP03-1.2-2

Sample ID: 9072317-15

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

ON HOLD



Received By	7/24/19	15:57	7/24/19
Date			
Received By	7/24/19	15:57	7/24/19
Date			

02 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/24/19 15:40.

Please visit our website at www.mdspectral.com for a complete listing of our accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rabecka Koons
Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-3D-TP01-0-2		9072436-01	Soil	07/24/19 07:40	07/24/19 15:40
TH-3D-TP01-4-5		9072436-02	Soil	07/24/19 07:50	07/24/19 15:40
TH-2B-TP10-0-2		9072436-03	Soil	07/24/19 08:40	07/24/19 15:40
TH-2B-TP10-4-5		9072436-04	Soil	07/24/19 08:45	07/24/19 15:40
TH-2B-TP02-0-2		9072436-05	Soil	07/24/19 09:15	07/24/19 15:40
TH-2B-TP02-4-5		9072436-06	Soil	07/24/19 09:25	07/24/19 15:40
TH-2B-TP01-0-2		9072436-07	Soil	07/24/19 09:45	07/24/19 15:40
TH-2B-TP01-4-5		9072436-08	Soil	07/24/19 09:55	07/24/19 15:40
TH-2B-TP09-0-2		9072436-09	Soil	07/24/19 10:30	07/24/19 15:40
TH-2B-TP09-4-5		9072436-10	Soil	07/24/19 10:45	07/24/19 15:40
TH-2B-TP08-0-2		9072436-11	Soil	07/24/19 12:45	07/24/19 15:40
TH-2B-TP08-4-5		9072436-12	Soil	07/24/19 13:00	07/24/19 15:40
TH-2B-TP05-0-2		9072436-13	Soil	07/24/19 13:30	07/24/19 15:40
TH-2B-TP05-4-5		9072436-14	Soil	07/24/19 13:40	07/24/19 15:40
TH-2B-TP04-0-2		9072436-15	Soil	07/24/19 14:05	07/24/19 15:40
TH-2B-TP04-4-5		9072436-16	Soil	07/24/19 14:15	07/24/19 15:40
DUP-3		9072436-17	Soil	07/24/19 08:00	07/24/19 15:40

Rabecka Koons

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-0-2

9072436-01 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Acenaphthylene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Anthracene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Benzo[a]anthracene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Benzo[a]pyrene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Chrysene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Fluoranthene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Fluorene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Naphthalene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Phenanthrene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Pyrene	ND		ug/kg dry	11.2	11.2	1	07/31/19	08/01/19 11:40	WB
Surrogate: Nitrobenzene-d5		23-120		88 %	07/31/19		08/01/19 11:40		
Surrogate: 2-Fluorobiphenyl		30-115		96 %	07/31/19		08/01/19 11:40		
Surrogate: Terphenyl-d14		18-137		131 %	07/31/19		08/01/19 11:40		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/29/19	07/29/19 20:40	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.0	9.0	1	07/31/19	08/01/19 13:49	SJA
Surrogate: o-Terphenyl		70-130		90 %	07/31/19		08/01/19 13:49		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-0-2

9072436-01 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	89		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1221	ND		ug/kg dry	191	191	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1232	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1242	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1248	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1254	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1260	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1262	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Aroclor-1268	ND		ug/kg dry	93.3	93.3	1	07/27/19	07/29/19 14:26	SJA
Surrogate: Tetrachloro-m-xylene		40-150		76 %		07/27/19	07/29/19 14:26		
Surrogate: Decachlorobiphenyl		40-150		91 %		07/27/19	07/29/19 14:26		
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	44.9	44.9	1	07/26/19	07/30/19 16:23	SJA
2,4-DB	ND		ug/kg dry	44.9	44.9	1	07/26/19	07/30/19 16:23	SJA
Dalapon	ND		ug/kg dry	89.9	89.9	1	07/26/19	07/30/19 16:23	SJA
Dicamba	ND		ug/kg dry	44.9	44.9	1	07/26/19	07/30/19 16:23	SJA
Dichlorprop	ND		ug/kg dry	44.9	44.9	1	07/26/19	07/30/19 16:23	SJA
Dinoseb	ND		ug/kg dry	44.9	44.9	1	07/26/19	07/30/19 16:23	SJA
MCPA	ND		ug/kg dry	8990	8990	1	07/26/19	07/30/19 16:23	SJA
MCPP	ND		ug/kg dry	8990	8990	1	07/26/19	07/30/19 16:23	SJA
2,4,5-T	ND		ug/kg dry	44.9	44.9	1	07/26/19	07/30/19 16:23	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	44.9	44.9	1	07/26/19	07/30/19 16:23	SJA
Surrogate: DCAA		50-150		85 %		07/26/19	07/30/19 16:23		

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Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-0-2

9072436-01 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.15		mg/kg dry	0.281	0.281	1	07/31/19	08/01/19 17:17	VVD
Barium	101		mg/kg dry	0.281	0.281	1	07/31/19	08/01/19 17:17	VVD
Cadmium	0.579		mg/kg dry	0.281	0.281	1	07/31/19	08/01/19 17:17	VVD
Chromium	16.9		mg/kg dry	0.281	0.281	1	07/31/19	08/01/19 17:17	VVD
Lead	43.3		mg/kg dry	0.281	0.281	1	07/31/19	08/01/19 17:17	VVD
Mercury	0.0298		mg/kg dry	0.0140	0.0140	1	07/31/19	08/01/19 17:17	VVD
Selenium	0.868		mg/kg dry	0.281	0.281	1	07/31/19	08/01/19 17:17	VVD
Silver	ND		mg/kg dry	0.281	0.281	1	07/31/19	08/01/19 17:17	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.153		mg/kg dry	0.0905	0.0905	1	07/31/19	08/01/19 13:35	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.3		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

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Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-0-2

9072436-01RE1 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
alpha-BHC	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
beta-BHC	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
delta-BHC	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
alpha-Chlordane	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
gamma-Chlordane	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
4,4'-DDD	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
4,4'-DDE	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
4,4'-DDT	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
Dieldrin	569		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
Endosulfan I	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
Endosulfan II	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
Endosulfan sulfate	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
Endrin	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
Endrin aldehyde	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
Endrin ketone	ND		ug/kg dry	75.3	75.3	10	07/27/19	08/02/19 00:48	SJA
Heptachlor	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
Heptachlor epoxide	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	37.1	37.1	10	07/27/19	08/02/19 00:48	SJA
Methoxychlor	ND		ug/kg dry	371	371	10	07/27/19	08/02/19 00:48	SJA
Toxaphene	ND		ug/kg dry	753	753	10	07/27/19	08/02/19 00:48	SJA
Surrogate: Tetrachloro-m-xylene		40-150		80 %		07/27/19		08/02/19 00:48	
Surrogate: Decachlorobiphenyl		40-150		80 %		07/27/19		08/02/19 00:48	

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-4-5

9072436-02 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Acenaphthylene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Anthracene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Benzo[a]anthracene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Benzo[a]pyrene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Chrysene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Fluoranthene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Fluorene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Naphthalene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Phenanthrene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Pyrene	ND		ug/kg dry	12.0	12.0	1	07/31/19	08/01/19 12:03	WB
Surrogate: Nitrobenzene-d5		23-120		101 %	07/31/19		08/01/19 12:03		
Surrogate: 2-Fluorobiphenyl		30-115		100 %	07/31/19		08/01/19 12:03		
Surrogate: Terphenyl-d14		18-137		134 %	07/31/19		08/01/19 12:03		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/29/19	07/29/19 21:10	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.6	9.6	1	07/31/19	08/01/19 14:17	SJA
Surrogate: o-Terphenyl		70-130		82 %	07/31/19		08/01/19 14:17		

Rabecka Koons

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-4-5

9072436-02 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	83		%			1	07/31/19	08/01/19 08:46	CWK
CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD)									
Aldrin	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
alpha-BHC	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
beta-BHC	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
delta-BHC	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
alpha-Chlordane	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
gamma-Chlordane	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
4,4'-DDD	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
4,4'-DDE	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
4,4'-DDT	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
Dieldrin	30.8		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
Endosulfan I	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
Endosulfan II	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
Endosulfan sulfate	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
Endrin	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
Endrin aldehyde	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
Endrin ketone	ND		ug/kg dry	8.07	8.07	1	07/27/19	07/29/19 15:22	SJA
Heptachlor	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
Heptachlor epoxide	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
Lindane (gamma-BHC)	ND		ug/kg dry	3.98	3.98	1	07/27/19	07/29/19 15:22	SJA
Methoxychlor	ND		ug/kg dry	39.8	39.8	1	07/27/19	07/29/19 15:22	SJA
Toxaphene	ND		ug/kg dry	80.7	80.7	1	07/27/19	07/29/19 15:22	SJA
Surrogate: Tetrachloro-m-xylene			40-150	70 %			07/27/19	07/29/19 15:22	
Surrogate: Decachlorobiphenyl			40-150	87 %			07/27/19	07/29/19 15:22	

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-4-5

9072436-02 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1221	ND		ug/kg dry	205	205	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1232	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1242	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1248	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1254	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1260	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1262	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Aroclor-1268	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 15:22	SJA
Surrogate: Tetrachloro-m-xylene			40-150	70 %	07/27/19	07/29/19 15:22			
Surrogate: Decachlorobiphenyl			40-150	87 %	07/27/19	07/29/19 15:22			
CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD)									
2,4-D	ND		ug/kg dry	48.2	48.2	1	07/26/19	07/30/19 17:00	SJA
2,4-DB	ND		ug/kg dry	48.2	48.2	1	07/26/19	07/30/19 17:00	SJA
Dalapon	ND		ug/kg dry	96.4	96.4	1	07/26/19	07/30/19 17:00	SJA
Dicamba	ND		ug/kg dry	48.2	48.2	1	07/26/19	07/30/19 17:00	SJA
Dichlorprop	ND		ug/kg dry	48.2	48.2	1	07/26/19	07/30/19 17:00	SJA
Dinoseb	ND		ug/kg dry	48.2	48.2	1	07/26/19	07/30/19 17:00	SJA
MCPA	ND		ug/kg dry	9640	9640	1	07/26/19	07/30/19 17:00	SJA
MCPP	ND		ug/kg dry	9640	9640	1	07/26/19	07/30/19 17:00	SJA
2,4,5-T	ND		ug/kg dry	48.2	48.2	1	07/26/19	07/30/19 17:00	SJA
2,4,5-TP (Silvex)	ND		ug/kg dry	48.2	48.2	1	07/26/19	07/30/19 17:00	SJA
Surrogate: DCAA			50-150	76 %	07/26/19	07/30/19 17:00			

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-3D-TP01-4-5

9072436-02 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.87		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 17:20	VVD
Barium	12.8		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 17:20	VVD
Cadmium	ND		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 17:20	VVD
Chromium	114		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 17:20	VVD
Lead	8.21		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 17:20	VVD
Mercury	0.0344		mg/kg dry	0.0151	0.0151	1	07/31/19	08/01/19 17:20	VVD
Selenium	1.05		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 17:20	VVD
Silver	ND		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 17:20	VVD
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.949		mg/kg dry	0.0976	0.0976	1	07/31/19	08/01/19 13:47	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	81.0		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP10-0-2

9072436-03 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Acenaphthylene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Anthracene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Benzo[a]anthracene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Benzo[a]pyrene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Chrysene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Fluoranthene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Fluorene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Naphthalene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Phenanthrene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Pyrene	ND		ug/kg dry	12.3	12.3	1	07/31/19	08/01/19 12:26	WB
Surrogate: Nitrobenzene-d5		23-120		107 %	07/31/19		08/01/19 12:26		
Surrogate: 2-Fluorobiphenyl		30-115		108 %	07/31/19		08/01/19 12:26		
Surrogate: Terphenyl-d14		18-137		117 %	07/31/19		08/01/19 12:26		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	07/29/19	07/29/19 21:41	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	10.3		mg/kg dry	9.9	9.9	1	07/31/19	08/01/19 14:44	SJA
Surrogate: o-Terphenyl		70-130		91 %	07/31/19		08/01/19 14:44		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP10-0-2

9072436-03 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	81		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1221	ND		ug/kg dry	210	210	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1232	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1242	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1248	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1254	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1260	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1262	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Aroclor-1268	ND		ug/kg dry	102	102	1	07/26/19	07/30/19 17:17	SJA
Surrogate: Tetrachloro-m-xylene		40-150		58 %		07/26/19	07/30/19 17:17		
Surrogate: Decachlorobiphenyl		40-150		72 %		07/26/19	07/30/19 17:17		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.77		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 17:23	VVD
Barium	13.7		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 17:23	VVD
Cadmium	ND		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 17:23	VVD
Chromium	22.8		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 17:23	VVD
Lead	4.86		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 17:23	VVD
Mercury	0.0396		mg/kg dry	0.0154	0.0154	1	07/31/19	08/01/19 17:23	VVD
Selenium	1.29		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 17:23	VVD
Silver	ND		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 17:23	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP10-0-2

9072436-03 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.207		mg/kg dry	0.101	0.101	1	07/31/19	08/01/19 13:59	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	78.8		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP10-4-5

9072436-04 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Acenaphthylene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Anthracene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Benzo[a]anthracene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Benzo[a]pyrene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Chrysene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Fluoranthene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Fluorene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Naphthalene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Phenanthrene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Pyrene	ND		ug/kg dry	13.2	13.2	1	07/31/19	08/01/19 12:49	WB
Surrogate: Nitrobenzene-d5		23-120		100 %	07/31/19		08/01/19 12:49		
Surrogate: 2-Fluorobiphenyl		30-115		109 %	07/31/19		08/01/19 12:49		
Surrogate: Terphenyl-d14		18-137		130 %	07/31/19		08/01/19 12:49		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/29/19	07/29/19 22:11	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.5	10.5	1	07/31/19	08/01/19 15:12	SJA
Surrogate: o-Terphenyl		70-130		83 %	07/31/19		08/01/19 15:12		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP10-4-5

9072436-04 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	76		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1221	ND		ug/kg dry	224	224	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1232	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1242	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1248	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1254	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1260	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1262	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Aroclor-1268	ND		ug/kg dry	109	109	1	07/26/19	07/30/19 17:45	SJA
Surrogate: Tetrachloro-m-xylene		40-150		59 %		07/26/19	07/30/19 17:45		
Surrogate: Decachlorobiphenyl		40-150		77 %		07/26/19	07/30/19 17:45		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.49		mg/kg dry	0.329	0.329	1	07/31/19	08/01/19 17:25	VVD
Barium	20.3		mg/kg dry	0.329	0.329	1	07/31/19	08/01/19 17:25	VVD
Cadmium	ND		mg/kg dry	0.329	0.329	1	07/31/19	08/01/19 17:25	VVD
Chromium	9.61		mg/kg dry	0.329	0.329	1	07/31/19	08/01/19 17:25	VVD
Lead	6.28		mg/kg dry	0.329	0.329	1	07/31/19	08/01/19 17:25	VVD
Mercury	0.0288		mg/kg dry	0.0164	0.0164	1	07/31/19	08/01/19 17:25	VVD
Selenium	1.68		mg/kg dry	0.329	0.329	1	07/31/19	08/01/19 17:25	VVD
Silver	ND		mg/kg dry	0.329	0.329	1	07/31/19	08/01/19 17:25	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP10-4-5

9072436-04 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.115		mg/kg dry	0.105	0.105	1	07/31/19	08/01/19 14:34	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	77.1		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP02-0-2

9072436-05 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Acenaphthylene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Anthracene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Benzo[a]anthracene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Benzo[a]pyrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Chrysene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Fluoranthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Fluorene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Naphthalene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Phenanthrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Pyrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 13:12	WB
Surrogate: Nitrobenzene-d5		23-120		122 %	07/31/19		08/01/19 13:12		S-FAIL
Surrogate: 2-Fluorobiphenyl		30-115		132 %	07/31/19		08/01/19 13:12		S-FAIL
Surrogate: Terphenyl-d14		18-137		121 %	07/31/19		08/01/19 13:12		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	0.13		mg/kg dry	0.13	0.13	1	07/29/19	07/29/19 22:41	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	20.9		mg/kg dry	10.0	10.0	1	07/31/19	08/01/19 15:39	SJA
Surrogate: o-Terphenyl		70-130		84 %	07/31/19		08/01/19 15:39		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP02-0-2

9072436-05 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	80		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1221	ND		ug/kg dry	213	213	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1232	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1242	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1248	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1254	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1260	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1262	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Aroclor-1268	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 18:13	SJA
Surrogate: Tetrachloro-m-xylene		40-150		58 %		07/26/19	07/30/19 18:13		
Surrogate: Decachlorobiphenyl		40-150		84 %		07/26/19	07/30/19 18:13		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.82		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:28	VVD
Barium	39.6		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:28	VVD
Cadmium	ND		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:28	VVD
Chromium	26.3		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:28	VVD
Lead	8.28		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:28	VVD
Mercury	0.0178		mg/kg dry	0.0156	0.0156	1	07/31/19	08/01/19 17:28	VVD
Selenium	1.47		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:28	VVD
Silver	ND		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:28	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP02-0-2

9072436-05 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.222		mg/kg dry	0.0952	0.0952	1	07/31/19	08/01/19 14:46	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	80.5		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP02-4-5

9072436-06 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Acenaphthylene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Anthracene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Benzo[a]anthracene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Benzo[a]pyrene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Chrysene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Fluoranthene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Fluorene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Naphthalene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Phenanthrene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Pyrene	ND		ug/kg dry	12.7	12.7	1	07/31/19	08/01/19 13:35	WB
Surrogate: Nitrobenzene-d5		23-120		73 %	07/31/19		08/01/19 13:35		
Surrogate: 2-Fluorobiphenyl		30-115		72 %	07/31/19		08/01/19 13:35		
Surrogate: Terphenyl-d14		18-137		84 %	07/31/19		08/01/19 13:35		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/30/19	07/30/19 13:07	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.1	10.1	1	07/31/19	08/01/19 16:06	SJA
Surrogate: o-Terphenyl		70-130		96 %	07/31/19		08/01/19 16:06		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP02-4-5

9072436-06 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	79		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1221	ND		ug/kg dry	215	215	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1232	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1242	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1248	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1254	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1260	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1262	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Aroclor-1268	ND		ug/kg dry	105	105	1	07/26/19	07/30/19 19:08	SJA
Surrogate: Tetrachloro-m-xylene		40-150		61 %		07/26/19	07/30/19 19:08		
Surrogate: Decachlorobiphenyl		40-150		81 %		07/26/19	07/30/19 19:08		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.23		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 17:30	VVD
Barium	14.2		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 17:30	VVD
Cadmium	ND		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 17:30	VVD
Chromium	14.1		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 17:30	VVD
Lead	7.78		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 17:30	VVD
Mercury	ND		mg/kg dry	0.0158	0.0158	1	07/31/19	08/01/19 17:30	VVD
Selenium	1.41		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 17:30	VVD
Silver	ND		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 17:30	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP02-4-5

9072436-06 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.164		mg/kg dry	0.101	0.101	1	07/31/19	08/01/19 14:58	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	79.5		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP01-0-2

9072436-07 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Acenaphthylene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Anthracene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Benzo[a]anthracene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Benzo[a]pyrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Chrysene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Fluoranthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Fluorene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Naphthalene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Phenanthrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Pyrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 13:58	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	07/31/19		08/01/19 13:58		
Surrogate: 2-Fluorobiphenyl		30-115		70 %	07/31/19		08/01/19 13:58		
Surrogate: Terphenyl-d14		18-137		83 %	07/31/19		08/01/19 13:58		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/30/19	07/30/19 13:37	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	9.6		mg/kg dry	8.8	8.8	1	07/31/19	08/01/19 16:34	SJA
Surrogate: o-Terphenyl		70-130		90 %	07/31/19		08/01/19 16:34		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP01-0-2

9072436-07 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	91		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1221	ND		ug/kg dry	187	187	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1232	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1242	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1248	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1254	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1260	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1262	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Aroclor-1268	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 19:36	SJA
Surrogate: Tetrachloro-m-xylene		40-150		65 %		07/26/19	07/30/19 19:36		
Surrogate: Decachlorobiphenyl		40-150		82 %		07/26/19	07/30/19 19:36		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.93		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:38	VVD
Barium	22.2		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:38	VVD
Cadmium	ND		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:38	VVD
Chromium	23.2		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:38	VVD
Lead	8.27		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:38	VVD
Mercury	0.0209		mg/kg dry	0.0137	0.0137	1	07/31/19	08/01/19 17:38	VVD
Selenium	1.08		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:38	VVD
Silver	ND		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:38	VVD

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP01-0-2

9072436-07 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.231		mg/kg dry	0.0892	0.0892	1	07/31/19	08/01/19 15:10	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	90.8		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP01-4-5

9072436-08 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Acenaphthylene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Anthracene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Benzo[a]anthracene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Benzo[a]pyrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Chrysene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Fluoranthene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Fluorene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Naphthalene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Phenanthrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Pyrene	ND		ug/kg dry	11.0	11.0	1	07/31/19	08/01/19 14:21	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	07/31/19		08/01/19 14:21		
Surrogate: 2-Fluorobiphenyl		30-115		69 %	07/31/19		08/01/19 14:21		
Surrogate: Terphenyl-d14		18-137		87 %	07/31/19		08/01/19 14:21		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/30/19	07/30/19 14:07	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.8	8.8	1	07/31/19	08/01/19 17:01	SJA
Surrogate: o-Terphenyl		70-130		94 %	07/31/19		08/01/19 17:01		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP01-4-5

9072436-08 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	91		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1221	ND		ug/kg dry	187	187	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1232	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1242	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1248	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1254	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1260	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1262	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Aroclor-1268	ND		ug/kg dry	91.2	91.2	1	07/26/19	07/30/19 20:59	SJA
Surrogate: Tetrachloro-m-xylene		40-150		63 %		07/26/19	07/30/19 20:59		
Surrogate: Decachlorobiphenyl		40-150		78 %		07/26/19	07/30/19 20:59		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.14		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:41	VVD
Barium	21.3		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:41	VVD
Cadmium	ND		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:41	VVD
Chromium	23.8		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:41	VVD
Lead	8.01		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:41	VVD
Mercury	0.0235		mg/kg dry	0.0137	0.0137	1	07/31/19	08/01/19 17:41	VVD
Selenium	1.76		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:41	VVD
Silver	ND		mg/kg dry	0.275	0.275	1	07/31/19	08/01/19 17:41	VVD

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP01-4-5

9072436-08 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.173		mg/kg dry	0.0863	0.0863	1	07/31/19	08/01/19 15:22	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	89.8		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP09-0-2

9072436-09 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Acenaphthylene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Anthracene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Benzo[a]anthracene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Benzo[a]pyrene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Chrysene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Fluoranthene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Fluorene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Naphthalene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Phenanthrene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Pyrene	ND		ug/kg dry	13.5	13.5	1	07/31/19	08/01/19 14:44	WB
Surrogate: Nitrobenzene-d5		23-120		72 %	07/31/19		08/01/19 14:44		
Surrogate: 2-Fluorobiphenyl		30-115		70 %	07/31/19		08/01/19 14:44		
Surrogate: Terphenyl-d14		18-137		73 %	07/31/19		08/01/19 14:44		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	07/30/19	07/30/19 14:37	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.8	10.8	1	07/31/19	08/01/19 17:29	SJA
Surrogate: o-Terphenyl		70-130		78 %	07/31/19		08/01/19 17:29		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP09-0-2

9072436-09 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	74		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1221	ND		ug/kg dry	230	230	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1232	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1242	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1248	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1254	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1260	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1262	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Aroclor-1268	ND		ug/kg dry	112	112	1	07/26/19	07/30/19 21:27	SJA
Surrogate: Tetrachloro-m-xylene		40-150		72 %	07/26/19		07/30/19 21:27		
Surrogate: Decachlorobiphenyl		40-150		77 %	07/26/19		07/30/19 21:27		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.48		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 17:44	VVD
Barium	55.3		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 17:44	VVD
Cadmium	ND		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 17:44	VVD
Chromium	226		mg/kg dry	1.69	1.69	5	07/31/19	08/01/19 19:34	VVD
Lead	8.89		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 17:44	VVD
Mercury	0.0358		mg/kg dry	0.0169	0.0169	1	07/31/19	08/01/19 17:44	VVD
Selenium	3.82		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 17:44	VVD
Silver	ND		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 17:44	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP09-0-2

9072436-09 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.785		mg/kg dry	0.105	0.105	1	07/31/19	08/01/19 15:34	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	74.2		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP09-4-5

9072436-10 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Acenaphthylene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Anthracene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Benzo[a]anthracene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Benzo[a]pyrene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Chrysene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Fluoranthene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Fluorene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Naphthalene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Phenanthrene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Pyrene	ND		ug/kg dry	13.7	13.7	1	07/31/19	08/01/19 15:07	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	07/31/19		08/01/19 15:07		
Surrogate: 2-Fluorobiphenyl		30-115		68 %	07/31/19		08/01/19 15:07		
Surrogate: Terphenyl-d14		18-137		80 %	07/31/19		08/01/19 15:07		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	0.15		mg/kg dry	0.14	0.14	1	07/30/19	07/30/19 15:07	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	11.0	11.0	1	07/31/19	08/01/19 17:56	SJA
Surrogate: o-Terphenyl		70-130		89 %	07/31/19		08/01/19 17:56		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP09-4-5

9072436-10 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	73		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1221	ND		ug/kg dry	233	233	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1232	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1242	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1248	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1254	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1260	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1262	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Aroclor-1268	ND		ug/kg dry	114	114	1	07/26/19	07/30/19 21:55	SJA
Surrogate: Tetrachloro-m-xylene			40-150	75 %			07/26/19	07/30/19 21:55	
Surrogate: Decachlorobiphenyl			40-150	80 %			07/26/19	07/30/19 21:55	
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.81		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 17:46	VVD
Barium	32.0		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 17:46	VVD
Cadmium	ND		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 17:46	VVD
Chromium	180	E	mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 17:46	VVD
Lead	5.07		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 17:46	VVD
Mercury	0.0243		mg/kg dry	0.0171	0.0171	1	07/31/19	08/01/19 17:46	VVD
Selenium	2.54		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 17:46	VVD
Silver	ND		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 17:46	VVD

Rabecka Koons

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP09-4-5

9072436-10 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	1.14		mg/kg dry	0.107	0.107	1	07/31/19	08/01/19 15:46	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	73.5		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP08-0-2

9072436-11 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Acenaphthylene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Anthracene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Benzo[a]anthracene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Benzo[a]pyrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Chrysene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Fluoranthene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Fluorene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Naphthalene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Phenanthrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Pyrene	ND		ug/kg dry	12.5	12.5	1	07/31/19	08/01/19 15:30	WB
Surrogate: Nitrobenzene-d5		23-120		74 %	07/31/19		08/01/19 15:30		
Surrogate: 2-Fluorobiphenyl		30-115		77 %	07/31/19		08/01/19 15:30		
Surrogate: Terphenyl-d14		18-137		87 %	07/31/19		08/01/19 15:30		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/30/19	07/30/19 15:38	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.0	10.0	1	07/31/19	08/01/19 18:24	SJA
Surrogate: o-Terphenyl		70-130		86 %	07/31/19		08/01/19 18:24		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP08-0-2

9072436-11 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	80		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1221	ND		ug/kg dry	213	213	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1232	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1242	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1248	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1254	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1260	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1262	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Aroclor-1268	ND		ug/kg dry	104	104	1	07/26/19	07/30/19 22:23	SJA
Surrogate: Tetrachloro-m-xylene		40-150		63 %		07/26/19	07/30/19 22:23		
Surrogate: Decachlorobiphenyl		40-150		76 %		07/26/19	07/30/19 22:23		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.38		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:49	VVD
Barium	54.1		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:49	VVD
Cadmium	ND		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:49	VVD
Chromium	55.0		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:49	VVD
Lead	6.31		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:49	VVD
Mercury	0.0411		mg/kg dry	0.0156	0.0156	1	07/31/19	08/01/19 17:49	VVD
Selenium	1.90		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:49	VVD
Silver	ND		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 17:49	VVD

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP08-0-2

9072436-11 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.230		mg/kg dry	0.0996	0.0996	1	07/31/19	08/01/19 15:58	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	79.8		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP08-4-5

9072436-12 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Acenaphthylene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Anthracene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Benzo[a]anthracene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Benzo[a]pyrene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Chrysene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Fluoranthene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Fluorene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Naphthalene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Phenanthrene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Pyrene	ND		ug/kg dry	13.3	13.3	1	07/31/19	08/01/19 15:53	WB
Surrogate: Nitrobenzene-d5		23-120		63 %	07/31/19		08/01/19 15:53		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	07/31/19		08/01/19 15:53		
Surrogate: Terphenyl-d14		18-137		77 %	07/31/19		08/01/19 15:53		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/27/19	07/27/19 17:29	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.7	10.7	1	07/31/19	08/01/19 18:51	SJA
Surrogate: o-Terphenyl		70-130		92 %	07/31/19		08/01/19 18:51		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP08-4-5

9072436-12 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	75		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1221	ND		ug/kg dry	227	227	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1232	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1242	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1248	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1254	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1260	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1262	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Aroclor-1268	ND		ug/kg dry	111	111	1	07/26/19	07/30/19 22:51	SJA
Surrogate: Tetrachloro-m-xylene			40-150	63 %			07/26/19	07/30/19 22:51	
Surrogate: Decachlorobiphenyl			40-150	76 %			07/26/19	07/30/19 22:51	
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.68		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 17:52	VVD
Barium	24.1		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 17:52	VVD
Cadmium	ND		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 17:52	VVD
Chromium	47.7		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 17:52	VVD
Lead	3.84		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 17:52	VVD
Mercury	0.0689		mg/kg dry	0.0167	0.0167	1	07/31/19	08/01/19 17:52	VVD
Selenium	1.74		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 17:52	VVD
Silver	ND		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 17:52	VVD

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP08-4-5

9072436-12 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.217		mg/kg dry	0.103	0.103	1	07/31/19	08/01/19 16:10	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	74.4		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP05-0-2

9072436-13 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Acenaphthylene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Anthracene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Benzo[a]anthracene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Benzo[a]pyrene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Chrysene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Fluoranthene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Fluorene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Naphthalene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Phenanthrene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Pyrene	ND		ug/kg dry	12.8	12.8	1	07/31/19	08/01/19 16:16	WB
Surrogate: Nitrobenzene-d5		23-120		57 %	07/31/19		08/01/19 16:16		
Surrogate: 2-Fluorobiphenyl		30-115		58 %	07/31/19		08/01/19 16:16		
Surrogate: Terphenyl-d14		18-137		75 %	07/31/19		08/01/19 16:16		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/27/19	07/27/19 18:02	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	10.8		mg/kg dry	10.3	10.3	1	07/31/19	08/01/19 19:19	SJA
Surrogate: o-Terphenyl		70-130		92 %	07/31/19		08/01/19 19:19		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP05-0-2

9072436-13 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	78		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1221	ND		ug/kg dry	218	218	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1232	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1242	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1248	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1254	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1260	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1262	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Aroclor-1268	ND		ug/kg dry	106	106	1	07/26/19	07/30/19 23:18	SJA
Surrogate: Tetrachloro-m-xylene		40-150		56 %		07/26/19	07/30/19 23:18		
Surrogate: Decachlorobiphenyl		40-150		78 %		07/26/19	07/30/19 23:18		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.03		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 17:54	VVD
Barium	32.3		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 17:54	VVD
Cadmium	ND		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 17:54	VVD
Chromium	45.3		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 17:54	VVD
Lead	5.73		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 17:54	VVD
Mercury	0.0286		mg/kg dry	0.0160	0.0160	1	07/31/19	08/01/19 17:54	VVD
Selenium	1.12		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 17:54	VVD
Silver	ND		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 17:54	VVD

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP05-0-2

9072436-13 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.140		mg/kg dry	0.100	0.100	1	07/31/19	08/01/19 16:22	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	80.1		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP05-4-5

9072436-14 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Acenaphthylene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Anthracene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Benzo[a]anthracene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Benzo[b]fluoranthene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Benzo[k]fluoranthene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Benzo[ghi]perylene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Benzo[a]pyrene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Chrysene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Fluoranthene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Fluorene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Naphthalene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Phenanthrene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Pyrene	ND		ug/kg dry	14.7	14.7	1	07/31/19	08/01/19 16:37	WB
Surrogate: Nitrobenzene-d5		23-120		57 %	07/31/19		08/01/19 16:37		
Surrogate: 2-Fluorobiphenyl		30-115		57 %	07/31/19		08/01/19 16:37		
Surrogate: Terphenyl-d14		18-137		67 %	07/31/19		08/01/19 16:37		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.15	0.15	1	07/27/19	07/27/19 18:36	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	11.8	11.8	1	07/31/19	08/01/19 19:46	SJA
Surrogate: o-Terphenyl		70-130		80 %	07/31/19		08/01/19 19:46		

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP05-4-5

9072436-14 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	68		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1221	ND		ug/kg dry	250	250	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1232	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1242	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1248	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1254	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1260	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1262	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Aroclor-1268	ND		ug/kg dry	122	122	1	07/26/19	07/30/19 23:46	SJA
Surrogate: Tetrachloro-m-xylene		40-150		56 %		07/26/19	07/30/19 23:46		
Surrogate: Decachlorobiphenyl		40-150		71 %		07/26/19	07/30/19 23:46		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	1.16		mg/kg dry	0.368	0.368	1	07/31/19	08/01/19 17:57	VVD
Barium	23.4		mg/kg dry	0.368	0.368	1	07/31/19	08/01/19 17:57	VVD
Cadmium	ND		mg/kg dry	0.368	0.368	1	07/31/19	08/01/19 17:57	VVD
Chromium	3.96		mg/kg dry	0.368	0.368	1	07/31/19	08/01/19 17:57	VVD
Lead	1.17		mg/kg dry	0.368	0.368	1	07/31/19	08/01/19 17:57	VVD
Mercury	0.0199		mg/kg dry	0.0184	0.0184	1	07/31/19	08/01/19 17:57	VVD
Selenium	1.31		mg/kg dry	0.368	0.368	1	07/31/19	08/01/19 17:57	VVD
Silver	ND		mg/kg dry	0.368	0.368	1	07/31/19	08/01/19 17:57	VVD

Rabecka Koons

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP05-4-5

9072436-14 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.113	0.113	1	07/31/19	08/01/19 17:03	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	67.8		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP04-0-2

9072436-15 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Acenaphthylene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Anthracene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Benzo[a]anthracene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Benzo[a]pyrene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Chrysene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Fluoranthene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Fluorene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Naphthalene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Phenanthrene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Pyrene	ND		ug/kg dry	11.5	11.5	1	07/31/19	08/01/19 17:01	WB
Surrogate: Nitrobenzene-d5		23-120		69 %	07/31/19		08/01/19 17:01		
Surrogate: 2-Fluorobiphenyl		30-115		69 %	07/31/19		08/01/19 17:01		
Surrogate: Terphenyl-d14		18-137		81 %	07/31/19		08/01/19 17:01		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	07/27/19	07/27/19 19:09	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.2	9.2	1	07/31/19	08/01/19 20:13	SJA
Surrogate: o-Terphenyl		70-130		87 %	07/31/19		08/01/19 20:13		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP04-0-2

9072436-15 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	87		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1221	ND		ug/kg dry	195	195	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1232	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1242	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1248	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1254	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1260	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1262	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Aroclor-1268	ND		ug/kg dry	95.4	95.4	1	07/26/19	07/31/19 00:14	SJA
Surrogate: Tetrachloro-m-xylene		40-150		75 %		07/26/19	07/31/19 00:14		
Surrogate: Decachlorobiphenyl		40-150		89 %		07/26/19	07/31/19 00:14		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	8.71		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:00	VVD
Barium	69.2		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:00	VVD
Cadmium	ND		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:00	VVD
Chromium	74.5		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:00	VVD
Lead	10.9		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:00	VVD
Mercury	0.0398		mg/kg dry	0.0144	0.0144	1	07/31/19	08/01/19 18:00	VVD
Selenium	1.82		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:00	VVD
Silver	ND		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:00	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP04-0-2

9072436-15 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.145		mg/kg dry	0.0885	0.0885	1	07/31/19	08/01/19 17:15	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.8		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP04-4-5

9072436-16 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Acenaphthylene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Anthracene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Benzo[a]anthracene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Benzo[a]pyrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Chrysene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Fluoranthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Fluorene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Naphthalene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Phenanthrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Pyrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:24	WB
Surrogate: Nitrobenzene-d5		23-120		66 %	07/31/19		08/01/19 17:24		
Surrogate: 2-Fluorobiphenyl		30-115		64 %	07/31/19		08/01/19 17:24		
Surrogate: Terphenyl-d14		18-137		75 %	07/31/19		08/01/19 17:24		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/27/19	07/27/19 19:42	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.4	10.4	1	07/31/19	08/01/19 20:41	SJA
Surrogate: o-Terphenyl		70-130		86 %	07/31/19		08/01/19 20:41		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP04-4-5

9072436-16 (Soil)

Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	77		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1221	ND		ug/kg dry	221	221	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1232	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1242	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1248	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1254	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1260	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1262	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Aroclor-1268	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 00:42	SJA
Surrogate: Tetrachloro-m-xylene		40-150		69 %		07/26/19	07/31/19 00:42		
Surrogate: Decachlorobiphenyl		40-150		81 %		07/26/19	07/31/19 00:42		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.22		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:02	VVD
Barium	48.3		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:02	VVD
Cadmium	ND		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:02	VVD
Chromium	46.1		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:02	VVD
Lead	3.95		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:02	VVD
Mercury	0.0242		mg/kg dry	0.0162	0.0162	1	07/31/19	08/01/19 18:02	VVD
Selenium	1.82		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:02	VVD
Silver	ND		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:02	VVD

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TH-2B-TP04-4-5

9072436-16 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.246		mg/kg dry	0.104	0.104	1	07/31/19	08/01/19 17:27	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	76.5		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

DUP-3

9072436-17 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Acenaphthylene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Anthracene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Benzo[a]anthracene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Benzo[a]pyrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Chrysene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Fluoranthene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Fluorene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Naphthalene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Phenanthrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Pyrene	ND		ug/kg dry	13.0	13.0	1	07/31/19	08/01/19 17:47	WB
Surrogate: Nitrobenzene-d5		23-120		76 %	07/31/19		08/01/19 17:47		
Surrogate: 2-Fluorobiphenyl		30-115		78 %	07/31/19		08/01/19 17:47		
Surrogate: Terphenyl-d14		18-137		79 %	07/31/19		08/01/19 17:47		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	07/27/19	07/27/19 20:14	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.4	10.4	1	07/31/19	08/01/19 21:08	SJA
Surrogate: o-Terphenyl		70-130		93 %	07/31/19		08/01/19 21:08		

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Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

DUP-3

9072436-17 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	77		%			1	07/31/19	08/01/19 08:46	CWK
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1221	ND		ug/kg dry	221	221	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1232	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1242	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1248	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1254	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1260	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1262	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Aroclor-1268	ND		ug/kg dry	108	108	1	07/26/19	07/31/19 09:46	SJA
Surrogate: Tetrachloro-m-xylene		40-150		74 %		07/26/19	07/31/19 09:46		
Surrogate: Decachlorobiphenyl		40-150		57 %		07/26/19	07/31/19 09:46		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.30		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:10	VVD
Barium	36.4		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:10	VVD
Cadmium	ND		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:10	VVD
Chromium	51.5		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:10	VVD
Lead	6.84		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:10	VVD
Mercury	0.0316		mg/kg dry	0.0162	0.0162	1	07/31/19	08/01/19 18:10	VVD
Selenium	1.37		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:10	VVD
Silver	ND		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 18:10	VVD

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Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

DUP-3

9072436-17 (Soil)
Sample Date: 07/24/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.231		mg/kg dry	0.0962	0.0962	1	07/31/19	08/01/19 12:35	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	80.1		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907449 - 3540-GCMS(Soxhlet)

Blank (B907449-BLK1)

Prepared: 07/31/19 Analyzed: 08/01/19

Acenaphthene	ND		10.0	ug/kg wet						
Acenaphthylene	ND		10.0	ug/kg wet						
Anthracene	ND		10.0	ug/kg wet						
Benzo[a]anthracene	ND		10.0	ug/kg wet						
Benzo[b]fluoranthene	ND		10.0	ug/kg wet						
Benzo[k]fluoranthene	ND		10.0	ug/kg wet						
Benzo[ghi]perylene	ND		10.0	ug/kg wet						
Benzo[a]pyrene	ND		10.0	ug/kg wet						
Chrysene	ND		10.0	ug/kg wet						
Dibenzo[a,h]anthracene	ND		10.0	ug/kg wet						
Fluoranthene	ND		10.0	ug/kg wet						
Fluorene	ND		10.0	ug/kg wet						
Indeno[1,2,3-cd]pyrene	ND		10.0	ug/kg wet						
1-Methylnaphthalene	ND		10.0	ug/kg wet						
2-Methylnaphthalene	ND		10.0	ug/kg wet						
N-Nitroso-di-n-propylamine	ND		10.0	ug/kg wet						
Naphthalene	ND		10.0	ug/kg wet						
Phenanthrene	ND		10.0	ug/kg wet						
Pyrene	ND		10.0	ug/kg wet						
Surrogate: Nitrobenzene-d5	49.3			ug/kg wet	50.0		99	23-120		
Surrogate: 2-Fluorobiphenyl	43.7			ug/kg wet	50.0		87	30-115		
Surrogate: Terphenyl-d14	69.4	S-BN		ug/kg wet	50.0		139	18-137		

LCS (B907449-BS1)

Prepared: 07/31/19 Analyzed: 08/01/19

Acenaphthene	20		10.0	ug/kg wet	25.0		80	50-130		
Acenaphthylene	26		10.0	ug/kg wet	25.0		103	50-130		
Anthracene	24		10.0	ug/kg wet	25.0		95	50-130		
Benzo[a]anthracene	32		10.0	ug/kg wet	25.0		127	50-130		
Benzo[b]fluoranthene	26		10.0	ug/kg wet	25.0		103	50-130		
Benzo[k]fluoranthene	26		10.0	ug/kg wet	25.0		106	50-130		
Benzo[ghi]perylene	25		10.0	ug/kg wet	25.0		98	50-130		
Benzo[a]pyrene	25		10.0	ug/kg wet	25.0		101	50-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B907449 - 3540-GCMS(Soxhlet)										
LCS (B907449-BS1)					Prepared: 07/31/19 Analyzed: 08/01/19					
Chrysene	25		10.0	ug/kg wet	25.0		101	50-130		
Dibenzo[a,h]anthracene	25		10.0	ug/kg wet	25.0		98	50-130		
Fluoranthene	32		10.0	ug/kg wet	25.0		130	50-130		
Fluorene	24		10.0	ug/kg wet	25.0		95	50-130		
Indeno[1,2,3-cd]pyrene	25		10.0	ug/kg wet	25.0		102	50-130		
1-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
2-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
N-Nitroso-di-n-propylamine	21		10.0	ug/kg wet	25.0		83	50-130		
Naphthalene	21		10.0	ug/kg wet	25.0		83	50-130		
Phenanthrene	24		10.0	ug/kg wet	25.0		96	50-130		
Pyrene	29		10.0	ug/kg wet	25.0		115	50-130		
Surrogate: Nitrobenzene-d5	48.2			ug/kg wet	50.0		96	23-120		
Surrogate: 2-Fluorobiphenyl	50.7			ug/kg wet	50.0		101	30-115		
Surrogate: Terphenyl-d14	65.9			ug/kg wet	50.0		132	18-137		

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

GASOLINE RANGE ORGANICS BY EPA 5030/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907391 - 5030-GC

Blank (B907391-BLK1)

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	413			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	416			ug/L	400		104	85-115		

LCS (B907391-BS1)

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	0.35		0.10	mg/kg wet	0.290		120	70-130		
Surrogate: a,a,a-Trifluorotoluene	411			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	413			ug/L	400		103	85-115		

Duplicate (B907391-DUP1)

Source: 9072436-17

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	ND		0.13	mg/kg dry		ND			20	
Surrogate: a,a,a-Trifluorotoluene	415			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	400			ug/L	400		100	85-115		

Matrix Spike (B907391-MS1)

Source: 9072436-17

Prepared & Analyzed: 07/27/19

Gasoline-Range Organics	0.43		0.13	mg/kg dry	0.377	ND	115	70-130		
Surrogate: a,a,a-Trifluorotoluene	415			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	417			ug/L	400		104	85-115		

Batch B907407 - 5030-GC

Blank (B907407-BLK1)

Prepared & Analyzed: 07/29/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	408			ug/L	400		102	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	408			ug/L	400		102	85-115		

LCS (B907407-BS1)

Prepared & Analyzed: 07/29/19

Gasoline-Range Organics	0.16		0.10	mg/kg wet	0.145		111	70-130		
Surrogate: a,a,a-Trifluorotoluene	407			ug/L	400		102	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	407			ug/L	400		102	85-115		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

GASOLINE RANGE ORGANICS BY EPA 5030/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907407 - 5030-GC

Duplicate (B907407-DUP1)		Source: 9072317-14		Prepared & Analyzed: 07/29/19						
Gasoline-Range Organics	ND		0.12	mg/kg dry		ND				20
Surrogate: a,a,a-Trifluorotoluene	421			ug/L	400		105	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	421			ug/L	400		105	85-115		
Matrix Spike (B907407-MS1)		Source: 9072317-14		Prepared & Analyzed: 07/29/19						
Gasoline-Range Organics	0.10		0.12	mg/kg dry	0.169	ND	61	70-130		
Surrogate: a,a,a-Trifluorotoluene	411			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	411			ug/L	400		103	85-115		

Batch B907425 - 5030-GC

Blank (B907425-BLK1)		Prepared & Analyzed: 07/30/19								
Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	419			ug/L	400		105	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	419			ug/L	400		105	85-115		
LCS (B907425-BS1)		Prepared & Analyzed: 07/30/19								
Gasoline-Range Organics	0.14		0.10	mg/kg wet	0.145		95	70-130		
Surrogate: a,a,a-Trifluorotoluene	414			ug/L	400		103	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	414			ug/L	400		103	85-115		
Duplicate (B907425-DUP1)		Source: 9072521-14		Prepared & Analyzed: 07/30/19						
Gasoline-Range Organics	ND		0.13	mg/kg dry		ND				20
Surrogate: a,a,a-Trifluorotoluene	423			ug/L	400		106	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	423			ug/L	400		106	85-115		
Matrix Spike (B907425-MS1)		Source: 9072521-14		Prepared & Analyzed: 07/30/19						
Gasoline-Range Organics	0.15		0.13	mg/kg dry	0.184	ND	79	70-130		
Surrogate: a,a,a-Trifluorotoluene	417			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	417			ug/L	400		104	85-115		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

DIESEL RANGE ORGANICS BY EPA 3540/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B907450 - 3540-GC(Soxhlet)										
Blank (B907450-BLK1)					Prepared: 07/31/19 Analyzed: 08/01/19					
Diesel-Range Organics	ND		8.0	mg/kg wet						
Surrogate: o-Terphenyl	1.80			mg/kg wet	2.00		90	70-130		
Blank (B907450-BLK2)					Prepared: 07/31/19 Analyzed: 08/01/19					
Diesel-Range Organics	ND		8.0	mg/kg wet						
Surrogate: o-Terphenyl	1.97			mg/kg wet	2.00		98	70-130		
LCS (B907450-BS1)					Prepared: 07/31/19 Analyzed: 08/01/19					
Diesel-Range Organics	19.1		8.0	mg/kg wet	20.0		95	60-130		
Surrogate: o-Terphenyl	1.92			mg/kg wet	2.00		96	70-130		
LCS (B907450-BS2)					Prepared: 07/31/19 Analyzed: 08/01/19					
Diesel-Range Organics	17.7		8.0	mg/kg wet	20.0		89	60-130		
Surrogate: o-Terphenyl	1.85			mg/kg wet	2.00		93	70-130		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	ND		3.30	ug/kg wet						
alpha-BHC	ND		3.30	ug/kg wet						
beta-BHC	ND		3.30	ug/kg wet						
delta-BHC	ND		3.30	ug/kg wet						
alpha-Chlordane	ND		3.30	ug/kg wet						
gamma-Chlordane	ND		3.30	ug/kg wet						
4,4'-DDD	ND		6.70	ug/kg wet						
4,4'-DDE	ND		6.70	ug/kg wet						
4,4'-DDT	ND		6.70	ug/kg wet						
Dieldrin	ND		6.70	ug/kg wet						
Endosulfan I	ND		3.30	ug/kg wet						
Endosulfan II	ND		6.70	ug/kg wet						
Endosulfan sulfate	ND		6.70	ug/kg wet						
Endrin	ND		6.70	ug/kg wet						
Endrin aldehyde	ND		6.70	ug/kg wet						
Endrin ketone	ND		6.70	ug/kg wet						
Heptachlor	ND		3.30	ug/kg wet						
Heptachlor epoxide	ND		3.30	ug/kg wet						
Lindane (gamma-BHC)	ND		3.30	ug/kg wet						
Methoxychlor	ND		33.0	ug/kg wet						
Toxaphene	ND		67.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	54.3			ug/kg wet	66.7		82	40-150		
Surrogate: Decachlorobiphenyl	58.6			ug/kg wet	66.7		88	40-150		

Blank (B907387-BLK2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	ND		3.30	ug/kg wet						
alpha-BHC	ND		3.30	ug/kg wet						
beta-BHC	ND		3.30	ug/kg wet						
delta-BHC	ND		3.30	ug/kg wet						
alpha-Chlordane	ND		3.30	ug/kg wet						
gamma-Chlordane	ND		3.30	ug/kg wet						
4,4'-DDD	ND		6.70	ug/kg wet						

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK2)

Prepared: 07/27/19 Analyzed: 07/29/19

4,4'-DDE	ND		6.70	ug/kg wet						
4,4'-DDT	ND		6.70	ug/kg wet						
Dieldrin	ND		6.70	ug/kg wet						
Endosulfan I	ND		3.30	ug/kg wet						
Endosulfan II	ND		6.70	ug/kg wet						
Endosulfan sulfate	ND		6.70	ug/kg wet						
Endrin	ND		6.70	ug/kg wet						
Endrin aldehyde	ND		6.70	ug/kg wet						
Endrin ketone	ND		6.70	ug/kg wet						
Heptachlor	ND		3.30	ug/kg wet						
Heptachlor epoxide	ND		3.30	ug/kg wet						
Lindane (gamma-BHC)	ND		3.30	ug/kg wet						
Methoxychlor	ND		33.0	ug/kg wet						
Toxaphene	ND		67.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	52.1			ug/kg wet	66.7		78	40-150		
Surrogate: Decachlorobiphenyl	62.0			ug/kg wet	66.7		93	40-150		

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	5.46		3.30	ug/kg wet	6.73		81	70-130		
alpha-BHC	5.11		3.30	ug/kg wet	6.67		77	70-130		
beta-BHC	6.94		3.30	ug/kg wet	6.67		104	70-130		
delta-BHC	4.70		3.30	ug/kg wet	6.67		70	70-130		
alpha-Chlordane	6.34		3.30	ug/kg wet	6.73		94	70-130		
gamma-Chlordane	6.17		3.30	ug/kg wet	6.73		92	70-130		
4,4'-DDD	11.9		6.70	ug/kg wet	13.3		89	70-130		
4,4'-DDE	11.8		6.70	ug/kg wet	13.4		88	70-130		
4,4'-DDT	13.2		6.70	ug/kg wet	13.4		98	70-130		
Dieldrin	11.9		6.70	ug/kg wet	13.3		90	70-130		
Endosulfan I	5.94		3.30	ug/kg wet	6.67		89	70-130		
Endosulfan II	12.0		6.70	ug/kg wet	13.4		89	70-130		
Endosulfan sulfate	13.9		6.70	ug/kg wet	13.3		104	70-130		
Endrin	13.7		6.70	ug/kg wet	13.5		101	70-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

CHLORINATED PESTICIDES BY EPA 8081B (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Endrin aldehyde	15.3		6.70	ug/kg wet	13.4		114	70-130		
Endrin ketone	12.8		6.70	ug/kg wet	13.4		96	70-130		
Heptachlor	6.12		3.30	ug/kg wet	6.73		91	70-130		
Heptachlor epoxide	6.00		3.30	ug/kg wet	6.67		90	70-130		
Lindane (gamma-BHC)	5.74		3.30	ug/kg wet	6.67		86	70-130		
Methoxychlor	74.8		33.0	ug/kg wet	67.3		111	70-130		
Surrogate: Tetrachloro-m-xylene	50.6			ug/kg wet	66.7		76	40-130		
Surrogate: Decachlorobiphenyl	54.5			ug/kg wet	66.7		82	40-130		

LCS (B907387-BS2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aldrin	ND		3.30	ug/kg wet				70-130		
alpha-BHC	ND		3.30	ug/kg wet				70-130		
beta-BHC	ND		3.30	ug/kg wet				70-130		
delta-BHC	ND		3.30	ug/kg wet				70-130		
alpha-Chlordane	ND		3.30	ug/kg wet				70-130		
gamma-Chlordane	ND		3.30	ug/kg wet				70-130		
4,4'-DDD	ND		6.70	ug/kg wet				70-130		
4,4'-DDE	ND		6.70	ug/kg wet				70-130		
4,4'-DDT	ND		6.70	ug/kg wet				70-130		
Dieldrin	ND		6.70	ug/kg wet				70-130		
Endosulfan I	ND		3.30	ug/kg wet				70-130		
Endosulfan II	ND		6.70	ug/kg wet				70-130		
Endosulfan sulfate	ND		6.70	ug/kg wet				70-130		
Endrin	ND		6.70	ug/kg wet				70-130		
Endrin aldehyde	ND		6.70	ug/kg wet				70-130		
Endrin ketone	ND		6.70	ug/kg wet				70-130		
Heptachlor	ND		3.30	ug/kg wet				70-130		
Heptachlor epoxide	ND		3.30	ug/kg wet				70-130		
Lindane (gamma-BHC)	ND		3.30	ug/kg wet				70-130		
Methoxychlor	ND		33.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.1			ug/kg wet	66.7		75	40-130		
Surrogate: Decachlorobiphenyl	56.3			ug/kg wet	66.7		85	40-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907380 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907380-BLK1)

Prepared: 07/26/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	52.9			ug/kg wet	66.7		79	40-150		
Surrogate: Decachlorobiphenyl	62.0			ug/kg wet	66.7		93	40-150		

Blank (B907380-BLK2)

Prepared: 07/26/19 Analyzed: 07/30/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	69.1			ug/kg wet	66.7		104	40-150		
Surrogate: Decachlorobiphenyl	67.3			ug/kg wet	66.7		101	40-150		

Blank (B907380-BLK3)

Prepared: 07/26/19 Analyzed: 07/30/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907380 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907380-BLK3)

Prepared: 07/26/19 Analyzed: 07/30/19

Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	51.7			ug/kg wet	66.7		78	40-150		
Surrogate: Decachlorobiphenyl	56.9			ug/kg wet	66.7		85	40-150		

LCS (B907380-BS1)

Prepared: 07/26/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	632		83.0	ug/kg wet	667		95	70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		
Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	650		83.0	ug/kg wet	667		97	70-130		
Surrogate: Tetrachloro-m-xylene	55.9			ug/kg wet	66.7		84	50-150		
Surrogate: Decachlorobiphenyl	103	S-GC		ug/kg wet	66.7		154	50-150		

LCS (B907380-BS2)

Prepared: 07/26/19 Analyzed: 07/30/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	563		83.0	ug/kg wet	667		84	70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		
Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	637		83.0	ug/kg wet	667		96	70-130		
Surrogate: Tetrachloro-m-xylene	46.4			ug/kg wet	66.7		70	50-150		
Surrogate: Decachlorobiphenyl	98.7			ug/kg wet	66.7		148	50-150		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907380 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907380-BS3)

Prepared: 07/26/19 Analyzed: 07/30/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	600		83.0	ug/kg wet	667		90	70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		
Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	520		83.0	ug/kg wet	667		78	70-130		
Surrogate: Tetrachloro-m-xylene	48.0			ug/kg wet	66.7		72	50-150		
Surrogate: Decachlorobiphenyl	76.3			ug/kg wet	66.7		115	50-150		

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	54.3			ug/kg wet	66.7		82	40-150		
Surrogate: Decachlorobiphenyl	58.6			ug/kg wet	66.7		88	40-150		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	52.1			ug/kg wet	66.7		78	40-150		
Surrogate: Decachlorobiphenyl	62.0			ug/kg wet	66.7		93	40-150		

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		
Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.6			ug/kg wet	66.7		76	50-150		
Surrogate: Decachlorobiphenyl	54.5			ug/kg wet	66.7		82	50-150		

LCS (B907387-BS2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	563		83.0	ug/kg wet	667		84	70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

1500 Caton Center Dr Suite G
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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907387-BS2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.1			ug/kg wet	66.7		75	50-150		
Surrogate: Decachlorobiphenyl	56.3			ug/kg wet	66.7		85	50-150		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907365 - 8151(Herbicides)

Blank (B907365-BLK1)

Prepared: 07/26/19 Analyzed: 07/30/19

2,4-D	ND		40.0	ug/kg wet						
2,4-DB	ND		40.0	ug/kg wet						
Dalapon	ND		80.0	ug/kg wet						
Dicamba	ND		40.0	ug/kg wet						
Dichlorprop	ND		40.0	ug/kg wet						
Dinoseb	ND		40.0	ug/kg wet						
MCPA	ND		8000	ug/kg wet						
MCPP	ND		8000	ug/kg wet						
2,4,5-T	ND		40.0	ug/kg wet						
2,4,5-TP (Silvex)	ND		40.0	ug/kg wet						
Surrogate: DCAA	372			ug/kg wet	500		74	50-150		

LCS (B907365-BS1)

Prepared: 07/26/19 Analyzed: 07/30/19

2,4-D	468		40.0	ug/kg wet	500		94	15-150		
2,4-DB	479		40.0	ug/kg wet	500		96	15-150		
Dalapon	537		80.0	ug/kg wet	1000		54	15-150		
Dicamba	450		40.0	ug/kg wet	500		90	15-150		
Dichlorprop	504		40.0	ug/kg wet	500		101	15-150		
Dinoseb	54.7		40.0	ug/kg wet	500		11	15-150		
MCPA	33700		8000	ug/kg wet	80000		42	15-150		
MCPP	45900		8000	ug/kg wet	80000		57	15-150		
2,4,5-T	482		40.0	ug/kg wet	500		96	15-150		
2,4,5-TP (Silvex)	484		40.0	ug/kg wet	500		97	15-150		
Surrogate: DCAA	414			ug/kg wet	500		83	50-150		

Duplicate (B907365-DUP1)

Source: 9072315-11

Prepared: 07/26/19 Analyzed: 07/30/19

2,4-D	ND		43.5	ug/kg dry		ND			200	
2,4-DB	ND		43.5	ug/kg dry		ND			200	
Dalapon	ND		87.0	ug/kg dry		ND			200	
Dicamba	ND		43.5	ug/kg dry		ND			200	
Dichlorprop	ND		43.5	ug/kg dry		ND			200	
Dinoseb	ND		43.5	ug/kg dry		ND			200	

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

CHLORINATED HERBICIDES BY EPA 8151A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907365 - 8151(Herbicides)

Duplicate (B907365-DUP1)		Source: 9072315-11			Prepared: 07/26/19 Analyzed: 07/30/19					
MCPA	ND	8700	ug/kg dry	ND					200	
MCPP	ND	8700	ug/kg dry	ND					200	
2,4,5-T	ND	43.5	ug/kg dry	ND					200	
2,4,5-TP (Silvex)	ND	43.5	ug/kg dry	ND					200	
Surrogate: DCAA	426		ug/kg dry	543		78		50-150		

Matrix Spike (B907365-MS1)		Source: 9072436-02			Prepared: 07/26/19 Analyzed: 07/30/19					
2,4-D	515	48.2	ug/kg dry	602	ND	86		10-150		
2,4-DB	619	48.2	ug/kg dry	602	ND	103		10-150		
Dalapon	485	96.4	ug/kg dry	1200	ND	40		10-150		
Dicamba	510	48.2	ug/kg dry	602	ND	85		10-150		
Dichlorprop	660	48.2	ug/kg dry	602	ND	110		10-150		
Dinoseb	103	48.2	ug/kg dry	602	ND	17		10-150		
MCPA	35700	9640	ug/kg dry	96400	ND	37		10-150		
MCPP	44500	9640	ug/kg dry	96400	ND	46		10-150		
2,4,5-T	525	48.2	ug/kg dry	602	ND	87		10-150		
2,4,5-TP (Silvex)	533	48.2	ug/kg dry	602	ND	88		10-150		
Surrogate: DCAA	468		ug/kg dry	602		78		50-150		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907452 - 3050B-Metals Digestion

Blank (B907452-BLK1)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	ND		0.250	mg/kg wet						
Barium	ND		0.250	mg/kg wet						
Cadmium	ND		0.250	mg/kg wet						
Chromium	ND		0.250	mg/kg wet						
Lead	ND		0.250	mg/kg wet						
Mercury	ND		0.0125	mg/kg wet						
Selenium	ND		0.250	mg/kg wet						
Silver	ND		0.250	mg/kg wet						

Blank (B907452-BLK2)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	ND		0.250	mg/kg wet						
Barium	ND		0.250	mg/kg wet						
Cadmium	ND		0.250	mg/kg wet						
Chromium	ND		0.250	mg/kg wet						
Lead	ND		0.250	mg/kg wet						
Mercury	ND		0.0125	mg/kg wet						
Selenium	ND		0.250	mg/kg wet						
Silver	ND		0.250	mg/kg wet						

LCS (B907452-BS1)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	1.42		0.250	mg/kg wet	1.25		113	80-120		
Barium	1.32		0.250	mg/kg wet	1.25		105	80-120		
Cadmium	1.40		0.250	mg/kg wet	1.25		112	80-120		
Chromium	1.35		0.250	mg/kg wet	1.25		108	80-120		
Lead	1.22		0.250	mg/kg wet	1.25		98	80-120		
Mercury	0.0588		0.0125	mg/kg wet	0.0625		94	80-120		
Selenium	1.38		0.250	mg/kg wet	1.25		110	80-120		
Silver	1.43		0.250	mg/kg wet	1.25		114	80-120		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907452 - 3050B-Metals Digestion

LCS (B907452-BS2)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	1.35		0.250	mg/kg wet	1.25		108	80-120		
Barium	1.25		0.250	mg/kg wet	1.25		100	80-120		
Cadmium	1.31		0.250	mg/kg wet	1.25		105	80-120		
Chromium	1.30		0.250	mg/kg wet	1.25		104	80-120		
Lead	1.13		0.250	mg/kg wet	1.25		91	80-120		
Mercury	0.0602		0.0125	mg/kg wet	0.0625		96	80-120		
Selenium	1.38		0.250	mg/kg wet	1.25		110	80-120		
Silver	1.36		0.250	mg/kg wet	1.25		108	80-120		

Duplicate (B907452-DUP1)

Source: 9072436-01

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	3.45		0.281	mg/kg dry		3.15			9	200
Barium	62.1		0.281	mg/kg dry		101			47	200
Cadmium	0.536		0.281	mg/kg dry		0.579			8	200
Chromium	22.5		0.281	mg/kg dry		16.9			28	200
Lead	66.0		0.281	mg/kg dry		43.3			42	200
Mercury	0.0336		0.0140	mg/kg dry		0.0298			12	200
Selenium	1.38		0.281	mg/kg dry		0.868			46	200
Silver	ND		0.281	mg/kg dry		ND				200

Duplicate (B907452-DUP2)

Source: 9072536-01

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	6.25		0.305	mg/kg dry		5.52			12	200
Barium	73.6		0.305	mg/kg dry		74.7			2	200
Cadmium	ND		0.305	mg/kg dry		ND				200
Chromium	48.2		0.305	mg/kg dry		44.6			8	200
Lead	10.4		0.305	mg/kg dry		11.2			7	200
Mercury	0.0380		0.0152	mg/kg dry		0.0338			12	200
Selenium	1.68		0.305	mg/kg dry		1.47			14	200
Silver	ND		0.305	mg/kg dry		ND				200

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907452 - 3050B-Metals Digestion

Matrix Spike (B907452-MS1)		Source: 9072436-01		Prepared: 07/31/19		Analyzed: 08/01/19	
Arsenic	6.20	0.281	mg/kg dry	2.81	3.15	109	80-120
Barium	68.8	0.281	mg/kg dry	2.81	101	NR	80-120
Cadmium	3.83	0.281	mg/kg dry	2.81	0.579	116	80-120
Chromium	21.2	0.281	mg/kg dry	2.81	16.9	153	80-120
Lead	100	0.281	mg/kg dry	2.81	43.3	NR	80-120
Mercury	0.182	0.0140	mg/kg dry	0.140	0.0298	108	80-120
Selenium	3.83	0.281	mg/kg dry	2.81	0.868	106	80-120
Silver	3.52	0.281	mg/kg dry	2.81	ND	125	80-120

Matrix Spike (B907452-MS2)		Source: 9072536-01		Prepared: 07/31/19		Analyzed: 08/01/19	
Arsenic	7.76	0.305	mg/kg dry	3.05	5.52	74	80-120
Barium	71.9	0.305	mg/kg dry	3.05	74.7	NR	80-120
Cadmium	3.17	0.305	mg/kg dry	3.05	ND	104	80-120
Chromium	45.1	0.305	mg/kg dry	3.05	44.6	15	80-120
Lead	12.5	0.305	mg/kg dry	3.05	11.2	45	80-120
Mercury	0.178	0.0152	mg/kg dry	0.152	0.0338	95	80-120
Selenium	3.87	0.305	mg/kg dry	3.05	1.47	79	80-120
Silver	3.22	0.305	mg/kg dry	3.05	ND	106	80-120

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

Chromium VI by EPA 7199 - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B9G0236 - EPA 3060										
Blank (B9G0236-BLK1)					Prepared: 07/31/19 Analyzed: 08/01/19					
Chromium VI	ND		0.0800	mg/kg wet						
LCS (B9G0236-BS1)					Prepared: 07/31/19 Analyzed: 08/01/19					
Chromium VI	3.77		0.0800	mg/kg wet	4.00		94.2	80-120		
Duplicate (B9G0236-DUP1)					Source: 9072436-17		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	0.238		0.0991	mg/kg dry		0.231			3.20	20
Matrix Spike (B9G0236-MS1)					Source: 9072436-17		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	5.35		0.100	mg/kg dry	5.02	0.231	102	75-125		
Matrix Spike (B9G0236-MS2)					Source: 9072436-17		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	1530		5.00	mg/kg dry	1610	ND	94.8	75-125		
Post Spike (B9G0236-PS1)					Source: 9072436-17		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	115			ug/L	100	2.31	112	80-120		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

Wet Chemistry - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B9G0243 - No Prep WC

Duplicate (B9G0243-DUP1)

Source: 9072436-01

Prepared & Analyzed: 07/31/19

% Solids	88.1		1.00	%		87.3			0.905	20

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/02/19 16:02

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-FAIL	Surrogate recovery was outside of established QC limits
S-BN	Base/Neutral surrogate recovery outside of control limits. The data was accepted based on valid recovery of remaining two base/neutral surrogates.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Company Name: EA Engineering			Project Manager: Vicki Pittman			Analysis Requested								CHAIN-OF-CUSTODY RECORD			
Project Name: Troy Hill Park Phase II			Project ID: 1483560			No. of Containers								Maryland Spectral Services, Inc. 1500 Caton Center Drive, Suite G Baltimore, MD 21227 410-247-7600 • Fax 410-247-7602 labman@mdspectral.com			
Sampler(s): Michael Thornton			P.O. Number: 19511			Matrix Codes: NW (nonpotable water) PW (potable water)								MSS Lab ID			
Field Sample ID	Date	Time	Water	Soil	Other	RCRA Metals (8) EPA 6020A	Cr+6 EPA 7199	PAHs EPA 8270D SIM	PCBs EPA 8082A	TPH GRO/DRO EPA 8015M	TCL Pesticides EPA 8081B	TCL Herbicides EPA 8151A	VOCs EPA 8260B	Preservative: 1+ 1 HCL, H ₂ SO ₄ , Methanol, Na ₂ S ₂ O ₃ , NaHCO ₃	Field pH, Residual Chlorine, QC Request, Trip Blank, Field Blank	MSS Lab ID	
TH-3D-TP01-0-2	7/24/19	0740	X			3	X	X	X	X	X	X	X			9072436-01	
TH-3D-TP01-4-5		0750				1	X	X	X	X	X	X				-02	
TH-2B-TP10-0-2		0840				1	X	X	X	X	X					-03	
TH-2B-TP10-4-5		0845				1	X	X	X	X	X					-04	
TH-2B-TP02-0-2		0915				1	X	X	X	X	X					-05	
TH-2B-TP02-4-5		0925				1	X	X	X	X	X					-06	
TH-2B-TP01-0-2		0945				1	X	X	X	X	X					-07	
TH-2B-TP01-4-5		0955				1	X	X	X	X	X					-08	
TH-2B-TP09-0-2		1030				1	X	X	X	X	X					-09	
TH-2B-TP09-4-5	7/24/19	1045	X			1	X	X	X	X	X					-10	
Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 7/24/19			Received by: (Signature) <i>[Signature]</i>			Relinquished by: (Signature) <i>[Signature]</i>			Date/Time 7/24/19			Received by: (Signature) <i>[Signature]</i>		
Relinquished by: (Signature) <i>Michael Thornton EA</i>			Date/Time 1540			Received by Lab: (Signature) <i>[Signature]</i>			Turn Around Time: Normal (7 day) ☒ 5 day ☐ 4 day ☐ 3 day Rush (2 day) ☐ Next Day Other: _____ Specific Due Date: _____			Lab Use: Temp: 22.5°C ☐ Received on Ice ☒ Received same day ☐ Preservation Appropriate			Sample Disposal: ☐ Return to Client ☒ Disposal by lab ☐ Archive for _____ days		
Delivery Method: ☐ Courier ☒ Client ☐ UPS ☐ FedEx ☐ USPS ☐ Other: _____			Special Instructions/QC Requirements & Comments: Discard held sample: TH-3D-TP03-15-2														

[illegible]

SUBCONTRACT ORDER
Maryland Spectral Services

9072436

5972720

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons
Reports Email: Reporting@mdspectral.com

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone: (410) 472-1112
Fax: (410) 472-1116

Auto-log Sent
Date/Initial _____

Due 4:00 PM 08/02/19

Laboratory ID

Comments

Sample ID: 9072436-01

TH-3D-TP01-0-2

Soil

Sampled:07/24/19 07:40

7199 - (Chromlum6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072436-02

TH-3D-TP01-4-5

Soil

Sampled:07/24/19 07:50

7199 - (Chromlum6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072436-03

TH-2B-TP10-0-2

Soil

Sampled:07/24/19 08:40

7199 - (Chromlum6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072436-04

TH-2B-TP10-4-5

Soil

Sampled:07/24/19 08:45

7199 - (Chromlum6)

Containers Supplied:

Glass Jar, 4 oz (C)

Released By

Date

Received By

Date

e B 28 7/30/19 B Brando 7/30/19 1320

Released By

Date

Received By

Date

File

SUBCONTRACT ORDER
Maryland Spectral Services

9072436

Due 4:00 PM 08/02/19

Laboratory ID

Comments

Sample ID: 9072436-05	TH-2B-TP02-0-2	Soil	Sampled:07/24/19 09:15	
<i>Containers Supplied:</i>				
<i>Glass Jar, 4 oz (C)</i>				
Sample ID: 9072436-06	TH-2B-TP02-4-5	Soil	Sampled:07/24/19 09:25	
<i>Containers Supplied:</i>				
<i>Glass Jar, 4 oz (C)</i>				
Sample ID: 9072436-07	TH-2B-TP01-0-2	Soil	Sampled:07/24/19 09:45	
<i>Containers Supplied:</i>				
<i>Glass Jar, 4 oz (C)</i>				
Sample ID: 9072436-08	TH-2B-TP01-4-5	Soil	Sampled:07/24/19 09:55	
<i>Containers Supplied:</i>				
<i>Glass Jar, 4 oz (C)</i>				
Sample ID: 9072436-09	TH-2B-TP09-0-2	Soil	Sampled:07/24/19 10:30	
<i>Containers Supplied:</i>				
<i>Glass Jar, 4 oz (C)</i>				

Released By <i>EB</i>	Date <i>7/30/19</i>	Received By <i>B. Bruckner</i>	Date <i>7/30/19 1320</i>

Released By	Date	Received By	Date

SUBCONTRACT ORDER
Maryland Spectral Services

9072436

Due 4:00 PM 08/02/19

Laboratory ID

Comments

Sample ID: 9072436-10

TH-2B-TP09-4.5

Soil

Sampled:07/24/19 10:45

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072436-11

TH-2B-TP08-0.2

Soil

Sampled:07/24/19 12:45

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072436-12

TH-2B-TP08-4.5

Soil

Sampled:07/24/19 13:00

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072436-13

TH-2B-TP05-0.2

Soil

Sampled:07/24/19 13:30

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072436-14

TH-2B-TP05-4.5

Soil

Sampled:07/24/19 13:40

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Released By

[Signature]

Date

7/30/19

Received By

[Signature]

Date

7/30/19

1320

Released By

Date

Received By

Date

SUBCONTRACT ORDER
Maryland Spectral Services
9072436

Due 4:00 PM 08/02/19

Laboratory ID

Comments

Sample ID: 9072436-15

TH-2B-TP04-0-2

Soil

Sampled:07/24/19 14:05

7199 - (Chromi um6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072436-16

TH-2B-TP04-4-5

Soil

Sampled:07/24/19 14:15

7199 - (Chromi um6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072436-17

DUP-3

Soil

Sampled:07/24/19 08:00

7199 - (Chromi um6)

Containers Supplied:

Glass Jar, 4 oz (C)

Released By

Date

Received By

Date

CB 8 7/30/19 JB 8 7/30/19 1320

Released By

Date

Received By

Date

05 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/25/19 16:45.

Please visit our website at www.mdspectral.com for a complete listing of our accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rabecka Koons
Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-2B-TP03-0-2		9072536-01	Soil	07/25/19 07:40	07/25/19 16:45
TH-2B-TP03-4-5		9072536-02	Soil	07/25/19 07:55	07/25/19 16:45
TH-2B-TP07-0-2		9072536-03	Soil	07/25/19 08:35	07/25/19 16:45
TH-2B-TP07-4-5		9072536-04	Soil	07/25/19 08:45	07/25/19 16:45
TH-2B-TP06-0-2		9072536-05	Soil	07/25/19 09:20	07/25/19 16:45
TH-2B-TP06-4-5		9072536-06	Soil	07/25/19 09:30	07/25/19 16:45
TH-2G-TP02-0-2		9072536-07	Soil	07/25/19 10:10	07/25/19 16:45
TH-2G-TP02-4-5		9072536-08	Soil	07/25/19 10:20	07/25/19 16:45
TH-2G-TP01-0-2		9072536-09	Soil	07/25/19 10:45	07/25/19 16:45
TH-2G-TP01-4-5		9072536-10	Soil	07/25/19 11:00	07/25/19 16:45

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP03-0-2

9072536-01 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Acenaphthylene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Anthracene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Benzo[a]anthracene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Benzo[a]pyrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Chrysene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Fluoranthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Fluorene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Naphthalene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Phenanthrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Pyrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 10:03	WB
Surrogate: Nitrobenzene-d5		23-120		67 %	08/01/19		08/02/19 10:03		
Surrogate: 2-Fluorobiphenyl		30-115		69 %	08/01/19		08/02/19 10:03		
Surrogate: Terphenyl-d14		18-137		89 %	08/01/19		08/02/19 10:03		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 18:36	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.8	9.8	1	08/01/19	08/02/19 14:39	SJA
Surrogate: o-Terphenyl		70-130		77 %	08/01/19		08/02/19 14:39		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP03-0-2

9072536-01 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	82		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1221	ND		ug/kg dry	207	207	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1232	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1242	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1248	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1254	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1260	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1262	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Aroclor-1268	ND		ug/kg dry	101	101	1	07/27/19	07/29/19 15:49	SJA
Surrogate: Tetrachloro-m-xylene		40-150		75 %			07/27/19	07/29/19 15:49	
Surrogate: Decachlorobiphenyl		40-150		89 %			07/27/19	07/29/19 15:49	
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	5.52		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:13	VVD
Barium	74.7		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:13	VVD
Cadmium	ND		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:13	VVD
Chromium	44.6		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:13	VVD
Lead	11.2		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:13	VVD
Mercury	0.0338		mg/kg dry	0.0152	0.0152	1	07/31/19	08/01/19 18:13	VVD
Selenium	1.47		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:13	VVD
Silver	ND		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:13	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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1500 Caton Center Dr Suite G
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www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP03-0-2

9072536-01 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0951	0.0951	1	07/31/19	08/01/19 19:27	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	82.0		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP03-4-5

9072536-02 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Acenaphthylene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Anthracene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Benzo[a]anthracene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Benzo[a]pyrene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Chrysene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Fluoranthene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Fluorene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Naphthalene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Phenanthrene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Pyrene	ND		ug/kg dry	12.5	12.5	1	08/01/19	08/02/19 10:26	WB
Surrogate: Nitrobenzene-d5			23-120	69 %	08/01/19		08/02/19 10:26		
Surrogate: 2-Fluorobiphenyl			30-115	68 %	08/01/19		08/02/19 10:26		
Surrogate: Terphenyl-d14			18-137	80 %	08/01/19		08/02/19 10:26		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/02/19	08/02/19 19:06	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.0	10.0	1	08/01/19	08/02/19 15:05	SJA
Surrogate: o-Terphenyl			70-130	75 %	08/01/19		08/02/19 15:05		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP03-4-5

9072536-02 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	80		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1221	ND		ug/kg dry	213	213	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1232	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1242	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1248	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1254	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1260	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1262	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Aroclor-1268	ND		ug/kg dry	104	104	1	07/27/19	07/29/19 17:13	SJA
Surrogate: Tetrachloro-m-xylene		40-150		76 %		07/27/19	07/29/19 17:13		
Surrogate: Decachlorobiphenyl		40-150		87 %		07/27/19	07/29/19 17:13		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	6.00		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 18:15	VVD
Barium	149		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 18:15	VVD
Cadmium	ND		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 18:15	VVD
Chromium	60.9		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 18:15	VVD
Lead	11.6		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 18:15	VVD
Mercury	0.0413		mg/kg dry	0.0156	0.0156	1	07/31/19	08/01/19 18:15	VVD
Selenium	2.10		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 18:15	VVD
Silver	ND		mg/kg dry	0.313	0.313	1	07/31/19	08/01/19 18:15	VVD

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

1500 Caton Center Dr Suite G
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410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP03-4-5

9072536-02 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.418		mg/kg dry	0.0970	0.0970	1	07/31/19	08/01/19 19:39	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	81.4		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP07-0-2

9072536-03 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Acenaphthylene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Anthracene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Benzo[a]anthracene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Benzo[a]pyrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Chrysene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Fluoranthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Fluorene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Naphthalene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Phenanthrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Pyrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 10:49	WB
Surrogate: Nitrobenzene-d5		23-120		71 %	08/01/19		08/02/19 10:49		
Surrogate: 2-Fluorobiphenyl		30-115		74 %	08/01/19		08/02/19 10:49		
Surrogate: Terphenyl-d14		18-137		86 %	08/01/19		08/02/19 10:49		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 19:35	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.6	9.6	1	08/01/19	08/02/19 15:32	SJA
Surrogate: o-Terphenyl		70-130		82 %	08/01/19		08/02/19 15:32		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP07-0-2

9072536-03 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	83		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1221	ND		ug/kg dry	205	205	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1232	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1242	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1248	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1254	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1260	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1262	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Aroclor-1268	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 17:40	SJA
Surrogate: Tetrachloro-m-xylene		40-150		71 %		07/27/19	07/29/19 17:40		
Surrogate: Decachlorobiphenyl		40-150		84 %		07/27/19	07/29/19 17:40		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.17		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:18	VVD
Barium	148		mg/kg dry	1.51	1.51	5	07/31/19	08/01/19 19:37	VVD
Cadmium	ND		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:18	VVD
Chromium	105		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:18	VVD
Lead	8.32		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:18	VVD
Mercury	0.0306		mg/kg dry	0.0151	0.0151	1	07/31/19	08/01/19 18:18	VVD
Selenium	1.89		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:18	VVD
Silver	ND		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:18	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP07-0-2

9072536-03 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.157		mg/kg dry	0.0925	0.0925	1	07/31/19	08/01/19 19:51	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	82.8		%	1.00	1.00	1	07/31/19	07/31/19 14:21	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP07-4-5

9072536-04 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Acenaphthylene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Benzo[a]anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Benzo[a]pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Chrysene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Fluorene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Naphthalene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Phenanthrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:12	WB
Surrogate: Nitrobenzene-d5		23-120		67 %	08/01/19		08/02/19 11:12		
Surrogate: 2-Fluorobiphenyl		30-115		70 %	08/01/19		08/02/19 11:12		
Surrogate: Terphenyl-d14		18-137		78 %	08/01/19		08/02/19 11:12		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/05/19	08/05/19 12:34	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.4	9.4	1	08/01/19	08/02/19 15:58	SJA
Surrogate: o-Terphenyl		70-130		83 %	08/01/19		08/02/19 15:58		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP07-4-5

9072536-04 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	85		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1221	ND		ug/kg dry	200	200	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1232	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1242	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1248	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1254	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1260	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1262	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Aroclor-1268	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 18:08	SJA
Surrogate: Tetrachloro-m-xylene		40-150		78 %		07/27/19	07/29/19 18:08		
Surrogate: Decachlorobiphenyl		40-150		91 %		07/27/19	07/29/19 18:08		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	6.41		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:31	VVD
Barium	185		mg/kg dry	1.47	1.47	5	07/31/19	08/01/19 19:45	VVD
Cadmium	ND		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:31	VVD
Chromium	153		mg/kg dry	1.47	1.47	5	07/31/19	08/01/19 19:45	VVD
Lead	3.42		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:31	VVD
Mercury	0.0190		mg/kg dry	0.0147	0.0147	1	07/31/19	08/01/19 18:31	VVD
Selenium	1.53		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:31	VVD
Silver	ND		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:31	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP07-4-5

9072536-04 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.122		mg/kg dry	0.0962	0.0962	1	07/31/19	08/01/19 20:03	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.3		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP06-0-2

9072536-05 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Acenaphthylene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Anthracene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Benzo[a]anthracene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Benzo[a]pyrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Chrysene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Fluoranthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Fluorene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Naphthalene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Phenanthrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Pyrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 11:35	WB
Surrogate: Nitrobenzene-d5		23-120		68 %	08/01/19		08/02/19 11:35		
Surrogate: 2-Fluorobiphenyl		30-115		75 %	08/01/19		08/02/19 11:35		
Surrogate: Terphenyl-d14		18-137		86 %	08/01/19		08/02/19 11:35		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/02/19	08/02/19 14:49	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.2	9.2	1	08/01/19	08/02/19 16:25	SJA
Surrogate: o-Terphenyl		70-130		87 %	08/01/19		08/02/19 16:25		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP06-0-2

9072536-05 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	87		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1221	ND		ug/kg dry	195	195	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1232	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1242	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1248	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1254	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1260	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1262	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Aroclor-1268	ND		ug/kg dry	95.4	95.4	1	07/27/19	07/29/19 18:36	SJA
Surrogate: Tetrachloro-m-xylene		40-150		80 %		07/27/19	07/29/19 18:36		
Surrogate: Decachlorobiphenyl		40-150		97 %		07/27/19	07/29/19 18:36		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.92		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:34	VVD
Barium	135		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:34	VVD
Cadmium	ND		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:34	VVD
Chromium	39.7		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:34	VVD
Lead	12.9		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:34	VVD
Mercury	0.0244		mg/kg dry	0.0144	0.0144	1	07/31/19	08/01/19 18:34	VVD
Selenium	1.98		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:34	VVD
Silver	ND		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 18:34	VVD

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP06-0-2

9072536-05 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.122		mg/kg dry	0.0906	0.0906	1	07/31/19	08/01/19 20:14	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.7		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP06-4-5

9072536-06 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Acenaphthylene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Benzo[a]anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Benzo[a]pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Chrysene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Fluorene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Naphthalene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Phenanthrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 11:58	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	08/01/19		08/02/19 11:58		
Surrogate: 2-Fluorobiphenyl		30-115		69 %	08/01/19		08/02/19 11:58		
Surrogate: Terphenyl-d14		18-137		89 %	08/01/19		08/02/19 11:58		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 15:19	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.4	9.4	1	08/01/19	08/02/19 16:51	SJA
Surrogate: o-Terphenyl		70-130		83 %	08/01/19		08/02/19 16:51		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP06-4-5

9072536-06 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	85		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1221	ND		ug/kg dry	200	200	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1232	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1242	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1248	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1254	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1260	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1262	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Aroclor-1268	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:03	SJA
Surrogate: Tetrachloro-m-xylene		40-150		77 %		07/27/19	07/29/19 19:03		
Surrogate: Decachlorobiphenyl		40-150		86 %		07/27/19	07/29/19 19:03		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.81		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:42	VVD
Barium	71.8		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:42	VVD
Cadmium	ND		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:42	VVD
Chromium	35.1		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:42	VVD
Lead	8.27		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:42	VVD
Mercury	ND		mg/kg dry	0.0147	0.0147	1	07/31/19	08/01/19 18:42	VVD
Selenium	2.61		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:42	VVD
Silver	ND		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:42	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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410-247-7600
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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2B-TP06-4-5

9072536-06 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0966	0.0966	1	07/31/19	08/01/19 20:26	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.5		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP02-0-2

9072536-07 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Acenaphthylene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Benzo[a]anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Benzo[a]pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Chrysene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Fluorene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Naphthalene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Phenanthrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Pyrene	ND		ug/kg dry	11.8	11.8	1	08/01/19	08/02/19 12:21	WB
Surrogate: Nitrobenzene-d5		23-120		74 %	08/01/19		08/02/19 12:21		
Surrogate: 2-Fluorobiphenyl		30-115		77 %	08/01/19		08/02/19 12:21		
Surrogate: Terphenyl-d14		18-137		86 %	08/01/19		08/02/19 12:21		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 15:49	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.4	9.4	1	08/01/19	08/02/19 17:18	SJA
Surrogate: o-Terphenyl		70-130		82 %	08/01/19		08/02/19 17:18		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP02-0-2

9072536-07 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	85		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1221	ND		ug/kg dry	200	200	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1232	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1242	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1248	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1254	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1260	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1262	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Aroclor-1268	ND		ug/kg dry	97.6	97.6	1	07/27/19	07/29/19 19:31	SJA
Surrogate: Tetrachloro-m-xylene		40-150		79 %		07/27/19	07/29/19 19:31		
Surrogate: Decachlorobiphenyl		40-150		89 %		07/27/19	07/29/19 19:31		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	7.36		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:44	VVD
Barium	90.0		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:44	VVD
Cadmium	ND		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:44	VVD
Chromium	53.2		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:44	VVD
Lead	40.2		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:44	VVD
Mercury	0.0457		mg/kg dry	0.0147	0.0147	1	07/31/19	08/01/19 18:44	VVD
Selenium	2.31		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:44	VVD
Silver	ND		mg/kg dry	0.294	0.294	1	07/31/19	08/01/19 18:44	VVD

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Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP02-0-2

9072536-07 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.176		mg/kg dry	0.0915	0.0915	1	07/31/19	08/01/19 20:38	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.6		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP02-4-5

9072536-08 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Acenaphthylene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Anthracene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Benzo[a]anthracene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Benzo[a]pyrene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Chrysene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Fluoranthene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Fluorene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Naphthalene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Phenanthrene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Pyrene	ND		ug/kg dry	13.3	13.3	1	08/01/19	08/02/19 12:44	WB
Surrogate: Nitrobenzene-d5		23-120		74 %	08/01/19		08/02/19 12:44		
Surrogate: 2-Fluorobiphenyl		30-115		73 %	08/01/19		08/02/19 12:44		
Surrogate: Terphenyl-d14		18-137		80 %	08/01/19		08/02/19 12:44		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/02/19	08/02/19 16:19	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.7	10.7	1	08/01/19	08/02/19 17:44	SJA
Surrogate: o-Terphenyl		70-130		77 %	08/01/19		08/02/19 17:44		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP02-4-5

9072536-08 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	75		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1221	ND		ug/kg dry	227	227	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1232	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1242	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1248	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1254	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1260	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1262	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Aroclor-1268	ND		ug/kg dry	111	111	1	07/27/19	07/29/19 19:59	SJA
Surrogate: Tetrachloro-m-xylene		40-150		75 %			07/27/19	07/29/19 19:59	
Surrogate: Decachlorobiphenyl		40-150		84 %			07/27/19	07/29/19 19:59	
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.02		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 18:47	VVD
Barium	187		mg/kg dry	1.67	1.67	5	07/31/19	08/01/19 19:47	VVD
Cadmium	ND		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 18:47	VVD
Chromium	17.6		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 18:47	VVD
Lead	12.0		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 18:47	VVD
Mercury	0.0223		mg/kg dry	0.0167	0.0167	1	07/31/19	08/01/19 18:47	VVD
Selenium	1.88		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 18:47	VVD
Silver	ND		mg/kg dry	0.333	0.333	1	07/31/19	08/01/19 18:47	VVD

Rabecka Koons

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP02-4-5

9072536-08 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.103	0.103	1	07/31/19	08/01/19 20:50	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	75.7		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP01-0-2

9072536-09 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Acenaphthylene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Anthracene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Benzo[a]anthracene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Benzo[a]pyrene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Chrysene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Fluorene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Naphthalene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Phenanthrene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Pyrene	ND		ug/kg dry	11.6	11.6	1	08/01/19	08/02/19 13:07	WB
Surrogate: Nitrobenzene-d5		23-120		73 %	08/01/19		08/02/19 13:07		
Surrogate: 2-Fluorobiphenyl		30-115		80 %	08/01/19		08/02/19 13:07		
Surrogate: Terphenyl-d14		18-137		86 %	08/01/19		08/02/19 13:07		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 16:50	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	10.8		mg/kg dry	9.3	9.3	1	08/01/19	08/02/19 18:11	SJA
Surrogate: o-Terphenyl		70-130		82 %	08/01/19		08/02/19 18:11		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP01-0-2

9072536-09 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	86		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	07/27/19	07/29/19 20:27	SJA
Surrogate: Tetrachloro-m-xylene		40-150		79 %		07/27/19	07/29/19 20:27		
Surrogate: Decachlorobiphenyl		40-150		85 %		07/27/19	07/29/19 20:27		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	5.27		mg/kg dry	0.291	0.291	1	07/31/19	08/01/19 18:50	VVD
Barium	114		mg/kg dry	0.291	0.291	1	07/31/19	08/01/19 18:50	VVD
Cadmium	ND		mg/kg dry	0.291	0.291	1	07/31/19	08/01/19 18:50	VVD
Chromium	57.8		mg/kg dry	0.291	0.291	1	07/31/19	08/01/19 18:50	VVD
Lead	52.2		mg/kg dry	0.291	0.291	1	07/31/19	08/01/19 18:50	VVD
Mercury	0.0472		mg/kg dry	0.0145	0.0145	1	07/31/19	08/01/19 18:50	VVD
Selenium	2.89		mg/kg dry	0.291	0.291	1	07/31/19	08/01/19 18:50	VVD
Silver	ND		mg/kg dry	0.291	0.291	1	07/31/19	08/01/19 18:50	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP01-0-2

9072536-09 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.143		mg/kg dry	0.0944	0.0944	1	07/31/19	08/01/19 21:02	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	86.9		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP01-4-5

9072536-10 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Acenaphthylene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Anthracene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Benzo[a]anthracene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Benzo[a]pyrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Chrysene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Fluoranthene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Fluorene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Naphthalene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Phenanthrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Pyrene	ND		ug/kg dry	12.0	12.0	1	08/01/19	08/02/19 13:30	WB
Surrogate: Nitrobenzene-d5		23-120		71 %	08/01/19		08/02/19 13:30		
Surrogate: 2-Fluorobiphenyl		30-115		72 %	08/01/19		08/02/19 13:30		
Surrogate: Terphenyl-d14		18-137		79 %	08/01/19		08/02/19 13:30		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 17:20	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.6	9.6	1	08/01/19	08/02/19 18:38	SJA
Surrogate: o-Terphenyl		70-130		83 %	08/01/19		08/02/19 18:38		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP01-4-5

9072536-10 (Soil)

Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	83		%			1	08/01/19	08/02/19 10:28	AL
POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1221	ND		ug/kg dry	205	205	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1232	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1242	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1248	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1254	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1260	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1262	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Aroclor-1268	ND		ug/kg dry	100	100	1	07/27/19	07/29/19 20:54	SJA
Surrogate: Tetrachloro-m-xylene			40-150	78 %			07/27/19	07/29/19 20:54	
Surrogate: Decachlorobiphenyl			40-150	85 %			07/27/19	07/29/19 20:54	
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.98		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:52	VVD
Barium	160	E	mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:52	VVD
Cadmium	ND		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:52	VVD
Chromium	30.3		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:52	VVD
Lead	13.0		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:52	VVD
Mercury	0.0244		mg/kg dry	0.0151	0.0151	1	07/31/19	08/01/19 18:52	VVD
Selenium	4.18		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:52	VVD
Silver	ND		mg/kg dry	0.301	0.301	1	07/31/19	08/01/19 18:52	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TH-2G-TP01-4-5

9072536-10 (Soil)
Sample Date: 07/25/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.182		mg/kg dry	0.0922	0.0922	1	07/31/19	08/01/19 21:14	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	82.7		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B908017 - 3540-GCMS(Soxhlet)

Blank (B908017-BLK1)

Prepared: 08/01/19 Analyzed: 08/02/19

Acenaphthene	ND		10.0	ug/kg wet						
Acenaphthylene	ND		10.0	ug/kg wet						
Anthracene	ND		10.0	ug/kg wet						
Benzo[a]anthracene	ND		10.0	ug/kg wet						
Benzo[b]fluoranthene	ND		10.0	ug/kg wet						
Benzo[k]fluoranthene	ND		10.0	ug/kg wet						
Benzo[ghi]perylene	ND		10.0	ug/kg wet						
Benzo[a]pyrene	ND		10.0	ug/kg wet						
Chrysene	ND		10.0	ug/kg wet						
Dibenzo[a,h]anthracene	ND		10.0	ug/kg wet						
Fluoranthene	ND		10.0	ug/kg wet						
Fluorene	ND		10.0	ug/kg wet						
Indeno[1,2,3-cd]pyrene	ND		10.0	ug/kg wet						
1-Methylnaphthalene	ND		10.0	ug/kg wet						
2-Methylnaphthalene	ND		10.0	ug/kg wet						
N-Nitroso-di-n-propylamine	ND		10.0	ug/kg wet						
Naphthalene	ND		10.0	ug/kg wet						
Phenanthrene	ND		10.0	ug/kg wet						
Pyrene	ND		10.0	ug/kg wet						
Surrogate: Nitrobenzene-d5	37.8			ug/kg wet	50.0		76	23-120		
Surrogate: 2-Fluorobiphenyl	40.7			ug/kg wet	50.0		81	30-115		
Surrogate: Terphenyl-d14	47.7			ug/kg wet	50.0		95	18-137		

Blank (B908017-BLK2)

Prepared: 08/01/19 Analyzed: 08/02/19

Acenaphthene	ND		10.0	ug/kg wet						
Acenaphthylene	ND		10.0	ug/kg wet						
Anthracene	ND		10.0	ug/kg wet						
Benzo[a]anthracene	ND		10.0	ug/kg wet						
Benzo[b]fluoranthene	ND		10.0	ug/kg wet						
Benzo[k]fluoranthene	ND		10.0	ug/kg wet						
Benzo[ghi]perylene	ND		10.0	ug/kg wet						
Benzo[a]pyrene	ND		10.0	ug/kg wet						

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B908017 - 3540-GCMS(Soxhlet)

Blank (B908017-BLK2)

Prepared: 08/01/19 Analyzed: 08/02/19

Chrysene	ND		10.0	ug/kg wet						
Dibenzo[a,h]anthracene	ND		10.0	ug/kg wet						
Fluoranthene	ND		10.0	ug/kg wet						
Fluorene	ND		10.0	ug/kg wet						
Indeno[1,2,3-cd]pyrene	ND		10.0	ug/kg wet						
1-Methylnaphthalene	ND		10.0	ug/kg wet						
2-Methylnaphthalene	ND		10.0	ug/kg wet						
N-Nitroso-di-n-propylamine	ND		10.0	ug/kg wet						
Naphthalene	ND		10.0	ug/kg wet						
Phenanthrene	ND		10.0	ug/kg wet						
Pyrene	ND		10.0	ug/kg wet						
Surrogate: Nitrobenzene-d5	38.4			ug/kg wet	50.0		77	23-120		
Surrogate: 2-Fluorobiphenyl	40.4			ug/kg wet	50.0		81	30-115		
Surrogate: Terphenyl-d14	47.3			ug/kg wet	50.0		95	18-137		

LCS (B908017-BS1)

Prepared: 08/01/19 Analyzed: 08/02/19

Acenaphthene	19		10.0	ug/kg wet	25.0		75	50-130		
Acenaphthylene	20		10.0	ug/kg wet	25.0		78	50-130		
Anthracene	19		10.0	ug/kg wet	25.0		77	50-130		
Benzo[a]anthracene	20		10.0	ug/kg wet	25.0		80	50-130		
Benzo[b]fluoranthene	20		10.0	ug/kg wet	25.0		79	50-130		
Benzo[k]fluoranthene	19		10.0	ug/kg wet	25.0		76	50-130		
Benzo[ghi]perylene	18		10.0	ug/kg wet	25.0		72	50-130		
Benzo[a]pyrene	19		10.0	ug/kg wet	25.0		75	50-130		
Chrysene	20		10.0	ug/kg wet	25.0		81	50-130		
Dibenzo[a,h]anthracene	18		10.0	ug/kg wet	25.0		72	50-130		
Fluoranthene	21		10.0	ug/kg wet	25.0		84	50-130		
Fluorene	19		10.0	ug/kg wet	25.0		76	50-130		
Indeno[1,2,3-cd]pyrene	17		10.0	ug/kg wet	25.0		69	50-130		
1-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
2-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
N-Nitroso-di-n-propylamine	16		10.0	ug/kg wet	25.0		65	50-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B908017 - 3540-GCMS(Soxhlet)

LCS (B908017-BS1)

Prepared: 08/01/19 Analyzed: 08/02/19

Naphthalene	21		10.0	ug/kg wet	25.0		83	50-130		
Phenanthrene	20		10.0	ug/kg wet	25.0		80	50-130		
Pyrene	21		10.0	ug/kg wet	25.0		83	50-130		
Surrogate: Nitrobenzene-d5	37.2			ug/kg wet	50.0		74	23-120		
Surrogate: 2-Fluorobiphenyl	40.6			ug/kg wet	50.0		81	30-115		
Surrogate: Terphenyl-d14	46.7			ug/kg wet	50.0		93	18-137		

LCS (B908017-BS2)

Prepared: 08/01/19 Analyzed: 08/02/19

Acenaphthene	19		10.0	ug/kg wet	25.0		77	50-130		
Acenaphthylene	20		10.0	ug/kg wet	25.0		78	50-130		
Anthracene	19		10.0	ug/kg wet	25.0		77	50-130		
Benzo[a]anthracene	21		10.0	ug/kg wet	25.0		82	50-130		
Benzo[b]fluoranthene	20		10.0	ug/kg wet	25.0		78	50-130		
Benzo[k]fluoranthene	19		10.0	ug/kg wet	25.0		77	50-130		
Benzo[ghi]perylene	18		10.0	ug/kg wet	25.0		74	50-130		
Benzo[a]pyrene	18		10.0	ug/kg wet	25.0		72	50-130		
Chrysene	20		10.0	ug/kg wet	25.0		81	50-130		
Dibenzo[a,h]anthracene	19		10.0	ug/kg wet	25.0		74	50-130		
Fluoranthene	21		10.0	ug/kg wet	25.0		85	50-130		
Fluorene	20		10.0	ug/kg wet	25.0		80	50-130		
Indeno[1,2,3-cd]pyrene	18		10.0	ug/kg wet	25.0		72	50-130		
1-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
2-Methylnaphthalene	ND		10.0	ug/kg wet				50-110		
N-Nitroso-di-n-propylamine	17		10.0	ug/kg wet	25.0		67	50-130		
Naphthalene	21		10.0	ug/kg wet	25.0		83	50-130		
Phenanthrene	20		10.0	ug/kg wet	25.0		80	50-130		
Pyrene	21		10.0	ug/kg wet	25.0		84	50-130		
Surrogate: Nitrobenzene-d5	38.0			ug/kg wet	50.0		76	23-120		
Surrogate: 2-Fluorobiphenyl	40.9			ug/kg wet	50.0		82	30-115		
Surrogate: Terphenyl-d14	48.0			ug/kg wet	50.0		96	18-137		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

GASOLINE RANGE ORGANICS BY EPA 5030/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B908031 - 5030-GC

Blank (B908031-BLK1)

Prepared & Analyzed: 08/02/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	425			ug/L	400		106	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	425			ug/L	400		106	85-115		

LCS (B908031-BS1)

Prepared & Analyzed: 08/02/19

Gasoline-Range Organics	0.25		0.10	mg/kg wet	0.290		87	70-130		
Surrogate: a,a,a-Trifluorotoluene	418			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	418			ug/L	400		104	85-115		

Batch B908058 - 5030-GC

Blank (B908058-BLK1)

Prepared & Analyzed: 08/05/19

Gasoline-Range Organics	ND		0.10	mg/kg wet						
Surrogate: a,a,a-Trifluorotoluene	426			ug/L	400		106	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	426			ug/L	400		106	85-115		

LCS (B908058-BS1)

Prepared & Analyzed: 08/05/19

Gasoline-Range Organics	0.18		0.10	mg/kg wet	0.145		125	70-130		
Surrogate: a,a,a-Trifluorotoluene	415			ug/L	400		104	85-115		
Surrogate: a,a,a-Trifluorotoluene [2C]	415			ug/L	400		104	85-115		

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Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

DIESEL RANGE ORGANICS BY EPA 3540/8015C - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B908016 - 3540-GC(Soxhlet)

Blank (B908016-BLK1)

Prepared: 08/01/19 Analyzed: 08/02/19

Diesel-Range Organics	ND		8.0	mg/kg wet						
Surrogate: o-Terphenyl	1.77			mg/kg wet	2.00		88	70-130		

LCS (B908016-BS1)

Prepared: 08/01/19 Analyzed: 08/02/19

Diesel-Range Organics	16.7		8.0	mg/kg wet	20.0		83	60-130		
Surrogate: o-Terphenyl	1.72			mg/kg wet	2.00		86	70-130		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

Blank (B907387-BLK1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	54.3			ug/kg wet	66.7		82	40-150		
Surrogate: Decachlorobiphenyl	58.6			ug/kg wet	66.7		88	40-150		

Blank (B907387-BLK2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet						
Aroclor-1221	ND		170	ug/kg wet						
Aroclor-1232	ND		83.0	ug/kg wet						
Aroclor-1242	ND		83.0	ug/kg wet						
Aroclor-1248	ND		83.0	ug/kg wet						
Aroclor-1254	ND		83.0	ug/kg wet						
Aroclor-1260	ND		83.0	ug/kg wet						
Aroclor-1262	ND		83.0	ug/kg wet						
Aroclor-1268	ND		83.0	ug/kg wet						
Surrogate: Tetrachloro-m-xylene	52.1			ug/kg wet	66.7		78	40-150		
Surrogate: Decachlorobiphenyl	62.0			ug/kg wet	66.7		93	40-150		

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	ND		83.0	ug/kg wet				70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

POLYCHLORINATED BIPHENYLS BY EPA 3540/8082A (GC/ECD) - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907387 - 3540-GC(Soxhlet) CIPestPCB

LCS (B907387-BS1)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.6			ug/kg wet	66.7		76	50-150		
Surrogate: Decachlorobiphenyl	54.5			ug/kg wet	66.7		82	50-150		

LCS (B907387-BS2)

Prepared: 07/27/19 Analyzed: 07/29/19

Aroclor-1016	ND		83.0	ug/kg wet				70-130		
Aroclor-1221	ND		170	ug/kg wet				70-130		
Aroclor-1232	ND		83.0	ug/kg wet				70-130		
Aroclor-1242	ND		83.0	ug/kg wet				70-130		
Aroclor-1248	563		83.0	ug/kg wet	667		84	70-130		
Aroclor-1254	ND		83.0	ug/kg wet				70-130		
Aroclor-1260	ND		83.0	ug/kg wet				70-130		
Aroclor-1262	ND		83.0	ug/kg wet				70-130		
Aroclor-1268	ND		83.0	ug/kg wet				70-130		
Surrogate: Tetrachloro-m-xylene	50.1			ug/kg wet	66.7		75	50-150		
Surrogate: Decachlorobiphenyl	56.3			ug/kg wet	66.7		85	50-150		

Rabecka Koons

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907452 - 3050B-Metals Digestion

Blank (B907452-BLK1)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	ND		0.250	mg/kg wet
Barium	ND		0.250	mg/kg wet
Cadmium	ND		0.250	mg/kg wet
Chromium	ND		0.250	mg/kg wet
Lead	ND		0.250	mg/kg wet
Mercury	ND		0.0125	mg/kg wet
Selenium	ND		0.250	mg/kg wet
Silver	ND		0.250	mg/kg wet

Blank (B907452-BLK2)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	ND		0.250	mg/kg wet
Barium	ND		0.250	mg/kg wet
Cadmium	ND		0.250	mg/kg wet
Chromium	ND		0.250	mg/kg wet
Lead	ND		0.250	mg/kg wet
Mercury	ND		0.0125	mg/kg wet
Selenium	ND		0.250	mg/kg wet
Silver	ND		0.250	mg/kg wet

LCS (B907452-BS1)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	1.42		0.250	mg/kg wet	1.25	113	80-120
Barium	1.32		0.250	mg/kg wet	1.25	105	80-120
Cadmium	1.40		0.250	mg/kg wet	1.25	112	80-120
Chromium	1.35		0.250	mg/kg wet	1.25	108	80-120
Lead	1.22		0.250	mg/kg wet	1.25	98	80-120
Mercury	0.0588		0.0125	mg/kg wet	0.0625	94	80-120
Selenium	1.38		0.250	mg/kg wet	1.25	110	80-120
Silver	1.43		0.250	mg/kg wet	1.25	114	80-120

Rabecka Koons

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907452 - 3050B-Metals Digestion

LCS (B907452-BS2)

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	1.35		0.250	mg/kg wet	1.25		108	80-120		
Barium	1.25		0.250	mg/kg wet	1.25		100	80-120		
Cadmium	1.31		0.250	mg/kg wet	1.25		105	80-120		
Chromium	1.30		0.250	mg/kg wet	1.25		104	80-120		
Lead	1.13		0.250	mg/kg wet	1.25		91	80-120		
Mercury	0.0602		0.0125	mg/kg wet	0.0625		96	80-120		
Selenium	1.38		0.250	mg/kg wet	1.25		110	80-120		
Silver	1.36		0.250	mg/kg wet	1.25		108	80-120		

Duplicate (B907452-DUP1)

Source: 9072436-01

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	3.45		0.281	mg/kg dry		3.15			9	200
Barium	62.1		0.281	mg/kg dry		101			47	200
Cadmium	0.536		0.281	mg/kg dry		0.579			8	200
Chromium	22.5		0.281	mg/kg dry		16.9			28	200
Lead	66.0		0.281	mg/kg dry		43.3			42	200
Mercury	0.0336		0.0140	mg/kg dry		0.0298			12	200
Selenium	1.38		0.281	mg/kg dry		0.868			46	200
Silver	ND		0.281	mg/kg dry		ND				200

Duplicate (B907452-DUP2)

Source: 9072536-01

Prepared: 07/31/19 Analyzed: 08/01/19

Arsenic	6.25		0.305	mg/kg dry		5.52			12	200
Barium	73.6		0.305	mg/kg dry		74.7			2	200
Cadmium	ND		0.305	mg/kg dry		ND				200
Chromium	48.2		0.305	mg/kg dry		44.6			8	200
Lead	10.4		0.305	mg/kg dry		11.2			7	200
Mercury	0.0380		0.0152	mg/kg dry		0.0338			12	200
Selenium	1.68		0.305	mg/kg dry		1.47			14	200
Silver	ND		0.305	mg/kg dry		ND				200

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

TOTAL METALS ANALYSIS BY EPA 3050B/6020A - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B907452 - 3050B-Metals Digestion

Matrix Spike (B907452-MS1)		Source: 9072436-01		Prepared: 07/31/19		Analyzed: 08/01/19	
Arsenic	6.20	0.281	mg/kg dry	2.81	3.15	109	80-120
Barium	68.8	0.281	mg/kg dry	2.81	101	NR	80-120
Cadmium	3.83	0.281	mg/kg dry	2.81	0.579	116	80-120
Chromium	21.2	0.281	mg/kg dry	2.81	16.9	153	80-120
Lead	100	0.281	mg/kg dry	2.81	43.3	NR	80-120
Mercury	0.182	0.0140	mg/kg dry	0.140	0.0298	108	80-120
Selenium	3.83	0.281	mg/kg dry	2.81	0.868	106	80-120
Silver	3.52	0.281	mg/kg dry	2.81	ND	125	80-120

Matrix Spike (B907452-MS2)		Source: 9072536-01		Prepared: 07/31/19		Analyzed: 08/01/19	
Arsenic	7.76	0.305	mg/kg dry	3.05	5.52	74	80-120
Barium	71.9	0.305	mg/kg dry	3.05	74.7	NR	80-120
Cadmium	3.17	0.305	mg/kg dry	3.05	ND	104	80-120
Chromium	45.1	0.305	mg/kg dry	3.05	44.6	15	80-120
Lead	12.5	0.305	mg/kg dry	3.05	11.2	45	80-120
Mercury	0.178	0.0152	mg/kg dry	0.152	0.0338	95	80-120
Selenium	3.87	0.305	mg/kg dry	3.05	1.47	79	80-120
Silver	3.22	0.305	mg/kg dry	3.05	ND	106	80-120

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

Chromium VI by EPA 7199 - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B9G0237 - EPA 3060										
Blank (B9G0237-BLK1)					Prepared: 07/31/19 Analyzed: 08/01/19					
Chromium VI	ND		0.0800	mg/kg wet						
LCS (B9G0237-BS1)					Prepared: 07/31/19 Analyzed: 08/01/19					
Chromium VI	4.59		0.0800	mg/kg wet	4.00		115	80-120		
Duplicate (B9G0237-DUP1)					Source: E059729-11		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	ND		0.0941	mg/kg dry		ND			20	
Matrix Spike (B9G0237-MS1)					Source: E059729-11		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	4.92		0.0921	mg/kg dry	4.61	ND	107	75-125		
Matrix Spike (B9G0237-MS2)					Source: E059729-11		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	1410		4.89	mg/kg dry	1550	ND	90.6	75-125		
Post Spike (B9G0237-PS1)					Source: E059729-11		Prepared: 07/31/19 Analyzed: 08/01/19			
Chromium VI	102			ug/L	100	0.529	102	80-120		

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

Wet Chemistry - Quality Control

Analyte	Result	Notes	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Batch B9G0243 - No Prep WC

Duplicate (B9G0243-DUP1)			Source: E059727-01			Prepared & Analyzed: 07/31/19				
% Solids	88.1		1.00	%		87.3			0.905	20

Batch B9H0006 - No Prep WC

Duplicate (B9H0006-DUP1)			Source: 9072536-04			Prepared & Analyzed: 08/01/19				
% Solids	85.5		1.00	%		84.3			1.47	20

Rabecka Koons

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Rabecka Koons, Quality Assurance Officer

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
MD DW LabID 153

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/05/19 15:43

Notes and Definitions

E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Company Name: EA Engineering			Project Manager: Vicki Pittman			CHAIN-OF-CUSTODY RECORD														
Project Name: Troy Hill Park Phase II			Project ID: 1483560			Analysis Requested														
Sampler(s): Michael Thornton			P.O. Number: 19511			Matrix Codes: NW (nonpotable water) PW (potable water)														
Field Sample ID			Date	Time	Water	Soil	Other	No. of Containers				Preservative: 1 + 1 HCL, H ₂ SO ₄ , Methanol, Na ₂ S ₂ O ₃ , NaHCO ₃						Field pH, Residual Chlorine, QC Request, Trip Blank, Field Blank		MSS Lab ID
TH-2B-TP03-0-2			7/25/19	0740		X			3	X	X	X	X	X	X	X		9072536-01		
TH-2B-TP03-4-5				0755														-02		
TH-2B-TP07-0-2				0835														-03		
TH-2B-TP07-4-5				0845														-04		
TH-2B-TP06-0-2				0920														-05		
TH-2B-TP06-4-5				0930														-06		
TH-2G-TP02-0-2				1010														-07		
TH-2G-TP02-4-5				1020														-08		
TH-2G-TP01-0-2				1045														-09		
TH-2G-TP01-4-5				1100														-10		
Relinquished by: (Signature) <i>Michael Thornton</i> (Printed) Michael Thornton EA			Date/Time 7/25/19 1645			Received by: (Signature) <i>[Signature]</i> (Printed) [Name]			Relinquished by: (Signature) <i>[Signature]</i> (Printed) [Name]			Date/Time			Received by: (Signature) <i>[Signature]</i> (Printed) [Name]					
Relinquished by: (Signature) <i>[Signature]</i> (Printed) [Name]			Date/Time 7/25/19 1645			Received by Lab: (Signature) <i>[Signature]</i> (Printed) [Name]			Turn Around Time: Normal (7 day) ☒ 5 day ☐ 4 day ☐ 3 day ☐ Rush (2 day) ☐ Next Day ☐ Other: _____ Specific Due Date: _____			Lab Use: Temp: 5.0°C ☒ Received on Ice ☒ Received same day ☐ Preservation appropriate Sample Disposal: ☐ Return to Client ☒ Disposal by lab ☐ Archive for _____ days								
Delivery Method: ☐ Courier ☒ Client ☐ UPS ☐ FedEx ☐ USPS ☐ Other: _____			Special Instructions/QC Requirements & Comments: <i>Greedy in Wall</i>																	

SUBCONTRACT ORDER
Maryland Spectral Services

9072536

59728

SENDING LABORATORY:

Maryland Spectral Services

1500 Caton Center Dr. Suite G

Halethorpe, MD 21227

Phone: 410.247.7600

Project Manager: Cory Koons

Reports Email: Reporting@mdspectral.com

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc

47 Loveton Circle, Suite K

Sparks, MD 21152

Phone: (410) 472-1112

Fax: (410) 472-1116

Auto-log Sent
Date/Initial
7/30/19 / KS

Due 4:00 PM 08/05/19

Sample ID: 9072536-01

TH-2B-TP03-0-2

Soil

Sampled:07/25/19 07:40

Laboratory ID

Comments

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072536-02

TH-2B-TP03-4-5

Soil

Sampled:07/25/19 07:55

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072536-03

TH-2B-TP07-0-2

Soil

Sampled:07/25/19 08:35

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072536-04

TH-2B-TP07-4-5

Soil

Sampled:07/25/19 08:45

7199 - (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Released By KS Date 7/30/19 Received By B. H. Koons Date 7/30/19 1320

Released By _____ Date _____ Received By _____ Date _____

SUBCONTRACT ORDER
Maryland Spectral Services

9072536

Due 4:00 PM 08/05/19

Laboratory ID

Comments

Sample ID: 9072536-05

TH-2B-TP06-0-2

Soil

Sampled:07/25/19 09:20

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072536-06

TH-2B-TP06-4-5

Soil

Sampled:07/25/19 09:30

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072536-07

TH-2G-TP02-0-2

Soil

Sampled:07/25/19 10:10

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072536-08

TH-2G-TP02-4-5

Soil

Sampled:07/25/19 10:20

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072536-09

TH-2G-TP01-0-2

Soil

Sampled:07/25/19 10:45

7199 - (Chromium6)

Containers Supplied:

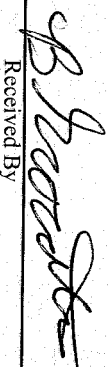
Glass Jar, 4 oz (C)

Released By 

Date

7/30/19

Received By



Date

7/30/19 1320

Released By

Date

Received By

Date

SUBCONTRACT ORDER
Maryland Spectral Services

9072536

Due 4:00 PM 08/05/19

Laboratory ID

Comments

Sample ID: 9072536-10

TH-2G-TP01-4-5

Soil

Sampled: 07/25/19 11:00

7199 - (Chromi um6)

Containers Supplied:

Glass Jar, 4 oz (C)

Released By

Date

Received By

Date

CB 7/30/19 438 7/30/19 1320

Released By

Date

Received By

Date

08 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/26/19 13:22.

Maryland Spectral Services, Inc. is a TNI 2009 Standard accredited laboratory and as such, all analyses performed at Maryland Spectral Services included in this report are 2009 TNI certified except as indicated at the end of this report. Please visit our website at www.mdspectral.com for a complete listing of our TNI 2009 Standard accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rabecka Koons
Quality Assurance Officer

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-3A-TP03-0-7		9072620-01	Soil	07/26/19 08:20	07/26/19 13:22
TH-3A-TP03-4-5		9072620-02	Soil	07/26/19 08:30	07/26/19 13:22
TH-2F-TP01-0-2		9072620-03	Soil	07/26/19 09:00	07/26/19 13:22
TH-2F-TP01-4-5		9072620-04	Soil	07/26/19 09:35	07/26/19 13:22
TH-2D-TP06-0-2		9072620-05	Soil	07/26/19 10:10	07/26/19 13:22
TH-2D-TP06-2-3		9072620-06	Soil	07/26/19 10:20	07/26/19 13:22
TH-2C-TP01-0-2		9072620-07	Soil	07/26/19 11:15	07/26/19 13:22
TH-2C-TP01-4-5		9072620-08	Soil	07/26/19 11:30	07/26/19 13:22
TH-2C-TP04-0-2		9072620-09	Soil	07/26/19 12:10	07/26/19 13:22
TH-2C-TP04-4-5		9072620-10	Soil	07/26/19 12:15	07/26/19 13:22
DUP-4		9072620-11	Soil	07/26/19 08:00	07/26/19 13:22

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Analytical Results

TH-3A-TP03-0-7

9072620-01 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Acenaphthylene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Anthracene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Benzo[a]anthracene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Benzo[a]pyrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Chrysene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Fluoranthene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Fluorene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Naphthalene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Phenanthrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Pyrene	ND		ug/kg dry	12.2	12.2	1	08/01/19	08/02/19 13:53	WB
Surrogate: Nitrobenzene-d5		23-120		62 %	08/01/19		08/02/19 13:53		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	08/01/19		08/02/19 13:53		
Surrogate: Terphenyl-d14		18-137		87 %	08/01/19		08/02/19 13:53		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 17:50	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.8	9.8	1	08/02/19	08/03/19 23:54	SJA
Surrogate: o-Terphenyl		70-130		85 %	08/02/19		08/03/19 23:54		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Analytical Results

TH-3A-TP03-0-7

9072620-01 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	82		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1221	ND		ug/kg dry	207	207	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1232	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1242	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1248	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1254	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1260	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1262	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA
Aroclor-1268	ND		ug/kg dry	101	101	1	08/04/19	08/06/19 18:09	SJA

Surrogate: Tetrachloro-m-xylene 40-150 60 % 08/04/19 08/06/19 18:09

Surrogate: Decachlorobiphenyl 40-150 68 % 08/04/19 08/06/19 18:09

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	4.79		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:55	VVD
Barium	86.3		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:55	VVD
Cadmium	0.578		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:55	VVD
Chromium	36.4		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:55	VVD
Lead	27.1		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:55	VVD
Mercury	0.0935		mg/kg dry	0.0152	0.0152	1	07/31/19	08/01/19 18:55	VVD
Selenium	1.37		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:55	VVD
Silver	ND		mg/kg dry	0.305	0.305	1	07/31/19	08/01/19 18:55	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-3A-TP03-0-7

9072620-01 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0930	0.0930	1	08/01/19	08/05/19 18:32	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	81.6		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-3A-TP03-4-5

9072620-02 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Acenaphthylene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Anthracene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Benzo[a]anthracene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Benzo[b]fluoranthene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Benzo[k]fluoranthene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Benzo[ghi]perylene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Benzo[a]pyrene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Chrysene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Fluoranthene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Fluorene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Naphthalene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Phenanthrene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Pyrene	ND		ug/kg dry	14.3	14.3	1	08/01/19	08/02/19 14:16	WB
Surrogate: Nitrobenzene-d5		23-120		58 %	08/01/19		08/02/19 14:16		
Surrogate: 2-Fluorobiphenyl		30-115		59 %	08/01/19		08/02/19 14:16		
Surrogate: Terphenyl-d14		18-137		82 %	08/01/19		08/02/19 14:16		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	08/05/19	08/05/19 16:48	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	11.4	11.4	1	08/02/19	08/04/19 00:21	SJA

Surrogate: o-Terphenyl		70-130		96 %	08/02/19		08/04/19 00:21		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Analytical Results

TH-3A-TP03-4-5

9072620-02 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	70		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1221	ND		ug/kg dry	243	243	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1232	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1242	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1248	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1254	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1260	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1262	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA
Aroclor-1268	ND		ug/kg dry	119	119	1	08/04/19	08/06/19 18:39	SJA

Surrogate: Tetrachloro-m-xylene 40-150 69 % 08/04/19 08/06/19 18:39

Surrogate: Decachlorobiphenyl 40-150 75 % 08/04/19 08/06/19 18:39

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.58		mg/kg dry	0.357	0.357	1	07/31/19	08/01/19 18:58	VVD
Barium	111		mg/kg dry	0.357	0.357	1	07/31/19	08/01/19 18:58	VVD
Cadmium	ND		mg/kg dry	0.357	0.357	1	07/31/19	08/01/19 18:58	VVD
Chromium	72.4		mg/kg dry	0.357	0.357	1	07/31/19	08/01/19 18:58	VVD
Lead	9.13		mg/kg dry	0.357	0.357	1	07/31/19	08/01/19 18:58	VVD
Mercury	0.0571		mg/kg dry	0.0179	0.0179	1	07/31/19	08/01/19 18:58	VVD
Selenium	2.40		mg/kg dry	0.357	0.357	1	07/31/19	08/01/19 18:58	VVD
Silver	ND		mg/kg dry	0.357	0.357	1	07/31/19	08/01/19 18:58	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

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410-247-7600
www.mdspectral.com
Reported:
08/08/19 14:43

TH-3A-TP03-4-5

9072620-02 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.313		mg/kg dry	0.103	0.103	1	07/31/19	08/01/19 21:50	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	76.8		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD



Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2F-TP01-0-2

9072620-03 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Acenaphthylene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Anthracene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Benzo[a]anthracene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Benzo[a]pyrene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Chrysene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Fluoranthene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Fluorene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Naphthalene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Phenanthrene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Pyrene	ND		ug/kg dry	13.5	13.5	1	08/01/19	08/02/19 14:39	WB
Surrogate: Nitrobenzene-d5		23-120		70 %	08/01/19		08/02/19 14:39		
Surrogate: 2-Fluorobiphenyl		30-115		76 %	08/01/19		08/02/19 14:39		
Surrogate: Terphenyl-d14		18-137		94 %	08/01/19		08/02/19 14:39		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	08/05/19	08/05/19 17:18	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	11.0		mg/kg dry	10.8	10.8	1	08/02/19	08/04/19 00:49	SJA
Surrogate: o-Terphenyl		70-130		98 %	08/02/19		08/04/19 00:49		

Rabecka Koons

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2F-TP01-0-2

9072620-03 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	74		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1221	ND		ug/kg dry	230	230	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1232	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1242	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1248	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1254	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1260	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1262	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA
Aroclor-1268	ND		ug/kg dry	112	112	1	08/04/19	08/06/19 19:09	SJA

Surrogate: Tetrachloro-m-xylene 40-150 68 % 08/04/19 08/06/19 19:09

Surrogate: Decachlorobiphenyl 40-150 80 % 08/04/19 08/06/19 19:09

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	5.85		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 19:00	VVD
Barium	117		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 19:00	VVD
Cadmium	ND		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 19:00	VVD
Chromium	26.0		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 19:00	VVD
Lead	11.8		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 19:00	VVD
Mercury	0.0601		mg/kg dry	0.0169	0.0169	1	07/31/19	08/01/19 19:00	VVD
Selenium	1.93		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 19:00	VVD
Silver	ND		mg/kg dry	0.338	0.338	1	07/31/19	08/01/19 19:00	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

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Reported:
08/08/19 14:43

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2F-TP01-0-2

9072620-03 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0966	0.0966	1	07/31/19	08/01/19 22:02	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	83.5		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2F-TP01-4-5

9072620-04 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Acenaphthylene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Anthracene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Benzo[a]anthracene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Benzo[a]pyrene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Chrysene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Fluoranthene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Fluorene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Naphthalene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Phenanthrene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Pyrene	ND		ug/kg dry	12.7	12.7	1	08/01/19	08/02/19 15:02	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	08/01/19		08/02/19 15:02		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	08/01/19		08/02/19 15:02		
Surrogate: Terphenyl-d14		18-137		82 %	08/01/19		08/02/19 15:02		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/05/19	08/05/19 17:48	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	10.9		mg/kg dry	10.1	10.1	1	08/02/19	08/04/19 01:16	SJA
Surrogate: o-Terphenyl		70-130		91 %	08/02/19		08/04/19 01:16		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Analytical Results

TH-2F-TP01-4-5

9072620-04 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	79		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1221	ND		ug/kg dry	215	215	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1232	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1242	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1248	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1254	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1260	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1262	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA
Aroclor-1268	ND		ug/kg dry	105	105	1	08/04/19	08/06/19 19:39	SJA

Surrogate: Tetrachloro-m-xylene 40-150 65 % 08/04/19 08/06/19 19:39

Surrogate: Decachlorobiphenyl 40-150 72 % 08/04/19 08/06/19 19:39

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.99		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 19:03	VVD
Barium	101		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 19:03	VVD
Cadmium	ND		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 19:03	VVD
Chromium	55.6		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 19:03	VVD
Lead	11.9		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 19:03	VVD
Mercury	0.0621		mg/kg dry	0.0158	0.0158	1	07/31/19	08/01/19 19:03	VVD
Selenium	2.02		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 19:03	VVD
Silver	ND		mg/kg dry	0.316	0.316	1	07/31/19	08/01/19 19:03	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/08/19 14:43

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2F-TP01-4-5

9072620-04 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.521		mg/kg dry	0.0984	0.0984	1	07/31/19	08/01/19 22:14	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	79.6		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2D-TP06-0-2

9072620-05 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Acenaphthylene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Anthracene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Benzo[a]anthracene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Benzo[a]pyrene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Chrysene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Fluorene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Naphthalene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Phenanthrene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Pyrene	ND		ug/kg dry	10.8	10.8	1	08/01/19	08/02/19 15:25	WB
Surrogate: Nitrobenzene-d5		23-120		76 %	08/01/19		08/02/19 15:25		
Surrogate: 2-Fluorobiphenyl		30-115		75 %	08/01/19		08/02/19 15:25		
Surrogate: Terphenyl-d14		18-137		90 %	08/01/19		08/02/19 15:25		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/06/19	08/06/19 12:25	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	8.6	8.6	1	08/02/19	08/04/19 02:11	SJA

Surrogate: o-Terphenyl		70-130		94 %	08/02/19		08/04/19 02:11		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Analytical Results

TH-2D-TP06-0-2

9072620-05 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	93		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1221	ND		ug/kg dry	183	183	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1232	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1242	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1248	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1254	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1260	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1262	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA
Aroclor-1268	ND		ug/kg dry	89.2	89.2	1	08/04/19	08/06/19 20:09	SJA

Surrogate: Tetrachloro-m-xylene 40-150 63 % 08/04/19 08/06/19 20:09

Surrogate: Decachlorobiphenyl 40-150 73 % 08/04/19 08/06/19 20:09

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	0.891		mg/kg dry	0.269	0.269	1	07/31/19	08/01/19 19:05	VVD
Barium	23.4		mg/kg dry	0.269	0.269	1	07/31/19	08/01/19 19:05	VVD
Cadmium	ND		mg/kg dry	0.269	0.269	1	07/31/19	08/01/19 19:05	VVD
Chromium	6.73		mg/kg dry	0.269	0.269	1	07/31/19	08/01/19 19:05	VVD
Lead	3.37		mg/kg dry	0.269	0.269	1	07/31/19	08/01/19 19:05	VVD
Mercury	ND		mg/kg dry	0.0134	0.0134	1	07/31/19	08/01/19 19:05	VVD
Selenium	0.686		mg/kg dry	0.269	0.269	1	07/31/19	08/01/19 19:05	VVD
Silver	ND		mg/kg dry	0.269	0.269	1	07/31/19	08/01/19 19:05	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

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Baltimore MD 21227
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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2D-TP06-0-2

9072620-05 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.0942		mg/kg dry	0.0912	0.0912	1	07/31/19	08/01/19 22:26	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	89.1		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2D-TP06-2-3

9072620-06 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)

Acenaphthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Acenaphthylene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Anthracene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Benzo[a]anthracene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Benzo[a]pyrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Chrysene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Fluoranthene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Fluorene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Naphthalene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Phenanthrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB
Pyrene	ND		ug/kg dry	11.5	11.5	1	08/01/19	08/02/19 15:47	WB

Surrogate: Nitrobenzene-d5		23-120	67 %	08/01/19	08/02/19 15:47
Surrogate: 2-Fluorobiphenyl		30-115	65 %	08/01/19	08/02/19 15:47
Surrogate: Terphenyl-d14		18-137	80 %	08/01/19	08/02/19 15:47

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/06/19	08/06/19 12:55	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	9.2	9.2	1	08/02/19	08/04/19 02:38	SJA

Surrogate: o-Terphenyl		70-130	94 %	08/02/19	08/04/19 02:38

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Analytical Results

TH-2D-TP06-2-3

9072620-06 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	87		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1221	ND		ug/kg dry	195	195	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1232	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1242	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1248	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1254	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1260	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1262	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA
Aroclor-1268	ND		ug/kg dry	95.4	95.4	1	08/04/19	08/06/19 20:39	SJA

Surrogate: Tetrachloro-m-xylene 40-150 79 % 08/04/19 08/06/19 20:39

Surrogate: Decachlorobiphenyl 40-150 74 % 08/04/19 08/06/19 20:39

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.12		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 19:13	VVD
Barium	110		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 19:13	VVD
Cadmium	ND		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 19:13	VVD
Chromium	4.98		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 19:13	VVD
Lead	4.45		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 19:13	VVD
Mercury	ND		mg/kg dry	0.0144	0.0144	1	07/31/19	08/01/19 19:13	VVD
Selenium	0.812		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 19:13	VVD
Silver	ND		mg/kg dry	0.287	0.287	1	07/31/19	08/01/19 19:13	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2D-TP06-2-3

9072620-06 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0896	0.0896	1	07/31/19	08/01/19 22:38	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	86.4		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2C-TP01-0-2

9072620-07 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Acenaphthylene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Anthracene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Benzo[a]anthracene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Benzo[b]fluoranthene	13.4		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Benzo[a]pyrene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Chrysene	11.8		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Fluoranthene	18.1		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Fluorene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Naphthalene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Phenanthrene	ND		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Pyrene	17.4		ug/kg dry	10.9	10.9	1	08/01/19	08/02/19 16:10	WB
Surrogate: Nitrobenzene-d5		23-120		70 %		08/01/19		08/02/19 16:10	
Surrogate: 2-Fluorobiphenyl		30-115		75 %		08/01/19		08/02/19 16:10	
Surrogate: Terphenyl-d14		18-137		89 %		08/01/19		08/02/19 16:10	
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/06/19	08/06/19 13:25	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.7	8.7	1	08/02/19	08/04/19 03:05	SJA
Surrogate: o-Terphenyl		70-130		100 %		08/02/19		08/04/19 03:05	

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Analytical Results

TH-2C-TP01-0-2

9072620-07 (Soil)

Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	92		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1221	ND		ug/kg dry	185	185	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1232	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1242	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1248	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1254	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1260	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1262	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA
Aroclor-1268	ND		ug/kg dry	90.2	90.2	1	08/04/19	08/06/19 21:09	SJA

Surrogate: Tetrachloro-m-xylene 40-150 73 % 08/04/19 08/06/19 21:09

Surrogate: Decachlorobiphenyl 40-150 78 % 08/04/19 08/06/19 21:09

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	4.21		mg/kg dry	0.272	0.272	1	07/31/19	08/01/19 19:16	VVD
Barium	55.3		mg/kg dry	0.272	0.272	1	07/31/19	08/01/19 19:16	VVD
Cadmium	ND		mg/kg dry	0.272	0.272	1	07/31/19	08/01/19 19:16	VVD
Chromium	13.9		mg/kg dry	0.272	0.272	1	07/31/19	08/01/19 19:16	VVD
Lead	14.8		mg/kg dry	0.272	0.272	1	07/31/19	08/01/19 19:16	VVD
Mercury	0.0374		mg/kg dry	0.0136	0.0136	1	07/31/19	08/01/19 19:16	VVD
Selenium	2.63		mg/kg dry	0.272	0.272	1	07/31/19	08/01/19 19:16	VVD
Silver	ND		mg/kg dry	0.272	0.272	1	07/31/19	08/01/19 19:16	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2C-TP01-0-2

9072620-07 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.130		mg/kg dry	0.0893	0.0893	1	07/31/19	08/01/19 22:50	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	89.9		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2C-TP01-4-5

9072620-08 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Acenaphthylene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Anthracene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Benzo[a]anthracene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Benzo[a]pyrene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Chrysene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Fluoranthene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Fluorene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Naphthalene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Phenanthrene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Pyrene	ND		ug/kg dry	12.3	12.3	1	08/01/19	08/02/19 16:33	WB
Surrogate: Nitrobenzene-d5		23-120		74 %	08/01/19		08/02/19 16:33		
Surrogate: 2-Fluorobiphenyl		30-115		70 %	08/01/19		08/02/19 16:33		
Surrogate: Terphenyl-d14		18-137		74 %	08/01/19		08/02/19 16:33		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/06/19	08/06/19 13:56	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	9.9	9.9	1	08/02/19	08/04/19 03:33	SJA

Surrogate: o-Terphenyl		70-130		91 %	08/02/19		08/04/19 03:33		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2C-TP01-4-5

9072620-08 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	81		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1221	ND		ug/kg dry	210	210	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1232	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1242	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1248	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1254	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1260	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1262	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA
Aroclor-1268	ND		ug/kg dry	102	102	1	08/04/19	08/06/19 21:39	SJA

Surrogate: Tetrachloro-m-xylene 40-150 71 % 08/04/19 08/06/19 21:39

Surrogate: Decachlorobiphenyl 40-150 77 % 08/04/19 08/06/19 21:39

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	6.60		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 19:19	VVD
Barium	131		mg/kg dry	1.54	1.54	5	07/31/19	08/01/19 19:50	VVD
Cadmium	ND		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 19:19	VVD
Chromium	33.9		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 19:19	VVD
Lead	22.9		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 19:19	VVD
Mercury	0.0484		mg/kg dry	0.0154	0.0154	1	07/31/19	08/01/19 19:19	VVD
Selenium	7.54		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 19:19	VVD
Silver	ND		mg/kg dry	0.309	0.309	1	07/31/19	08/01/19 19:19	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/08/19 14:43

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2C-TP01-4-5

9072620-08 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.116		mg/kg dry	0.101	0.101	1	07/31/19	08/01/19 23:02	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	79.9		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD



Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2C-TP04-0-2

9072620-09 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Acenaphthylene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Anthracene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Benzo[a]anthracene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Benzo[a]pyrene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Chrysene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Fluorene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Naphthalene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Phenanthrene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Pyrene	ND		ug/kg dry	13.0	13.0	1	08/01/19	08/02/19 16:56	WB
Surrogate: Nitrobenzene-d5		23-120		77 %	08/01/19		08/02/19 16:56		
Surrogate: 2-Fluorobiphenyl		30-115		79 %	08/01/19		08/02/19 16:56		
Surrogate: Terphenyl-d14		18-137		84 %	08/01/19		08/02/19 16:56		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/06/19	08/06/19 15:41	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	10.4	10.4	1	08/02/19	08/04/19 04:00	SJA

Surrogate: o-Terphenyl		70-130		103 %	08/02/19		08/04/19 04:00		

Rabecka Koons

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2C-TP04-0-2

9072620-09 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	77		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1221	ND		ug/kg dry	221	221	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1232	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1242	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1248	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1254	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1260	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1262	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA
Aroclor-1268	ND		ug/kg dry	108	108	1	08/04/19	08/06/19 22:09	SJA

Surrogate: Tetrachloro-m-xylene 40-150 71 % 08/04/19 08/06/19 22:09

Surrogate: Decachlorobiphenyl 40-150 80 % 08/04/19 08/06/19 22:09

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.35		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 19:21	VVD
Barium	37.8		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 19:21	VVD
Cadmium	ND		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 19:21	VVD
Chromium	2.28		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 19:21	VVD
Lead	2.17		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 19:21	VVD
Mercury	0.0184		mg/kg dry	0.0162	0.0162	1	07/31/19	08/01/19 19:21	VVD
Selenium	4.40		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 19:21	VVD
Silver	ND		mg/kg dry	0.325	0.325	1	07/31/19	08/01/19 19:21	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/08/19 14:43

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2C-TP04-0-2

9072620-09 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.100	0.100	1	07/31/19	08/01/19 23:14	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	77.4		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2C-TP04-4-5

9072620-10 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Acenaphthylene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Anthracene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Benzo[a]anthracene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Benzo[a]pyrene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Chrysene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Fluoranthene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Fluorene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Naphthalene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Phenanthrene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Pyrene	ND		ug/kg dry	13.7	13.7	1	08/01/19	08/02/19 17:19	WB
Surrogate: Nitrobenzene-d5		23-120		74 %	08/01/19		08/02/19 17:19		
Surrogate: 2-Fluorobiphenyl		30-115		82 %	08/01/19		08/02/19 17:19		
Surrogate: Terphenyl-d14		18-137		82 %	08/01/19		08/02/19 17:19		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	08/01/19	08/01/19 14:52	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	11.0	11.0	1	08/02/19	08/04/19 04:27	SJA
Surrogate: o-Terphenyl		70-130		98 %	08/02/19		08/04/19 04:27		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2C-TP04-4-5

9072620-10 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	73		%			1	08/05/19	08/06/19 08:51	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1221	ND		ug/kg dry	233	233	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1232	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1242	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1248	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1254	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1260	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1262	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA
Aroclor-1268	ND		ug/kg dry	114	114	1	08/04/19	08/06/19 22:39	SJA

Surrogate: Tetrachloro-m-xylene 40-150 73 % 08/04/19 08/06/19 22:39

Surrogate: Decachlorobiphenyl 40-150 73 % 08/04/19 08/06/19 22:39

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.92		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 19:24	VVD
Barium	73.7		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 19:24	VVD
Cadmium	ND		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 19:24	VVD
Chromium	2.20		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 19:24	VVD
Lead	2.40		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 19:24	VVD
Mercury	ND		mg/kg dry	0.0171	0.0171	1	07/31/19	08/01/19 19:24	VVD
Selenium	9.64		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 19:24	VVD
Silver	ND		mg/kg dry	0.342	0.342	1	07/31/19	08/01/19 19:24	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

TH-2C-TP04-4-5

9072620-10 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.111	0.111	1	07/31/19	08/01/19 23:26	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	73.7		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

DUP-4

9072620-11 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Acenaphthylene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Anthracene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Benzo[a]anthracene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Benzo[b]fluoranthene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Benzo[ghi]perylene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Benzo[a]pyrene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Chrysene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Fluoranthene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Fluorene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Naphthalene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Phenanthrene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Pyrene	ND		ug/kg dry	12.8	12.8	1	08/01/19	08/02/19 17:42	WB
Surrogate: Nitrobenzene-d5		23-120		71 %	08/01/19		08/02/19 17:42		
Surrogate: 2-Fluorobiphenyl		30-115		74 %	08/01/19		08/02/19 17:42		
Surrogate: Terphenyl-d14		18-137		84 %	08/01/19		08/02/19 17:42		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/01/19	08/01/19 15:25	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	14.2		mg/kg dry	10.3	10.3	1	08/02/19	08/04/19 04:55	SJA
Surrogate: o-Terphenyl		70-130		106 %	08/02/19		08/04/19 04:55		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

DUP-4

9072620-11 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	78		%			1	08/05/19	08/06/19 08:51	BJP
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1221	ND		ug/kg dry	218	218	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1232	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1242	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1248	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1254	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1260	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1262	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Aroclor-1268	ND		ug/kg dry	106	106	1	08/04/19	08/06/19 23:09	SJA
Surrogate: Tetrachloro-m-xylene		40-150		74 %		08/04/19	08/06/19 23:09		
Surrogate: Decachlorobiphenyl		40-150		79 %		08/04/19	08/06/19 23:09		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.66		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 19:26	VVD
Barium	89.0		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 19:26	VVD
Cadmium	0.430		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 19:26	VVD
Chromium	37.2		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 19:26	VVD
Lead	22.0		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 19:26	VVD
Mercury	0.0901		mg/kg dry	0.0160	0.0160	1	07/31/19	08/01/19 19:26	VVD
Selenium	1.28		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 19:26	VVD
Silver	ND		mg/kg dry	0.321	0.321	1	07/31/19	08/01/19 19:26	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/08/19 14:43

DUP-4

9072620-11 (Soil)
Sample Date: 07/26/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0964	0.0964	1	07/31/19	08/01/19 18:03	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	83.4		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/08/19 14:43

Maryland Spectral Services does not maintain certification for the following analytical parameters:

Enviro-Chem

Matrix , Method , Analyte

Solid | TS-% | % Solids

Solid | CR-HEX-IC-SOIL | Chromium VI

Maryland Spectral Services

Matrix , Method , Analyte

Soil | 6020 (RCRA8 Total) | Arsenic

Soil | 6020 (RCRA8 Total) | Barium

Soil | 6020 (RCRA8 Total) | Cadmium

Soil | 6020 (RCRA8 Total) | Chromium

Soil | 6020 (RCRA8 Total) | Lead

Soil | 6020 (RCRA8 Total) | Mercury

Soil | 6020 (RCRA8 Total) | Selenium

Soil | 6020 (RCRA8 Total) | Silver



Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

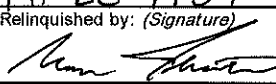
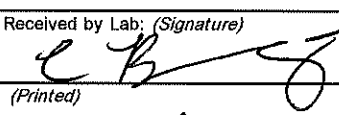
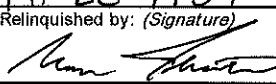
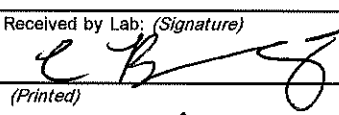
Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation

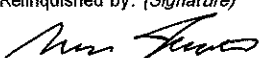
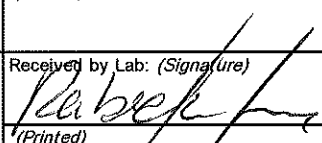
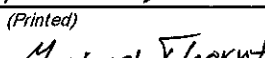
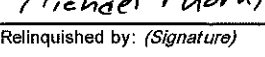
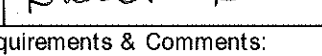
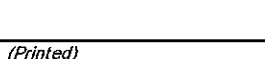
Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Company Name: EA Engineering		Project Manager: Vicki Pitman		Analysis Requested										CHAIN-OF-CUSTODY RECORD					
Project Name: Troy Hill Park Phase II		Project ID: 1483560		RCRA Metals (8) EPA 6020A Cr+6 EPA 7199 PAHs EPA 8270D SIM PCBs EPA 8082A TPH GRO/DRO EPA 8015M TCL Pesticides EPA 8081B TCL Herbicides EPA 8151A VOCs EPA 8260B										Maryland Spectral Services, Inc. 1500 Caton Center Drive, Suite G Baltimore, MD 21227 410-247-7600 • Fax 410-247-7602 labman@mdspectral.com					
Sampler(s): Michael Thornton		P.O. Number: 19511												Matrix Codes: NW (nonpotable water) PW (potable water)					
Field Sample ID	Date	Time	Water	Soil	Other	No. of Containers											Preservative: 1+ 1 HCL, H ₂ SO ₄ , Methanol, Na ₂ S ₂ O ₃ , NaHCO ₃	Field pH, Residual Chlorine, QC Request, Trip Blank, Field Blank	MSS Lab ID
TH-2A-TP03-0-7	7/26/19	0820		X		3	X	X	X	X	X							9072620-01	
TH-3A-TP03-4-5		0830																-02	
TH-2F-TP01-0-2		0900																-03	
TH-2F-TP01-4-5		0935																-04	
TH-2D-TP06-0-2		1010																-05	
TH-2D-TP06-2-3		1020																-06	
TH-2C-TP01-0-2		1115																-07	
TH-2C-TP01-4-5		1130																-08	
TH-2C-TP04-0-2		1210																-09	
TH-2C-TP04-4-5	✓	1215	✓	✓	✓	✓	✓	✓	✓	✓	✓							-10	
Relinquished by: (Signature) 		Date/Time 7/26/19		Received by: (Signature) 		Relinquished by: (Signature) 		Date/Time 7/26/19		Received by: (Signature) 		Turn Around Time: ☒ Normal (7 day) ☐ 5 day ☐ 4 day ☐ 3 day ☐ Rush (2 day) ☐ Next Day ☐ Other: _____ ☐ Specific Due Date: _____		Lab Use: Temp: 23°C ☒ Received on Ice ☒ Received same day ☐ Preservation Appropriate					
(Printed) Michael Thornton EA				(Printed) Chris Breuninger		(Printed) Michael Thornton				(Printed) Chris Breuninger				Sample Disposal: ☐ Return to Client ☒ Disposal by lab ☐ Archive for _____ days					
Delivery Method: ☐ Courier ☒ Client ☐ UPS ☐ FedEx ☐ USPS ☐ Other: _____		Special Instructions/QC Requirements & Comments:																	

Pg 2 of 2

Company Name: EA Engineering		Project Manager: Vicki Pitman			Analysis Requested										CHAIN-OF-CUSTODY RECORD		
Project Name: Troy Hill Park Phase II		Project ID: 1483560			No. of Containers	RCRA Metals (8) EPA 6020A	Cr+6 EPA 7199	PAHs EPA 8270D. SIM	PCBs EPA 8082A	TPH GRO/DRO EPA 8015M	TCL Pesticides EPA 8081B	TCL Herbicides EPA 8151A	VOCs EPA 8260B	Maryland Spectral Services, Inc. 1500 Caton Center Drive, Suite G Baltimore, MD 21227 410-247-7600 • Fax 410-247-7602 lahman@mdspectral.com			
Sampler(s): Michael Thornton		P.O. Number: 19511												Matrix Codes: NW (nonpotable water) PW (potable water)			
Field Sample ID		Date	Time											Water	Soil	Other	Preservative: 1+ 1 HCL, H ₂ SO ₄ , Methanol, Na ₂ S ₂ O ₃ , NaHCO ₃
DUP-4		7/26/19	0800		X		3	X	X	X	X						9072620-11
Relinquished by: (Signature) 		Date/Time 7/26/19		Received by: (Signature) 		Relinquished by: (Signature) 		Date/Time 7/26/19		Received by: (Signature) 		Turn Around Time: ☒ Normal (7 day) ☐ 5 day ☐ 4 day ☐ 3 day ☐ Rush (2 day) ☐ Next Day ☐ Other: _____ ☐ Specific Due Date: _____		Lab Use: Temp: 83 °C ☒ Received on Ice ☒ Received same day ☐ Preservation Appropriate			
(Printed) Michael Thornton				(Printed)		(Printed)											
Relinquished by: (Signature) 		Date/Time 7/26/19		Received by Lab: (Signature) 		Relinquished by: (Signature) 		Date/Time 13:22		Received by Lab: (Signature) 		Sample Disposal: ☐ Return to Client ☒ Disposal by lab ☐ Archive for _____ days					
(Printed)				(Printed)		(Printed)											
Delivery Method: ☐ Courier ☒ Client ☐ UPS ☐ FedEx ☐ USPS ☐ Other:		Special Instructions/QC Requirements & Comments:															

SUBCONTRACT ORDER
Maryland Spectral Services

9072620

59729

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons
Reports Email: Reporting@mdspectral.com

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone: (410) 472-1112
Fax: (410) 472-1116

Auto-log Sent

7/26/19 CB

Due 4:00 PM 08/06/19

Laboratory ID

Comments

Sample ID: 9072620-01

TH-3A-TP03-0-7

Soil

Sampled:07/26/19 08:20

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-02

TH-3A-TP03-4-5

Soil

Sampled:07/26/19 08:30

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-03

TH-2F-TP01-0-2

Soil

Sampled:07/26/19 09:00

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-04

TH-2F-TP01-4-5

Soil

Sampled:07/26/19 09:35

7199 - (Chromium6)

Containers Supplied:

Released By CB Date 7/30/19 Received By BB Date 7/30/19 1320

Released By _____ Date _____ Received By _____ Date _____

SUBCONTRACT ORDER
Maryland Spectral Services
9072620

Due 4:00 PM 08/06/19

Laboratory ID

Comments

Sample ID: 9072620-05

TH-2D-TP06-0-2

Soil

Sampled:07/26/19 10:10

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-06

TH-2D-TP06-2-3

Soil

Sampled:07/26/19 10:20

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-07

TH-2C-TP01-0-2

Soil

Sampled:07/26/19 11:15

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-08

TH-2C-TP01-4-5

Soil

Sampled:07/26/19 11:30

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-09

TH-2C-TP04-0-2

Soil

Sampled:07/26/19 12:10

7199 - (Chromium6)

Containers Supplied:

Released By

Date

Received By

Date

Released By

Date

Received By

Date

SUBCONTRACT ORDER
Maryland Spectral Services
9072620

Due 4:00 PM 08/06/19

Laboratory ID

Comments

Sample ID: 9072620-10

TH-2C-TP04-4-5

Soil

Sampled:07/26/19 12:15

7199 - (Chromium6)

Containers Supplied:

Sample ID: 9072620-11

DUP-4

Soil

Sampled:07/26/19 08:00

7199 - (Chromium6)

Containers Supplied:

Released By

Date

Received By

Date

Released By

Date

Received By

Date

12 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/29/19 16:06.

Maryland Spectral Services, Inc. is a TNI 2009 Standard accredited laboratory and as such, all analyses performed at Maryland Spectral Services included in this report are 2009 TNI certified except as indicated at the end of this report. Please visit our website at www.mdspectral.com for a complete listing of our TNI 2009 Standard accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Will Brewington
President

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-2C-TP03-0-2		9072903-01	Soil	07/29/19 09:00	07/29/19 16:06
TH-2C-TP03-4-5		9072903-02	Soil	07/29/19 09:10	07/29/19 16:06
TH-2C-TP02-0-2		9072903-03	Soil	07/29/19 09:50	07/29/19 16:06
TH-2C-TP02-4-5		9072903-04	Soil	07/29/19 10:05	07/29/19 16:06
TH-2D-TP03-0-2		9072903-05	Soil	07/29/19 10:50	07/29/19 16:06
TH-2D-TP03-4-5		9072903-06	Soil	07/29/19 11:10	07/29/19 16:06
TH-2D-TP04-0-2		9072903-07	Soil	07/29/19 12:05	07/29/19 16:06
TH-2D-TP04-4-5		9072903-08	Soil	07/29/19 12:15	07/29/19 16:06
TH-2D-TP05-0-2		9072903-09	Soil	07/29/19 14:45	07/29/19 16:06
TH-2D-TP05-4-5		9072903-10	Soil	07/29/19 14:50	07/29/19 16:06
DUP-5		9072903-11	Soil	07/29/19 08:00	07/29/19 16:06



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2C-TP03-0-2

9072903-01 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Acenaphthylene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Anthracene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Benzo[a]anthracene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Benzo[a]pyrene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Chrysene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Fluoranthene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Fluorene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Naphthalene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Phenanthrene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Pyrene	ND		ug/kg dry	11.8	11.8	1	08/04/19	08/05/19 11:55	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	08/04/19		08/05/19 11:55		
Surrogate: 2-Fluorobiphenyl		30-115		70 %	08/04/19		08/05/19 11:55		
Surrogate: Terphenyl-d14		18-137		85 %	08/04/19		08/05/19 11:55		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/02/19	08/02/19 16:38	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.4	9.4	1	08/07/19	08/09/19 17:09	SJA
Surrogate: o-Terphenyl		70-130		94 %	08/07/19		08/09/19 17:09		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2C-TP03-0-2

9072903-01 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	85		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1221	ND		ug/kg dry	200	200	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1232	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1242	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1248	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1254	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1260	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1262	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA
Aroclor-1268	ND		ug/kg dry	97.6	97.6	1	08/05/19	08/08/19 00:28	SJA

Surrogate: Tetrachloro-m-xylene 40-150 75 % 08/05/19 08/08/19 00:28

Surrogate: Decachlorobiphenyl 40-150 75 % 08/05/19 08/08/19 00:28

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	3.05		mg/kg dry	0.294	0.294	1	08/03/19	08/05/19 13:53	VVD
Barium	16.9		mg/kg dry	0.294	0.294	1	08/03/19	08/05/19 13:53	VVD
Cadmium	ND		mg/kg dry	0.294	0.294	1	08/03/19	08/05/19 13:53	VVD
Chromium	10.1		mg/kg dry	0.294	0.294	1	08/03/19	08/05/19 13:53	VVD
Lead	7.79		mg/kg dry	0.294	0.294	1	08/03/19	08/05/19 13:53	VVD
Mercury	0.0267		mg/kg dry	0.0147	0.0147	1	08/03/19	08/05/19 13:53	VVD
Selenium	1.70		mg/kg dry	0.294	0.294	1	08/03/19	08/05/19 13:53	VVD
Silver	ND		mg/kg dry	0.294	0.294	1	08/03/19	08/05/19 13:53	VVD



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Analytical Results

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2C-TP03-0-2

9072903-01 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0952	0.0952	1	08/01/19	08/05/19 17:32	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.6		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2C-TP03-4-5

9072903-02 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Acenaphthylene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Anthracene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Benzo[a]anthracene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Benzo[a]pyrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Chrysene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Fluoranthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Fluorene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Naphthalene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Phenanthrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Pyrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 12:19	WB
Surrogate: Nitrobenzene-d5		23-120		57 %	08/04/19		08/05/19 12:19		
Surrogate: 2-Fluorobiphenyl		30-115		63 %	08/04/19		08/05/19 12:19		
Surrogate: Terphenyl-d14		18-137		85 %	08/04/19		08/05/19 12:19		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/02/19	08/02/19 17:12	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.5	10.5	1	08/07/19	08/09/19 17:36	SJA
Surrogate: o-Terphenyl		70-130		74 %	08/07/19		08/09/19 17:36		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2C-TP03-4-5

9072903-02 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	76		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1221	ND		ug/kg dry	224	224	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1232	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1242	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1248	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1254	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1260	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1262	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA
Aroclor-1268	ND		ug/kg dry	109	109	1	08/05/19	08/08/19 00:56	SJA

Surrogate: Tetrachloro-m-xylene 40-150 72 % 08/05/19 08/08/19 00:56

Surrogate: Decachlorobiphenyl 40-150 75 % 08/05/19 08/08/19 00:56

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.50		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 13:56	VVD
Barium	16.5		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 13:56	VVD
Cadmium	ND		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 13:56	VVD
Chromium	5.40		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 13:56	VVD
Lead	3.69		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 13:56	VVD
Mercury	0.0283		mg/kg dry	0.0164	0.0164	1	08/03/19	08/05/19 13:56	VVD
Selenium	30.6		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 13:56	VVD
Silver	ND		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 13:56	VVD



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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2C-TP03-4-5

9072903-02 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.101	0.101	1	08/01/19	08/05/19 18:44	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	76.1		%	1.00	1.00	1	08/01/19	08/01/19 15:55	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2C-TP02-0-2

9072903-03 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Acenaphthylene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Anthracene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Benzo[a]anthracene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Benzo[a]pyrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Chrysene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Fluorene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Naphthalene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Phenanthrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Pyrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 12:41	WB
Surrogate: Nitrobenzene-d5		23-120		73 %	08/04/19		08/05/19 12:41		
Surrogate: 2-Fluorobiphenyl		30-115		78 %	08/04/19		08/05/19 12:41		
Surrogate: Terphenyl-d14		18-137		84 %	08/04/19		08/05/19 12:41		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/02/19	08/02/19 17:45	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	10.4	10.4	1	08/07/19	08/09/19 18:02	SJA

Surrogate: o-Terphenyl		70-130		86 %	08/07/19		08/09/19 18:02		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2C-TP02-0-2

9072903-03 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	77		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1221	ND		ug/kg dry	221	221	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1232	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1242	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1248	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1254	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1260	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1262	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA
Aroclor-1268	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:24	SJA

Surrogate: Tetrachloro-m-xylene 40-150 75 % 08/05/19 08/08/19 01:24

Surrogate: Decachlorobiphenyl 40-150 74 % 08/05/19 08/08/19 01:24

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.40		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:04	VVD
Barium	12.5		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:04	VVD
Cadmium	ND		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:04	VVD
Chromium	23.9		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:04	VVD
Lead	3.49		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:04	VVD
Mercury	0.0278		mg/kg dry	0.0162	0.0162	1	08/03/19	08/05/19 14:04	VVD
Selenium	1.89		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:04	VVD
Silver	ND		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:04	VVD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

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Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/12/19 14:39

TH-2C-TP02-0-2

9072903-03 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.147		mg/kg dry	0.0949	0.0949	1	08/01/19	08/05/19 18:56	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	80.9		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2C-TP02-4-5

9072903-04 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Acenaphthylene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Anthracene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Benzo[a]anthracene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Benzo[a]pyrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Chrysene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Fluoranthene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Fluorene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Naphthalene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Phenanthrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Pyrene	ND		ug/kg dry	13.0	13.0	1	08/04/19	08/05/19 13:04	WB
Surrogate: Nitrobenzene-d5		23-120		73 %	08/04/19		08/05/19 13:04		
Surrogate: 2-Fluorobiphenyl		30-115		78 %	08/04/19		08/05/19 13:04		
Surrogate: Terphenyl-d14		18-137		78 %	08/04/19		08/05/19 13:04		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/02/19	08/02/19 18:18	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	10.4	10.4	1	08/07/19	08/09/19 18:29	SJA
Surrogate: o-Terphenyl		70-130		84 %	08/07/19		08/09/19 18:29		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2C-TP02-4-5

9072903-04 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	77		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1221	ND		ug/kg dry	221	221	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1232	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1242	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1248	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1254	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1260	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1262	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA
Aroclor-1268	ND		ug/kg dry	108	108	1	08/05/19	08/08/19 01:52	SJA

Surrogate: Tetrachloro-m-xylene 40-150 82 % 08/05/19 08/08/19 01:52

Surrogate: Decachlorobiphenyl 40-150 75 % 08/05/19 08/08/19 01:52

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	0.991		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:06	VVD
Barium	14.4		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:06	VVD
Cadmium	ND		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:06	VVD
Chromium	6.88		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:06	VVD
Lead	3.10		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:06	VVD
Mercury	0.0272		mg/kg dry	0.0162	0.0162	1	08/03/19	08/05/19 14:06	VVD
Selenium	2.86		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:06	VVD
Silver	ND		mg/kg dry	0.325	0.325	1	08/03/19	08/05/19 14:06	VVD

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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2C-TP02-4-5

9072903-04 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0963	0.0963	1	08/01/19	08/05/19 19:31	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	78.5		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2D-TP03-0-2

9072903-05 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Acenaphthylene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Anthracene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Benzo[a]anthracene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Benzo[a]pyrene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Chrysene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Fluorene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Naphthalene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Phenanthrene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Pyrene	ND		ug/kg dry	10.8	10.8	1	08/04/19	08/05/19 13:27	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	08/04/19		08/05/19 13:27		
Surrogate: 2-Fluorobiphenyl		30-115		71 %	08/04/19		08/05/19 13:27		
Surrogate: Terphenyl-d14		18-137		85 %	08/04/19		08/05/19 13:27		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/02/19	08/02/19 18:51	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	12.3		mg/kg dry	8.6	8.6	1	08/07/19	08/09/19 18:55	SJA
Surrogate: o-Terphenyl		70-130		91 %	08/07/19		08/09/19 18:55		



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2D-TP03-0-2

9072903-05 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	93		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1221	ND		ug/kg dry	183	183	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1232	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1242	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1248	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1254	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1260	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1262	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA
Aroclor-1268	ND		ug/kg dry	89.2	89.2	1	08/05/19	08/08/19 02:19	SJA

Surrogate: Tetrachloro-m-xylene 40-150 74 % 08/05/19 08/08/19 02:19

Surrogate: Decachlorobiphenyl 40-150 71 % 08/05/19 08/08/19 02:19

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	3.52		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 14:09	VVD
Barium	51.5		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 14:09	VVD
Cadmium	0.482		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 14:09	VVD
Chromium	14.4		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 14:09	VVD
Lead	38.9		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 14:09	VVD
Mercury	0.0666		mg/kg dry	0.0134	0.0134	1	08/03/19	08/05/19 14:09	VVD
Selenium	0.897		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 14:09	VVD
Silver	ND		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 14:09	VVD



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Analytical Results

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Reported:
08/12/19 14:39

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2D-TP03-0-2

9072903-05 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0870	0.0870	1	08/01/19	08/05/19 19:43	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	92.7		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2D-TP03-4-5

9072903-06 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Acenaphthylene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Benzo[a]anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Benzo[a]pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Chrysene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Fluorene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Naphthalene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Phenanthrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 13:50	WB
Surrogate: Nitrobenzene-d5		23-120		60 %	08/04/19		08/05/19 13:50		
Surrogate: 2-Fluorobiphenyl		30-115		66 %	08/04/19		08/05/19 13:50		
Surrogate: Terphenyl-d14		18-137		88 %	08/04/19		08/05/19 13:50		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/02/19	08/02/19 19:24	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.4	8.4	1	08/07/19	08/09/19 19:22	SJA
Surrogate: o-Terphenyl		70-130		93 %	08/07/19		08/09/19 19:22		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2D-TP03-4-5

9072903-06 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	95		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1221	ND		ug/kg dry	179	179	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1232	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1242	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1248	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1254	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1260	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1262	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA
Aroclor-1268	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 02:47	SJA

Surrogate: Tetrachloro-m-xylene 40-150 69 % 08/05/19 08/08/19 02:47

Surrogate: Decachlorobiphenyl 40-150 80 % 08/05/19 08/08/19 02:47

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.68		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:11	VVD
Barium	11.5		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:11	VVD
Cadmium	ND		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:11	VVD
Chromium	8.43		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:11	VVD
Lead	3.90		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:11	VVD
Mercury	0.0152		mg/kg dry	0.0132	0.0132	1	08/03/19	08/05/19 14:11	VVD
Selenium	0.350		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:11	VVD
Silver	ND		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:11	VVD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

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Baltimore MD 21227

410-247-7600

www.mdspectral.com

Reported:

08/12/19 14:39

TH-2D-TP03-4-5

9072903-06 (Soil)

Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0798	0.0798	1	08/01/19	08/05/19 19:55	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	95.3		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2D-TP04-0-2

9072903-07 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Acenaphthylene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Benzo[a]anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Benzo[a]pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Chrysene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Fluorene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Naphthalene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Phenanthrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 14:13	WB
Surrogate: Nitrobenzene-d5		23-120		60 %	08/04/19		08/05/19 14:13		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	08/04/19		08/05/19 14:13		
Surrogate: Terphenyl-d14		18-137		88 %	08/04/19		08/05/19 14:13		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/02/19	08/02/19 19:57	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.4	8.4	1	08/07/19	08/09/19 13:27	SJA
Surrogate: o-Terphenyl		70-130		101 %	08/07/19		08/09/19 13:27		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2D-TP04-0-2

9072903-07 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	95		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1221	ND		ug/kg dry	179	179	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1232	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1242	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1248	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1254	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1260	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1262	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA
Aroclor-1268	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 03:15	SJA

Surrogate: Tetrachloro-m-xylene

40-150

82 %

08/05/19

08/08/19 03:15

Surrogate: Decachlorobiphenyl

40-150

80 %

08/05/19

08/08/19 03:15

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	5.72		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:14	VVD
Barium	23.8		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:14	VVD
Cadmium	ND		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:14	VVD
Chromium	17.1		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:14	VVD
Lead	55.0		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:14	VVD
Mercury	0.0364		mg/kg dry	0.0132	0.0132	1	08/03/19	08/05/19 14:14	VVD
Selenium	1.15		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:14	VVD
Silver	ND		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:14	VVD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

1500 Caton Center Dr Suite G

Baltimore MD 21227

410-247-7600

www.mdspectral.com

Reported:

08/12/19 14:39

TH-2D-TP04-0-2

9072903-07 (Soil)

Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0839	0.0839	1	08/01/19	08/05/19 20:07	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	94.4		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2D-TP04-4-5

9072903-08 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Acenaphthylene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Anthracene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Benzo[a]anthracene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Benzo[a]pyrene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Chrysene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Fluoranthene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Fluorene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Naphthalene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Phenanthrene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Pyrene	ND		ug/kg dry	10.2	10.2	1	08/04/19	08/05/19 14:37	WB
Surrogate: Nitrobenzene-d5		23-120		71 %	08/04/19		08/05/19 14:37		
Surrogate: 2-Fluorobiphenyl		30-115		76 %	08/04/19		08/05/19 14:37		
Surrogate: Terphenyl-d14		18-137		87 %	08/04/19		08/05/19 14:37		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.10	0.10	1	08/02/19	08/02/19 20:30	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	8.2	8.2	1	08/07/19	08/09/19 13:54	SJA

Surrogate: o-Terphenyl		70-130		93 %	08/07/19		08/09/19 13:54		



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2D-TP04-4-5

9072903-08 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	98		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1221	ND		ug/kg dry	173	173	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1232	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1242	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1248	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1254	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1260	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1262	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA
Aroclor-1268	ND		ug/kg dry	84.7	84.7	1	08/05/19	08/08/19 04:10	SJA

Surrogate: Tetrachloro-m-xylene 40-150 86 % 08/05/19 08/08/19 04:10

Surrogate: Decachlorobiphenyl 40-150 84 % 08/05/19 08/08/19 04:10

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	0.775		mg/kg dry	0.255	0.255	1	08/03/19	08/05/19 14:17	VVD
Barium	6.69		mg/kg dry	0.255	0.255	1	08/03/19	08/05/19 14:17	VVD
Cadmium	ND		mg/kg dry	0.255	0.255	1	08/03/19	08/05/19 14:17	VVD
Chromium	2.48		mg/kg dry	0.255	0.255	1	08/03/19	08/05/19 14:17	VVD
Lead	1.30		mg/kg dry	0.255	0.255	1	08/03/19	08/05/19 14:17	VVD
Mercury	ND		mg/kg dry	0.0128	0.0128	1	08/03/19	08/05/19 14:17	VVD
Selenium	ND		mg/kg dry	0.255	0.255	1	08/03/19	08/05/19 14:17	VVD
Silver	ND		mg/kg dry	0.255	0.255	1	08/03/19	08/05/19 14:17	VVD



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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2D-TP04-4-5

9072903-08 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0825	0.0825	1	08/01/19	08/05/19 20:19	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	97.6		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

TH-2D-TP05-0-2

9072903-09 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Acenaphthylene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Anthracene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Benzo[a]anthracene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Benzo[a]pyrene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Chrysene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Fluoranthene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Fluorene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Naphthalene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Phenanthrene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Pyrene	ND		ug/kg dry	10.9	10.9	1	08/04/19	08/05/19 14:59	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	08/04/19		08/05/19 14:59		
Surrogate: 2-Fluorobiphenyl		30-115		70 %	08/04/19		08/05/19 14:59		
Surrogate: Terphenyl-d14		18-137		89 %	08/04/19		08/05/19 14:59		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/02/19	08/02/19 21:03	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.7	8.7	1	08/07/19	08/09/19 14:22	SJA
Surrogate: o-Terphenyl		70-130		92 %	08/07/19		08/09/19 14:22		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2D-TP05-0-2

9072903-09 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	92		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1221	ND		ug/kg dry	185	185	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1232	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1242	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1248	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1254	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1260	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1262	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA
Aroclor-1268	ND		ug/kg dry	90.2	90.2	1	08/05/19	08/08/19 04:38	SJA

Surrogate: Tetrachloro-m-xylene 40-150 81 % 08/05/19 08/08/19 04:38

Surrogate: Decachlorobiphenyl 40-150 78 % 08/05/19 08/08/19 04:38

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	4.06		mg/kg dry	0.272	0.272	1	08/03/19	08/05/19 14:19	VVD
Barium	24.9		mg/kg dry	0.272	0.272	1	08/03/19	08/05/19 14:19	VVD
Cadmium	ND		mg/kg dry	0.272	0.272	1	08/03/19	08/05/19 14:19	VVD
Chromium	15.3		mg/kg dry	0.272	0.272	1	08/03/19	08/05/19 14:19	VVD
Lead	8.95		mg/kg dry	0.272	0.272	1	08/03/19	08/05/19 14:19	VVD
Mercury	0.0437		mg/kg dry	0.0136	0.0136	1	08/03/19	08/05/19 14:19	VVD
Selenium	1.01		mg/kg dry	0.272	0.272	1	08/03/19	08/05/19 14:19	VVD
Silver	ND		mg/kg dry	0.272	0.272	1	08/03/19	08/05/19 14:19	VVD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

1500 Caton Center Dr Suite G

Baltimore MD 21227

410-247-7600

www.mdspectral.com

Reported:

08/12/19 14:39

TH-2D-TP05-0-2

9072903-09 (Soil)

Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0840	0.0840	1	08/01/19	08/05/19 20:31	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	93.1		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2D-TP05-4-5

9072903-10 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Acenaphthylene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Anthracene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Benzo[a]anthracene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Benzo[a]pyrene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Chrysene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Fluoranthene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Fluorene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Naphthalene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Phenanthrene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Pyrene	ND		ug/kg dry	10.6	10.6	1	08/04/19	08/05/19 15:22	WB
Surrogate: Nitrobenzene-d5		23-120		71 %	08/04/19		08/05/19 15:22		
Surrogate: 2-Fluorobiphenyl		30-115		74 %	08/04/19		08/05/19 15:22		
Surrogate: Terphenyl-d14		18-137		90 %	08/04/19		08/05/19 15:22		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/02/19	08/02/19 21:36	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.5	8.5	1	08/07/19	08/09/19 14:49	SJA
Surrogate: o-Terphenyl		70-130		89 %	08/07/19		08/09/19 14:49		

Will Brewington, President

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

TH-2D-TP05-4-5

9072903-10 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	94		%			1	08/06/19	08/07/19 11:04	AL

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1221	ND		ug/kg dry	181	181	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1232	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1242	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1248	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1254	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1260	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1262	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA
Aroclor-1268	ND		ug/kg dry	88.3	88.3	1	08/05/19	08/08/19 05:06	SJA

Surrogate: Tetrachloro-m-xylene 40-150 78 % 08/05/19 08/08/19 05:06

Surrogate: Decachlorobiphenyl 40-150 73 % 08/05/19 08/08/19 05:06

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.13		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:22	VVD
Barium	9.28		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:22	VVD
Cadmium	ND		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:22	VVD
Chromium	8.11		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:22	VVD
Lead	3.08		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:22	VVD
Mercury	ND		mg/kg dry	0.0133	0.0133	1	08/03/19	08/05/19 14:22	VVD
Selenium	0.513		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:22	VVD
Silver	ND		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:22	VVD

Will Brewington, President

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

1500 Caton Center Dr Suite G

Baltimore MD 21227

410-247-7600

www.mdspectral.com

Reported:

08/12/19 14:39

TH-2D-TP05-4-5

9072903-10 (Soil)

Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0834	0.0834	1	08/01/19	08/05/19 20:43	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	93.9		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



Will Brewington, President

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

DUP-5

9072903-11 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Acenaphthylene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Benzo[a]anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Benzo[a]pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Chrysene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Fluoranthene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Fluorene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Naphthalene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Phenanthrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Pyrene	ND		ug/kg dry	10.5	10.5	1	08/04/19	08/05/19 15:45	WB
Surrogate: Nitrobenzene-d5		23-120		67 %	08/04/19		08/05/19 15:45		
Surrogate: 2-Fluorobiphenyl		30-115		72 %	08/04/19		08/05/19 15:45		
Surrogate: Terphenyl-d14		18-137		87 %	08/04/19		08/05/19 15:45		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/02/19	08/02/19 22:09	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.4	8.4	1	08/07/19	08/09/19 15:16	SJA
Surrogate: o-Terphenyl		70-130		89 %	08/07/19		08/09/19 15:16		

Will Brewington, President

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Analytical Results

DUP-5

9072903-11 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	95		%			1	08/06/19	08/07/19 11:04	AL
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1221	ND		ug/kg dry	179	179	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1232	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1242	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1248	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1254	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1260	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1262	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Aroclor-1268	ND		ug/kg dry	87.4	87.4	1	08/05/19	08/08/19 05:33	SJA
Surrogate: Tetrachloro-m-xylene		40-150		76 %	08/05/19		08/08/19 05:33		
Surrogate: Decachlorobiphenyl		40-150		75 %	08/05/19		08/08/19 05:33		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	0.949		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:24	VVD
Barium	9.42		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:24	VVD
Cadmium	ND		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:24	VVD
Chromium	7.25		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:24	VVD
Lead	3.25		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:24	VVD
Mercury	ND		mg/kg dry	0.0132	0.0132	1	08/03/19	08/05/19 14:24	VVD
Selenium	0.446		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:24	VVD
Silver	ND		mg/kg dry	0.263	0.263	1	08/03/19	08/05/19 14:24	VVD

Will Brewington, President

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/12/19 14:39

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

DUP-5

9072903-11 (Soil)
Sample Date: 07/29/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0860	0.0860	1	08/01/19	08/05/19 20:55	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	93.4		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/12/19 14:39

Maryland Spectral Services does not maintain certification for the following analytical parameters:

Enviro-Chem

Matrix , Method , Analyte

Solid | TS-% | % Solids

Solid | CR-HEX-IC-SOIL | Chromium VI

Maryland Spectral Services

Matrix , Method , Analyte

Soil | 6020 (RCRA8 Total) | Arsenic

Soil | 6020 (RCRA8 Total) | Barium

Soil | 6020 (RCRA8 Total) | Cadmium

Soil | 6020 (RCRA8 Total) | Chromium

Soil | 6020 (RCRA8 Total) | Lead

Soil | 6020 (RCRA8 Total) | Mercury

Soil | 6020 (RCRA8 Total) | Selenium

Soil | 6020 (RCRA8 Total) | Silver



Will Brewington, President

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

Notes and Definitions

E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

[illegible]

SUBCONTRACT ORDER
Maryland Spectral Services

9072903

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons
Reports Email: Reporting@mdspectral.com

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone: (410) 472-1112
Fax: (410) 472-1116

Auto-log Sent

Date/Initial
7/29/19 CB

Due 4:00 PM 08/07/19

Laboratory ID Comments

Sample ID: 9072903-01 TH-2C-TP03-0-2 Soil Sampled: 07/29/19 09:00

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072903-02 TH-2C-TP03-4-5 Soil Sampled: 07/29/19 09:10

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072903-03 TH-2C-TP02-0-2 Soil Sampled: 07/29/19 09:50

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072903-04 TH-2C-TP02-4-5 Soil Sampled: 07/29/19 10:05

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Received By: [Signature] Date: 7/30/19 1320
Received By: B. [Signature] Date: 7/30/19

SUBCONTRACT ORDER
Maryland Spectral Services

9072903

Due 4:00 PM 08/07/19

Laboratory ID

Comments

Sample ID: 9072903-05

TH-2D-TP03-0-2

Soil

Sampled: 07/29/19 10:50

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072903-06

TH-2D-TP03-4-5

Soil

Sampled: 07/29/19 11:10

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072903-07

TH-2D-TP04-0-2

Soil

Sampled: 07/29/19 12:05

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072903-08

TH-2D-TP04-4-5

Soil

Sampled: 07/29/19 12:15

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9072903-09

TH-2D-TP05-0-2

Soil

Sampled: 07/29/19 14:45

7199- (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Received By: *[Signature]* Date: 7/30/19
Received By: *[Signature]* Date: 7/30/19 1320

SUBCONTRACT ORDER
Maryland Spectral Services

9072903

Due 4:00 PM 08/07/19 Laboratory ID Comments

Sample ID: 9072903-10 TH-2D-TP05-4-5 Soil Sampled: 07/29/19 14:50

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9072903-11 DUP-5 Soil Sampled: 07/29/19 08:00

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

 7/30/19

Released By

Date

Received By

Date

Released By

Date

Received By

Date

13 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/30/19 16:05.

Maryland Spectral Services, Inc. is a TNI 2009 Standard accredited laboratory and as such, all analyses performed at Maryland Spectral Services included in this report are 2009 TNI certified except as indicated at the end of this report. Please visit our website at www.mdspectral.com for a complete listing of our TNI 2009 Standard accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rabecka Koons
Quality Assurance Officer

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-2D-TP01-0-2		9073020-01	Soil	07/30/19 08:40	07/30/19 16:05
TH-2D-TP01-4-5		9073020-02	Soil	07/30/19 08:50	07/30/19 16:05
TH-2D-TP02-0-2		9073020-03	Soil	07/30/19 09:50	07/30/19 16:05
TH-2D-TP02-4-5		9073020-04	Soil	07/30/19 10:00	07/30/19 16:05
TH-2E-TP01-0-2		9073020-05	Soil	07/30/19 10:50	07/30/19 16:05
TH-2E-TP01-4-5		9073020-06	Soil	07/30/19 11:00	07/30/19 16:05

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2D-TP01-0-2

9073020-01 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Acenaphthylene	ND		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Anthracene	ND		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Benzo[a]anthracene	15.4		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Benzo[b]fluoranthene	27.8		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Benzo[k]fluoranthene	ND		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Benzo[ghi]perylene	20.9		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Benzo[a]pyrene	18.7		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Chrysene	26.9		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Fluoranthene	32.0		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Fluorene	ND		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Indeno[1,2,3-cd]pyrene	17.0		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Naphthalene	ND		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Phenanthrene	18.2		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Pyrene	34.4		ug/kg dry	12.5	12.5	1	08/04/19	08/05/19 16:08	WB
Surrogate: Nitrobenzene-d5		23-120		69 %	08/04/19		08/05/19 16:08		
Surrogate: 2-Fluorobiphenyl		30-115		73 %	08/04/19		08/05/19 16:08		
Surrogate: Terphenyl-d14		18-137		82 %	08/04/19		08/05/19 16:08		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/07/19	08/07/19 20:45	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	32.3		mg/kg dry	10.0	10.0	1	08/07/19	08/08/19 21:30	SJA
Surrogate: o-Terphenyl		70-130		96 %	08/07/19		08/08/19 21:30		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2D-TP01-0-2

9073020-01 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	80		%			1	08/08/19	08/09/19 10:29	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1221	ND		ug/kg dry	213	213	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1232	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1242	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1248	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1254	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1260	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1262	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA
Aroclor-1268	ND		ug/kg dry	104	104	1	08/08/19	08/10/19 14:33	SJA

Surrogate: Tetrachloro-m-xylene 40-150 85 % 08/08/19 08/10/19 14:33

Surrogate: Decachlorobiphenyl 40-150 85 % 08/08/19 08/10/19 14:33

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	15.6		mg/kg dry	0.313	0.313	1	08/03/19	08/05/19 14:42	VVD
Barium	802		mg/kg dry	3.13	3.13	10	08/03/19	08/06/19 15:46	VVD
Cadmium	3.65		mg/kg dry	0.313	0.313	1	08/03/19	08/05/19 14:42	VVD
Chromium	38.6		mg/kg dry	0.313	0.313	1	08/03/19	08/05/19 14:42	VVD
Lead	481		mg/kg dry	3.13	3.13	10	08/03/19	08/06/19 15:46	VVD
Mercury	0.105		mg/kg dry	0.0156	0.0156	1	08/03/19	08/05/19 14:42	VVD
Selenium	3.19		mg/kg dry	0.313	0.313	1	08/03/19	08/05/19 14:42	VVD
Silver	1.58		mg/kg dry	0.313	0.313	1	08/03/19	08/05/19 14:42	VVD



Rabecka Koons, Quality Assurance Officer

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Analytical Results

1500 Caton Center Dr Suite G
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410-247-7600
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Reported:
08/13/19 16:15

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2D-TP01-0-2

9073020-01 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.128		mg/kg dry	0.0990	0.0990	1	08/12/19	08/12/19 18:15	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	81.7		%	1.00	1.00	1	08/12/19	08/12/19 12:52	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2D-TP01-4-5

9073020-02 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Acenaphthylene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Anthracene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Benzo[a]anthracene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Benzo[a]pyrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Chrysene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Fluoranthene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Fluorene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Naphthalene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Phenanthrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Pyrene	ND		ug/kg dry	13.2	13.2	1	08/04/19	08/05/19 16:31	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	08/04/19		08/05/19 16:31		
Surrogate: 2-Fluorobiphenyl		30-115		69 %	08/04/19		08/05/19 16:31		
Surrogate: Terphenyl-d14		18-137		69 %	08/04/19		08/05/19 16:31		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.13	0.13	1	08/07/19	08/07/19 21:15	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	10.5	10.5	1	08/07/19	08/08/19 21:58	SJA

Surrogate: o-Terphenyl		70-130		83 %	08/07/19		08/08/19 21:58		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-2D-TP01-4-5

9073020-02 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	76		%			1	08/08/19	08/09/19 10:29	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1221	ND		ug/kg dry	224	224	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1232	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1242	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1248	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1254	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1260	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1262	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA
Aroclor-1268	ND		ug/kg dry	109	109	1	08/08/19	08/10/19 15:01	SJA

Surrogate: Tetrachloro-m-xylene 40-150 79 % 08/08/19 08/10/19 15:01

Surrogate: Decachlorobiphenyl 40-150 77 % 08/08/19 08/10/19 15:01

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	3.08		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 14:45	VVD
Barium	35.4		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 14:45	VVD
Cadmium	ND		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 14:45	VVD
Chromium	10.0		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 14:45	VVD
Lead	4.50		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 14:45	VVD
Mercury	0.0312		mg/kg dry	0.0164	0.0164	1	08/03/19	08/05/19 14:45	VVD
Selenium	3.40		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 14:45	VVD
Silver	ND		mg/kg dry	0.329	0.329	1	08/03/19	08/05/19 14:45	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

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Baltimore MD 21227
410-247-7600
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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

TH-2D-TP01-4-5

9073020-02 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0998	0.0998	1	08/12/19	08/12/19 19:15	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	77.2		%	1.00	1.00	1	08/12/19	08/12/19 12:52	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

TH-2D-TP02-0-2

9073020-03 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Acenaphthylene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Anthracene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Benzo[a]anthracene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Benzo[b]fluoranthene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Benzo[k]fluoranthene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Benzo[ghi]perylene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Benzo[a]pyrene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Chrysene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Fluoranthene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Fluorene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Naphthalene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Phenanthrene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Pyrene	ND		ug/kg dry	13.9	13.9	1	08/04/19	08/05/19 16:54	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	08/04/19		08/05/19 16:54		
Surrogate: 2-Fluorobiphenyl		30-115		72 %	08/04/19		08/05/19 16:54		
Surrogate: Terphenyl-d14		18-137		81 %	08/04/19		08/05/19 16:54		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	08/07/19	08/07/19 21:46	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	19.4		mg/kg dry	11.1	11.1	1	08/07/19	08/08/19 22:25	SJA
Surrogate: o-Terphenyl		70-130		93 %	08/07/19		08/08/19 22:25		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2D-TP02-0-2

9073020-03 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	72		%			1	08/08/19	08/09/19 10:29	GM
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1221	ND		ug/kg dry	236	236	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1232	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1242	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1248	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1254	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1260	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1262	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Aroclor-1268	ND		ug/kg dry	115	115	1	08/08/19	08/10/19 15:28	SJA
Surrogate: Tetrachloro-m-xylene		40-150		83 %			08/08/19	08/10/19 15:28	
Surrogate: Decachlorobiphenyl		40-150		69 %			08/08/19	08/10/19 15:28	
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	3.87		mg/kg dry	0.347	0.347	1	08/03/19	08/05/19 14:48	VVD
Barium	125		mg/kg dry	0.347	0.347	1	08/03/19	08/05/19 14:48	VVD
Cadmium	0.941		mg/kg dry	0.347	0.347	1	08/03/19	08/05/19 14:48	VVD
Chromium	11.5		mg/kg dry	0.347	0.347	1	08/03/19	08/05/19 14:48	VVD
Lead	69.5		mg/kg dry	0.347	0.347	1	08/03/19	08/05/19 14:48	VVD
Mercury	0.0707		mg/kg dry	0.0174	0.0174	1	08/03/19	08/05/19 14:48	VVD
Selenium	5.62		mg/kg dry	0.347	0.347	1	08/03/19	08/05/19 14:48	VVD
Silver	ND		mg/kg dry	0.347	0.347	1	08/03/19	08/05/19 14:48	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

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TH-2D-TP02-0-2

9073020-03 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0978	0.0978	1	08/12/19	08/12/19 19:27	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	82.0		%	1.00	1.00	1	08/12/19	08/12/19 12:52	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2D-TP02-4-5

9073020-04 (Soil)

Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)

Acenaphthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Acenaphthylene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Benzo[a]anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Benzo[a]pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Chrysene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Fluorene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Naphthalene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Phenanthrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB
Pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:17	WB

Surrogate: Nitrobenzene-d5		23-120	64 %	08/04/19	08/05/19 17:17
Surrogate: 2-Fluorobiphenyl		30-115	68 %	08/04/19	08/05/19 17:17
Surrogate: Terphenyl-d14		18-137	82 %	08/04/19	08/05/19 17:17

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/07/19	08/07/19 22:16	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	9.3	9.3	1	08/07/19	08/08/19 22:53	SJA

Surrogate: o-Terphenyl		70-130	85 %	08/07/19	08/08/19 22:53

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2D-TP02-4-5

9073020-04 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	86		%			1	08/08/19	08/09/19 10:29	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 15:56	SJA

Surrogate: Tetrachloro-m-xylene 40-150 84 % 08/08/19 08/10/19 15:56

Surrogate: Decachlorobiphenyl 40-150 81 % 08/08/19 08/10/19 15:56

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.58		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:50	VVD
Barium	295		mg/kg dry	1.45	1.45	5	08/03/19	08/06/19 15:51	VVD
Cadmium	ND		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:50	VVD
Chromium	3.02		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:50	VVD
Lead	2.67		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:50	VVD
Mercury	0.0238		mg/kg dry	0.0145	0.0145	1	08/03/19	08/05/19 14:50	VVD
Selenium	5.34		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:50	VVD
Silver	ND		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:50	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

TH-2D-TP02-4-5

9073020-04 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.106	0.106	1	08/12/19	08/12/19 19:39	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	75.5		%	1.00	1.00	1	08/12/19	08/12/19 12:52	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2E-TP01-0-2

9073020-05 (Soil)

Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Acenaphthylene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Benzo[a]anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Benzo[a]pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Chrysene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Fluorene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Naphthalene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Phenanthrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 17:40	WB
Surrogate: Nitrobenzene-d5		23-120		61 %	08/04/19		08/05/19 17:40		
Surrogate: 2-Fluorobiphenyl		30-115		70 %	08/04/19		08/05/19 17:40		
Surrogate: Terphenyl-d14		18-137		81 %	08/04/19		08/05/19 17:40		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/07/19	08/07/19 22:46	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	9.3	9.3	1	08/07/19	08/08/19 23:20	SJA

Surrogate: o-Terphenyl		70-130		91 %	08/07/19		08/08/19 23:20		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2E-TP01-0-2

9073020-05 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	86		%			1	08/08/19	08/09/19 10:29	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:24	SJA

Surrogate: Tetrachloro-m-xylene 40-150 87 % 08/08/19 08/10/19 16:24

Surrogate: Decachlorobiphenyl 40-150 89 % 08/08/19 08/10/19 16:24

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.66		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:53	VVD
Barium	116		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:53	VVD
Cadmium	ND		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:53	VVD
Chromium	13.1		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:53	VVD
Lead	10.2		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:53	VVD
Mercury	0.0246		mg/kg dry	0.0145	0.0145	1	08/03/19	08/05/19 14:53	VVD
Selenium	3.03		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:53	VVD
Silver	ND		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:53	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

TH-2E-TP01-0-2

9073020-05 (Soil)

Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0885	0.0885	1	08/12/19	08/12/19 20:14	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	86.1		%	1.00	1.00	1	08/12/19	08/12/19 12:52	FRD



Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

TH-2E-TP01-4-5

9073020-06 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Acenaphthylene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Benzo[a]anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Benzo[a]pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Chrysene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Fluoranthene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Fluorene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Naphthalene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Phenanthrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Pyrene	ND		ug/kg dry	11.6	11.6	1	08/04/19	08/05/19 18:03	WB
Surrogate: Nitrobenzene-d5		23-120		70 %	08/04/19		08/05/19 18:03		
Surrogate: 2-Fluorobiphenyl		30-115		75 %	08/04/19		08/05/19 18:03		
Surrogate: Terphenyl-d14		18-137		88 %	08/04/19		08/05/19 18:03		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/08/19	08/08/19 12:40	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.3	9.3	1	08/07/19	08/08/19 23:47	SJA
Surrogate: o-Terphenyl		70-130		87 %	08/07/19		08/08/19 23:47		

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Analytical Results

TH-2E-TP01-4-5

9073020-06 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	86		%			1	08/08/19	08/09/19 10:29	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	08/08/19	08/10/19 16:51	SJA

Surrogate: Tetrachloro-m-xylene 40-150 81 % 08/08/19 08/10/19 16:51

Surrogate: Decachlorobiphenyl 40-150 78 % 08/08/19 08/10/19 16:51

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.39		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:55	VVD
Barium	151	E	mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:55	VVD
Cadmium	ND		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:55	VVD
Chromium	3.89		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:55	VVD
Lead	5.42		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:55	VVD
Mercury	0.0191		mg/kg dry	0.0145	0.0145	1	08/03/19	08/05/19 14:55	VVD
Selenium	1.73		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:55	VVD
Silver	ND		mg/kg dry	0.291	0.291	1	08/03/19	08/05/19 14:55	VVD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

TH-2E-TP01-4-5

9073020-06 (Soil)
Sample Date: 07/30/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0938	0.0938	1	08/12/19	08/12/19 20:26	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.0		%	1.00	1.00	1	08/12/19	08/12/19 12:52	FRD

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/13/19 16:15

Maryland Spectral Services does not maintain certification for the following analytical parameters:

Enviro-Chem

Matrix , Method , Analyte

Solid | TS-% | % Solids

Solid | CR-HEX-IC-SOIL | Chromium VI

Maryland Spectral Services

Matrix , Method , Analyte

Soil | 6020 (RCRA8 Total) | Arsenic

Soil | 6020 (RCRA8 Total) | Barium

Soil | 6020 (RCRA8 Total) | Cadmium

Soil | 6020 (RCRA8 Total) | Chromium

Soil | 6020 (RCRA8 Total) | Lead

Soil | 6020 (RCRA8 Total) | Mercury

Soil | 6020 (RCRA8 Total) | Selenium

Soil | 6020 (RCRA8 Total) | Silver



Rabecka Koons, Quality Assurance Officer

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

Notes and Definitions

PCB-3	Due to coeluting peaks there may be a high bias to the result.
PCB-2	Sample contains a complex mixture of Aroclors. Identification may be considered subjective
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation

Rabecka Koons

Rabecka Koons, Quality Assurance Officer

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

SUBCONTRACT ORDER
Maryland Spectral Services

9073020

59893

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone: (410) 472-1112
Fax: (410) 472-1116

Auto-log Sent

Date/Initial
8/9/19 / KH

Reports Email: Reporting@mdspectral.com

Due 4:00 PM 08/08/19- ASAP

Laboratory ID

Comments

Sample ID: 9073020-01

TH-2D-TP01-0-2

Soil

Sampled: 07/30/19 08:40

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9073020-02

TH-2D-TP01-4-5

Soil

Sampled: 07/30/19 08:50

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9073020-03

TH-2D-TP02-0-2

Soil

Sampled: 07/30/19 09:50

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Sample ID: 9073020-04

TH-2D-TP02-4-5

Soil

Sampled: 07/30/19 10:00

7199 - (Chromium6)

Containers Supplied:

Glass Jar, 4 oz (C)

Released By: [Signature] Date: 8/9/19
Received By: [Signature] Date: 8/19/19

SUBCONTRACT ORDER
Maryland Spectral Services

9073020

Due 4:00 PM 08/08/19 A-SAP

Laboratory ID

Comments

Sample ID: 9073020-05

TH-2E-TP01-0-2

Soil

Sampled: 07/30/19 10:50

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Sample ID: 9073020-06

TH-2E-TP01-4-5

Soil

Sampled: 07/30/19 11:00

7199- (Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Released By

Date

Received By

Date

Released By

Date

Received By

Date

15 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 07/31/19 16:27.

Maryland Spectral Services, Inc. is a TNI 2009 Standard accredited laboratory and as such, all analyses performed at Maryland Spectral Services included in this report are 2009 TNI certified except as indicated at the end of this report. Please visit our website at www.mdspectral.com for a complete listing of our TNI 2009 Standard accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Will Brewington
President

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-3B-TP01-0-2		9073116-01	Soil	07/31/19 10:00	07/31/19 16:27
TH-3B-TP01-6.8-7.8		9073116-02	Soil	07/31/19 10:30	07/31/19 16:27
TH-3B-TP01-1.7 BLUE		9073116-03	Soil	07/31/19 09:45	07/31/19 16:27
TH-3C-TP01-0-2		9073116-04	Soil	07/31/19 11:45	07/31/19 16:27
TH-3C-TP01-4-5		9073116-05	Soil	07/31/19 11:50	07/31/19 16:27
DUP-6		9073116-06	Soil	07/31/19 08:00	07/31/19 16:27
DUP-7		9073116-07	Soil	07/31/19 08:00	07/31/19 16:27



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

TH-3B-TP01-0-2

9073116-01 (Soil)

Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Acenaphthylene	ND		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Anthracene	ND		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Benzo[a]anthracene	20.9		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Benzo[b]fluoranthene	33.2		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Benzo[ghi]perylene	21.7		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Benzo[a]pyrene	21.3		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Chrysene	30.3		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Fluoranthene	41.1		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Fluorene	ND		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Indeno[1,2,3-cd]pyrene	19.8		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Naphthalene	ND		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Phenanthrene	17.8		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Pyrene	40.5		ug/kg dry	10.6	10.6	1	08/07/19	08/08/19 12:20	WB
Surrogate: Nitrobenzene-d5		23-120		68 %	08/07/19		08/08/19 12:20		
Surrogate: 2-Fluorobiphenyl		30-115		77 %	08/07/19		08/08/19 12:20		
Surrogate: Terphenyl-d14		18-137		90 %	08/07/19		08/08/19 12:20		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/08/19	08/08/19 13:41	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	27.5		mg/kg dry	17.0	17.0	1	08/08/19	08/09/19 17:06	SJA
Surrogate: o-Terphenyl		70-130		98 %	08/08/19		08/09/19 17:06		

Will Brewington, President

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-3B-TP01-0-2

9073116-01 (Soil)

Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	94		%			1	08/09/19	08/09/19 16:05	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1221	ND		ug/kg dry	181	181	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1232	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1242	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1248	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1254	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1260	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1262	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA
Aroclor-1268	ND		ug/kg dry	88.3	88.3	1	08/09/19	08/12/19 00:05	SJA

Surrogate: Tetrachloro-m-xylene 40-150 89 % 08/09/19 08/12/19 00:05

Surrogate: Decachlorobiphenyl 40-150 81 % 08/09/19 08/12/19 00:05

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	6.89		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:58	VVD
Barium	101		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:58	VVD
Cadmium	0.330		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:58	VVD
Chromium	16.4		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:58	VVD
Lead	120		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:58	VVD
Mercury	0.0574		mg/kg dry	0.0133	0.0133	1	08/03/19	08/05/19 14:58	VVD
Selenium	1.25		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:58	VVD
Silver	ND		mg/kg dry	0.266	0.266	1	08/03/19	08/05/19 14:58	VVD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

1500 Caton Center Dr Suite G

Baltimore MD 21227

410-247-7600

www.mdspectral.com

Reported:

08/15/19 18:09

TH-3B-TP01-0-2

9073116-01 (Soil)

Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.113		mg/kg dry	0.0855	0.0855	1	08/01/19	08/05/19 21:07	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	92.2		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

TH-3B-TP01-6.8-7.8

9073116-02 (Soil)

Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)

Acenaphthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Acenaphthylene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Anthracene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Benzo[a]anthracene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Benzo[a]pyrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Chrysene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Fluorene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Naphthalene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Phenanthrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB
Pyrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 12:43	WB

Surrogate: Nitrobenzene-d5		23-120	60 %	08/07/19	08/08/19 12:43
Surrogate: 2-Fluorobiphenyl		30-115	66 %	08/07/19	08/08/19 12:43
Surrogate: Terphenyl-d14		18-137	92 %	08/07/19	08/08/19 12:43

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/08/19	08/08/19 14:12	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	8.6	8.6	1	08/08/19	08/09/19 17:33	SJA

Surrogate: o-Terphenyl		70-130	97 %	08/08/19	08/09/19 17:33



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

TH-3B-TP01-6.8-7.8

9073116-02 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	93		%			1	08/09/19	08/09/19 16:05	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1221	ND		ug/kg dry	183	183	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1232	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1242	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1248	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1254	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1260	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1262	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA
Aroclor-1268	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 00:33	SJA

Surrogate: Tetrachloro-m-xylene 40-150 90 % 08/09/19 08/12/19 00:33

Surrogate: Decachlorobiphenyl 40-150 77 % 08/09/19 08/12/19 00:33

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.94		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 15:20	VVD
Barium	13.8		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 15:20	VVD
Cadmium	ND		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 15:20	VVD
Chromium	11.2		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 15:20	VVD
Lead	5.32		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 15:20	VVD
Mercury	ND		mg/kg dry	0.0134	0.0134	1	08/03/19	08/05/19 15:20	VVD
Selenium	0.417		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 15:20	VVD
Silver	ND		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 15:20	VVD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

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www.mdspectral.com

Reported:

08/15/19 18:09

TH-3B-TP01-6.8-7.8

9073116-02 (Soil)

Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.136		mg/kg dry	0.0836	0.0836	1	08/01/19	08/05/19 21:19	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	93.8		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

TH-3B-TP01-1.7 BLUE

9073116-03 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
pH MEASUREMENT BY EPA 9040B									
pH	6.50		pH Units			1	08/01/19	08/01/19 12:41	AL
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	73		%			1	08/09/19	08/09/19 16:05	BJP
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Aluminum	152000		mg/kg dry	1710	1710	100	08/03/19	08/06/19 15:59	VVD
Antimony	0.819		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Arsenic	19.4		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Barium	39.4		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Beryllium	ND		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Cadmium	0.482		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Calcium	287		mg/kg dry	85.6	85.6	1	08/03/19	08/05/19 16:03	VVD
Chromium	9.98		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Cobalt	2.42		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Copper	17000		mg/kg dry	34.2	34.2	100	08/03/19	08/06/19 15:59	VVD
Iron	9970		mg/kg dry	85.6	85.6	1	08/03/19	08/05/19 16:03	VVD
Lead	158		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Magnesium	561		mg/kg dry	85.6	85.6	1	08/03/19	08/05/19 16:03	VVD
Manganese	85.1		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Mercury	0.0308		mg/kg dry	0.0171	0.0171	1	08/03/19	08/05/19 16:03	VVD
Nickel	8.76		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Potassium	285		mg/kg dry	85.6	85.6	1	08/03/19	08/05/19 16:03	VVD
Selenium	0.713		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Silver	5.34		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Sodium	ND		mg/kg dry	85.6	85.6	1	08/03/19	08/05/19 16:03	VVD
Thallium	ND		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Vanadium	18.0		mg/kg dry	0.342	0.342	1	08/03/19	08/05/19 16:03	VVD
Zinc	ND		mg/kg dry	171	171	100	08/03/19	08/06/19 15:59	VVD

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

TH-3C-TP01-0-2

9073116-04 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Acenaphthylene	ND		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Anthracene	ND		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Benzo[a]anthracene	20.9		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Benzo[b]fluoranthene	27.8		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Benzo[ghi]perylene	10.6		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Benzo[a]pyrene	14.3		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Chrysene	27.1		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Fluoranthene	43.7		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Fluorene	ND		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Indeno[1,2,3-cd]pyrene	12.1		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Naphthalene	ND		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Phenanthrene	12.8		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Pyrene	35.9		ug/kg dry	10.3	10.3	1	08/07/19	08/08/19 13:06	WB
Surrogate: Nitrobenzene-d5		23-120		64 %	08/07/19		08/08/19 13:06		
Surrogate: 2-Fluorobiphenyl		30-115		69 %	08/07/19		08/08/19 13:06		
Surrogate: Terphenyl-d14		18-137		91 %	08/07/19		08/08/19 13:06		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.10	0.10	1	08/08/19	08/08/19 15:13	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.2	8.2	1	08/08/19	08/09/19 18:01	SJA
Surrogate: o-Terphenyl		70-130		97 %	08/08/19		08/09/19 18:01		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

TH-3C-TP01-0-2

9073116-04 (Soil)

Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	97		%			1	08/09/19	08/09/19 16:05	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1221	ND		ug/kg dry	175	175	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1232	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1242	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1248	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1254	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1260	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1262	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA
Aroclor-1268	ND		ug/kg dry	85.6	85.6	1	08/09/19	08/12/19 01:00	SJA

Surrogate: Tetrachloro-m-xylene 40-150 90 % 08/09/19 08/12/19 01:00

Surrogate: Decachlorobiphenyl 40-150 76 % 08/09/19 08/12/19 01:00

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.42		mg/kg dry	0.258	0.258	1	08/03/19	08/05/19 16:05	VVD
Barium	20.9		mg/kg dry	0.258	0.258	1	08/03/19	08/05/19 16:05	VVD
Cadmium	ND		mg/kg dry	0.258	0.258	1	08/03/19	08/05/19 16:05	VVD
Chromium	6.51		mg/kg dry	0.258	0.258	1	08/03/19	08/05/19 16:05	VVD
Lead	10.9		mg/kg dry	0.258	0.258	1	08/03/19	08/05/19 16:05	VVD
Mercury	0.0165		mg/kg dry	0.0129	0.0129	1	08/03/19	08/05/19 16:05	VVD
Selenium	0.985		mg/kg dry	0.258	0.258	1	08/03/19	08/05/19 16:05	VVD
Silver	ND		mg/kg dry	0.258	0.258	1	08/03/19	08/05/19 16:05	VVD



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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

TH-3C-TP01-0-2

9073116-04 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.228		mg/kg dry	0.0803	0.0803	1	08/01/19	08/05/19 21:55	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	96.9		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



Will Brewington, President

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

TH-3C-TP01-4-5

9073116-05 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Acenaphthylene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Anthracene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Benzo[a]anthracene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Benzo[b]fluoranthene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Benzo[k]fluoranthene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Benzo[ghi]perylene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Benzo[a]pyrene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Chrysene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Fluoranthene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Fluorene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Naphthalene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Phenanthrene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Pyrene	ND		ug/kg dry	14.1	14.1	1	08/07/19	08/08/19 13:29	WB
Surrogate: Nitrobenzene-d5		23-120		65 %	08/07/19		08/08/19 13:29		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	08/07/19		08/08/19 13:29		
Surrogate: Terphenyl-d14		18-137		76 %	08/07/19		08/08/19 13:29		

GASOLINE RANGE ORGANICS BY EPA 5030/8015C

Gasoline-Range Organics	ND		mg/kg dry	0.14	0.14	1	08/08/19	08/08/19 15:43	GM

DIESEL RANGE ORGANICS BY EPA 3540/8015C

Diesel-Range Organics	ND		mg/kg dry	11.3	11.3	1	08/08/19	08/09/19 18:28	SJA

Surrogate: o-Terphenyl		70-130		86 %	08/08/19		08/09/19 18:28		



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

TH-3C-TP01-4-5

9073116-05 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	71		%			1	08/09/19	08/09/19 16:05	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1221	ND		ug/kg dry	239	239	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1232	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1242	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1248	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1254	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1260	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1262	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA
Aroclor-1268	ND		ug/kg dry	117	117	1	08/09/19	08/12/19 01:28	SJA

Surrogate: Tetrachloro-m-xylene 40-150 85 % 08/09/19 08/12/19 01:28

Surrogate: Decachlorobiphenyl 40-150 78 % 08/09/19 08/12/19 01:28

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.09		mg/kg dry	0.352	0.352	1	08/03/19	08/05/19 16:08	VVD
Barium	20.7		mg/kg dry	0.352	0.352	1	08/03/19	08/05/19 16:08	VVD
Cadmium	ND		mg/kg dry	0.352	0.352	1	08/03/19	08/05/19 16:08	VVD
Chromium	12.5		mg/kg dry	0.352	0.352	1	08/03/19	08/05/19 16:08	VVD
Lead	2.33		mg/kg dry	0.352	0.352	1	08/03/19	08/05/19 16:08	VVD
Mercury	0.0259		mg/kg dry	0.0176	0.0176	1	08/03/19	08/05/19 16:08	VVD
Selenium	1.30		mg/kg dry	0.352	0.352	1	08/03/19	08/05/19 16:08	VVD
Silver	ND		mg/kg dry	0.352	0.352	1	08/03/19	08/05/19 16:08	VVD



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Analytical Results

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

TH-3C-TP01-4-5

9073116-05 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.108	0.108	1	08/01/19	08/05/19 22:07	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	74.2		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

DUP-6

9073116-06 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Acenaphthylene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Anthracene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Benzo[a]anthracene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Benzo[a]pyrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Chrysene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Fluoranthene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Fluorene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Naphthalene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Phenanthrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Pyrene	ND		ug/kg dry	10.8	10.8	1	08/07/19	08/08/19 13:53	WB
Surrogate: Nitrobenzene-d5		23-120		55 %	08/07/19		08/08/19 13:53		
Surrogate: 2-Fluorobiphenyl		30-115		61 %	08/07/19		08/08/19 13:53		
Surrogate: Terphenyl-d14		18-137		79 %	08/07/19		08/08/19 13:53		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/08/19	08/08/19 16:14	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.6	8.6	1	08/08/19	08/09/19 18:55	SJA
Surrogate: o-Terphenyl		70-130		92 %	08/08/19		08/09/19 18:55		

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

DUP-6

9073116-06 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	93		%			1	08/09/19	08/09/19 16:05	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1221	ND		ug/kg dry	183	183	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1232	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1242	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1248	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1254	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1260	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1262	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA
Aroclor-1268	ND		ug/kg dry	89.2	89.2	1	08/09/19	08/12/19 01:56	SJA

Surrogate: Tetrachloro-m-xylene 40-150 91 % 08/09/19 08/12/19 01:56

Surrogate: Decachlorobiphenyl 40-150 80 % 08/09/19 08/12/19 01:56

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.03		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 16:11	VVD
Barium	17.2		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 16:11	VVD
Cadmium	ND		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 16:11	VVD
Chromium	12.7		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 16:11	VVD
Lead	6.34		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 16:11	VVD
Mercury	ND		mg/kg dry	0.0134	0.0134	1	08/03/19	08/05/19 16:11	VVD
Selenium	0.356		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 16:11	VVD
Silver	ND		mg/kg dry	0.269	0.269	1	08/03/19	08/05/19 16:11	VVD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

DUP-6

9073116-06 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.110		mg/kg dry	0.0842	0.0842	1	08/01/19	08/05/19 22:19	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	94.1		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Analytical Results

DUP-7

9073116-07 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Acenaphthylene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Anthracene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Benzo[a]anthracene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Benzo[b]fluoranthene	15.0		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Benzo[ghi]perylene	13.3		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Benzo[a]pyrene	12.3		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Chrysene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Fluoranthene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Fluorene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Indeno[1,2,3-cd]pyrene	12.0		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Naphthalene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Phenanthrene	ND		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Pyrene	12.0		ug/kg dry	10.4	10.4	1	08/07/19	08/08/19 14:16	WB
Surrogate: Nitrobenzene-d5		23-120		46 %	08/07/19		08/08/19 14:16		
Surrogate: 2-Fluorobiphenyl		30-115		50 %	08/07/19		08/08/19 14:16		
Surrogate: Terphenyl-d14		18-137		90 %	08/07/19		08/08/19 14:16		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.10	0.10	1	08/08/19	08/08/19 16:44	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.3	8.3	1	08/08/19	08/09/19 19:23	SJA
Surrogate: o-Terphenyl		70-130		93 %	08/08/19		08/09/19 19:23		

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

DUP-7

9073116-07 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	96		%			1	08/09/19	08/09/19 16:05	BJP

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1221	ND		ug/kg dry	177	177	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1232	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1242	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1248	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1254	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1260	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1262	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA
Aroclor-1268	ND		ug/kg dry	86.5	86.5	1	08/09/19	08/12/19 02:23	SJA

Surrogate: Tetrachloro-m-xylene 40-150 89 % 08/09/19 08/12/19 02:23

Surrogate: Decachlorobiphenyl 40-150 79 % 08/09/19 08/12/19 02:23

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.38		mg/kg dry	0.260	0.260	1	08/03/19	08/05/19 16:13	VVD
Barium	19.5		mg/kg dry	0.260	0.260	1	08/03/19	08/05/19 16:13	VVD
Cadmium	ND		mg/kg dry	0.260	0.260	1	08/03/19	08/05/19 16:13	VVD
Chromium	5.95		mg/kg dry	0.260	0.260	1	08/03/19	08/05/19 16:13	VVD
Lead	11.8		mg/kg dry	0.260	0.260	1	08/03/19	08/05/19 16:13	VVD
Mercury	ND		mg/kg dry	0.0130	0.0130	1	08/03/19	08/05/19 16:13	VVD
Selenium	0.720		mg/kg dry	0.260	0.260	1	08/03/19	08/05/19 16:13	VVD
Silver	ND		mg/kg dry	0.260	0.260	1	08/03/19	08/05/19 16:13	VVD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

DUP-7

9073116-07 (Soil)
Sample Date: 07/31/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0829	0.0829	1	08/01/19	08/05/19 22:31	BMG
Wet Chemistry Performed at Enviro-Chem									
% Solids	96.5		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD



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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/15/19 18:09

Maryland Spectral Services does not maintain certification for the following analytical parameters:

Enviro-Chem

Matrix , Method , Analyte

Solid | TS-% | % Solids

Solid | CR-HEX-IC-SOIL | Chromium VI

Maryland Spectral Services

Matrix , Method , Analyte

Soil | 6020 (TAL Total) | Aluminum

Soil | 6020 (TAL Total) | Antimony

Soil | 6020 (TAL Total) | Arsenic

Soil | 6020 (TAL Total) | Barium

Soil | 6020 (TAL Total) | Beryllium

Soil | 6020 (TAL Total) | Cadmium

Soil | 6020 (TAL Total) | Calcium

Soil | 6020 (TAL Total) | Chromium

Soil | 6020 (TAL Total) | Cobalt

Soil | 6020 (TAL Total) | Copper

Soil | 6020 (TAL Total) | Iron

Soil | 6020 (TAL Total) | Lead

Soil | 6020 (TAL Total) | Magnesium

Soil | 6020 (TAL Total) | Manganese

Soil | 6020 (TAL Total) | Mercury

Soil | 6020 (TAL Total) | Nickel

Soil | 6020 (TAL Total) | Potassium

Soil | 6020 (TAL Total) | Selenium

Soil | 6020 (TAL Total) | Silver

Soil | 6020 (TAL Total) | Sodium

Soil | 6020 (TAL Total) | Thallium

Soil | 6020 (TAL Total) | Vanadium

Soil | 6020 (TAL Total) | Zinc

Soil | 6020 (RCRA8 Total) | Arsenic

Soil | 6020 (RCRA8 Total) | Barium

Soil | 6020 (RCRA8 Total) | Cadmium

Soil | 6020 (RCRA8 Total) | Chromium

Soil | 6020 (RCRA8 Total) | Lead

Soil | 6020 (RCRA8 Total) | Mercury

Soil | 6020 (RCRA8 Total) | Selenium

Soil | 6020 (RCRA8 Total) | Silver

Matrix , Method , Analyte

Water | pH (pH Meter) | pH



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

Notes and Definitions

E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Will Brewington, President

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Company Name: EA Engineering				Project Manager: Vicki Pittman		Analysis Requested								CHAIN-OF-CUSTODY RECORD								
Project Name: Troy Hill Park Phase II				Project ID: 1483560										Maryland Spectral Services, Inc. 1500 Caton Center Drive, Suite G Baltimore, MD 21227 410-247-7600 • Fax 410-247-7602 labman@mdspectral.com								
Sampler(s): Michael Thornton				P.O. Number: 19511										Matrix Codes: NW (nonpotable water) PW (potable water)								
Field Sample ID				Date	Time	Water	Soil	Other	No. of Containers									MSS Lab ID				
TH-3B-TPOI-0-2				7/31/19	1000	X			3	RCRA Metals (8) EPA 6020A	Cr+6 EPA 7199	PAHs EPA 8270D SIM	PCBs EPA 8082A	TPH GRO/DRO EPA 8015M	TCL Pesticides EPA 8081B	TCL Herbicides EPA 8151A	VOCs EPA 8260B	TAL Metals	PH			9073116-01
TH-3B-TPOI-6.8-7.8					1030				3	X	X	X	X	X	X	X					-02	
TH-3B-TPOI-1.7 BLUE					0945				2	X	X	X	X	X	X	X		X			-03	
TH-3C-TPOI-0-2					1145				3	X	X	X	X	X	X	X					-04	
TH-3C-TPOI-4-5					1150				3	X	X	X	X	X	X	X					-05	
DUP-G					0800				3	X	X	X	X	X	X	X					-06	
DUP-7				↓	0800	↓			3	X	X	X	X	X	X	X					-07	

Delivery Method:
☐ Courier
☒ Client
☐ UPS
☐ FedEx
☐ USPS
☐ Other: _____

Special Instructions/QC Requirements & Comments:
 Rachel Horner

SUBCONTRACT ORDER
Maryland Spectral Services

9073116

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons
Reports Email: Reporting@mdspectral.com

RECEIVING LABORATORY:

Enviro-Chem Laboratories, Inc
47 Loveton Circle, Suite K
Sparks, MD 21152
Phone: (410) 472-1112
Fax: (410) 472-1116

Auto-log Sent
Date/Initial
7/31/19 BP

Due 4:00 PM 08/09/19

Laboratory ID

Comments

Sample ID: 9073116-01 TH-3B-TP01-0-2 Soil Sampled: 07/31/19 10:00

7199- (Chromium6)

Containers Supplied:

Sample ID: 9073116-02 TH-3B-TP01-6.8-7.8 Soil Sampled: 07/31/19 10:30

7199- (Chromium6)

Containers Supplied:

Sample ID: 9073116-04 TH-3C-TP01-0-2 Soil Sampled: 07/31/19 11:45

7199- (Chromium6)

Containers Supplied:

Sample ID: 9073116-05 TH-3C-TP01-4-5 Soil Sampled: 07/31/19 11:50

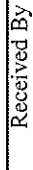
7199- (Chromium6)

Containers Supplied:

Received By  Date 8/1/19

Received By  Date

Received By  Date

Received By  Date

T: 4.4

SUBCONTRACT ORDER
Maryland Spectral Services

9073116

Due 4:00 PM 08/09/19

Laboratory ID

Comments

Sample ID: 9073116-06 DUP-6

Soil

Sampled: 07/31/19 08:00

7199- (Chromium6)

Containers Supplied:

Sample ID: 9073116-07 DUP-7

Soil

Sampled: 07/31/19 08:00

7199- (Chromium6)

Containers Supplied:

Received By

Date

Received By

Date

Received By

Date

Received By

Date

19 August 2019

Vicki Pitman
EA Engineering
225 Schilling Circle, STE 400
Hunt Valley, MD 21031
RE: Troy Hill Park Phase II

Enclosed are the results of analyses for samples received by the laboratory on 08/01/19 16:10.

Maryland Spectral Services, Inc. is a TNI 2009 Standard accredited laboratory and as such, all analyses performed at Maryland Spectral Services included in this report are 2009 TNI certified except as indicated at the end of this report. Please visit our website at www.mdspectral.com for a complete listing of our TNI 2009 Standard accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Cory Koons
Laboratory Manager

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TH-3C-TP03-0-2		9080108-01	Soil	08/01/19 08:25	08/01/19 16:10
TH-3C-TP03-8-8.5		9080108-02	Soil	08/01/19 09:30	08/01/19 16:10
TH-3C-TP03-10.5-11.5		9080108-03	Soil	08/01/19 09:40	08/01/19 16:10
TH-3C-TP04-0-2		9080108-04	Soil	08/01/19 10:30	08/01/19 16:10
TH-3C-TP04-11-12		9080108-05	Soil	08/01/19 10:10	08/01/19 16:10
TH-3C-TP02-0-2		9080108-06	Soil	08/01/19 13:30	08/01/19 16:10
TH-3C-TP02-12-13		9080108-07	Soil	08/01/19 14:30	08/01/19 16:10
DUP-8		9080108-08	Soil	08/01/19 08:00	08/01/19 16:10
DUP-9		9080108-09	Soil	08/01/19 08:00	08/01/19 16:10

Cory Koons

Cory Koons, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

TH-3C-TP03-0-2

9080108-01 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	11.4		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Acenaphthylene	200		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Anthracene	85.6		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Benzo[a]anthracene	173		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Benzo[b]fluoranthene	223		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Benzo[k]fluoranthene	56.9		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Benzo[ghi]perylene	222		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Benzo[a]pyrene	214		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Chrysene	198		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Dibenzo[a,h]anthracene	42.3		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Fluoranthene	188		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Fluorene	52.5		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Indeno[1,2,3-cd]pyrene	189		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Naphthalene	28.3		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Phenanthrene	170		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Pyrene	312		ug/kg dry	10.4	10.4	1	08/08/19	08/09/19 11:32	WB
Surrogate: Nitrobenzene-d5		23-120		61 %	08/08/19		08/09/19 11:32		
Surrogate: 2-Fluorobiphenyl		30-115		74 %	08/08/19		08/09/19 11:32		
Surrogate: Terphenyl-d14		18-137		94 %	08/08/19		08/09/19 11:32		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.10	0.10	1	08/08/19	08/08/19 17:14	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	67.8		mg/kg dry	8.3	8.3	1	08/09/19	08/12/19 19:12	SJA
Surrogate: o-Terphenyl		70-130		80 %	08/09/19		08/12/19 19:12		

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP03-0-2

9080108-01 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	96		%			1	08/08/19	08/09/19 10:35	GM
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1260	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:02	CMK
Surrogate: Tetrachloro-m-xylene		40-150		84 %	08/11/19		08/15/19 08:02		
Surrogate: Decachlorobiphenyl		40-150		78 %	08/11/19		08/15/19 08:02		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.46		mg/kg dry	0.260	0.260	1	08/05/19	08/06/19 21:26	CMK
Barium	46.2		mg/kg dry	0.260	0.260	1	08/05/19	08/06/19 21:26	CMK
Cadmium	0.465		mg/kg dry	0.260	0.260	1	08/05/19	08/06/19 21:26	CMK
Chromium	18.5		mg/kg dry	0.260	0.260	1	08/05/19	08/06/19 21:26	CMK
Lead	82.9		mg/kg dry	0.260	0.260	1	08/05/19	08/06/19 21:26	CMK
Mercury	0.0508		mg/kg dry	0.0130	0.0130	1	08/05/19	08/06/19 21:26	CMK
Selenium	1.67		mg/kg dry	0.260	0.260	1	08/05/19	08/06/19 21:26	CMK
Silver	ND		mg/kg dry	0.260	0.260	1	08/05/19	08/06/19 21:26	CMK

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

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Baltimore MD 21227
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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

TH-3C-TP03-0-2

9080108-01 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0846	0.0846	1	08/07/19	08/08/19 21:59	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	94.2		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP03-8-8.5

9080108-02 (Soil)

Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Acenaphthylene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Anthracene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Benzo[a]anthracene	18.7		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Benzo[b]fluoranthene	30.2		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Benzo[ghi]perylene	17.3		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Benzo[a]pyrene	20.7		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Chrysene	30.7		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Fluoranthene	38.5		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Fluorene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Indeno[1,2,3-cd]pyrene	17.4		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Naphthalene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Phenanthrene	21.2		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Pyrene	43.8		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 11:55	WB
Surrogate: Nitrobenzene-d5		23-120		62 %	08/08/19		08/09/19 11:55		
Surrogate: 2-Fluorobiphenyl		30-115		71 %	08/08/19		08/09/19 11:55		
Surrogate: Terphenyl-d14		18-137		85 %	08/08/19		08/09/19 11:55		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/09/19	08/09/19 14:16	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	22.9		mg/kg dry	9.0	9.0	1	08/09/19	08/12/19 19:39	SJA
Surrogate: o-Terphenyl		70-130		89 %	08/09/19		08/12/19 19:39		

Cory Koons

Cory Koons, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP03-8-8.5

9080108-02 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	89		%			1	08/08/19	08/09/19 10:35	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1260	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:30	CMK

Surrogate: Tetrachloro-m-xylene 40-150 89 % 08/11/19 08/15/19 08:30

Surrogate: Decachlorobiphenyl 40-150 74 % 08/11/19 08/15/19 08:30

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	3.64		mg/kg dry	0.281	0.281	1	08/05/19	08/06/19 21:29	CMK
Barium	74.4		mg/kg dry	0.281	0.281	1	08/05/19	08/06/19 21:29	CMK
Cadmium	ND		mg/kg dry	0.281	0.281	1	08/05/19	08/06/19 21:29	CMK
Chromium	12.9		mg/kg dry	0.281	0.281	1	08/05/19	08/06/19 21:29	CMK
Lead	21.6		mg/kg dry	0.281	0.281	1	08/05/19	08/06/19 21:29	CMK
Mercury	0.0406		mg/kg dry	0.0140	0.0140	1	08/05/19	08/06/19 21:29	CMK
Selenium	3.31		mg/kg dry	0.281	0.281	1	08/05/19	08/06/19 21:29	CMK
Silver	ND		mg/kg dry	0.281	0.281	1	08/05/19	08/06/19 21:29	CMK

Cory Koons

Cory Koons, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/19/19 16:34

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-3C-TP03-8-8.5

9080108-02 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0899	0.0899	1	08/07/19	08/08/19 22:59	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.8		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD

Cory Koons

Cory Koons, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

TH-3C-TP03-10.5-11.5

9080108-03 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Acenaphthylene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Anthracene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Benzo[a]anthracene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Benzo[a]pyrene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Chrysene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Fluoranthene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Fluorene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Naphthalene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Phenanthrene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Pyrene	ND		ug/kg dry	11.2	11.2	1	08/08/19	08/09/19 12:18	WB
Surrogate: Nitrobenzene-d5		23-120		57 %	08/08/19		08/09/19 12:18		
Surrogate: 2-Fluorobiphenyl		30-115		61 %	08/08/19		08/09/19 12:18		
Surrogate: Terphenyl-d14		18-137		78 %	08/08/19		08/09/19 12:18		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/09/19	08/09/19 14:46	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.0	9.0	1	08/09/19	08/12/19 20:05	SJA
Surrogate: o-Terphenyl		70-130		74 %	08/09/19		08/12/19 20:05		

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP03-10.5-11.5

9080108-03 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	89		%			1	08/08/19	08/09/19 10:35	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1260	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 08:58	CMK

Surrogate: Tetrachloro-m-xylene 40-150 68 % 08/11/19 08/15/19 08:58

Surrogate: Decachlorobiphenyl 40-150 68 % 08/11/19 08/15/19 08:58

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.02		mg/kg dry	0.281	0.281	1	08/05/19	08/07/19 18:02	CMK
Barium	32.6		mg/kg dry	0.281	0.281	1	08/05/19	08/07/19 18:02	CMK
Cadmium	ND		mg/kg dry	0.281	0.281	1	08/05/19	08/07/19 18:02	CMK
Chromium	17.8		mg/kg dry	0.281	0.281	1	08/05/19	08/07/19 18:02	CMK
Lead	5.95		mg/kg dry	0.281	0.281	1	08/05/19	08/07/19 18:02	CMK
Mercury	ND		mg/kg dry	0.0140	0.0140	1	08/05/19	08/07/19 18:02	CMK
Selenium	0.724		mg/kg dry	0.281	0.281	1	08/05/19	08/07/19 18:02	CMK
Silver	ND		mg/kg dry	0.281	0.281	1	08/05/19	08/07/19 18:02	CMK

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

TH-3C-TP03-10.5-11.5

9080108-03 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.187		mg/kg dry	0.0918	0.0918	1	08/07/19	08/08/19 23:11	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	84.1		%	1.00	1.00	1	08/02/19	08/02/19 15:07	FRD

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

TH-3C-TP04-0-2

9080108-04 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/09/19	08/09/19 15:16	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	167		mg/kg dry	16.8	16.8	1	08/09/19	08/12/19 20:32	SJA
Surrogate: o-Terphenyl		70-130		79 %	08/09/19		08/12/19 20:32		
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	95		%			1	08/08/19	08/09/19 10:35	GM
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1260	202		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:25	CMK
Surrogate: Tetrachloro-m-xylene		40-150		75 %	08/11/19		08/15/19 09:25		
Surrogate: Decachlorobiphenyl		40-150		79 %	08/11/19		08/15/19 09:25		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	2.14		mg/kg dry	1.32	1.32	5	08/05/19	08/07/19 18:04	CMK
Barium	37.2		mg/kg dry	1.32	1.32	5	08/05/19	08/07/19 18:04	CMK
Cadmium	ND		mg/kg dry	1.32	1.32	5	08/05/19	08/07/19 18:04	CMK
Chromium	14.0		mg/kg dry	1.32	1.32	5	08/05/19	08/07/19 18:04	CMK
Lead	242		mg/kg dry	1.32	1.32	5	08/05/19	08/07/19 18:04	CMK
Mercury	ND		mg/kg dry	0.0658	0.0658	5	08/05/19	08/07/19 18:04	CMK
Selenium	ND		mg/kg dry	1.32	1.32	5	08/05/19	08/07/19 18:04	CMK
Silver	ND		mg/kg dry	1.32	1.32	5	08/05/19	08/07/19 18:04	CMK

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-3C-TP04-0-2

9080108-04 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.102		mg/kg dry	0.0854	0.0854	1	08/07/19	08/08/19 23:23	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	92.7		%	1.00	1.00	1	08/08/19	08/08/19 16:10	FRD

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP04-0-2

9080108-04RE1 (Soil)

Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Acenaphthylene	1490		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Anthracene	671		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Benzo[a]anthracene	1440		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Benzo[b]fluoranthene	1510		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Benzo[k]fluoranthene	422		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Benzo[ghi]perylene	1330		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Benzo[a]pyrene	1480		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Chrysene	1530		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Dibenzo[a,h]anthracene	273		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Fluoranthene	1800		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Fluorene	422		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Indeno[1,2,3-cd]pyrene	1160		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Naphthalene	162		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Phenanthrene	2040		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Pyrene	3060		ug/kg dry	105	105	5	08/08/19	08/09/19 15:52	WB
Surrogate: Nitrobenzene-d5		23-120		66 %	08/08/19		08/09/19 15:52		
Surrogate: 2-Fluorobiphenyl		30-115		80 %	08/08/19		08/09/19 15:52		
Surrogate: Terphenyl-d14		18-137		110 %	08/08/19		08/09/19 15:52		

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
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TH-3C-TP04-11-12

9080108-05 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Acenaphthylene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Anthracene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Benzo[a]anthracene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Benzo[b]fluoranthene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Benzo[k]fluoranthene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Benzo[ghi]perylene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Benzo[a]pyrene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Chrysene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Fluoranthene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Fluorene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Naphthalene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Phenanthrene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Pyrene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:04	WB
Surrogate: Nitrobenzene-d5		23-120		62 %	08/08/19		08/09/19 13:04		
Surrogate: 2-Fluorobiphenyl		30-115		67 %	08/08/19		08/09/19 13:04		
Surrogate: Terphenyl-d14		18-137		84 %	08/08/19		08/09/19 13:04		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/09/19	08/09/19 15:46	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.7	8.7	1	08/09/19	08/12/19 20:58	SJA
Surrogate: o-Terphenyl		70-130		86 %	08/09/19		08/12/19 20:58		

Cory Koons

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

TH-3C-TP04-11-12

9080108-05 (Soil)

Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	92		%			1	08/08/19	08/09/19 10:35	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1260	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 09:53	CMK

Surrogate: Tetrachloro-m-xylene

40-150

82 %

08/11/19

08/15/19 09:53

Surrogate: Decachlorobiphenyl

40-150

72 %

08/11/19

08/15/19 09:53

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	4.67		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:42	CMK
Barium	15.5		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:42	CMK
Cadmium	ND		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:42	CMK
Chromium	38.6		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:42	CMK
Lead	5.90		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:42	CMK
Mercury	ND		mg/kg dry	0.0136	0.0136	1	08/05/19	08/06/19 21:42	CMK
Selenium	1.37		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:42	CMK
Silver	ND		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:42	CMK

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

TH-3C-TP04-11-12

9080108-05 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0853	0.0853	1	08/07/19	08/08/19 23:59	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	92.0		%	1.00	1.00	1	08/08/19	08/08/19 16:10	FRD



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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP02-0-2

9080108-06 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Acenaphthylene	114		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Anthracene	60.5		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Benzo[a]anthracene	143		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Benzo[b]fluoranthene	163		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Benzo[k]fluoranthene	54.1		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Benzo[ghi]perylene	125		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Benzo[a]pyrene	146		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Chrysene	168		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Dibenzo[a,h]anthracene	25.2		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Fluoranthene	166		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Fluorene	24.5		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Indeno[1,2,3-cd]pyrene	117		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Naphthalene	17.5		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Phenanthrene	112		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Pyrene	269		ug/kg dry	10.9	10.9	1	08/08/19	08/09/19 13:27	WB
Surrogate: Nitrobenzene-d5		23-120		54 %	08/08/19		08/09/19 13:27		
Surrogate: 2-Fluorobiphenyl		30-115		66 %	08/08/19		08/09/19 13:27		
Surrogate: Terphenyl-d14		18-137		92 %	08/08/19		08/09/19 13:27		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/09/19	08/09/19 16:17	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	70.5		mg/kg dry	8.7	8.7	1	08/09/19	08/12/19 21:25	SJA
Surrogate: o-Terphenyl		70-130		92 %	08/09/19		08/12/19 21:25		

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP02-0-2

9080108-06 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
PERCENT SOLIDS BY ASTM D2216-05									
Percent Solids	92		%			1	08/08/19	08/09/19 10:35	GM
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)									
Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1260	100		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:20	CMK
<i>Surrogate: Tetrachloro-m-xylene</i>									
		40-150		83 %		08/11/19	08/15/19 10:20		
<i>Surrogate: Decachlorobiphenyl</i>									
		40-150		78 %		08/11/19	08/15/19 10:20		
TOTAL METALS ANALYSIS BY EPA 3050B/6020A									
Arsenic	4.21		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:45	CMK
Barium	44.5		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:45	CMK
Cadmium	1.46		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:45	CMK
Chromium	20.3		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:45	CMK
Lead	92.4		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:45	CMK
Mercury	0.0519		mg/kg dry	0.0136	0.0136	1	08/05/19	08/06/19 21:45	CMK
Selenium	1.50		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:45	CMK
Silver	ND		mg/kg dry	0.272	0.272	1	08/05/19	08/06/19 21:45	CMK

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

TH-3C-TP02-0-2

9080108-06 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.520		mg/kg dry	0.0839	0.0839	1	08/07/19	08/09/19 00:10	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	94.2		%	1.00	1.00	1	08/08/19	08/08/19 16:10	FRD

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP02-12-13

9080108-07 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Acenaphthylene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Anthracene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Benzo[a]anthracene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Benzo[a]pyrene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Chrysene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Fluoranthene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Fluorene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Naphthalene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Phenanthrene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Pyrene	ND		ug/kg dry	11.9	11.9	1	08/08/19	08/09/19 13:50	WB
Surrogate: Nitrobenzene-d5		23-120		58 %	08/08/19		08/09/19 13:50		
Surrogate: 2-Fluorobiphenyl		30-115		61 %	08/08/19		08/09/19 13:50		
Surrogate: Terphenyl-d14		18-137		75 %	08/08/19		08/09/19 13:50		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.12	0.12	1	08/09/19	08/09/19 16:47	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	9.5	9.5	1	08/09/19	08/12/19 21:51	SJA
Surrogate: o-Terphenyl		70-130		93 %	08/09/19		08/12/19 21:51		

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

TH-3C-TP02-12-13

9080108-07 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	84		%			1	08/08/19	08/09/19 10:35	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1260	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 10:48	CMK

Surrogate: Tetrachloro-m-xylene 40-150 75 % 08/11/19 08/15/19 10:48

Surrogate: Decachlorobiphenyl 40-150 70 % 08/11/19 08/15/19 10:48

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	1.49		mg/kg dry	0.298	0.298	1	08/05/19	08/06/19 21:47	CMK
Barium	58.3		mg/kg dry	0.298	0.298	1	08/05/19	08/06/19 21:47	CMK
Cadmium	ND		mg/kg dry	0.298	0.298	1	08/05/19	08/06/19 21:47	CMK
Chromium	13.4		mg/kg dry	0.298	0.298	1	08/05/19	08/06/19 21:47	CMK
Lead	7.75		mg/kg dry	0.298	0.298	1	08/05/19	08/06/19 21:47	CMK
Mercury	ND		mg/kg dry	0.0149	0.0149	1	08/05/19	08/06/19 21:47	CMK
Selenium	2.04		mg/kg dry	0.298	0.298	1	08/05/19	08/06/19 21:47	CMK
Silver	ND		mg/kg dry	0.298	0.298	1	08/05/19	08/06/19 21:47	CMK

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

TH-3C-TP02-12-13

9080108-07 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0945	0.0945	1	08/07/19	08/09/19 00:22	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	81.6		%	1.00	1.00	1	08/08/19	08/08/19 16:10	FRD

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

DUP-8

9080108-08 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Acenaphthylene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Anthracene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Benzo[a]anthracene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Benzo[b]fluoranthene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Benzo[ghi]perylene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Benzo[a]pyrene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Chrysene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Fluoranthene	14.6		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Fluorene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Indeno[1,2,3-cd]pyrene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Naphthalene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Phenanthrene	ND		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Pyrene	22.4		ug/kg dry	11.0	11.0	1	08/08/19	08/09/19 14:13	WB
Surrogate: Nitrobenzene-d5		23-120		53 %	08/08/19		08/09/19 14:13		
Surrogate: 2-Fluorobiphenyl		30-115		58 %	08/08/19		08/09/19 14:13		
Surrogate: Terphenyl-d14		18-137		82 %	08/08/19		08/09/19 14:13		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/09/19	08/09/19 17:17	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	ND		mg/kg dry	8.8	8.8	1	08/09/19	08/12/19 22:18	SJA
Surrogate: o-Terphenyl		70-130		87 %	08/09/19		08/12/19 22:18		

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

DUP-8

9080108-08 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	91		%			1	08/08/19	08/09/19 10:35	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1260	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:16	CMK

Surrogate: Tetrachloro-m-xylene

40-150

78 %

08/11/19

08/15/19 11:16

Surrogate: Decachlorobiphenyl

40-150

70 %

08/11/19

08/15/19 11:16

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.78		mg/kg dry	0.275	0.275	1	08/05/19	08/07/19 18:07	CMK
Barium	27.3		mg/kg dry	0.275	0.275	1	08/05/19	08/07/19 18:07	CMK
Cadmium	ND		mg/kg dry	0.275	0.275	1	08/05/19	08/07/19 18:07	CMK
Chromium	21.1		mg/kg dry	0.275	0.275	1	08/05/19	08/07/19 18:07	CMK
Lead	6.47		mg/kg dry	0.275	0.275	1	08/05/19	08/07/19 18:07	CMK
Mercury	0.0168		mg/kg dry	0.0137	0.0137	1	08/05/19	08/07/19 18:07	CMK
Selenium	1.10		mg/kg dry	0.275	0.275	1	08/05/19	08/07/19 18:07	CMK
Silver	ND		mg/kg dry	0.275	0.275	1	08/05/19	08/07/19 18:07	CMK

Cory Koons

Cory Koons, Laboratory Manager

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Analytical Results

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www.mdspectral.com

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

DUP-8

9080108-08 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	0.168		mg/kg dry	0.0847	0.0847	1	08/07/19	08/09/19 00:34	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	88.2		%	1.00	1.00	1	08/08/19	08/08/19 16:10	FRD

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

DUP-9

9080108-09 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
SEMIVOLATILE ORGANICS BY EPA METHOD 8270D-SIM (GC/MS)									
Acenaphthene	ND		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Acenaphthylene	ND		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Anthracene	ND		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Benzo[a]anthracene	15.1		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Benzo[b]fluoranthene	27.3		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Benzo[k]fluoranthene	ND		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Benzo[ghi]perylene	14.5		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Benzo[a]pyrene	16.9		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Chrysene	25.1		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Dibenzo[a,h]anthracene	ND		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Fluoranthene	30.7		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Fluorene	ND		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Indeno[1,2,3-cd]pyrene	15.0		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Naphthalene	ND		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Phenanthrene	16.5		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Pyrene	35.0		ug/kg dry	11.4	11.4	1	08/08/19	08/09/19 14:36	WB
Surrogate: Nitrobenzene-d5		23-120		56 %	08/08/19		08/09/19 14:36		
Surrogate: 2-Fluorobiphenyl		30-115		64 %	08/08/19		08/09/19 14:36		
Surrogate: Terphenyl-d14		18-137		82 %	08/08/19		08/09/19 14:36		
GASOLINE RANGE ORGANICS BY EPA 5030/8015C									
Gasoline-Range Organics	ND		mg/kg dry	0.11	0.11	1	08/09/19	08/09/19 17:47	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C									
Diesel-Range Organics	17.3		mg/kg dry	9.1	9.1	1	08/09/19	08/12/19 22:45	SJA
Surrogate: o-Terphenyl		70-130		96 %	08/09/19		08/12/19 22:45		

Cory Koons

Cory Koons, Laboratory Manager

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Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

Reported:
08/19/19 16:34

Analytical Results

DUP-9

9080108-09 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst

PERCENT SOLIDS BY ASTM D2216-05

Percent Solids	88		%			1	08/08/19	08/09/19 10:35	GM

POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD)

Aroclor-1016	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1221	ND		ug/kg	170	170	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1232	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1242	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1248	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1254	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1260	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1262	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK
Aroclor-1268	ND		ug/kg	83.0	83.0	1	08/11/19	08/15/19 11:43	CMK

Surrogate: Tetrachloro-m-xylene 40-150 92 % 08/11/19 08/15/19 11:43

Surrogate: Decachlorobiphenyl 40-150 77 % 08/11/19 08/15/19 11:43

TOTAL METALS ANALYSIS BY EPA 3050B/6020A

Arsenic	2.50		mg/kg dry	0.284	0.284	1	08/05/19	08/07/19 18:10	CMK
Barium	48.5		mg/kg dry	0.284	0.284	1	08/05/19	08/07/19 18:10	CMK
Cadmium	ND		mg/kg dry	0.284	0.284	1	08/05/19	08/07/19 18:10	CMK
Chromium	8.16		mg/kg dry	0.284	0.284	1	08/05/19	08/07/19 18:10	CMK
Lead	14.2		mg/kg dry	0.284	0.284	1	08/05/19	08/07/19 18:10	CMK
Mercury	0.0228		mg/kg dry	0.0142	0.0142	1	08/05/19	08/07/19 18:10	CMK
Selenium	2.15		mg/kg dry	0.284	0.284	1	08/05/19	08/07/19 18:10	CMK
Silver	ND		mg/kg dry	0.284	0.284	1	08/05/19	08/07/19 18:10	CMK

Cory Koons

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Analytical Results

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
Reported:
08/19/19 16:34

Project: Troy Hill Park Phase II

Project Number: 1483560
Project Manager: Vicki Pitman

DUP-9

9080108-09 (Soil)
Sample Date: 08/01/19

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Quantitation Limit (LOQ)	Dilution	Prepared	Analyzed	Analyst
Chromium VI by EPA 7199 Performed at Enviro-Chem									
Chromium VI	ND		mg/kg dry	0.0906	0.0906	1	08/07/19	08/09/19 00:46	SES
Wet Chemistry Performed at Enviro-Chem									
% Solids	87.8		%	1.00	1.00	1	08/08/19	08/08/19 16:10	FRD

Cory Koons

Cory Koons, Laboratory Manager

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Project Number: 1483560
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Reported:
08/19/19 16:34

Maryland Spectral Services does not maintain certification for the following analytical parameters:

Enviro-Chem

Matrix , Method , Analyte

Solid | TS-% | % Solids

Solid | CR-HEX-IC-SOIL | Chromium VI

Maryland Spectral Services

Matrix , Method , Analyte

Soil | 6020 (RCRA8 Total) | Arsenic

Soil | 6020 (RCRA8 Total) | Barium

Soil | 6020 (RCRA8 Total) | Cadmium

Soil | 6020 (RCRA8 Total) | Chromium

Soil | 6020 (RCRA8 Total) | Lead

Soil | 6020 (RCRA8 Total) | Mercury

Soil | 6020 (RCRA8 Total) | Selenium

Soil | 6020 (RCRA8 Total) | Silver



Cory Koons, Laboratory Manager

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Analytical Results

Project: Troy Hill Park Phase II

Project Number: 1483560

Project Manager: Vicki Pitman

Notes and Definitions

S-98	Spike recovery outside of established control limits.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation



Cory Koons, Laboratory Manager

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Company Name: EA Engineering			Project Manager: Vicki Pittman			Analysis Requested										CHAIN-OF-CUSTODY RECORD					
Project Name: Troy Hill Park Phase II			Project ID: 1483560			No. of Containers			TCL Pesticides EPA 8081B TPH GRO/DRO EPA 8015M PCBs EPA 8082A PAHs EPA 8270D SIM Cr+6 EPA 7199 RCRA Metals (8) EPA 6020A							TCL Herbicides EPA 8151A VOCs EPA 8260B			Maryland Spectral Services, Inc. 1500 Caton Center Drive, Suite G Baltimore, MD 21227 410-247-7600 • Fax 410-247-7602 labman@mdspectral.com		
Sampler(s): Michael Thornton			P.O. Number: 19511			Date			Time			Field pH, Residual Chlorine, QC Request, Trip Blank, Field Blank			MSS Lab ID						
TH-3C-TP03-0-2			8/1/19			0825			X			3			9080108-01						
TH-3C-TP03-8-8.5			1			0930			1			1			-02						
TH-3C-TP03-10.5-11.5			1			0940			1			1			-03						
TH-3C-TP04-0-2			1			1030			1			1			-04						
TH-3C-TP04-11-12			1			1110			1			1			-05						
TH-3C-TP02-0-2			1			1330			1			1			-06						
TH-3C-TP02-12-13			1			1430			1			1			-07						
DUP-8			1			0800			1			1			-08						
DUP-9			1			0800			1			1			-09						
Relinquished by: (Signature) <i>Michael Thornton</i>			Date/Time 8/1/19			Received by: (Signature) <i>William Brewington</i>			Relinquished by: (Signature)			Date/Time			Received by: (Signature)						
(Printed) Michael Thornton			16:10			(Printed) William Brewington			(Printed)			(Printed)			(Printed)						
Relinquished by: (Signature)			Date/Time			Received by Lab: (Signature)			Turn Around Time:			Lab Use:			Sample Disposal:						
(Printed)						(Printed)			☒ Normal (7 day) ☐ 5 day ☐ 4 day ☐ 3 day ☐ Rush (2 day) ☐ Next Day ☐ Other: _____ ☐ Specific Due Date: _____			Temp: <u>4.9</u> °C ☒ Received on Ice ☒ Received same day ☐ Preservation Appropriate			☐ Return to Client ☒ Disposal by lab ☐ Archive for _____ days						
Delivery Method:			Special Instructions/QC Requirements & Comments:																		
☐ Courier ☒ Client ☐ UPS ☐ FedEx ☐ USPS ☐ Other: _____																					