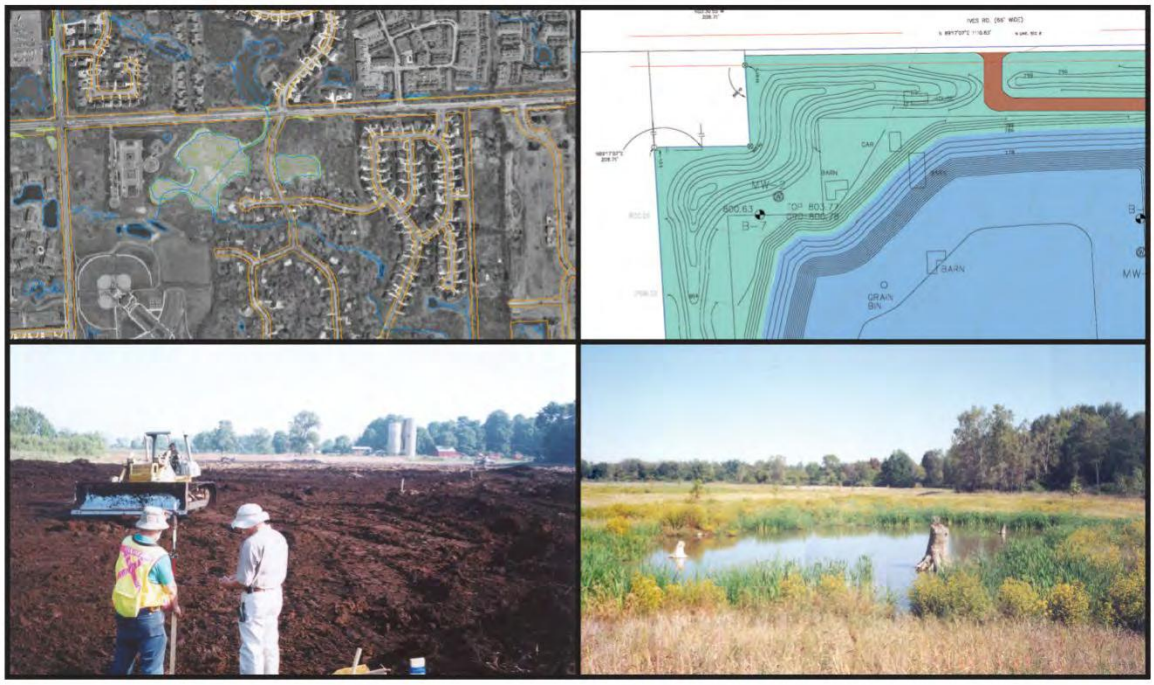
Additional Subsurface Investigation

3001 W. Auburn Road
Rochester Hills, Michigan

City of Rochester Hills

May 9, 2022

ASTI ENVIRONMENTAL



ASTI ENVIRONMENTAL

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Rochester Hills, Michigan

May 9, 2022

Prepared For:

City of Rochester Hills
1000 Rochester Hill Drive
Rochester Hills, MI 48309

Report Prepared By:

ASTI Environmental
10448 Citation Drive, Suite 100
Brighton, Michigan 48116
(810) 225-2800

ASTI Project No. 11482-26

Report Prepared by:

Jeremy Efros, EP, CPG
Geologist

Report Reviewed by:

Brian Earl, EP
Hydrogeologist

ASTI ENVIRONMENTAL

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1.0 INTRODUCTION

ASTI Environmental (ASTI) was retained by the City of Rochester Hills to conduct an Additional Subsurface Investigation of the property located at 3001 W. Auburn Road in the City of Rochester Hills, Oakland County, Michigan (Subject Property). This investigation was prepared for the benefit of the City of Rochester Hills and ASTI acknowledges that said party may rely upon the contents and conclusions presented in this report. The Subject Property comprises 10.19 acres of undeveloped land on two parcels with Parcel IDs 70-15-31-227-033 and 70-15-31-227-034. ASTI understands that the City of Rochester Hills may install a recreational hiking trail on the Subject Property. A Site Location Map is provided as Figure 1.

The Additional Subsurface Investigation was conducted in accordance with ASTI's proposal dated March 23, 2022

2.0 PURPOSE AND PROPERTY HISTORY AND INFORMATION

2.1 Purpose

ASTI completed a Phase I Environmental Site Assessment (ESA) of the Subject Property on October 19, 2021, that identified the following recognized environmental condition (REC) with respect to the Subject Property:

- In the 1967 aerial photograph, apparent surface disturbance indicative of unknown filling operations was identified on the northern portion of the Subject Property. During the site reconnaissance fill materials and debris consisting of concrete/brick/metal were observed in this area. The type of backfill and grading materials is unknown. Fill materials may contain hazardous substances and/or petroleum products. The apparent filling operations are considered a REC.

To evaluate this REC, ASTI conducted a Limited Phase II ESA at the Subject Property on November 8, 2021. For the Limited Phase II ESA, ASTI advanced three soil borings (SB-1 through SB-3) at the Subject Property and collected a soil sample at each boring. The soil boring locations are depicted on Figure 2. The Limited Phase II ESA identified lead in soil sample SB-3 (2-3') and the associated duplicate sample (Dup-1s) at concentrations exceeding the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 Generic Residential Cleanup Criteria (GRCC) for drinking water protection and direct contact.

On January 6, 2022, ASTI conducted a Limited Subsurface Investigation of the Subject Property to further delineate the soil impacts in the vicinity of SB-3. ASTI advanced nine soil borings (SB-3R through SB-11) at the Subject Property. Soil boring SB-3R was a deeper boring directly adjacent to soil boring SB-3. These soil boring locations are also depicted on Figure 2. Soil borings SB-4 through SB-11 were step-out soil boings in the four cardinal directions from soil boring SB-3. Soil Borings SB-4 through SB-7 were 10-foot step-out borings and borings SB-8 through 11 were 20-foot step-out borings from SB-3. The soil borings were advanced to a depth of approximately 5 feet below ground surface (bgs).

Groundwater was encountered in each soil boring, and a temporary monitoring well was installed in SB-3R for collection of a groundwater sample.
Two soil samples were collected form each soil boring, one from 0 to 1.5 feet bgs and the second from 2 to 3 feet bgs other than in soil boring SB-3R for which samples were collected from 0.5-1.5 feet bgs and 4 to 5 feet bgs.

All of the soil samples collected from the 10-foot step-out borings (SB-4 through SB-7) were analyzed. Based on the results from boring SB-4, the soil samples from the 20-foot (secondary) step-out boring SB-8, north of SB-4, were analyzed. The lead concentrations detected in the borings completed to the west, south, and east of SB-3 were below the Part 201 GRCC.

The soil and groundwater samples were analyzed for one or more of the following: volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs) and Michigan 10 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc).

The sample results were compared to the EGLE Part 201 GRCC for drinking water protection (DWP), groundwater surface water interface protection (GSIP), direct contact (DC), soil volatilization to indoor air inhalation (SVIAI), and particulate soil inhalation (PSI). The groundwater samples were compared to the GRCC for drinking water (DW), groundwater surface water interface (GSI), and groundwater volatilization to indoor air inhalation (GVIAI).

Soil Analytical Results
Table 1 shows the laboratory analytical result in comparison to the GRCC.

The laboratory analytical results for the soil samples reported the metal lead in soil samples SB-3R (0.5-1.5'), SB-4 (0.5-1.5'), SB-4 (2-3'), SB-8 (0-0.5'), and SB-8 (2-3') at concentrations exceeding the GRCC for DWP and/or DC.

The metal arsenic was detected in soil samples SB-4 (0.5-1.5'), SB-4 (2-3') and SB-7 (2-3') at concentrations exceeding the GRCC for DWP and GSIP.

Selenium was detected in SB-4 (0.5-1.5') and SB-4 (2-3') at concentrations exceeding the GRCC for GSIP.

The metal chromium (total) was reported in samples SB-7 (0.5-1.5') at a concentration exceeding the Statewide Default Background Level (SDBL). Based on conclusions of the previous Limited Phase II ESA the chromium (total) analytical results were compared to and found to be below the GRCC for trivalent chromium (Cr^{3+}).

No other metals were detected at concentrations exceeding the GRCC or GNRCC.

PNAs Analytical Results

The PNA fluoranthene was detected in soil sample SB-4 (2-3') at a concentration below the GRCC. No other PNAs were detected exceeding the laboratory reporting limits.

Groundwater Analytical Results

PNAs and VOCs

No PNAs or VOCs were detected in the groundwater samples at concentrations exceeding the laboratory reporting limits.

Results of the Limited Subsurface Investigation indicated that the contamination still requires additional delineation to the north of soil boring SB-8 with respect to the direct contact pathway. ASTI understands that the City of Rochester Hills will install a locked fence to prevent receptors to the Subject Property from coming into contact with the impacted soil.

The purpose of this Additional Subsurface Investigation was to further delineate the direct contact impacts in soil to the north, east, and west of SB-8 to determine locations for the fence that will be installed as a direct contact exposure response activity.

2.2 Historical Uses of the Subject Property

Based on the Phase I ESA research, the Subject Property appeared undeveloped from at least 1937 until approximately 1949 when the southern portion was developed as farmland.

Farming operations ceased by 1972. In the 1967 aerial photograph, apparent surface disturbance was identified on the northern portion of the Subject Property. The Subject Property has remained vacant land since farming ceased.

2.3 Current Uses of the Subject Property

The Subject Property consists of 10.19 acres of vacant land with no obvious use.

2.4 Existing Infrastructure Features

The Subject Property is currently undeveloped wooded land. Potable water, storm water, and sewerage services area available to the Subject Property through the City of Rochester Hills. Electrical services are available from DTE, and natural gas is available through Consumers Energy.

3.0 SAMPLING LOCATIONS

On April 11, 2022, ASTI advanced six soil borings (SB-12 through SB-17) at the Subject Property using a hand-held stainless-steel auger to a depth of approximately 3 feet bgs. Soil borings SB-12, SB-14, and SB-16 were step-out soil boings approximately 20 feet north, east-northeast, and west-northwest, respectively, from soil boring SB-8. In addition, soil borings SB-13, SB-15, and SB-17 were secondary step-out soil borings north, east, and west, respectively, of the primary step-out borings (to be analyzed only if the primary step-out samples came back with exceedances of the GRCC for direct contact). Note that none of the secondary step-out samples were analyzed based on the results of the primary step-out samples, which were all below the GRCC for direct contact. The soil boring locations are depicted on Figure 2.

4.0 SAMPLE COLLECTION PROCEDURES

The soil borings were advanced with a stainless-steel hand auger. Soil was extracted from the ground in the auger bucket and was placed directly into clean plastic bags for classification and screening or sample jars for laboratory analysis. Soil encountered during field activities was identified by ASTI's field personnel, examined for visual and/or olfactory evidence of impact, and screened using a photoionization detector (PID) with notes recorded in a field logbook. Prior to sampling, the PID was calibrated to manufacturer specifications using 100 parts per million (ppm) isobutylene calibration gas. All down-hole equipment was decontaminated using an Alconox® wash and clean water rinse prior to and between borings to minimize the risk of cross contamination of samples.

Two soil samples were collected form each soil boring one from 0.5 to 1.5 feet bgs and the second from 2 to 3 feet bgs. One duplicate soil sample (Dup-1s) was collected at SB-16 (2-3') for quality assurance/quality control (QA/QC) purposes. The soil samples were collected directly from the auger bucket into laboratory certified clean, unpreserved 8-ounce glass jars and 40-milliliter(ml) vials preserved with methanol, which were subsequently placed on ice, and submitted to Fibertec Environmental Services (Fibertec) in Holt, Michigan under standard chain-of-custody procedures.

The soil samples were analyzed for polynuclear aromatic hydrocarbons (PNAs) by US EPA Method 8270E and arsenic and lead by US EPA Method 6020A.

5.0 PATHWAY EVALUATION

The Michigan Department of Environment, Great Lakes, and Environment (EGLE) Generic Residential Cleanup Criteria (GRCC) used for comparison to the soil analytical for the Subject Property under Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201) are the drinking water protection (DWP), groundwater surface water interface protection (GSIP), direct contact (DC), soil volatilization to indoor air inhalation (SVIAI), and particulate soil inhalation (PSI). The groundwater samples were compared to the GRCC for drinking water (DW), groundwater surface water interface (GSI), and groundwater volatilization to indoor air inhalation (GVIAI).

6.0 SOIL AND GROUNDWATER CHARACTERISTICS

The general subsurface lithology encountered in the soil borings advanced during this Additional Subsurface Investigation underlying surface cover (topsoil) was comprised of a well graded sand fill including varying amounts of brick, concrete, and metal except for at SB-13. The sand fill extended to approximately 1.5 feet bgs in each boring. No sand fill was encountered in SB-13. A well graded sand stratum was encountered beneath the sand fill, where encountered, to the explored depth of each soil boring at 3 feet bgs. No staining or odors were noted in the soil borings and no VOCs were detected on the PID during screening of the soil cores. No groundwater was encountered in the soil borings advanced during this investigation. Groundwater was previously encountered at the Subject Property at various depths between 1-foot and 4 feet bgs. For more details on the encountered subsurface stratigraphy, see the soil borings logs provided as Attachment A.

7.0 ANALYTICAL RESULTS

Soil Analytical

Table 1 presents the laboratory analytical results for the soil samples in comparison to the GRCC.

Metals

The laboratory analytical results for the soil samples reported the metal arsenic was detected in soil samples SB-12 (0.5-1.5'), SB-12 (2-3'), SB-16 (0.5-1.5'), SB-16 (2-3'), and Dup-1s [associated with SB-16 (2-3')] at concentrations exceeding the GRCC for DWP and GSIP. In addition, the arsenic concentration in SB-12 (2'-3') also exceeded the GRCC for DC.

The Subject Property is located within the Huron-Erie Glacial Lobe. Of these soil samples, samples SB-12 (2-3'), SB-16 (2-3'), and Dup-1s were collected in soil that appeared to be native and natural. Following Part 324.20101(e)(ii) of NREPA Act 451 of 1994 for use of regional background, the regional background concentrations for arsenic in sand in the Huron-Erie Glacial Lobe is 22,800 µg/kg. Of these samples the highest arsenic concentration was 8,200 µg/kg in SB-12 (2-3'). Therefore, this arsenic concentrations in these samples do not represent exceedances of the GRCC nor evidence of a release. The other arsenic concentrations represent exceedances of the GRCC for DWP and GSIP.

The metal lead was reported in soil samples SB-12 (0.5-1.5'), SB-16 (0.5-1.5'), SB16 (2-3'), Dup-1s [associated with SB-16 (2-3')] at concentrations exceeding 75 ppm. In accordance with EGLE recommendation, these samples were further analyzed for fine and coarse fractions of lead. The results for the fine/coarse fraction lead analyses were below the GRCC.

PNAs

The PNAs fluoranthene and phenanthrene were detected in soil sample Dup-1s at concentrations exceeding the GRCC for GSIP. No other PNAs were detected in the soil samples exceeding the GRCC.

The Laboratory Analytical Reports and chain-of-custody documentation are provided in Attachment B.

Quality Assurance/Quality Control

The laboratory analytical results indicated duplicate soil sample were within acceptable ranges of the associated parent sample for metals. The PNAs were not consistent between the two samples, however no PNAs were detected at concentrations above direct contact in either sample. The following qualifier was noted in soil sample SB-12 (2-3') for the PNAs fluoranthene and phenanthrene:

- F+ : Recovery from the spiked aliquot exceeds the upper control limit (matrix spike or matrix spike duplicate).

This did not affect the findings of this investigation as these PNAs were detected above laboratory reporting limits in the qualified sample.

The following qualifier was noted in soil sample SB-14 (0.5-1.5') for the lead result (47,000 µg/kg):

- * : Duplicate analysis was not within control limits
- F- : Recovery from the spiked aliquot exceeds the lower control limit (matrix spike or matrix spike duplicate).

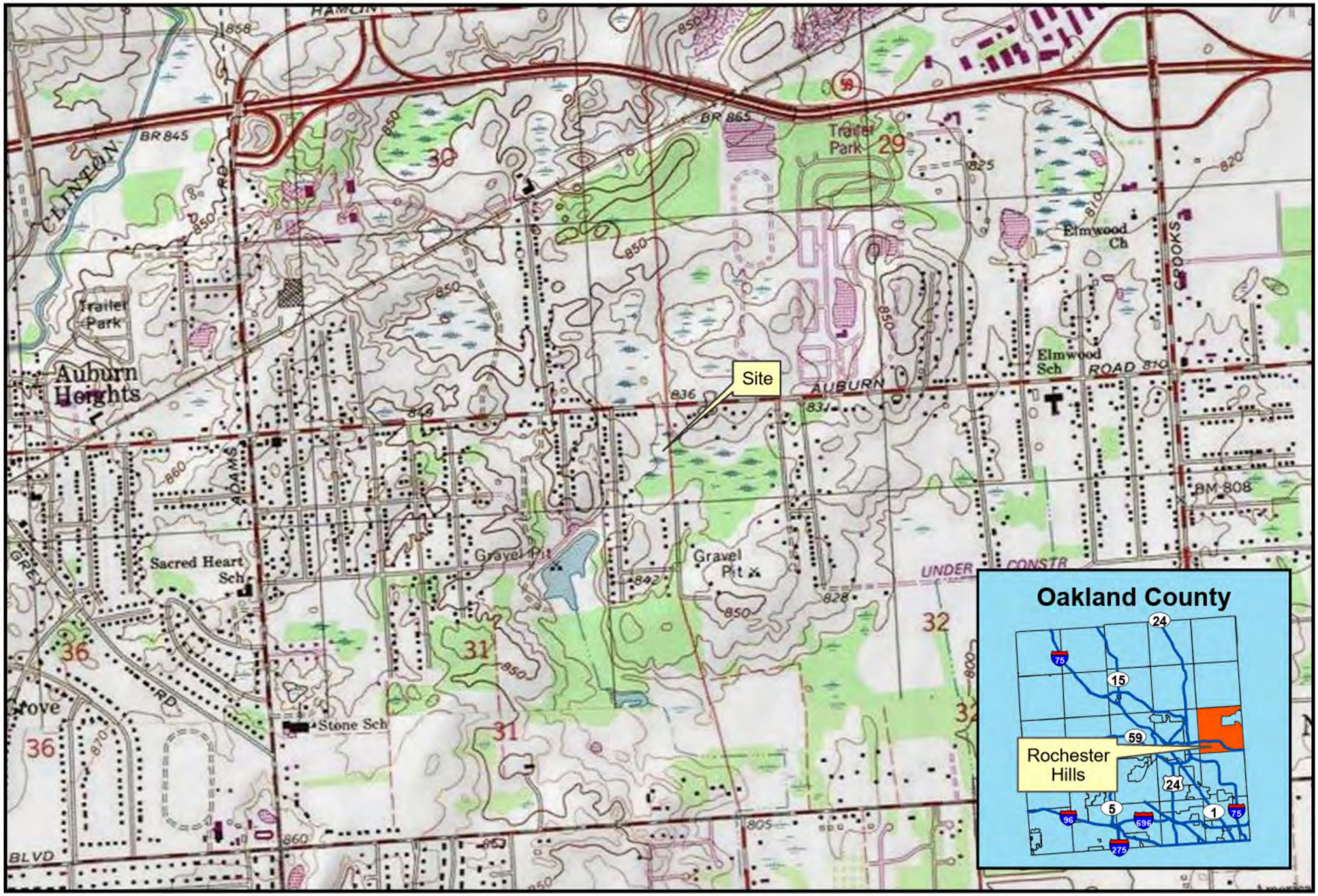
These qualifiers did not affect the findings of this investigation because the low bias on the lead sample was not significant enough for the lead result to potentially exceed the GRCC for DC.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the laboratory analytical results for this and previous investigations conducted at the Subject Property, the metals arsenic, lead, and selenium and PNAs fluoranthene and phenanthrene are present in soil at concentrations exceeding the GRCC. It is therefore ASTI's opinion that the Subject Property is a “facility” as defined in Part 201. The City of Rochester Hills has already submitted a Baseline Environmental Assessment (BEA) dated March 26, 2022, to EGLE that was received on March 29, 2022.

Based on the results of this investigation the direct contact impacts have been delineated around SB-8. The location of the fence to prevent people from coming into contact with the soils with lead or arsenic exceeding direct contact criteria will span, at a minimum, from soil borings SB-5, SB-6, SB-7, SB-14, SB-12, SB-16, and back to SB-5. This will be discussed in greater detail in the Due Care Plan for the Subject Property that ASTI will be completing for the City of Rochester Hills.

FIGURES



3001 W. Auburn Road

Rochester Hills, MI

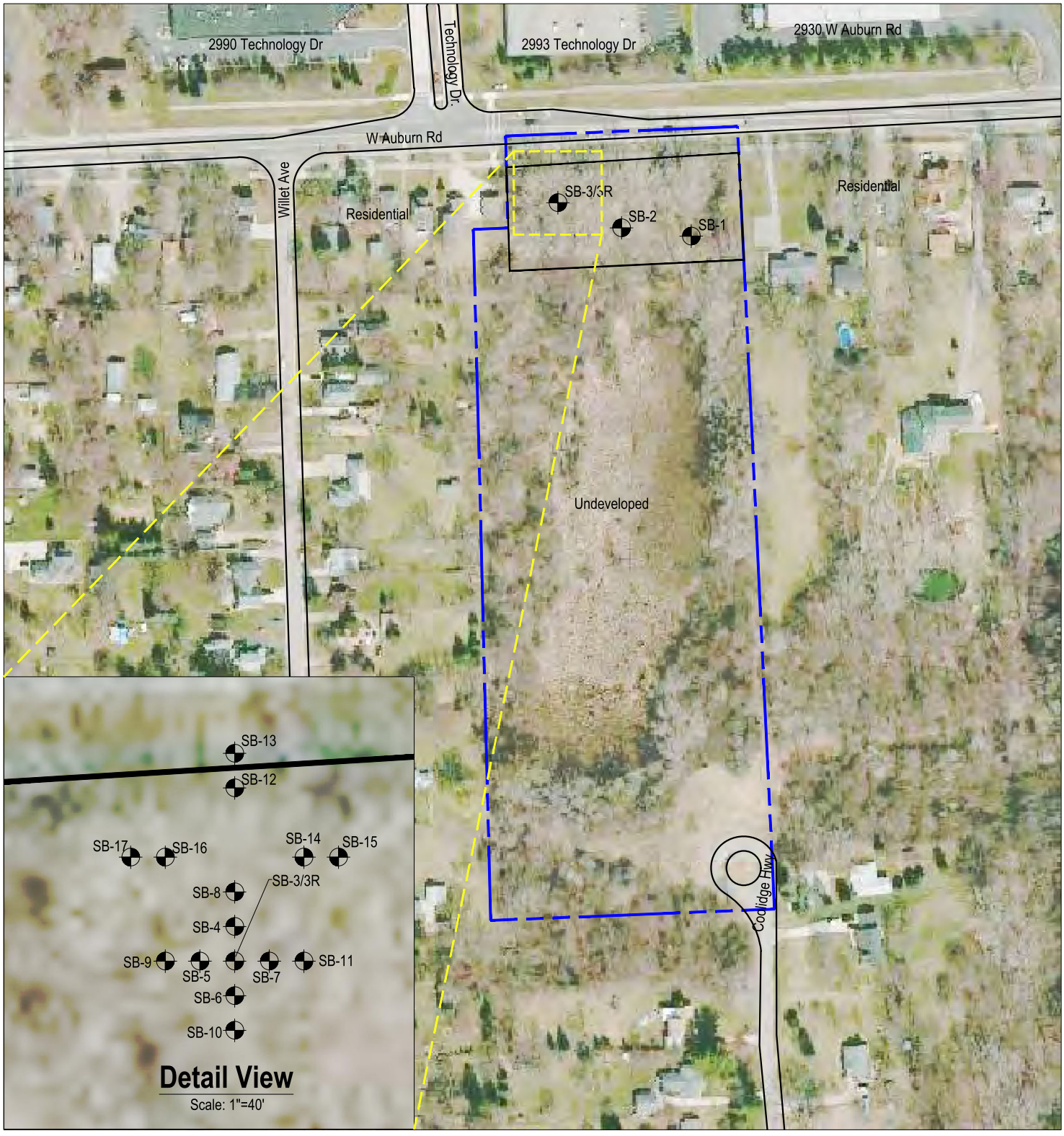
2,000 1,000 0 2,000 Feet

N

ASTI Environmental

Created for: The City of Rochester Hills
Created by: RMH, December 1, 2021, ASTI Project 11482-26

Figure 1 - Site Location Map



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GRAPHIC SCALE

0 100 200 400

1 inch = 200 ft.
Paper Size = (8.5x11)

LEGEND

- Property Line
- Parcel Boundary Line
- Approximate Area of Historical Soil Disturbance
- Soil Boring Location

N

3001 W. Auburn Road

Rochester Hills, MI

ASTI Environmental

Client: City of Rochester Hills

Figure 2 - Sample Location Map

ASTI Project 11482-26, JRN, March 23, 2022

TABLES

Table 1 Summary of Soil Sample Analytical Results (Residential)
3001 W. Auburn Road, Rochester Hills, MI
ASTI File No. 11482-26

Parameters (µg/kg)	Statewide Default Background Levels*	Residential Drinking Water Protection Criteria*	Groundwater Surface Water Interface Protection Criteria*	Residential Infinite Source Volatile Soil Inhalation for 5 Meter Source Thickness	Residential Particulate Soil Inhalation Criteria*	Residential Direct Contact Criteria*	SB-1 (2-2.75') 11/8/2021 µg/kg	SB-2 (0.5-1') 11/8/2021 µg/kg	SB-3 (2-3') 11/8/2021 µg/kg	Dup-1s SB-3 (2-3') 11/8/2021 µg/kg	Meth Blank 11/8/2021 µg/kg	SB-3R (0.5-1.5') 1/6/2022 µg/kg	SB-3R (4-5') 1/6/2022 µg/kg	SB-4 (0.5-1.5') 1/6/2022 µg/kg	SB-4 (2-3') 1/6/2022 µg/kg	SB-5 (0.5-1.5') 1/6/2022 µg/kg
Metals																
Arsenic	**5,800**	**4,600**	**4,600**	NLV	720,000	**7,600**	4,400	4,900	**6,900**	**7,900**	~	3,900	3,500	**7,600**	**7,600**	4,500
Barium	75,000	1,300,000	(G)	NLV	330,000,000	37,000,000	17,000	29,000	650,000	610,000	~	130,000	55,000	180,000	110,000	100,000
Cadmium	1,200	6,000	(G,X)	NLV	1,700,000	550,000	170	200	1,600	1,300	~	450	340	1000	870	530
Chromium, Total	18,000 (total)	1,000,000,000 (D)	(G,X)	NLV	330,000,000	790,000,000	6,500	8,100	21,000	21,000	~	11,000	7,100	16,000	16,000	9,300
Chromium VI	NA	30,000	3,300	NLV	260,000	2,500,000	~	~	<490	<480	~	~	~	~	~	~
Copper	32,000	5,800,000	(G)	NLV	130,000,000	20,000,000	6,700	10,000	27,000	28,000	~	15,000	8,500	63,000	53,000	27,000
Lead	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	4,600	5,900	**2,100,000**	**1,300,000**	~	**940,000**	170,000	390,000	270,000	280,000
Lead, Coarse Fraction	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	~	~	**2,490,000**	**808,000**	~	351,000	243,000	**502,000**	**462,000**	256,000
Lead, Fine Fraction	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	~	~	**3,100,000**	**1,430,000**	~	**505,000**	367,000	**460,000**	**476,000**	259,000
Lead, Total (Calculated)	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	~	~	**2,520,000**	**849,000**	~	378,000	261,000	**501,000**	**463,000**	256,000
Mercury, Total	130	1,700	50 (M); 1.2	52,000	20,000,000	160,000	<50	<50	59	54	~	<50	<50	<50	120	<50
Selenium	410	4,000	400	NLV	130,000,000	2,600,000	270	390	**420**	380	~	350	260	**630**	**440**	320
Silver	1,000	4,500	100 (M); 27	NLV	6,700,000	2,500,000	<100	<100	280	250	~	120	<100	140	130	<100
Zinc	47,000	2,400,000	(G)	NLV	ID	170,000,000	20,000	33,000	890,000	790,000	~	220,000	98,000	340,000	280,000	210,000
PNAs																
Acenaphthylene	NA	5,900	ID	2,200,000	2,300,000,000	1,600,000	<330	<330	<330	360	~	<330	<330	<330	<330	<330
Anthracene	NA	41,000	ID	1,400,000,000	67,000,000,000	230,000,000	<330	<330	<330	560	~	<330	<330	<330	<330	<330
Benzo(a)anthracene	NA	NLL	NLL	NLV	ID	20,000	<330	<330	1,000	1,500	~	<330	<330	<330	<330	<330
Benzo(a)pyrene	NA	NLL	NLL	NLV	1,500,000	2,000	<330	<330	910	1,400	~	<330	<330	<330	<330	<330
Benzo(b)fluoranthene	NA	NLL	NLL	ID	ID	20,000	<330	<330	1,300	1,800	~	<330	<330	<330	<330	<330
Benzo(g,h,i)perylene	NA	NLL	NLL	NLV	800,000,000	2,500,000	<330	<330	600	850	~	<330	<330	<330	<330	<330
Benzo(k)fluoranthene	NA	NLL	NLL	NLV	ID	200,000	<330	<330	400	650	~	<330	<330	<330	<330	<330
Chrysene	NA	NLL	NLL	ID	ID	2,000,000	<330	<330	930	1,400	~	<330	<330	<330	<330	<330
Fluoranthene	NA	730,000	**5,500**	740,000,000	9,300,000,000	46,000,000	<330	<330	1,600	3,300	~	<330	<330	<330	350	<330
Fluorene	NA	390,000	5,300	130,000,000	9,300,000,000	27,000,000	<330	<330			~	<330	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene	NA	NLL	NLL	NLV	ID	20,000	<330	<330	640	910	~	<330	<330	<330	<330	<330
Phenanthrene	NA	56,000	**2,100**	160,000	6,700,000	1,600,000	<330	<330	570	1,200	~	<330	<330	<330	<330	<330
Pyrene	NA	480,000	ID	650,000,000	6,700,000,000	29,000,000	<330	<330	1,500	2,900	~	<330	<330	<330	<330	<330
Remaining PNAs	NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	~	<RL	<RL	<RL	<RL	<RL
VOCs																
All VOCs	NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	~	~	~	~	~

*Per R299.46, June 25, 2018
**Per Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels obtained from 2013 Guidance Document for the Vapor Intrusion Pathway (2013 VI Guidance); Appendix D.1- VIAP Screening Levels; Table 1; updated September 4, 2020.
~ Parameter not tested for at his location.
Italicized analytical results exceed one or more GRCC but are below regional background concentrations.
Bold/Highlighted-Concentrations exceed one or more GRCC values.
ID-Inadequate data to develop criterion.
NA-Not available.
NLL-Hazardous substance is not likely to leach under most soil conditions.
NLV-Hazardous substance is not likely to volatilize under most conditions.
D-Calculated criterion exceeds 100%, hence it is reduced to 100% or 1.0e+9 ppb.
G-Groundwater Surface Water Interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.
M-Calculated criterion is below the analytical target detection limit, therefore, the criterions defaults to the target detection limit.
X-The Groundwater Surface Water Interface (GSI) criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.
DATA-Insufficient physical chemical parameters to calculate a VIAP screening level for specified media. If detections are present in specified media, health-based soil vapor value should be used to evaluate risk.
MM-Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating VIAP screening levels are modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.
CS-Compound specific
<RL-Below reporting limit

Table 1 Summary of Soil Sample Analytical Results (Residential)
3001 W. Auburn Road, Rochester Hills, MI
ASTI File No. 11482-26

Parameters (µg/kg)	Statewide Default Background Levels*	Residential Drinking Water Protection Criteria*	Groundwater Surface Water Interface Protection Criteria*	Residential Infinite Source Volatile Soil Inhalation for 5 Meter Source Thickness	Residential Particulate Soil Inhalation Criteria*	Residential Direct Contact Criteria*	SB-5 (2-3') 1/6/2022 µg/kg	SB-6 (0.5-1.5') 1/6/2022 µg/kg	SB-6 (2-3') 1/6/2022 µg/kg	SB-7 (0.5-1.5') 1/6/2022 µg/kg	Dup-1s SB-7 (0.5-1.5') 1/6/2022 µg/kg	SB-7 (2-3') 1/6/2022 µg/kg	SB-8 (0-0.5') 1/6/2022 µg/kg	SB-8 (2-3') 1/6/2022 µg/kg	SB-12 (0.5-1.5') 4/11/2022 µg/kg	SB-12 (2-3') 4/11/2022 µg/kg	SB-14 (0.5-1.5') 4/11/2022 µg/kg	SB-14 (2-3') 4/11/2022 µg/kg	SB-16 (0.5-1.5') 4/11/2022 µg/kg	SB-16 (2-3') 4/11/2022 µg/kg	Dup-1s SB-16 (2-3') 4/11/2022 µg/kg
Metals																					
Arsenic	**5,800**	**4,600**	**4,600**	NLV	720,000	**7,600**	3,800	5,800	5,400	5,100	3,500	**7,200**	~	~	**7,600**	*8,200*	2,600	3,400	**5,900**	*7,100*	*7,400*
Barium	75,000	1,300,000	(G)	NLV	330,000,000	37,000,000	66,000	70,000	68,000	40,000	27,000	53,000	~	~	~	~	~	~	~	~	~
Cadmium	1,200	6,000	(G,X)	NLV	1,700,000	550,000	430	1200	1200	680	450	470	~	~	~	~	~	~	~	~	~
Chromium, Total	18,000 (total)	1,000,000,000 (D)	(G,X)	NLV	330,000,000	790,000,000	8,800	10,000	9,700	41,000	10,000	15,000	~	~	~	~	~	~	~	~	~
Chromium VI	NA	30,000	3,300	NLV	260,000	2,500,000	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Copper	32,000	5,800,000	(G)	NLV	130,000,000	20,000,000	13,000	19,000	19,000	64,000	30,000	25,000	~	~	~	~	~	~	~	~	~
Lead	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	140,000	55,000	47,000	130,000	95,000	74,000	**720,000**	**550,000**	96,000	47,000	47,000	41,000	290,000	210,000	96,000
Lead, Coarse Fraction	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	193,000	~	~	168,000	~	~	**582,000**	**678,000**	85,900	~	~	~	286,000	236,000	83,400
Lead, Fine Fraction	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	99,300	~	~	90,900	~	~	**710,000**	**797,000**	87,600	~	~	~	178,000	270,000	91,000
Lead, Total (Calculated)	21,000	**700,000**	(G,X)	NLV	100,000,000	**400,000**	184,000	~	~	144,000	~	~	**596,000**	**698,000**	86,000	~	~	~	282,000	237,000	83,700
Mercury, Total	130	1,700	50 (M); 1.2	52,000	20,000,000	160,000	<50	88	99	60	86	<50	~	~	~	~	~	~	~	~	~
Selenium	410	4,000	400	NLV	130,000,000	2,600,000	240	*1200*	*1200*	320	270	340	~	~	~	~	~	~	~	~	~
Silver	1,000	4,500	100 (M); 27	NLV	6,700,000	2,500,000	<100	120	<100	<100	<100	<100	~	~	~	~	~	~	~	~	~
Zinc	47,000	2,400,000	(G)	NLV	ID	170,000,000	110,000	150,000	140,000	130,000	100,000	98,000	~	~	~	~	~	~	~	~	~
PNAs																					
Acenaphthylene	NA	5,900	ID	2,200,000	2,300,000,000	1,600,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	590
Anthracene	NA	41,000	ID	1,400,000,000	67,000,000,000	230,000,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	1,300
Benzo(a)anthracene	NA	NLL	NLL	NLV	ID	20,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	330	<330	1,900
Benzo(a)pyrene	NA	NLL	NLL	NLV	1,500,000	2,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	1,100
Benzo(b)fluoranthene	NA	NLL	NLL	ID	ID	20,000	<330	<330	<330	<330	<330	<330	~	~	380	<330	<330	<330	350	<330	1,600
Benzo(g,h,i)perylene	NA	NLL	NLL	NLV	800,000,000	2,500,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	530
Benzo(k)fluoranthene	NA	NLL	NLL	NLV	ID	200,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	580
Chrysene	NA	NLL	NLL	ID	ID	2,000,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	1,800
Fluoranthene	NA	730,000	**5,500**	740,000,000	9,300,000,000	46,000,000	<330	<330	<330	<330	<330	<330	~	~	650	<330	<330	<330	480	370	**5,900**
Fluorene	NA	390,000	5,300	130,000,000	9,300,000,000	27,000,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	600
Indeno(1,2,3-cd)pyrene	NA	NLL	NLL	NLV	ID	20,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	630
Phenanthrene	NA	56,000	**2,100**	160,000	6,700,000	1,600,000	<330	<330	<330	<330	<330	<330	~	~	<330	<330	<330	<330	<330	<330	**5,700**
Pyrene	NA	480,000	ID	650,000,000	6,700,000,000	29,000,000	<330	<330	<330	<330	<330	<330	~	~	520	<330	<330	<330	420	370	4,600
Remaining PNAs	NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	~	~	~	~	~	~	~	~	~
VOCs																					
All VOCs	NA	CS	CS	CS	CS	CS	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

*Per R299.46, June 25, 2018
**Per Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels obtained from 2013 Guidance Document for the Vapor Intrusion Pathway (2013 VI Guidance); Appendix D.1- VIAP Screening Levels; Table 1; updated September 4, 2020.
~ Parameter not tested for at his location.
Italicized analytical results exceed one or more GRCC but are below regional background concentrations.
Bold/Highlighted-Concentrations exceed one or more GRCC values.
ID-Inadequate data to develop criterion.
NA-Not available.
NLL-Hazardous substance is not likely to leach under most soil conditions.
NLV-Hazardous substance is not likely to volatilize under most conditions.
D-Calculated criterion exceeds 100%, hence it is reduced to 100% or 1.0e+9 ppb.
G-Groundwater Surface Water Interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.
M-Calculated criterion is below the analytical target detection limit, therefore, the criterions defaults to the target detection limit.
X-The Groundwater Surface Water Interface (GSI) criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.
DATA-Insufficient physical chemical parameters to calculate a VIAP screening level for specified media. If detections are present in specified media, health-based soil vapor value should be used to evaluate risk.
MM-Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating VIAP screening levels are modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.
CS-Compound specific
<RL-Below reporting limit

ATTACHMENTS

Attachment A

Soil Boring Logs

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-12**
Total Depth:	3' bgs

Proj. Name:	3001 Auburn Rd
Proj. Number:	11482-26
Site Address:	3001 West Auburn Road Rochester Hills, Michigan
Drilled by:	ASTI Environmental
Method:	Hand auger/Shovel
Geologist:	Lucas Wright and Gage Frankevic

Date Completed:	4/11/2022

TW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	NA

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	0.5'	Topsoil, fine to medium grained sand, trace silt, trace to some organics, black, moist, loose (fill)	0.0	
0.5'	1.5'	SAND, fine to medium grained, trace very fine grianed sand, silt, clay, gravel, brick, concrete, and metal, brown, moist, loose (fill)	0.0	Soil at 0.5-1.5'
1.5'	2'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel and organics, black, moist, loose (sand)	0.0	
2'	3'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel, brown, moist, loose (sand)	0.0	Soil at 2-3'
		End of Boring		

ppm = parts per million
TW = temporary monitoring well
bgs = below ground surface
( ) = USDA soil texture

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-13**
Total Depth:	3' bgs

Proj. Name:	3001 Auburn Rd
Proj. Number:	11482-26

Date Completed:	4/11/2022

Site Address:	3001 West Auburn Road
	Rochester Hills, Michigan

TW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	NA

Drilled by:	ASTI Environmental
Method:	Hand auger/Shovel
Geologist:	Lucas Wright and Gage Frankevic

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	0.5'	Topsoil, fine to medium grained sand, trace silt, trace to some organics, black, moist, loose (loamy sand)	0.0	
0.5'	1.5'	SAND, fine to medium grained, trace very fine grained sand, silt, clay, and gravel, brown, moist, loose (sandy loam)	0.0	Soil at 0.5-1.5'
0.5'	2'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel and organics, black, moist, loose (sand)	0.0	
2'	3'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel, brown, moist, loose (sand)	0.0	Soil at 2-3'
		End of Boring		

ppm = parts per million
TW = temporary monitoring well
bgs = below ground surface
( ) = USDA soil texture

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-14**
Total Depth:	3' bgs

Proj. Name:	3001 Auburn Rd
Proj. Number:	11482-26
Site Address:	3001 West Auburn Road
	Rochester Hills, Michigan
Drilled by:	ASTI Environmental
Method:	Hand auger/Shovel
Geologist:	Lucas Wright and Gage Frankevic

Date Completed:	4/11/2022

TW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	NA

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	0.5'	Topsoil, fine to medium grained sand, trace silt, trace to some organics, black, moist, loose (fill)	0.0	
0.5'	1.5'	SAND, fine to medium grained, trace very fine grianed sand, silt, clay, gravel, brick, concrete, and metal, brown, moist, loose (fill)	0.0	Soil at 0.5-1.5'
1.5'	2'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel and organics, black, moist, loose (sand)	0.0	
2'	3'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel, brown, moist, loose (sand)	0.0	Soil at 2-3'
		End of Boring		

ppm = parts per million
TW = temporary monitoring well
bgs = below ground surface
( ) = USDA soil texture

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-15**
Total Depth:	3' bgs

Proj. Name:	3001 Auburn Rd
Proj. Number:	11482-26
Site Address:	3001 West Auburn Road
	Rochester Hills, Michigan
Drilled by:	ASTI Environmental
Method:	Hand auger/Shovel
Geologist:	Lucas Wright and Gage Frankevic

Date Completed:	4/11/2022

TW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	NA

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	0.5'	Topsoil, fine to medium grained sand, trace silt, trace to some organics, black, moist, loose (fill)	0.0	
0.5'	1.5'	SAND, fine to medium grained, trace very fine grianed sand, silt, clay, gravel, brick, concrete, and metal, brown, moist, loose (fill)	0.0	Soil at 0.5-1.5'
1.5'	2'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel and organics, black, moist, loose (sand)	0.0	
2'	3'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel, brown, moist, loose (sand)	0.0	Soil at 2-3'
		End of Boring		

ppm = parts per million
TW = temporary monitoring well
bgs = below ground surface
( ) = USDA soil texture

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-16**
Total Depth:	3' bgs

Proj. Name:	3001 Auburn Rd
Proj. Number:	11482-26
Site Address:	3001 West Auburn Road
	Rochester Hills, Michigan
Drilled by:	ASTI Environmental
Method:	Hand auger/Shovel
Geologist:	Lucas Wright and Gage Frankevic

Date Completed:	4/11/2022

TW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	NA

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	0.5'	Topsoil, fine to medium grained sand, trace silt, trace to some organics, black, moist, loose (fill)	0.0	
0.5'	1.5'	SAND, fine to medium grained, trace very fine grianed sand, silt, clay, gravel, brick, concrete, and metal, brown, moist, loose (fill)	0.0	Soil at 0.5-1.5'
1.5'	2'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel and organics, black, moist, loose (sand)	0.0	
2'	3'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel, brown, moist, loose (sand)	0.0	Soil at 2-3'
		End of Boring		

ppm = parts per million
TW = temporary monitoring well
bgs = below ground surface
( ) = USDA soil texture

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-17**
Total Depth:	3' bgs

Proj. Name:	3001 Auburn Rd
Proj. Number:	11482-26
Site Address:	3001 West Auburn Road
	Rochester Hills, Michigan
Drilled by:	ASTI Environmental
Method:	Hand auger/Shovel
Geologist:	Lucas Wright and Gage Frankevic

Date Completed:	4/11/2022

TW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	NA

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	0.5'	Topsoil, fine to medium grained sand, trace silt, trace to some organics, black, moist, loose (fill)	0.0	
0.5'	1.5'	SAND, fine to medium grained, trace very fine grianed sand, silt, clay, gravel, brick, concrete, and metal, brown, moist, loose (fill)	0.0	Soil at 0.5-1.5'
1.5'	2'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel and organics, black, moist, loose (sand)	0.0	
2'	3'	SAND, medium to coarse grained, trace to some very fine to fine and very coarse grained sand, trace gravel, brown, moist, loose (sand)	0.0	Soil at 2-3'
		End of Boring		

ppm = parts per million
TW = temporary monitoring well
bgs = below ground surface
( ) = USDA soil texture

Attachment B

Laboratory Analytical Reports and Chain-of-Custody Documentation

Fibertec environmental services

Wednesday, April 20, 2022

Fibertec Project Number:	A07911
Project Identification:	3001 W. Auburn Rd. (11482-26) /11482-26
Submittal Date:	04/11/2022

Mr. Jeremy Efros
Applied Science & Technology, Inc. - Brighton
10448 Citation Dr.
Suite 100
Brighton, MI 48116

Dear Mr. Efros,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Sue Ricketts at 9:36 AM, Apr 20, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-003

Order: A07911
Date: 04/20/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-12 0.5-1.5'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**11:35**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C **Aliquot ID: A07911-003** **Matrix: Soil/Solid**
Method: ASTM D2216-10 **Description: SB-12 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	**32**		%	1	1.0	04/13/22	MC220413	04/14/22	MC220413	LJK

Trace Elements by ICP/MS **Aliquot ID: A07911-003** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-12 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Arsenic	**7600**		µg/kg	100	20	04/15/22	PT22D15A	04/15/22	T422D15A	CJA
2. Lead	**96000**		µg/kg	1000	20	04/15/22	PT22D15A	04/15/22	T422D15A	CJA

Polynuclear Aromatic Hydrocarbons (PNAs) **Aliquot ID: A07911-003** **Matrix: Soil/Solid**
Method: EPA 3546/EPA 8270E **Description: SB-12 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acenaphthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
2. Acenaphthylene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
3. Anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
4. Benzo(a)anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
5. Benzo(a)pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
6. Benzo(b)fluoranthene (SIM)	**380**		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
7. Benzo(ghi)perylene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
8. Benzo(k)fluoranthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
9. Chrysene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
10. Dibenzo(a,h)anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
11. Fluoranthene (SIM)	**650**		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
12. Fluorene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
13. Indeno(1,2,3-cd)pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
14. 2-Methylnaphthalene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
15. Naphthalene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
16. Phenanthrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD
17. Pyrene (SIM)	**520**		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 16:35	S522D14A	SJD

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-004

Order: A07911
Date: 04/20/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-12 2-3'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**11:38**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C **Aliquot ID: A07911-004** **Matrix: Soil/Solid**
Method: ASTM D2216-10 **Description: SB-12 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	**22**		%	1	1.0	04/13/22	MC220413	04/14/22	MC220413	LJK

Trace Elements by ICP/MS **Aliquot ID: A07911-004** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-12 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Arsenic	**8200**		µg/kg	100	20	04/15/22	PT22D15A	04/15/22	T422D15A	CJA
2. Lead	**47000**		µg/kg	1000	20	04/15/22	PT22D15A	04/15/22	T422D15A	CJA

Polynuclear Aromatic Hydrocarbons (PNAs) **Aliquot ID: A07911-004** **Matrix: Soil/Solid**
Method: EPA 3546/EPA 8270E **Description: SB-12 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acenaphthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
2. Acenaphthylene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
3. Anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
4. Benzo(a)anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
5. Benzo(a)pyrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
6. Benzo(b)fluoranthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
7. Benzo(ghi)perylene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
8. Benzo(k)fluoranthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
9. Chrysene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
10. Dibenzo(a,h)anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
11. Fluoranthene (SIM)	U	F+	µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
12. Fluorene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
13. Indeno(1,2,3-cd)pyrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
14. 2-Methylnaphthalene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
15. Naphthalene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
16. Phenanthrene (SIM)	U	F+	µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD
17. Pyrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 21:56	S522D14A	SJD

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-005

Order: A07911
Date: 04/20/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-14 0.5-1.5'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**11:55**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C **Aliquot ID: A07911-005** **Matrix: Soil/Solid**
Method: ASTM D2216-10 **Description: SB-14 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	**24**		%	1	1.0	04/13/22	MC220413	04/14/22	MC220413	LJK

Trace Elements by ICP/MS **Aliquot ID: A07911-005** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-14 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Arsenic	**2600**		µg/kg	100	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA
2. Lead	**47000**	F-*	µg/kg	1000	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA

Polynuclear Aromatic Hydrocarbons (PNAs) **Aliquot ID: A07911-005** **Matrix: Soil/Solid**
Method: EPA 3546/EPA 8270E **Description: SB-14 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acenaphthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
2. Acenaphthylene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
3. Anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
4. Benzo(a)anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
5. Benzo(a)pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
6. Benzo(b)fluoranthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
7. Benzo(ghi)perylene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
8. Benzo(k)fluoranthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
9. Chrysene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
10. Dibenzo(a,h)anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
11. Fluoranthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
12. Fluorene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
13. Indeno(1,2,3-cd)pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
14. 2-Methylnaphthalene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
15. Naphthalene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
16. Phenanthrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD
17. Pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 17:27	S522D14A	SJD

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-006

Order: A07911
Date: 04/20/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-14 2-3'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**11:58**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C **Aliquot ID: A07911-006** **Matrix: Soil/Solid**
Method: ASTM D2216-10 **Description: SB-14 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	**23**		%	1	1.0	04/13/22	MC220413	04/14/22	MC220413	LJK

Trace Elements by ICP/MS **Aliquot ID: A07911-006** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-14 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Arsenic	**3400**		µg/kg	100	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA
2. Lead	**41000**		µg/kg	1000	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA

Polynuclear Aromatic Hydrocarbons (PNAs) **Aliquot ID: A07911-006** **Matrix: Soil/Solid**
Method: EPA 3546/EPA 8270E **Description: SB-14 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acenaphthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
2. Acenaphthylene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
3. Anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
4. Benzo(a)anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
5. Benzo(a)pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
6. Benzo(b)fluoranthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
7. Benzo(ghi)perylene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
8. Benzo(k)fluoranthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
9. Chrysene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
10. Dibenzo(a,h)anthracene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
11. Fluoranthene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
12. Fluorene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
13. Indeno(1,2,3-cd)pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
14. 2-Methylnaphthalene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
15. Naphthalene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
16. Phenanthrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD
17. Pyrene (SIM)	U		µg/kg	330	1.0	04/14/22	PS22D14C	04/14/22 18:01	S522D14A	SJD

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-009

Order: A07911
Date: 04/20/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-16 0.5-1.5'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**12:16**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C **Aliquot ID: A07911-009** **Matrix: Soil/Solid**
Method: ASTM D2216-10 **Description: SB-16 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	**37**		%	1	1.0	04/13/22	MC220413	04/14/22	MC220413	LJK

Trace Elements by ICP/MS **Aliquot ID: A07911-009** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-16 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Arsenic	**5900**		µg/kg	100	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA
2. Lead	**290000**		µg/kg	1000	40	04/18/22	PT22D18A	04/18/22	T422D18B	CJA

Polynuclear Aromatic Hydrocarbons (PNAs) **Aliquot ID: A07911-009** **Matrix: Soil/Solid**
Method: EPA 3546/EPA 8270E **Description: SB-16 0.5-1.5'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acenaphthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
2. Acenaphthylene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
3. Anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
4. Benzo(a)anthracene (SIM)	**330**		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
5. Benzo(a)pyrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
6. Benzo(b)fluoranthene (SIM)	**350**		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
7. Benzo(ghi)perylene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
8. Benzo(k)fluoranthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
9. Chrysene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
10. Dibenzo(a,h)anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
11. Fluoranthene (SIM)	**480**		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
12. Fluorene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
13. Indeno(1,2,3-cd)pyrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
14. 2-Methylnaphthalene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
15. Naphthalene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
16. Phenanthrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD
17. Pyrene (SIM)	**420**		µg/kg	330	10	04/14/22	PS22D14C	04/15/22 18:32	S622D15A	SJD

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-010

Order: A07911
Date: 04/20/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-16 2-3'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**12:18**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C **Aliquot ID: A07911-010** **Matrix: Soil/Solid**
Method: ASTM D2216-10 **Description: SB-16 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	**18**		%	1	1.0	04/13/22	MC220413	04/14/22	MC220413	LJK

Trace Elements by ICP/MS **Aliquot ID: A07911-010** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-16 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Arsenic	**7100**		µg/kg	100	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA
2. Lead	**210000**		µg/kg	1000	40	04/18/22	PT22D18A	04/18/22	T422D18B	CJA

Polynuclear Aromatic Hydrocarbons (PNAs) **Aliquot ID: A07911-010** **Matrix: Soil/Solid**
Method: EPA 3546/EPA 8270E **Description: SB-16 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acenaphthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
2. Acenaphthylene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
3. Anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
4. Benzo(a)anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
5. Benzo(a)pyrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
6. Benzo(b)fluoranthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
7. Benzo(ghi)perylene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
8. Benzo(k)fluoranthene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
9. Chrysene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
10. Dibenzo(a,h)anthracene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
11. Fluoranthene (SIM)	**370**		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
12. Fluorene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
13. Indeno(1,2,3-cd)pyrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
14. 2-Methylnaphthalene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
15. Naphthalene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
16. Phenanthrene (SIM)	U		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD
17. Pyrene (SIM)	**370**		µg/kg	330	10	04/14/22	PS22D14C	04/14/22 16:28	S622D14A	SJD

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-013

Order: A07911
Date: 04/20/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**DUP-1-SB**	Chain of Custody:	**196948**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**NA**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Water (Moisture) Content Dried at 105 ± 5°C **Aliquot ID: A07911-013** **Matrix: Soil/Solid**
Method: ASTM D2216-10 **Description: DUP-1-SB**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Percent Moisture (Water Content)	**39**		%	1	1.0	04/13/22	MC220413	04/14/22	MC220413	LJK

Trace Elements by ICP/MS **Aliquot ID: A07911-013** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: DUP-1-SB**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Arsenic	**7400**		µg/kg	100	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA
2. Lead	**96000**		µg/kg	1000	20	04/18/22	PT22D18A	04/18/22	T422D18B	CJA

Polynuclear Aromatic Hydrocarbons (PNAs) **Aliquot ID: A07911-013** **Matrix: Soil/Solid**
Method: EPA 3546/EPA 8270E **Description: DUP-1-SB**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Acenaphthene (SIM)	**590**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
2. Acenaphthylene (SIM)	U		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
3. Anthracene (SIM)	**1300**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
4. Benzo(a)anthracene (SIM)	**1900**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
5. Benzo(a)pyrene (SIM)	**1100**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
6. Benzo(b)fluoranthene (SIM)	**1600**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
7. Benzo(ghi)perylene (SIM)	**530**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
8. Benzo(k)fluoranthene (SIM)	**580**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
9. Chrysene (SIM)	**1800**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
10. Dibenzo(a,h)anthracene (SIM)	U		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
11. Fluoranthene (SIM)	**5900**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
12. Fluorene (SIM)	**600**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
13. Indeno(1,2,3-cd)pyrene (SIM)	**630**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
14. 2-Methylnaphthalene (SIM)	U		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
15. Naphthalene (SIM)	U		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
16. Phenanthrene (SIM)	**5700**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD
17. Pyrene (SIM)	**4600**		µg/kg	330	10	04/15/22	PS22D14C	04/15/22 19:00	S622D15A	SJD

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

***** : Duplicate analysis not within control limits.
F- : Recovery from the spiked aliquot exceeds the lower control limit (matrix spike or matrix spike duplicate).
F+ : Recovery from the spiked aliquot exceeds the upper control limit (matrix spike or matrix spike duplicate).

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

Fibertec environmental services

Wednesday, April 27, 2022

Fibertec Project Number:	A07911 Supplemental
Project Identification:	3001 W. Auburn Rd. (11482-26) /11482-26
Submittal Date:	04/11/2022

Mr. Jeremy Efros
Applied Science & Technology, Inc. - Brighton
10448 Citation Dr.
Suite 100
Brighton, MI 48116

Dear Mr. Efros,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Bailey Welch

By Bailey Welch at 8:55 AM, Apr 27, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-003

Order: A07911
Date: 04/27/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-12 0.5-1.5'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**11:35**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Lead, MDEQ Criteria **Aliquot ID: A07911-003A** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-12 0.5-1.5'**

	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
	1. Lead, Coarse Fraction	**85900**		µg/kg	1000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
	2. Lead, Fine Fraction	**87600**		µg/kg	2000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
	3. Lead, Total (Calculated)	**86000**		µg/kg	1000	1.0	NA	NA	04/26/22	NA	CJA
‡	4. Percent Total Solids	**66.3**		%	0.1	1.0	NA	NA	04/26/22	NA	CJA

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-009

Order: A07911
Date: 04/27/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-16 0.5-1.5'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**12:16**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Lead, MDEQ Criteria **Aliquot ID: A07911-009A** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-16 0.5-1.5'**

	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
	1. Lead, Coarse Fraction	**286000**		µg/kg	1000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
	2. Lead, Fine Fraction	**178000**		µg/kg	2000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
	3. Lead, Total (Calculated)	**282000**		µg/kg	1000	1.0	NA	NA	04/26/22	NA	CJA
‡	4. Percent Total Solids	**73.3**		%	0.1	1.0	NA	NA	04/26/22	NA	CJA

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-010

Order: A07911
Date: 04/27/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SB-16 2-3'**	Chain of Custody:	**196947**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**12:18**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Lead, MDEQ Criteria **Aliquot ID: A07911-010A** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: SB-16 2-3'**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
1. Lead, Coarse Fraction	**236000**		µg/kg	1000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
2. Lead, Fine Fraction	**270000**		µg/kg	2000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
3. Lead, Total (Calculated)	**237000**		µg/kg	1000	1.0	NA	NA	04/26/22	NA	CJA
‡ 4. Percent Total Solids	**80.4**		%	0.1	1.0	NA	NA	04/26/22	NA	CJA

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A07911
Laboratory Sample Number: A07911-013

Order: A07911
Date: 04/27/22

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**DUP-1-SB**	Chain of Custody:	**196948**
Client Project Name:	**3001 W. Auburn Rd. (11482-26)**	Sample No:		Collect Date:	**04/11/22**
Client Project No:	**11482-26**	Sample Matrix:	**Soil/Solid**	Collect Time:	**NA**

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Lead, MDEQ Criteria **Aliquot ID: A07911-013A** **Matrix: Soil/Solid**
Method: EPA 0200.2/EPA 6020A **Description: DUP-1-SB**

	Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
	1. Lead, Coarse Fraction	**83400**		µg/kg	1000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
	2. Lead, Fine Fraction	**91000**		µg/kg	2000	100	04/26/22	PT22D26E	04/26/22	T422D26A	CJA
	3. Lead, Total (Calculated)	**83700**		µg/kg	1000	1.0	NA	NA	04/26/22	NA	CJA
‡	4. Percent Total Solids	**60.6**		%	0.1	1.0	NA	NA	04/26/22	NA	CJA

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

revised JS 4/12/22

Chain of Custody # **196947**
PAGE 1 of 2

Client Name: ASTI Environmental
Contact Person: Jeremy Efros
Project Name/ Number: 3001 W. Auburn Rd 11482-26
Email distribution list: jefros@asti-env.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: PNAS	Arsenic	Lead	HOLD SAMPLE	Remarks
4-11-22	11:45am	SB-13	0.5-1.5 feet	S	1	✓	✓	✓	X	Hold per Email APR 12 2022 JS 4/12/22
↓	11:48am	SB-13	2-3'						X	Hold
4-11-22	11:35am	SB-12	0.5-1.5'							
↓	11:38	SB-12	2-3'							
4-11-22	11:55	SB-14	0.5-1.5'							
↓	11:58	SB-14	2-3'							
4-11-22	12:08	SB-15	0.5-1.5'						X	Hold
↓	12:10	SB-15	2-3'						X	Hold
4-11-22	12:16	SB-16	0.5-1.5'							
↓	12:18	SB-16	2-3'	↓	↓	↓	↓	↓		

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks: Received By Lab
Initials BP

Comments:

	Date/ Time	
Sampled/Relinquished By: Hope Amaris	4/11/22 2:00p	Received By: Kris Scott
Relinquished By: Kris Scott / Fibertec cooler	4-12-22 0800	Received By:
Relinquished By:	4/12/22 10:25	Received By Laboratory: Blang Power

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

✓ 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: A07911

Temperature upon receipt at Lab: 4.8°C

Received On Ice

Please see back for terms and conditions

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe

11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody #
196947
PAGE 1 of 2

Client Name: ASTI Environmental
Contact Person: Jeremy [redacted] Efros
Project Name/ Number:
3001 W. Auburn Rd 11482-26
Email distribution list:
jefros@asti-env.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PNAS	Arsenic	Lead	HOLD SAMPLE
4-11-22	11:45am	SB-13	0.5-1.5 feet	S	1	✓	✓	✓	
↓	11:48am	SB-13	2-3'						
4-11-22	11:35am	SB-12	0.5-1.5'						
↓	11:38	SB-12	2-3'						
4-11-22	11:55	SB-14	0.5-1.5'						
↓	11:58	SB-14	2-3'						
4-11-22	12:05	SB-15	0.5-1.5'						
↓	12:10	SB-15	2-3'						
4-11-22	12:16	SB-16	0.5-1.5'						
↓	12:18	SB-16	2-3'	↓	↓	↓	↓	↓	

Matrix Code

S	Soil	GW	Ground Water
A	Air	SW	Surface Water
O	Oil	WW	Waste Water
P	Wipe	X	Other: Specify

Deliverables

- Level 2
- Level 3
- Level 4
- EDD

Remarks: Received By Lab
APR 12 2022
Initials: BP

Comments:

	Date/ Time	
Sampled/Relinquished By: [redacted]	4/11/22 2:00p	Received By: Kriss Scott
Relinquished By: Kriss Scott / Fibertec cooler	4-12-22 0800	Received By: [redacted]
Relinquished By: [redacted]	4/12/22 10:25	Received By Laboratory: Blanz Power

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

✓ 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: A07911

Temperature upon receipt at Lab: 4.8°C

Received On Ice

Please see back for terms and conditions

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

revised 4/12/22

Chain of Custody # **196948**
PAGE 2 of 2

Client Name: ~~Jeremy Efros~~ ASTI Environmental
Contact Person: Jeremy Efros
Project Name/ Number: 3001 W Auburn Rd 1482-26
Email distribution list: jefros@asti-env.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PNAs	Arsenic	Lead	HOLD SAMPLE	Remarks
4-11-22	12:14pm	SB-17	0.5-6.5'	S	1	✓	✓	✓		Hold
	12:17	SB-17	2-3'							Hold
↓		Dup-1-SB	Dup-1-SB	↓	↓	↓	↓	↓		

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Received By Lab
APR 12 2022
Initials: BP

Comments:

Sampled/Relinquished By:	Date/ Time	Received By:
Gage Franzen	4-11-22 2:00	Russ Scott
Relinquished By: Russ Scott/Fibertec cooler	Date/ Time 4-12-22 0800	Received By:
Relinquished By:	Date/ Time 4/12/22 10:25	Received By Laboratory: Blang Powers

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

✓ 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY
Fibertec project number: A07911
Temperature upon receipt at Lab: 4.8°C
Received On Ice

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe

11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 196948

Client Name: ASTI Environmental

Contact Person: Jeremy Efros

Project Name/ Number: 3001 W Auburn Rd 11482-26

Email distribution list: jefros@asti-env.com

Quote#

Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PNAs	Arsenic	Lead	HOLD SAMPLE
4-11-22	12:14pm	SB-17	0.5-1.5'	S	1	✓	✓	✓	
	12:17	SB-17	2-3'						
↓		Dup-1-SB	Dup-1-SB	↓	↓	↓	↓	↓	

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks:

Received By Lab
APR 12 2022
Initials: BP

Comments:

Sampled/Relinquished By:	Date/ Time	Received By:
Hope Francis	4-11-22 2:00	Russ Scott
Russ Scott / Fibertec cooler	4-12-22 0800	
	4/12/22 10:25	Received By Laboratory: Blang Powers

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

✓ 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: A07911

Temperature upon receipt at Lab: 4.8°C

Received On Ice

Please see back for terms and conditions

ASTI ENVIRONMENTAL

ENVIRONMENTAL INVESTIGATION, REMEDIATION, COMPLIANCE AND RESTORATION PROJECTS THROUGHOUT THE GREAT LAKES SINCE 1985.

OUR SERVICES INCLUDE:

- **ASBESTOS, LEAD, MOLD, AND RADON ASSESSMENTS**
- **BROWNFIELD/GREYFIELD REDEVELOPMENT ASSISTANCE**
- **DEVELOPMENT INCENTIVES AND GRANT MANAGEMENT**
- **ECOLOGICAL ASSESSMENTS AND RESTORATION**
- **ENVIRONMENTAL ASSESSMENTS AND IMPACT STATEMENTS**
- **ENVIRONMENTAL OPPORTUNITIES ASSESSMENT**
- **GIS MAPPING**
- **HAZARD MITIGATION PLANNING**
- **MINING AND RECLAMATION ASSISTANCE**
- **REMEDIATION IMPLEMENTATION, OPERATION AND MAINTENANCE**
- **PHASE I ESA AND ENVIRONMENTAL DUE DILIGENCE ASSESSMENTS**
- **REGULATORY COMPLIANCE AND PERMITTING**
- **SOIL AND GROUNDWATER ASSESSMENTS**
- **SOIL AND GROUNDWATER REMEDIATION**
- **STORAGE TANK COMPLIANCE AND CLOSURE**
- **THREATENED AND ENDANGERED SPECIES SURVEYS**
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ASTI ENVIRONMENTAL
Detroit/Grand Rapids/Brighton

Phone: 1-800-395-2784
www.asti-env.com
Email: environmental@asti-env.com

ASTI ENVIRONMENTAL