CERTIFICATE OF ANALYSIS

Nathanial Arai
GZA GeoEnvironmental, Inc.
1350 Main Street, Suite 1400
Springfield, MA 01103

RE: Flood Walls W Hartford (15.0166354.01 task 0008)
ESS Laboratory Work Order Number: 1402373

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 4:37 pm, Mar 04, 2014

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

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Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

SAMPLE RECEIPT

The following samples were received on February 26, 2014 for the analyses specified on the enclosed Chain of Custody Record.

To achieve Reasonable Confidence Protocols (RCP) compliance for Connecticut data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All RCP requirements have been achieved unless noted in the project narrative.

Question 5: **Each method has been set-up in the laboratory to reach required RCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes (ie for GWPC samples, 1,2-Dibromoethane regulatory levels will not be met by VOA 8260. If this is a contaminant of concern Method 8011 will need to be used.). The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.**

Lab Number	Sample Name	Matrix	Analysis
1402373-01	001- New Park Right	Solid	8082A
1402373-02	002- New Park Right 2	Solid	8082A
1402373-03	003 Backing New Park Right 2	Solid	8082A
1402373-04	004 New Park Left	Solid	8082A
1402373-05	005 New Park Left Downstream	Solid	8082A
1402373-06	006 Down Wall	Solid	8082A

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1402373-02 **Percent difference between primary and confirmation results exceeds 40% (P).**
Aroclor 1242

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

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Client Name: GZA GeoEnvironmental, Inc.
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CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

Laboratory Analysis
QA/QC Certification Form

Project Number: **15.0166354.01 task 0008**
Sampling Date(s): **2/14/2014**
Laboratory Sample ID(s): **1402373-01 through 1402373-06**

List RCP Methods Used	( ) 8260B	( ) 8151A	( ) ETPH	( ) 6010B	( ) 7470A/1A
Other: _____	( ) 8270C	( ) 8081A	( ) VPH	( ) 6020	( ) 9014M
_____	( ) 8082	( ) 8021B	( ) EPH	( ) 7000 S	( ) 7196A

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria failing outside of acceptable guidelines, as specified in the CTDEP method-specific Reasonable Confidence Protocol documents?	Yes ( ) No ( )
1A	Were the method specified preservation and holding time requirements met?	Yes ( ) No ( )
1B	***VPH and EPH Methods only:*** Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective RCP methods)?	Yes ( ) No ( ) N/A ( )
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	Yes ( ) No ( )
3	Were samples received at an appropriate temperature (<6º Cº)?	Yes ( ) No ( ) N/A ( )
4	Were all QA/QC performance criteria specified in the CTDEP Reasonable Confidence Protocol documents achieved?	Yes ( ) No ( )
5	a) Were reporting limits specified or referenced on the chain-of-custody? b) Were these reporting limits met?	Yes ( ) No ( ) Yes ( ) No ( )
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	Yes ( ) No ( )
7	Are project-specific matrix spikes and laboratory duplicates included in this data set?	Yes ( ) No ( )

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or #1B is "No", the data package does not meet the requirements for "Reasonable Confidence." This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Laurel Stoddard Position: Laboratory Director

Printed Name: Laurel Stoddard Date: March 04, 2014

Name of Laboratory: ESS Laboratory

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford
Client Sample ID: 001- New Park Right
Date Sampled: 02/14/14 09:50
Percent Solids: N/A
Initial Volume: 5.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1402373
ESS Laboratory Sample ID: 1402373-01
Sample Matrix: Solid
Units: mg/kg wet
Analyst: TAJ
Prepared: 2/27/14 15:32
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1221	ND (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1232	ND (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1242	ND (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1248	ND (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1254	**0.487** (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1260	ND (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1262	ND (0.172)		8082A		1	02/28/14 15:50		CB42609
Aroclor 1268	ND (0.172)		8082A		1	02/28/14 15:50		CB42609

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*90 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*97 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford
Client Sample ID: 002- New Park Right 2
Date Sampled: 02/14/14 10:20
Percent Solids: N/A
Initial Volume: 5.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1402373
ESS Laboratory Sample ID: 1402373-02
Sample Matrix: Solid
Units: mg/kg wet
Analyst: TAJ
Prepared: 2/27/14 15:32
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1221	ND (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1232	ND (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1242	**P 0.566** (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1248	ND (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1254	**0.560** (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1260	ND (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1262	ND (0.182)		8082A		1	02/28/14 16:09		CB42609
Aroclor 1268	ND (0.182)		8082A		1	02/28/14 16:09		CB42609

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*79 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*93 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford
Client Sample ID: 003 Backing New Park Right 2
Date Sampled: 02/14/14 10:25
Percent Solids: N/A
Initial Volume: 5.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1402373
ESS Laboratory Sample ID: 1402373-03
Sample Matrix: Solid
Units: mg/kg wet
Analyst: TAJ
Prepared: 2/27/14 15:32
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1221	ND (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1232	ND (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1242	**0.791** (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1248	ND (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1254	**0.402** (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1260	ND (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1262	ND (0.185)		8082A		1	02/28/14 16:28		CB42609
Aroclor 1268	ND (0.185)		8082A		1	02/28/14 16:28		CB42609

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*54 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*80 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford
Client Sample ID: 004 New Park Left
Date Sampled: 02/14/14 10:40
Percent Solids: N/A
Initial Volume: 5.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1402373
ESS Laboratory Sample ID: 1402373-04
Sample Matrix: Solid
Units: mg/kg wet
Analyst: TAJ
Prepared: 2/27/14 15:32
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1221	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1232	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1242	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1248	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1254	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1260	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1262	ND (0.185)		8082A		1	02/28/14 16:47		CB42609
Aroclor 1268	ND (0.185)		8082A		1	02/28/14 16:47		CB42609

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*79 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*65 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*68 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*83 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford
Client Sample ID: 005 New Park Left Downstream
Date Sampled: 02/14/14 11:15
Percent Solids: N/A
Initial Volume: 5.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1402373
ESS Laboratory Sample ID: 1402373-05
Sample Matrix: Solid
Units: mg/kg wet
Analyst: TAJ
Prepared: 2/27/14 15:32
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1221	ND (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1232	ND (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1242	ND (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1248	ND (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1254	**1.56** (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1260	ND (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1262	ND (0.196)		8082A		1	02/28/14 17:06		CB42609
Aroclor 1268	ND (0.196)		8082A		1	02/28/14 17:06		CB42609

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*78 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*104 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford
Client Sample ID: 006 Down Wall
Date Sampled: 02/14/14 11:50
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1402373
ESS Laboratory Sample ID: 1402373-06
Sample Matrix: Solid
Units: mg/kg wet
Analyst: TAJ
Prepared: 2/27/14 15:32
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1221	ND (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1232	ND (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1242	ND (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1248	ND (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1254	**11.5** (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1260	ND (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1262	ND (1.00)		8082A		5	03/03/14 18:03		CB42609
Aroclor 1268	ND (1.00)		8082A		5	03/03/14 18:03		CB42609

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*88 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*132 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*100 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CB42609 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1016 (1)	ND	0.0500	mg/kg wet							
Aroclor 1016 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (2)	ND	0.0500	mg/kg wet							
Aroclor 1016 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (3)	ND	0.0500	mg/kg wet							
Aroclor 1016 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (4)	ND	0.0500	mg/kg wet							
Aroclor 1016 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (5)	ND	0.0500	mg/kg wet							
Aroclor 1016 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1221 (1)	ND	0.0500	mg/kg wet							
Aroclor 1221 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (2)	ND	0.0500	mg/kg wet							
Aroclor 1221 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (3)	ND	0.0500	mg/kg wet							
Aroclor 1221 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (4)	ND	0.0500	mg/kg wet							
Aroclor 1221 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (5)	ND	0.0500	mg/kg wet							
Aroclor 1221 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1232 (1)	ND	0.0500	mg/kg wet							
Aroclor 1232 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (2)	ND	0.0500	mg/kg wet							
Aroclor 1232 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (3)	ND	0.0500	mg/kg wet							
Aroclor 1232 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (4)	ND	0.0500	mg/kg wet							
Aroclor 1232 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (5)	ND	0.0500	mg/kg wet							
Aroclor 1232 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1242 (1)	ND	0.0500	mg/kg wet							
Aroclor 1242 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (2)	ND	0.0500	mg/kg wet							
Aroclor 1242 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (3)	ND	0.0500	mg/kg wet							
Aroclor 1242 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (4)	ND	0.0500	mg/kg wet							
Aroclor 1242 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (5)	ND	0.0500	mg/kg wet							
Aroclor 1242 (5) [2C]	ND	0.0500	mg/kg wet							

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Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CB42609 - 3540C										
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1248 (1)	ND	0.0500	mg/kg wet							
Aroclor 1248 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (2)	ND	0.0500	mg/kg wet							
Aroclor 1248 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (3)	ND	0.0500	mg/kg wet							
Aroclor 1248 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (4)	ND	0.0500	mg/kg wet							
Aroclor 1248 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (5)	ND	0.0500	mg/kg wet							
Aroclor 1248 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1254 (1)	ND	0.0500	mg/kg wet							
Aroclor 1254 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (2)	ND	0.0500	mg/kg wet							
Aroclor 1254 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (3)	ND	0.0500	mg/kg wet							
Aroclor 1254 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (4)	ND	0.0500	mg/kg wet							
Aroclor 1254 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (5)	ND	0.0500	mg/kg wet							
Aroclor 1254 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1260 (1)	ND	0.0500	mg/kg wet							
Aroclor 1260 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (2)	ND	0.0500	mg/kg wet							
Aroclor 1260 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (3)	ND	0.0500	mg/kg wet							
Aroclor 1260 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (4)	ND	0.0500	mg/kg wet							
Aroclor 1260 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (5)	ND	0.0500	mg/kg wet							
Aroclor 1260 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1262 (1)	ND	0.0500	mg/kg wet							
Aroclor 1262 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (2)	ND	0.0500	mg/kg wet							
Aroclor 1262 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (3)	ND	0.0500	mg/kg wet							
Aroclor 1262 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (4)	ND	0.0500	mg/kg wet							
Aroclor 1262 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (5)	ND	0.0500	mg/kg wet							
Aroclor 1262 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CB42609 - 3540C										
Aroclor 1268 (1)	ND	0.0500	mg/kg wet							
Aroclor 1268 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (2)	ND	0.0500	mg/kg wet							
Aroclor 1268 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (3)	ND	0.0500	mg/kg wet							
Aroclor 1268 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (4)	ND	0.0500	mg/kg wet							
Aroclor 1268 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (5)	ND	0.0500	mg/kg wet							
Aroclor 1268 (5) [2C]	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0257*		mg/kg wet	*0.02500*		*103*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0162*		mg/kg wet	*0.02500*		*65*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0216*		mg/kg wet	*0.02500*		*87*	*30-150*			
LCS										
Aroclor 1016	0.468	0.0500	mg/kg wet	0.5000		94	40-140			
Aroclor 1260	0.450	0.0500	mg/kg wet	0.5000		90	40-140			
Surrogate: Decachlorobiphenyl	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0267*		mg/kg wet	*0.02500*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0180*		mg/kg wet	*0.02500*		*72*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0224*		mg/kg wet	*0.02500*		*89*	*30-150*			
LCS Dup										
Aroclor 1016	0.473	0.0500	mg/kg wet	0.5000		95	40-140	1	30	
Aroclor 1260	0.449	0.0500	mg/kg wet	0.5000		90	40-140	0.2	30	
Surrogate: Decachlorobiphenyl	*0.0239*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0270*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0184*		mg/kg wet	*0.02500*		*74*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0224*		mg/kg wet	*0.02500*		*90*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

Notes and Definitions

U	Analyte included in the analysis, but not detected
P	Percent difference between primary and confirmation results exceeds 40% (P).
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Flood Walls W Hartford

ESS Laboratory Work Order: 1402373

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)
A2LA Accredited: Testing Cert# 2864.01
http://www.a2la.org/scopepdf/2864-01.pdf

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)
http://www.A2LA.org/dirsearchnew/newsearch.cfm

CPSC ID# 1141
Lead Paint, Lead in Children's Metals Jewelry
http://www.cpsc.gov/cgi-bin/labapplist.aspx

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: ESS Courier

ESS Project ID: 14020373
Date Project Due: 3/5/14
Days For Project: 5 Day

Items to be checked upon receipt:

1. Air Bill Manifest Present? *** No**
   Air No.:
2. Were Custody Seals Present? **No**
3. Were Custody Seals Intact? **N/A**
4. Is Radiation count < 100 CPM? **Yes**
5. Is a cooler present? **Yes**
   Cooler Temp: **1.4**
   Iced With: **Ice**
6. Was COC included with samples? **Yes**
7. Was COC signed and dated by client? **Yes**
8. Does the COC match the sample **Yes**
9. Is COC complete and correct? **Yes**
10. Are the samples properly preserved? **Yes**
11. Proper sample containers used? **Yes**
12. Any air bubbles in the VOA vials? **N/A**
13. Holding times exceeded? **No**
14. Sufficient sample volumes? **Yes**
15. Any Subcontracting needed? **No**
16. Are ESS labels on correct containers? **Yes|No**
17. Were samples received intact? **Yes|No**

ESS Sample IDs: _____
Sub Lab: _____
Analysis: _____
TAT: _____

18. Was there need to call project manager to discuss status? If yes, please explain.

_____

_____

_____

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	Other Plastic	1	NP
2	Yes	Other Plastic	1	NP
3	Yes	Other Plastic	1	NP
4	Yes	Other Plastic	1	NP
5	Yes	Other Plastic	1	NP
6	Yes	Other Plastic	1	NP

Completed By: [signature] Date/Time: 2/26/14 1734
Reviewed By: [signature] Date/Time: 2/26/14 1815

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time ___ Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____

State where samples were collected from:
MA RI (CT) NH NJ NY ME Other _____

Is this project for any of the following:
MA-MCP Navy USACE Other _____

Reporting Limits

ESS LAB PROJECT ID: 1402373

Electronic Deliverable Yes ___ No ___
Format: Excel __ Access __ PDF __ Other _____

Co. Name: GZA
Project # PARK 0008: 15.0166354.01
Project Name (20 Char. or less): FLOOD WALLS, W HARTFORD
Contact Person: NATHANIEL ARAI
Address: 1350 MAIN ST., SUITE 1400
City: SPRINGFIELD State: MA Zip: 01103 PO#
Telephone #: 413-726-2120 Fax #: Email Address: NATHANIEL.ARAI@GZA.COM

Write Required Analysis

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	EPA 8082-PCBs
01	02/14/14	9:50 am.			SO*	001-NEW POLE RIGHT	NP	1	P	X
02		10:20				002 NEW PARK RIGHT 2				X
03		10:25				003 BACKING NEW PARK RIGHT 2				X
04		10:40				004 NEW PARK LEFT				X
05		11:15 a.m.				005 NEW PARK LEFT DOWN STREAM				X
06		11:50 a.m.				006 DAMS WALL				X

Container Type: (P-Poly) G-Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ___ No
Seals Intact ___ Yes ___ No NA: ✓
Cooler Temp: 1.4 ICE KH

Internal Use Only
[✓] Pickup
[ ] Technicians _____

Preservation Code 1- NP, 2- HCl, 3- H_2SO_4, 4- HNO_3, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- _____

Sampled by: SIMONA NOVACEK

Comments: PLEASE USE MANUAL EXTRACTION SOXHLET METHOD, *SAMPLES ARE COMING FROM FLOOD WALLS

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
SIMONA NOVACEK	2/26/14 11:57	[signature]	2/26/14 11:57	[signature]	2/26/14 16:29	[signature]	2/26/14 17:36
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

ProScience Analytical Services, Inc

Nathaniel Arai
GZA GeoEnvironmental Inc., Springfield
1350 Main St.
Suite 1400
Springfield, MA 01103

March 03, 2014

Dear Nathaniel Arai,

The enclosed analytical results have been obtained by using the EPA/600/R-93/116 method. The "Visual Estimate" quantitative method is generally used for determining the percentage of asbestos and other components of the sample. "The Point Counting" method may also be used upon client request or at the analyst discretion. The Point Count method is usually recommended when the sample contains less than 10% asbestos by Visual estimate. Asbestos content less than 1% is recorded on the report as TR (trace).

The Quality Control data related to the samples analyzed is available upon client's written request. ProScience Analytical Services Inc., assumes no responsibility for potential sample contamination that may have occurred during the sample collection process or erroneous data provided by the client.

The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.

All Laboratory records are retained for at least three years unless otherwise directed in writing by the client. The actual samples are retained for a period of two months and written request is necessary in order to be retained for a longer period of time. All analytical results and records are considered strictly confidential and will not be released under any circumstances to anyone except the actual client. The analytical results included in this report apply only to the items tested.

If you have any questions please contact the Laboratory Manager or the Laboratory Director.

Sincerely,

Stefanie Bishop

Stefanie Bishop, Optical Asbestos Manager

Aimee Cormier, Laboratory Director

Enclosure: Version 2
LAB BATCH ID: B 90361 CLIENT PROJECT ID: 15.0166354.01, TASK 0008
Client Ref: West Hartford, CT
AIHA ID# 102754; CT ID# PH-0209; MA ID# AA000156; ME ID# LB-055; ME ID# LA-056; NVLAP Lab Code 200090-0; RI ID # AAL-093; VT ID# AL016876

22 Cummings Park • Woburn, Massachusetts • 01801 • Phone (781)935-3212 • Fax (781)932-4857

ProScience Analytical Services, Inc.

Client Name: GZA GeoEnvironmental Inc., Springfield
PO #: N/A
Client Project #: 15.0166354.01, Task 0008
Client Reference: West Hartford, CT
Method: EPA/600/R-93/116

Batch: **B90361**
Date Sampled: 2/14/2014
Date Received: 2/25/2014
Date Analyzed: 3/3/2014
Date of Report: 3/3/2014

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
001A	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Flood walls, new park right
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
001B	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Flood walls, new park right
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
002A	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Flood walls, new park right 2
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
002B	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Flood walls, new park right 2
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
003A	Black	0	0	0	0	0	0	0	0	10	0	0	0	90

Description: Black backing under 002A
Location: Flood walls, new park right 2
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
003B	Black	0	0	0	0	0	0	0	0	10	0	0	0	90

Description: Black backing under 002B
Location: Flood walls, new park right 2
Comments:
Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: GZA GeoEnvironmental Inc., Springfield
PO #: N/A
Client Project #: 15.0166354.01, Task 0008
Client Reference: West Hartford, CT
Method: EPA/600/R-93/116

Batch: **B90361**
Date Sampled: 2/14/2014
Date Received: 2/25/2014
Date Analyzed: 3/3/2014
Date of Report: 3/3/2014

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
004A	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Flood walls, new park left
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
004B	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Flood walls, new park left
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
005A	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Backing material under 004A
Location: Flood walls, new park left
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
005B	Black	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Backing material under 004B
Location: Flood walls, new park left
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
006A	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: New park left, downstream
Comments: Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
006B	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: New park left, downstream
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: GZA GeoEnvironmental Inc., Springfield
PO #: N/A
Client Project #: 15.0166354.01, Task 0008
Client Reference: West Hartford, CT
Method: EPA/600/R-93/116

Batch: **B90361**
Date Sampled: 2/14/2014
Date Received: 2/25/2014
Date Analyzed: 3/3/2014
Date of Report: 3/3/2014

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
007A	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Dowd wall
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
007B	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Gray caulking
Location: Dowd wall
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
008A	Black	0	0	0	0	0	0	0	0	30	0	0	0	70

Description: Black backing under 007A
Location: Dowd wall
Comments:
Is asbestos present? No. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
008B	Black	0	0	0	0	0	0	0	0	30	0	0	0	70

Description: Black backing under 007B
Location: Dowd wall
Comments:
Is asbestos present? No. Analyzed: Yes

Asbestos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite
Non-Asbestos Codes: FBG = Fiberglass MNW = Mineral Wool CEL = Cellulose HAR = Hair SYN = Synthetic OTH = Other NON = Non-Fibrous Minerals

Note: To create a unique lab sample ID, use the Batch # and the Sample ID (example: [Batch #] - [Sample ID]).

* All results are in percentage.

Analyst: Dan Pine

ProScience *Analytical Services, Inc.* www.proscience.net
22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one): 3 Hours 6 Hours Same Day Next Day; 2 Days 3 Days (5 Days) Other _____
TAT in bus. days - lab approval required for rush analysis

PASI Batch # 890361

PLM
Chain of Custody

Client: GZA
Address: 1350 MAIN ST., SUITE 1400
SPRINGFIELD, MA 01103
Project #: 15.0166354.01 TASK 0008 PO:
Project Site: WEST HARTFORD, CT
Contact: SIMONA MOUCHER
Tel. / Fax #: 413-726-2120
Email: NATHANIEL.ATLAS@GZA.COM, S.M.

Stop on first positive*: (Yes) / No *If no selection is made the lab will analyze all samples
Special Instructions:
Relinquished By: SIMONA MOUCHER Date/Time: 02/25/14 12:05
Received By Lab: 12:05 pm Date/Time: 2.25.14

Shaded area for lab use only.
# of Samples Received: 16 Analyzed:
Results: email fax verbal By: HWKA3-3 Date:
Analyst / Date: 3/3/14 QC by / Date:

Sample ID	Date Sampled	Description / Location	SSAPE	Color	Homogeneity	Texture	Friable	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	RI ⊥	Chrysotile	Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
001A	02-14-14	GRAY CAULKING FLOOD WALLS, NEW PARK RIGHT	0	G Y	Y	R	N																				100
001B			0	G Y	Y	R	N																				100
002A		NEW PARK RIGHT 2	0	G Y	Y	R	N																				100
002B			0	G Y	Y	R	N																				100
003A		BLACK BACKING UNDER 002A FLOOD WALLS, NEW PARK RIGHT 2	0	B K	Y	B	N																N 10				90
003B		BLACK BACKING UNDER 002B	0	B K	Y	B	N																N 10				90

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

ver 4.3 Updated 1/29/14

Each layer of multilayered materials are analyzed and charged individually (per NESHAP/EPA).

ProScience *Analytical Services, Inc.* www.proscience.net
22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one): 3 Hours 6 Hours Same Day Next Day 2 Days 3 Days 5 Days Other _____
TAT in bus. days - lab approval required for rush analysis

PASI Batch # 890361

PLM
Chain of Custody

Client: GZA
Address:
Project #: 15.0166354.01 PO:
Project Site:
Contact:
Tel. / Fax #:
Email: N.A of Sn.

Stop on first positive*: Yes / No *If no selection is made the lab will analyze all samples
Special Instructions:
Relinquished By: SM Date/Time:
Received By Lab: Date/Time:

Shaded area for lab use only.
# of Samples Received: Analyzed:
Results: email fax verbal By: Date:
Analyst / Date: 3/3/14 QC by / Date:

Sample ID	Date Sampled	Description / Location	Stereo Scope: SSAPE	Color	Homogeneity	Texture	Friable	Optical Properties: Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Asbestos Percentage (%) (Circle Type): Chrysotile	Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
004A	02-14-14	GRAY CAULK FLOOD WALLS, NEW PARK LEFT	0	G Y	Y	R	N																				100
004B		—	0	G Y	Y	R	N																				100
005A		BACKING MADE UNDER 004A —	0	B K	Y	T	N																				100
005B		— 004B	0	B K	Y	T	N																				100
006A		GRAY CAULK NEW PARK LEFT, DOWNSTREAM	0	G Y	Y	R	N																				100
006B		—	0	G Y	Y	R	N																				100

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

ver 4.3 Updated 1/29/14

Each layer of multilayered materials are analyzed and charged individually (per NESHAP/EPA).

ProScience *Analytical Services, Inc.* www.proscience.net
22 Cummings Park, Woburn, MA 01801 T: 781-935-3212 F: 781-932-4857 general@proscience.net

TAT (circle one): 3 Hours 6 Hours Same Day Next Day; 2 Days 3 Days (5 Days) Other _____
TAT in bus. days - lab approval required for rush analysis

PASI Batch # B903061

PLM
Chain of Custody

Client: GZA
Address: SPRING FIELD
Project #: 15.0166354.01 PO:
Project Site:
Contact:
Tel. / Fax #:
Email: N.K & S.M.

Stop on first positive*: (Yes) / No *If no selection is made the lab will analyze all samples
Special Instructions:
Relinquished By: S.M. Date/Time:
Received By Lab: Date/Time:

Shaded area for lab use only.
# of SamplesReceived: Analyzed:
Results: email fax verbal By: Date:
Analyst / Date: [illegible] 3/3/14 QC by / Date:

Sample ID	Date Sampled	Description / Location	Stereo Scope: SSAPE	Color	Homogeneity	Texture	Friable	Optical Properties: Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Asbestos Percentage (%) (Circle Type): Chrysotile	Amosite	Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
007A	02-19-14	GRAY STUCCO DOWN WALL	0	6 Y	Y	R	W																				100
007B		———	0	6 Y	Y	R	W																				100
008A		BLACK BACKING UNDER 007A DOWN WALL	0	B K	Y	F	W																W 30				70
008B		——— 007B	0	B K	Y	F	W																W 30				70

Comments: Birefringence L= less than .010, M= .011-.029, H= greater than .03: Microscope Olympus BH-2, Serial # circle 1- 242277, 229027, 235000, 230663 Lab uses the EPA or ELAP point count method as appropriate. SSAPE = Stereo Scope Asb. % Est.

ver 4.3 Updated 1/29/14

Each layer of multilayered materials are analyzed and charged individually (per NESHAP/EPA).

CERTIFICATE OF ANALYSIS

Nathanial Arai
GZA GeoEnvironmental, Inc.
1350 Main Street, Suite 1400
Springfield, MA 01103

RE: South Branch Park River Flood Control (15.0166354.01)
ESS Laboratory Work Order Number: 1405158

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

REVIEWED
By ESS Laboratory at 11:02 am, May 21, 2014

Laurel Stoddard
Laboratory Director

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Subcontracted Analyses

CTS - Cranston, RI	Grain Size Analysis
TestAmerica Laboratories, Inc. - Burlington, VT	Total Organic Carbon

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control

ESS Laboratory Work Order: 1405158

SAMPLE RECEIPT

The following samples were received on May 07, 2014 for the analyses specified on the enclosed Chain of Custody Record.

To achieve Reasonable Confidence Protocols (RCP) compliance for Connecticut data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All RCP requirements have been achieved unless noted in the project narrative.

Question 5: **Each method has been set-up in the laboratory to reach required RCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes (ie for GWPC samples, 1,2-Dibromoethane regulatory levels will not be met by VOA 8260. If this is a contaminant of concern Method 8011 will need to be used.). The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.**

Revision 1 May 21, 2014: This report has been revised to include MS/MSDs

Lab Number	Sample Name	Matrix	Analysis
1405158-01	Piper C1	Soil	§, 6010B, 7471A, 7740, 7841, 8082, 8270C, CT ETPH, TOC-LK
1405158-02	Hamilton C1	Soil	§, 6010B, 7471A, 7740, 7841, 8082, 8270C, CT ETPH, TOC-LK
1405158-03	Duplicate	Soil	6010B, 7471A, 7740, 7841, 8082, 8270C, CT ETPH, TOC-LK
1405158-04	Hamilton C2	Solid	§, 6010B, 7471A, 7740, 7841, 8082, 8270C, CT ETPH, TOC-LK

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control ESS Laboratory Work Order: 1405158

PROJECT NARRATIVE

8270C Semi-Volatile Organic Compounds

1405158-03 **Surrogate recovery(ies) above upper control limit (S+).**
2,4,6-Tribromophenol (132% @ 30-130%)

CE40706-BS1 **Blank Spike recovery is below lower control limit (B-).**
Hexachlorocyclopentadiene (37% @ 40-140%)

CE40706-MS1 **Matrix Spike recovery is below lower control limit (M-).**
2,4-Dinitrophenol (% @ 30-130%), 4,6-Dinitro-2-Methylphenol (10% @ 30-130%), Hexachlorocyclopentadiene (7% @ 40-140%), Hexachloroethane (39% @ 40-140%)

CE40706-MSD1 **Matrix Spike recovery is below lower control limit (M-).**
2,4-Dinitrophenol (% @ 30-130%), 4,6-Dinitro-2-Methylphenol (% @ 30-130%), Hexachlorocyclopentadiene (% @ 40-140%), Hexachloroethane (32% @ 40-140%)

CE40706-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
2,4-Dinitrophenol (%), 4,6-Dinitro-2-Methylphenol (200%), Hexachlorocyclopentadiene (%)

CXE0095-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (56% @ 70-130%), Pentachlorophenol (97% @ 80-120%)

CXE0095-CCV1 **Continuing Calibration recovery is above upper control limit (C+).**
Di-n-octylphthalate (129% @ 80-120%)

CXE0095-CCV1 **Continuing Calibration recovery is below lower control limit (C-).**
2,4-Dinitrophenol (56% @ 70-130%), 4,6-Dinitro-2-Methylphenol (66% @ 70-130%), Hexachlorocyclopentadiene (67% @ 70-130%)

CXE0095-CCV1 **Initial Calibration Verification recovery is outside of control limit (ICV).**
4-Chloroaniline , Hexachlorocyclopentadiene

CXE0120-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (102% @ 70-130%), Pentachlorophenol (121% @ 80-120%)

CXE0120-CCV1 **Continuing Calibration recovery is above upper control limit (C+).**
Di-n-octylphthalate (130% @ 80-120%)

CXE0120-CCV1 **Initial Calibration Verification recovery is outside of control limit (ICV).**
4-Chloroaniline , Hexachlorocyclopentadiene

CT ETPH Extractable Total Petroleum Hydrocarbons

CE40908-MS1 **Matrix Spike recovery is below lower control limit (M-).**
Total Petroleum Hydrocarbons (-26% @ 50-150%)

CE40908-MSD1 **Matrix Spike recovery is below lower control limit (M-).**
Total Petroleum Hydrocarbons (-76% @ 50-150%)

Total Metals Solid

CE40816-DUP2 **Relative percent difference for duplicate is outside of criteria (D+).**
Arsenic (46%), Cadmium (44%), Copper (43%), Nickel (61%), Silver (47%), Zinc (51%)

CE40816-MS2 **Matrix Spike recovery is above upper control limit (M+).**
Barium (188% @ 75-125%), Selenium (379% @ 75-125%)

CE40816-MS2 **Matrix Spike recovery is below lower control limit (M-).**

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control ESS Laboratory Work Order: 1405158

Antimony (14% @ 75-125%), Arsenic (65% @ 75-125%), Cadmium (62% @ 75-125%), Chromium (55% @ 75-125%), Copper (-195% @ 75-125%), Lead (29% @ 75-125%), Nickel (-79% @ 75-125%), Thallium (50% @ 75-125%), Zinc (-449% @ 75-125%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control

ESS Laboratory Work Order: 1405158

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control ESS Laboratory Work Order: 1405158

Laboratory Analysis
QA/QC Certification Form

Project Number: **15.0166354.01**
Sampling Date(s): **5/6/2014**
Laboratory Sample ID(s): **1405158-01 through 1405158-04**

List RCP Methods Used	( ) 8260B	( ) 8151A	(X) ETPH	(X) 6010B	(X) 7470A/1A
Other: _____	(X) 8270C	( ) 8081A	( ) VPH	( ) 6020	( ) 9014M
_____	(X) 8082	( ) 8021B	( ) EPH	(X) 7000 S	( ) 7196A

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria failing outside of acceptable guidelines, as specified in the CTDEP method-specific Reasonable Confidence Protocol documents?	Yes (X) No ( )
1A	Were the method specified preservation and holding time requirements met?	Yes (X) No ( )
1B	***VPH and EPH Methods only:*** Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective RCP methods)?	Yes ( ) No ( ) N/A (X)
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	Yes (X) No ( )
3	Were samples received at an appropriate temperature (<6º Cº)?	Yes (X) No ( ) N/A ( )
4	Were all QA/QC performance criteria specified in the CTDEP Reasonable Confidence Protocol documents achieved?	Yes ( ) No (X)
5	a) Were reporting limits specified or referenced on the chain-of-custody? b) Were these reporting limits met?	Yes (X) No ( ) Yes (X) No ( )
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	Yes (X) No ( )
7	Are project-specific matrix spikes and laboratory duplicates included in this data set?	Yes (X) No ( )

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or #1B is "No", the data package does not meet the requirements for "Reasonable Confidence." This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Laurel Stoddard Position: Laboratory Director

Printed Name: Laurel Stoddard Date: May 16, 2014

Name of Laboratory: ESS Laboratory

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Piper C1
Date Sampled: 05/06/14 14:00
Percent Solids: 55

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals Solid

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.0)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Arsenic	**9.1** (2.0)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Barium	**165** (2.0)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Beryllium	**0.46** (0.08)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Cadmium	**8.31** (0.41)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Chromium	**85.2** (0.8)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Copper	**296** (2.0)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Lead	**76.8** (4.0)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Mercury	**0.138** (0.024)		7471A		1	KJK	05/08/14 16:04	1.48	40	CE40817
Nickel	**90.7** (2.0)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Selenium	ND (2.03)		7740		5	JP	05/09/14 18:18	4.5	100	CE40816
Silver	**1.48** (0.41)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Thallium	ND (1.00)		7841		5	JP	05/09/14 21:06	4.5	100	CE40816
Vanadium	**36.2** (0.8)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816
Zinc	**402** (2.0)		6010B		1	KJK	05/08/14 22:02	4.5	100	CE40816

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Piper C1
Date Sampled: 05/06/14 14:00
Percent Solids: 55
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 18:00

8082 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1221	ND (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1232	ND (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1242	ND (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1248	ND (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1254	ND (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1260	**0.617** (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1262	ND (0.0893)		8082		1	05/12/14 19:48		CE41326
Aroclor 1268	ND (0.0893)		8082		1	05/12/14 19:48		CE41326

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*97 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Piper C1
Date Sampled: 05/06/14 14:00
Percent Solids: 55
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4,5-Tetrachlorobenzene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
1,2,4-Trichlorobenzene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2,4,5-Trichlorophenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2,4,6-Trichlorophenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2,4-Dichlorophenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2,4-Dimethylphenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2,4-Dinitrophenol	ND (3.00)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2,4-Dinitrotoluene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2,6-Dinitrotoluene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2-Chloronaphthalene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2-Chlorophenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2-Methylnaphthalene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2-Methylphenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2-Nitroaniline	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
2-Nitrophenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
3,3´-Dichlorobenzidine	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
3+4-Methylphenol	ND (1.20)		8270C		1	05/08/14 20:23	CXE0120	CE40706
3-Nitroaniline	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
4,6-Dinitro-2-Methylphenol	ND (3.00)		8270C		1	05/08/14 20:23	CXE0120	CE40706
4-Bromophenyl-phenylether	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
4-Chloro-3-Methylphenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
4-Chloroaniline	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
4-Chloro-phenyl-phenyl ether	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
4-Nitroaniline	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
4-Nitrophenol	ND (3.00)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Acenaphthene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Acenaphthylene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Aniline	ND (1.20)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Anthracene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Benzo(a)anthracene	**0.720** (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Benzo(a)pyrene	**0.667** (0.300)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Benzo(b)fluoranthene	**0.919** (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Piper C1
Date Sampled: 05/06/14 14:00
Percent Solids: 55
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Benzo(g,h,i)perylene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Benzo(k)fluoranthene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
bis(2-Chloroethoxy)methane	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
bis(2-Chloroethyl)ether	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
bis(2-chloroisopropyl)Ether	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
bis(2-Ethylhexyl)phthalate	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Butylbenzylphthalate	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Carbazole	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Chrysene	**0.923** (0.300)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Dibenzo(a,h)Anthracene	ND (0.300)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Dibenzofuran	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Diethylphthalate	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Dimethylphthalate	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Di-n-butylphthalate	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Di-n-octylphthalate	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Fluoranthene	**1.34** (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Fluorene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Hexachlorobenzene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Hexachlorobutadiene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Hexachlorocyclopentadiene	ND (0.898)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Hexachloroethane	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Indeno(1,2,3-cd)Pyrene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Isophorone	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Naphthalene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Nitrobenzene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
N-Nitroso-Di-n-Propylamine	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
N-nitrosodiphenylamine	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Pentachloronitrobenzene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Pentachlorophenol	ND (0.898)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Phenanthrene	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Phenol	ND (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706
Pyrene	**1.26** (0.598)		8270C		1	05/08/14 20:23	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Piper C1
Date Sampled: 05/06/14 14:00
Percent Solids: 55
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Pyridine	ND (3.00)		8270C		1	05/08/14 20:23	CXE0120	CE40706

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*53 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*108 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*56 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*67 %*		*30-130*
Surrogate: 2-Fluorophenol	*45 %*		*30-130*
Surrogate: Nitrobenzene-d5	*52 %*		*30-130*
Surrogate: Phenol-d6	*58 %*		*30-130*
Surrogate: p-Terphenyl-d14	*88 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Piper C1
Date Sampled: 05/06/14 14:00

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-01
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Grain Size	**See Attached** (N/A)								
Total Organic Carbon	**29700** (1000)		TOC-LK		1	SUB	05/15/14 18:28	mg/kg	CE41630

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Piper C1
Date Sampled: 05/06/14 14:00
Percent Solids: 55
Initial Volume: 19.7
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 5/9/14 12:41

CT ETPH Extractable Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**467** (37.0)		CT ETPH		1	DPS	05/09/14 17:49	CXE0156	CE40908

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*81 %*		*50-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C1
Date Sampled: 05/06/14 16:30
Percent Solids: 83

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals Solid

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.3)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Arsenic	ND (2.6)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Barium	**56.6** (2.6)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Beryllium	**0.22** (0.11)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Cadmium	**0.72** (0.53)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Chromium	**15.9** (1.1)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Copper	**31.9** (2.6)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Lead	**41.8** (5.3)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Mercury	**0.036** (0.034)		7471A		1	KJK	05/08/14 16:23	0.7	40	CE40817
Nickel	**20.7** (2.6)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Selenium	ND (2.65)		7740		5	JP	05/09/14 19:33	2.28	100	CE40816
Silver	ND (0.53)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Thallium	ND (1.31)		7841		5	JP	05/09/14 21:54	2.28	100	CE40816
Vanadium	**15.9** (1.1)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816
Zinc	**99.2** (2.6)		6010B		1	KJK	05/08/14 22:48	2.28	100	CE40816

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C1
Date Sampled: 05/06/14 16:30
Percent Solids: 83
Initial Volume: 20.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 5/8/14 18:00

8082 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1221	ND (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1232	ND (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1242	ND (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1248	ND (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1254	**0.164** (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1260	ND (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1262	ND (0.0578)		8082		1	05/09/14 23:00		CE40805
Aroclor 1268	ND (0.0578)		8082		1	05/09/14 23:00		CE40805

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*91 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C1
Date Sampled: 05/06/14 16:30
Percent Solids: 83
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4,5-Tetrachlorobenzene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
1,2,4-Trichlorobenzene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2,4,5-Trichlorophenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2,4,6-Trichlorophenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2,4-Dichlorophenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2,4-Dimethylphenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2,4-Dinitrophenol	ND (2.02)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2,4-Dinitrotoluene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2,6-Dinitrotoluene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2-Chloronaphthalene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2-Chlorophenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2-Methylnaphthalene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2-Methylphenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2-Nitroaniline	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
2-Nitrophenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
3,3´-Dichlorobenzidine	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
3+4-Methylphenol	ND (0.808)		8270C		1	05/08/14 22:07	CXE0120	CE40706
3-Nitroaniline	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
4,6-Dinitro-2-Methylphenol	ND (2.02)		8270C		1	05/08/14 22:07	CXE0120	CE40706
4-Bromophenyl-phenylether	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
4-Chloro-3-Methylphenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
4-Chloroaniline	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
4-Chloro-phenyl-phenyl ether	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
4-Nitroaniline	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
4-Nitrophenol	ND (2.02)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Acenaphthene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Acenaphthylene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Aniline	ND (0.808)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Anthracene	**0.540** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Benzo(a)anthracene	**2.41** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Benzo(a)pyrene	**2.15** (0.202)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Benzo(b)fluoranthene	**2.86** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C1
Date Sampled: 05/06/14 16:30
Percent Solids: 83
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Benzo(g,h,i)perylene	**1.35** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Benzo(k)fluoranthene	**0.911** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
bis(2-Chloroethoxy)methane	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
bis(2-Chloroethyl)ether	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
bis(2-chloroisopropyl)Ether	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
bis(2-Ethylhexyl)phthalate	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Butylbenzylphthalate	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Carbazole	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Chrysene	**2.70** (0.202)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Dibenzo(a,h)Anthracene	**0.425** (0.202)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Dibenzofuran	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Diethylphthalate	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Dimethylphthalate	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Di-n-butylphthalate	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Di-n-octylphthalate	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Fluoranthene	**5.08** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Fluorene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Hexachlorobenzene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Hexachlorobutadiene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Hexachlorocyclopentadiene	ND (0.606)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Hexachloroethane	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Indeno(1,2,3-cd)Pyrene	**1.26** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Isophorone	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Naphthalene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Nitrobenzene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
N-Nitroso-Di-n-Propylamine	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
N-nitrosodiphenylamine	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Pentachloronitrobenzene	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Pentachlorophenol	ND (0.606)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Phenanthrene	**2.23** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Phenol	ND (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706
Pyrene	**4.49** (0.403)		8270C		1	05/08/14 22:07	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C1
Date Sampled: 05/06/14 16:30
Percent Solids: 83
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Pyridine	ND (2.02)		8270C		1	05/08/14 22:07	CXE0120	CE40706

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*61 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*129 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*67 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*78 %*		*30-130*
Surrogate: 2-Fluorophenol	*54 %*		*30-130*
Surrogate: Nitrobenzene-d5	*60 %*		*30-130*
Surrogate: Phenol-d6	*70 %*		*30-130*
Surrogate: p-Terphenyl-d14	*97 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C1
Date Sampled: 05/06/14 16:30

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-02
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Grain Size	**See Attached** (N/A)								
Total Organic Carbon	**13600** (1000)		TOC-LK		1	SUB	05/15/14 18:47	mg/kg	CE41630

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C1
Date Sampled: 05/06/14 16:30
Percent Solids: 83
Initial Volume: 19.7
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ML
Prepared: 5/8/14 14:04

CT ETPH Extractable Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**250** (24.4)		CT ETPH		1	ML	05/08/14 17:48	CXE0127	CE40707

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*102 %*		*50-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Duplicate
Date Sampled: 05/06/14 16:30
Percent Solids: 80

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals Solid

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (6.1)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Arsenic	ND (3.1)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Barium	**93.5** (3.1)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Beryllium	**0.21** (0.13)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Cadmium	**0.73** (0.62)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Chromium	**35.9** (1.2)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Copper	**37.7** (3.1)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Lead	**41.6** (6.1)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Mercury	**0.052** (0.034)		7471A		1	KJK	05/08/14 16:26	0.74	40	CE40817
Nickel	**30.4** (3.1)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Selenium	ND (3.08)		7740		5	JP	05/09/14 19:38	2.05	100	CE40816
Silver	ND (0.62)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Thallium	ND (1.52)		7841		5	JP	05/09/14 21:59	2.05	100	CE40816
Vanadium	**19.1** (1.2)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816
Zinc	**110** (3.1)		6010B		1	KJK	05/08/14 22:52	2.05	100	CE40816

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Duplicate
Date Sampled: 05/06/14 16:30
Percent Solids: 80
Initial Volume: 20.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 5/8/14 18:00

8082 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1221	ND (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1232	ND (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1242	ND (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1248	ND (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1254	**0.402** (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1260	ND (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1262	ND (0.0605)		8082		1	05/10/14 1:13		CE40805
Aroclor 1268	ND (0.0605)		8082		1	05/10/14 1:13		CE40805

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*95 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*111 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Duplicate
Date Sampled: 05/06/14 16:30
Percent Solids: 80
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4,5-Tetrachlorobenzene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
1,2,4-Trichlorobenzene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2,4,5-Trichlorophenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2,4,6-Trichlorophenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2,4-Dichlorophenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2,4-Dimethylphenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2,4-Dinitrophenol	ND (2.10)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2,4-Dinitrotoluene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2,6-Dinitrotoluene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2-Chloronaphthalene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2-Chlorophenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2-Methylnaphthalene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2-Methylphenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2-Nitroaniline	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
2-Nitrophenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
3,3´-Dichlorobenzidine	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
3+4-Methylphenol	ND (0.839)		8270C		1	05/08/14 22:42	CXE0120	CE40706
3-Nitroaniline	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
4,6-Dinitro-2-Methylphenol	ND (2.10)		8270C		1	05/08/14 22:42	CXE0120	CE40706
4-Bromophenyl-phenylether	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
4-Chloro-3-Methylphenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
4-Chloroaniline	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
4-Chloro-phenyl-phenyl ether	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
4-Nitroaniline	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
4-Nitrophenol	ND (2.10)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Acenaphthene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Acenaphthylene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Aniline	ND (0.839)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Anthracene	**0.551** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Benzo(a)anthracene	**1.77** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Benzo(a)pyrene	**1.61** (0.210)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Benzo(b)fluoranthene	**1.95** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Duplicate
Date Sampled: 05/06/14 16:30
Percent Solids: 80
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Benzo(g,h,i)perylene	**0.857** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Benzo(k)fluoranthene	**0.710** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
bis(2-Chloroethoxy)methane	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
bis(2-Chloroethyl)ether	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
bis(2-chloroisopropyl)Ether	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
bis(2-Ethylhexyl)phthalate	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Butylbenzylphthalate	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Carbazole	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Chrysene	**2.02** (0.210)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Dibenzo(a,h)Anthracene	**0.282** (0.210)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Dibenzofuran	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Diethylphthalate	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Dimethylphthalate	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Di-n-butylphthalate	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Di-n-octylphthalate	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Fluoranthene	**3.70** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Fluorene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Hexachlorobenzene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Hexachlorobutadiene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Hexachlorocyclopentadiene	ND (0.629)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Hexachloroethane	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Indeno(1,2,3-cd)Pyrene	**0.828** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Isophorone	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Naphthalene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Nitrobenzene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
N-Nitroso-Di-n-Propylamine	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
N-nitrosodiphenylamine	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Pentachloronitrobenzene	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Pentachlorophenol	ND (0.629)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Phenanthrene	**1.67** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Phenol	ND (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706
Pyrene	**3.10** (0.419)		8270C		1	05/08/14 22:42	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Duplicate
Date Sampled: 05/06/14 16:30
Percent Solids: 80
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Pyridine	ND (2.10)		8270C		1	05/08/14 22:42	CXE0120	CE40706

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*63 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*132 %*	*S+*	*30-130*
Surrogate: 2-Chlorophenol-d4	*66 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*77 %*		*30-130*
Surrogate: 2-Fluorophenol	*52 %*		*30-130*
Surrogate: Nitrobenzene-d5	*61 %*		*30-130*
Surrogate: Phenol-d6	*67 %*		*30-130*
Surrogate: p-Terphenyl-d14	*92 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Duplicate
Date Sampled: 05/06/14 16:30
Percent Solids: 80

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-03
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Total Organic Carbon	**13600** (1000)		TOC-LK		1	SUB	05/15/14 18:53	mg/kg	CE41630

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Duplicate
Date Sampled: 05/06/14 16:30
Percent Solids: 80
Initial Volume: 19.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ML
Prepared: 5/8/14 14:04

CT ETPH Extractable Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**308** (25.7)		CT ETPH		1	ML	05/08/14 18:38	CXE0127	CE40707

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*106 %*		*50-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C2
Date Sampled: 05/06/14 16:30
Percent Solids: 82

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-04
Sample Matrix: Solid
Units: mg/kg dry

Extraction Method: 3050B

Total Metals Solid

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.4)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Arsenic	ND (2.7)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Barium	**36.0** (2.7)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Beryllium	**0.17** (0.11)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Cadmium	ND (0.55)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Chromium	**15.3** (1.1)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Copper	**17.6** (2.7)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Lead	**20.3** (5.4)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Mercury	ND (0.034)		7471A		1	KJK	05/08/14 16:29	0.71	40	CE40817
Nickel	**17.3** (2.7)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Selenium	ND (2.73)		7740		5	JP	05/09/14 19:44	2.24	100	CE40816
Silver	ND (0.55)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Thallium	ND (1.34)		7841		5	JP	05/09/14 22:16	2.24	100	CE40816
Vanadium	**15.6** (1.1)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816
Zinc	**64.4** (2.7)		6010B		1	KJK	05/08/14 22:56	2.24	100	CE40816

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C2
Date Sampled: 05/06/14 16:30
Percent Solids: 82
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 18:00

8082 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1221	ND (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1232	ND (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1242	ND (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1248	ND (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1254	**0.140** (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1260	ND (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1262	ND (0.0605)		8082		1	05/12/14 20:45		CE41326
Aroclor 1268	ND (0.0605)		8082		1	05/12/14 20:45		CE41326

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*101 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*105 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*109 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C2
Date Sampled: 05/06/14 16:30
Percent Solids: 82
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4,5-Tetrachlorobenzene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
1,2,4-Trichlorobenzene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2,4,5-Trichlorophenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2,4,6-Trichlorophenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2,4-Dichlorophenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2,4-Dimethylphenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2,4-Dinitrophenol	ND (2.06)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2,4-Dinitrotoluene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2,6-Dinitrotoluene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2-Chloronaphthalene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2-Chlorophenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2-Methylnaphthalene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2-Methylphenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2-Nitroaniline	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
2-Nitrophenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
3,3´-Dichlorobenzidine	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
3+4-Methylphenol	ND (0.823)		8270C		1	05/08/14 23:17	CXE0120	CE40706
3-Nitroaniline	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
4,6-Dinitro-2-Methylphenol	ND (2.06)		8270C		1	05/08/14 23:17	CXE0120	CE40706
4-Bromophenyl-phenylether	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
4-Chloro-3-Methylphenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
4-Chloroaniline	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
4-Chloro-phenyl-phenyl ether	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
4-Nitroaniline	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
4-Nitrophenol	ND (2.06)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Acenaphthene	**1.09** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Acenaphthylene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Aniline	ND (0.823)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Anthracene	**3.55** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Benzo(a)anthracene	**6.80** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Benzo(a)pyrene	**5.95** (0.206)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Benzo(b)fluoranthene	**7.44** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C2
Date Sampled: 05/06/14 16:30
Percent Solids: 82
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Benzo(g,h,i)perylene	**2.44** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Benzo(k)fluoranthene	**2.36** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
bis(2-Chloroethoxy)methane	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
bis(2-Chloroethyl)ether	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
bis(2-chloroisopropyl)Ether	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
bis(2-Ethylhexyl)phthalate	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Butylbenzylphthalate	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Carbazole	**0.927** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Chrysene	**7.09** (0.206)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Dibenzo(a,h)Anthracene	**1.00** (0.206)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Dibenzofuran	**0.628** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Diethylphthalate	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Dimethylphthalate	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Di-n-butylphthalate	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Di-n-octylphthalate	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Fluoranthene	**17.4** (4.11)		8270C		10	05/09/14 14:09	CXE0120	CE40706
Fluorene	**1.61** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Hexachlorobenzene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Hexachlorobutadiene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Hexachlorocyclopentadiene	ND (0.617)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Hexachloroethane	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Indeno(1,2,3-cd)Pyrene	**2.50** (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Isophorone	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Naphthalene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Nitrobenzene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
N-Nitroso-Di-n-Propylamine	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
N-nitrosodiphenylamine	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Pentachloronitrobenzene	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Pentachlorophenol	ND (0.617)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Phenanthrene	**14.9** (4.11)		8270C		10	05/09/14 14:09	CXE0120	CE40706
Phenol	ND (0.411)		8270C		1	05/08/14 23:17	CXE0120	CE40706
Pyrene	**16.0** (4.11)		8270C		10	05/09/14 14:09	CXE0120	CE40706

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C2
Date Sampled: 05/06/14 16:30
Percent Solids: 82
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: JXS
Prepared: 5/8/14 14:04

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Pyridine	ND (2.06)		8270C		1	05/08/14 23:17	CXE0120	CE40706

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*48 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*120 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*54 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*68 %*		*30-130*
Surrogate: 2-Fluorophenol	*43 %*		*30-130*
Surrogate: Nitrobenzene-d5	*49 %*		*30-130*
Surrogate: Phenol-d6	*60 %*		*30-130*
Surrogate: p-Terphenyl-d14	*79 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C2
Date Sampled: 05/06/14 16:30

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-04
Sample Matrix: Solid

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Grain Size	**See Attached** (N/A)								
Total Organic Carbon	**6220** (1000)		TOC-LK		1	SUB	05/15/14 19:00	mg/kg	CE41630

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Hamilton C2
Date Sampled: 05/06/14 16:30
Percent Solids: 82
Initial Volume: 19.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1405158
ESS Laboratory Sample ID: 1405158-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: ML
Prepared: 5/8/14 14:04

CT ETPH Extractable Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**282** (24.8)		CT ETPH		1	ML	05/08/14 19:12	CXE0127	CE40707

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*100 %*		*50-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals Solid										
Batch CE40816 - 3050B										
Blank										
Antimony	ND	5.0	mg/kg wet							
Arsenic	ND	2.5	mg/kg wet							
Barium	ND	2.5	mg/kg wet							
Beryllium	ND	0.10	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.0	mg/kg wet							
Copper	ND	2.5	mg/kg wet							
Lead	ND	5.0	mg/kg wet							
Nickel	ND	2.5	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	0.25	mg/kg wet							
Vanadium	ND	1.0	mg/kg wet							
Zinc	ND	2.5	mg/kg wet							
LCS										
Antimony	98.7	15.6	mg/kg wet	108.0		91	80-120			
Arsenic	141	7.8	mg/kg wet	151.0		93	80-120			
Barium	241	7.8	mg/kg wet	262.0		92	80-120			
Beryllium	124	0.33	mg/kg wet	133.0		94	80-120			
Cadmium	136	1.57	mg/kg wet	152.0		89	80-120			
Chromium	111	3.1	mg/kg wet	117.0		95	80-120			
Copper	63.0	7.8	mg/kg wet	68.60		92	80-120			
Lead	244	15.6	mg/kg wet	254.0		96	80-120			
Nickel	310	7.8	mg/kg wet	315.0		98	80-120			
Selenium	163	78.5	mg/kg wet	162.0		100	80-120			
Silver	41.7	1.57	mg/kg wet	44.30		94	80-120			
Thallium	216	38.7	mg/kg wet	259.0		83	80-120			
Vanadium	111	3.1	mg/kg wet	116.0		96	80-120			
Zinc	280	7.8	mg/kg wet	306.0		91	80-120			
LCS Dup										
Antimony	94.7	14.9	mg/kg wet	108.0		88	80-120	4	20	
Arsenic	146	7.5	mg/kg wet	151.0		97	80-120	3	20	
Barium	254	7.5	mg/kg wet	262.0		97	80-120	5	20	
Beryllium	129	0.31	mg/kg wet	133.0		97	80-120	3	20	
Cadmium	138	1.50	mg/kg wet	152.0		91	80-120	2	20	
Chromium	114	3.0	mg/kg wet	117.0		97	80-120	2	20	
Copper	64.6	7.5	mg/kg wet	68.60		94	80-120	3	20	
Lead	246	14.9	mg/kg wet	254.0		97	80-120	0.6	20	
Nickel	319	7.5	mg/kg wet	315.0		101	80-120	3	20	
Selenium	171	75.0	mg/kg wet	162.0		106	80-120	5	20	
Silver	43.1	1.50	mg/kg wet	44.30		97	80-120	3	20	
Thallium	226	36.9	mg/kg wet	259.0		87	80-120	4	20	
Vanadium	111	3.0	mg/kg wet	116.0		96	80-120	0.3	20	
Zinc	285	7.5	mg/kg wet	306.0		93	80-120	2	20	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte		Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals Solid											
Batch CE40816 - 3050B											
Duplicate	**Source: 1405158-01**										
Antimony		2.71	4.2	mg/kg dry		2.55			6	35	
Arsenic		5.74	2.1	mg/kg dry		9.15			46	35	D+
Barium		169	2.1	mg/kg dry		165			2	35	
Beryllium		0.568	0.09	mg/kg dry		0.461			21	35	
Cadmium		5.33	0.42	mg/kg dry		8.31			44	35	D+
Chromium		67.0	0.8	mg/kg dry		85.2			24	35	
Copper		191	2.1	mg/kg dry		296			43	35	D+
Lead		55.5	4.2	mg/kg dry		76.8			32	35	
Nickel		48.4	2.1	mg/kg dry		90.7			61	35	D+
Selenium		0.537	2.09	mg/kg dry		0.699			26	35	
Silver		0.915	0.42	mg/kg dry		1.48			47	35	D+
Thallium		ND	1.03	mg/kg dry		ND				35	
Vanadium		39.8	0.8	mg/kg dry		36.2			10	35	
Zinc		239	2.1	mg/kg dry		402			51	35	D+
Matrix Spike	**Source: 1405158-01**										
Antimony		5.83	4.6	mg/kg dry	23.05	2.55	14	75-125			M-
Arsenic		24.1	2.3	mg/kg dry	23.05	9.15	65	75-125			M-
Barium		209	2.3	mg/kg dry	23.05	165	188	75-125			M+
Beryllium		2.36	0.10	mg/kg dry	2.305	0.461	82	75-125			
Cadmium		15.4	0.46	mg/kg dry	11.52	8.31	62	75-125			M-
Chromium		97.8	0.9	mg/kg dry	23.05	85.2	55	75-125			M-
Copper		251	2.3	mg/kg dry	23.05	296	NR	75-125			M-
Lead		83.6	4.6	mg/kg dry	23.05	76.8	29	75-125			M-
Nickel		72.5	2.3	mg/kg dry	23.05	90.7	NR	75-125			M-
Selenium		175	46.3	mg/kg dry	46.10	0.699	379	75-125			M+
Silver		10.4	0.46	mg/kg dry	11.52	1.48	77	75-125			
Thallium		11.4	4.56	mg/kg dry	23.05	ND	50	75-125			M-
Vanadium		62.4	0.9	mg/kg dry	23.05	36.2	114	75-125			
Zinc		299	2.3	mg/kg dry	23.05	402	NR	75-125			M-
Batch CE40817 - 7471A											
Blank											
Mercury		ND	0.033	mg/kg wet							
LCS											
Mercury		5.35	1.43	mg/kg wet	5.760		93	80-120			
LCS Dup											
Mercury		5.47	1.52	mg/kg wet	5.760		95	80-120	2	20	
Duplicate	**Source: 1405158-01**										
Mercury		0.173	0.034	mg/kg dry		0.138			22	35	
Matrix Spike	**Source: 1405158-01**										
Mercury		0.294	0.024	mg/kg dry	0.1466	0.138	106	75-125			
8082 Polychlorinated Biphenyls (PCB)											

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CE40805 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1016 (1)	ND	0.0500	mg/kg wet							
Aroclor 1016 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (2)	ND	0.0500	mg/kg wet							
Aroclor 1016 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (3)	ND	0.0500	mg/kg wet							
Aroclor 1016 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (4)	ND	0.0500	mg/kg wet							
Aroclor 1016 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (5)	ND	0.0500	mg/kg wet							
Aroclor 1016 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1221 (1)	ND	0.0500	mg/kg wet							
Aroclor 1221 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (2)	ND	0.0500	mg/kg wet							
Aroclor 1221 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (3)	ND	0.0500	mg/kg wet							
Aroclor 1221 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (4)	ND	0.0500	mg/kg wet							
Aroclor 1221 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (5)	ND	0.0500	mg/kg wet							
Aroclor 1221 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1232 (1)	ND	0.0500	mg/kg wet							
Aroclor 1232 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (2)	ND	0.0500	mg/kg wet							
Aroclor 1232 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (3)	ND	0.0500	mg/kg wet							
Aroclor 1232 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (4)	ND	0.0500	mg/kg wet							
Aroclor 1232 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (5)	ND	0.0500	mg/kg wet							
Aroclor 1232 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1242 (1)	ND	0.0500	mg/kg wet							
Aroclor 1242 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (2)	ND	0.0500	mg/kg wet							
Aroclor 1242 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (3)	ND	0.0500	mg/kg wet							
Aroclor 1242 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (4)	ND	0.0500	mg/kg wet							
Aroclor 1242 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (5)	ND	0.0500	mg/kg wet							
Aroclor 1242 (5) [2C]	ND	0.0500	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CE40805 - 3540C										
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1248 (1)	ND	0.0500	mg/kg wet							
Aroclor 1248 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (2)	ND	0.0500	mg/kg wet							
Aroclor 1248 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (3)	ND	0.0500	mg/kg wet							
Aroclor 1248 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (4)	ND	0.0500	mg/kg wet							
Aroclor 1248 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (5)	ND	0.0500	mg/kg wet							
Aroclor 1248 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1254 (1)	ND	0.0500	mg/kg wet							
Aroclor 1254 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (2)	ND	0.0500	mg/kg wet							
Aroclor 1254 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (3)	ND	0.0500	mg/kg wet							
Aroclor 1254 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (4)	ND	0.0500	mg/kg wet							
Aroclor 1254 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (5)	ND	0.0500	mg/kg wet							
Aroclor 1254 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1260 (1)	ND	0.0500	mg/kg wet							
Aroclor 1260 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (2)	ND	0.0500	mg/kg wet							
Aroclor 1260 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (3)	ND	0.0500	mg/kg wet							
Aroclor 1260 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (4)	ND	0.0500	mg/kg wet							
Aroclor 1260 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (5)	ND	0.0500	mg/kg wet							
Aroclor 1260 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1262 (1)	ND	0.0500	mg/kg wet							
Aroclor 1262 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (2)	ND	0.0500	mg/kg wet							
Aroclor 1262 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (3)	ND	0.0500	mg/kg wet							
Aroclor 1262 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (4)	ND	0.0500	mg/kg wet							
Aroclor 1262 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (5)	ND	0.0500	mg/kg wet							
Aroclor 1262 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CE40805 - 3540C										
Aroclor 1268 (1)	ND	0.0500	mg/kg wet							
Aroclor 1268 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (2)	ND	0.0500	mg/kg wet							
Aroclor 1268 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (3)	ND	0.0500	mg/kg wet							
Aroclor 1268 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (4)	ND	0.0500	mg/kg wet							
Aroclor 1268 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (5)	ND	0.0500	mg/kg wet							
Aroclor 1268 (5) [2C]	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0187*		mg/kg wet	*0.02500*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
LCS										
Aroclor 1016	0.431	0.0500	mg/kg wet	0.5000		86	40-140			
Aroclor 1260	0.451	0.0500	mg/kg wet	0.5000		90	40-140			
Surrogate: Decachlorobiphenyl	*0.0247*		mg/kg wet	*0.02500*		*99*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
LCS Dup										
Aroclor 1016	0.441	0.0500	mg/kg wet	0.5000		88	40-140	2	50	
Aroclor 1260	0.469	0.0500	mg/kg wet	0.5000		94	40-140	4	50	
Surrogate: Decachlorobiphenyl	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0247*		mg/kg wet	*0.02500*		*99*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0206*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
Matrix Spike Source: 1405158-03										
Aroclor 1016	0.548	0.0611	mg/kg dry	0.6106	ND	90	40-140			
Aroclor 1260	0.568	0.0611	mg/kg dry	0.6106	ND	93	40-140			
Surrogate: Decachlorobiphenyl	*0.0287*		mg/kg dry	*0.03053*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0293*		mg/kg dry	*0.03053*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0284*		mg/kg dry	*0.03053*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0306*		mg/kg dry	*0.03053*		*100*	*30-150*			
Matrix Spike Dup Source: 1405158-03										
Aroclor 1016	0.606	0.0645	mg/kg dry	0.6450	ND	94	40-140	10	50	
Aroclor 1260	0.599	0.0645	mg/kg dry	0.6450	ND	93	40-140	5	50	
Surrogate: Decachlorobiphenyl	*0.0300*		mg/kg dry	*0.03225*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0311*		mg/kg dry	*0.03225*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0299*		mg/kg dry	*0.03225*		*93*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control

ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CE40805 - 3540C										
Surrogate: Tetrachloro-m-xylene [2C]	*0.0322*		mg/kg dry	*0.03225*		*100*	*30-150*			
Batch CE41326 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1016 (1)	ND	0.0500	mg/kg wet							
Aroclor 1016 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (2)	ND	0.0500	mg/kg wet							
Aroclor 1016 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (3)	ND	0.0500	mg/kg wet							
Aroclor 1016 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (4)	ND	0.0500	mg/kg wet							
Aroclor 1016 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (5)	ND	0.0500	mg/kg wet							
Aroclor 1016 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1221 (1)	ND	0.0500	mg/kg wet							
Aroclor 1221 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (2)	ND	0.0500	mg/kg wet							
Aroclor 1221 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (3)	ND	0.0500	mg/kg wet							
Aroclor 1221 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (4)	ND	0.0500	mg/kg wet							
Aroclor 1221 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (5)	ND	0.0500	mg/kg wet							
Aroclor 1221 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1232 (1)	ND	0.0500	mg/kg wet							
Aroclor 1232 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (2)	ND	0.0500	mg/kg wet							
Aroclor 1232 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (3)	ND	0.0500	mg/kg wet							
Aroclor 1232 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (4)	ND	0.0500	mg/kg wet							
Aroclor 1232 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (5)	ND	0.0500	mg/kg wet							
Aroclor 1232 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1242 (1)	ND	0.0500	mg/kg wet							
Aroclor 1242 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (2)	ND	0.0500	mg/kg wet							
Aroclor 1242 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (3)	ND	0.0500	mg/kg wet							
Aroclor 1242 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (4)	ND	0.0500	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

8082 Polychlorinated Biphenyls (PCB)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CE41326 - 3540C										
Aroclor 1242 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (5)	ND	0.0500	mg/kg wet							
Aroclor 1242 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1248 (1)	ND	0.0500	mg/kg wet							
Aroclor 1248 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (2)	ND	0.0500	mg/kg wet							
Aroclor 1248 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (3)	ND	0.0500	mg/kg wet							
Aroclor 1248 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (4)	ND	0.0500	mg/kg wet							
Aroclor 1248 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (5)	ND	0.0500	mg/kg wet							
Aroclor 1248 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1254 (1)	ND	0.0500	mg/kg wet							
Aroclor 1254 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (2)	ND	0.0500	mg/kg wet							
Aroclor 1254 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (3)	ND	0.0500	mg/kg wet							
Aroclor 1254 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (4)	ND	0.0500	mg/kg wet							
Aroclor 1254 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (5)	ND	0.0500	mg/kg wet							
Aroclor 1254 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1260 (1)	ND	0.0500	mg/kg wet							
Aroclor 1260 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (2)	ND	0.0500	mg/kg wet							
Aroclor 1260 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (3)	ND	0.0500	mg/kg wet							
Aroclor 1260 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (4)	ND	0.0500	mg/kg wet							
Aroclor 1260 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (5)	ND	0.0500	mg/kg wet							
Aroclor 1260 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1262 (1)	ND	0.0500	mg/kg wet							
Aroclor 1262 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (2)	ND	0.0500	mg/kg wet							
Aroclor 1262 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (3)	ND	0.0500	mg/kg wet							
Aroclor 1262 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (4)	ND	0.0500	mg/kg wet							
Aroclor 1262 (4) [2C]	ND	0.0500	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CE41326 - 3540C										
Aroclor 1262 (5)	ND	0.0500	mg/kg wet							
Aroclor 1262 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Aroclor 1268 (1)	ND	0.0500	mg/kg wet							
Aroclor 1268 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (2)	ND	0.0500	mg/kg wet							
Aroclor 1268 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (3)	ND	0.0500	mg/kg wet							
Aroclor 1268 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (4)	ND	0.0500	mg/kg wet							
Aroclor 1268 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (5)	ND	0.0500	mg/kg wet							
Aroclor 1268 (5) [2C]	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0270*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0272*		mg/kg wet	*0.02500*		*109*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0254*		mg/kg wet	*0.02500*		*102*	*30-150*			
LCS										
Aroclor 1016	0.520	0.0500	mg/kg wet	0.5000		104	40-140			
Aroclor 1260	0.507	0.0500	mg/kg wet	0.5000		101	40-140			
Surrogate: Decachlorobiphenyl	*0.0275*		mg/kg wet	*0.02500*		*110*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0278*		mg/kg wet	*0.02500*		*111*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0271*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0273*		mg/kg wet	*0.02500*		*109*	*30-150*			
LCS Dup										
Aroclor 1016	0.537	0.0500	mg/kg wet	0.5000		107	40-140	3	50	
Aroclor 1260	0.564	0.0500	mg/kg wet	0.5000		113	40-140	11	50	
Surrogate: Decachlorobiphenyl	*0.0293*		mg/kg wet	*0.02500*		*117*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0290*		mg/kg wet	*0.02500*		*116*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0267*		mg/kg wet	*0.02500*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0269*		mg/kg wet	*0.02500*		*107*	*30-150*			
Matrix Spike Source: 1405158-01										
Aroclor 1016	0.791	0.0880	mg/kg dry	0.8796	ND	90	40-140			
Aroclor 1260	1.17	0.0880	mg/kg dry	0.8796	0.617	63	40-140			
Surrogate: Decachlorobiphenyl	*0.0457*		mg/kg dry	*0.04398*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0457*		mg/kg dry	*0.04398*		*104*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0443*		mg/kg dry	*0.04398*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0433*		mg/kg dry	*0.04398*		*98*	*30-150*			
Matrix Spike Dup Source: 1405158-01										
Aroclor 1016	0.876	0.0920	mg/kg dry	0.9196	ND	95	40-140	10	50	
Aroclor 1260	1.11	0.0920	mg/kg dry	0.9196	0.617	54	40-140	5	50	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CE41326 - 3540C										
Surrogate: Decachlorobiphenyl	*0.0488*		mg/kg dry	*0.04598*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0498*		mg/kg dry	*0.04598*		*108*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0495*		mg/kg dry	*0.04598*		*108*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0493*		mg/kg dry	*0.04598*		*107*	*30-150*			
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
Blank										
1,2,4,5-Tetrachlorobenzene	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.333	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	0.500	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachloronitrobenzene	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.500	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.61*		mg/kg wet	*3.333*		*78*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.49*		mg/kg wet	*5.000*		*90*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.84*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.87*		mg/kg wet	*3.333*		*86*	*30-130*			
Surrogate: 2-Fluorophenol	*3.53*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.62*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: Phenol-d6	*3.98*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.77*		mg/kg wet	*3.333*		*113*	*30-130*			
LCS										
1,2,4,5-Tetrachlorobenzene	2.58	0.333	mg/kg wet	3.333		77	40-140			
1,2,4-Trichlorobenzene	2.41	0.333	mg/kg wet	3.333		72	40-140			
2,4,5-Trichlorophenol	2.83	0.333	mg/kg wet	3.333		85	30-130			
2,4,6-Trichlorophenol	2.79	0.333	mg/kg wet	3.333		84	30-130			
2,4-Dichlorophenol	2.56	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dimethylphenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
2,4-Dinitrophenol	1.66	1.67	mg/kg wet	3.333		50	30-130			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
2,4-Dinitrotoluene	2.83	0.333	mg/kg wet	3.333		85	40-140			
2,6-Dinitrotoluene	2.65	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.17	0.333	mg/kg wet	3.333		65	40-140			
2-Chlorophenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
2-Methylnaphthalene	2.47	0.333	mg/kg wet	3.333		74	40-140			
2-Methylphenol	2.72	0.333	mg/kg wet	3.333		82	30-130			
2-Nitroaniline	2.17	0.333	mg/kg wet	3.333		65	40-140			
2-Nitrophenol	2.53	0.333	mg/kg wet	3.333		76	30-130			
3,3´-Dichlorobenzidine	1.96	0.333	mg/kg wet	3.333		59	40-140			
3+4-Methylphenol	5.62	0.667	mg/kg wet	6.667		84	30-130			
3-Nitroaniline	2.39	0.333	mg/kg wet	3.333		72	40-140			
4,6-Dinitro-2-Methylphenol	2.08	1.67	mg/kg wet	3.333		62	30-130			
4-Bromophenyl-phenylether	2.64	0.333	mg/kg wet	3.333		79	40-140			
4-Chloro-3-Methylphenol	2.71	0.333	mg/kg wet	3.333		81	30-130			
4-Chloroaniline	1.74	0.333	mg/kg wet	3.333		52	40-140			
4-Chloro-phenyl-phenyl ether	2.51	0.333	mg/kg wet	3.333		75	40-140			
4-Nitroaniline	2.35	0.333	mg/kg wet	3.333		70	40-140			
4-Nitrophenol	2.85	1.67	mg/kg wet	3.333		85	30-130			
Acenaphthene	2.45	0.333	mg/kg wet	3.333		74	40-140			
Acenaphthylene	2.49	0.333	mg/kg wet	3.333		75	40-140			
Aniline	1.74	0.667	mg/kg wet	3.333		52	40-140			
Anthracene	2.49	0.333	mg/kg wet	3.333		75	40-140			
Benzo(a)anthracene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)pyrene	2.50	0.167	mg/kg wet	3.333		75	40-140			
Benzo(b)fluoranthene	2.96	0.333	mg/kg wet	3.333		89	40-140			
Benzo(g,h,i)perylene	2.85	0.333	mg/kg wet	3.333		86	40-140			
Benzo(k)fluoranthene	2.59	0.333	mg/kg wet	3.333		78	40-140			
bis(2-Chloroethoxy)methane	2.47	0.333	mg/kg wet	3.333		74	40-140			
bis(2-Chloroethyl)ether	2.50	0.333	mg/kg wet	3.333		75	40-140			
bis(2-chloroisopropyl)Ether	2.41	0.333	mg/kg wet	3.333		72	40-140			
bis(2-Ethylhexyl)phthalate	2.81	0.333	mg/kg wet	3.333		84	40-140			
Butylbenzylphthalate	3.02	0.333	mg/kg wet	3.333		90	40-140			
Carbazole	2.76	0.333	mg/kg wet	3.333		83	40-140			
Chrysene	2.73	0.167	mg/kg wet	3.333		82	40-140			
Dibenzo(a,h)Anthracene	3.14	0.167	mg/kg wet	3.333		94	40-140			
Dibenzofuran	2.54	0.333	mg/kg wet	3.333		76	40-140			
Diethylphthalate	2.66	0.333	mg/kg wet	3.333		80	40-140			
Dimethylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Di-n-butylphthalate	2.74	0.333	mg/kg wet	3.333		82	40-140			
Di-n-octylphthalate	3.08	0.333	mg/kg wet	3.333		93	40-140			
Fluoranthene	2.72	0.333	mg/kg wet	3.333		82	40-140			
Fluorene	2.55	0.333	mg/kg wet	3.333		76	40-140			
Hexachlorobenzene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Hexachlorobutadiene	2.36	0.333	mg/kg wet	3.333		71	40-140			
Hexachlorocyclopentadiene	1.23	0.500	mg/kg wet	3.333		37	40-140			B-

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
Hexachloroethane	2.34	0.333	mg/kg wet	3.333		70	40-140			
Indeno(1,2,3-cd)Pyrene	3.10	0.333	mg/kg wet	3.333		93	40-140			
Isophorone	2.46	0.333	mg/kg wet	3.333		74	40-140			
Naphthalene	2.48	0.333	mg/kg wet	3.333		74	40-140			
Nitrobenzene	2.40	0.333	mg/kg wet	3.333		72	40-140			
N-Nitroso-Di-n-Propylamine	2.51	0.333	mg/kg wet	3.333		75	40-140			
N-nitrosodiphenylamine	2.50	0.333	mg/kg wet	3.333		75	40-140			
Pentachloronitrobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Pentachlorophenol	2.87	0.500	mg/kg wet	3.333		86	30-130			
Phenanthrene	2.53	0.333	mg/kg wet	3.333		76	40-140			
Phenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
Pyrene	2.65	0.333	mg/kg wet	3.333		79	40-140			
Pyridine	1.97	1.67	mg/kg wet	3.333		59	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.47*		mg/kg wet	*3.333*		*74*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.67*		mg/kg wet	*5.000*		*93*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.73*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.69*		mg/kg wet	*3.333*		*81*	*30-130*			
Surrogate: 2-Fluorophenol	*3.49*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.51*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: Phenol-d6	*3.89*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.19*		mg/kg wet	*3.333*		*96*	*30-130*			
LCS Dup										
1,2,4,5-Tetrachlorobenzene	2.92	0.333	mg/kg wet	3.333		87	40-140	12	30	
1,2,4-Trichlorobenzene	2.72	0.333	mg/kg wet	3.333		82	40-140	12	30	
2,4,5-Trichlorophenol	3.11	0.333	mg/kg wet	3.333		93	30-130	10	30	
2,4,6-Trichlorophenol	3.12	0.333	mg/kg wet	3.333		94	30-130	11	30	
2,4-Dichlorophenol	2.87	0.333	mg/kg wet	3.333		86	30-130	11	30	
2,4-Dimethylphenol	3.00	0.333	mg/kg wet	3.333		90	30-130	11	30	
2,4-Dinitrophenol	2.06	1.67	mg/kg wet	3.333		62	30-130	22	30	
2,4-Dinitrotoluene	3.16	0.333	mg/kg wet	3.333		95	40-140	11	30	
2,6-Dinitrotoluene	2.95	0.333	mg/kg wet	3.333		88	40-140	11	30	
2-Chloronaphthalene	2.45	0.333	mg/kg wet	3.333		73	40-140	12	30	
2-Chlorophenol	2.71	0.333	mg/kg wet	3.333		81	30-130	11	30	
2-Methylnaphthalene	2.76	0.333	mg/kg wet	3.333		83	40-140	11	30	
2-Methylphenol	3.04	0.333	mg/kg wet	3.333		91	30-130	11	30	
2-Nitroaniline	2.41	0.333	mg/kg wet	3.333		72	40-140	10	30	
2-Nitrophenol	2.83	0.333	mg/kg wet	3.333		85	30-130	11	30	
3,3´-Dichlorobenzidine	1.99	0.333	mg/kg wet	3.333		60	40-140	1	30	
3+4-Methylphenol	6.24	0.667	mg/kg wet	6.667		94	30-130	11	30	
3-Nitroaniline	2.64	0.333	mg/kg wet	3.333		79	40-140	10	30	
4,6-Dinitro-2-Methylphenol	2.49	1.67	mg/kg wet	3.333		75	30-130	18	30	
4-Bromophenyl-phenylether	2.94	0.333	mg/kg wet	3.333		88	40-140	11	30	
4-Chloro-3-Methylphenol	3.00	0.333	mg/kg wet	3.333		90	30-130	10	30	
4-Chloroaniline	1.85	0.333	mg/kg wet	3.333		55	40-140	6	30	
4-Chloro-phenyl-phenyl ether	2.79	0.333	mg/kg wet	3.333		84	40-140	11	30	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

8270C Semi-Volatile Organic Compounds

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CE40706 - 3546										
4-Nitroaniline	2.78	0.333	mg/kg wet	3.333		83	40-140	17	30	
4-Nitrophenol	3.26	1.67	mg/kg wet	3.333		98	30-130	13	30	
Acenaphthene	2.69	0.333	mg/kg wet	3.333		81	40-140	9	30	
Acenaphthylene	2.70	0.333	mg/kg wet	3.333		81	40-140	8	30	
Aniline	1.85	0.667	mg/kg wet	3.333		56	40-140	6	30	
Anthracene	2.77	0.333	mg/kg wet	3.333		83	40-140	11	30	
Benzo(a)anthracene	3.13	0.333	mg/kg wet	3.333		94	40-140	12	30	
Benzo(a)pyrene	3.01	0.167	mg/kg wet	3.333		90	40-140	18	30	
Benzo(b)fluoranthene	3.43	0.333	mg/kg wet	3.333		103	40-140	15	30	
Benzo(g,h,i)perylene	3.46	0.333	mg/kg wet	3.333		104	40-140	19	30	
Benzo(k)fluoranthene	3.30	0.333	mg/kg wet	3.333		99	40-140	24	30	
bis(2-Chloroethoxy)methane	2.77	0.333	mg/kg wet	3.333		83	40-140	11	30	
bis(2-Chloroethyl)ether	2.81	0.333	mg/kg wet	3.333		84	40-140	12	30	
bis(2-chloroisopropyl)Ether	2.66	0.333	mg/kg wet	3.333		80	40-140	10	30	
bis(2-Ethylhexyl)phthalate	3.13	0.333	mg/kg wet	3.333		94	40-140	11	30	
Butylbenzylphthalate	3.37	0.333	mg/kg wet	3.333		101	40-140	11	30	
Carbazole	3.10	0.333	mg/kg wet	3.333		93	40-140	12	30	
Chrysene	3.00	0.167	mg/kg wet	3.333		90	40-140	10	30	
Dibenzo(a,h)Anthracene	3.85	0.167	mg/kg wet	3.333		116	40-140	20	30	
Dibenzofuran	2.60	0.333	mg/kg wet	3.333		78	40-140	2	30	
Diethylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140	11	30	
Dimethylphthalate	2.86	0.333	mg/kg wet	3.333		86	40-140	9	30	
Di-n-butylphthalate	3.03	0.333	mg/kg wet	3.333		91	40-140	10	30	
Di-n-octylphthalate	3.67	0.333	mg/kg wet	3.333		110	40-140	17	30	
Fluoranthene	3.07	0.333	mg/kg wet	3.333		92	40-140	12	30	
Fluorene	2.84	0.333	mg/kg wet	3.333		85	40-140	11	30	
Hexachlorobenzene	3.06	0.333	mg/kg wet	3.333		92	40-140	10	30	
Hexachlorobutadiene	2.65	0.333	mg/kg wet	3.333		80	40-140	12	30	
Hexachlorocyclopentadiene	1.46	0.500	mg/kg wet	3.333		44	40-140	17	30	
Hexachloroethane	2.58	0.333	mg/kg wet	3.333		77	40-140	10	30	
Indeno(1,2,3-cd)Pyrene	3.79	0.333	mg/kg wet	3.333		114	40-140	20	30	
Isophorone	2.76	0.333	mg/kg wet	3.333		83	40-140	12	30	
Naphthalene	2.79	0.333	mg/kg wet	3.333		84	40-140	12	30	
Nitrobenzene	2.65	0.333	mg/kg wet	3.333		80	40-140	10	30	
N-Nitroso-Di-n-Propylamine	2.80	0.333	mg/kg wet	3.333		84	40-140	11	30	
N-nitrosodiphenylamine	2.80	0.333	mg/kg wet	3.333		84	40-140	11	30	
Pentachloronitrobenzene	2.78	0.333	mg/kg wet	3.333		84	40-140	8	30	
Pentachlorophenol	3.37	0.500	mg/kg wet	3.333		101	30-130	16	30	
Phenanthrene	2.81	0.333	mg/kg wet	3.333		84	40-140	10	30	
Phenol	2.67	0.333	mg/kg wet	3.333		80	30-130	11	30	
Pyrene	3.10	0.333	mg/kg wet	3.333		93	40-140	16	30	
Pyridine	2.08	1.67	mg/kg wet	3.333		62	40-140	5	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.65*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*5.09*		mg/kg wet	*5.000*		*102*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.02*		mg/kg wet	*5.000*		*80*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
Surrogate: 2-Fluorobiphenyl	*2.89*		mg/kg wet	*3.333*		*87*	*30-130*			
Surrogate: 2-Fluorophenol	*3.75*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.70*		mg/kg wet	*3.333*		*81*	*30-130*			
Surrogate: Phenol-d6	*4.18*		mg/kg wet	*5.000*		*84*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.42*		mg/kg wet	*3.333*		*103*	*30-130*			
Matrix Spike **Source: 1405158-01**										
1,2,4,5-Tetrachlorobenzene	4.26	0.610	mg/kg dry	6.110	ND	70	40-140			
1,2,4-Trichlorobenzene	3.83	0.610	mg/kg dry	6.110	ND	63	40-140			
2,4,5-Trichlorophenol	6.20	0.610	mg/kg dry	6.110	ND	102	30-130			
2,4,6-Trichlorophenol	5.84	0.610	mg/kg dry	6.110	ND	96	30-130			
2,4-Dichlorophenol	4.49	0.610	mg/kg dry	6.110	ND	73	30-130			
2,4-Dimethylphenol	4.49	0.610	mg/kg dry	6.110	ND	73	30-130			
2,4-Dinitrophenol	ND	3.06	mg/kg dry	6.110	ND		30-130			M-
2,4-Dinitrotoluene	5.00	0.610	mg/kg dry	6.110	ND	82	40-140			
2,6-Dinitrotoluene	4.71	0.610	mg/kg dry	6.110	ND	77	40-140			
2-Chloronaphthalene	3.85	0.610	mg/kg dry	6.110	ND	63	40-140			
2-Chlorophenol	3.76	0.610	mg/kg dry	6.110	ND	62	30-130			
2-Methylnaphthalene	3.98	0.610	mg/kg dry	6.110	ND	65	40-140			
2-Methylphenol	4.35	0.610	mg/kg dry	6.110	ND	71	30-130			
2-Nitroaniline	4.16	0.610	mg/kg dry	6.110	ND	68	40-140			
2-Nitrophenol	2.90	0.610	mg/kg dry	6.110	ND	47	30-130			
3,3´-Dichlorobenzidine	3.74	0.610	mg/kg dry	6.110	ND	61	40-140			
3+4-Methylphenol	9.52	1.22	mg/kg dry	12.22	ND	78	30-130			
3-Nitroaniline	4.88	0.610	mg/kg dry	6.110	ND	80	40-140			
4,6-Dinitro-2-Methylphenol	0.594	3.06	mg/kg dry	6.110	ND	10	30-130			M-
4-Bromophenyl-phenylether	5.32	0.610	mg/kg dry	6.110	ND	87	40-140			
4-Chloro-3-Methylphenol	5.21	0.610	mg/kg dry	6.110	ND	85	30-130			
4-Chloroaniline	3.41	0.610	mg/kg dry	6.110	ND	56	40-140			
4-Chloro-phenyl-phenyl ether	4.79	0.610	mg/kg dry	6.110	ND	78	40-140			
4-Nitroaniline	5.33	0.610	mg/kg dry	6.110	ND	87	40-140			
4-Nitrophenol	5.07	3.06	mg/kg dry	6.110	ND	83	30-130			
Acenaphthene	4.40	0.610	mg/kg dry	6.110	ND	72	40-140			
Acenaphthylene	4.56	0.610	mg/kg dry	6.110	0.135	72	40-140			
Aniline	2.63	1.22	mg/kg dry	6.110	ND	43	40-140			
Anthracene	5.16	0.610	mg/kg dry	6.110	0.175	82	40-140			
Benzo(a)anthracene	5.76	0.610	mg/kg dry	6.110	0.720	82	40-140			
Benzo(a)pyrene	5.33	0.306	mg/kg dry	6.110	0.667	76	40-140			
Benzo(b)fluoranthene	6.49	0.610	mg/kg dry	6.110	0.919	91	40-140			
Benzo(g,h,i)perylene	5.26	0.610	mg/kg dry	6.110	0.466	78	40-140			
Benzo(k)fluoranthene	4.98	0.610	mg/kg dry	6.110	0.277	77	40-140			
bis(2-Chloroethoxy)methane	3.79	0.610	mg/kg dry	6.110	ND	62	40-140			
bis(2-Chloroethyl)ether	3.14	0.610	mg/kg dry	6.110	ND	51	40-140			
bis(2-chloroisopropyl)Ether	3.62	0.610	mg/kg dry	6.110	ND	59	40-140			
bis(2-Ethylhexyl)phthalate	5.69	0.610	mg/kg dry	6.110	ND	93	40-140			
Butylbenzylphthalate	5.29	0.610	mg/kg dry	6.110	ND	87	40-140			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
Carbazole	5.55	0.610	mg/kg dry	6.110	ND	91	40-140			
Chrysene	6.10	0.306	mg/kg dry	6.110	0.923	85	40-140			
Dibenzo(a,h)Anthracene	5.96	0.306	mg/kg dry	6.110	0.125	96	40-140			
Dibenzofuran	4.39	0.610	mg/kg dry	6.110	ND	72	40-140			
Diethylphthalate	5.05	0.610	mg/kg dry	6.110	ND	83	40-140			
Dimethylphthalate	4.78	0.610	mg/kg dry	6.110	ND	78	40-140			
Di-n-butylphthalate	5.14	0.610	mg/kg dry	6.110	ND	84	40-140			
Di-n-octylphthalate	4.85	0.610	mg/kg dry	6.110	ND	79	40-140			
Fluoranthene	6.80	0.610	mg/kg dry	6.110	1.34	89	40-140			
Fluorene	4.96	0.610	mg/kg dry	6.110	ND	81	40-140			
Hexachlorobenzene	5.61	0.610	mg/kg dry	6.110	ND	92	40-140			
Hexachlorobutadiene	3.67	0.610	mg/kg dry	6.110	ND	60	40-140			
Hexachlorocyclopentadiene	0.442	0.917	mg/kg dry	6.110	ND	7	40-140			M-
Hexachloroethane	2.40	0.610	mg/kg dry	6.110	ND	39	40-140			M-
Indeno(1,2,3-cd)Pyrene	5.95	0.610	mg/kg dry	6.110	0.436	90	40-140			
Isophorone	3.88	0.610	mg/kg dry	6.110	ND	63	40-140			
Naphthalene	3.93	0.610	mg/kg dry	6.110	ND	64	40-140			
Nitrobenzene	3.53	0.610	mg/kg dry	6.110	ND	58	40-140			
N-Nitroso-Di-n-Propylamine	3.75	0.610	mg/kg dry	6.110	ND	61	40-140			
N-nitrosodiphenylamine	5.44	0.610	mg/kg dry	6.110	ND	89	40-140			
Pentachloronitrobenzene	4.87	0.610	mg/kg dry	6.110	ND	80	40-140			
Pentachlorophenol	6.59	0.917	mg/kg dry	6.110	ND	108	30-130			
Phenanthrene	5.61	0.610	mg/kg dry	6.110	0.513	83	40-140			
Phenol	3.44	0.610	mg/kg dry	6.110	ND	56	30-130			
Pyrene	6.30	0.610	mg/kg dry	6.110	1.26	83	40-140			
Pyridine	3.31	3.06	mg/kg dry	6.110	ND	54	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*3.72*		mg/kg dry	*6.110*		*61*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*11.3*		mg/kg dry	*9.165*		*123*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*5.65*		mg/kg dry	*9.165*		*62*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*4.63*		mg/kg dry	*6.110*		*76*	*30-130*			
Surrogate: 2-Fluorophenol	*4.70*		mg/kg dry	*9.165*		*51*	*30-130*			
Surrogate: Nitrobenzene-d5	*3.71*		mg/kg dry	*6.110*		*61*	*30-130*			
Surrogate: Phenol-d6	*5.85*		mg/kg dry	*9.165*		*64*	*30-130*			
Surrogate: p-Terphenyl-d14	*5.56*		mg/kg dry	*6.110*		*91*	*30-130*			
Matrix Spike Dup Source: 1405158-01										
1,2,4,5-Tetrachlorobenzene	4.25	0.623	mg/kg dry	6.236	ND	68	40-140	0.4	30	
1,2,4-Trichlorobenzene	3.81	0.623	mg/kg dry	6.236	ND	61	40-140	0.4	30	
2,4,5-Trichlorophenol	6.16	0.623	mg/kg dry	6.236	ND	99	30-130	0.6	30	
2,4,6-Trichlorophenol	5.81	0.623	mg/kg dry	6.236	ND	93	30-130	0.5	30	
2,4-Dichlorophenol	4.48	0.623	mg/kg dry	6.236	ND	72	30-130	0.3	30	
2,4-Dimethylphenol	4.41	0.623	mg/kg dry	6.236	ND	71	30-130	2	30	
2,4-Dinitrophenol	ND	3.12	mg/kg dry	6.236	ND		30-130		30	D+, M-
2,4-Dinitrotoluene	4.73	0.623	mg/kg dry	6.236	ND	76	40-140	6	30	
2,6-Dinitrotoluene	4.50	0.623	mg/kg dry	6.236	ND	72	40-140	5	30	
2-Chloronaphthalene	3.73	0.623	mg/kg dry	6.236	ND	60	40-140	3	30	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
2-Chlorophenol	3.79	0.623	mg/kg dry	6.236	ND	61	30-130	0.9	30	
2-Methylnaphthalene	3.99	0.623	mg/kg dry	6.236	ND	64	40-140	0.3	30	
2-Methylphenol	4.36	0.623	mg/kg dry	6.236	ND	70	30-130	0.1	30	
2-Nitroaniline	4.14	0.623	mg/kg dry	6.236	ND	66	40-140	0.6	30	
2-Nitrophenol	2.55	0.623	mg/kg dry	6.236	ND	41	30-130	13	30	
3,3´-Dichlorobenzidine	3.54	0.623	mg/kg dry	6.236	ND	57	40-140	6	30	
3+4-Methylphenol	9.51	1.25	mg/kg dry	12.47	ND	76	30-130	0.1	30	
3-Nitroaniline	4.88	0.623	mg/kg dry	6.236	ND	78	40-140	0.01	30	
4,6-Dinitro-2-Methylphenol	ND	3.12	mg/kg dry	6.236	ND		30-130	200	30	D+, M-
4-Bromophenyl-phenylether	5.46	0.623	mg/kg dry	6.236	ND	88	40-140	3	30	
4-Chloro-3-Methylphenol	5.20	0.623	mg/kg dry	6.236	ND	83	30-130	0.02	30	
4-Chloroaniline	3.25	0.623	mg/kg dry	6.236	ND	52	40-140	5	30	
4-Chloro-phenyl-phenyl ether	4.71	0.623	mg/kg dry	6.236	ND	76	40-140	2	30	
4-Nitroaniline	5.03	0.623	mg/kg dry	6.236	ND	81	40-140	6	30	
4-Nitrophenol	4.76	3.12	mg/kg dry	6.236	ND	76	30-130	6	30	
Acenaphthene	4.46	0.623	mg/kg dry	6.236	ND	71	40-140	1	30	
Acenaphthylene	4.81	0.623	mg/kg dry	6.236	0.135	75	40-140	5	30	
Aniline	2.61	1.25	mg/kg dry	6.236	ND	42	40-140	0.5	30	
Anthracene	5.27	0.623	mg/kg dry	6.236	0.175	82	40-140	2	30	
Benzo(a)anthracene	5.94	0.623	mg/kg dry	6.236	0.720	84	40-140	3	30	
Benzo(a)pyrene	5.62	0.312	mg/kg dry	6.236	0.667	79	40-140	5	30	
Benzo(b)fluoranthene	6.43	0.623	mg/kg dry	6.236	0.919	88	40-140	0.9	30	
Benzo(g,h,i)perylene	5.13	0.623	mg/kg dry	6.236	0.466	75	40-140	3	30	
Benzo(k)fluoranthene	5.48	0.623	mg/kg dry	6.236	0.277	83	40-140	10	30	
bis(2-Chloroethoxy)methane	3.79	0.623	mg/kg dry	6.236	ND	61	40-140	0.09	30	
bis(2-Chloroethyl)ether	3.25	0.623	mg/kg dry	6.236	ND	52	40-140	3	30	
bis(2-chloroisopropyl)Ether	3.68	0.623	mg/kg dry	6.236	ND	59	40-140	2	30	
bis(2-Ethylhexyl)phthalate	5.41	0.623	mg/kg dry	6.236	ND	87	40-140	5	30	
Butylbenzylphthalate	5.16	0.623	mg/kg dry	6.236	ND	83	40-140	2	30	
Carbazole	5.58	0.623	mg/kg dry	6.236	ND	90	40-140	0.6	30	
Chrysene	6.41	0.312	mg/kg dry	6.236	0.923	88	40-140	5	30	
Dibenzo(a,h)Anthracene	5.87	0.312	mg/kg dry	6.236	0.125	92	40-140	2	30	
Dibenzofuran	4.40	0.623	mg/kg dry	6.236	ND	71	40-140	0.2	30	
Diethylphthalate	4.93	0.623	mg/kg dry	6.236	ND	79	40-140	2	30	
Dimethylphthalate	4.75	0.623	mg/kg dry	6.236	ND	76	40-140	0.7	30	
Di-n-butylphthalate	5.15	0.623	mg/kg dry	6.236	ND	83	40-140	0.3	30	
Di-n-octylphthalate	4.62	0.623	mg/kg dry	6.236	ND	74	40-140	5	30	
Fluoranthene	7.25	0.623	mg/kg dry	6.236	1.34	95	40-140	6	30	
Fluorene	4.92	0.623	mg/kg dry	6.236	ND	79	40-140	0.8	30	
Hexachlorobenzene	5.66	0.623	mg/kg dry	6.236	ND	91	40-140	1	30	
Hexachlorobutadiene	3.75	0.623	mg/kg dry	6.236	ND	60	40-140	2	30	
Hexachlorocyclopentadiene	ND	0.935	mg/kg dry	6.236	ND		40-140		30	D+, M-
Hexachloroethane	2.02	0.623	mg/kg dry	6.236	ND	32	40-140	17	30	M-
Indeno(1,2,3-cd)Pyrene	5.92	0.623	mg/kg dry	6.236	0.436	88	40-140	0.4	30	
Isophorone	3.85	0.623	mg/kg dry	6.236	ND	62	40-140	0.5	30	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CE40706 - 3546										
Naphthalene	3.92	0.623	mg/kg dry	6.236	ND	63	40-140	0.1	30	
Nitrobenzene	3.42	0.623	mg/kg dry	6.236	ND	55	40-140	3	30	
N-Nitroso-Di-n-Propylamine	3.86	0.623	mg/kg dry	6.236	ND	62	40-140	3	30	
N-nitrosodiphenylamine	5.49	0.623	mg/kg dry	6.236	ND	88	40-140	0.9	30	
Pentachloronitrobenzene	4.93	0.623	mg/kg dry	6.236	ND	79	40-140	1	30	
Pentachlorophenol	6.63	0.935	mg/kg dry	6.236	ND	106	30-130	0.7	30	
Phenanthrene	5.82	0.623	mg/kg dry	6.236	0.513	85	40-140	4	30	
Phenol	3.53	0.623	mg/kg dry	6.236	ND	57	30-130	3	30	
Pyrene	6.45	0.623	mg/kg dry	6.236	1.26	83	40-140	2	30	
Pyridine	3.24	3.12	mg/kg dry	6.236	ND	52	40-140	2	30	
Surrogate: 1,2-Dichlorobenzene-d4	*3.70*		mg/kg dry	*6.236*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*11.0*		mg/kg dry	*9.354*		*118*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*5.59*		mg/kg dry	*9.354*		*60*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*4.52*		mg/kg dry	*6.236*		*73*	*30-130*			
Surrogate: 2-Fluorophenol	*4.56*		mg/kg dry	*9.354*		*49*	*30-130*			
Surrogate: Nitrobenzene-d5	*3.52*		mg/kg dry	*6.236*		*56*	*30-130*			
Surrogate: Phenol-d6	*5.69*		mg/kg dry	*9.354*		*61*	*30-130*			
Surrogate: p-Terphenyl-d14	*5.21*		mg/kg dry	*6.236*		*84*	*30-130*			
CT ETPH Extractable Total Petroleum Hydrocarbons										
Batch CE40707 - 3546										
Blank										
Total Petroleum Hydrocarbons	ND	20.0	mg/kg wet							
Surrogate: O-Terphenyl	*3.87*		mg/kg wet	*5.000*		*77*	*50-150*			
LCS										
Total Petroleum Hydrocarbons	26.5	20.0	mg/kg wet	35.00		76	60-120			
Surrogate: O-Terphenyl	*3.92*		mg/kg wet	*5.000*		*78*	*50-150*			
LCS Dup										
Total Petroleum Hydrocarbons	27.9	20.0	mg/kg wet	35.00		80	60-120	5	30	
Surrogate: O-Terphenyl	*4.12*		mg/kg wet	*5.000*		*82*	*50-150*			
Batch CE40908 - 3546										
Blank										
Total Petroleum Hydrocarbons	ND	20.0	mg/kg wet							
Surrogate: O-Terphenyl	*4.19*		mg/kg wet	*5.000*		*84*	*50-150*			
LCS										
Total Petroleum Hydrocarbons	31.3	20.0	mg/kg wet	35.00		89	60-120			
Surrogate: O-Terphenyl	*4.58*		mg/kg wet	*5.000*		*92*	*50-150*			
LCS Dup										
Total Petroleum Hydrocarbons	29.9	20.0	mg/kg wet	35.00		85	60-120	5	30	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1405158

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
CT ETPH Extractable Total Petroleum Hydrocarbons										
Batch CE40908 - 3546										
Surrogate: O-Terphenyl	*4.29*		mg/kg wet	*5.000*		*86*	*50-150*			
Matrix Spike **Source: 1405158-01**										
Total Petroleum Hydrocarbons	450	37.5	mg/kg dry	65.70	467	NR	50-150			M-
Surrogate: O-Terphenyl	*7.35*		mg/kg dry	*9.386*		*78*	*50-150*			
Matrix Spike Dup **Source: 1405158-01**										
Total Petroleum Hydrocarbons	417	37.7	mg/kg dry	66.04	467	NR	50-150	8	30	M-
Surrogate: O-Terphenyl	*7.65*		mg/kg dry	*9.434*		*81*	*50-150*			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control ESS Laboratory Work Order: 1405158

Notes and Definitions

Z-08	See Attached
U	Analyte included in the analysis, but not detected
S+	Surrogate recovery(ies) above upper control limit (S+).
Q	Calibration required quadratic regression (Q).
M+	Matrix Spike recovery is above upper control limit (M+).
M-	Matrix Spike recovery is below lower control limit (M-).
ICV	Initial Calibration Verification recovery is outside of control limit (ICV).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
C+	Continuing Calibration recovery is above upper control limit (C+).
C-	Continuing Calibration recovery is below lower control limit (C-).
B-	Blank Spike recovery is below lower control limit (B-).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control

ESS Laboratory Work Order: 1405158

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)
A2LA Accredited: Testing Cert# 2864.01
http://www.a2la.org/scopepdf/2864-01.pdf

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)
http://www.A2LA.org/dirsearchnew/newsearch.cfm

CPSC ID# 1141
Lead Paint, Lead in Children's Metals Jewelry
http://www.cpsc.gov/cgi-bin/labapplist.aspx

LABORATORY TESTING DATA SHEET

Project Name Park River Flood Control
Project No. 15.0166354.01 **1405158**
Project Manager Nat Arai/Christine Taylor

Site Location Springfield, MA
Assigned By Nat Arai
Report Date 5/13/14

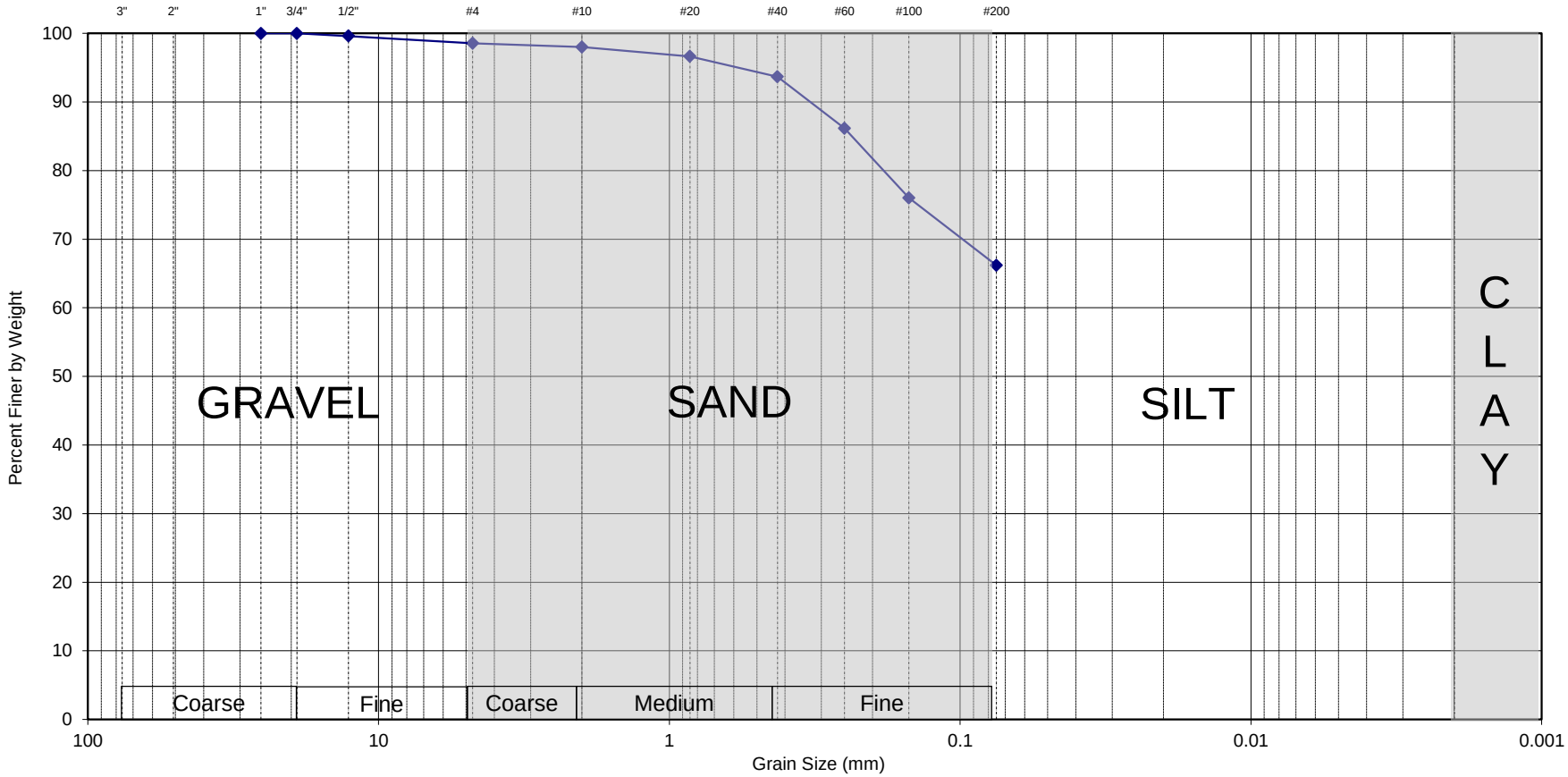
Reviewed By
Date Reviewed *5/13/14*

Client Sample ID	ESS Sample ID	Sample Date	Lab No.	Identification Tests								Strength Tests					Laboratory Log and Soil Description
				Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ psf	Strain %	
Piper C1	1405158-01	5/6/14	14-S-163				66.2										Brown SILT, some f-m Sand, trace Gravel
Ham C1	1405158-02	5/6/14	14-S-164				10.6										Brown f-m SAND, little Silt, trace Gravel
Ham C2	1405158-03	5/6/14	14-S-165				4.3										Brown f-c SAND, little f-c Gravel, trace Silt

THIELSCH ENGINEERING
195 Frances Avenue
Cranston, RI 02910
401-467-6454

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
1.4%	32.4%	66.2%

Lab #	ESS ID	Sample	Sample Date	Description	WC	LL	PL	PI
14-S-163	1405158-01	Piper C1	5/6/14	Brown SILT, some f-m Sand, trace Gravel				

Sieve Size	% Passing
¾"	100.0
½"	99.6
#4	98.6
#10	98.0
#20	96.6
#40	93.7
#60	86.2
#100	76.0
#200	66.2

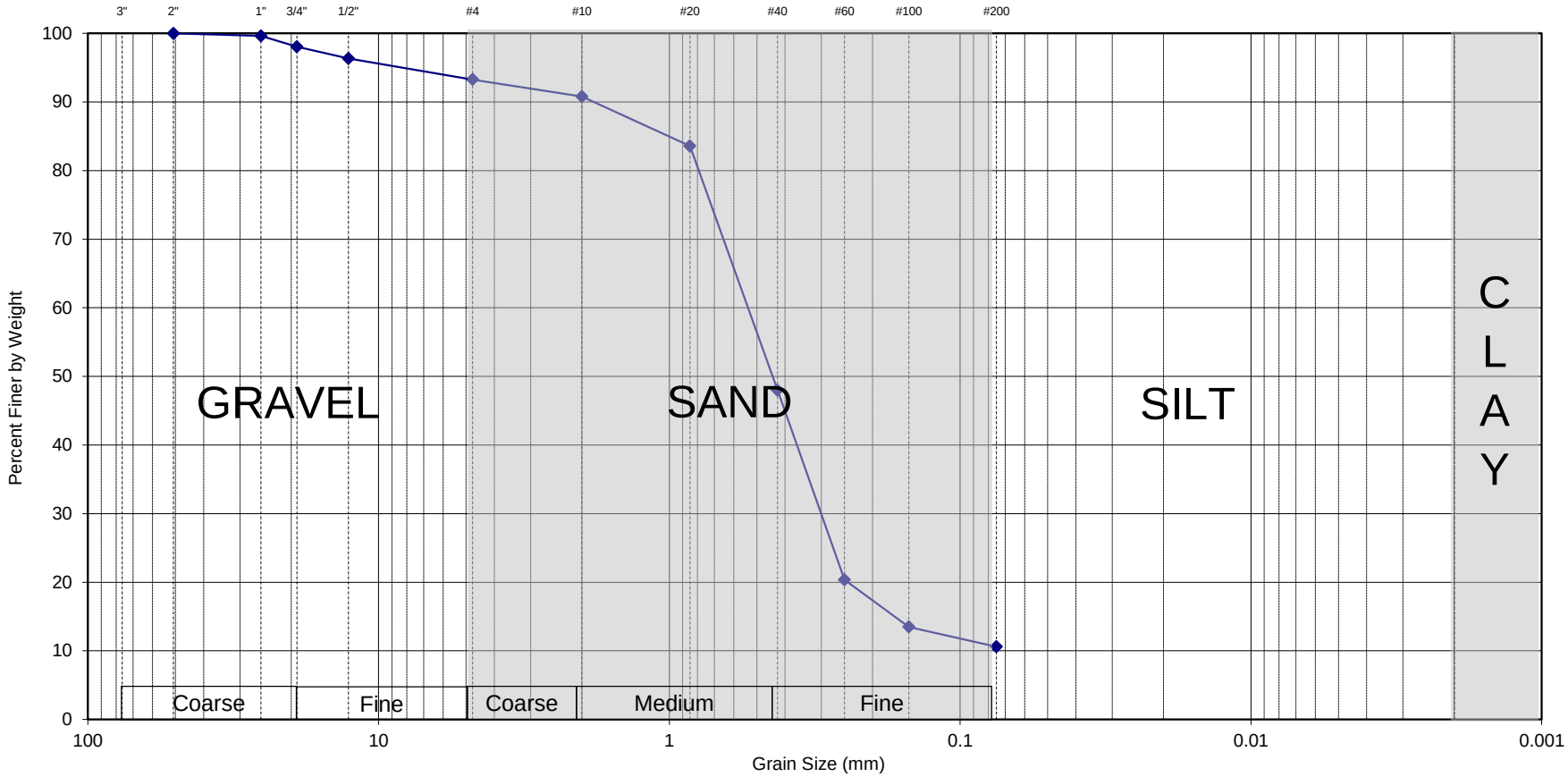
THIELSCH ENGINEERING
195 Frances Ave., Cranston, RI 02910
401-467-6454

ESS ID = 1405158
South Branch Park River Flood Control
Springfield, MA
Thielsch Project # 74-13-0002.01

Tested by: GG/AS Date: 5/13/14
Reviewed by: MBP Date: 5/13/14

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
6.7%	82.7%	10.6%

Lab #	ESS ID	Sample	Sample Date	Description	WC	LL	PL	PI
14-S-164	1405158-02	Ham C1	5/6/14	Brown f-m SAND, little Silt, trace Gravel				

Sieve Size	% Passing
¾"	98.0
½"	96.3
#4	93.3
#10	90.8
#20	83.6
#40	48.0
#60	20.4
#100	13.5
#200	10.6

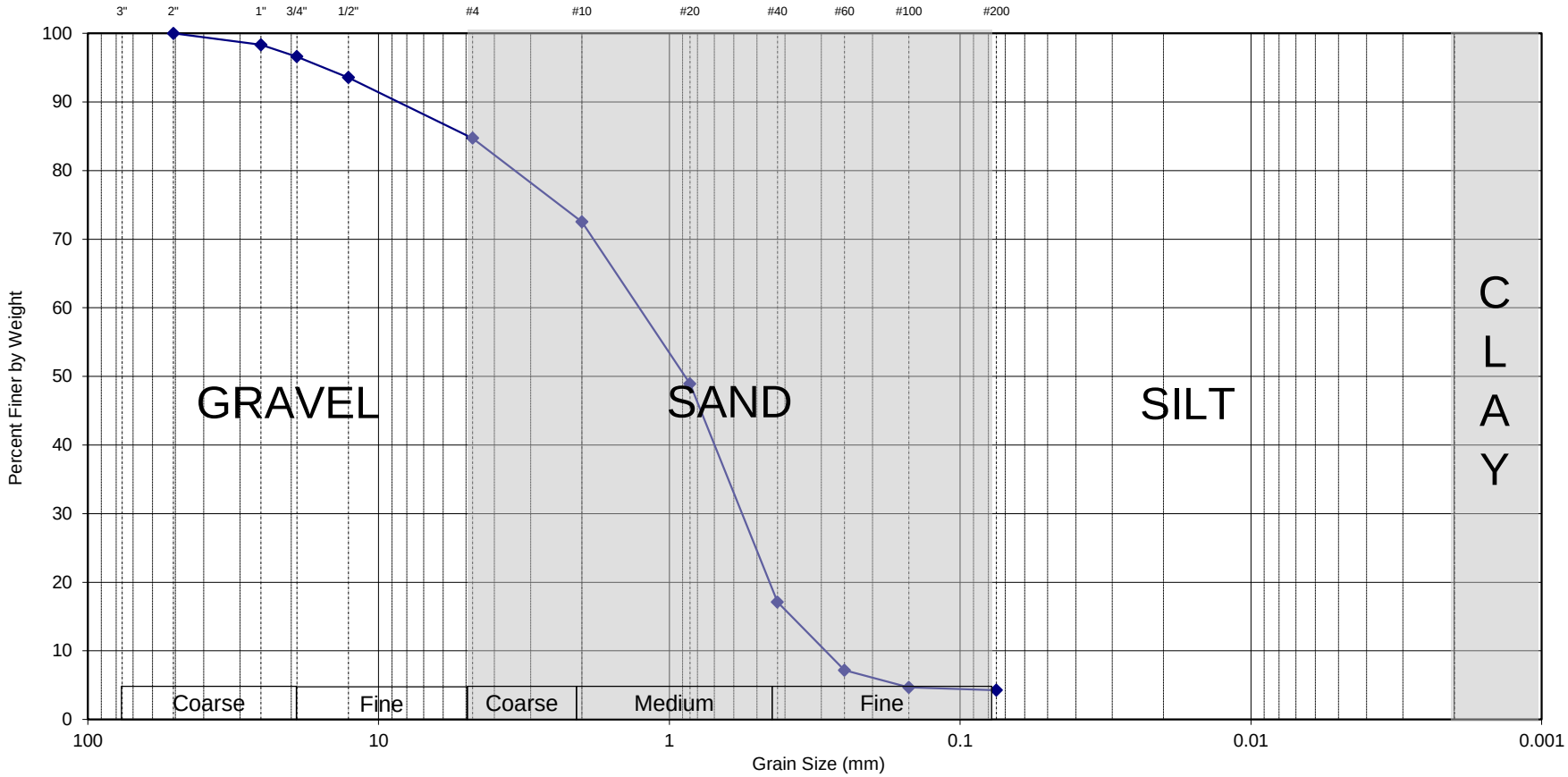
THIELSCH ENGINEERING
195 Frances Ave., Cranston, RI 02910
401-467-6454

ESS ID = 1405158
South Branch Park River Flood Control
Springfield, MA
Thielsch Project # 74-13-0002.01

Tested by: GG/AS Date: 5/13/14
Reviewed by: MBP Date: 5/13/14

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
15.3%	80.4%	4.3%

Lab #	ESS ID	Sample	Sample Date	Description	WC	LL	PL	PI
14-S-165	1405158-03	Ham C2	5/6/14	Brown f-c SAND, little f-c Gravel, trace Silt				

Sieve Size	% Passing
¾"	96.6
½"	93.6
#4	84.7
#10	72.5
#20	48.9
#40	17.1
#60	7.2
#100	4.7
#200	4.3

THIELSCH ENGINEERING
195 Frances Ave., Cranston, RI 02910
401-467-6454

ESS ID = 1405158
South Branch Park River Flood Control
Springfield, MA
Thielsch Project # 74-13-0002.01

Tested by: GG/AS Date: 5/13/14
Reviewed by: MBP Date: 5/13/14

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-22287-1
TestAmerica Sample Delivery Group: 200-22287
Client Project/Site: Soil Analysis

For:
ESS Laboratory
185 Frances Ave.
Cranston, Rhode Island 02910

Attn: Ms. Christine Taylor

Authorized for release by:
5/16/2014 12:17:59 PM

Kathryn Kelly, Project Manager I
(802)660-1990
kathryn.kelly@testamericainc.com

LINKS

Review your project results through TotalAccess

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Detection Summary 5
Client Sample Results 6
QC Sample Results 7
QC Association Summary 8
Lab Chronicle 9
Certification Summary 10
Method Summary 11
Sample Summary 12
Chain of Custody 13
Receipt Checklists 15

Definitions/Glossary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Qualifiers

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 200-22287-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ESS Laboratory

Project: Soil Analysis

Report Number: 200-22287-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 5/9/2014 10:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8º C.

TOTAL ORGANIC CARBON
Samples 1405158-01, 1405158-02, 1405158-03 and 1405158-04 were analyzed for total organic carbon in accordance with Lloyd Kahn Method. The samples were analyzed on 05/15/2014.

No difficulties were encountered during the TOC analysis.

All quality control parameters were within the acceptance limits.

PERCENT SOLIDS
Samples 1405158-01, 1405158-02, 1405158-03 and 1405158-04 were analyzed for percent solids in accordance with EPA Moisture. The samples were analyzed on 05/12/2014.

No difficulties were encountered during the % solids analysis.

All quality control parameters were within the acceptance limits.

Detection Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Client Sample ID: 1405158-01 — Lab Sample ID: 200-22287-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	29700		1000	1000	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: 1405158-02 — Lab Sample ID: 200-22287-2

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	13600		1000	1000	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: 1405158-03 — Lab Sample ID: 200-22287-3

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	13600		1000	1000	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: 1405158-04 — Lab Sample ID: 200-22287-4

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	6220		1000	1000	mg/Kg	1		Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Client Sample ID: 1405158-01

Lab Sample ID: 200-22287-1
Date Collected: 05/06/14 14:00
Matrix: Sediment
Date Received: 05/09/14 10:25
Percent Solids: 49.2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	29700		1000	1000	mg/Kg			05/15/14 18:28	1
Percent Solids	49.2		0.25	0.25	%			05/12/14 18:00	1

Client Sample ID: 1405158-02

Lab Sample ID: 200-22287-2
Date Collected: 05/06/14 16:30
Matrix: Sediment
Date Received: 05/09/14 10:25
Percent Solids: 58.6

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	13600		1000	1000	mg/Kg			05/15/14 18:47	1
Percent Solids	58.6		0.25	0.25	%			05/12/14 18:00	1

Client Sample ID: 1405158-03

Lab Sample ID: 200-22287-3
Date Collected: 05/06/14 16:30
Matrix: Sediment
Date Received: 05/09/14 10:25
Percent Solids: 68.3

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	13600		1000	1000	mg/Kg			05/15/14 18:53	1
Percent Solids	68.3		0.25	0.25	%			05/12/14 18:00	1

Client Sample ID: 1405158-04

Lab Sample ID: 200-22287-4
Date Collected: 05/06/14 16:30
Matrix: Sediment
Date Received: 05/09/14 10:25
Percent Solids: 85.1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	6220		1000	1000	mg/Kg			05/15/14 19:00	1
Percent Solids	85.1		0.25	0.25	%			05/12/14 18:00	1

QC Sample Results

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 200-72201/5 — **Client Sample ID: Method Blank**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 72201

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1000	U	1000	1000	mg/Kg			05/15/14 17:44	1

Lab Sample ID: LCS 200-72201/6 — **Client Sample ID: Lab Control Sample**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 72201

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20100	20040		mg/Kg		100	75 - 125		

Lab Sample ID: 200-22287-1 MS — **Client Sample ID: 1405158-01**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 72201

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	29700		32700	62640		mg/Kg		101	75 - 125		

Lab Sample ID: 200-22287-1 DU — **Client Sample ID: 1405158-01**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 72201

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	29700			31680		mg/Kg				6	20

Method: Moisture - Percent Moisture

Lab Sample ID: 200-22287-1 DU — **Client Sample ID: 1405158-01**
Matrix: Sediment — **Prep Type: Total/NA**
Analysis Batch: 72054

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	49.2			51.6		%				5	20

QC Association Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

General Chemistry

Analysis Batch: 72054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-22287-1	1405158-01	Total/NA	Sediment	Moisture	
200-22287-1 DU	1405158-01	Total/NA	Sediment	Moisture	
200-22287-2	1405158-02	Total/NA	Sediment	Moisture	
200-22287-3	1405158-03	Total/NA	Sediment	Moisture	
200-22287-4	1405158-04	Total/NA	Sediment	Moisture	

Analysis Batch: 72201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-22287-1	1405158-01	Total/NA	Sediment	Lloyd Kahn	
200-22287-1 DU	1405158-01	Total/NA	Sediment	Lloyd Kahn	
200-22287-1 MS	1405158-01	Total/NA	Sediment	Lloyd Kahn	
200-22287-2	1405158-02	Total/NA	Sediment	Lloyd Kahn	
200-22287-3	1405158-03	Total/NA	Sediment	Lloyd Kahn	
200-22287-4	1405158-04	Total/NA	Sediment	Lloyd Kahn	
LCS 200-72201/6	Lab Control Sample	Total/NA	Sediment	Lloyd Kahn	
MB 200-72201/5	Method Blank	Total/NA	Sediment	Lloyd Kahn	

Lab Chronicle

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Client Sample ID: 1405158-01 — Lab Sample ID: 200-22287-1

Date Collected: 05/06/14 14:00 — **Matrix: Sediment**
Date Received: 05/09/14 10:25 — **Percent Solids: 49.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	72201	05/15/14 18:28	VTP	TAL BUR
Total/NA	Analysis	Moisture		1	72054	05/12/14 18:00	VTP	TAL BUR

Client Sample ID: 1405158-02 — Lab Sample ID: 200-22287-2

Date Collected: 05/06/14 16:30 — **Matrix: Sediment**
Date Received: 05/09/14 10:25 — **Percent Solids: 58.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	72201	05/15/14 18:47	VTP	TAL BUR
Total/NA	Analysis	Moisture		1	72054	05/12/14 18:00	VTP	TAL BUR

Client Sample ID: 1405158-03 — Lab Sample ID: 200-22287-3

Date Collected: 05/06/14 16:30 — **Matrix: Sediment**
Date Received: 05/09/14 10:25 — **Percent Solids: 68.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	72201	05/15/14 18:53	VTP	TAL BUR
Total/NA	Analysis	Moisture		1	72054	05/12/14 18:00	VTP	TAL BUR

Client Sample ID: 1405158-04 — Lab Sample ID: 200-22287-4

Date Collected: 05/06/14 16:30 — **Matrix: Sediment**
Date Received: 05/09/14 10:25 — **Percent Solids: 85.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	72201	05/15/14 19:00	VTP	TAL BUR
Total/NA	Analysis	Moisture		1	72054	05/12/14 18:00	VTP	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Certification Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-15
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-13-15
Florida	NELAP	4	E87467	06-30-14 *
L-A-B	DoD ELAP		L2336	02-26-17
Louisiana	NELAP	6	176292	06-30-14
Maine	State Program	1	VT00008	04-17-15
Minnesota	NELAP	5	050-999-436	12-31-14
New Hampshire	NELAP	1	2006	12-18-14
New Jersey	NELAP	2	VT972	06-30-14 *
New York	NELAP	2	10391	03-31-15
Pennsylvania	NELAP	3	68-00489	04-30-15
Rhode Island	State Program	1	LAO00298	12-30-14
US Fish & Wildlife	Federal		LE-058448-0	02-28-15
USDA	Federal		P330-11-00093	10-28-16
Vermont	State Program	1	VT-4000	12-31-14
Virginia	NELAP	3	460209	12-14-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Method	Method Description	Protocol	Laboratory
Lloyd Kahn	Organic Carbon, Total (TOC)	EPA	TAL BUR
Moisture	Percent Moisture	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22287-1
SDG: 200-22287

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-22287-1	1405158-01	Sediment	05/06/14 14:00	05/09/14 10:25
200-22287-2	1405158-02	Sediment	05/06/14 16:30	05/09/14 10:25
200-22287-3	1405158-03	Sediment	05/06/14 16:30	05/09/14 10:25
200-22287-4	1405158-04	Sediment	05/06/14 16:30	05/09/14 10:25

ESS Laboratory

TA Burlington

CHAIN OF CUSTODY

Division of Thielsch Engineering, Inc.

185 Frances Avenue,Cranston RI 02910-2211
Tel. (401)461-7181 Fax (401)461-4486
www.esslaboratory.com

ESS Lab #

Turn Time ___5-day___ Standard Other_____

Regulatory State: MA RI **CT** NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
MA-MCP Navy USACE CT DEP Other_____

Reporting Limits - ___CT RSRS___

Electonic Deliverables Excel Access **PDF**

Co. Name **ESS Laboratory**	Project #	Project Name	
Contact Person **Christine Taylor**	Proj. Location		
Address	City , State	Zip	PO # 1405158
Tel. ext 3039	email: ctaylor@thielsch.com	email: smorrell@thielsch.com	

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	TOC Lloyd Khan *	MS/MSD
	5-6-14	**1400**	**C**	**S**	**1405158-01**	**1**	**3**	**G**	2 oz	**X**	X
	5-6-14	**1630**	**C**	**S**	**1405158-02**	**1**	**1**	**G**	2 oz	**x**	
	5-6-14	1630	**C**	**S**	**1405158-03**	1	1	**G**	2 oz	**x**	
	5-6-14	1630	**C**	**S**	**1405158-04**	1	1	**G**	2 oz	**x**	

Analysis

200-22287 Chain of Custody

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface W

Cooler Present _____Yes _____No

Seals Intact ____ Yes _____No NA:____

Cooler Temperature: _____

Internal Use Only

[ ] Pickup

[ ] Technician____

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by :

Comments: *** single burn** **Due 5-14-14**

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
5/8/14 1700	Fed ex 5/8/14		
	TA Bur 5/9/14 1025		

* By circling MA-MCP, client acknowledges sampels were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

Report Method Blank & Laboratory Control Sample Results

From: (401) 467-6454
Sample Receiving
ESS Lab
185 Frances Ave

Cranston, RI 02910

Origin ID: PVDA

FedEx Express

J14101402070326

Ship Date: 08MAY14
ActWgt: 16.0 LB
CAD: 105103550/INET3490

Delivery Address Bar Code

Ref #
Invoice #
PO #
Dept #

SHIP TO: (802) 660-1990 BILL RECIPIENT

Sample Receiving
Test America
30 Community Dr
Ste 11
S BURLINGTON, VT 05403

FRI - 09 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 7987 9961 1224
0201

EK BTVA

05403
VT-US
BTV

522G1/62D3/F220

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Login Sample Receipt Checklist

Client: ESS Laboratory

Job Number: 200-22287-1
SDG Number: 200-22287

Login Number: 22287
List Number: 1
Creator: Gagne, Eric M

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	NO SEALS
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.8ºC. IR GUN ID 181. CF = 0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: ESS Courier

ESS Project ID: 14050158
Date Project Due: 5/14/14
Days For Project: 5 Day

Items to be checked upon receipt:

1. Air Bill Manifest Present? *** No**
   Air No.:
2. Were Custody Seals Present? **No**
3. Were Custody Seals Intact? **N/A**
4. Is Radiation count < 100 CPM? **Yes**
5. Is a cooler present? **Yes**
   Cooler Temp: **1.9**
   Iced With: **Ice**
6. Was COC included with samples? **Yes**
7. Was COC signed and dated by client? **Yes**
8. Does the COC match the sample **Yes**
9. Is COC complete and correct? **Yes**
10. Are the samples properly preserved? **Yes**
11. Proper sample containers used? **Yes**
12. Any air bubbles in the VOA vials? **N/A**
13. Holding times exceeded? **No**
14. Sufficient sample volumes? **Yes**
15. Any Subcontracting needed? *** Yes**
16. Are ESS labels on correct containers? **Yes** | **No**
17. Were samples received intact? **Yes** | **No**

ESS Sample IDs: -01, -02, -03, -04
Sub Lab: CTS, TA - Burlington
Analysis: Grain Size, TOC
TAT: Std

18. Was there need to call project manager to discuss status? If yes, please explain.
MS/MSD on sample #1 per Adam Cote. mkm 05/08/14 0951

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	2 oz Soil Jar	3	NP
1	Yes	8 oz Soil Jar	6	NP
1	Yes	Plastic Bag	1	NP
2	Yes	2 oz Soil Jar	1	NP
2	Yes	8 oz Soil Jar	2	NP
2	Yes	Plastic Bag	1	NP
3	Yes	2 oz Soil Jar	1	NP
3	Yes	8 oz Soil Jar	2	NP
4	Yes	2 oz Soil Jar	1	NP
4	Yes	8 oz Soil Jar	2	NP
4	Yes	Plastic Bag	1	NP

Completed By: [signature] Date/Time: 5/7/14 1804
Reviewed By: [signature] Date/Time: 5/7/14 2150

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time ✓ Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____

State where samples were collected from:
MA RI (CT) NH NJ NY ME Other _____

Is this project for any of the following:
MA-MCP Navy USACE Other _____

Reporting Limits: CT RSRs

ESS LAB PROJECT ID: 1405158

Electronic Deliverable: Yes ✓ No ___

Format: Excel ✓ Access ___ PDF ✓ Other _____

Co. Name	Project #	Project Name (20 Char. or less)
GZA GeoEnvironmental, Inc	15.0166354.01	Park River Flood Control

Contact Person	Address
Nat Arai	1350 Main Street

City	State	Zip	PO#
Springfield	MA	01103	

Telephone #	Fax #	Email Address
(413) 726-2100		adam.cote@gza.com

Write Required Analysis

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	SVOCs	PCBs	CT EPH	RSR 15 Metals	Grain Size	TOC	MS/MSD
1	5.6.14	1400	X		S	Piper C1	9	6	G	X	X	X	X			X
1	5.6.14	1400	X		S	Piper C1	9	3	G						X	
1	5.6.14	1400	X		S	Piper C1	9	1	bag					X		
2	5.6.14	1630	X		S	Hamilton C1	9	3	G	X	X	X	X		X	
2	5.6.14	1630	X		S	Hamilton C1	9	1	bag					X		
3	5.6.14	1650	X		S	Duplicate	9	3	G	X	X	X	X		X	
4	5.6.14	1630	X		S	Hamilton C2	9	3	G	X	X	X	X		X	
4	5.6.14	1630	X		S	Hamilton C2	9	1	bag					X		

Container Type: P-Poly G-Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ✓ Yes ___ No

Internal Use Only

Seals Intact ___ Yes ___ No NA: ✓

[✓] Pickup

Cooler Temp: 1.9°C

[ ] Technicians _____

Bag 2 RB 5/7/14 1630

Preservation Code 1- NP, 2- HCl, 3- H_2SO_4, 4- HNO_3, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- None

Sampled by: Kasie Collins, Justin Ryan, Adam Cote

Comments: PER ADAM COTE, sample #1 has ms/msd mkm 05/08/14 0951

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	5/7/14 1945	GZA Sample Fridge		GZA Fridge	5/7/14 1155	[signature]	5/7/14 1155
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	5/7/14 1630	[signature]	5/7/14 1738				

*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

10/26/04 A

CERTIFICATE OF ANALYSIS

Nathanial Arai
GZA GeoEnvironmental, Inc.
1350 Main Street, Suite 1400
Springfield, MA 01103

RE: South Branch Park River Flood Control (15.0166354.01)
ESS Laboratory Work Order Number: 1406126

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:22 pm, Jun 13, 2014

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

Subcontracted Analyses

CTS - Cranston, RI	Grain Size Analysis
TestAmerica Laboratories, Inc. - Burlington, VT	Total Organic Carbon

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control

ESS Laboratory Work Order: 1406126

SAMPLE RECEIPT

The following samples were received on June 05, 2014 for the analyses specified on the enclosed Chain of Custody Record.

To achieve Reasonable Confidence Protocols (RCP) compliance for Connecticut data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All RCP requirements have been achieved unless noted in the project narrative.

Question 5: **Each method has been set-up in the laboratory to reach required RCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes (ie for GWPC samples, 1,2-Dibromoethane regulatory levels will not be met by VOA 8260. If this is a contaminant of concern Method 8011 will need to be used.). The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.**

Lab Number	Sample Name	Matrix	Analysis
1406126-01	Mill Pond 1	Sediment	§, 6010B, 7471A, 7740, 7841, 8082, 8270C, CT ETPH, TOC-LK

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control ESS Laboratory Work Order: 1406126

PROJECT NARRATIVE

8270C Semi-Volatile Organic Compounds

CXF0075-CCV1 **Initial Calibration Verification recovery is outside of control limit (ICV).**
2-Methylphenol

CXF0102-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (85% @ 70-130%), Pentachlorophenol (87% @ 80-120%)

CXF0102-CCV1 **Continuing Calibration recovery is above upper control limit (C+).**
Di-n-octylphthalate (125% @ 80-120%)

CXF0102-CCV1 **Initial Calibration Verification recovery is outside of control limit (ICV).**
Hexachlorocyclopentadiene

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control

ESS Laboratory Work Order: 1406126

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control ESS Laboratory Work Order: 1406126

Laboratory Analysis
QA/QC Certification Form

Project Number: **15.0166354.01**
Sampling Date(s): **6/3/2014**
Laboratory Sample ID(s): **1406126-01**

List RCP Methods Used	(X) 8260B	( ) 8151A	(X) ETPH	(X) 6010B	(X) 7470A/1A
Other: _____	(X) 8270C	( ) 8081A	( ) VPH	( ) 6020	( ) 9014M
_____	(X) 8082	( ) 8021B	( ) EPH	(X) 7000 S	( ) 7196A

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria failing outside of acceptable guidelines, as specified in the CTDEP method-specific Reasonable Confidence Protocol documents?	Yes (X) No ( )
1A	Were the method specified preservation and holding time requirements met?	Yes (X) No ( )
1B	***VPH and EPH Methods only:*** Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective RCP methods)?	Yes ( ) No ( ) N/A (X)
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	Yes (X) No ( )
3	Were samples received at an appropriate temperature (<6º Cº)?	Yes (X) No ( ) N/A ( )
4	Were all QA/QC performance criteria specified in the CTDEP Reasonable Confidence Protocol documents achieved?	Yes ( ) No (X)
5	a) Were reporting limits specified or referenced on the chain-of-custody? b) Were these reporting limits met?	Yes (X) No ( ) Yes (X) No ( )
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	Yes ( ) No (X)
7	Are project-specific matrix spikes and laboratory duplicates included in this data set?	Yes ( ) No (X)

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or #1B is "No", the data package does not meet the requirements for "Reasonable Confidence." This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Laurel Stoddard Position: Laboratory Director

Printed Name: Laurel Stoddard Date: June 13, 2014

Name of Laboratory: ESS Laboratory

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Mill Pond 1
Date Sampled: 06/03/14 14:00
Percent Solids: 36

ESS Laboratory Work Order: 1406126
ESS Laboratory Sample ID: 1406126-01
Sample Matrix: Sediment
Units: mg/kg dry

Extraction Method: 3050B

Total Metals Solid

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (9.5)		6010B		1	KJK	06/12/14 0:51	2.95	100	CF40603
Arsenic	**13.5** (4.7)		6010B		1	KJK	06/12/14 0:51	2.95	100	CF40603
Barium	**208** (4.7)		6010B		1	KJK	06/11/14 12:24	2.95	100	CF40603
Beryllium	**0.44** (0.20)		6010B		1	KJK	06/11/14 12:24	2.95	100	CF40603
Cadmium	**1.07** (0.95)		6010B		1	KJK	06/11/14 12:24	2.95	100	CF40603
Chromium	**58.1** (1.9)		6010B		1	KJK	06/11/14 12:24	2.95	100	CF40603
Copper	**61.1** (4.7)		6010B		1	KJK	06/11/14 12:24	2.95	100	CF40603
Lead	**87.4** (9.5)		6010B		1	KJK	06/12/14 0:51	2.95	100	CF40603
Mercury	**0.163** (0.073)		7471A		1	NAR	06/09/14 15:40	0.76	40	CF40604
Nickel	**25.0** (4.7)		6010B		1	KJK	06/11/14 12:24	2.95	100	CF40603
Selenium	ND (4.75)		7740		5	KJK	06/11/14 17:52	2.95	100	CF40603
Silver	ND (0.95)		6010B		1	KJK	06/11/14 12:24	2.95	100	CF40603
Thallium	ND (2.34)		7841		5	KJK	06/11/14 3:35	2.95	100	CF40603
Vanadium	**39.2** (1.9)		6010B		1	ICP	06/12/14 0:51	2.95	100	CF40603
Zinc	**180** (4.7)		6010B		1	KJK	06/12/14 0:51	2.95	100	CF40603

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Mill Pond 1
Date Sampled: 06/03/14 14:00
Percent Solids: 36
Initial Volume: 30.4
Final Volume: 10
Extraction Method: 3540

ESS Laboratory Work Order: 1406126
ESS Laboratory Sample ID: 1406126-01
Sample Matrix: Sediment
Units: mg/kg dry
Analyst: TAJ
Prepared: 6/6/14 18:40

8082 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1221	ND (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1232	ND (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1242	ND (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1248	ND (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1254	**0.112** (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1260	ND (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1262	ND (0.0918)		8082		1	06/10/14 18:14		CF41143
Aroclor 1268	ND (0.0918)		8082		1	06/10/14 18:14		CF41143

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*102 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Mill Pond 1
Date Sampled: 06/03/14 14:00
Percent Solids: 36
Initial Volume: 30.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1406126
ESS Laboratory Sample ID: 1406126-01
Sample Matrix: Sediment
Units: mg/kg dry
Analyst: IBM
Prepared: 6/6/14 12:07

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4,5-Tetrachlorobenzene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
1,2,4-Trichlorobenzene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2,4,5-Trichlorophenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2,4,6-Trichlorophenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2,4-Dichlorophenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2,4-Dimethylphenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2,4-Dinitrophenol	ND (4.61)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2,4-Dinitrotoluene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2,6-Dinitrotoluene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2-Chloronaphthalene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2-Chlorophenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2-Methylnaphthalene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2-Methylphenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2-Nitroaniline	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
2-Nitrophenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
3,3´-Dichlorobenzidine	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
3+4-Methylphenol	ND (1.84)		8270C		1	06/07/14 0:32	CXF0075	CF40939
3-Nitroaniline	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
4,6-Dinitro-2-Methylphenol	ND (4.61)		8270C		1	06/07/14 0:32	CXF0075	CF40939
4-Bromophenyl-phenylether	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
4-Chloro-3-Methylphenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
4-Chloroaniline	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
4-Chloro-phenyl-phenyl ether	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
4-Nitroaniline	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
4-Nitrophenol	ND (4.61)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Acenaphthene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Acenaphthylene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Aniline	ND (1.84)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Anthracene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Benzo(a)anthracene	**1.70** (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Benzo(a)pyrene	**2.18** (0.461)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Benzo(b)fluoranthene	**3.78** (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Mill Pond 1
Date Sampled: 06/03/14 14:00
Percent Solids: 36
Initial Volume: 30.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1406126
ESS Laboratory Sample ID: 1406126-01
Sample Matrix: Sediment
Units: mg/kg dry
Analyst: IBM
Prepared: 6/6/14 12:07

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Benzo(g,h,i)perylene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Benzo(k)fluoranthene	**1.70** (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
bis(2-Chloroethoxy)methane	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
bis(2-Chloroethyl)ether	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
bis(2-chloroisopropyl)Ether	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
bis(2-Ethylhexyl)phthalate	**1.99** (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Butylbenzylphthalate	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Carbazole	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Chrysene	**2.47** (0.461)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Dibenzo(a,h)Anthracene	ND (0.461)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Dibenzofuran	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Diethylphthalate	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Dimethylphthalate	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Di-n-butylphthalate	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Di-n-octylphthalate	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Fluoranthene	**4.40** (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Fluorene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Hexachlorobenzene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Hexachlorobutadiene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Hexachlorocyclopentadiene	ND (1.38)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Hexachloroethane	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Indeno(1,2,3-cd)Pyrene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Isophorone	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Naphthalene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Nitrobenzene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
N-Nitroso-Di-n-Propylamine	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
N-nitrosodiphenylamine	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Pentachloronitrobenzene	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Pentachlorophenol	ND (1.38)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Phenanthrene	**1.72** (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Phenol	ND (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939
Pyrene	**4.41** (0.920)		8270C		1	06/07/14 0:32	CXF0075	CF40939

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Mill Pond 1
Date Sampled: 06/03/14 14:00
Percent Solids: 36
Initial Volume: 30.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1406126
ESS Laboratory Sample ID: 1406126-01
Sample Matrix: Sediment
Units: mg/kg dry
Analyst: IBM
Prepared: 6/6/14 12:07

8270C Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Pyridine	ND (4.61)		8270C		1	06/07/14 0:32	CXF0075	CF40939

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*52 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*88 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*61 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*73 %*		*30-130*
Surrogate: 2-Fluorophenol	*50 %*		*30-130*
Surrogate: Nitrobenzene-d5	*60 %*		*30-130*
Surrogate: Phenol-d6	*61 %*		*30-130*
Surrogate: p-Terphenyl-d14	*113 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Mill Pond 1
Date Sampled: 06/03/14 14:00

ESS Laboratory Work Order: 1406126
ESS Laboratory Sample ID: 1406126-01
Sample Matrix: Sediment

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Grain Size	**See Attached** (N/A)								
Total Organic Carbon	**41000** (1000)		TOC-LK		1	SUB	06/10/14 1:06	mg/kg	CF41335

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
Client Sample ID: Mill Pond 1
Date Sampled: 06/03/14 14:00
Percent Solids: 36
Initial Volume: 20.4
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1406126
ESS Laboratory Sample ID: 1406126-01
Sample Matrix: Sediment
Units: mg/kg dry
Analyst: ML
Prepared: 6/6/14 12:07

CT ETPH Extractable Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**1620** (54.7)		CT ETPH		1	ML	06/06/14 22:59	CXF0108	CF40510

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*76 %*		*50-150*

CCV EVALUATION FOR COMPLIANCE WITH CT ETPH LIMITS

Data File Name G2F32807.D
Data File Path Q:\SVOA\GC2_G2\DATA\060614\
Date Acquired 6/6/2014 14:34
Sample Name TPH 50
Misc Info

Name	Target Response	Target RF 50	Target RF 100	20%< 50%
C9	673547	13471	6735	
C10	640759	12815	6408	
C12	630234	12605	6302	
C14	653369	13067	6534	
C16	695855	13917	6959	
C18	715810	14316	7158	
C19	725331	14507	7253	
C20	708544	14171	7085	
C22	725700	14514	7257	
C24	729018	14580	7290	
C26	741490	14830	7415	
C28	750294	15006	7503	
C30	754257	15085	7543	
C36	753157	15063	7532	
Average		14139	7070	
AVG-20%		11311	5656	
AVG+20%		16967	8483	
AVG-50%		7070	3535	
AVG+50%		21209	10604	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals Solid										
Batch CF40603 - 3050B										
Blank										
Antimony	ND	5.0	mg/kg wet							
Arsenic	ND	2.5	mg/kg wet							
Barium	ND	2.5	mg/kg wet							
Beryllium	ND	0.10	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.0	mg/kg wet							
Copper	ND	2.5	mg/kg wet							
Lead	ND	5.0	mg/kg wet							
Nickel	ND	2.5	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	0.25	mg/kg wet							
Vanadium	ND	1.0	mg/kg wet							
Zinc	ND	2.5	mg/kg wet							
LCS										
Antimony	70.3	16.1	mg/kg wet	74.00		95	80-120			
Arsenic	83.2	8.1	mg/kg wet	89.30		93	80-120			
Barium	320	8.1	mg/kg wet	345.0		93	80-120			
Beryllium	68.9	0.34	mg/kg wet	73.00		94	80-120			
Cadmium	60.6	1.62	mg/kg wet	63.90		95	80-120			
Chromium	116	3.2	mg/kg wet	127.0		91	80-120			
Copper	100	8.1	mg/kg wet	102.0		98	80-120			
Lead	166	16.1	mg/kg wet	176.0		94	80-120			
Nickel	89.5	8.1	mg/kg wet	92.90		96	80-120			
Selenium	134	81.0	mg/kg wet	124.0		108	80-120			
Silver	47.2	1.62	mg/kg wet	48.90		97	80-120			
Thallium	170	39.9	mg/kg wet	169.0		101	80-120			
Vanadium	79.1	3.2	mg/kg wet	88.70		89	80-120			
Zinc	192	8.1	mg/kg wet	219.0		87	80-120			
LCS Dup										
Antimony	67.8	15.2	mg/kg wet	74.00		92	80-120	4	20	
Arsenic	81.9	7.6	mg/kg wet	89.30		92	80-120	2	20	
Barium	317	7.6	mg/kg wet	345.0		92	80-120	0.9	20	
Beryllium	68.0	0.32	mg/kg wet	73.00		93	80-120	1	20	
Cadmium	57.6	1.52	mg/kg wet	63.90		90	80-120	5	20	
Chromium	114	3.0	mg/kg wet	127.0		89	80-120	2	20	
Copper	97.5	7.6	mg/kg wet	102.0		96	80-120	3	20	
Lead	159	15.2	mg/kg wet	176.0		90	80-120	4	20	
Nickel	88.5	7.6	mg/kg wet	92.90		95	80-120	1	20	
Selenium	144	76.1	mg/kg wet	124.0		116	80-120	7	20	
Silver	46.6	1.52	mg/kg wet	48.90		95	80-120	1	20	
Thallium	175	37.5	mg/kg wet	169.0		104	80-120	3	20	
Vanadium	78.6	3.0	mg/kg wet	88.70		89	80-120	0.6	20	
Zinc	190	7.6	mg/kg wet	219.0		87	80-120	1	20	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals Solid										
Batch CF40604 - 7471A										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	11.4	1.60	mg/kg wet	10.40		110	80-120			
LCS Dup										
Mercury	11.2	1.46	mg/kg wet	10.40		108	80-120	2	20	
8082 Polychlorinated Biphenyls (PCB)										
Batch CF41143 - 3540										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1016 (1)	ND	0.0500	mg/kg wet							
Aroclor 1016 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (2)	ND	0.0500	mg/kg wet							
Aroclor 1016 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (3)	ND	0.0500	mg/kg wet							
Aroclor 1016 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (4)	ND	0.0500	mg/kg wet							
Aroclor 1016 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1016 (5)	ND	0.0500	mg/kg wet							
Aroclor 1016 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1221 (1)	ND	0.0500	mg/kg wet							
Aroclor 1221 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (2)	ND	0.0500	mg/kg wet							
Aroclor 1221 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (3)	ND	0.0500	mg/kg wet							
Aroclor 1221 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (4)	ND	0.0500	mg/kg wet							
Aroclor 1221 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1221 (5)	ND	0.0500	mg/kg wet							
Aroclor 1221 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1232 (1)	ND	0.0500	mg/kg wet							
Aroclor 1232 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (2)	ND	0.0500	mg/kg wet							
Aroclor 1232 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (3)	ND	0.0500	mg/kg wet							
Aroclor 1232 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (4)	ND	0.0500	mg/kg wet							
Aroclor 1232 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1232 (5)	ND	0.0500	mg/kg wet							
Aroclor 1232 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CF41143 - 3540										
Aroclor 1242 (1)	ND	0.0500	mg/kg wet							
Aroclor 1242 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (2)	ND	0.0500	mg/kg wet							
Aroclor 1242 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (3)	ND	0.0500	mg/kg wet							
Aroclor 1242 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (4)	ND	0.0500	mg/kg wet							
Aroclor 1242 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1242 (5)	ND	0.0500	mg/kg wet							
Aroclor 1242 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1248 (1)	ND	0.0500	mg/kg wet							
Aroclor 1248 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (2)	ND	0.0500	mg/kg wet							
Aroclor 1248 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (3)	ND	0.0500	mg/kg wet							
Aroclor 1248 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (4)	ND	0.0500	mg/kg wet							
Aroclor 1248 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1248 (5)	ND	0.0500	mg/kg wet							
Aroclor 1248 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1254 (1)	ND	0.0500	mg/kg wet							
Aroclor 1254 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (2)	ND	0.0500	mg/kg wet							
Aroclor 1254 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (3)	ND	0.0500	mg/kg wet							
Aroclor 1254 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (4)	ND	0.0500	mg/kg wet							
Aroclor 1254 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1254 (5)	ND	0.0500	mg/kg wet							
Aroclor 1254 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1260 (1)	ND	0.0500	mg/kg wet							
Aroclor 1260 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (2)	ND	0.0500	mg/kg wet							
Aroclor 1260 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (3)	ND	0.0500	mg/kg wet							
Aroclor 1260 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (4)	ND	0.0500	mg/kg wet							
Aroclor 1260 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1260 (5)	ND	0.0500	mg/kg wet							
Aroclor 1260 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1262 (1)	ND	0.0500	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082 Polychlorinated Biphenyls (PCB)										
Batch CF41143 - 3540										
Aroclor 1262 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (2)	ND	0.0500	mg/kg wet							
Aroclor 1262 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (3)	ND	0.0500	mg/kg wet							
Aroclor 1262 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (4)	ND	0.0500	mg/kg wet							
Aroclor 1262 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1262 (5)	ND	0.0500	mg/kg wet							
Aroclor 1262 (5) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Aroclor 1268 (1)	ND	0.0500	mg/kg wet							
Aroclor 1268 (1) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (2)	ND	0.0500	mg/kg wet							
Aroclor 1268 (2) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (3)	ND	0.0500	mg/kg wet							
Aroclor 1268 (3) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (4)	ND	0.0500	mg/kg wet							
Aroclor 1268 (4) [2C]	ND	0.0500	mg/kg wet							
Aroclor 1268 (5)	ND	0.0500	mg/kg wet							
Aroclor 1268 (5) [2C]	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0234*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
LCS										
Aroclor 1016	0.484	0.0500	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.451	0.0500	mg/kg wet	0.5000		90	40-140			
Surrogate: Decachlorobiphenyl	*0.0249*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0212*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0263*		mg/kg wet	*0.02500*		*105*	*30-150*			
LCS Dup										
Aroclor 1016	0.487	0.0500	mg/kg wet	0.5000		97	40-140	0.6	50	
Aroclor 1260	0.475	0.0500	mg/kg wet	0.5000		95	40-140	5	50	
Surrogate: Decachlorobiphenyl	*0.0264*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0262*		mg/kg wet	*0.02500*		*105*	*30-150*			
8270C Semi-Volatile Organic Compounds										
Batch CF40939 - 3546										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CF40939 - 3546										
1,2,4,5-Tetrachlorobenzene	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.333	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
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ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CF40939 - 3546										
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	0.500	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachloronitrobenzene	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.500	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.62*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.61*		mg/kg wet	*5.000*		*92*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.25*		mg/kg wet	*5.000*		*85*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.71*		mg/kg wet	*3.333*		*81*	*30-130*			
Surrogate: 2-Fluorophenol	*3.88*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.58*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: Phenol-d6	*4.22*		mg/kg wet	*5.000*		*84*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.46*		mg/kg wet	*3.333*		*104*	*30-130*			
LCS										
1,2,4,5-Tetrachlorobenzene	2.78	0.333	mg/kg wet	3.333		84	40-140			
1,2,4-Trichlorobenzene	2.73	0.333	mg/kg wet	3.333		82	40-140			
2,4,5-Trichlorophenol	3.01	0.333	mg/kg wet	3.333		90	30-130			
2,4,6-Trichlorophenol	2.96	0.333	mg/kg wet	3.333		89	30-130			
2,4-Dichlorophenol	2.94	0.333	mg/kg wet	3.333		88	30-130			
2,4-Dimethylphenol	2.94	0.333	mg/kg wet	3.333		88	30-130			
2,4-Dinitrophenol	2.73	1.67	mg/kg wet	3.333		82	30-130			
2,4-Dinitrotoluene	2.81	0.333	mg/kg wet	3.333		84	40-140			
2,6-Dinitrotoluene	2.93	0.333	mg/kg wet	3.333		88	40-140			
2-Chloronaphthalene	2.76	0.333	mg/kg wet	3.333		83	40-140			
2-Chlorophenol	2.80	0.333	mg/kg wet	3.333		84	30-130			
2-Methylnaphthalene	2.81	0.333	mg/kg wet	3.333		84	40-140			
2-Methylphenol	2.89	0.333	mg/kg wet	3.333		87	30-130			
2-Nitroaniline	2.48	0.333	mg/kg wet	3.333		74	40-140			
2-Nitrophenol	2.94	0.333	mg/kg wet	3.333		88	30-130			
3,3´-Dichlorobenzidine	2.49	0.333	mg/kg wet	3.333		75	40-140			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CF40939 - 3546										
3+4-Methylphenol	5.85	0.667	mg/kg wet	6.667		88	30-130			
3-Nitroaniline	2.75	0.333	mg/kg wet	3.333		83	40-140			
4,6-Dinitro-2-Methylphenol	2.84	1.67	mg/kg wet	3.333		85	30-130			
4-Bromophenyl-phenylether	2.85	0.333	mg/kg wet	3.333		86	40-140			
4-Chloro-3-Methylphenol	3.06	0.333	mg/kg wet	3.333		92	30-130			
4-Chloroaniline	2.09	0.333	mg/kg wet	3.333		63	40-140			
4-Chloro-phenyl-phenyl ether	2.72	0.333	mg/kg wet	3.333		81	40-140			
4-Nitroaniline	2.85	0.333	mg/kg wet	3.333		86	40-140			
4-Nitrophenol	3.14	1.67	mg/kg wet	3.333		94	30-130			
Acenaphthene	2.73	0.333	mg/kg wet	3.333		82	40-140			
Acenaphthylene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Aniline	2.08	0.667	mg/kg wet	3.333		62	40-140			
Anthracene	2.80	0.333	mg/kg wet	3.333		84	40-140			
Benzo(a)anthracene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Benzo(a)pyrene	2.62	0.167	mg/kg wet	3.333		79	40-140			
Benzo(b)fluoranthene	3.05	0.333	mg/kg wet	3.333		92	40-140			
Benzo(g,h,i)perylene	2.75	0.333	mg/kg wet	3.333		82	40-140			
Benzo(k)fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140			
bis(2-Chloroethoxy)methane	2.86	0.333	mg/kg wet	3.333		86	40-140			
bis(2-Chloroethyl)ether	2.85	0.333	mg/kg wet	3.333		85	40-140			
bis(2-chloroisopropyl)Ether	2.73	0.333	mg/kg wet	3.333		82	40-140			
bis(2-Ethylhexyl)phthalate	3.09	0.333	mg/kg wet	3.333		93	40-140			
Butylbenzylphthalate	3.14	0.333	mg/kg wet	3.333		94	40-140			
Carbazole	2.95	0.333	mg/kg wet	3.333		88	40-140			
Chrysene	2.86	0.167	mg/kg wet	3.333		86	40-140			
Dibenzo(a,h)Anthracene	2.90	0.167	mg/kg wet	3.333		87	40-140			
Dibenzofuran	2.85	0.333	mg/kg wet	3.333		86	40-140			
Diethylphthalate	2.82	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.86	0.333	mg/kg wet	3.333		86	40-140			
Di-n-butylphthalate	2.92	0.333	mg/kg wet	3.333		88	40-140			
Di-n-octylphthalate	3.41	0.333	mg/kg wet	3.333		102	40-140			
Fluoranthene	2.87	0.333	mg/kg wet	3.333		86	40-140			
Fluorene	2.78	0.333	mg/kg wet	3.333		83	40-140			
Hexachlorobenzene	2.86	0.333	mg/kg wet	3.333		86	40-140			
Hexachlorobutadiene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Hexachlorocyclopentadiene	1.79	0.500	mg/kg wet	3.333		54	40-140			
Hexachloroethane	2.65	0.333	mg/kg wet	3.333		80	40-140			
Indeno(1,2,3-cd)Pyrene	2.80	0.333	mg/kg wet	3.333		84	40-140			
Isophorone	2.85	0.333	mg/kg wet	3.333		85	40-140			
Naphthalene	2.81	0.333	mg/kg wet	3.333		84	40-140			
Nitrobenzene	2.83	0.333	mg/kg wet	3.333		85	40-140			
N-Nitroso-Di-n-Propylamine	2.78	0.333	mg/kg wet	3.333		84	40-140			
N-nitrosodiphenylamine	2.83	0.333	mg/kg wet	3.333		85	40-140			
Pentachloronitrobenzene	2.92	0.333	mg/kg wet	3.333		88	40-140			
Pentachlorophenol	3.05	0.500	mg/kg wet	3.333		92	30-130			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CF40939 - 3546										
Phenanthrene	2.92	0.333	mg/kg wet	3.333		87	40-140			
Phenol	2.83	0.333	mg/kg wet	3.333		85	30-130			
Pyrene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Pyridine	2.03	1.67	mg/kg wet	3.333		61	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.65*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.77*		mg/kg wet	*5.000*		*95*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.30*		mg/kg wet	*5.000*		*86*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.89*		mg/kg wet	*3.333*		*87*	*30-130*			
Surrogate: 2-Fluorophenol	*3.97*		mg/kg wet	*5.000*		*79*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.86*		mg/kg wet	*3.333*		*86*	*30-130*			
Surrogate: Phenol-d6	*4.38*		mg/kg wet	*5.000*		*88*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.18*		mg/kg wet	*3.333*		*95*	*30-130*			
LCS Dup										
1,2,4,5-Tetrachlorobenzene	2.58	0.333	mg/kg wet	3.333		77	40-140	8	30	
1,2,4-Trichlorobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	10	30	
2,4,5-Trichlorophenol	3.08	0.333	mg/kg wet	3.333		92	30-130	2	30	
2,4,6-Trichlorophenol	3.03	0.333	mg/kg wet	3.333		91	30-130	3	30	
2,4-Dichlorophenol	2.70	0.333	mg/kg wet	3.333		81	30-130	8	30	
2,4-Dimethylphenol	2.73	0.333	mg/kg wet	3.333		82	30-130	7	30	
2,4-Dinitrophenol	2.86	1.67	mg/kg wet	3.333		86	30-130	5	30	
2,4-Dinitrotoluene	3.05	0.333	mg/kg wet	3.333		92	40-140	8	30	
2,6-Dinitrotoluene	3.02	0.333	mg/kg wet	3.333		91	40-140	3	30	
2-Chloronaphthalene	2.51	0.333	mg/kg wet	3.333		75	40-140	10	30	
2-Chlorophenol	2.61	0.333	mg/kg wet	3.333		78	30-130	7	30	
2-Methylnaphthalene	2.60	0.333	mg/kg wet	3.333		78	40-140	8	30	
2-Methylphenol	2.66	0.333	mg/kg wet	3.333		80	30-130	8	30	
2-Nitroaniline	2.50	0.333	mg/kg wet	3.333		75	40-140	0.8	30	
2-Nitrophenol	2.75	0.333	mg/kg wet	3.333		83	30-130	7	30	
3,3´-Dichlorobenzidine	2.63	0.333	mg/kg wet	3.333		79	40-140	5	30	
3+4-Methylphenol	5.40	0.667	mg/kg wet	6.667		81	30-130	8	30	
3-Nitroaniline	2.85	0.333	mg/kg wet	3.333		86	40-140	4	30	
4,6-Dinitro-2-Methylphenol	2.94	1.67	mg/kg wet	3.333		88	30-130	4	30	
4-Bromophenyl-phenylether	2.82	0.333	mg/kg wet	3.333		85	40-140	1	30	
4-Chloro-3-Methylphenol	2.88	0.333	mg/kg wet	3.333		86	30-130	6	30	
4-Chloroaniline	1.92	0.333	mg/kg wet	3.333		58	40-140	8	30	
4-Chloro-phenyl-phenyl ether	2.73	0.333	mg/kg wet	3.333		82	40-140	0.4	30	
4-Nitroaniline	2.98	0.333	mg/kg wet	3.333		89	40-140	4	30	
4-Nitrophenol	3.33	1.67	mg/kg wet	3.333		100	30-130	6	30	
Acenaphthene	2.65	0.333	mg/kg wet	3.333		80	40-140	3	30	
Acenaphthylene	2.71	0.333	mg/kg wet	3.333		81	40-140	2	30	
Aniline	1.92	0.667	mg/kg wet	3.333		58	40-140	8	30	
Anthracene	2.85	0.333	mg/kg wet	3.333		85	40-140	2	30	
Benzo(a)anthracene	3.02	0.333	mg/kg wet	3.333		91	40-140	5	30	
Benzo(a)pyrene	2.76	0.167	mg/kg wet	3.333		83	40-140	5	30	
Benzo(b)fluoranthene	2.99	0.333	mg/kg wet	3.333		90	40-140	2	30	

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270C Semi-Volatile Organic Compounds										
Batch CF40939 - 3546										
Benzo(g,h,i)perylene	2.88	0.333	mg/kg wet	3.333		86	40-140	5	30	
Benzo(k)fluoranthene	3.25	0.333	mg/kg wet	3.333		98	40-140	12	30	
bis(2-Chloroethoxy)methane	2.68	0.333	mg/kg wet	3.333		80	40-140	7	30	
bis(2-Chloroethyl)ether	2.61	0.333	mg/kg wet	3.333		78	40-140	9	30	
bis(2-chloroisopropyl)Ether	2.49	0.333	mg/kg wet	3.333		75	40-140	9	30	
bis(2-Ethylhexyl)phthalate	3.29	0.333	mg/kg wet	3.333		99	40-140	6	30	
Butylbenzylphthalate	3.47	0.333	mg/kg wet	3.333		104	40-140	10	30	
Carbazole	3.09	0.333	mg/kg wet	3.333		93	40-140	5	30	
Chrysene	3.02	0.167	mg/kg wet	3.333		91	40-140	5	30	
Dibenzo(a,h)Anthracene	3.05	0.167	mg/kg wet	3.333		92	40-140	5	30	
Dibenzofuran	2.80	0.333	mg/kg wet	3.333		84	40-140	2	30	
Diethylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140	5	30	
Dimethylphthalate	2.92	0.333	mg/kg wet	3.333		88	40-140	2	30	
Di-n-butylphthalate	3.14	0.333	mg/kg wet	3.333		94	40-140	7	30	
Di-n-octylphthalate	3.51	0.333	mg/kg wet	3.333		105	40-140	3	30	
Fluoranthene	3.02	0.333	mg/kg wet	3.333		91	40-140	5	30	
Fluorene	2.76	0.333	mg/kg wet	3.333		83	40-140	0.9	30	
Hexachlorobenzene	2.87	0.333	mg/kg wet	3.333		86	40-140	0.1	30	
Hexachlorobutadiene	2.36	0.333	mg/kg wet	3.333		71	40-140	9	30	
Hexachlorocyclopentadiene	1.72	0.500	mg/kg wet	3.333		52	40-140	4	30	
Hexachloroethane	2.38	0.333	mg/kg wet	3.333		71	40-140	11	30	
Indeno(1,2,3-cd)Pyrene	2.97	0.333	mg/kg wet	3.333		89	40-140	6	30	
Isophorone	2.67	0.333	mg/kg wet	3.333		80	40-140	6	30	
Naphthalene	2.60	0.333	mg/kg wet	3.333		78	40-140	8	30	
Nitrobenzene	2.60	0.333	mg/kg wet	3.333		78	40-140	8	30	
N-Nitroso-Di-n-Propylamine	2.57	0.333	mg/kg wet	3.333		77	40-140	8	30	
N-nitrosodiphenylamine	2.87	0.333	mg/kg wet	3.333		86	40-140	1	30	
Pentachloronitrobenzene	3.12	0.333	mg/kg wet	3.333		94	40-140	7	30	
Pentachlorophenol	2.94	0.500	mg/kg wet	3.333		88	30-130	4	30	
Phenanthrene	2.98	0.333	mg/kg wet	3.333		89	40-140	2	30	
Phenol	2.61	0.333	mg/kg wet	3.333		78	30-130	8	30	
Pyrene	3.11	0.333	mg/kg wet	3.333		93	40-140	5	30	
Pyridine	1.83	1.67	mg/kg wet	3.333		55	40-140	10	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.31*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.66*		mg/kg wet	*5.000*		*93*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.76*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.68*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: 2-Fluorophenol	*3.51*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.53*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: Phenol-d6	*3.88*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.20*		mg/kg wet	*3.333*		*96*	*30-130*			
CT ETPH Extractable Total Petroleum Hydrocarbons										
Batch CF40510 - 3546										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control
ESS Laboratory Work Order: 1406126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
CT ETPH Extractable Total Petroleum Hydrocarbons										
Batch CF40510 - 3546										
Total Petroleum Hydrocarbons	ND	20.0	mg/kg wet							
Surrogate: O-Terphenyl	*4.12*		mg/kg wet	*5.000*		*82*	*50-150*			
LCS										
Total Petroleum Hydrocarbons	30.6	20.0	mg/kg wet	35.00		88	60-120			
Surrogate: O-Terphenyl	*4.16*		mg/kg wet	*5.000*		*83*	*50-150*			
LCS Dup										
Total Petroleum Hydrocarbons	30.8	20.0	mg/kg wet	35.00		88	60-120	0.5	30	
Surrogate: O-Terphenyl	*4.16*		mg/kg wet	*5.000*		*83*	*50-150*			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control ESS Laboratory Work Order: 1406126

Notes and Definitions

Z-08	See Attached
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
ICV	Initial Calibration Verification recovery is outside of control limit (ICV).
D	Diluted.
C+	Continuing Calibration recovery is above upper control limit (C+).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: South Branch Park River Flood Control

ESS Laboratory Work Order: 1406126

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)
A2LA Accredited: Testing Cert# 2864.01
http://www.a2la.org/scopepdf/2864-01.pdf

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)
http://www.A2LA.org/dirsearchnew/newsearch.cfm

CPSC ID# 1141
Lead Paint, Lead in Children's Metals Jewelry
http://www.cpsc.gov/cgi-bin/labapplist.aspx

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-22680-1
TestAmerica Sample Delivery Group: 200-22680
Client Project/Site: Soil Analysis

For:
ESS Laboratory
185 Frances Ave.
Cranston, Rhode Island 02910

Attn: Ms. Elizabeth Ouk

Authorized for release by:
6/13/2014 4:50:49 PM

Kathryn Kelly, Project Manager I
(802)660-1990
kathryn.kelly@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Detection Summary 5
Client Sample Results 6
QC Sample Results 7
QC Association Summary 8
Lab Chronicle 9
Certification Summary 10
Method Summary 11
Sample Summary 12
Chain of Custody 13
Receipt Checklists 15

Definitions/Glossary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Qualifiers

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 200-22680-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ESS Laboratory

Project: Soil Analysis

Report Number: 200-22680-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 06/07/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 4.4 C.

TOTAL ORGANIC CARBON

Sample 1406126-01 was analyzed for total organic carbon in accordance with Lloyd Kahn Method. The samples were analyzed on 06/10/2014.

No difficulties were encountered during the TOC analysis.

All quality control parameters were within the acceptance limits.

Detection Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Client Sample ID: 1406126-01 — Lab Sample ID: 200-22680-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	41000		1000	1000	mg/Kg	1		Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Client Sample ID: 1406126-01

Date Collected: 06/03/14 14:00
Date Received: 06/07/14 09:00

Lab Sample ID: 200-22680-1

Matrix: Sediment

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	41000		1000	1000	mg/Kg			06/10/14 01:06	1
Percent Solids	37.0		0.25	0.25	%			06/11/14 16:00	1

QC Sample Results

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 200-73357/5
Matrix: Sediment
Analysis Batch: 73357

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1000	U	1000	1000	mg/Kg			06/09/14 23:21	1

Lab Sample ID: LCS 200-73357/6
Matrix: Sediment
Analysis Batch: 73357

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20100	19870		mg/Kg		99	75 - 125		

Method: Moisture - Percent Moisture

Lab Sample ID: 200-22680-1 DU
Matrix: Sediment
Analysis Batch: 73478

Client Sample ID: 1406126-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	37.0			40.9		%				10	20

QC Association Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

General Chemistry

Analysis Batch: 73357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-22680-1	1406126-01	Total/NA	Sediment	Lloyd Kahn	
LCS 200-73357/6	Lab Control Sample	Total/NA	Sediment	Lloyd Kahn	
MB 200-73357/5	Method Blank	Total/NA	Sediment	Lloyd Kahn	

Analysis Batch: 73478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-22680-1	1406126-01	Total/NA	Sediment	Moisture	
200-22680-1 DU	1406126-01	Total/NA	Sediment	Moisture	

Lab Chronicle

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Client Sample ID: 1406126-01

Date Collected: 06/03/14 14:00
Date Received: 06/07/14 09:00

Lab Sample ID: 200-22680-1

Matrix: Sediment

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	73357	06/10/14 01:06	VTP	TAL BUR
Total/NA	Analysis	Moisture		1	73478	06/11/14 16:00	VTP	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Certification Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-15
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-13-15
Florida	NELAP	4	E87467	06-30-14 *
L-A-B	DoD ELAP		L2336	02-26-17
Louisiana	NELAP	6	176292	06-30-14
Maine	State Program	1	VT00008	04-17-15
Minnesota	NELAP	5	050-999-436	12-31-14
New Hampshire	NELAP	1	2006	12-18-14
New Jersey	NELAP	2	VT972	06-30-14 *
New York	NELAP	2	10391	03-31-15
Pennsylvania	NELAP	3	68-00489	04-30-15
Rhode Island	State Program	1	LAO00298	12-30-14
US Fish & Wildlife	Federal		LE-058448-0	02-28-15
USDA	Federal		P330-11-00093	10-28-16
Vermont	State Program	1	VT-4000	12-31-14
Virginia	NELAP	3	460209	12-14-14

* Certification renewal pending - certification considered valid.

Method Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Method	Method Description	Protocol	Laboratory
Lloyd Kahn	Organic Carbon, Total (TOC)	EPA	TAL BUR
Moisture	Percent Moisture	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ESS Laboratory
Project/Site: Soil Analysis

TestAmerica Job ID: 200-22680-1
SDG: 200-22680

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-22680-1	1406126-01	Sediment	06/03/14 14:00	06/07/14 09:00

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue,Cranston RI 02910-2211
Tel. (401)461-7181 Fax (401)461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab #

Turn Time __XX_**Standard** Other_____

Reporting Limits - _____

Regulatory State: MA RI (CT) NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
MA-MCP Navy USACE CT DEP Other_____

Electonic Deliverables Excel Access PDF

Co. Name **ESS Laboratory**	Project #	Project Name	
Contact Person **Christine Taylor**	Proj. Location		
Address	City , State	Zip	PO # 1406126
Tel.	email: ctaylor@thielsch.com	email: smorrell@thielsch.com	

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	Analysis: TOC - LLYOD KAHN
	6/3/14	**1400**	**C**	**sed**	**1406126-01**	**1**	**1**	**AG**	250	**X**

200-22680 COC

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present _____Yes _____No

Seals Intact ____ Yes _____No NA:____

Cooler Temperature: _____

Internal Use Only

[ ] Pickup

[ ] Technician____

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by :

Comments:

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
6/6/14 1247	UPS Next DAY -		
	6/7/14 0900		

* By circling MA-MCP, client acknowledges sampels were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

Report Method Blank & Laboratory Control Sample Results

ESS LABORATORY
(401) 461-7181
THIELSCH ENGINEERING - ESS75
185 FRANCES AVE.
CRANSTON RI 02910-2211

6 LBS

1 OF 1

SHIP TO:
SAMPLE RECEIVING
(802) 660-1990
TEST AMERICA
30 COMMUNITY DRIVE SUITE 11
SOUTH BURLINGTON VT 05403

VT 054 0-02

UPS NEXT DAY AIR
TRACKING #: 1Z 037 497 44 4721 3527

1 S

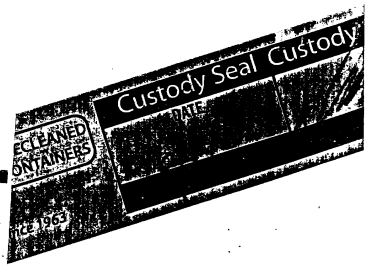
BILLING: P/P

REF 1:1406126

WS 16.0.31

51.0A 04/2014

SEE NOTICE ON REVERSE regarding UPS Terms, and notice of limitation of liability. Where allowed by law, shipper authorizes UPS to act as forwarding agent for export control and customs purposes. If exported from the US, shipper certifies that the commodities, technology or software were exported from the US in accordance with the Export Administration Regulations. Diversion contrary to law is prohibited.



Login Sample Receipt Checklist

Client: ESS Laboratory

Job Number: 200-22680-1
SDG Number: 200-22680

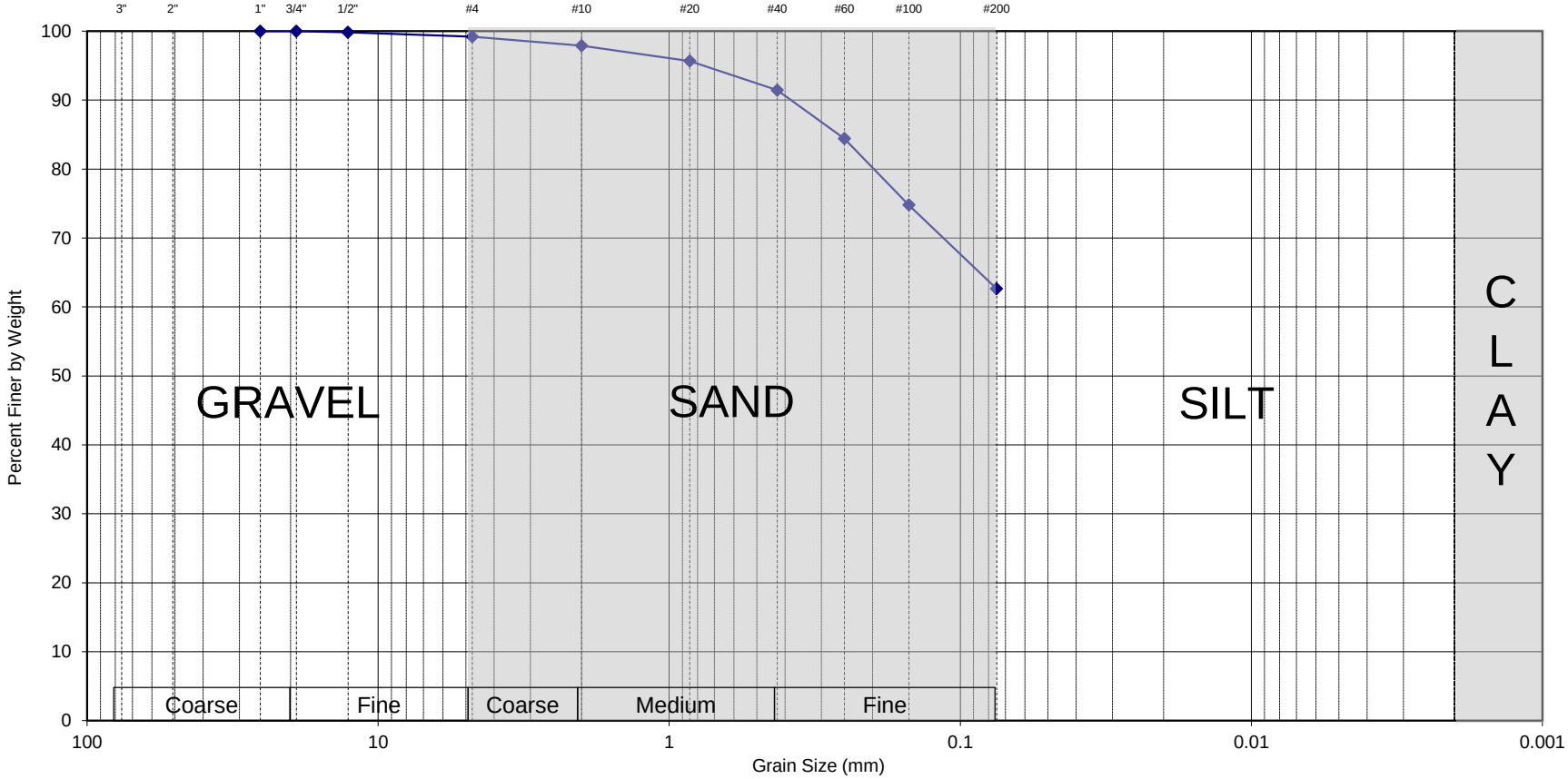
Login Number: 22680
List Number: 1
Creator: Marion, Greg T

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	NO SEAL NUMBERS
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.4ºC IR GUN ID 181/CF=0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
0.8%	36.6%	62.6%

Lab #	Sample ID	ESS Sample ID	Sample Date	Description	WC	LL	PL	PI
14-S-202	Mill Pond 1	1406126-01	6/5/14	Brown SILT and f-m SAND (little Organics)				

Sieve Size	% Passing
¾"	100.0
½"	99.8
#4	99.2
#10	97.9
#20	95.7
#40	91.4
#60	84.4
#100	74.8
#200	62.6

THIELSCH ENGINEERING
195 Frances Ave., Cranston, RI 02109
401-467-6454

ESS ID: 1406126
South Branch Park River Flood Control
CT
GZA File # 15.0166354.01

Tested by:	GG	Date:	6/9/14
Reviewed by:	MBP	Date:	6/10/14

Attachment B
SOP 10_0001

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: ESS Courier

ESS Project ID: 14060126
Date Project Due: 6/12/14
Days For Project: 5 Day

Items to be checked upon receipt:

1. Air Bill Manifest Present?	* No	10. Are the samples properly preserved?	Yes
Air No.:		11. Proper sample containers used?	Yes
2. Were Custody Seals Present?	No	12. Any air bubbles in the VOA vials?	N/A
3. Were Custody Seals Intact?	N/A	13. Holding times exceeded?	No
4. Is Radiation count < 100 CPM?	Yes	14. Sufficient sample volumes?	Yes
5. Is a cooler present?	Yes	15. Any Subcontracting needed?	* Yes
Cooler Temp: **5.4**		16. Are ESS labels on correct containers?	Yes|No
Iced With: **Ice**		17. Were samples received intact?	Yes|No
6. Was COC included with samples?	Yes	ESS Sample IDs: _____	
7. Was COC signed and dated by client?	Yes	Sub Lab: -01 CTS	
8. Does the COC match the sample	Yes	Analysis: Grain Size	
9. Is COC complete and correct?	Yes	TAT: STD TOC - TA Burlington	

MS 6/6/14

18. Was there need to call project manager to discuss status? If yes, please explain.

_____

_____

_____

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	8 oz Soil Jar	4	NP
1	Yes	Plastic Bag	1	NP

Completed By: [signature] Date/Time: 6/5/14 1640
Reviewed By: [signature] Date/Time: 6/5/14 1643

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CHAIN OF CUSTODY

Turn Time ✓ Standard Other ____
If faster than 5 days, prior approval by laboratory is required # ____

State where samples were collected from: MA RI (CT) NH NJ NY ME Other ____

Is this project for any of the following: MA-MCP Navy USACE Other ____

Reporting Limits: per Project Work Sheet

ESS LAB PROJECT ID: 14061126

Electronic Deliverable: Yes ✓ No ____
Format: Excel ✓ Access ____ PDF ✓ Other ____

Co. Name: GZA GeoEnvironmental Inc.
Project #: 15.0166354.01
Project Name (20 Char. or less): South Branch Park River Flood Control
Contact Person: Nat Arai
Address: 1350 Main St. Suite 1400
City: Springfield
State: MA
Zip: 01103
PO#:
Telephone #: (413) 726-2100
Fax #:
Email Address: nathaniel.arai@gza.com

Write Required Analysis

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	SVOCs	PCBs	RSR 15 Metals	CT ETPH	TOC	Grain Size
1	6-3-14	14:00	X		Sed	Mill Pond 1	1	4,	G Jar	X	X	X	X	X	X

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ✓ Yes ____ No
Seals Intact ____ Yes ____ No NA: ____
Cooler Temp: 5.4°C
Bay Dee
BB 6/5/14 1615

Internal Use Only
[✓] Pickup
[ ] Technicians ____

Preservation Code 1- NP, 2- HCl, 3- H_2SO_4, 4- HNO_3, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- ____

Sampled by: Justin Ryan, Seth Taylor

Comments:

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	6-3-14 18:00	GZA Fedex		GZA Fedex	6/5/14 1310	[signature]	6/5/14 1350
[signature]	6/3/14 1615	[signature]	6/3/14 1637	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*By circling MA-MCP, client acknowledges samples were collected under MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

10/26/04 A