

March 22, 2017

CLARIFICATION No. 1

TO

**NEW STREET CONSTRUCTION**

**S. GREEN BAY AVENUE, E. 84TH STREET & E. 85TH STREET**

**S. GREEN BAY AVENUE FROM E. 83RD STREET TO E. 86TH STREET,  
E. 84TH STREET FROM S. GREEN BAY AVENUE TO S. LAKE SHORE DRIVE**

**CDOT PROJ. NO. B-3-511**

**SPECIFICATION NO.: 225445**

1. "Who do we contact to obtain a copy of the soils report?"

**Electronic copies of the Geotechnical Investigation and of Analytical Report prepared for this project are both available on the Procurement Services website [www.cityofchicago.org/bids](http://www.cityofchicago.org/bids).**

**End of Clarification No. 1**

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**GEOTECHNICAL INVESTIGATION**  
**Green Bay Avenue & 84th Street Improvements**  
**Green Bay Avenue From 83<sup>rd</sup> Street to 87<sup>th</sup> Street**  
**84th Street from Green Bay Avenue to South Lake Shore Drive**  
**Chicago, Illinois**

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**Prepared for:**

**GRAEF-USA**  
**8501 West Higgins Road**  
**Suite 280**  
**Chicago, IL 60631**

**Prepared by:**

**Geo Services, Inc.**  
**805 Amherst Court**  
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**Naperville, Illinois 60565**  
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**JOB NO. 13122**

**May 9, 2014**  
**Revised May 14, 2014**





May 9, 2014  
Revised May 14, 2014

GRAEF USA  
8501 West Higgins Road  
Suite 280  
Chicago, IL 60631  
Attn: Mr. Thomas Stevens, P.E.

GSI Project 13122

Re: Geotechnical Investigation  
CDOT Green Bay Avenue Improvements  
Green Bay Avenue, from 83<sup>rd</sup> Street to 87<sup>th</sup> Street  
Chicago, IL.

Dear Mr. Stevens:

The following report presents the results of the subsurface investigation for the proposed Green Bay Avenue improvements obtained in a total of ten (10) roadway borings (SB-01 through SB-10), two (2) pavement cores (SB-02 and SB-06), and two (2) Chicago Infiltration test locations (SB-04 and SB-07). Copies of these boring logs, along with a site location diagram and lab testing results are included in this report.

If there are any questions regarding the information submitted herein, please do not hesitate to contact us.

Very truly yours,

GEO SERVICES, Inc.

A handwritten signature in black ink, appearing to read "Kiran Adhikary".

Kiran Adhikary, P.E.  
Senior Project Engineer

A handwritten signature in black ink, appearing to read "Andrew J. Ptak".

Andrew J. Ptak, P.E.  
Office Manager

enc.

## **INTRODUCTION**

The geotechnical investigation for the proposed Green Bay Avenue improvements obtained in a total of ten (10) roadway borings (SB-01 through SB-10), two (2) pavement cores (SB-02 and SB-06), and two (2) Chicago infiltration testing locations (SB-04 and SB-07) were completed along Green Bay Avenue between 83<sup>rd</sup> and 87<sup>th</sup> Streets and along 84<sup>th</sup> Street between Green Bay Avenue and South Lakeshore Drive, in Chicago, IL. The project improvements include pavement and sidewalk improvements, drainage, and storm sewer construction. The improvements will consist of the reconstruction of Green Bay Avenue from 83<sup>rd</sup> Street to 86<sup>th</sup> Street and new roadway construction of Green Bay Avenue between 86<sup>th</sup> to 87<sup>th</sup> Streets and 84<sup>th</sup> Street between Green Bay Avenue and South Lakeshore Drive.

The purpose of this report is to describe the soil and pavement conditions encountered in the cores and borings, to analyze and evaluate the data obtained, and to submit recommendations pertaining to the design and construction of the proposed roadway improvements and general construction considerations for the site.

The approved borings were located by Geo Services Inc. (GSI) field personnel. The as-drilled locations are illustrated on the boring location diagram in the Appendix section.

## **SUBSURFACE INVESTIGATION PROCEDURES**

The soil borings were performed in the month of March, 2014 with a truck-mounted drilling rig and were advanced by means of solid stem auger techniques. Prior to arrival on site, all downhole drilling and sampling equipment was cleaned to prevent cross contamination from offsite sources. Two borings (SB-08 and SB-10) were drilled by hand auger methods due to the boring locations being inaccessible for a truck mounted rig. Representative samples were obtained employing split spoon sampling procedures in accordance with AASHTO T-206.

Split spoon sampling involves driving a 2.0-inch outside diameter split-barrel sampler into the soil with a 140-pound weight falling freely through a distance of 30 inches. Blow counts are recorded at 6" intervals and the blow counts are shown on the boring logs. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). The N value is an indication of the relative density of the soil. Samples from all the borings were obtained in the field and returned to our laboratory for further examination and testing.

Pavement cores were performed in the month of March, 2014 using a 4-inch diameter diamond bit core barrel and Milwaukee coring machine. The cores were extended through the existing pavement to the underlying sub-base materials below. Results are included with this report and can be found in the Pavement Core Summary found in the Appendix section.

## **LAB/FIELD TESTING PROGRAM**

The laboratory testing program consisted of performing water content and density. These tests were performed upon representative portions of the samples obtained in the field. In addition to the regular lab testing program, Particle Size Analysis (ASTM D422) test were performed on select samples from the borings. The tests were performed upon representative portions of the samples obtained in the field. The results of the soils testing program, along with a visual classification of the material based upon both a textural classification and an estimate of the Unified Soil Classification System are indicated on the boring logs. All split spoon soil samples obtained from the drilling operation were visually classified in the field and in the laboratory.

Field infiltration tests were performed at two (2) select boring locations. Infiltration tests were performed in accordance with City of Chicago, Stormwater Management Manual, single ring infiltrometer testing procedures. The Chicago infiltration testing method consists of drilling at a 12-inch diameter hole and hydraulically pushing steel casing into the soil stratum to act as an effective cut-off for upward movement of water around the outside of the casing. Loose material is removed from bottom of the hole and 2-inches of gravel was added to prevent erosion of the bottom.

## **SOIL AND GROUNDWATER CONDITIONS**

### **Soil Conditions**

Specific subsurface conditions encountered in the soil borings are indicated on the logs included in the Appendix. As indicated in the boring logs, the stratigraphy in the pavement areas consists of surficial asphalt and/or concrete of 3 to 14-inch thick. The existing pavement at borings SB-02, SB-03, SB-05, SB-06, SB-07, and SB-09 consisted of 3 to 5 inches of asphalt. The existing pavement at boring SB-01 consisted of approximately 9 inches of concrete, while the pavement at boring SB-04 consisted of approximately 3 inches of asphalt overlying 11 inches of concrete. Approximately 12 inches of sandy topsoil was encountered at boring SB-10 at the ground surface. Beneath the surficial section, fill layers mainly consisting of sand, gravel, crushed stone and/or cinders were typically encountered to a depth of 3.5 to 8.5 feet, but as much as 10 feet below grade (to the termination depth of boring) at borings SB-06 and SB-07. An obstruction was encountered in boring SB-04 at a depth of approximately 4 feet below grade. Below the fill material at borings, natural very loose to medium dense sand was encountered to the maximum explored depth of 10 feet below grade. Borings SB-08 and SB-10 were terminated on hand auger refusal at a depth of 5.5 feet below grade.

### Groundwater Conditions

Groundwater was encountered at borings SB-02, SB-04 through SB-07 at depths between 6 and 9 feet below grade during drilling. The remaining boreholes were dry during and at the completion of drilling. For the long-term groundwater table, we estimate a depth of 8 to 10 feet based on the coloration in the transitioning from brown to gray. Fluctuations in the amount of water accumulated and in the hydrostatic water table can be anticipated depending upon variations in precipitation, evaporation, and surface runoff.

## **EXISTING PAVEMENT CONDITIONS**

Existing pavement at borings SB-02 and SB-06 were cored prior to advancing borings at these locations. The pavement at borings SB-02 and SB-06 consist of 3 to 4 inches of asphalt. The asphalt in the cores was observed to be well consolidated.

The layers and thicknesses of each core along with descriptions of degree of consolidation and size of aggregates, along with core photos are all included in the Appendix section.

## **LANDFILL CHARACTERIZATION**

Prior to initiating the geotechnical investigation, GSI was provided with a copy of the Illinois Department of Transportation (IDOT) Preliminary Environmental Site Assessment (PESA) to review (Project #P88-017-00, report dated February 3, 2004). This investigation included the performance of borings along the proposed project route to recover soil samples for environmental testing. Based on the test results presented in the PESA, it is our opinion that the soils to be generated from construction activities for this project do not qualify as an Uncontaminated Soil per Clean Construction Demolition Debris (CCDD) criteria due to the presence of soils with several metals, including Lead and Arsenic, in excess of the CCDD specified Maximum Allowable Concentrations (MACs) and soils with a pH outside of the CCDD allowable range of 6.25 to 9.0. Since it was concluded that the construction spoils from this project site would not qualify as Uncontaminated Soil, a Phase II Environmental Site Assessment (ESA) was not performed. Instead, it was decided to recover one (1) soil sample of the most suspect material encountered to be submitted for Landfill Characterization so that the excess construction spoils can be manifested for disposed at a licensed landfill.

Drilling and sampling operations were supervised by a GSI Field Engineer using a photo-ionization detector (PID) meter to screen for indications of suspect environmental contamination. To prevent cross contamination of samples, the GSI Field Engineer wore clean, disposable latex gloves when the soil samples were recovered. Since no suspect

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odors, staining or elevated PID screenings were noted during drilling; a sample of the most suspect material based on visual conditions was selected to be tested for Landfill Characterization. The sample was placed into glass vials and jars equipped with Teflon lined lids which had been provided by TestAmerica Laboratories, Inc. (TestAmerica), the IEPA accredited laboratory selected to perform chemical testing. The vial containers consisted of pre-weighed vials with preservative solutions for Volatile Organic Contents (VOCs) analysis as per EPA Method 5035/8260. Each sample container was labeled with boring number, depth, site name, date and time of recovery. All samples were placed into an iced cooler to maintain a temperature near 4 degrees Celsius until returned to our laboratory and transferred to a refrigerator on the same day that drilling was performed. The sample was delivered to TestAmerica following chain of custody procedures within acceptable holding times and submitted for the Landfill Characterization analysis specified by the Waste Management Laraway Landfill in Will County, Illinois.

## **ANALYSIS AND RECOMMENDATIONS**

### **Roadway Recommendations**

The project improvements include pavement and sidewalk improvements, drainage, and storm sewer construction. Based on the soil boring information, the subgrade should provide adequate support for the reconstructed roadway and sidewalk. In areas where reconstruction is proposed, the exposed subgrade should be observed by a geotechnical engineer and any topsoil, organic, unsuitable or deleterious material removed, if any. Based on the results of the soil borings, remedial treatment may be required at the following boring locations summarized in the *Table 1- Remedial Treatment Recommendations*.

**Table 1– Remedial Treatment Recommendations**

Roadway Section (Boring)	Subgrade Description (water content)	Approximate Cut / Fill (+/-) (feet)	Unconfined Compressive Strength (tsf)	Remedial Treatment Depth (inches) <sup>1</sup>	Remedial Treatment
Green Bay Ave. From 86 <sup>th</sup> St. to 87 <sup>th</sup> St. (SB-08)	Loose Cinders & Sand Fill (w=30%)	0 to +1.0	--	24	Disk, dry, recompact Or Undercut and replace with CA-6, PGEs or approved granular fill
84 <sup>th</sup> St. From Green Bay Ave to Lake Shore Drive (SB-10)	Sandy Topsoil, Black (w=25%)	0 to +1.0	--	12	Disk, dry, recompact Or Undercut and replace with CA-6, PGEs or approved granular fill

Note: <sup>1</sup> Remedial Treatment should be verified in field.

Undercutting should be performed in such a manner as to minimize disturbance to the undercut subgrade. Heavy equipment traffic directly on the subgrade should be minimized. The actual extent of any undercut should be determined in the field and at the time of construction by the geotechnical engineer.

The undercut areas should extend to 1.0 feet beyond the edge of curb and should be backfilled with a compacted IDOT gradation CA-6 crushed stone or crushed concrete, or Porous Granular Embankment subgrade (PGEs). We recommend using an Illinois Bearing Ratio (IBR) of 2.0 for pavement design. Also, we recommend a shrinkage factor of 15% be used for fill volume calculations.

The actual need for the recommended treatment should be determined in the field at the time of construction based on guidelines presented in the Illinois Department of Transportation Geotechnical Manual. Evaluation of soils in the field should be performed based on the guidelines presented in the IDOT Subgrade Stability Manual.

Where new fill is required to reach the design subgrade elevation (if any), we recommend that an approved inorganic material be utilized. This material should consist of material that is free of organic matter, topsoil, and debris. The existing clay soils will generally be suitable for use as a fill material. Fill material used in pavement subgrade should also be non-frost susceptible. New fill should be placed in maximum 9-inch loose lifts compacted to a minimum of 95% of the maximum dry density obtained in accordance with ASTM Standard D-698, standard Proctor method.

Care should be taken in the design and construction of paved areas to provide rapid drainage of surface water and to develop surface drainage patterns that will divert water away from the pavement edges. When water is allowed to pond on or adjacent to the pavement, the subgrade may become saturated and accelerate pavement deterioration.

#### Permeability Recommendations

The boring results of the infiltration borings are summarized in the **Soil and Groundwater Section** of this report. For testing purposes, the depths of infiltration testing are estimated at 2 to 4 feet below existing ground surface. A summary of infiltration tabular results are shown in the following Table 2.

**Table 2 – Infiltration/ Percolation Test Results**

Boring	Subgrade Classification	Infiltration Rate by Test Method, in/hr (cm/sec)	
		Chicago Infiltration Test	Estimated Permeability values by Grain Size Analysis <sup>1</sup>
SB-04	Well Graded Sand with Silt and Gravel, Fill	14.12 (1.0x10 <sup>-2</sup> )	36.28 (2.6x10 <sup>-2</sup> )
SB-07	Silty Sand with Gravel, Fill	4.57 (3.2x10 <sup>-3</sup> )	4.29 (3.0x10 <sup>-3</sup> )

Notes: <sup>1</sup> Estimates based on Hazen's Equation on USCOE Publication EM1110-2-1910 (Equation 2-19)

Based on the results measured and tabulated in Table 2, the material can be characterized with good drainage characteristics, and we recommend using a "K" value of 2.0 in/hr.

#### Lateral Earth Recommendations

We recommend that the lateral resistance design should be based on the soil conditions encountered in the borings and the following soil parameters can be used in the lateral resistance design shown in Table 3.

**Table 3 - Soil Parameters for Lateral Resistance**

Material	Unit Weight (pcf)	Drained Friction Angle (°)	Undrained Cohesion (psf)	Lateral Modulus of Subgrade Reaction "k" (pci) <sup>1</sup>	Strain <sup>1</sup>
Cinders, Sand, Gravel and Miscellaneous Fill	125	30	--	25	--
Crushed Stone, Fill	130	32	--	25	--
Poorly Graded Sand	125	30	--	25	--
Well Graded Sand and Gravel	125	30	--	25	--

Note: <sup>1</sup> Values recommended for use in design from LPile software manual

#### Disposal Recommendations

Since the construction spoils for this project do not qualify as Uncontaminated Soils per CCDD criteria, any materials that require being transported off site for disposal should be delivered to a licensed disposal site in accordance with all applicable regulations. To limit costs related to excess spoils, it is recommended that materials be reused on site as much as possible. It should also be noted that the Landfill Characterization analysis performed for this investigation may become invalid if not submitted to the landfill within twelve (12) months of the sample recovery.

## **GENERAL CONSTRUCTION CONSIDERATIONS**

All excavations that extend greater than 4 feet in depth should be designed in accordance with OSHA regulations with properly sloped or braced sides to prevent excavation instability. Excavation safety is the responsibility of the contractor; however, we recommend that excavation sides be sloped at 1-1/2H:1V or flatter above the water table for this purpose. Stockpiles of material or equipment should not be placed near the top of excavation slopes.

All soils which become softened or loosened at the base of foundation excavation areas or subgrade areas should be carefully recompacted or removed prior to placement of foundation concrete or fill material. No foundation concrete or structural fill should be placed in areas of ponded water or frozen soil.

It is recommended that all foundation subgrade soils be observed by an experienced geotechnical engineer or his field representative prior to placement of concrete or fill, in

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order to confirm that the subgrade conditions are consistent with the design assumptions and recommendations contained in this report. Periodic density testing should be performed on any fill in order to document that density requirements have been met.

## **GENERAL QUALIFICATIONS**

The analysis and recommendations presented in this report are based upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations that may occur between borings or across the site. In addition, the soil samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of the report. In addition, it is recommended that Geo Services Inc. be retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are intended or made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer. Also note that Geo Services Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of the report's subsurface data or engineering analyses without the express written authorization of Geo Services Inc.

## **APPENDICES**

Appendix A - General Notes

Appendix B - Site Location Map

Appendix C - Boring Location Diagram

Appendix D - Boring Logs

Appendix E - Pavement Core Summary & Core Pictures

Appendix F - Lab Data

Appendix G - Landfill Characterization Results

## **APPENDIX A**

### **GENERAL NOTES**

## GENERAL NOTES

### CLASSIFICATION

American Association of State Highway & Transportation Officials (AASHTO) System used for soil classification.

#### Cohesionless Soils

<u>Relative Density</u>	<u>No. of Blows per foot N</u>
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	Over 50

#### TERMINOLOGY

**Streaks** are considered to be paper thick.  
**Lenses** are considered to be less than 2 inches thick. **Layers** are considered to be less than 6 inches thick. **Stratum** are considered to be greater than 6 inches thick.

#### Cohesive Soils

<u>Consistency</u>	<u>Unconfined Compressive Strength - qu (tsf)</u>
Very Soft	Less than 0.25
Soft	0.25 - 0.5
Medium Stiff	0.5 - 1.0
Stiff	1.0 - 2.0
Very Stiff	2.0 - 4.0
Hard	Over 4.0

### DRILLING AND SAMPLING SYMBOLS

SS: Split Spoon 1-3/8" I.D., 2" O.D.  
ST: Shelby Tube 2" O.D., except where noted  
AS: Auger Sample  
DB: Diamond Bit - NX: BX: AX  
CB: Carboloy Bit - NX: BX: AX  
OS: Osterberg Sampler

HS: Housel Sampler  
WS: Wash Sample  
FT: Fish Tail  
RB: Rock Bit  
WO: Wash Out

Standard "N" Penetration: Blows per foot of a 140 lb. hammer falling 30" on a 2" O.D. Split Spoon

### WATER LEVEL MEASUREMENT SYMBOLS

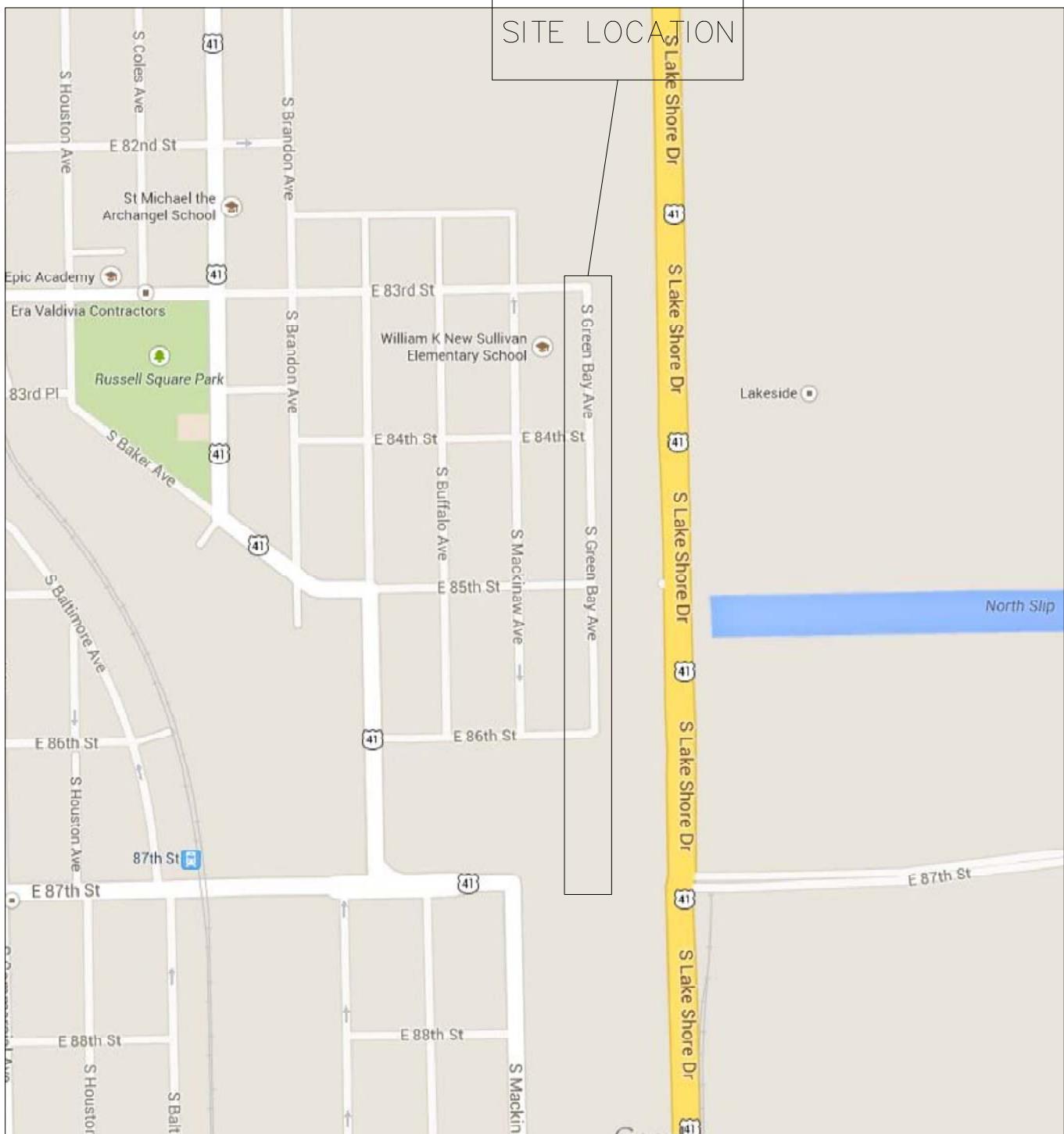
WL: Water  
WCI: Wet Cave In  
DCI: Dry Cave In  
WS: While sampling

WD: While Drilling  
BCR: Before Casing Removal  
ACR: After Casing Removal  
AB: After Boring

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

**APPENDIX B**

**SITE LOCATION MAP**



SITE LOCATION MAP

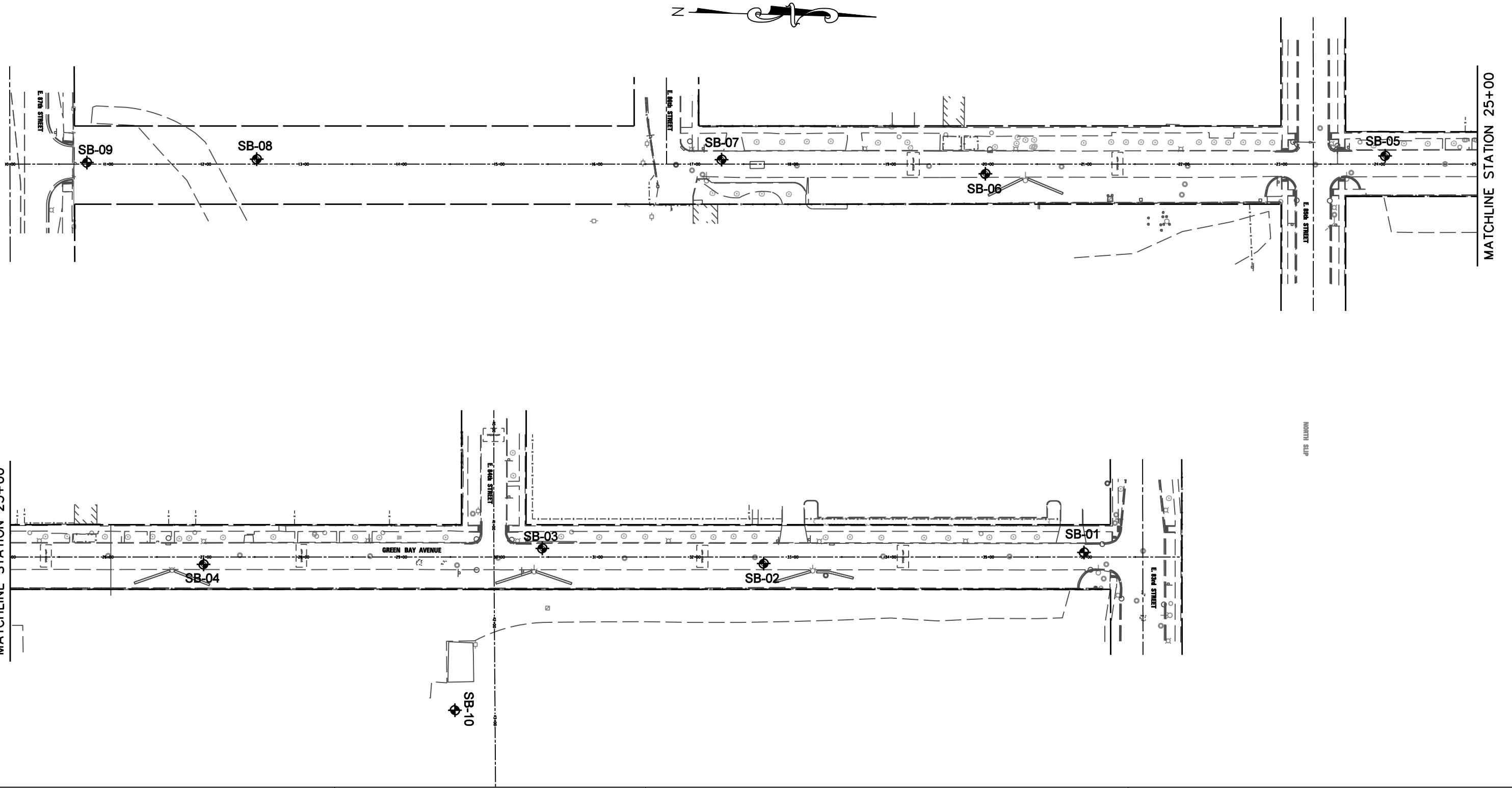
GEOTECHNICAL INVESTIGATION  
Green Bay Avenue  
83rd Street to 87th Street  
Chicago, Illinois

**Geo Services, Inc.**  
Geotechnical, Environmental & Civil Engineering  
805 Amherst Court, Suite 204  
Naperville, Illinois 60565  
(630) 355-2838

DRAWN BY	MT
APPROVED BY	AJP
DATE	May 9, 2014
GSI JOB No.	13122
SCALE	NTS

**APPENDIX C**

**BORING LOCATION DIAGRAM**



LEGEND		REVISIONS					Geotechnical Investigation For The Proposed Reconstruction Of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois					
		ZONE	REV	DESCRIPTION	DATE	APPROVED						
SOIL BORING SB-												
							SIZE	REV.	GSI Job No.	DRAWN BY	APPROVED BY	
							B	1	13122	RWC	AJP	
							SCALE: 1"=100'		DATE: 5-6-2014		SHEET: 1 OF 1	

## **APPENDIX D**

## **BORING LOGS**

**LOG OF BORING NO. SB-01**

PROJECT LOCATION						PROJECT DESCRIPTION						
Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois						Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois						
DEPTH (ft.) BELOW GROUND SURFACE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE	SAMPLE RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. <sup>3</sup>	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>					
							1	2	3	4	5	6+
					GROUND SURFACE ELEVATION +6.0 CCD		CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>					
	1	AS			9.0" CONCRETE		1	2	3	4	*	
	2	SS			CRUSHED STONE—very loose to very dense (Fill)		WATER ● CONTENT %					
5.0	3	SS					10	20	30	40	50	60+
	4	SS										
10.0	5	SS			Poorly Graded SAND—brown— very loose (SP)							
END OF BORING												
WATER LEVEL OBSERVATIONS				 <p>Geo Services, Inc. Geotechnical, Environmental &amp; Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838</p>				BORING STARTED March 11, 2014				
Water Level While Drilling Dry ▼								BORING COMPLETED March 11, 2014				
Water Level After Boring Dry ▼								RIG B-57 FOREMAN RT				
								DRAWN RWC APPROVED AJP				
				GSI JOB No. 13122 SHEET 1 OF 1								

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**LOG OF BORING NO. SB-02**

CLIENT  
GRAEF

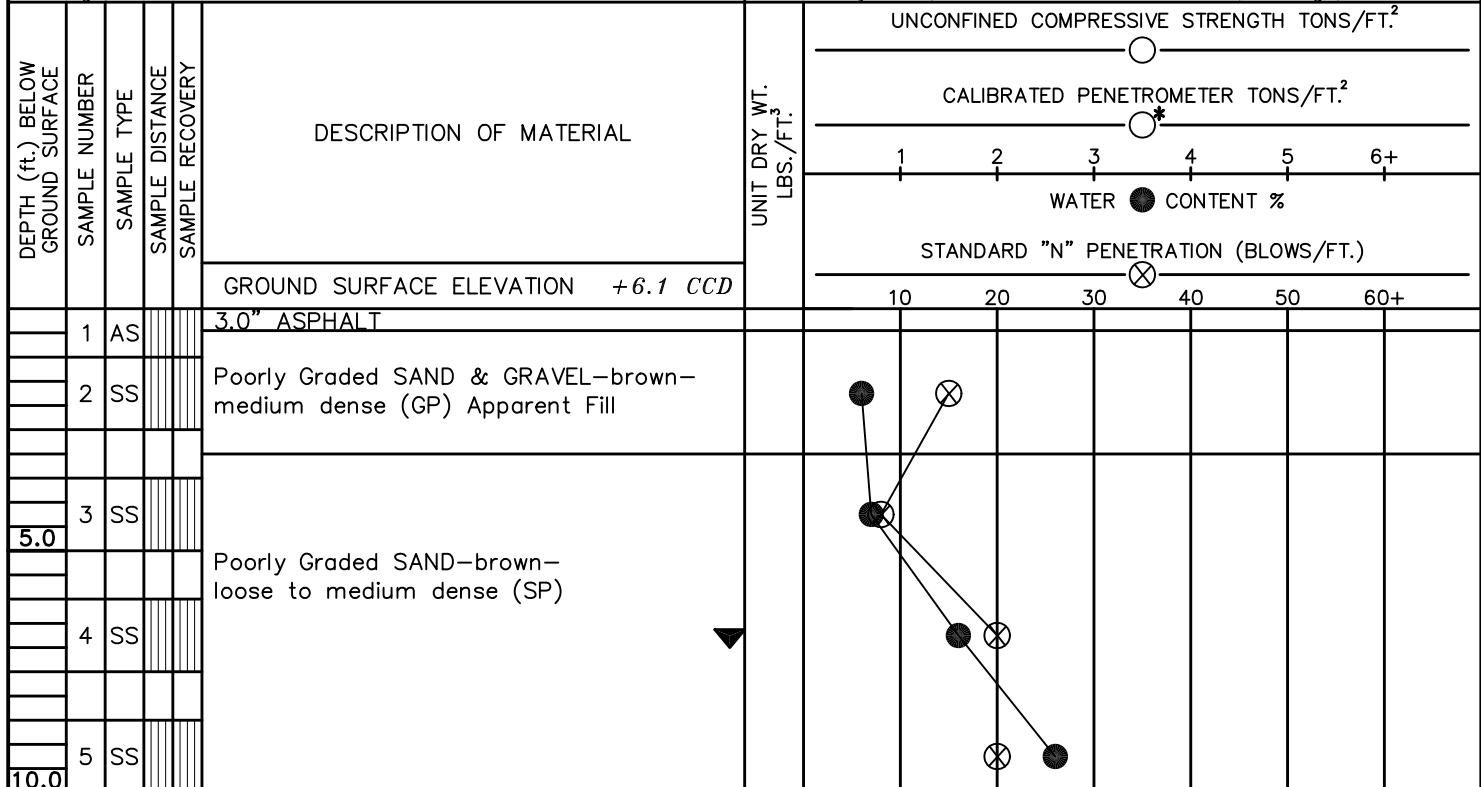
**BORING LOCATION**  
Station: 32+70  
Offset: 6.7' Right

## **PROJECT LOCATION**

Green Bay Avenue, 83rd Street to 87th Street,  
Chicago, Illinois

## PROJECT DESCRIPTION

## Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois



**END OF BORING**

WATER LEVEL OBSERVATIONS			BORING STARTED	March 11, 2014
Water Level While Drilling 7.0'			BORING COMPLETED	March 11, 2014
Water Level After Boring n/a			RIG	B-57
			FOREMAN	RT
			DRAWN	RWC
			APPROVED	AJP
			GSI JOB No.	13122
			SHEET	1 OF 1

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**LOG OF BORING NO. SB-03**

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# LOG OF BORING NO. SB-04

CLIENT GRAEF						BORING LOCATION Station: 26+98 Offset: 7.5' Right									
PROJECT LOCATION Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois						PROJECT DESCRIPTION Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois									
DEPTH (ft.) BELOW GROUND SURFACE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE	SAMPLE RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. <sup>3</sup>	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>								
							1	2	3	4	5	6+			
					GROUND SURFACE ELEVATION +6.2 CCD		CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>								
					3.0" ASPHALT, 11.0" CONCRETE		10	20	30	40	50	60+			
1	AS				WELL GRADED SAND with SILT & GRAVEL—loose (Fill)		●	○							
2	SS				Poorly Graded SAND—brown—medium dense (SP)		●	○							
5.0	SS						●	○							
4	SS						●	○							
10.0	SS						●	○							
END OF BORING															
WATER LEVEL OBSERVATIONS				 <p>Geo Services, Inc. Geotechnical, Environmental &amp; Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838</p>				BORING STARTED March 11, 2014							
Water Level While Drilling 7.0'								BORING COMPLETED March 11, 2014							
Water Level After Boring n/a								RIG	B-57	FOREMAN	RT				
								DRAWN	RWC	APPROVED	AJP				
								GSI JOB No.	13122	SHEET	1 OF 1				

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# LOG OF BORING NO. SB-05

CLIENT GRAEF					BORING LOCATION Station: 24+06 Offset: 8.4' Left				
PROJECT LOCATION Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois					PROJECT DESCRIPTION Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois				
DESCRIPTION OF MATERIAL					UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>				
GROUNDSURFACE ELEVATION +7.1 CCD					CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>				
DEPTH (ft.) BELOW GROUNDSURFACE					UNIT DRY WT. LBS./FT. <sup>3</sup>				
SAMPLE NUMBER					1 2 3 4 5 6+				
SAMPLE TYPE					WATER CONTENT %				
SAMPLE DISTANCE					STANDARD "N" PENETRATION (BLOWS/FT.)				
SAMPLE RECOVERY					10 20 30 40 50 60+				
4.0" ASPHALT									
CINDERS, SAND & GRAVEL-black— very loose to medium dense (Fill)									
5.0									
Poorly Graded SAND-brown— medium dense (SP)									
10.0									
END OF BORING									
WATER LEVEL OBSERVATIONS					BORING STARTED March 11, 2014				
Water Level While Drilling 9.0'					BORING COMPLETED March 11, 2014				
Water Level After Boring n/a					RIG B-57 FOREMAN RT				
					DRAWN RWC APPROVED AJP				
					GSI JOB No. 13122 SHEET 1 OF 1				

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# LOG OF BORING NO. SB-06

CLIENT GRAEF					BORING LOCATION Station: 19+97 Offset: 9.9' Right				
PROJECT LOCATION Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois					PROJECT DESCRIPTION Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois				
DESCRIPTION OF MATERIAL					UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>				
GROUNDSURFACE ELEVATION +7.7 CCD					CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>				
DEPTH (ft.) BELOW GROUNDSURFACE					UNIT DRY WT. LBS./FT. <sup>3</sup>				
SAMPLE NUMBER					1 2 3 4 5 6+				
SAMPLE TYPE					WATER CONTENT %				
SAMPLE DISTANCE					STANDARD "N" PENETRATION (BLOWS/FT.)				
SAMPLE RECOVERY					10 20 30 40 50 60+				
1 AS 4.0" ASPHALT					50/0"				
2 SS CRUSHED STONE—very dense (Fill)					50/0"				
3 SS CINDERS & SAND—black—very loose (Fill)					50/0"				
4 SS Poorly Graded SAND & GRAVEL—brown— medium dense (GP) Fill					50/0"				
5 SS CINDERS, SAND & GRAVEL—black— medium dense (Fill)					50/0"				
END OF BORING									
WATER LEVEL OBSERVATIONS					BORING STARTED March 11, 2014				
Water Level While Drilling 7.0'					BORING COMPLETED March 11, 2014				
Water Level After Boring n/a					RIG B-57 FOREMAN RT				
					DRAWN RWC APPROVED AJP				
					GSI JOB No. 13122 SHEET 1 OF 1				

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 Naperville, Illinois 60565  
 (630) 355-2838

# LOG OF BORING NO. SB-07

CLIENT GRAEF						BORING LOCATION Station: 17+27 Offset: 4.6' Left									
PROJECT LOCATION Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois						PROJECT DESCRIPTION Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois									
DEPTH (ft.) BELOW GROUND SURFACE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE	SAMPLE RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. <sup>3</sup>	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>								
							1	2	3	4	5	6+			
GROUND SURFACE ELEVATION +7.8 CCD						CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>						*			
	1	AS			3.0" ASPHALT, 6.0" CRUSHED STONE		10	20	30	40	50	60+			
	2	SS			SILTY SAND with GRAVEL-black-dense (Fill)										
5.0	3	SS			Poorly Graded SAND-brown-medium dense (SP)										
	4	SS			Well Graded SAND & GRAVEL-brown-loose (GW)										
10.0	5	SS			Poorly Graded SAND-gray-medium dense (SP)										
END OF BORING															
WATER LEVEL OBSERVATIONS				 <p>Geo Services, Inc. Geotechnical, Environmental &amp; Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838</p>				BORING STARTED March 11, 2014							
Water Level While Drilling 6.0'								BORING COMPLETED March 11, 2014							
Water Level After Boring n/a								RIG	B-57	FOREMAN	RT				
								DRAWN	RWC	APPROVED	AJP				
								GSI JOB No.	13122	SHEET	1 OF 1				

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# LOG OF BORING NO. SB-08

CLIENT GRAEF				BORING LOCATION Station: 12+52 Offset: 5.0' Left							
PROJECT LOCATION Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois				PROJECT DESCRIPTION Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois							
DEPTH (ft.) BELOW GROUND SURFACE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. <sup>3</sup>	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>					
						CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>					
						1	2	3	4	5	6+
						WATER	●	CONTENT %			
						STANDARD "N" PENETRATION (BLOWS/FT.)					
						10	20	30	40	50	60+
				GROUND SURFACE ELEVATION +12.8 CCD							
10.0	1 SS			CINDERS & SAND-dark brown- loose (Fill)							
5.0	2 SS			CINDERS, SAND & STONE-dark brown & black-medium dense (Fill)							
	3 SS			Auger refusal @ -5.5'. End of boring.							
	4 SS										
	5 SS										

## END OF BORING

WATER LEVEL OBSERVATIONS		BORING STARTED March 13, 2014	
Water Level While Drilling Dry		BORING COMPLETED March 13, 2014	
Water Level After Boring Dry		RIG HA FOREMAN RT	
		DRAWN RWC APPROVED AJP	
		GSI JOB No. 13122 SHEET 1 OF 1	

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# LOG OF BORING NO. SB-09

CLIENT GRAEF					BORING LOCATION Station: 10+79 Offset: 1.6' Left						
PROJECT LOCATION Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois					PROJECT DESCRIPTION Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois						
DESCRIPTION OF MATERIAL					UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>						
GROUNDS SURFACE ELEVATION + 14.8 CCD					CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>						
5.0" ASPHALT					WATER CONTENT %						
DEPTH (ft.) BELOW GROUNDS SURFACE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE	SAMPLE RECOVERY	UNIT DRY WT. LBS./FT. <sup>3</sup>	STANDARD "N" PENETRATION (BLOWS/FT.)					
5.0	1 AS					10	20	30	40	50	60+
10.0	2 SS										
	3 SS										
	4 SS										
	5 SS										
END OF BORING											
WATER LEVEL OBSERVATIONS			 <p>Geo Services, Inc. Geotechnical, Environmental &amp; Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838</p>				BORING STARTED	March 13, 2014			
Water Level While Drilling	Dry	▼					BORING COMPLETED	March 13, 2014			
Water Level After Boring	Dry	▼					RIG	B-57	FOREMAN	RT	
		▼					DRAWN	RWC	APPROVED	AJP	
							GSI JOB No.	13122	SHEET	1 OF 1	

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# LOG OF BORING NO. SB-10

CLIENT GRAEF					BORING LOCATION Station: 42+89 Offset: 41.0' Right								
PROJECT LOCATION Green Bay Avenue, 83rd Street to 87th Street, Chicago, Illinois					PROJECT DESCRIPTION Geotechnical Investigation For The Proposed Reconstruction of Green Bay Road, 83rd Street to 87th Street, Chicago, Illinois								
DEPTH (ft.) BELOW GROUND SURFACE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE	SAMPLE RECOVERY	DESCRIPTION OF MATERIAL		UNIT DRY WT. LBS./FT. <sup>3</sup>	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. <sup>2</sup>					
								1	2	3	4	5	6+
					GROUND SURFACE ELEVATION +12.4 CCD			CALIBRATED PENETROMETER TONS/FT. <sup>2</sup>				*	
					SANDY TOPSOIL with Gravel-black (Fill)			10	20	30	40	50	60+
1	SS				CINDERS, SAND & GRAVEL-dark brown–medium dense to very dense (Fill)								
2	SS												
5.0	SS												
10.0	SS				Auger refusal @ -5.5'. End of boring.								

## END OF BORING

WATER LEVEL OBSERVATIONS		Geo Services, Inc.		BORING STARTED		March 13, 2014	
Water Level While Drilling Dry				BORING COMPLETED		March 13, 2014	
Water Level After Boring Dry				RIG	HA	FOREMAN	RT
				DRAWN	RWC	APPROVED	AJP
				GSI JOB No.	13122	SHEET	1 OF 1

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**APPENDIX E**

**PAVEMENT CORE SUMMARY & CORE PICTURES**



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Naperville, Illinois 60565  
(630) 355-2838

## PAVEMENT CORE SUMMARY

Page: 1 of 1

Project: Green Bay Road Reconstruction

GSI Job No.: 13122

Location: Green Bay Road Reconstruction

Date: 03/12/2014

County: Cook

Cored By: BB

Client: GRAEF

Checked By: AJP

CORE NO.	THICKNESS (in.)	MATERIAL DESCRIPTION
SB-02	1.5 1.5 3.0+	Station: Offset: ASPHALT—well consolidated, fine to medium aggregate. (Surface Mix) ASPHALT—well consolidated, fine to medium aggregate. (Surface Mix) Sand—brown
SB-06	2.0 2.0 4.0+	Station: Offset: ASPHALT—well consolidated, fine to medium aggregate. (Surface Mix) ASPHALT—well consolidated, fine to medium aggregate. (Surface Mix) Sand—black



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(630) 355-2838

Page: 1 of 1

Project: Green Bay Road Reconstruction

GSI Job No.: 13122

Location: Green Bay Road Reconstruction

Date: 03/12/2014

County: Cook

Cored By: BB

Client: GRAEF

Checked By: AJP



Core No.: SB-02

Core Location: Station:

Offset:



Core No.: SB-06

Core Location: Station:

Offset:

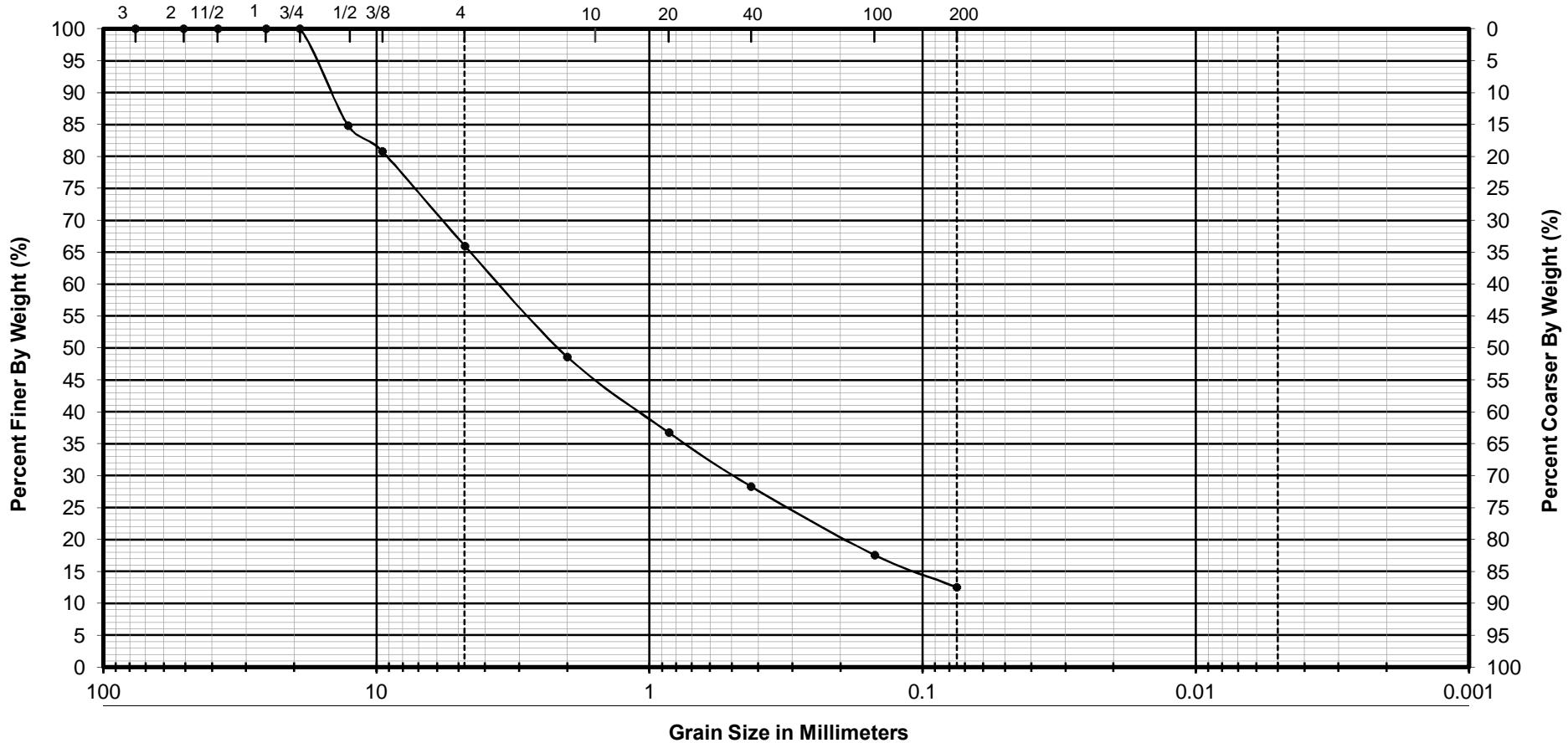
## **APPENDIX F**

### **LAB DATA**



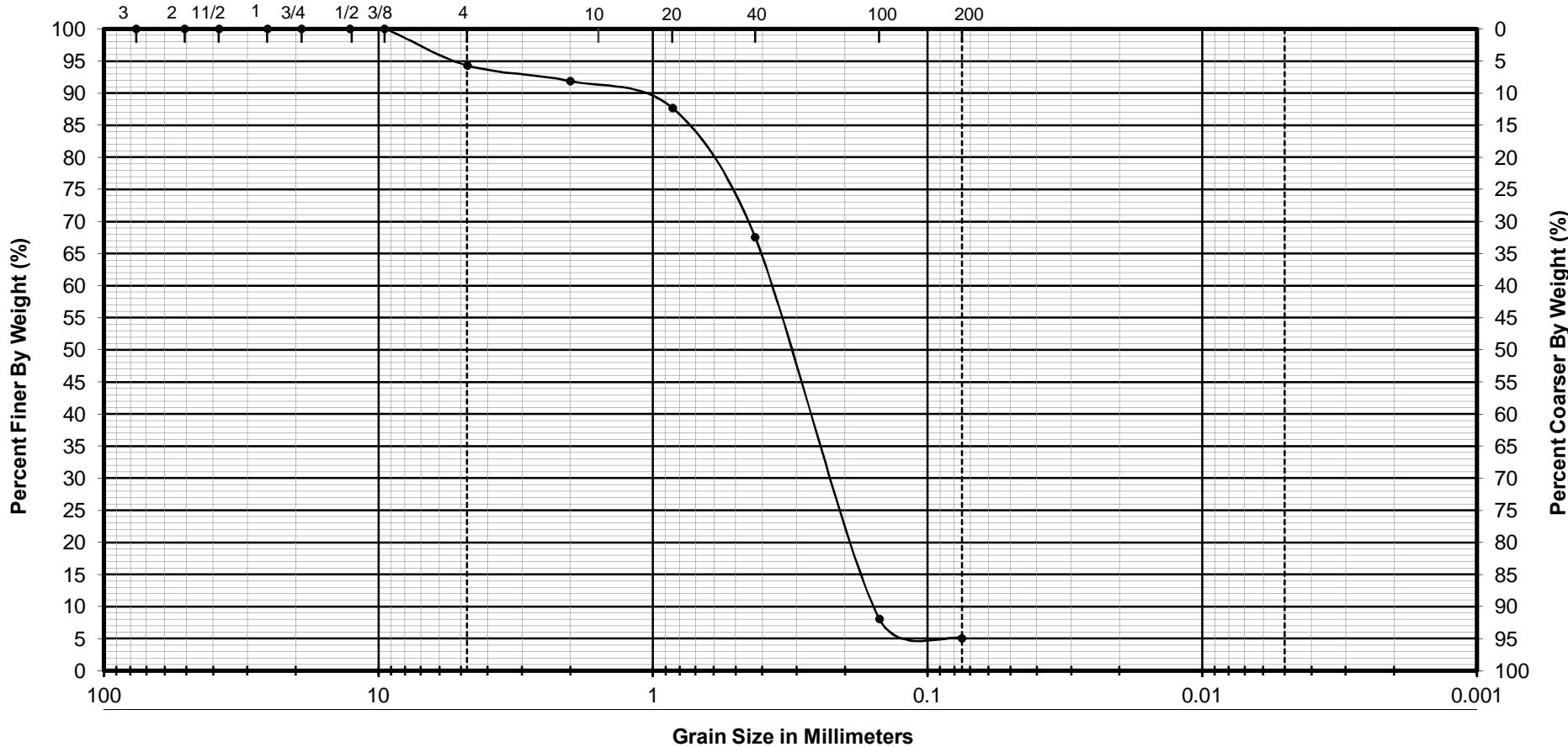
GRAVEL	SAND			SILT	CLAY
	COARSE	MEDIUM	FINE		

Boring No.	SB-04	CLASSIFICATION-ASTM D 2487			GRAIN SIZE ANALYSIS-ASTM C117/C136	
Sample No.	2	WELL-GRADED SAND with SILT and GRAVEL (SW-SM)			Green Bay Avenue 83rd Street to 87th Street Chicago, Illinois	
Depth	1.0'-2.5'	brown				
Test By	JE	Cu      13				
Date	3/14/14	Cc      0				
Reviewed By	KA	% Gravel      31.9			 <b>Geo Services, Inc.</b> Geotechnical, Environmental and Civil Engineering An MBE - DBE Firm	
Job No	13122	% Sand      62.4			1235 E. Davis St., Arlington Heights, IL 60005	
		% Silt/Clay      5.7			Phone 847-253-3845 • Fax 847-253-0482	



Boring No.	SB-07	CLASSIFICATION-ASTM D 2487			GRAIN SIZE ANALYSIS-ASTM C117/C136		
Sample No.	2	SILTY SAND with GRAVEL (SM)			Green Bay Avenue 83rd Street to 87th Street Chicago, Illinois		
Depth	1.0'-2.5'	black					
Test By	JE	Cu      65					
Date	3/14/14	Cc      1					
Reviewed By	KA	% Gravel      34.0					
Job No	13122	% Sand      53.5			% Silt/Clay      12.5		

  
**Geo Services, Inc.**  
Geotechnical, Environmental and Civil Engineering  
An MBE - DBE Firm  
 1235 E. Davis St., Arlington Heights, IL 60005  
 Phone 847-253-3845 • Fax 847-253-0482



GRAVEL	SAND			SILT	CLAY
	COARSE	MEDIUM	FINE		

Boring No.	SB-07	CLASSIFICATION-ASTM D 2487			GRAIN SIZE ANALYSIS-ASTM C117/C136	
Sample No.	4	POORLY GRADED SAND with SILT (SP-SM) brown			Green Bay Avenue 83rd Street to 87th Street Chicago, Illinois	
Depth	3.5'-5.0'	Cu            2 Cc            1 % Gravel      5.7 % Sand        89.2 % Silt/Clay    5.1			1235 E. Davis St., Arlington Heights, IL 60005 Phone 847-253-3845 • Fax 847-253-0482	
Test By	JE				 <b>Geo Services, Inc.</b> Geotechnical, Environmental and Civil Engineering An MBE - DBE Firm	
Date	3/14/14					
Reviewed By	KA					
Job No	13122					

**APPENDIX G**

**LANDFILL CHARACTERIZATION RESULTS**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Chicago

2417 Bond Street

University Park, IL 60484

Tel: (708)534-5200

TestAmerica Job ID: 500-73159-1

Client Project/Site: Green Bay Avenue (13122)

For:

Geo Services, Inc

1235 E Davis Street

Arlington Heights, Illinois 60004

Attn: Kiran Adhikary

Authorized for release by:

3/24/2014 3:05:24 PM

Jim Knapp, Project Manager II

(630)758-0262

jim.knapp@testamericainc.com

### LINKS

Review your project  
results through

TotalAccess

Have a Question?

Ask  
The  
Expert

Visit us at:

[www.testamericainc.com](http://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.

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## Case Narrative

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

### Job ID: 500-73159-1

Laboratory: TestAmerica Chicago

#### Narrative

Job Narrative  
500-73159-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 3/13/2014 4:10 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Detection Summary

Client: Geo Services, Inc  
 Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

**Client Sample ID: SB-06/3.5-5.0**

**Lab Sample ID: 500-73159-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	0.086		0.038		mg/Kg	1	⊗	8270D	Total/NA
Benzo[a]anthracene	0.17		0.038		mg/Kg	1	⊗	8270D	Total/NA
Benzo[a]pyrene	0.26		0.038		mg/Kg	1	⊗	8270D	Total/NA
Benzo[b]fluoranthene	0.30		0.038		mg/Kg	1	⊗	8270D	Total/NA
Benzo[g,h,i]perylene	0.21		0.038		mg/Kg	1	⊗	8270D	Total/NA
Benzo[k]fluoranthene	0.15		0.038		mg/Kg	1	⊗	8270D	Total/NA
Chrysene	0.18		0.038		mg/Kg	1	⊗	8270D	Total/NA
Dibenz(a,h)anthracene	0.076		0.038		mg/Kg	1	⊗	8270D	Total/NA
Fluoranthene	0.18		0.038		mg/Kg	1	⊗	8270D	Total/NA
Indeno[1,2,3-cd]pyrene	0.18		0.038		mg/Kg	1	⊗	8270D	Total/NA
Phenanthrene	0.062		0.038		mg/Kg	1	⊗	8270D	Total/NA
Pyrene	0.21		0.038		mg/Kg	1	⊗	8270D	Total/NA
Cyanide, Total	1.2		0.55		mg/Kg	1	⊗	9014	Total/NA
pH	10.0		0.200		SU	1		9045C	Total/NA
Paint Filter	pass				mL/100g	1		9095A	Total/NA
Flashpoint	>200		40.0		Fahrenheit	1		D92	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

## Method Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
8081B	Organochlorine Pesticides (GC)	SW846	TAL CHI
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL CHI
8151A	Herbicides (GC)	SW846	TAL CHI
6010B	Metals (ICP)	SW846	TAL CHI
7470A	Mercury (CVAA)	SW846	TAL CHI
9014	Cyanide	SW846	TAL CHI
9034	Sulfide, Reactive	SW846	TAL CHI
9045C	pH	SW846	TAL CHI
9066	Phenolics, Total Recoverable	SW846	TAL CHI
9095A	Paint Filter	SW846	TAL CHI
D92	Flashpoint	ASTM	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI

### Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

## Sample Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-73159-1	SB-06/3.5-5.0	Solid	03/11/14 12:30	03/13/14 16:10

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TestAmerica Chicago

# Client Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

**Client Sample ID: SB-06/3.5-0**

**Lab Sample ID: 500-73159-1**

Date Collected: 03/11/14 12:30

Matrix: Solid

Date Received: 03/13/14 16:10

Percent Solids: 87.3

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.016		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Vinyl chloride	ND		0.016		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
1,1-Dichloroethene	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Methylene Chloride	ND		0.31		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
trans-1,2-Dichloroethene	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
cis-1,2-Dichloroethene	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Chloroform	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
1,1,1-Trichloroethane	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Carbon tetrachloride	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
1,2-Dichloroethane	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Trichloroethene	ND		0.031		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
1,2-Dichloropropane	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Bromodichloromethane	ND		0.13		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Toluene	ND		0.016		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
1,1,2-Trichloroethane	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Tetrachloroethene	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Chlorobenzene	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Ethylbenzene	ND		0.016		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Styrene	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Bromoform	ND		0.13		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
Xylenes, Total	ND		0.031		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
1,3-Dichloropropene, Total	ND		0.063		mg/Kg	⊗	03/11/14 12:30	03/19/14 15:47	50
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	110		75 - 125				03/11/14 12:30	03/19/14 15:47	50
Toluene-d8 (Surr)	103		75 - 120				03/11/14 12:30	03/19/14 15:47	50
4-Bromofluorobenzene (Surr)	93		75 - 120				03/11/14 12:30	03/19/14 15:47	50
Dibromofluoromethane	102		75 - 120				03/11/14 12:30	03/19/14 15:47	50

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020		mg/L			03/18/14 17:01	20
Carbon tetrachloride	ND		0.020		mg/L			03/18/14 17:01	20
Chlorobenzene	ND		0.020		mg/L			03/18/14 17:01	20
Chloroform	ND		0.020		mg/L			03/18/14 17:01	20
1,2-Dichloroethane	ND		0.020		mg/L			03/18/14 17:01	20
1,1-Dichloroethene	ND		0.020		mg/L			03/18/14 17:01	20
Methyl Ethyl Ketone	ND		0.10		mg/L			03/18/14 17:01	20
Tetrachloroethene	ND		0.020		mg/L			03/18/14 17:01	20
Trichloroethene	ND		0.020		mg/L			03/18/14 17:01	20
Vinyl chloride	ND		0.020		mg/L			03/18/14 17:01	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	110		75 - 125				03/18/14 17:01	20	
Toluene-d8 (Surr)	100		75 - 120				03/18/14 17:01	20	
4-Bromofluorobenzene (Surr)	92		75 - 120				03/18/14 17:01	20	
Dibromofluoromethane	101		75 - 120				03/18/14 17:01	20	

TestAmerica Chicago

# Client Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

**Client Sample ID: SB-06/3.5-5.0**

Date Collected: 03/11/14 12:30

Date Received: 03/13/14 16:10

**Lab Sample ID: 500-73159-1**

Matrix: Solid

Percent Solids: 87.3

## Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Acenaphthylene</b>	<b>0.086</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
Anthracene	ND		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Benzo[a]anthracene</b>	<b>0.17</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Benzo[a]pyrene</b>	<b>0.26</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Benzo[b]fluoranthene</b>	<b>0.30</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Benzo[g,h,i]perylene</b>	<b>0.21</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Benzo[k]fluoranthene</b>	<b>0.15</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
Bis(2-chloroethyl)ether	ND		0.19		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
Bis(2-ethylhexyl) phthalate	ND		0.19		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Chrysene</b>	<b>0.18</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Dibenz(a,h)anthracene</b>	<b>0.076</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
1,2-Dichlorobenzene	ND		0.19		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
1,4-Dichlorobenzene	ND		0.19		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Fluoranthene</b>	<b>0.18</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
Fluorene	ND		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
Hexachlorocyclopentadiene	ND		0.76		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Indeno[1,2,3-cd]pyrene</b>	<b>0.18</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
Naphthalene	ND		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
N-Nitrosodi-n-propylamine	ND		0.19		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
N-Nitrosodiphenylamine	ND		0.19		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Phenanthrene</b>	<b>0.062</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Pyrene</b>	<b>0.21</b>		0.038		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
1,2,4-Trichlorobenzene	ND		0.19		mg/Kg	⊗	03/17/14 07:03	03/20/14 19:13	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2-Fluorobiphenyl	77		25 - 119				03/17/14 07:03	03/20/14 19:13	1
Nitrobenzene-d5	55		25 - 115				03/17/14 07:03	03/20/14 19:13	1
Terphenyl-d14	89		36 - 134				03/17/14 07:03	03/20/14 19:13	1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.020		mg/L		03/20/14 07:48	03/20/14 16:34	1
2,4-Dinitrotoluene	ND		0.010		mg/L		03/20/14 07:48	03/20/14 16:34	1
Hexachlorobenzene	ND		0.0050		mg/L		03/20/14 07:48	03/20/14 16:34	1
Hexachlorobutadiene	ND		0.050		mg/L		03/20/14 07:48	03/20/14 16:34	1
Hexachloroethane	ND		0.050		mg/L		03/20/14 07:48	03/20/14 16:34	1
2-Methylphenol	ND		0.020		mg/L		03/20/14 07:48	03/20/14 16:34	1
3 & 4 Methylphenol	ND		0.020		mg/L		03/20/14 07:48	03/20/14 16:34	1
Nitrobenzene	ND		0.010		mg/L		03/20/14 07:48	03/20/14 16:34	1
Pentachlorophenol	ND		0.20		mg/L		03/20/14 07:48	03/20/14 16:34	1
Pyridine	ND		0.20		mg/L		03/20/14 07:48	03/20/14 16:34	1
2,4,5-Trichlorophenol	ND		0.10		mg/L		03/20/14 07:48	03/20/14 16:34	1
2,4,6-Trichlorophenol	ND		0.050		mg/L		03/20/14 07:48	03/20/14 16:34	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2-Fluorobiphenyl	64		48 - 110				03/20/14 07:48	03/20/14 16:34	1
2-Fluorophenol (Surr)	43		20 - 100				03/20/14 07:48	03/20/14 16:34	1
Nitrobenzene-d5 (Surr)	57		41 - 110				03/20/14 07:48	03/20/14 16:34	1
Phenol-d5 (Surr)	28		20 - 100				03/20/14 07:48	03/20/14 16:34	1

TestAmerica Chicago

# Client Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

**Client Sample ID: SB-06/3.5-5.0**

**Lab Sample ID: 500-73159-1**

Date Collected: 03/11/14 12:30

Matrix: Solid

Date Received: 03/13/14 16:10

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	85		44 - 132	03/20/14 07:48	03/20/14 16:34	1
2,4,6-Tribromophenol (Surr)	95		50 - 129	03/20/14 07:48	03/20/14 16:34	1

## Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.010	mg/L		03/20/14 07:52	03/20/14 16:44		1
Endrin	ND		0.0050	mg/L		03/20/14 07:52	03/20/14 16:44		1
gamma-BHC (Lindane)	ND		0.0050	mg/L		03/20/14 07:52	03/20/14 16:44		1
Heptachlor	ND		0.0050	mg/L		03/20/14 07:52	03/20/14 16:44		1
Heptachlor epoxide	ND		0.0050	mg/L		03/20/14 07:52	03/20/14 16:44		1
Methoxychlor	ND		0.010	mg/L		03/20/14 07:52	03/20/14 16:44		1
Toxaphene	ND		0.050	mg/L		03/20/14 07:52	03/20/14 16:44		1
Surrogate	%Recovery	Qualifier	Limits			D	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	93		30 - 131			03/20/14 07:52	03/20/14 16:44		1
Tetrachloro-m-xylene	74		44 - 120			03/20/14 07:52	03/20/14 16:44		1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.018	mg/Kg		03/17/14 18:05	03/18/14 13:48		1
PCB-1221	ND		0.018	mg/Kg		03/17/14 18:05	03/18/14 13:48		1
PCB-1232	ND		0.018	mg/Kg		03/17/14 18:05	03/18/14 13:48		1
PCB-1242	ND		0.018	mg/Kg		03/17/14 18:05	03/18/14 13:48		1
PCB-1248	ND		0.018	mg/Kg		03/17/14 18:05	03/18/14 13:48		1
PCB-1254	ND		0.018	mg/Kg		03/17/14 18:05	03/18/14 13:48		1
PCB-1260	ND		0.018	mg/Kg		03/17/14 18:05	03/18/14 13:48		1
Surrogate	%Recovery	Qualifier	Limits			D	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	70		50 - 116			03/17/14 18:05	03/18/14 13:48		1
DCB Decachlorobiphenyl	56		48 - 142			03/17/14 18:05	03/18/14 13:48		1

## Method: 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		0.10	mg/L		03/20/14 18:50	03/21/14 17:22		1
Silvex (2,4,5-TP)	ND		0.10	mg/L		03/20/14 18:50	03/21/14 17:22		1
Surrogate	%Recovery	Qualifier	Limits			D	Prepared	Analyzed	Dil Fac
DCAA	85		30 - 129			03/20/14 18:50	03/21/14 17:22		1

## Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	mg/L		03/20/14 09:00	03/20/14 16:47		1
Barium	ND		0.50	mg/L		03/20/14 09:00	03/20/14 16:47		1
Cadmium	ND		0.0050	mg/L		03/20/14 09:00	03/20/14 16:47		1
Chromium	ND		0.025	mg/L		03/20/14 09:00	03/20/14 16:47		1
Lead	ND		0.050	mg/L		03/20/14 09:00	03/20/14 16:47		1
Selenium	ND		0.050	mg/L		03/20/14 09:00	03/20/14 16:47		1
Silver	ND		0.025	mg/L		03/20/14 09:00	03/20/14 16:47		1

TestAmerica Chicago

# Client Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

**Client Sample ID: SB-06/3.5-5.0**

**Lab Sample ID: 500-73159-1**

Date Collected: 03/11/14 12:30

Matrix: Solid

Date Received: 03/13/14 16:10

**Method: 7470A - Mercury (CVAA) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		03/20/14 11:15	03/21/14 10:04	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	1.2		0.55		mg/Kg		03/15/14 16:40	03/15/14 19:08	1
Sulfide, Reactive	ND		49		mg/Kg		03/20/14 09:45	03/21/14 08:38	1
pH	10.0		0.200		SU			03/20/14 13:50	1
Phenolics, Total Recoverable	ND		0.56		mg/Kg		03/19/14 12:00	03/19/14 15:02	1
Paint Filter	pass				mL/100g			03/18/14 19:50	1
Flashpoint	>200		40.0		Fahrenheit			03/18/14 19:35	1

## Definitions/Glossary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

### Qualifiers

#### GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery exceeds the control limits
F2	MS/MSD RPD exceeds control limits

#### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery exceeds the control limits

### 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)

# QC Association Summary

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## GC/MS VOA

### Prep Batch: 227059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	5035	

### Leach Batch: 227090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	1311	
LB 500-227090/1-A	Method Blank	TCLP	Solid	1311	

### Analysis Batch: 227345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	8260B	
LB 500-227090/1-A	Method Blank	TCLP	Solid	8260B	227090
LCS 500-227345/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 500-227345/6	Method Blank	Total/NA	Solid	8260B	

### Analysis Batch: 227542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	8260B	227059
LCS 500-227542/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 500-227542/6	Method Blank	Total/NA	Solid	8260B	

## GC/MS Semi VOA

### Prep Batch: 227160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	3541	
500-73159-1 MS	SB-06/3.5-5.0	Total/NA	Solid	3541	
500-73159-1 MSD	SB-06/3.5-5.0	Total/NA	Solid	3541	
LCS 500-227160/2-A	Lab Control Sample	Total/NA	Solid	3541	
MB 500-227160/1-A	Method Blank	Total/NA	Solid	3541	

### Analysis Batch: 227193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 500-227160/2-A	Lab Control Sample	Total/NA	Solid	8270D	227160

### Analysis Batch: 227400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-227160/1-A	Method Blank	Total/NA	Solid	8270D	227160

### Leach Batch: 227626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	1311	
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	1311	
LB 500-227626/1-C	Method Blank	TCLP	Solid	1311	

### Prep Batch: 227734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	3510C	
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	3510C	227626
LB 500-227626/1-C	Method Blank	TCLP	Solid	3510C	227626
LCS 500-227734/2-A	Lab Control Sample	Total/NA	Solid	3510C	

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# QC Association Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## GC/MS Semi VOA (Continued)

### Prep Batch: 227734 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-227734/1-A	Method Blank	Total/NA	Solid	3510C	

### Analysis Batch: 227746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	8270D	227734
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	8270D	227160
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	8270D	227734
500-73159-1 MS	SB-06/3.5-5.0	Total/NA	Solid	8270D	227160
500-73159-1 MSD	SB-06/3.5-5.0	Total/NA	Solid	8270D	227160
LB 500-227626/1-C	Method Blank	TCLP	Solid	8270D	227734
LCS 500-227734/2-A	Lab Control Sample	Total/NA	Solid	8270D	227734
MB 500-227734/1-A	Method Blank	Total/NA	Solid	8270D	227734

## GC Semi VOA

### Prep Batch: 227320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	3541	
LCS 500-227320/2-A	Lab Control Sample	Total/NA	Solid	3541	
MB 500-227320/1-A	Method Blank	Total/NA	Solid	3541	

### Analysis Batch: 227403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	8082A	227320
LCS 500-227320/2-A	Lab Control Sample	Total/NA	Solid	8082A	227320
MB 500-227320/1-A	Method Blank	Total/NA	Solid	8082A	227320

### Leach Batch: 227626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	1311	
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	1311	
LB 500-227626/1-B	Method Blank	TCLP	Solid	1311	
LB 500-227626/1-F	Method Blank	TCLP	Solid	1311	

### Prep Batch: 227736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	3510C	227626
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	3510C	227626
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	3510C	227626
LB 500-227626/1-B	Method Blank	TCLP	Solid	3510C	227626
LCS 500-227736/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCS 500-227736/3-A	Lab Control Sample	Total/NA	Solid	3510C	
MB 500-227736/1-A	Method Blank	Total/NA	Solid	3510C	

### Analysis Batch: 227737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	8081B	227736
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	8081B	227736
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	8081B	227736
LB 500-227626/1-B	Method Blank	TCLP	Solid	8081B	227736

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# QC Association Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## GC Semi VOA (Continued)

### Analysis Batch: 227737 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 500-227736/2-A	Lab Control Sample	Total/NA	Solid	8081B	227736
LCS 500-227736/3-A	Lab Control Sample	Total/NA	Solid	8081B	227736
MB 500-227736/1-A	Method Blank	Total/NA	Solid	8081B	227736

### Prep Batch: 227920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	8151A	227626
LB 500-227626/1-F	Method Blank	TCLP	Solid	8151A	227626
LCS 500-227920/2-A	Lab Control Sample	Total/NA	Solid	8151A	
MB 500-227920/1-A	Method Blank	Total/NA	Solid	8151A	

### Analysis Batch: 228083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	8151A	227920
LB 500-227626/1-F	Method Blank	TCLP	Solid	8151A	227920
LCS 500-227920/2-A	Lab Control Sample	Total/NA	Solid	8151A	227920
MB 500-227920/1-A	Method Blank	Total/NA	Solid	8151A	227920

## Metals

### Leach Batch: 227626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	1311	
500-73159-1 DU	SB-06/3.5-5.0	TCLP	Solid	1311	
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	1311	
LB 500-227626/1-D	Method Blank	TCLP	Solid	1311	
LB 500-227626/1-E	Method Blank	TCLP	Solid	1311	

### Prep Batch: 227762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	3010A	227626
500-73159-1 DU	SB-06/3.5-5.0	TCLP	Solid	3010A	227626
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	3010A	227626
LB 500-227626/1-D	Method Blank	TCLP	Solid	3010A	227626
LCS 500-227762/3-A	Lab Control Sample	Total/NA	Solid	3010A	

### Prep Batch: 227783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	7470A	227626
LB 500-227626/1-E	Method Blank	TCLP	Solid	7470A	227626
LCS 500-227783/13-A	Lab Control Sample	Total/NA	Solid	7470A	
MB 500-227783/12-A	Method Blank	Total/NA	Solid	7470A	

### Analysis Batch: 227974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	6010B	227762
500-73159-1 DU	SB-06/3.5-5.0	TCLP	Solid	6010B	227762
500-73159-1 MS	SB-06/3.5-5.0	TCLP	Solid	6010B	227762
LB 500-227626/1-D	Method Blank	TCLP	Solid	6010B	227762
LCS 500-227762/3-A	Lab Control Sample	Total/NA	Solid	6010B	227762

TestAmerica Chicago

# QC Association Summary

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Metals (Continued)

### Analysis Batch: 228082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	TCLP	Solid	7470A	227783
LB 500-227626/1-E	Method Blank	TCLP	Solid	7470A	227783
LCS 500-227783/13-A	Lab Control Sample	Total/NA	Solid	7470A	227783
MB 500-227783/12-A	Method Blank	Total/NA	Solid	7470A	227783

## General Chemistry

### Prep Batch: 227083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	9010B	9
500-73159-1 MS	SB-06/3.5-5.0	Total/NA	Solid	9010B	10
500-73159-1 MSD	SB-06/3.5-5.0	Total/NA	Solid	9010B	11
LCS 500-227083/2-A	Lab Control Sample	Total/NA	Solid	9010B	12
MB 500-227083/1-A	Method Blank	Total/NA	Solid	9010B	13

### Analysis Batch: 227087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	Moisture	14

### Analysis Batch: 227098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	9014	227083
500-73159-1 MS	SB-06/3.5-5.0	Total/NA	Solid	9014	227083
500-73159-1 MSD	SB-06/3.5-5.0	Total/NA	Solid	9014	227083
LCS 500-227083/2-A	Lab Control Sample	Total/NA	Solid	9014	227083
MB 500-227083/1-A	Method Blank	Total/NA	Solid	9014	227083

### Prep Batch: 227439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	Distill/Phenol	15
LCS 500-227439/2-A	Lab Control Sample	Total/NA	Solid	Distill/Phenol	
MB 500-227439/1-A	Method Blank	Total/NA	Solid	Distill/Phenol	

### Analysis Batch: 227522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	9095A	

### Analysis Batch: 227530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	D92	

### Prep Batch: 227650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	7.3.4	1
LCS 500-227650/2-A	Lab Control Sample	Total/NA	Solid	7.3.4	2
MB 500-227650/1-A	Method Blank	Total/NA	Solid	7.3.4	3

### Analysis Batch: 227742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	9066	227439

TestAmerica Chicago

## QC Association Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

### General Chemistry (Continued)

#### Analysis Batch: 227742 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 500-227439/2-A	Lab Control Sample	Total/NA	Solid	9066	227439
MB 500-227439/1-A	Method Blank	Total/NA	Solid	9066	227439

#### Analysis Batch: 227884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	9045C	

#### Analysis Batch: 227999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-73159-1	SB-06/3.5-5.0	Total/NA	Solid	9034	227650
LCS 500-227650/2-A	Lab Control Sample	Total/NA	Solid	9034	227650
MB 500-227650/1-A	Method Blank	Total/NA	Solid	9034	227650

## Surrogate Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (75-125)	TOL (75-120)	BFB (75-120)	DBFM (75-120)
500-73159-1	SB-06/3.5-5.0	110	103	93	102
LCS 500-227345/4	Lab Control Sample	106	97	94	100
LCS 500-227542/4	Lab Control Sample	106	98	94	98
MB 500-227345/6	Method Blank	106	101	93	100
MB 500-227542/6	Method Blank	109	101	94	102

#### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (75-125)	TOL (75-120)	BFB (75-120)	DBFM (75-120)
500-73159-1	SB-06/3.5-5.0	110	100	92	101
LB 500-227090/1-A	Method Blank	104	99	90	102

#### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane

### Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		FBP (25-119)	NBZ (25-115)	TPH (36-134)
500-73159-1	SB-06/3.5-5.0	77	55	89
500-73159-1 MS	SB-06/3.5-5.0	72	53	89
500-73159-1 MSD	SB-06/3.5-5.0	62	44	101
LCS 500-227160/2-A	Lab Control Sample	92	64	89
MB 500-227160/1-A	Method Blank	84	77	99

#### Surrogate Legend

FBP = 2-Fluorobiphenyl

NBZ = Nitrobenzene-d5

TPH = Terphenyl-d14

TestAmerica Chicago

## Surrogate Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

### Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		2FP (20-100)	PHL (20-100)	TBP (50-129)	FBP (48-110)	NBZ (41-110)	TPH (44-132)
LCS 500-227734/2-A	Lab Control Sample	38	28	98	63	56	92
MB 500-227734/1-A	Method Blank	47	30	85	53	57	82

#### Surrogate Legend

2FP = 2-Fluorophenol (Surr)  
PHL = Phenol-d5 (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
FBP = 2-Fluorobiphenyl  
NBZ = Nitrobenzene-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

### Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (48-110)	2FP (20-100)	NBZ (41-110)	PHL (20-100)	TPH (44-132)	TBP (50-129)
500-73159-1	SB-06/3.5-5.0	64	43	57	28	85	95
500-73159-1 MS	SB-06/3.5-5.0	66	43	64	30	91	103
LB 500-227626/1-C	Method Blank	61	43	59	29	88	103

#### Surrogate Legend

FBP = 2-Fluorobiphenyl  
2FP = 2-Fluorophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)

### Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB1 (30-131)	TCX1 (44-120)
LCS 500-227736/2-A	Lab Control Sample	80	77
LCS 500-227736/3-A	Lab Control Sample	68	71
MB 500-227736/1-A	Method Blank	47	74

#### Surrogate Legend

DCB = DCB Decachlorobiphenyl  
TCX = Tetrachloro-m-xylene

### Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB1 (30-131)	TCX1 (44-120)
500-73159-1	SB-06/3.5-5.0	93	74

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## Surrogate Summary

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

### Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB1 (30-131)	TCX1 (44-120)
500-73159-1 MS	SB-06/3.5-5.0	92	76
500-73159-1 MS	SB-06/3.5-5.0	91	80
LB 500-227626/1-B	Method Blank	90	74

**Surrogate Legend**

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

### Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (50-116)	DCB1 (48-142)
500-73159-1	SB-06/3.5-5.0	70	56
LCS 500-227320/2-A	Lab Control Sample	65	76
MB 500-227320/1-A	Method Blank	71	83

**Surrogate Legend**

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl

### Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1 (30-129)	
LCS 500-227920/2-A	Lab Control Sample	93	
MB 500-227920/1-A	Method Blank	95	

**Surrogate Legend**

DCPA = DCAA

### Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1 (30-129)	
500-73159-1	SB-06/3.5-5.0	85	
LB 500-227626/1-F	Method Blank	87	

**Surrogate Legend**

DCPA = DCAA

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# QC Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID:** MB 500-227345/6

**Matrix:** Solid

**Analysis Batch:** 227345

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		0.0010		mg/L			03/18/14 10:04	1
1,1-Dichloroethene	ND		0.0010		mg/L			03/18/14 10:04	1
Methyl Ethyl Ketone	ND		0.0050		mg/L			03/18/14 10:04	1
Vinyl chloride	ND		0.0010		mg/L			03/18/14 10:04	1
Chloroform	ND		0.0010		mg/L			03/18/14 10:04	1
Carbon tetrachloride	ND		0.0010		mg/L			03/18/14 10:04	1
1,2-Dichloroethane	ND		0.0010		mg/L			03/18/14 10:04	1
Trichloroethene	ND		0.0010		mg/L			03/18/14 10:04	1
Tetrachloroethene	ND		0.0010		mg/L			03/18/14 10:04	1
Chlorobenzene	ND		0.0010		mg/L			03/18/14 10:04	1
MB		MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared		Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 125					03/18/14 10:04	1
Toluene-d8 (Surr)	101		75 - 120					03/18/14 10:04	1
4-Bromofluorobenzene (Surr)	93		75 - 120					03/18/14 10:04	1
Dibromofluoromethane	100		75 - 120					03/18/14 10:04	1

**Lab Sample ID:** LCS 500-227345/4

**Matrix:** Solid

**Analysis Batch:** 227345

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec	Limits	%Rec.
	Added								
Benzene	0.0500		0.0518		mg/L		104	70 - 120	
1,1-Dichloroethene	0.0500		0.0444		mg/L		89	58 - 122	
Methyl Ethyl Ketone	0.0500		0.0539		mg/L		108	54 - 138	
Vinyl chloride	0.0500		0.0534		mg/L		107	62 - 138	
Chloroform	0.0500		0.0501		mg/L		100	70 - 120	
Carbon tetrachloride	0.0500		0.0503		mg/L		101	70 - 125	
1,2-Dichloroethane	0.0500		0.0525		mg/L		105	69 - 120	
Trichloroethene	0.0500		0.0457		mg/L		91	70 - 120	
Tetrachloroethene	0.0500		0.0491		mg/L		98	70 - 123	
Chlorobenzene	0.0500		0.0514		mg/L		103	70 - 120	
LCS		LCS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	106		75 - 125						
Toluene-d8 (Surr)	97		75 - 120						
4-Bromofluorobenzene (Surr)	94		75 - 120						
Dibromofluoromethane	100		75 - 120						

**Lab Sample ID:** MB 500-227542/6

**Matrix:** Solid

**Analysis Batch:** 227542

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		0.00025		mg/Kg			03/19/14 10:24	1
1,1-Dichloroethene	ND		0.0010		mg/Kg			03/19/14 10:24	1
Methylene Chloride	ND		0.0050		mg/Kg			03/19/14 10:24	1

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# QC Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 500-227542/6**

**Matrix: Solid**

**Analysis Batch: 227542**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	ND	ND									
trans-1,2-Dichloroethene	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
cis-1,2-Dichloroethene	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Vinyl chloride	ND	ND			0.00025		mg/Kg			03/19/14 10:24	1
Chloroform	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
1,1,1-Trichloroethane	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Carbon tetrachloride	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
1,2-Dichloroethane	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Trichloroethene	ND	ND			0.00050		mg/Kg			03/19/14 10:24	1
1,2-Dichloropropane	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Bromodichloromethane	ND	ND			0.0020		mg/Kg			03/19/14 10:24	1
Toluene	ND	ND			0.00025		mg/Kg			03/19/14 10:24	1
1,1,2-Trichloroethane	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Tetrachloroethene	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Chlorobenzene	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Ethylbenzene	ND	ND			0.00025		mg/Kg			03/19/14 10:24	1
Styrene	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1
Bromoform	ND	ND			0.0020		mg/Kg			03/19/14 10:24	1
Xylenes, Total	ND	ND			0.00050		mg/Kg			03/19/14 10:24	1
1,3-Dichloropropene, Total	ND	ND			0.0010		mg/Kg			03/19/14 10:24	1

**MB MB**

Surrogate	MB	MB	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
	Surrogate	%Recovery							
1,2-Dichloroethane-d4 (Sur)	109	109	109		75 - 125			03/19/14 10:24	1
Toluene-d8 (Sur)	101	101	101		75 - 120			03/19/14 10:24	1
4-Bromofluorobenzene (Sur)	94	94	94		75 - 120			03/19/14 10:24	1
Dibromofluoromethane	102	102	102		75 - 120			03/19/14 10:24	1

**Lab Sample ID: LCS 500-227542/4**

**Matrix: Solid**

**Analysis Batch: 227542**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike	LCS			Unit	D	%Rec	Limits	
	Added	Result	Qualifier						
Benzene		0.0500	0.0561		mg/Kg		112	75 - 120	
1,1-Dichloroethene		0.0500	0.0519		mg/Kg		104	69 - 120	
Methylene Chloride		0.0500	0.0530		mg/Kg		106	73 - 120	
trans-1,2-Dichloroethene		0.0500	0.0513		mg/Kg		103	77 - 120	
cis-1,2-Dichloroethene		0.0500	0.0517		mg/Kg		103	75 - 120	
Vinyl chloride		0.0500	0.0526		mg/Kg		105	72 - 123	
Chloroform		0.0500	0.0533		mg/Kg		107	76 - 120	
1,1,1-Trichloroethane		0.0500	0.0539		mg/Kg		108	72 - 124	
Carbon tetrachloride		0.0500	0.0534		mg/Kg		107	70 - 126	
1,2-Dichloroethane		0.0500	0.0553		mg/Kg		111	69 - 130	
Trichloroethene		0.0500	0.0473		mg/Kg		95	75 - 120	
1,2-Dichloropropane		0.0500	0.0544		mg/Kg		109	75 - 120	
Bromodichloromethane		0.0500	0.0520		mg/Kg		104	77 - 121	
cis-1,3-Dichloropropene		0.0500	0.0511		mg/Kg		102	78 - 121	
Toluene		0.0500	0.0505		mg/Kg		101	75 - 120	
trans-1,3-Dichloropropene		0.0500	0.0531		mg/Kg		106	74 - 123	
1,1,2-Trichloroethane		0.0500	0.0536		mg/Kg		107	75 - 120	

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# QC Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 500-227542/4**

**Matrix: Solid**

**Analysis Batch: 227542**

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

Analyte	Spike		LCS			Unit	D	%Rec	Limits	%Rec.
	Added	Result	LCS	Qualifier						
Tetrachloroethene	0.0500	0.0510			mg/Kg		102		75 - 120	
Chlorobenzene	0.0500	0.0516			mg/Kg		103		75 - 120	
Ethylbenzene	0.0500	0.0545			mg/Kg		109		75 - 120	
m&p-Xylene	0.0500	0.0550			mg/Kg		110		75 - 120	
o-Xylene	0.0500	0.0538			mg/Kg		108		75 - 120	
Styrene	0.0500	0.0543			mg/Kg		109		75 - 120	
Bromoform	0.0500	0.0487			mg/Kg		97		68 - 126	
Xylenes, Total	0.100	0.109			mg/Kg		109		75 - 120	

Surrogate	LCS		LCS	
	%Recovery	Qualifier		Limits
1,2-Dichloroethane-d4 (Surr)	106			75 - 125
Toluene-d8 (Surr)	98			75 - 120
4-Bromofluorobenzene (Surr)	94			75 - 120
Dibromofluoromethane	98			75 - 120

**Lab Sample ID: LB 500-227090/1-A**

**Matrix: Solid**

**Analysis Batch: 227345**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**

Analyte	LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		0.020		mg/L			03/18/14 14:09	20
1,1-Dichloroethene	ND		0.020		mg/L			03/18/14 14:09	20
Methyl Ethyl Ketone	ND		0.10		mg/L			03/18/14 14:09	20
Vinyl chloride	ND		0.020		mg/L			03/18/14 14:09	20
Chloroform	ND		0.020		mg/L			03/18/14 14:09	20
Carbon tetrachloride	ND		0.020		mg/L			03/18/14 14:09	20
1,2-Dichloroethane	ND		0.020		mg/L			03/18/14 14:09	20
Trichloroethene	ND		0.020		mg/L			03/18/14 14:09	20
Tetrachloroethene	ND		0.020		mg/L			03/18/14 14:09	20
Chlorobenzene	ND		0.020		mg/L			03/18/14 14:09	20

Surrogate	LB		LB		Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier		Limits				
1,2-Dichloroethane-d4 (Surr)	104			75 - 125			03/18/14 14:09	20
Toluene-d8 (Surr)	99			75 - 120			03/18/14 14:09	20
4-Bromofluorobenzene (Surr)	90			75 - 120			03/18/14 14:09	20
Dibromofluoromethane	102			75 - 120			03/18/14 14:09	20

## Method: 8270D - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 500-227160/1-A**

**Matrix: Solid**

**Analysis Batch: 227400**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 227160**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acenaphthene	ND		0.033		mg/Kg		03/17/14 07:03	03/18/14 14:00	1
Acenaphthylene	ND		0.033		mg/Kg		03/17/14 07:03	03/18/14 14:00	1
Anthracene	ND		0.033		mg/Kg		03/17/14 07:03	03/18/14 14:00	1

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 500-227160/1-A**

**Matrix: Solid**

**Analysis Batch: 227400**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 227160**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	ND	ND							03/17/14 07:03	03/18/14 14:00	
Benzo[a]anthracene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Benzo[a]pyrene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Benzo[b]fluoranthene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Benzo[g,h,i]perylene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Benzo[k]fluoranthene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Bis(2-chloroethyl)ether	ND	ND	0.17	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Bis(2-ethylhexyl) phthalate	ND	ND	0.17	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Chrysene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Dibenz(a,h)anthracene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
1,2-Dichlorobenzene	ND	ND	0.17	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
1,4-Dichlorobenzene	ND	ND	0.17	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Fluoranthene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Fluorene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Hexachlorocyclopentadiene	ND	ND	0.67	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Indeno[1,2,3-cd]pyrene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Naphthalene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
N-Nitrosodi-n-propylamine	ND	ND	0.17	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
N-Nitrosodiphenylamine	ND	ND	0.17	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Phenanthrene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
Pyrene	ND	ND	0.033	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				
1,2,4-Trichlorobenzene	ND	ND	0.17	mg/Kg	03/17/14 07:03	03/18/14 14:00	1				

**MB MB**

Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	Surrogate	%Recovery				Prepared	Analyzed	
2-Fluorobiphenyl	84	84	84	25 - 119	25 - 119	03/17/14 07:03	03/18/14 14:00	1
Nitrobenzene-d5	77	77	77	25 - 115	25 - 115	03/17/14 07:03	03/18/14 14:00	1
Terphenyl-d14	99	99	99	36 - 134	36 - 134	03/17/14 07:03	03/18/14 14:00	1

**Lab Sample ID: LCS 500-227160/2-A**

**Matrix: Solid**

**Analysis Batch: 227193**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 227160**

Analyte	Spike	LCS		LCS		%Rec.		
	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Acenaphthene		1.33	1.21	mg/Kg		91	47 - 110	
Acenaphthylene		1.33	1.10	mg/Kg		83	51 - 113	
Anthracene		1.33	1.12	mg/Kg		84	53 - 121	
Benzo[a]anthracene		1.33	1.11	mg/Kg		83	52 - 113	
Benzo[a]pyrene		1.33	1.18	mg/Kg		89	52 - 110	
Benzo[b]fluoranthene		1.33	1.16	mg/Kg		87	49 - 118	
Benzo[g,h,i]perylene		1.33	1.10	mg/Kg		83	53 - 115	
Benzo[k]fluoranthene		1.33	1.14	mg/Kg		86	46 - 115	
Bis(2-chloroethyl)ether		1.33	0.963	mg/Kg		72	41 - 112	
Bis(2-ethylhexyl) phthalate		1.33	1.29	mg/Kg		97	52 - 129	
Chrysene		1.33	1.12	mg/Kg		84	51 - 112	
Dibenz(a,h)anthracene		1.33	1.17	mg/Kg		88	48 - 113	
1,2-Dichlorobenzene		1.33	1.08	mg/Kg		81	48 - 110	
1,4-Dichlorobenzene		1.33	1.04	mg/Kg		78	46 - 110	
Fluoranthene		1.33	1.11	mg/Kg		83	53 - 122	
Fluorene		1.33	1.22	mg/Kg		92	51 - 119	

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 500-227160/2-A**

**Matrix: Solid**

**Analysis Batch: 227193**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 227160**

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Hexachlorocyclopentadiene	1.33	0.994		mg/Kg		75	10 - 134
Indeno[1,2,3-cd]pyrene	1.33	1.14		mg/Kg		86	49 - 113
Naphthalene	1.33	1.05		mg/Kg		79	49 - 110
N-Nitrosodi-n-propylamine	1.33	1.18		mg/Kg		89	44 - 112
N-Nitrosodiphenylamine	1.33	1.21		mg/Kg		90	48 - 113
Phenanthrene	1.33	1.09		mg/Kg		82	54 - 120
Pyrene	1.33	1.10		mg/Kg		82	54 - 119
1,2,4-Trichlorobenzene	1.33	1.11		mg/Kg		83	48 - 113

Surrogate	LCS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl	92		25 - 119
Nitrobenzene-d5	64		25 - 115
Terphenyl-d14	89		36 - 134

**Lab Sample ID: 500-73159-1 MS**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: Total/NA**

**Prep Batch: 227160**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	Limits
				Result	Qualifier				
Acenaphthene	ND		1.51	1.13		mg/Kg	⊗	74	47 - 110
Acenaphthylene	0.086		1.51	1.21		mg/Kg	⊗	74	51 - 113
Anthracene	ND		1.51	1.11		mg/Kg	⊗	71	53 - 121
Benzo[a]anthracene	0.17		1.51	1.46		mg/Kg	⊗	85	52 - 113
Benzo[a]pyrene	0.26		1.51	1.53		mg/Kg	⊗	84	52 - 110
Benzo[b]fluoranthene	0.30		1.51	1.75		mg/Kg	⊗	96	49 - 118
Benzo[g,h,i]perylene	0.21		1.51	1.60		mg/Kg	⊗	92	53 - 115
Benzo[k]fluoranthene	0.15		1.51	1.25		mg/Kg	⊗	73	46 - 115
Bis(2-chloroethyl)ether	ND		1.51	0.854		mg/Kg	⊗	56	41 - 112
Bis(2-ethylhexyl) phthalate	ND		1.51	1.52		mg/Kg	⊗	101	52 - 129
Chrysene	0.18		1.51	1.34		mg/Kg	⊗	77	51 - 112
Dibenz(a,h)anthracene	0.076		1.51	1.42		mg/Kg	⊗	89	48 - 113
1,2-Dichlorobenzene	ND		1.51	0.774		mg/Kg	⊗	51	48 - 110
1,4-Dichlorobenzene	ND		1.51	0.727		mg/Kg	⊗	48	46 - 110
Fluoranthene	0.18		1.51	1.24		mg/Kg	⊗	71	53 - 122
Fluorene	ND		1.51	1.16		mg/Kg	⊗	75	51 - 119
Hexachlorocyclopentadiene	ND		1.51	ND F1		mg/Kg	⊗	0	10 - 134
Indeno[1,2,3-cd]pyrene	0.18		1.51	1.59		mg/Kg	⊗	93	49 - 113
Naphthalene	ND		1.51	0.900		mg/Kg	⊗	58	49 - 110
N-Nitrosodi-n-propylamine	ND		1.51	0.911		mg/Kg	⊗	60	44 - 112
N-Nitrosodiphenylamine	ND		1.51	1.10		mg/Kg	⊗	73	48 - 113
Phenanthrene	0.062		1.51	1.21		mg/Kg	⊗	76	54 - 120
Pyrene	0.21		1.51	1.55		mg/Kg	⊗	89	54 - 119
1,2,4-Trichlorobenzene	ND		1.51	0.935		mg/Kg	⊗	62	48 - 113

Surrogate	MS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl	72		25 - 119
Nitrobenzene-d5	53		25 - 115

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 500-73159-1 MS**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: Total/NA**

**Prep Batch: 227160**

Surrogate	MS	MS	%Recovery	Qualifier	Limits
Terphenyl-d14			89		36 - 134

**Lab Sample ID: 500-73159-1 MSD**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: Total/NA**

**Prep Batch: 227160**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Acenaphthene	ND		1.50	1.05		mg/Kg	⊗	70	47 - 110	7	30
Acenaphthylene	0.086		1.50	1.17		mg/Kg	⊗	72	51 - 113	4	30
Anthracene	ND		1.50	1.17		mg/Kg	⊗	76	53 - 121	6	30
Benzo[a]anthracene	0.17		1.50	1.46		mg/Kg	⊗	86	52 - 113	0	30
Benzo[a]pyrene	0.26		1.50	1.52		mg/Kg	⊗	84	52 - 110	1	30
Benzo[b]fluoranthene	0.30		1.50	1.51		mg/Kg	⊗	81	49 - 118	15	30
Benzo[g,h,i]perylene	0.21		1.50	1.61		mg/Kg	⊗	93	53 - 115	1	30
Benzo[k]fluoranthene	0.15		1.50	1.39		mg/Kg	⊗	83	46 - 115	10	30
Bis(2-chloroethyl)ether	ND		1.50	0.960		mg/Kg	⊗	64	41 - 112	12	30
Bis(2-ethylhexyl) phthalate	ND		1.50	1.68		mg/Kg	⊗	112	52 - 129	10	30
Chrysene	0.18		1.50	1.49		mg/Kg	⊗	87	51 - 112	10	30
Dibenz(a,h)anthracene	0.076		1.50	1.54		mg/Kg	⊗	98	48 - 113	8	30
1,2-Dichlorobenzene	ND		1.50	1.25	F2	mg/Kg	⊗	84	48 - 110	47	30
1,4-Dichlorobenzene	ND		1.50	1.18	F2	mg/Kg	⊗	79	46 - 110	48	30
Fluoranthene	0.18		1.50	1.32		mg/Kg	⊗	77	53 - 122	6	30
Fluorene	ND		1.50	1.14		mg/Kg	⊗	75	51 - 119	2	30
Hexachlorocyclopentadiene	ND		1.50	ND	F1	mg/Kg	⊗	0	10 - 134	NC	30
Indeno[1,2,3-cd]pyrene	0.18		1.50	1.61		mg/Kg	⊗	96	49 - 113	1	30
Naphthalene	ND		1.50	0.877		mg/Kg	⊗	58	49 - 110	3	30
N-Nitrosodi-n-propylamine	ND		1.50	1.22		mg/Kg	⊗	81	44 - 112	29	30
N-Nitrosodiphenylamine	ND		1.50	1.26		mg/Kg	⊗	84	48 - 113	14	30
Phenanthrene	0.062		1.50	1.28		mg/Kg	⊗	81	54 - 120	6	30
Pyrene	0.21		1.50	1.65		mg/Kg	⊗	97	54 - 119	6	30
1,2,4-Trichlorobenzene	ND		1.50	0.888		mg/Kg	⊗	59	48 - 113	5	30

Surrogate	MSD	MSD	%Recovery	Qualifier	Limits
	Result	Qualifier			
2-Fluorobiphenyl	62				25 - 119
Nitrobenzene-d5	44				25 - 115
Terphenyl-d14	101				36 - 134

**Lab Sample ID: MB 500-227734/1-A**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 227734**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
2,4-Dinitrotoluene	ND				0.0010		mg/L		03/20/14 07:48	03/20/14 13:53	1
Hexachlorobenzene	ND				0.00050		mg/L		03/20/14 07:48	03/20/14 13:53	1
Hexachlorobutadiene	ND				0.0050		mg/L		03/20/14 07:48	03/20/14 13:53	1
Hexachloroethane	ND				0.0050		mg/L		03/20/14 07:48	03/20/14 13:53	1
2-Methylphenol	ND				0.0020		mg/L		03/20/14 07:48	03/20/14 13:53	1
3 & 4 Methylphenol	ND				0.0020		mg/L		03/20/14 07:48	03/20/14 13:53	1

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 500-227734/1-A**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 227734**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							Prepared	Analyzed	Dil Fac
Nitrobenzene	ND				0.0010		mg/L		03/20/14 07:48	03/20/14 13:53	1
Pentachlorophenol	ND				0.020		mg/L		03/20/14 07:48	03/20/14 13:53	1
1,4-Dichlorobenzene	ND				0.0020		mg/L		03/20/14 07:48	03/20/14 13:53	1
Pyridine	ND				0.020		mg/L		03/20/14 07:48	03/20/14 13:53	1
2,4,5-Trichlorophenol	ND				0.010		mg/L		03/20/14 07:48	03/20/14 13:53	1
2,4,6-Trichlorophenol	ND				0.0050		mg/L		03/20/14 07:48	03/20/14 13:53	1

Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
2-Fluorophenol (Surr)	47		20 - 100			03/20/14 07:48	03/20/14 13:53	1
Phenol-d5 (Surr)	30		20 - 100			03/20/14 07:48	03/20/14 13:53	1
2,4,6-Tribromophenol (Surr)	85		50 - 129			03/20/14 07:48	03/20/14 13:53	1
2-Fluorobiphenyl	53		48 - 110			03/20/14 07:48	03/20/14 13:53	1
Nitrobenzene-d5 (Surr)	57		41 - 110			03/20/14 07:48	03/20/14 13:53	1
Terphenyl-d14 (Surr)	82		44 - 132			03/20/14 07:48	03/20/14 13:53	1

**Lab Sample ID: LCS 500-227734/2-A**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 227734**

Analyte	Spikes	LCS	LCS	Added	Result	Qualifier	Unit	D	%Rec.	Limits
	Added	Result	Qualifier						%Rec.	
2,4-Dinitrotoluene		0.0400	0.0366				mg/L		91	62 - 119
Hexachlorobenzene		0.0400	0.0290				mg/L		73	60 - 110
Hexachlorobutadiene		0.0400	0.0195				mg/L		49	28 - 110
Hexachloroethane		0.0400	0.0156				mg/L		39	29 - 100
2-Methylphenol		0.0400	0.0241				mg/L		60	42 - 100
3 & 4 Methylphenol		0.0400	0.0228				mg/L		57	38 - 110
Nitrobenzene		0.0400	0.0253				mg/L		63	52 - 110
Pentachlorophenol		0.0800	0.0684				mg/L		86	42 - 127
1,4-Dichlorobenzene		0.0400	0.0177				mg/L		44	33 - 100
Pyridine		0.0400	ND				mg/L		43	10 - 100
2,4,5-Trichlorophenol		0.0400	0.0346				mg/L		87	63 - 110
2,4,6-Trichlorophenol		0.0400	0.0325				mg/L		81	63 - 110

Surrogate	LCS	LCS	%Recovery	Qualifier	Limits
	Result	Qualifier			
2-Fluorophenol (Surr)	38		20 - 100		
Phenol-d5 (Surr)	28		20 - 100		
2,4,6-Tribromophenol (Surr)	98		50 - 129		
2-Fluorobiphenyl	63		48 - 110		
Nitrobenzene-d5 (Surr)	56		41 - 110		
Terphenyl-d14 (Surr)	92		44 - 132		

**Lab Sample ID: LB 500-227626/1-C**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: Method Blank**

**Prep Type: TCLP**

**Prep Batch: 227734**

Analyte	LB	LB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND				0.010		mg/L		03/20/14 07:48	03/20/14 15:02	1
Hexachlorobenzene	ND				0.0050		mg/L		03/20/14 07:48	03/20/14 15:02	1

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LB 500-227626/1-C**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: Method Blank**

**Prep Type: TCLP**

**Prep Batch: 227734**

Analyte	LB		RL	MDL	Unit	D	Prepared		Dil Fac
	Result	Qualifier					Prepared	Analyzed	
Hexachlorobutadiene	ND		0.050		mg/L	03/20/14 07:48	03/20/14 15:02		1
Hexachloroethane	ND		0.050		mg/L	03/20/14 07:48	03/20/14 15:02		1
2-Methylphenol	ND		0.020		mg/L	03/20/14 07:48	03/20/14 15:02		1
3 & 4 Methylphenol	ND		0.020		mg/L	03/20/14 07:48	03/20/14 15:02		1
Nitrobenzene	ND		0.010		mg/L	03/20/14 07:48	03/20/14 15:02		1
Pentachlorophenol	ND		0.20		mg/L	03/20/14 07:48	03/20/14 15:02		1
1,4-Dichlorobenzene	ND		0.020		mg/L	03/20/14 07:48	03/20/14 15:02		1
Pyridine	ND		0.20		mg/L	03/20/14 07:48	03/20/14 15:02		1
2,4,5-Trichlorophenol	ND		0.10		mg/L	03/20/14 07:48	03/20/14 15:02		1
2,4,6-Trichlorophenol	ND		0.050		mg/L	03/20/14 07:48	03/20/14 15:02		1

Surrogate	LB		Limits	Prepared		Dil Fac
	%Recovery	Qualifier		Prepared	Analyzed	
2-Fluorophenol (Surr)	43		20 - 100	03/20/14 07:48	03/20/14 15:02	1
Phenol-d5 (Surr)	29		20 - 100	03/20/14 07:48	03/20/14 15:02	1
2,4,6-Tribromophenol (Surr)	103		50 - 129	03/20/14 07:48	03/20/14 15:02	1
2-Fluorobiphenyl	61		48 - 110	03/20/14 07:48	03/20/14 15:02	1
Nitrobenzene-d5 (Surr)	59		41 - 110	03/20/14 07:48	03/20/14 15:02	1
Terphenyl-d14 (Surr)	88		44 - 132	03/20/14 07:48	03/20/14 15:02	1

**Lab Sample ID: 500-73159-1 MS**

**Matrix: Solid**

**Analysis Batch: 227746**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: TCLP**

**Prep Batch: 227734**

Analyte	Sample		Spike Added	MS		Unit	D	%Rec.	
	Result	Qualifier		Result	Qualifier			%Rec.	Limits
2,4-Dinitrotoluene	ND		0.400	0.374		mg/L	93	62 - 119	
Hexachlorobenzene	ND		0.400	0.323		mg/L	81	60 - 110	
Hexachlorobutadiene	ND		0.400	0.217		mg/L	54	28 - 110	
Hexachloroethane	ND		0.400	0.201		mg/L	50	29 - 100	
2-Methylphenol	ND		0.400	0.264		mg/L	66	42 - 100	
3 & 4 Methylphenol	ND		0.400	0.269		mg/L	67	38 - 110	
Nitrobenzene	ND		0.400	0.280		mg/L	70	52 - 110	
Pentachlorophenol	ND		0.800	0.738		mg/L	92	42 - 127	
1,4-Dichlorobenzene	ND		0.400	0.201		mg/L	50	33 - 100	
Pyridine	ND		0.400	0.208		mg/L	52	10 - 100	
2,4,5-Trichlorophenol	ND		0.400	0.343		mg/L	86	63 - 110	
2,4,6-Trichlorophenol	ND		0.400	0.336		mg/L	84	63 - 110	

Surrogate	MS		Limits	%Recovery	
	Sample	Qualifier		Sample	Qualifier
2-Fluorophenol (Surr)	43		20 - 100		
Phenol-d5 (Surr)	30		20 - 100		
2,4,6-Tribromophenol (Surr)	103		50 - 129		
2-Fluorobiphenyl	66		48 - 110		
Nitrobenzene-d5 (Surr)	64		41 - 110		
Terphenyl-d14 (Surr)	91		44 - 132		

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8081B - Organochlorine Pesticides (GC)

**Lab Sample ID:** MB 500-227736/1-A

**Matrix:** Solid

**Analysis Batch:** 227737

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 227736

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.00010		mg/L		03/20/14 07:52	03/20/14 14:47	1
Endrin	ND		0.000050		mg/L		03/20/14 07:52	03/20/14 14:47	1
gamma-BHC (Lindane)	ND		0.000050		mg/L		03/20/14 07:52	03/20/14 14:47	1
Heptachlor	ND		0.000050		mg/L		03/20/14 07:52	03/20/14 14:47	1
Heptachlor epoxide	ND		0.000050		mg/L		03/20/14 07:52	03/20/14 14:47	1
Methoxychlor	ND		0.00010		mg/L		03/20/14 07:52	03/20/14 14:47	1
Toxaphene	ND		0.00050		mg/L		03/20/14 07:52	03/20/14 14:47	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	47		30 - 131	03/20/14 07:52	03/20/14 14:47	1
Tetrachloro-m-xylene	74		44 - 120	03/20/14 07:52	03/20/14 14:47	1

**Lab Sample ID:** LCS 500-227736/2-A

**Matrix:** Solid

**Analysis Batch:** 227737

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 227736

Analyte	Spikes	LCS	LCS	%Rec.		
	Added	Result	Qualifier	Unit	D	%Rec
Endrin	0.000100	0.0000995		mg/L		100
gamma-BHC (Lindane)	0.000100	0.0000871		mg/L		87
Heptachlor	0.000100	0.0000938		mg/L		94
Heptachlor epoxide	0.000100	0.0000946		mg/L		95
Methoxychlor	0.00100	0.000907		mg/L		90

Surrogate	LCS	LCS	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	80		30 - 131	03/20/14 07:52	03/20/14 14:47	1
Tetrachloro-m-xylene	77		44 - 120	03/20/14 07:52	03/20/14 14:47	1

**Lab Sample ID:** LCS 500-227736/3-A

**Matrix:** Solid

**Analysis Batch:** 227737

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 227736

Analyte	Spikes	LCS	LCS	%Rec.		
	Added	Result	Qualifier	Unit	D	%Rec
Toxaphene	0.0100	0.00797		mg/L		80

Surrogate	LCS	LCS	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	68		30 - 131	03/20/14 07:52	03/20/14 14:47	1
Tetrachloro-m-xylene	71		44 - 120	03/20/14 07:52	03/20/14 14:47	1

**Lab Sample ID:** LB 500-227626/1-B

**Matrix:** Solid

**Analysis Batch:** 227737

**Client Sample ID:** Method Blank

**Prep Type:** TCLP

**Prep Batch:** 227736

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.010		mg/L		03/20/14 07:52	03/20/14 16:05	1
Endrin	ND		0.0050		mg/L		03/20/14 07:52	03/20/14 16:05	1
gamma-BHC (Lindane)	ND		0.0050		mg/L		03/20/14 07:52	03/20/14 16:05	1
Heptachlor	ND		0.0050		mg/L		03/20/14 07:52	03/20/14 16:05	1

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8081B - Organochlorine Pesticides (GC) (Continued)

**Lab Sample ID: LB 500-227626/1-B**

**Matrix: Solid**

**Analysis Batch: 227737**

**Client Sample ID: Method Blank**

**Prep Type: TCLP**

**Prep Batch: 227736**

Analyte	LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Heptachlor epoxide	ND		0.0050		mg/L		03/20/14 07:52	03/20/14 16:05	1
Methoxychlor	ND		0.010		mg/L		03/20/14 07:52	03/20/14 16:05	1
Toxaphene	ND		0.050		mg/L		03/20/14 07:52	03/20/14 16:05	1

Surrogate	LB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	90		30 - 131	03/20/14 07:52	03/20/14 16:05	1
Tetrachloro-m-xylene	74		44 - 120	03/20/14 07:52	03/20/14 16:05	1

**Lab Sample ID: 500-73159-1 MS**

**Matrix: Solid**

**Analysis Batch: 227737**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: TCLP**

**Prep Batch: 227736**

Analyte	Sample Result	Sample Qualifier	Spike		MS Result	MS Qualifier	Unit	D	%Rec	Limits
			Added	Result						
Endrin	ND		0.0100	0.0102			mg/L		102	73 - 121
gamma-BHC (Lindane)	ND		0.0100	0.00870			mg/L		87	72 - 118
Heptachlor	ND		0.0100	0.00894			mg/L		89	60 - 110
Heptachlor epoxide	ND		0.0100	0.00958			mg/L		96	80 - 119
Methoxychlor	ND		0.100	0.0920			mg/L		92	64 - 126

Surrogate	MS		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	92		30 - 131	03/20/14 07:52	03/20/14 16:05	1
Tetrachloro-m-xylene	76		44 - 120	03/20/14 07:52	03/20/14 16:05	1

**Lab Sample ID: 500-73159-1 MS**

**Matrix: Solid**

**Analysis Batch: 227737**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: TCLP**

**Prep Batch: 227736**

Analyte	Sample Result	Sample Qualifier	Spike		MS Result	MS Qualifier	Unit	D	%Rec	Limits
			Added	Result						
Toxaphene	ND		1.00	0.909			mg/L		91	50 - 150

Surrogate	MS		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	91		30 - 131	03/20/14 07:52	03/20/14 16:05	1
Tetrachloro-m-xylene	80		44 - 120	03/20/14 07:52	03/20/14 16:05	1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

**Lab Sample ID: MB 500-227320/1-A**

**Matrix: Solid**

**Analysis Batch: 227403**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 227320**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
PCB-1016	ND		0.017		mg/Kg		03/17/14 18:05	03/18/14 11:59	1
PCB-1221	ND		0.017		mg/Kg		03/17/14 18:05	03/18/14 11:59	1
PCB-1232	ND		0.017		mg/Kg		03/17/14 18:05	03/18/14 11:59	1
PCB-1242	ND		0.017		mg/Kg		03/17/14 18:05	03/18/14 11:59	1
PCB-1248	ND		0.017		mg/Kg		03/17/14 18:05	03/18/14 11:59	1
PCB-1254	ND		0.017		mg/Kg		03/17/14 18:05	03/18/14 11:59	1

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

**Lab Sample ID:** MB 500-227320/1-A

**Matrix:** Solid

**Analysis Batch:** 227403

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 227320

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							Prepared	Analyzed	Dil Fac
PCB-1260	ND				0.017		mg/Kg		03/17/14 18:05	03/18/14 11:59	1
<b>Surrogate</b>	<b>MB</b>	<b>MB</b>									
Tetrachloro-m-xylene	71		%Recovery	Qualifier	Limits				03/17/14 18:05	03/18/14 11:59	1
DCB Decachlorobiphenyl	83				50 - 116				03/17/14 18:05	03/18/14 11:59	1
					48 - 142						

**Lab Sample ID:** LCS 500-227320/2-A

**Matrix:** Solid

**Analysis Batch:** 227403

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 227320

Analyte	MB	MB	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
	Result	Qualifier							Prepared	Analyzed
PCB-1016			0.167	0.137		mg/Kg		82	59 - 110	
PCB-1260			0.167	0.152		mg/Kg		91	69 - 120	
<b>Surrogate</b>	<b>MB</b>	<b>MB</b>								
Tetrachloro-m-xylene	65		%Recovery	Qualifier	Limits					
DCB Decachlorobiphenyl	76				50 - 116					
					48 - 142					

## Method: 8151A - Herbicides (GC)

**Lab Sample ID:** MB 500-227920/1-A

**Matrix:** Solid

**Analysis Batch:** 228083

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 227920

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							Prepared	Analyzed	Dil Fac
2,4-D	ND				0.0010		mg/L		03/20/14 18:50	03/21/14 14:27	1
Silvex (2,4,5-TP)	ND				0.0010		mg/L		03/20/14 18:50	03/21/14 14:27	1
<b>Surrogate</b>	<b>MB</b>	<b>MB</b>									
DCAA	%Recovery	Qualifier	Limits						03/20/14 18:50	03/21/14 14:27	1
	95		30 - 129								

**Lab Sample ID:** LCS 500-227920/2-A

**Matrix:** Solid

**Analysis Batch:** 228083

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 227920

Analyte	MB	MB	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
	Result	Qualifier							Prepared	Analyzed
2,4-D			0.00400	0.00275		mg/L		69	20 - 115	
Silvex (2,4,5-TP)			0.00400	0.00326		mg/L		81	32 - 131	
<b>Surrogate</b>	<b>MB</b>	<b>MB</b>								
DCAA	%Recovery	Qualifier	Limits							
	93		30 - 129							

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc

TestAmerica Job ID: 500-73159-1

Project/Site: Green Bay Avenue (13122)

## Method: 8151A - Herbicides (GC) (Continued)

**Lab Sample ID: LB 500-227626/1-F**

**Matrix: Solid**

**Analysis Batch: 228083**

**Client Sample ID: Method Blank**

**Prep Type: TCLP**

**Prep Batch: 227920**

Analyte	LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,4-D	ND		0.10		mg/L		03/20/14 18:50	03/21/14 16:16	1
Silvex (2,4,5-TP)	ND		0.10		mg/L		03/20/14 18:50	03/21/14 16:16	1
<b>Surrogate</b>									
DCAA	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
	87		30 - 129				03/20/14 18:50	03/21/14 16:16	1

## Method: 6010B - Metals (ICP)

**Lab Sample ID: LCS 500-227762/3-A**

**Matrix: Solid**

**Analysis Batch: 227974**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 227762**

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec	Limits	
	Added	Result							
Arsenic	0.100	0.101	mg/L		101	80 - 120			
Barium	2.00	2.04	mg/L		102	80 - 120			
Cadmium	0.0500	0.0499	mg/L		100	80 - 120			
Chromium	0.200	0.196	mg/L		98	80 - 120			
Lead	0.100	0.0977	mg/L		98	80 - 120			
Selenium	0.100	0.0987	mg/L		99	80 - 120			
Silver	0.0500	0.0469	mg/L		94	80 - 120			

**Lab Sample ID: LB 500-227626/1-D**

**Matrix: Solid**

**Analysis Batch: 227974**

**Client Sample ID: Method Blank**

**Prep Type: TCLP**

**Prep Batch: 227762**

Analyte	LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050		mg/L		03/20/14 09:00	03/20/14 16:34	1
Barium	ND		0.50		mg/L		03/20/14 09:00	03/20/14 16:34	1
Cadmium	ND		0.0050		mg/L		03/20/14 09:00	03/20/14 16:34	1
Chromium	ND		0.025		mg/L		03/20/14 09:00	03/20/14 16:34	1
Lead	ND		0.050		mg/L		03/20/14 09:00	03/20/14 16:34	1
Selenium	ND		0.050		mg/L		03/20/14 09:00	03/20/14 16:34	1
Silver	ND		0.025		mg/L		03/20/14 09:00	03/20/14 16:34	1

**Lab Sample ID: 500-73159-1 MS**

**Matrix: Solid**

**Analysis Batch: 227974**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: TCLP**

**Prep Batch: 227762**

Analyte	Sample		Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
	Result	Qualifier							
Arsenic	ND		0.100	0.122		mg/L		122	50 - 150
Barium	ND		2.00	2.30		mg/L		104	50 - 150
Cadmium	ND		0.0500	0.0561		mg/L		112	50 - 150
Chromium	ND		0.200	0.192		mg/L		96	50 - 150
Lead	ND		0.100	0.102		mg/L		102	50 - 150
Selenium	ND		0.100	0.130		mg/L		108	50 - 150
Silver	ND		0.0500	0.0568		mg/L		114	50 - 150

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc

TestAmerica Job ID: 500-73159-1

Project/Site: Green Bay Avenue (13122)

## Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 500-73159-1 DU

Client Sample ID: SB-06/3.5-5.0

Matrix: Solid

Prep Type: TCLP

Analysis Batch: 227974

Prep Batch: 227762

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Arsenic	ND		ND		mg/L		NC	20
Barium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Chromium	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		ND		mg/L		NC	20

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 500-227783/12-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 228082

Prep Batch: 227783

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.00020	mg/L			03/20/14 11:15	03/21/14 09:51	1

Lab Sample ID: LCS 500-227783/13-A

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 228082

Prep Batch: 227783

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits	Dil Fac
	Added	Result	Qualifier					
Mercury	0.00200	0.00173		mg/L		87	80 - 120	1

Lab Sample ID: LB 500-227626/1-E

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: TCLP

Analysis Batch: 228082

Prep Batch: 227783

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.00020	mg/L			03/20/14 11:15	03/21/14 09:59	1

## Method: 9014 - Cyanide

Lab Sample ID: MB 500-227083/1-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 227098

Prep Batch: 227083

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cyanide, Total	ND		0.50	mg/Kg			03/15/14 16:40	03/15/14 19:06	1

Lab Sample ID: LCS 500-227083/2-A

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 227098

Prep Batch: 227083

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits	Dil Fac
	Added	Result	Qualifier					
Cyanide, Total	5.00	4.94		mg/Kg		99	80 - 120	1

TestAmerica Chicago

# QC Sample Results

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

## Method: 9014 - Cyanide (Continued)

**Lab Sample ID: 500-73159-1 MS**

**Matrix: Solid**

**Analysis Batch: 227098**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: Total/NA**

**Prep Batch: 227083**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Cyanide, Total	1.2		2.23	2.67	F1	mg/Kg	⊗	67	75 - 125

**Lab Sample ID: 500-73159-1 MSD**

**Matrix: Solid**

**Analysis Batch: 227098**

**Client Sample ID: SB-06/3.5-5.0**

**Prep Type: Total/NA**

**Prep Batch: 227083**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Cyanide, Total	1.2		2.22	2.96		mg/Kg	⊗	80	75 - 125	11	20

## Method: 9034 - Sulfide, Reactive

**Lab Sample ID: MB 500-227650/1-A**

**Matrix: Solid**

**Analysis Batch: 227999**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 227650**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfide, Reactive	ND		50		mg/Kg		03/20/14 09:35	03/21/14 08:30	1

**Lab Sample ID: LCS 500-227650/2-A**

**Matrix: Solid**

**Analysis Batch: 227999**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 227650**

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Sulfide, Reactive		185	178	mg/Kg		96	80 - 120

## Method: 9066 - Phenolics, Total Recoverable

**Lab Sample ID: MB 500-227439/1-A**

**Matrix: Solid**

**Analysis Batch: 227742**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 227439**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Phenolics, Total Recoverable	ND		0.50		mg/Kg		03/19/14 12:00	03/19/14 14:59	1

**Lab Sample ID: LCS 500-227439/2-A**

**Matrix: Solid**

**Analysis Batch: 227742**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 227439**

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Phenolics, Total Recoverable		10.0	9.99	mg/Kg		100	90 - 110

TestAmerica Chicago

# Lab Chronicle

Client: Geo Services, Inc  
Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

**Client Sample ID: SB-06/3.5-5.0**

**Lab Sample ID: 500-73159-1**

**Matrix: Solid**

**Date Collected: 03/11/14 12:30**

**Date Received: 03/13/14 16:10**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			227090	03/15/14 15:00	CMV	TAL CHI
TCLP	Analysis	8260B		20	227345	03/18/14 17:01	BDA	TAL CHI
Total/NA	Prep	5035			227059	03/11/14 12:30	WEH	TAL CHI
Total/NA	Analysis	8260B		50	227542	03/19/14 15:47	BDA	TAL CHI
TCLP	Leach	1311			227626	03/19/14 12:30	MJP	TAL CHI
TCLP	Prep	3510C			227734	03/20/14 07:48	AAS	TAL CHI
TCLP	Analysis	8270D		1	227746	03/20/14 16:34	PMF	TAL CHI
Total/NA	Prep	3541			227160	03/17/14 07:03	STW	TAL CHI
Total/NA	Analysis	8270D		1	227746	03/20/14 19:13	PMF	TAL CHI
TCLP	Leach	1311			227626	03/19/14 12:30	MJP	TAL CHI
TCLP	Prep	3510C			227736	03/20/14 07:52	AAS	TAL CHI
TCLP	Analysis	8081B		1	227737	03/20/14 16:44	PJG	TAL CHI
Total/NA	Prep	3541			227320	03/17/14 18:05	DEA	TAL CHI
Total/NA	Analysis	8082A		1	227403	03/18/14 13:48	GMO	TAL CHI
TCLP	Leach	1311			227626	03/19/14 12:30	MJP	TAL CHI
TCLP	Prep	8151A			227920	03/20/14 18:50	DEA	TAL CHI
TCLP	Analysis	8151A		1	228083	03/21/14 17:22	SAW	TAL CHI
TCLP	Leach	1311			227626	03/19/14 12:30	MJP	TAL CHI
TCLP	Prep	3010A			227762	03/20/14 09:00	MJP	TAL CHI
TCLP	Analysis	6010B		1	227974	03/20/14 16:47	PJ1	TAL CHI
TCLP	Leach	1311			227626	03/19/14 12:30	MJP	TAL CHI
TCLP	Prep	7470A			227783	03/20/14 11:15	RLL	TAL CHI
TCLP	Analysis	7470A		1	228082	03/21/14 10:04	RLL	TAL CHI
Total/NA	Prep	9010B			227083	03/15/14 16:40	BIS	TAL CHI
Total/NA	Analysis	9014		1	227098		BIS	TAL CHI
					(Start)	03/15/14 19:08		
					(End)	03/15/14 19:09		
Total/NA	Prep	7.3.4			227650	03/20/14 09:45	JG	TAL CHI
Total/NA	Analysis	9034		1	227999	03/21/14 08:38	JG	TAL CHI
Total/NA	Analysis	9045C		1	227884		JLE	TAL CHI
					(Start)	03/20/14 13:50		
					(End)	03/20/14 13:51		
Total/NA	Prep	Distill/Phenol			227439	03/19/14 12:00	BAH	TAL CHI
Total/NA	Analysis	9066		1	227742	03/19/14 15:02	BAH	TAL CHI
Total/NA	Analysis	9095A		1	227522		SJS	TAL CHI
					(Start)	03/18/14 19:50		
					(End)	03/18/14 19:55		
Total/NA	Analysis	D92		1	227530		NLR	TAL CHI
					(Start)	03/18/14 19:35		
					(End)	03/18/14 20:25		
Total/NA	Analysis	Moisture		1	227087	03/15/14 17:21	LWN	TAL CHI

**Laboratory References:**

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TestAmerica Chicago

## Certification Summary

Client: Geo Services, Inc

Project/Site: Green Bay Avenue (13122)

TestAmerica Job ID: 500-73159-1

### Laboratory: TestAmerica Chicago

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40461	04-30-14 *
California	NELAP	9	01132CA	04-30-14 *
Georgia	State Program	4	N/A	04-30-14 *
Hawaii	State Program	9	N/A	04-30-14 *
Illinois	NELAP	5	100201	04-30-14 *
Indiana	State Program	5	C-IL-02	04-30-14 *
Iowa	State Program	7	82	05-01-14 *
Kansas	NELAP	7	E-10161	10-31-14
Kentucky (UST)	State Program	4	66	04-30-14 *
Louisiana	NELAP	6	30720	06-30-14
Massachusetts	State Program	1	M-IL035	06-30-14
Mississippi	State Program	4	N/A	04-30-14 *
North Carolina DENR	State Program	4	291	12-31-14
North Dakota	State Program	8	R-194	04-30-14 *
Oklahoma	State Program	6	8908	08-31-14
South Carolina	State Program	4	77001	04-30-14 *
USDA	Federal		P330-12-00038	02-06-15
Wisconsin	State Program	5	999580010	08-31-14
Wyoming	State Program	8	8TMS-Q	04-30-14 *

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

TestAmerica Chicago



Complete List -- Parameters:	1
pH (ASTM D4982-89 [Method A])	2
Flashpoint (Method 9045B)	3
Paint Filter	4
Total Phenol	5
Reactive Sulfide	6
Reactive Cyanide	7
PCBs	8
TCLP Metals	9
TCLP Herbicides/Pesticides or Generator Certification on profile sheet	10
TCLP Organics	11
PAHs	12
Volatiles	13
Base/Neutrals	14
BTEX	15

The breakdown for the PAHs, Volatiles, and Base/Neutrals (along with pre-acceptance limits in parenthesis) are as follows:

#### PAHs

Acenaphthene (2,800 mg/kg)  
 Acenaphtylene (75 mg/kg)  
 Anthracene (60,000 mg/kg)  
 Benzo(a)anthracene (8 mg/kg)  
 Benzo(a)pyrene (8 mg/kg)  
 Benzo(b)fluoranthene (8 mg/kg)  
 Benzo(g,h,i) perylene (61,000 mg/kg)  
 Benzo(k)fluoranthene (78 mg/kg)  
 Chrysene (78 mg/kg)  
 Dibenzo(a,h)anthracene (8 mg/kg)  
 Fluoranthene (21,000 mg/kg)  
 Fluorene (2,800 mg/kg)  
 Indeno(1,2,3-c,d)pyrene (8 mg/kg)  
 Naphthalene (130 mg/kg)  
 Phenanthrene (700 mg/kg)  
 Pyrene (21,000 mg/kg)

#### Volatile Constituents

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Bromoform (4 mg/kg)  
 Carbon Tetrachloride (0.35 mg/kg)  
 Chlorobenzene (1.3 mg/kg)  
 Chloroform (0.54 mg/kg)  
 1,2-Dichloroethane (0.1 mg/kg)  
 1,1-Dichloroethene (110 mg/kg)  
 cis-1,2-Dichloroethene (1.1 mg/kg)  
 trans-1,2-Dichloroethene (3.5 mg/kg)

Dichlorobromomethane (0.2 mg/kg)	1
Dichloromethane (methylene chloride) (0.2 mg/kg)	2
1,2-Dichloropropane (1.5 mg/kg)	3
1,3-Dichloropropene (0.02 mg/kg)	4
Styrene (20 mg/kg)	5
Tetrachloroethene (0.3 mg/kg)	6
1,1,1-Trichloroethane (10 mg/kg)	7
1,1,2- Trichloroethane (0.2 mg/kg)	8
Trichloroethene (0.3 mg/kg)	9
Vinyl Chloride (0.05 mg/kg)	10
<b><u>Base / Neutral Constituents</u></b>	11
N-Nitrosodiphenylamine (1 mg/kg)	12
N-Nitrosodi-n-propylamine (0.00005 mg/kg)	13
Bis (2-chloroethyl) ether (0.0003 mg/kg)	14
Bis (2-ethylhexyl) phthalate (410 mg/kg)	15
1,2-Dichlorobenzene (85 mg/kg)	
1,4-dichlorobenzene (10 mg/kg)	
Hexachlorocyclopentadiene (1.1 mg/kg)	
1,2,4- Trichlorobenzene (50 mg/kg)	
<b><u>BTEX</u></b>	
Benzene (0.15 mg/kg)	
Toluene (30.0 mg/kg)	
Ethylbenzene (19.0 mg/kg)	
Xylene (190.0 mg/kg)	

Notes:

Analysis must be performed within the last 12 months and conducted using SW-846 test methods.

A copy of the lab analysis must be on lab letterhead and signed by lab (e.g., lab manager).

## Login Sample Receipt Checklist

Client: Geo Services, Inc

Job Number: 500-73159-1

**Login Number:** 73159

**List Source:** TestAmerica Chicago

**List Number:** 1

**Creator:** Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
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	2.6
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.	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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	