CITY OF SOMERVILLE, MASSACHUSETTS
Department of Purchasing
JOSEPH A. CURTATONE
MAYOR

To: Prospective bidders **IFB 16-68**, Lincoln Park Renovation
From: Alex Nosnik, Assistant Director, Purchasing
Date: 3/15/2016

Re: To provide additional information and to change the minimum quality requirements.

Addendum No. 2 to IFB 16-68

****PLEASE BE SURE TO ACKNOWLEDGE THIS ADDENDUM BELOW****

Please acknowledge receipt of this Addendum by signing below and including this form in your bid package. Failure to do so may subject the proposer to disqualification.

X _____

Name of Authorized Signatory
Title of Authorized Signatory

The City is issuing this addendum to IFB 16-68, Lincoln Park Renovation, to make the following changes:

1. **To provide additional information; please see Attachment 1 for the following:**
   - Geotechnical Engineering Studies
   - Test Pit Report
   - Well Report
   - Soil Characterization Report Lincoln Park Community School
   - Geotechnical Engineering Report
   - Lincoln Park Irrigation Well Yield & Water Quality

2. **To Change the Minimum Quality Requirements**
   DELETE current quality requirements form, in its entirety;

And,

REPLACE with the following (modified sections are highlighted in yellow):

	Yes	No
Has the contractor been established in this specified field for at least 5 years?		
Has the contractor successfully completed a minimum of three (3) similar sized Municipal (or similar; i.e., university or private school, etc.) Park projects ($4,500,000 - $5,000,000) within the past ten (10) years?		
Has the Contractor included a Health and Safety Plan with their bid documents?		
Can the contractor certify that all employees have successfully completed at least 10 hours of OSHA approved training in Construction Safety and Health?		
Optional: Vendor: Are you a State Office for Minority and Women Owned Business Assistance (SOMWBA) certified minority- or woman-owned business?		

Attachment 1

Various Reports and Studies (as referenced above)

GEOTECHNICAL ENGINEERING STUDIES
LINCOLN PARK COMMUNITY SCHOOL
SOMERVILLE, MASSACHUSETTS

Prepared For:
Symmes Maini & McKee Associates
Cambridge, Massachusetts

Prepared By:
The Geotechnical Group, Inc.
Needham, Massachusetts

File No. Y1657.03
May 2005

The Geotechnical Group Inc.
CONSULTING GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERS

May 19, 2005
File No. Y1657.03

Symmes Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, MA 02138

Attention: Mr. Wayne Keefner, P.E.

RE: Additional Geotechnical
Engineering Studies
Lincoln Park Community School
Washington Street
Somerville, MA

Dear Wayne:

The Geotechnical Group, Inc. (TGG) is pleased to present the results of our additional geotechnical engineering studies for the above referenced site. The purpose of our studies was to gather subsurface information within the area of proposed excavation support and develop geotechnical engineering design and construction recommendations for the excavation support system. This report has been prepared in accordance with our proposal to Symmes Maini & McKee Associates (SMMA) dated March 28, 2005. Our findings, conclusions and recommendations are subject to the Statement of Limitations attached to this report in Appendix A.

SITE AND PROJECT DESCRIPTION

The existing Lincoln Park Community School, located at 290 Washington Street in Somerville, Massachusetts, is bordered by Washington Street to the north, the Lincoln Park ball fields and parkway to the south, residential properties to the west and southeast and a Massachusetts Bay Transportation Authority (MBTA) railroad corridor to the northeast. A sidewalk and landscaping areas lie between Washington Street and the school building. The school was constructed in the 1970's. The Washington Street bridge and associated retaining walls were built shortly thereafter according to the documents provided to TGG.

The existing grades in the excavation support area north of the school rises from about El. 20± at the west end up to about El. 32± at the east end along Washington Street where Washington Street starts to bridge over the MBTA railroad tracks. A retaining wall up to about 5± feet high accommodates a

grade change between the lower sidewalk and Washington Street above it. The retaining wall is approximately 10± feet from the face of the existing building at the narrowest section.

The proposed development includes the construction of a new school building located within, and extending beyond the current school building's footprint. It is our understanding that the proposed building will have a finish floor elevation of 16.The finish floor elevation of the existing school is 15.5±. The site grading within the existing sidewalk and landscaped areas is proposed to be backfilled about 5± feet to roughly match the existing elevation contours along Washington Street. We used this information as a basis for our recommendations.

TGG has conducted previous studies at the Lincoln Park site in support of the new school building. A report titled Preliminary Geotechnical Engineering Studies dated December 2001, a report titled Geotechnical Engineering Report dated June 2002 and a report entitled Geotechnical Engineering Studies dated March 2005 were prepared for SMMA.

A set of plans of the existing Lincoln Park Community School and subsurface information from the Washington Street bridge construction project were provided to TGG and used during our studies.

SUBSURFACE EXPLORATIONS

A subsurface exploration program consisting of four soil test borings (B-107 through B-110) was performed at the site to assess the subsurface soil and groundwater conditions in the area of the proposed excavation support system. The borings were performed by Soil Exploration Corporation on April 20, 21 and 22, 2005 using a rubber tracked Geoprobe drill rig and on April 25, 2005 using an ATV (All Terrain Vehicle) mounted drill rig. The borings were advanced to depths between 60± and 75± feet below the existing ground surface elevations. Standard Penetration Testing (SPT) and soil sampling were generally conducted at 5 to 10 feet intervals during advancement of the borings.

The SPT was performed by driving a standard two-inch outside diameter split spoon sampler a distance of twenty-four inches (or to refusal) with a 140 pound automatic trip hammer falling a distance of thirty inches at each sampling depth. The number of blows required to drive the sampler in six-inch increments is recorded on the boring logs attached in Appendix B. The sum of the blows required to drive the sampler from the 6 to 12 and 12 to 18 inch increments, defined as the Standard Penetration Resistance of the soil, is used as a measure of soil density, consistency and strength based upon empirically derived correlations.

Soil samples retrieved were visually described in the field using Burmister soil descriptions. The soil descriptions, blow counts, and other information are shown on the soil test boring logs, which are attached in Appendix B of this report. Note that the soil descriptions are representative of the 1 ⅜ ± inch minus size soil fraction of the overall deposits sampled.

The boring locations are shown approximately on the attached Figure No. 1 – Exploration Location Plan. These locations were determined by pacing, tape measurement and line of sight from the existing site features and should be considered approximate.

LABORATORY SOIL TESTING

A geotechnical laboratory testing program consisting of unconfined compressions, unconsolidated, undrained triaxial shears, Atterberg Limits, wash sieve analyses, hydrometer analyses, and natural water contents was performed on representative soil samples collected during the exploration phase of this study. The purpose of the testing was to aid in classifying the soil composition and to evaluate engineering behavior in terms of strength and compressibility.

The testing was performed in general accordance with the testing requirements of ASTM and the results are discussed in the next section. The laboratory testing results are included in Appendix C of this report.

SUBSURFACE CONDITIONS

The subsurface soil conditions within the proposed excavation support area can be generally characterized as surficial fill deposits underlain by a discontinuous layer of natural sand, followed by a sandy silt or silty sand and then a silty clay with frequent layers of silt and fine sand deposit. At two boring locations, a possible glacial till deposit was encountered beneath the silty clay deposit. A general description of the individual deposits encountered is discussed below. Refer to the test boring logs attached as Appendix B for additional information.

Existing Fill and Organics

The existing surficial fill generally varies from about 14 to 20 feet in thickness. The fill ranges in density from very loose to medium dense and its composition can generally be described as a fine to coarse sand with lesser amounts of gravel and silt. A sample of wood was recovered from depths of 15± to 17± feet below the existing ground surface during boring No. B-109. A buried deposit of natural organic soil was encountered during boring No. B-110 at depths of between 14± and 16.5± below the existing ground surface. This deposit appears to consist of dark brown, fine to medium sand, with about 20± percent organic silt and trace amounts of plant matter.

Natural Sand

A natural sand deposit was encountered below the existing fill and above the natural sandy silt and silty clay at the location of boring Nos. B-107, B-108 and B-110. The deposit varied from about 6.5± to 17± feet in thickness and typically consists of a medium dense, orangish tan to gray, fine to medium sand with less than about 15 percent silt. The groundwater table was generally encountered within this strata.

Natural Sandy Silt or Silty Sand

A natural deposit of stratified sandy silt or silty sand was observed during boring No. B-101. The deposit ranged from about 5 to 16 feet in thickness where it transitions to a silty clay deposit at depths of between about 25 and 45 feet below the existing ground surface. The sandy silt generally consists of medium dense, tan or gray silt with between about 25 and 50 percent fine sand and trace amounts of clay. The silty sand deposit generally consists of medium dense, tan or gray sand with between 25 and 50 percent fine sand and trace amounts of clay.

Natural Silty Clay with Frequent Layers of Silt and Fine Sand

At each of the boring locations, a deposit of silty clay underlies the above described soils. This clay deposit varies from more than 16 feet to 47 feet in thickness where the deposit was fully penetrated. The silty clay contains frequent layers of silt and fine sand. The overall deposit can be described as very soft to very stiff, gray silty clay or clayey silt with occasional to frequent seams and layers of sandy silt, silty sand, fine sand or silt. The silty clay layer appears to become thicker as one traverses the excavation support area from the east to the west. The thickest deposit was observed at boring No. B-109 where the silty clay is about 47 feet thick.

Laboratory testing on undisturbed samples obtained from this deposit indicate unconfined compressive strength values generally ranging from 700 to 1,200 pounds per square foot, undrained shear strength values generally ranging from 300 to 1,800 pounds per square foot, liquid limits ranging from 30 to 47 percent, plastic limits between 19 and 27 percent, and natural water contents between 26 and 35 percent.

Natural Glacial Till

A deposit of glacial till was encountered below the silty clay in boring Nos. B-108 and B-109 at depths between about 70 and 71 feet below the existing ground surface. The depths correspond to elevations ranging from about –42 to –48. This deposit was penetrated a distance of up to about 4 feet. A refusal condition of the split spoon sampler was encountered at boring No. B-108. The glacial till appeared to consist of gray fine to coarse gravel with about 15 percent fine to coarse sand and silt.

Groundwater

Groundwater levels for our studies were recorded at the times and under the conditions noted on the logs. Measurements made within the boreholes during drilling indicates the groundwater table to be located at about El. 6± to 9± feet within the area of the proposed excavation support. It should be expected that groundwater levels will fluctuate due to variations in temperature, rainfall and other factors. Therefore, groundwater levels during construction and thereafter may be different than those reported herein.

GEOTECHNICAL ENGINEERING RECOMMENDATIONS

The construction of the new school building will be accomplished by first razing the existing school building. To accomplish this, an excavation support system along Washington Street is necessary. The system should be installed prior to the demolition of the existing school as the existing school building retains a portion of Washington Street. The excavation support system should be designed to protect the adjacent roadway, sidewalk and utilities, control the lateral extent of excavations, and provide a safe area for construction operations. The types of excavation support systems suitable for a particular project depends on the local subsurface soil and groundwater conditions, the depth and width of excavation, the compatibility of the support system with other construction requirements and the site constraints among others.

The important geotechnical considerations relating to the excavation support for the replacement of the school are the generally weak soils, the site constraints, and the varying depth of excavation support required. Our recommendations regarding the excavation wall support systems, excavation bracing systems and excavation support design parameters are made under the following subheadings.

Excavation Wall Support Systems

Demolishing portions of the existing school along Washington Street first requires the installation of an excavation support system for the reasons previously given. Based on plans provided to TGG, the existing school's shallow spread footing foundations along Washington Street are at elevations of between 7 and 9. The new school buildings foundations will be shallow spread footings bearing on natural soils at similar elevations. Assuming deeper foundations or utilities are not required along Washington Street, the depth of excavation required below the existing ground surface will vary between about 11 feet at the western end to about 25 feet at the eastern end. Two types of excavation support systems were considered for this project; soldier piles and lagging and interlocking steel sheet piling.

A soldier pile and lagging system typically consists of vertical H-section structural steel members (solider piles) spaced 6 to 10 feet on center along the face of the excavation. The steel members are either installed with pile driving equipment (vibrating or driven) or set in pre-augered holes. As excavation proceeds, wood lagging is installed behind the front flanges or attached to the face of the soldier piles. The benefits of a soldier pile and lagging system include relatively simple construction, little disturbance to retained soils, minimal noise and vibrations if holes are pre-augered and a resulting support system which is typically stiffer than steel sheet piling.

Interlocking steel sheet piling consists of a steel sheet with a Z-shaped cross section and groves on both ends to slide down and lock into the adjacent sheets, driven along the face of the excavation. The steel sheets are typically installed by driving with pile driving equipment. Vibration is sometimes used if the soil precludes driving alone. The benefits of a steel sheet pile system include the potential to reuse the steel sheet pile sections, versatility with many shapes available, low soil displacement, easy handling, light-weight, and the applicability above and below groundwater tables.

Excavation Bracing Systems

Bracing is used when excavation support systems are needed to support excavation depths greater than allowed by cantilevered sections. Bracing reduces the depth of pile penetration and cross sectional area of the pile and provides greater stiffness to the wall which reduces ground movements. Two types of bracing systems are possible for excavation wall support, external bracing and internal bracing. To determine which bracing system is more appropriate, factors such as subsurface conditions, adjacent structures and utilities, easements and site constraints, and the depth, width and configuration of the excavation should be considered.

Anchored tiebacks (external bracing) are holes drilled from the face of the excavation support wall into the retained soil to a suitable depth. Steel tendons are inserted into the drilled holes and then surrounded with grout to provide a specified bond length. The steel tendons are attached to the face of the excavation support wall and are tensioned to a specified force. The primary benefit of tiebacks is that they do not reduce the area of the excavation needed for construction. However, tieback use is limited or hindered when subsurface utilities or structures are located behind the excavation support wall. Additionally drawbacks include obtaining permanent easements, loss of ground in silty or granular soils and unknown obstructions during installation.

For excavations where conditions prohibit anchored tieback installation, or for excavations less than about 50 feet wide, internal bracing is typically used. Internal bracing systems consist of struts, rakers, corner bracing and associated lacing. Continuous horizontal wales are installed to transfer load from the excavation support wall to the bracing. Structural steel pipe and wide flange sections of various shapes are commonly used for internal bracing compression members. The primary benefit of internal bracing is that construction is not required behind the face of the excavation support wall as the structural components are installed in the excavation area. For this reason the installation of internal bracing should be carefully coordinated with excavation activities. The use and layout of bracing can significantly impact construction operations and production. In some cases internal bracing may not be practical because of requirements that the excavation area remain free of obstructions.

Excavation Support System Recommendations

The subsurface conditions along the face of the excavation are anticipated to consist of granular fill above the depth of excavation, followed by natural sand and silty sand, or silty sand below the depth of excavation. The silty clay stratum with layers of silt and sand was encountered at depths of about 8 to 20 feet below the excavation. The observed groundwater elevation is at or near the depth of excavation. Since the observed groundwater elevation is at the approximate depth of excavation, a soldier pile and lagging excavation support system seems feasible. However, the existing school building may hinder the excavation for and installation of the lagging beams which is typically performed from within the excavation area. Sheet piles may be preferred considering this limitation.

Regardless of whether soldier piles and lagging or sheet piles are used, the excavation support system should be designed to resist horizontal earth and water pressures, temporary construction loads, traffic loads and where necessary, vertical loads. The depth of pile penetration below bottom of excavation should be that which is required to develop the necessary lateral resistance to satisfy horizontal force equilibrium. The excavation support design should utilize these tabulated soil parameters:

Recommended Soil Parameters for Excavation Support System Design

	Fill	Natural Sand or Silty Sand	Natural Silty Clay
Angle of Internal Friction (degrees)	28	33	0
Moist Unit Weight (pounds per cubic foot)	125	120	115
Effective Unit Weight (pounds per cubic foot)	--	58	53
Coefficient of Active Earth Pressure	0.36	0.30	1
Coefficient of Passive Earth Pressure	--	3.39	1
Cohesion (pounds per square foot)	--	--	1,500

In general, the fill and natural soils at the site appear relatively fine grained and granular allowing for easier pile driving and possibly eliminating the need for pre-augered holes. Vibrating or driving the piles into place is generally faster and less expensive than placing the piles into pre-augered holes. However, obstructions to pile installation may occur within the fill soils. Difficulty advancing the test boring equipment occurred at one boring location. Obstructions within the fill along the excavation wall support alignment may be caused by structures associated with the existing school and Washington Street bridge. The excavation support contractor should be prepared to make adjustments to the pile installation method.

Internal bracing is generally less expensive than an external bracing system. However, it is not anticipated that internal bracing (wales and rakers) can be used based on the plans provided to us. In this case, anchored tiebacks may become necessary at greater excavation depths. The tiebacks would be installed beneath Washington Street. The tiebacks should be cased during installation to limit loss of ground and should be located so as to avoid existing utilities and the Washington Street bridge foundations. Waling beams may be used to transfer the loads to the piles.

No allowable adhesion values are given for the design of tiebacks in this report. Design values can vary considerably based on location and elevation, the procedure of tieback installation and the grouting method during installation. The design loads are typically established by specialty

contractors along with the proposed design and methods of construction and evaluated during the construction submittal process. It is recommended that TGG review the proposed wall and tieback design.

PRE-CONSTRUCTION CONDITION SURVEY AND VIBRATION MONITORING

Given the proximity of the work to Washington Street, the MBTA railroad tracks and several residential structures, we recommend a pre-construction condition survey and vibration monitoring program be implemented before and during construction. The purpose of the program will be to monitor and document the following:

- Pre-construction video survey of the existing residential structures with about 100 feet of the construction area.
- Pre-construction elevations of the existing roadway and utilities within about 50 feet of the construction area.
- Vibrations caused by pile installation and other construction activities including vibrations felt at nearby residential structures.
- Performance of excavation support systems.
- Effect of the excavation support installation and subsequent excavation on the surrounding ground surfaces and utilities.

REVIEW AND CONSTRUCTION OBSERVATION

TGG is available, as allowed for in our proposal to SMMA, to review and comment on the technical specifications and plans for excavation support prior to bidding. Once an excavation support contractor is chosen, the contractor should submit his excavation support system design and proposed construction methods and sequencing to this office for review. The review will allow us to see that the recommendations contained in this report have been properly interpreted and included. We would also appreciate the opportunity to sit down with your chosen contractor prior to starting the project to discuss their proposed approach.

It is also recommended that TGG be retained to observe the excavation support construction phase of the project. The purpose of this observation is to assess compliance with the intent of the plans, specifications and this report, and to inform the project team of necessary design changes or alternatives based upon the actual conditions encountered during construction.

We have enjoyed working with you on this project and look forward to assisting you throughout the project. In the meantime, please feel free to contact us should you have any questions or require additional information.

Very truly yours,

THE GEOTECHNICAL GROUP, INC.

James M. Handanyan, P.E.
Vice President

Wayne A. McArdle, P.E
Project Manager

Jeremy A. Haugh
Geotechnical Engineer

WAM/JMH/JAH/jah

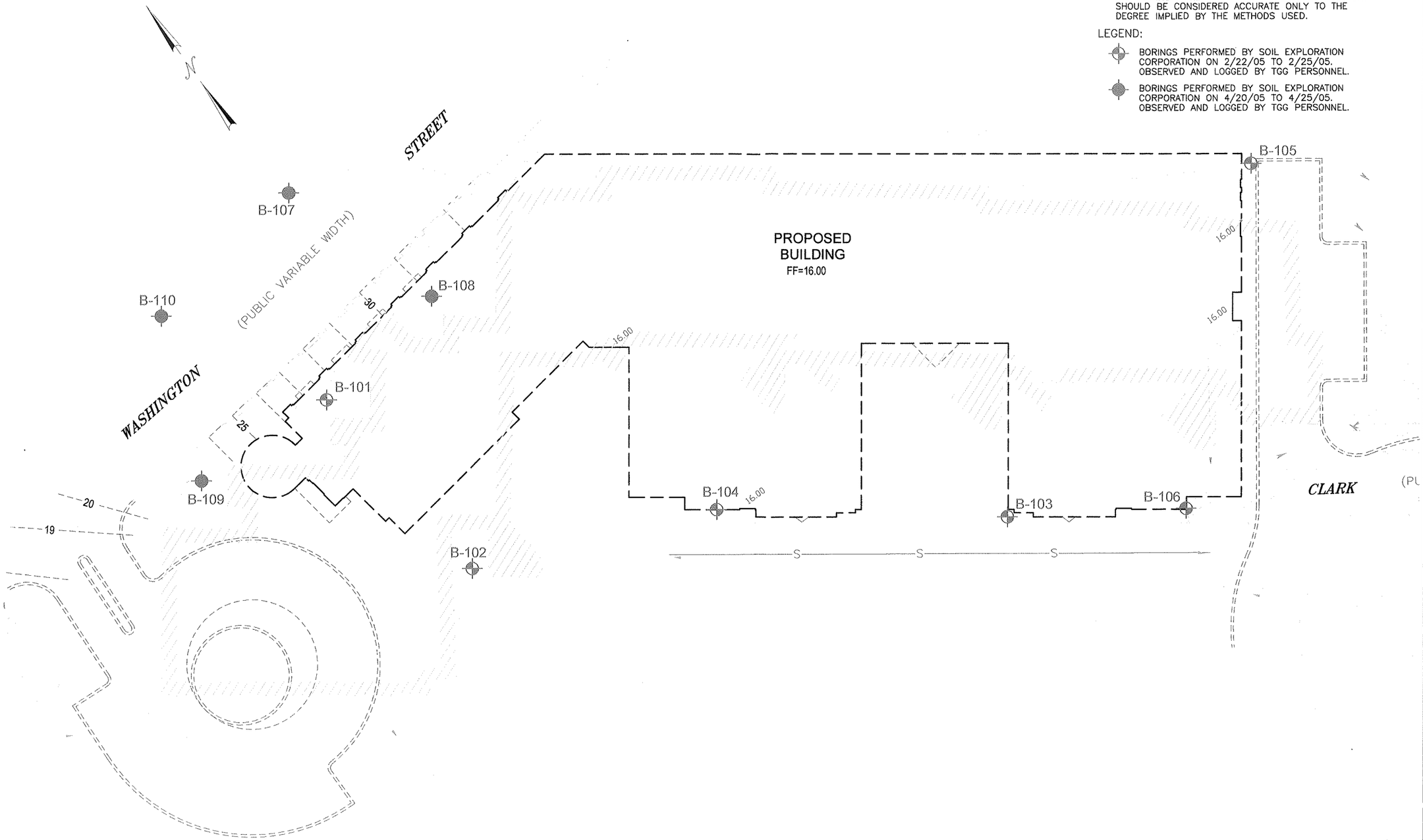
Attachments: Figure 1 – Exploration Location Plan
Appendix A - Statement of Limitations
Appendix B - Soil Test Boring Logs
Appendix C - Laboratory Test Results

NOTES:

1. BASE MAP DEVELOPED FROM CADD FILES PROVIDED BY SYMMES, MAINI & MCKEE ENTITLED "GRADING & UTILITIES PLAN," DATED 3/7/05, ORIGINAL SCALE 1"=30', DRAWING NO. C4.0.
2. THE LOCATIONS OF THE BORINGS WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS, LINE OF SIGHT AND PACING FROM EXISTING SITE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED.

LEGEND:

- BORINGS PERFORMED BY SOIL EXPLORATION CORPORATION ON 2/22/05 TO 2/25/05. OBSERVED AND LOGGED BY TGG PERSONNEL.
- BORINGS PERFORMED BY SOIL EXPLORATION CORPORATION ON 4/20/05 TO 4/25/05. OBSERVED AND LOGGED BY TGG PERSONNEL.



REV No.	DATE	INT.	- DESCRIPTION -
1	5/9/05	JAH	ADDED BORINGS B-107 THROUGH B-110

DRAWN BY: JJP | REVIEWED BY: JAH

DATE: 3/10/05 | SCALE: 1"=40' | JOB No. Y1657.03

LINCOLN PARK COMMUNITY SCHOOL SOMERVILLE, MASSACHUSETTS

EXPLORATION LOCATION PLAN

TGG

FIGURE No. 1

STATEMENT OF LIMITATIONS

Explorations

The analysis and recommendations submitted in this report are based in part upon the data obtained from subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

The stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

Water level readings have been made in the explorations at the time and under the conditions stated on the logs. This data has been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors that are different from the time the measurements were made.

Review

In the event that any change in the nature, design or location of the proposed structure are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork recommendations may be properly interpreted and implemented in the design and specifications.

Construction

It is recommended that this firm be retained to provide soil engineering services during the construction phase of the work. This is to observe compliance with design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

Use of Report

This report has been prepared for the exclusive use of Symmes Maini & McKee Associates for specific application to the proposed Lincoln Park Community School in Somerville, Massachusetts, in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-107
Sheet 1 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	30±
Date Start > End	4/20/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/20	Compl.	60'±	22'±	2

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
5	S-1	5-7	13-10-12-11	24	8		Fill	Medium dense, brown, fine to coarse GRAVEL and fine to coarse SAND, trace (+) Silt.
10	S-2	10-12	4-4-2-2	24	6			Loose, light brown, fine to coarse SAND, little Silt, trace fine Gravel.
15	S-3	15-17	57-10-7-4	24	14		20.0	Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, little (-) Silt, trace Concrete, trace (-) Cinders, Glass.
20	S-4	20-22	10-11-12-13	24	22		Sand	Dry to moist, medium dense, tan to gray, fine to medium SAND, trace Silt, trace (-) Roots.
25	S-5	25-27	16-12-12-12	24	8		29.0	Wet, medium dense, orangish-tan, fine SAND, little Silt.
							Silty Sand	

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-107
Sheet 2 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	30±
Date Start > End	4/20/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/20	Compl.	61'±	22'±	2

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	S-6	30-32	14-12-13-13	24	18		Wet, medium dense, tan, SILT and fine SAND.
35	S-7	35-37	12-9-10-9	24	18		Wet, medium dense, gray, fine SAND, little Silt, trace Clay with frequent seams of Silty Clay.
						Silty Sand	
40	S-8	40-42	9-8-13-14	24	14		Wet, medium dense, gray, fine SAND, little Silt.
						45.0	
45	S-9	45-47	3-1-7-3	24	18		Wet, stiff, gray, CLAYEY SILT, some fine Sand, trace (-) fine Gravel.
	S-10	47-49	4-5-6-6	24	24		Wet, stiff, gray, CLAYEY SILT, some fine Sand.
50	S-11	50-52	5-4-5-7	24	20		Wet, stiff, gray, CLAYEY SILT, some fine Sand.
						Silty Clay With Frequent Layers of Silt & Fine Sand	
55	S-12	55-57	4-3-3-3	24	24		Wet, medium stiff, gray, SILTY CLAY, little fine Sand.
	S-13	59-61	2-2-5-3	24	20		Wet, medium stiff, gray, fine SAND and SILTY CLAY.

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-107
Sheet 3 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	30±
Date Start > End	4/20/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/20	Compl.	61'±	22'±	2

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
					1	61.0*	
							Bottom of Boring at about 61.0± feet.
65							
70							
75							
80							
85							

Remarks: *Silty Clay with Frequent Layers of Silt & Fine Sand
1. Boring terminated at 61± feet.
2. Depth to groundwater measured upon completion of boring.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-108
Sheet 1 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jason Mammone
Boring Location:	See Exploration Location Plan
Ground Elev.	28±
Date Start > End	4/21/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch inside diameter flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 automatic drop hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/21	a.m.	70.8±'	22±'	2

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
5	S-1	5-7	4-2-2-1	24	8		Fill	Very loose to loose, dry, brown, fine to coarse SAND, little (+) fine to coarse Gravel, trace (+) Silt.
10	S-2	10-12	5-4-7-4	24	8	1, 2		Medium dense, dry, brown, fine to coarse GRAVEL and fine to coarse SAND, trace (+) Silt.
15	S-3	15-17	1-1-1-2	24	15	3	19.0	Very loose, wet, dark brown to brown, fine to medium SAND and SILT, little (-) fine to coarse Gravel.
20	S-4	20-22	5-5-5-9	24	18		Sand	Loose to medium dense, tan to orange-tan, fine to medium SAND, little Silt.
25	S-5	25-27	4-7-10-10	24	15			Medium dense, wet, gray to orange-tan, fine SAND, trace Silt.

Remarks:
1. Pushed casing through possible obstruction from about 12 to 14± feet.
2. Groundwater was encountered at about 24± at the time of the boring.
3. Change in driving difficulty encountered at about 19± feet. Possible strata change.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-108
Sheet 2 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jason Mammone
Boring Location:	See Exploration Location Plan
Ground Elev.	28±
Date Start > End	4/21/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch inside diameter flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 automatic drop hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/21	a.m.	70.8±'	22±'	2

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	S-6	30-32	9-8-7-11	24	15		Medium dense, wet, gray, fine SAND, little (-) Silt.
							Sand
							35.0
35	S-7	35-37	6-5-3-1	24	20		Loose, wet, gray, SILT, some fine Sand.
							Sandy Silt
							40.0
40	S-8	40-42	WOH / 18"-2	24	18		Very soft, wet, gray, SILTY CLAY, little fine SAND with frequent seams of fine Sand. PP< 0.25 TSF
45	TS-1	45-47	PUSHED	24	24	4	
	S-9	48-50	WOH / 18"-3	24	24		Very soft, wet, gray, SILTY CLAY, little fine Sand with frequent seams of fine Sand. PP= 0.25 TSF
50							Silty Clay With Frequent Layers of Silt & Fine Sand
55	S-10	55-57	WOH / 12"-1-2	24	24		Very soft, wet, gray, SILTY CLAY, trace fine Sand with frequent seams of fine Sand.

Remarks:
4. Geoprobe advanced using the "open hole" method and wash boring techniques at about 45± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-108
Sheet 3 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Rich	Ground Elev.	28±
TGG Observer	Jason Mammone	Date Start > End	4/21/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch inside diameter flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 automatic drop hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/21	a.m.	70.8±'	22±'	2

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6	Pen.	Rec.	Rem	
							Silty Clay with Frequent Layers of Silt & Fine Sand
65							
						5	70.0
70	S-11	70-70.8	12-50/3"	9	6	6	Glacial Till 70.8 — Wet, grayish brown, fine to coarse GRAVEL, little fine to coarse Sand, little Silt
							Refusal of the split spoon at 70.8± feet.
75							LEGEND:
							WOH = Weight of Hammer
							PP = Pocket Pentrometer
80							
85							

Remarks:
5. Change in drilling difficulty encountered at about 70± feet.
6. Refusal of the split spoon encountered at about 70.8± feet. Possible boulder/bedrock.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-109
Sheet 1 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	23±
Date Start > End	4/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/22	Drilling	75'±	17'±	4

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
5	S-1	5-7	9-7-6-6	24	6		Medium dense, tan, fine to coarse SAND and fine to coarse GRAVEL, trace Silt.
10	S-2	10-12	14-7-7-7	24	24		Fill Medium dense, tan, fine to coarse SAND, trace (+) fine Gravel, Silt.
15	S-3	15-17	WOH/6"-1-9-4	24	12		WOOD. 18.0
20	S-4	20-22	10-6-5-7	24	16		Silty Sand Wet, medium dense, orangish-tan to gray, fine SAND and SILT. 24.0
25	S-5	25-27	1/18"-5	24	24		Silty Clay With Frequent Layers of Silt & Fine Sand Wet, very soft, gray, SILTY CLAY, trace fine Sand with occasional layers of Sandy Silt.

Remarks: WOH=Weight of Hammer

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-109
Sheet 2 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	23±
Date Start > End	4/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/22	Drilling	75'±	17'±	4

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	TS-1	30-32	PUSHED	24	24	1	
	S-6	32-34	1-1-1-2	24	24		Wet, very soft, gray, CLAY and SILT with frequent layers of Silt.
35							
40	S-7	40-42	1-1-1-1	24	24		Silty Clay With Frequent Layers of Silt & Fine Sand — Wet, very soft, gray, SILTY CLAY. (TV=0.25 tsf)
45	TS-2	45-47	PUSHED	24	24	1	
	S-8	47-49	5-4-2-1	24	24		Wet, medium stiff, gray, SILTY CLAY, trace fine Sand with occasional layers of Silty Sand.
50							
55	S-9	55-57	WOH/12"-3-3	24	24		Wet, soft, gray, SILTY CLAY. (TV=0.35 tsf)

Remarks: TV=Torvane WOH=Weight of Hammer
1. Pushed 2 inch diameter Shelby tubes from 30± to 32± feet, 45± to 47± feet and 60± to 62± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-109
Sheet 3 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	23±
Date Start > End	4/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/22	Drilling	75'±	17'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	TS-3	60-62	PUSHED	24	24	1, 2	
	S-10	62-64	2-2-3-4	24	24		Silty Clay With Frequent Layers of Silt & Fine Sand — Wet, medium stiff, gray, SILTY CLAY. (TV=0.4 tsf, PP=0.25-0.5 tsf)
65							
70						3	71.0
							Possible Glacial Till 75.0
75						4	Bottom of Boring at about 75.0± feet.
80							
85							

Remarks: TV=Torvane PP=Pocket Penetrometer
2. Advanced borehole to 75± feet utilizing open hole drilling techniques.
3. Drilling became difficult at 71± feet indicating strata change.
4. Boring terminated at 75± feet.
5. Depth to groundwater observed during drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-110
Sheet 1 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	26±
Date Start > End	4/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/25	Drilling	61'±	17'±	5

Sample Data						Strata Change	Sample Description
No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
S-1	5-7	10-19-10-11	24	24			Medium dense, brown, fine to coarse SAND, little (+) Silt, little (-) fine Gravel, trace (-) Cinders.
						Fill	
					1		
S-2	10-12	5-8-8-7	24	10			Medium dense, brown, fine to coarse GRAVEL, some (+) fine to coarse Sand, trace (+) Silt, trace (-) Cinders.
						14.0	
S-3	15-16.5	3-4-8	18	18		Organics 16.5	Medium dense, dark brown with orangish staining, fine to medium SAND, some (-) Organic Silt, trace (-) plant fibers.
S-3A	16.5-17	12	6	6			
							Moist, gray, fine to coarse SAND, trace Silt.
						Sand	
S-4	20-22	5-8-11-14	24	24	2		Wet, medium dense, tannish-orange to gray, fine SAND, trace Silt.
						23.0	
S-5	24-26	9-11-13-14	24	14			Wet, medium dense, tan to gray, SILT and fine SAND, trace (-) Clay with occasional seams of dark gray Clay.
						Sandy Silt	
S-6	29-31	6-7-12-12	24	18			Wet, medium dense, gray, SILT, some fine Sand, trace Clay with frequent seams of Clayey Silt.

Remarks:
1. Augers grinding from 8± to 14± feet.
2. Removed augers from borehole and advanced 3± inch I.D. flush joint casing to 61± feet utilizing wash boring techniques.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-110
Sheet 2 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	26±
TGG Observer	Jeremy Haugh	Date Start > End	4/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/25	Drilling	61'±	17'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
35	S-7	34-36	8-16-18-9	24	18		Sandy Silt — Wet, dense, gray, SILT and fine SAND.
							38.0
40	S-8	39-41	3-3-3-3	24	24		Wet, medium stiff, gray SILT and CLAY, trace (-) fine Sand with frequent seams of Sandy Silt.
45	S-9	44-46	3-1-2-1	24	24		Wet, soft, gray, CLAY and SILT with frequent seams of Silt.
50	TS-1	49-51	PUSHED	24	24	3	Silty Clay With Frequent Layers of Silt & Fine Sand
	S-10	51-53	2-2-4-3	24	16		Wet, medium stiff, gray, fine SAND and SILT.
55	S-11	59-61	2-4-5-8	24	24		Wet, medium stiff, gray SILTY CLAY, trace fine Sand with occasional layers of Silty Sand.

Remarks:
3. Pushed 2 inch diameter Shelby tube from 49± to 51± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-110
Sheet 3 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	26±
TGG Observer	Jeremy Haugh	Date Start > End	4/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/25	Drilling	61'±	17'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
						4	61.0*
							Bottom of Boring at about 61.0± feet.
65							
70							
75							
80							
85							

Remarks: *Silty Clay With Frequent Layers of Silt & Fine Sand
4. Boring terminated at 61± feet.
5. Groundwater observed during drilling.

PARTICLE SIZE DISTRIBUTION REPORT

% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.2	85.6	13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.7		
#40	98.8		
#60	89.9		
#100	25.7		
#200	13.2		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 0.242 D_{60}= 0.203 D_{50}= 0.188
D_{30}= 0.158 D_{15}= 0.0829 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

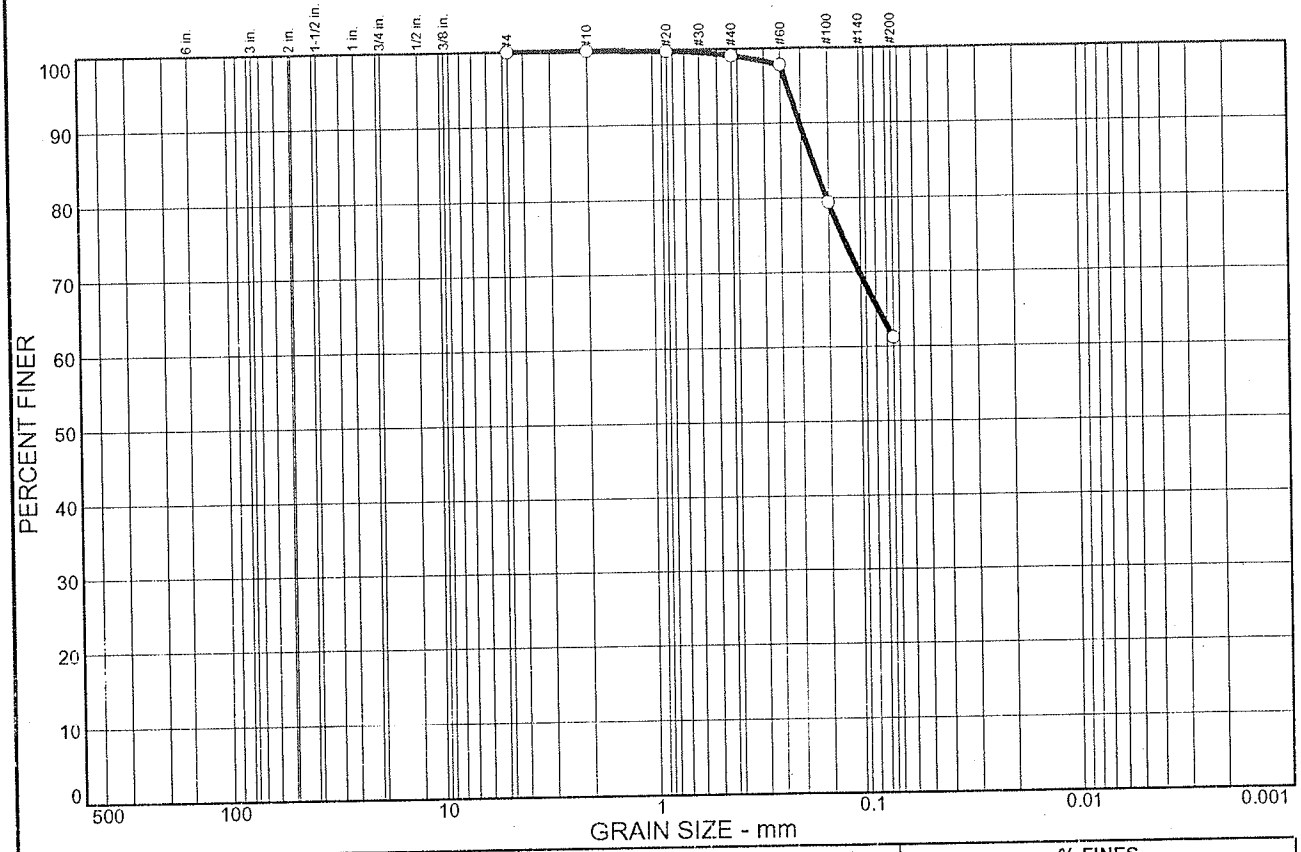
as rec'd w% = 23.8

Sample No.: S-5 **Source of Sample:** Boring B-107 **Date:** 5/3/05
Location: **Elev./Depth:** 25-27'

THE GEOTECHNICAL GROUP, INC.

Client: SMMA
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.03 **Lab. No.** SL-867

PARTICLE SIZE DISTRIBUTION REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.9	37.9	61.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.1		
#60	97.8		
#100	79.4		
#200	61.2		

* (no specification provided)

Soil Description

Sandy silt

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 0.177 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

as rec'd w% = 22.7

Sample No.: S-6 **Source of Sample:** Boring B-107 **Date:** 5/3/05
Location: **Elev./Depth:** 30-32'

THE GEOTECHNICAL GROUP, INC.

Client: SMMA
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.03 **Lab. No.** SL-867

PARTICLE SIZE DISTRIBUTION REPORT

% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	1.3	2.0	18.2	64.3	14.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in.	100.0		
#4	98.7		
#10	96.7		
#20	91.5		
#40	78.5		
#60	64.1		
#100	31.8		
#200	14.2		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 0.591 D_{60}= 0.232 D_{50}= 0.199
D_{30}= 0.145 D_{15}= 0.0805 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

as rec'd w% = 24.7

Sample No.: S-4
Location:

Source of Sample: Boring B-108

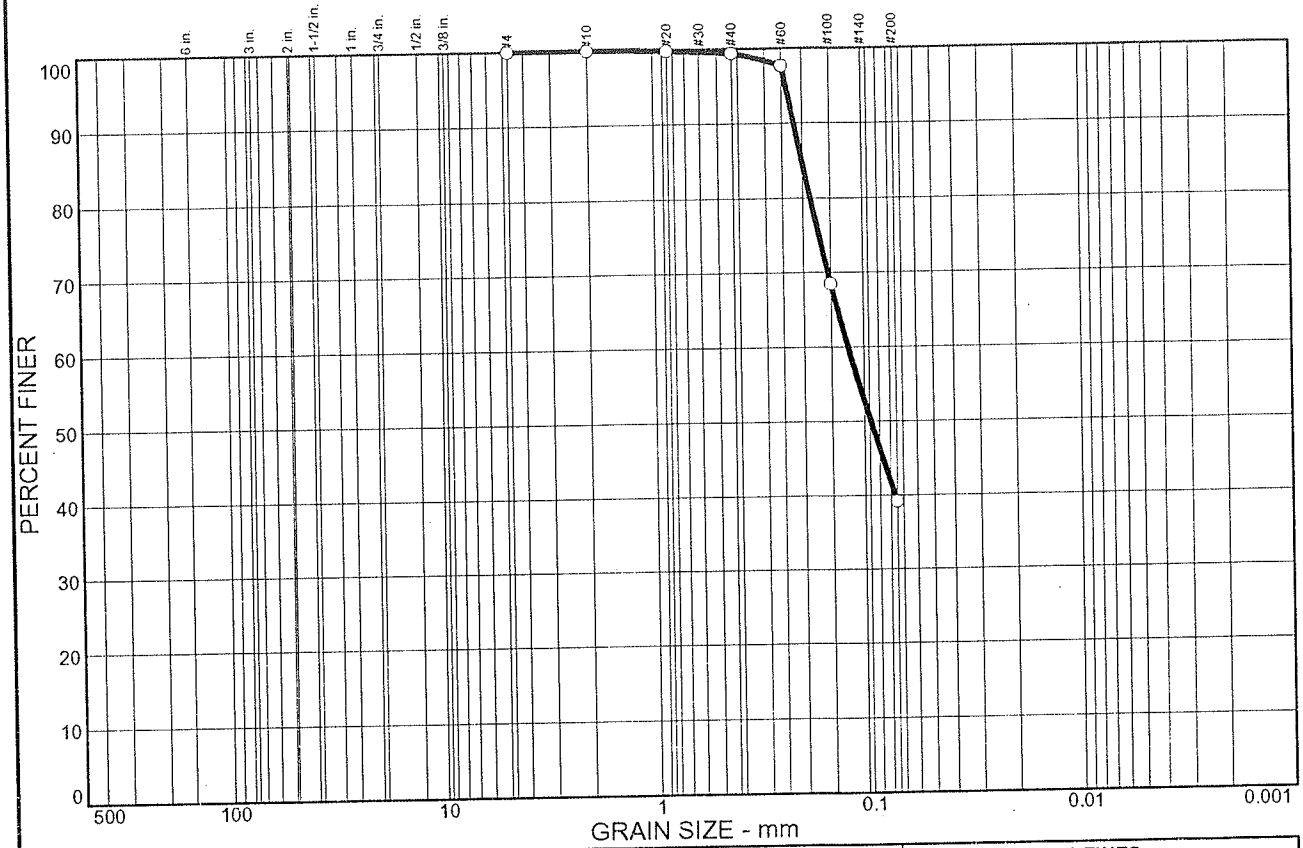
Date: 5/3/05
Elev./Depth: 20-22'

THE GEOTECHNICAL GROUP, INC.

Client: SMMA
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.03

Lab. No. SL-867

PARTICLE SIZE DISTRIBUTION REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.6	60.3	39.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.4		
#60	97.7		
#100	68.5		
#200	39.1		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 0.202 D_{60}= 0.126 D_{50}= 0.0993
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

as rec'd w% = 21.7

Sample No.: S-4 **Source of Sample:** Boring B-109 **Date:** 5/3/05
Location: **Elev./Depth:** 20-22'

THE GEOTECHNICAL GROUP, INC.

Client: SMMA
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.03 **Lab. No.** SL-867

THE GEOTECHNICAL GROUP, INC.

UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** Y1657.03
LOCATION: Somerville, MA	**DATE:** 5/3/05

Boring No.:	B-108	Logged By:	jaf
Tube No.:	TS-1	Length of Sample (in.)	26
Depth:	45-47'	Diameter of Tube (in.)	1.8 Shelby

Sample Depth (feet)	Laboratory Log **TOP**	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
	Wax Seal	4		
		5		
45		6	Top of Sample	
		7		
		8		
		9		
		10	Grey Silty Clay w/seams of fine sand	
		11		
		12		
		13	Torvane = 0.25 tsf	27.5
		14		
		15		
		16		
	Sample for Triaxial UU	17		
46		18		
		19		
		20		
		21		
		22		
		23	Torvane = 0.20 tsf	
		24		28.5
	Sample For Atterberg Limits	25		
		26		
		27		
		28		
		29	Bottom of Sample	
47	Wax Seal	30		

THE GEOTECHNICAL GROUP, INC.

UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** Y1657.03
LOCATION: Somerville, MA	**DATE:** 5/4/05

Boring No.:	B-109	Logged By:	jrs
Tube No.:	TS-1	Length of Sample (in.)	25
Depth:	30-32'	Diameter of Tube (in.)	1.8 Shelby

Sample Depth (feet)	Laboratory Log **TOP**	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
		4		
	wax seal	5		
30		6	Top of Sample	
		7		
		8	Grey Silty Clay	
		9		
		10		
		11	Torvane = 0.30 tsf	28.1
		12		
	Sample for Triaxial UU	13		
		14		
		15		
		16		
		17		
31		18		
		19		
		20		
		21		
		22		34.8
		23	Torvane = 0.35 tsf	
	Sample for Atterberg Limits	24		
		25		
		26		
		27		
		28		
		29	Bottom of Sample	
32	Wax seal	30		

THE GEOTECHNICAL GROUP, INC.

UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** Y1657.03
LOCATION: Somerville, MA	**DATE:** 5/4/05

Boring No.:	B-109	Logged By:	jrs
Tube No.:	TS-2	Length of Sample (in.)	22
Depth:	45-47'	Diameter of Tube (in.)	1.8 Shelby

Sample Depth (feet)	Laboratory Log **TOP**	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
		4		
		5		
45		6		
		7		
	Wax Seal	8	Top of Sample	
		9		
		10	Grey Silty Clay	
		11		
		12		
		13	Torvane = 0.30 tsf	
		14		
		15		31.4
	Sample for Unconfined Compression Test	16		
		17		
46		18		
		19		
		20		
		21		
		22		
		23	Torvane = 0.30 tsf	33.9
	Sample for Atterberg Limits	24		
		25		
		26		
		27		
		28		
		29	Bottom of Sample	
47	Wax Seal	30		

THE GEOTECHNICAL GROUP, INC.

UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** Y1657.03
LOCATION: Somerville, MA	**DATE:** 5/5/05

Boring No.:	B-109	Logged By:	jrs
Tube No.:	TS-3	Length of Sample (in.)	24
Depth:	60-62'	Diameter of Tube (in.)	1.8 Shelby

Sample Depth (feet)	Laboratory Log **TOP**	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
		4		
		5		
60	Wax Seal	6		
		7		
		8	Top of Sample	
		9		
		10	Grey Silty Clay	
		11		
	Sample for Unconfined Compression Test	12		
		13	Torvane = 0.55 tsf	29.3
		14		
		15		
		16		
		17		
61		18		
		19		
		20		
		21		
		22		
		23	Torvane = 0.60 tsf	26.6
	Sample for Atterberg Limits	24		
		25		
		26		
		27		
		28		
		29	Bottom of Sample	
62	Wax Seal	30		

THE GEOTECHNICAL GROUP, INC.

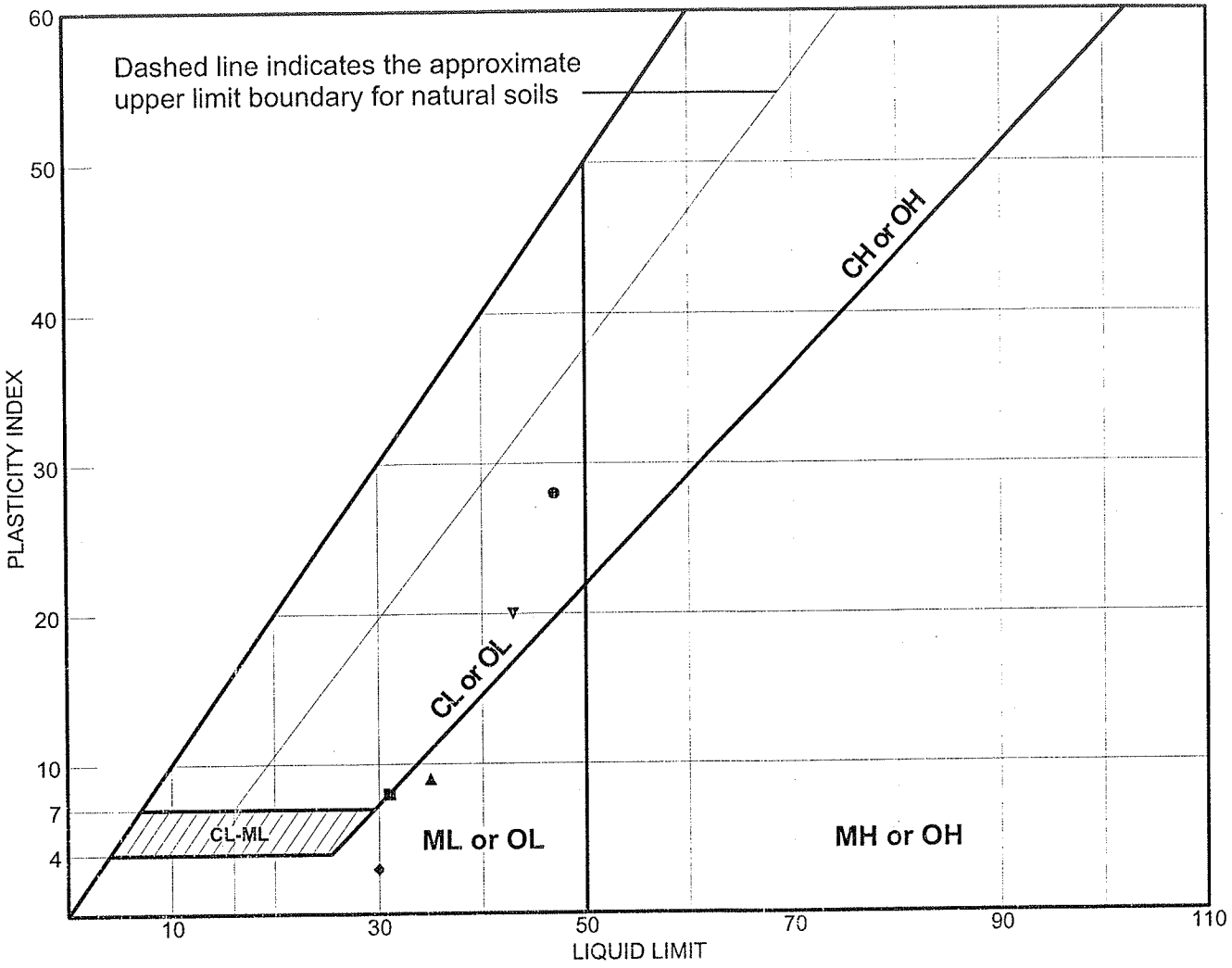
UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** Y1657.03
LOCATION: Somerville, MA	**DATE:** 5/3/05

Boring No.:	B-110	Logged By:	jrs
Tube No.:	TS-1	Length of Sample (in.)	25
Depth:	49-51'	Diameter of Tube (in.)	1.8 Shelby

Sample Depth (feet)	Laboratory Log **TOP**	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
		4		
	Wax Seal	5		
49		6	Top of Sample	
		7		
		8		
		9		
		10	Grey Silty Clay w/seams of fine sand	
		11		
	Sample for Unconfined Compression Test	12		
		13	Torvane = 0.20 tsf	27.8
		14		
		15		
		16		
		17		
50		18		
		19		
		20		
	Sample for Atterberg Limits	21		
		22		
		23	Torvane = 0.20 tsf	
		24		
		25		
		26		
		27		
		28		
		29	Bottom of Sample	
51	Wax Seal	30		

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-108	TS-1	45-47'	28.5	19	47	28	CL
■	Boring B-109	TS-1	30-32'	34.8	23	31	8	
▲	Boring B-109	TS-2	45-47'	31.4	26	35	9	
◆	Boring B-109	TS-3	60-62'	26.6	27	30	3	
▼	Boring B-110	TS-1	49-51'	27.8	23	43	20	

LIQUID AND PLASTIC LIMITS TEST REPORT

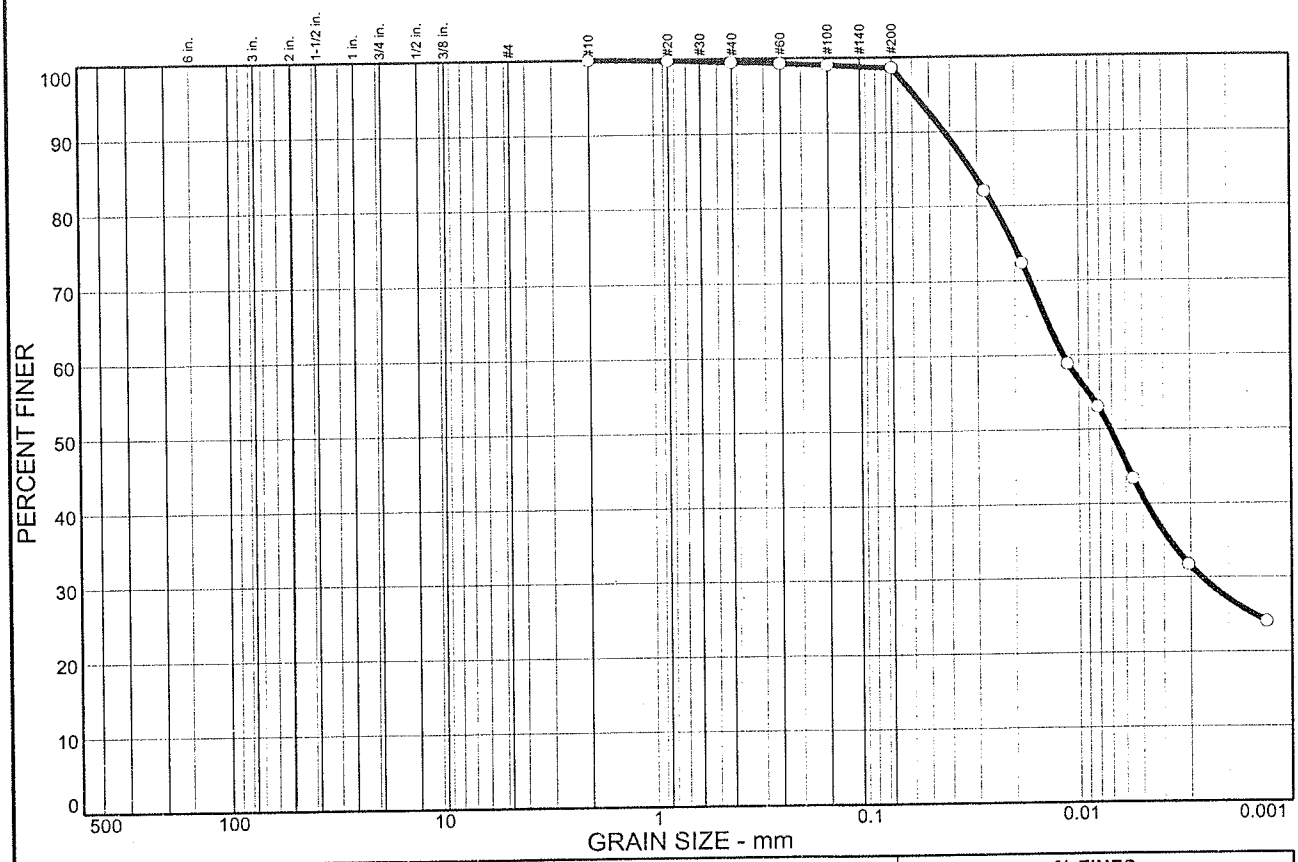
THE GEOTECHNICAL GROUP, INC.

Client: SMMA

Project: Lincoln Park Community School
Somerville, MA

Project No.: Y1657.03 **Lab. No.** SL-867

PARTICLE SIZE DISTRIBUTION REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.5	0.9	57.7	40.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.5		
#60	99.3		
#100	99.0		
#200	98.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 47 PI= 28

Coefficients

D_{85}= 0.0322 D_{60}= 0.0118 D_{50}= 0.0071
D_{30}= 0.0027 D_{15}= D_{10}=
C_u= C_c=

Classification

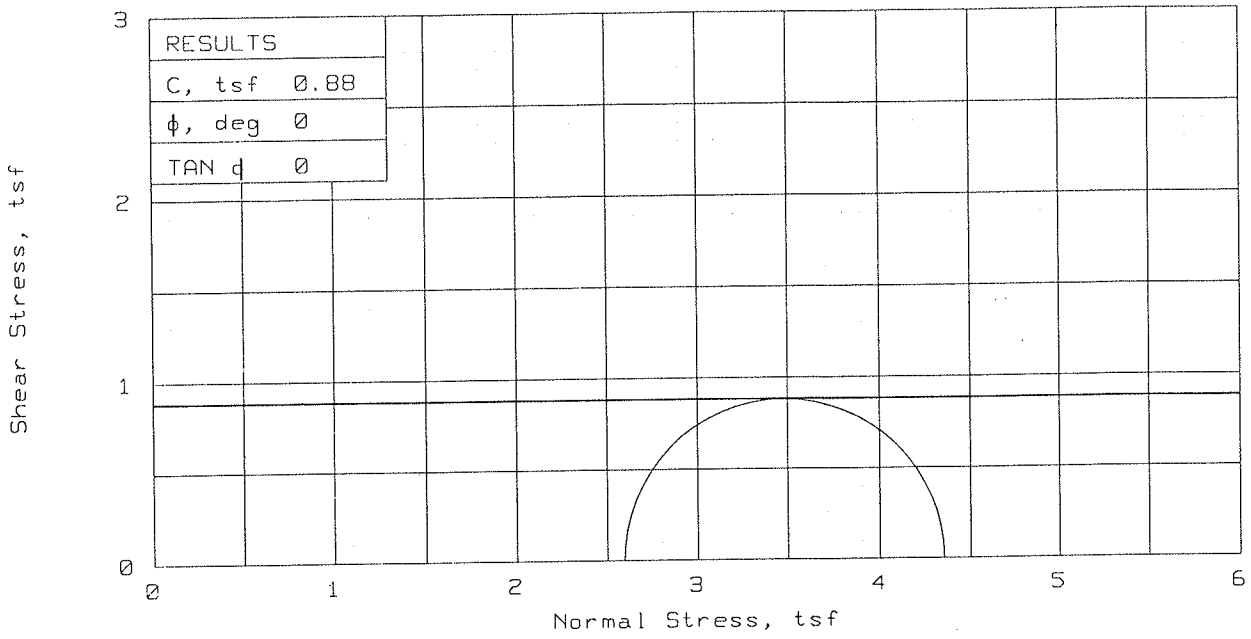
USCS= CL AASHTO= A-7-6(30)

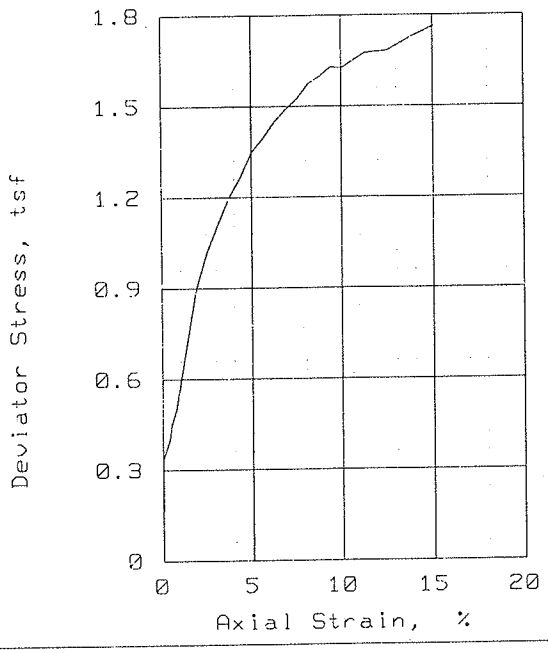
Remarks

Sample No.: TS-1 **Source of Sample:** Boring B-108 **Date:** 5/3/05
Location: **Elev./Depth:** 45-47'

THE GEOTECHNICAL GROUP, INC.

Client: SMMA
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.03 **Lab. No.** SL-867





SAMPLE NO.:		1
INITIAL	WATER CONTENT, %	27.8
	DRY DENSITY, pcf	95.3
	SATURATION, %	100.0
	VOID RATIO	0.736
	DIAMETER, in	1.85
	HEIGHT, in	3.98
AT TEST	WATER CONTENT, %	27.8
	DRY DENSITY, pcf	95.3
	SATURATION, %	100.0
	VOID RATIO	0.736
	DIAMETER, in	1.85
	HEIGHT, in	3.98
Strain rate, in/min		0.0400
BACK PRESSURE, tsf		0.00
CELL PRESSURE, tsf		2.59
FAILURE STRESS, tsf		1.76
ULTIMATE STRESS, tsf		1.76
σ_1 FAILURE, tsf		4.35
σ_3 FAILURE, tsf		2.59

TYPE OF TEST:
Unconsolidated Undrained
SAMPLE TYPE: 1.8" Shelby
DESCRIPTION: Grey Lean Clay

LL= 47 PL= 19 PI= 28
ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS:

LAB No.: SL-867

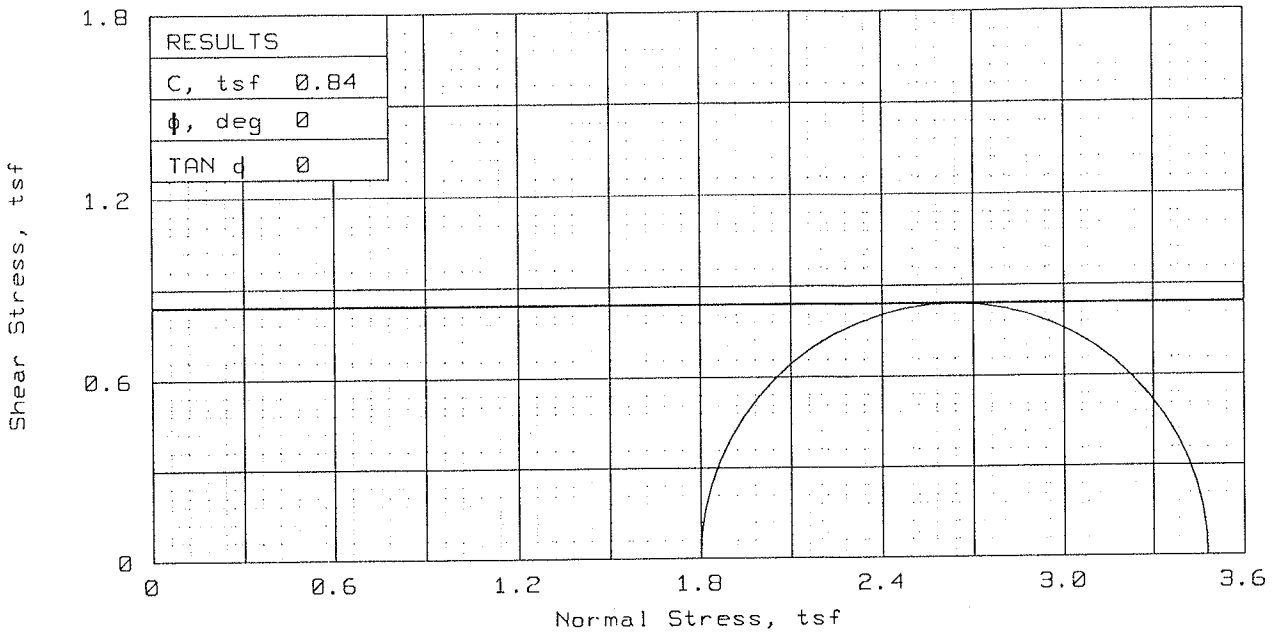
CLIENT: SMMA

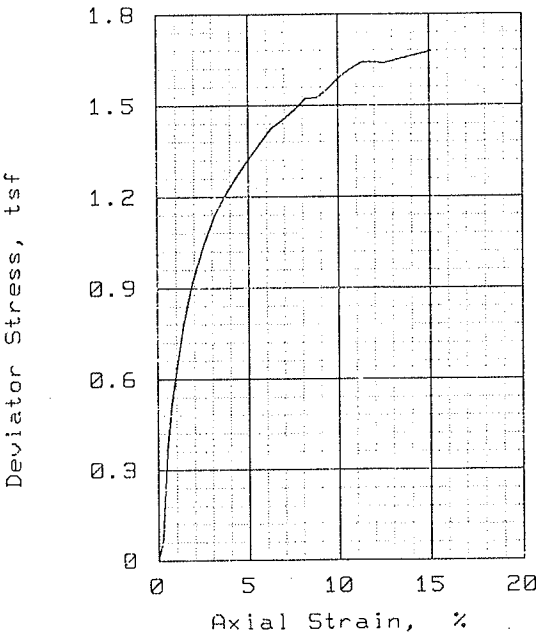
PROJECT: Lincoln Park Community School
Somerville, MA
SAMPLE LOCATION: Boring B-108
TS-1 (45-47')

PROJ. NO.: Y1657.03 DATE: 5/3/05

TRIAXIAL SHEAR TEST REPORT

THE GEOTECHNICAL GROUP, INC.





SAMPLE NO.:		1
INITIAL	WATER CONTENT, %	28.3
	DRY DENSITY, pcf	94.8
	SATURATION, %	100.6
	VOID RATIO	0.745
	DIAMETER, in	1.86
	HEIGHT, in	3.98
AT TEST	WATER CONTENT, %	28.1
	DRY DENSITY, pcf	94.8
	SATURATION, %	100.0
	VOID RATIO	0.745
	DIAMETER, in	1.86
	HEIGHT, in	3.98
Strain rate, in/min		0.0400
BACK PRESSURE, tsf		0.00
CELL PRESSURE, tsf		1.80
FAILURE STRESS, tsf		1.68
ULTIMATE STRESS, tsf		1.64
σ_1 FAILURE, tsf		3.48
σ_3 FAILURE, tsf		1.80

TYPE OF TEST:
Unconsolidated Undrained
SAMPLE TYPE: 1.8" Shelby
DESCRIPTION: Grey Clay

LL= 31 PL= 23 PI= 8
ASSUMED SPECIFIC GRAVITY= 2.65
REMARKS:

LAB No.: SL-867

CLIENT: SMMA

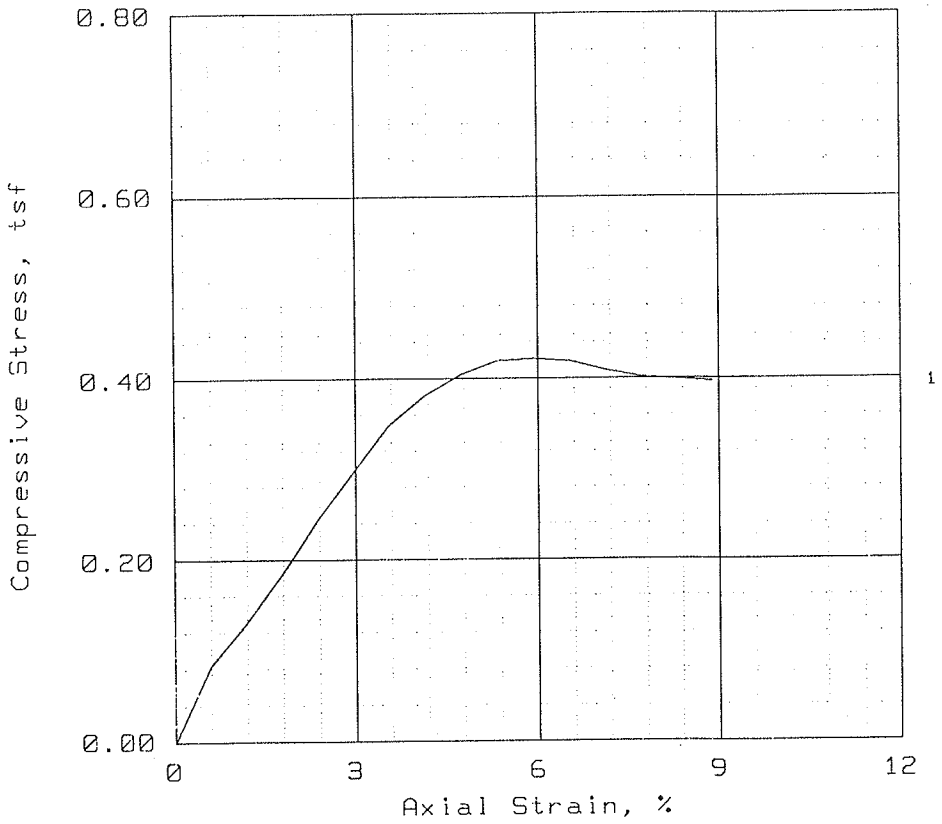
PROJECT: Lincoln Park Community School
Somerville, MA
SAMPLE LOCATION: Boring B-109
TS-1 (30-32')

PROJ. NO.: Y1657.03 DATE: 5/6/05

TRIAXIAL SHEAR TEST REPORT

THE GEOTECHNICAL GROUP, INC.

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	0.42			
Undrained shear strength, tsf	0.21			
Failure strain, %	5.9			
Strain rate, in/min	0.0400			
Water content, % (cuttings after test)	31.4			
Wet density, pcf	119.9			
Dry density, pcf	91.2			
Saturation, %	100.0			
Void ratio	0.8475			
Specimen diameter, in	1.87			
Specimen height, in	4.21			
Height/diameter ratio	2.26			

Description: Grey Clayey Silt

LL = 35	PL = 26	PI = 9	ASS. GS= 2.7	Type: 1.8" Shelby

Project No.: Y1657.03
Date: 5/6/05
Remarks:

LAB No.: SL-867

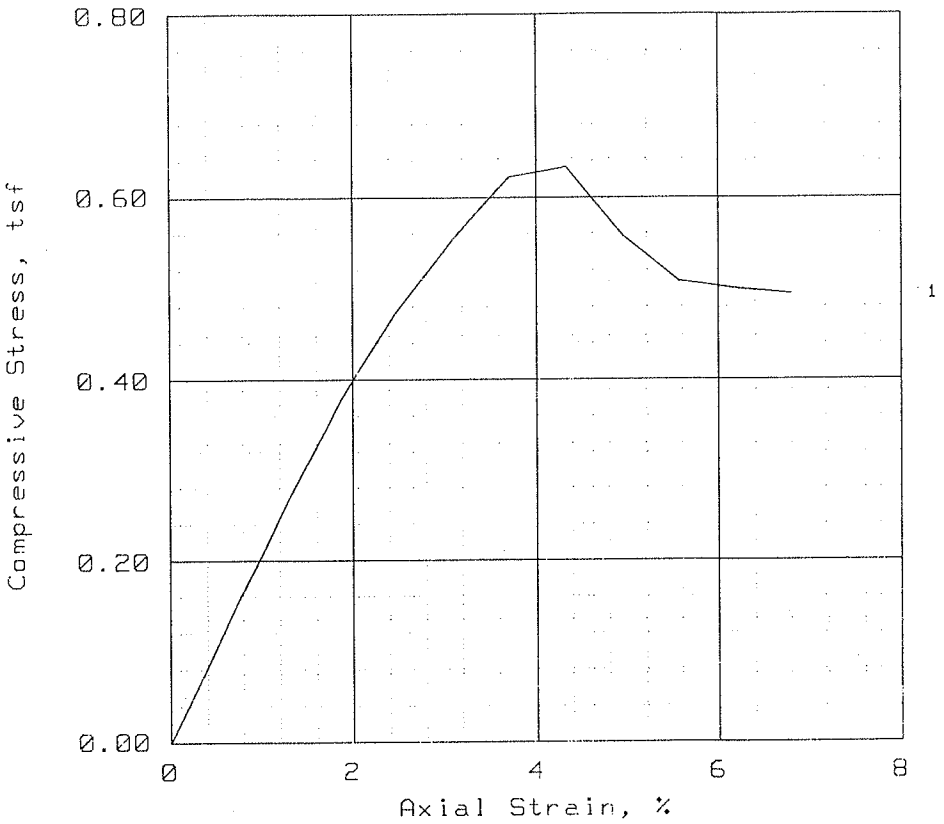
Client: SMMA

Project: Lincoln Park Community School
Somerville, MA
Location: Boring B-109
TS-2 (45-47')

UNCONFINED COMPRESSION TEST

THE GEOTECHNICAL GROUP, INC.

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	0.63			
Undrained shear strength, tsf	0.32			
Failure strain, %	4.3			
Strain rate, in/min	0.0400			
Water content, % (cuttings after test)	29.3			
Wet density, pcf	120.5			
Dry density, pcf	93.2			
Saturation, %	100.0			
Void ratio	0.7751			
Specimen diameter, in	1.88			
Specimen height, in	4.04			
Height/diameter ratio	2.15			

Description: Grey Clayey Silt

LL = 30	PL = 27	PI = 3	ASS. GS= 2.65	Type: 1.8" Shelby

Project No.: Y1657.03
Date: 5/6/05
Remarks:

LAB No.: SL-867

Client: SMMA

Project: Lincoln Park Community School
Somerville, MA
Location: Boring B-109
TS-3 (60-62')

UNCONFINED COMPRESSION TEST

THE GEOTECHNICAL GROUP, INC.

100 Foxborough Blvd., Suite 250
Foxborough, MA 02035
tel: 508-698-3034 fax: 508-698-0843
www.westonandsampson.com

MEMORANDUM

TO: Brandon Kunkel, Cheri Ruane

FROM: Alyssa Peck, PE

DATE: June 10, 2015

SUBJECT: Lincoln Park – Test pit results

Test pits were performed at Lincoln Park in Somerville, MA on June 9, 2015. They were conducted to better understand the subsurface soil and drainage conditions, so that proper drainage systems can be provided for the renovation of the existing playground, playing fields, and basketball courts. The proposed design includes a large U-12 playing field, a softball field, two basketball courts, new playground area, new sidewalks, a new closed drainage system, and several new site features and amenities. The following is a brief summary of the test pit explorations. Detailed test pit logs and photos are attached to this memorandum.

Four (4) test pits were performed on the site. Test pit 1 was located adjacent to the basketball courts, test pit 2 was located in centerfield of the existing ballfield, and test pits 3 and 4 were in the western and eastern ends of the large soccer field, respectively. The test pits were excavated to depths ranging from about 5.5 feet to 7.5 feet below ground surface (b.g.s.). All test pits had features that correlate with the poor drainage conditions in the existing fields.

Test pits 1 and 2 were similar, with a predominant clay component starting at a depth of about three feet b.g.s. Groundwater was observed at 61 and 65 inches b.g.s. Test pit 3 had a five inch thick clay layer at about two feet b.g.s. and a silt loam layer from about 3.5 feet b.g.s. to the bottom of the excavation. No groundwater was observed, but mottles were present in the layers starting at 21 and 43 inches b.g.s. Test pit 4 had a 19 inch thick loam layer to a depth of about three feet b.g.s. In contrast with the other three test pits, test pit 4 had a nearly 2.5 foot thick layer of medium sand starting at about 4 feet b.g.s. There was standing groundwater at the bottom of the excavation (78 inches b.g.s.).

A percolation test was done in test pit 1 to determine the infiltration rate of the soil. The percolation hole was hand dug at a depth of 29 inches below ground surface. After 77 minutes and a water elevation drop of only 2.875 inches, the test was abandoned. The estimated percolation rate using the obtained data was 26.78 minutes per inch.

Z:\MA–Boston–Projects\Somerville, MA\Lincoln Park\Test Pits\Test Pit Map.dwg

FIGURE A
CITY OF SOMERVILLE, MASSACHUSETTS
LINCOLN PARK

TEST PIT MAP

SCALE: 1"=1200'

0 1200 2400

Weston & Sampson

TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 1	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	13.53
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	61" (weeping)

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION
5"	Dark brown sandy loam
12"	Dark brown gravelly loamy sand
25"	Dark brown gravelly sandy loam
32"	Dark brown gravelly sandy loam, trace clay
36"	Gravelly coarse sand
46"	Light brown clay loam
74"	Blueish grey gravelly clay loam (brick pieces, metal, cobbles, misc. debris)
	- End of Exploration -

NOTES:

1. A percolation hole was dug at 29" to a depth of 14"
   Time @ 12" = 10:57 am
   Time @ 9 1/8 " = 12:14 pm
   Estimated perc rate = 26.78 min/in

TEST PIT NUMBER
TP - 1

WESTON & SAMPSON
ENGINEERS, INC.

Z:\MA-Boston-Projects\Somerville, MA\Lincoln Park\Test Pits\[Test pit logs.xls]TP-4 pic

TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 1	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	13.53
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	61" (weeping)

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION

NOTES:

TEST PIT NUMBER
TP - 1

WESTON & SAMPSON
ENGINEERS, INC.

TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 2	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	14.40
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	65" (standing)

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION
5"	Dark brown sandy loam
12"	Dark brown gravelly sandy loam
32"	Dark brown gravelly sandy loam, very firm in place
44"	Blueish grey gravelly clay loam
53"	Dark brown clay loam
65"	Blueish grey clay
	- End of Exploration -

NOTES:

1. Miscellaneous debris in most layers.

TEST PIT NUMBER
TP - 2

WESTON & SAMPSON ENGINEERS, INC.

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TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 2	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	14.40
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	65" (standing)

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION

NOTES:

1. Miscellaneous debris in most layers.

TEST PIT NUMBER

TP - 2

WESTON & SAMPSON ENGINEERS, INC.

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TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 3	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	15.03
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	-

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION
5"	Dark brown sandy loam
21"	Dark brown sandy loam, very firm in place (some gravel, broken brick pieces)
26"	Grey (w/ mottles) clay
32"	Dark brown gravelly loamy sand, very firm in place
43"	Dark brown loamy sand, with some clay and pockets of crushed brick
74"	Grey (w/ mottles) silt loam
	- End of Exploration -

NOTES:	**TEST PIT NUMBER** TP - 3
	WESTON & SAMPSON ENGINEERS, INC.

Z:\MA-Boston-Projects\Somerville, MA\Lincoln Park\Test Pits\[Test pit logs.xls]TP-4 pic

TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 3	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	15.03
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	-

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION

NOTES:

TEST PIT NUMBER
TP - 3

WESTON & SAMPSON
ENGINEERS, INC.

TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 4	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	14.10
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	78" (standing)

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION
5"	Dark brown sandy loam
18"	Dark brown gravelly sandy loam, firm in place
37"	Light brown loam
46"	Dark brown sandy loam, with some clay
75"	Medium sand
78"	Grey very fine sandy loam, with some clay
	- End of Exploration -

NOTES:

TEST PIT NUMBER
TP - 4

WESTON & SAMPSON ENGINEERS, INC.

Z:\MA-Boston-Projects\Somerville, MA\Lincoln Park\Test Pits\[Test pit logs.xls]TP-4 pic

TEST PIT LOG

PROJECT NAME/NO.	Lincoln Park / 2150034			**TEST PIT NUMBER**	
LOCATION	Somerville, MA			TP - 4	
CLIENT	City of Somerville			GROUND SURFACE	
CONTRACTOR	The City	FOREMAN:		ELEVATION	14.10
OBSERVED BY	A. Peck	DATE	6/9/15	DEPTH TO GROUNDWATER BELOW	
CHECKED BY		DATE		SURFACE	78" (standing)

DEPTH BELOW GROUND SURFACE (in.)	TEST PIT DIAGRAM AND SOIL DESCRIPTION

NOTES:

TEST PIT NUMBER
TP - 4

WESTON & SAMPSON ENGINEERS, INC.

Z:\MA-Boston-Projects\Somerville, MA\Lincoln Park\Test Pits\[Test pit logs.xls]TP-4 pic

Soil Map—Middlesex County, Massachusetts
(Lincoln Park, Somerville, MA)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 14, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 10, 2014—Aug 25, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Middlesex County, Massachusetts (MA017)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
602	Urban land	27.4	17.0%
603	Urban land, wet substratum	26.9	16.7%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	104.4	64.8%
627C	Newport-Urban land complex, 3 to 15 percent slopes	2.4	1.5%
Totals for Area of Interest		**161.0**	**100.0%**

Middlesex County, Massachusetts

626B—Merrimac-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9957
Elevation: 0 to 2,100 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Merrimac and similar soils: 40 percent
Urban land: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Excavated and filled land

Description of Merrimac

Setting

Landform: Terraces, plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Friable loamy eolian deposits over loose sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 18 inches: gravelly sandy loam
H3 - 18 to 26 inches: very gravelly loamy coarse sand
H4 - 26 to 33 inches: stratified extremely gravelly coarse sand
H5 - 33 to 65 inches: stratified gravelly coarse sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A

Minor Components

Sudbury

Percent of map unit: 10 percent
Landform: Terraces, plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave

Windsor

Percent of map unit: 5 percent
Landform: Deltas, terraces, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex
Across-slope shape: Convex

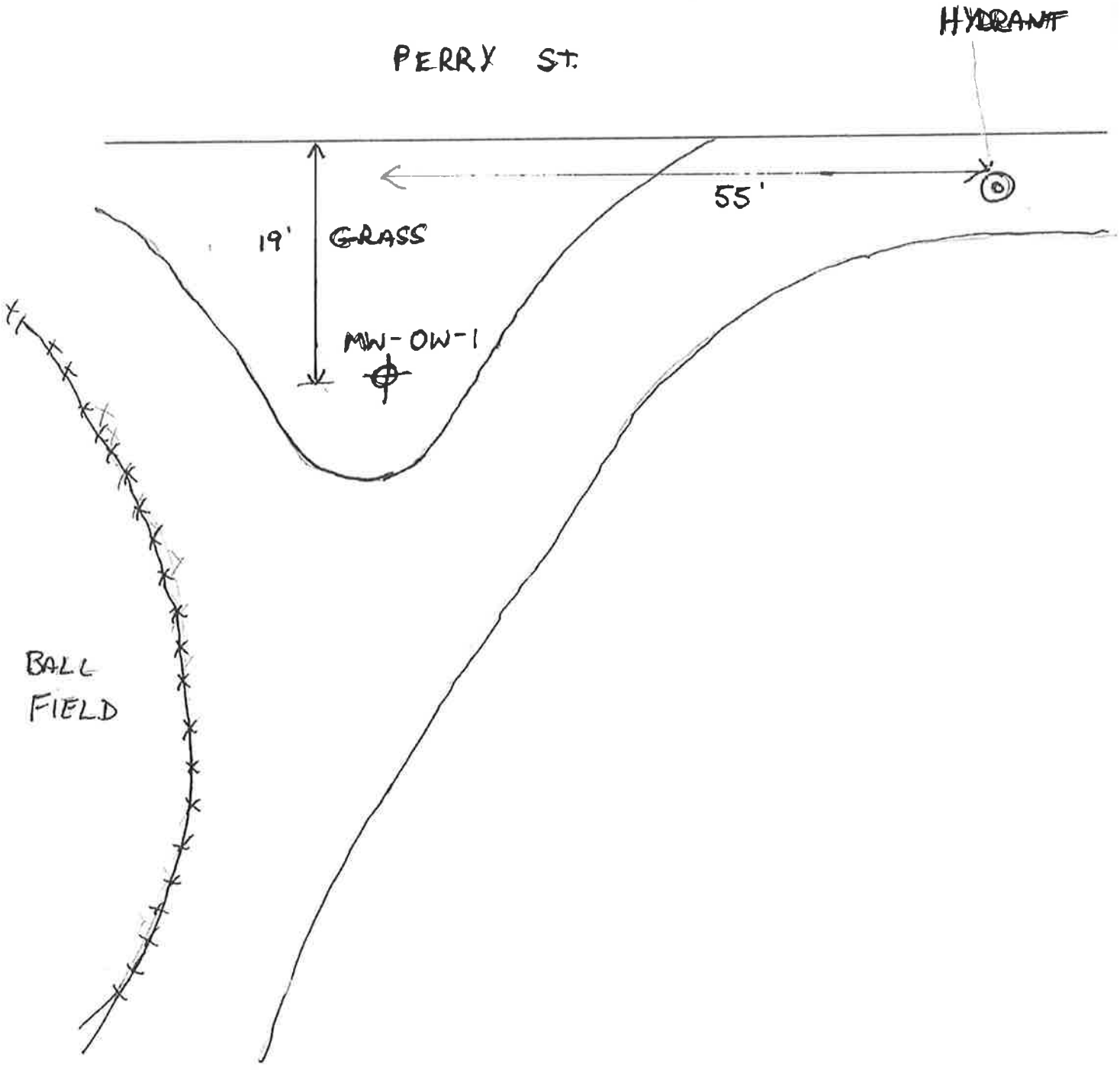
Hinckley

Percent of map unit: 5 percent
Landform: Ridges, eskers, terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 14, Sep 19, 2014

Weston&Sampson®	PROJECT: LINCOLN PARK SOMERVILLE, MA	DATE: 06/04/15 PAGE:
		BY:
		CHKD BY:



Weston&Sampson®	PROJECT: LINCOLN PARK SOMERVILLE MA	DATE: 6/4/15 PAGE:
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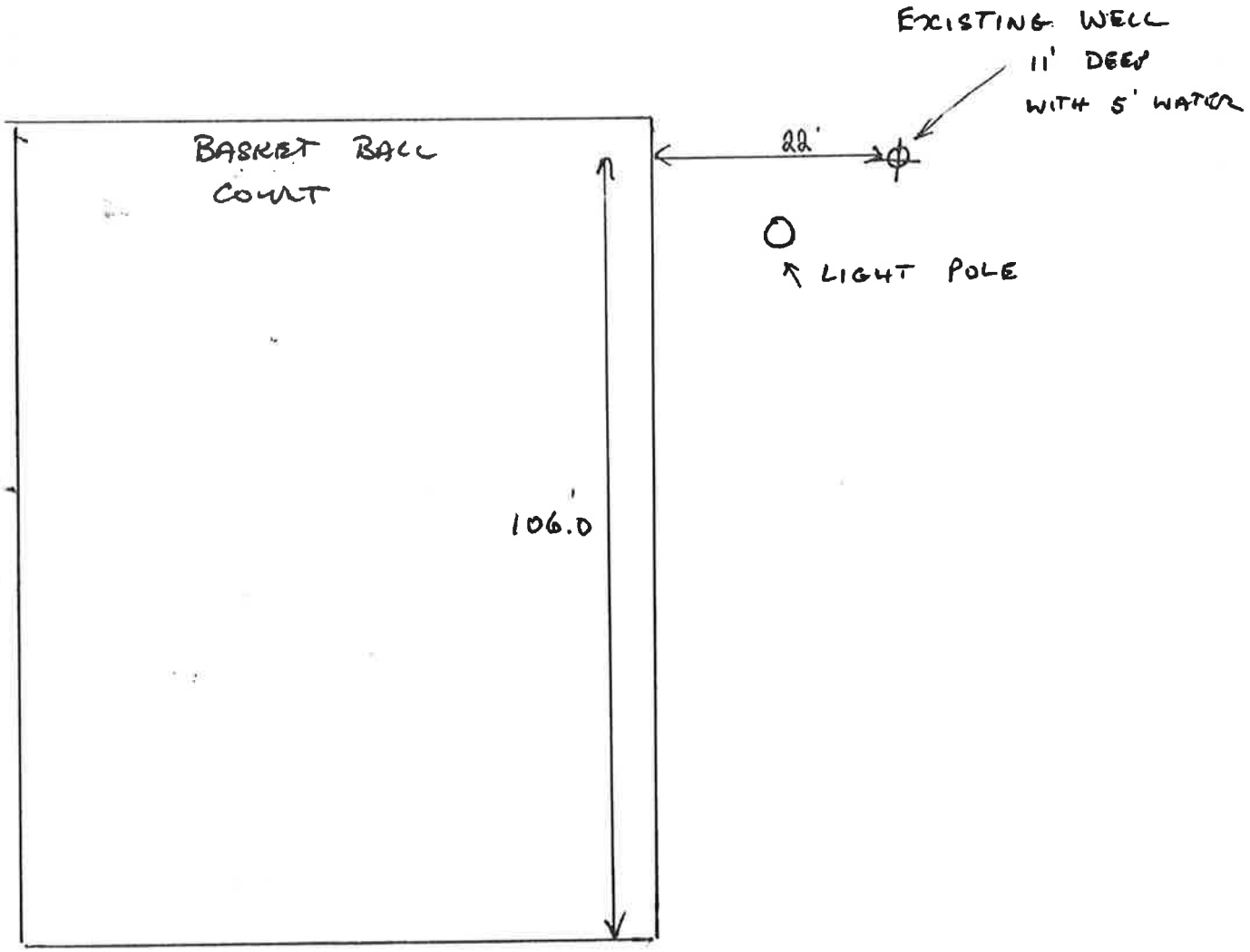
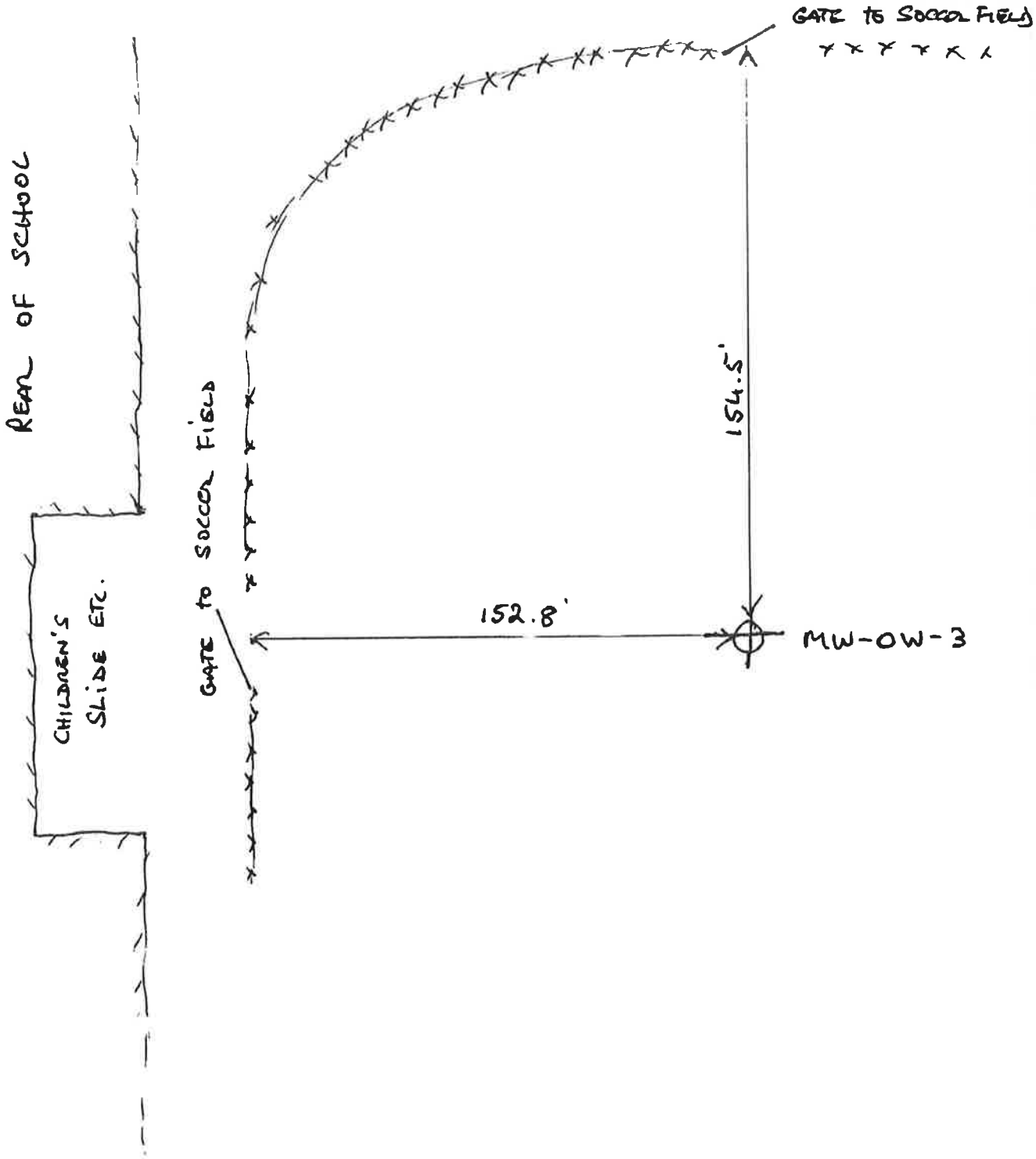
PERRY ST ↑



Weston&Sampson®	PROJECT: LINCOLN PARK SOMERVILLE, MA	DATE: 6/4/15 PAGE:
		BY:
		CHKD BY:



GROUNDWATER MONITORING WELL INSTALLATION REPORT

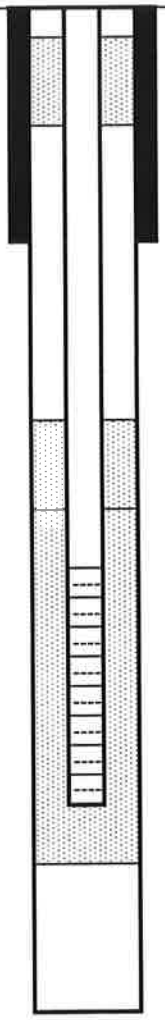
PROJECT NAME/NO.	Lincoln Park		
LOCATION	Neec Somerville, MA		
CLIENT	City of Somerville		
DRILLING COMPANY	Crawford Drilling		
OBSERVED BY	Padraic T..Kavanagh	DATE	6/4/15
CHECKED BY		DATE	

MONITORING WELL NO.
MW-OW-1

ELEVATION
TOP OF PVC
DEPTH TO GROUNDWATER FROM TOP OF PVC

GROUND ELEVATION (GROUND SURFACE)

GENERAL SOIL CONDITIONS (NOT TO SCALE)



	THICKNESS OF SURFACE SEAL(S)	4" Flush-mount Roadbox 1-foot
<---------	TYPE OF SURFACE SEAL(S)	Cement
	TYPE OF SURFACE CASING	4" Road Box
<---------	ID OF SURFACE CASING	3'
<---------	DEPTH BOTTOM OF CASING	1-foot
	ID OF RISER PIPE	2-inch
<---------	TYPE OF RISER PIPE	PVC
<---------	TYPE OF BACKFILL AROUND RISER PIPE	natural
	DEPTH TOP OF SEAL	1'
<---------	TYPE OF SEAL	bentonite
	DEPTH BOTTOM OF SEAL/TOP OF SAND COLUMN	2'-feet
<---------	DEPTH TOP OF SCREEN	2'
	TYPE OF SCREEN	PVC machine slot
<---------	SIZE OPENINGS	10-slot
	ID OF SCREEN	2-inch
<---------	TYPE OF BACKFILL AROUND SCREEN	SAND
<---------	DEPTH BOTTOM OF SCREEN	12'
<---------	DEPTH BOTTOM OF SAND COLUMN	12'
<---------	TYPE OF BACKFILL BELOW SCREEN	none
<---------	DIAMETER OF BOREHOLE	4-inch
<---------	DEPTH BOTTOM OF BOREHOLE	14'

NOTES:

MONITORING WELL NO.
MW-OW-1

WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson
ENGINEERS, INC.

PROJECT
Lincoln Park
Somerville, MA

REPORT OF BORING No. OW-1
SHEET 1 OF 1
Project No. 2150034B
CHKD BY

BORING Co. Crawford Drilling
FOREMAN Jim/Joe
WSE GEOLOGIST: Padraic T. Kavanagh

BORING LOCATION See attached plan
GROUND SURFACE ELEV. DATUM
DATE START 6/4/2015 DATE END 6/4/2015

SAMPLER: SAMPLER CONSISTS OF 24" by 1 3/8" I.D. SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.
4.25 in. INSIDE DIAMETER HOLLOW STEM AUGERS/ DRIVEN 3" DIAMETER CASING USING A 300 lb. HAMMER FALLING 24 in. & DRIVE & WASH TECHNIQUE.
CASING SIZE: 4.25 in. H.S.A. / 3 in. CASING OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
			N/A	N/A

DEPTH (feet)	CASING (bpf)	SAMPLE No.	REC/PEN (in)	DEPTH (ft.)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION Burmister Classification	NOTES	STRATUM DESCRIPTION
0.0		S-1	10/24"	0-2	2-5-12-15	NA	Fill material with top soil/loam, trace gravel coal,cinder,ash and brick fragments		Fill
5.0		S-2	0/24"	5-7	5-8-2-2	NA	No recovery.		
10.0		S-3	0/24"	10-12	3-1-1-1	NA	No recovery.		
		S-4	4/24"	12-14	1-1-1-1	NA	Grey f-c sand with some gravel. Saturated	1 2	
15.0									
20.0									
25.0									
30.0									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1 Well set at 12 feet
2 EOB at 14 feet

NOTES:
1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. OW-1

Weston & Sampson *ENGINEERS, INC.*	PROJECT Lincoln Park Somerville, MA	REPORT OF BORING No. OW-3 SHEET 1 OF 1 Project No. 2150034B CHKD BY

BORING Co.	Crawford Drilling	BORING LOCATION	See attached plan
FOREMAN	Jim/Joe	GROUND SURFACE ELEV.	DATUM
WSE GEOLOGIST:	Padraic T. Kavanagh	DATE START 6/4/2015	DATE END 6/4/2015

SAMPLER: SAMPLER CONSISTS OF 24" by 1 3/8" I.D. SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in. 4.25 in. INSIDE DIAMETER HOLLOW STEM AUGERS/ DRIVEN 3" DIAMETER CASING USING A 300 lb. HAMMER FALLING 24 in. & DRIVE & WASH TECHNIQUE.

CASING SIZE: 4.25 in. H.S.A. / 3 in. CASING OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
			N/A	N/A

DEPTH (feet)	CASING (bpf)	SAMPLE No.	REC/PEN (in)	DEPTH (ft.)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION Burmister Classification	NOTES	STRATUM DESCRIPTION
0.0		S-1	8/24"	0-2	3-4-5-4	NA	Fill material with top soil/loam, trace gravel coal,cinder,ash and brick fragments		**Fill**
5.0		S-2	18/24"	5-7	4-3-6-9	NA	Fill material with dark grey to grey fine SAND with brown f-c SAND and trace gravel and trace brick fragments. Wet at 7 feet.		
10.0		S-3	12/24"	10-12	7-8-10-5	NA	Grey fine to medium SAND with trace gravel and soft clay at 12 feet. Saturated		**Clay**
15.0		S-4	24/24"	15-17	2-1-2-3	NA	Grey to blue soft clay.	1 2	
20.0									
25.0									
30.0									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1 Well set at 15 feet
2 EOB at 17 feet

NOTES:
1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. OW-3

GROUNDWATER MONITORING WELL INSTALLATION REPORT

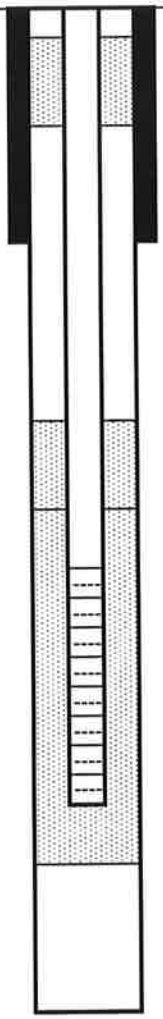
PROJECT NAME/NO.	Lincoln Park		
LOCATION	Neec Somerville, MA		
CLIENT	City of Somerville		
DRILLING COMPANY	Crawford Drilling		
OBSERVED BY	Padraic T..Kavanagh	DATE	6/4/15
CHECKED BY		DATE	

MONITORING WELL NO.
MW-OW-3

ELEVATION
TOP OF PVC
DEPTH TO GROUNDWATER FROM TOP OF PVC

GROUND ELEVATION (GROUND SURFACE)

GENERAL SOIL CONDITIONS
(NOT TO SCALE)



	THICKNESS OF SURFACE SEAL(S)	4" Flush-mount Roadbox 1-foot
<----------	TYPE OF SURFACE SEAL(S)	Cement
	TYPE OF SURFACE CASING	4" Road Box
<----------	ID OF SURFACE CASING	3'
<----------	DEPTH BOTTOM OF CASING	1-foot
	ID OF RISER PIPE	2-inch
<----------	TYPE OF RISER PIPE	PVC
<----------	TYPE OF BACKFILL AROUND RISER PIPE	natural
	DEPTH TOP OF SEAL	2'
<----------	TYPE OF SEAL	bentonite
	DEPTH BOTTOM OF SEAL/TOP OF SAND COLUMN	3'
<----------	DEPTH TOP OF SCREEN	5'
	TYPE OF SCREEN	PVC machine slot
<----------	SIZE OPENINGS	10-slot
	ID OF SCREEN	2-inch
<----------	TYPE OF BACKFILL AROUND SCREEN	SAND
<----------	DEPTH BOTTOM OF SCREEN	15'
<----------	DEPTH BOTTOM OF SAND COLUMN	15'
<----------	TYPE OF BACKFILL BELOW SCREEN	none
<----------	DIAMETER OF BOREHOLE	4-inch
<----------	DEPTH BOTTOM OF BOREHOLE	17'

NOTES:

MONITORING WELL NO.
MW-OW-3

WESTON & SAMPSON
ENGINEERS, INC.

SOIL CHARACTERIZATION REPORT
LINCOLN PARK COMMUNITY SCHOOL
SOMERVILLE, MASSACHUSETTS

Prepared For:
Symmes, Maini & McKee Associates
1000 Massachusetts Avenue
3575 Piedmont Road
Cambridge, MA 02138

Prepared By:
The Geotechnical Group, Inc.
Environmental Division
Needham, Massachusetts

File No. HE3351
July 2005

The Geotechnical Group Inc.
CONSULTING GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERS

July 20, 2005
File No. HE3351

Symmes, Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, MA

Attention: Mr. Wayne Keefner, P.E.

RE: Soil Characterization Report
Lincoln Park Community School
Somerville, Massachusetts

Dear Mr. Keefner:

The Geotechnical Group, Inc. (TGG) is pleased to present the results of our recent limited subsurface assessment at the above referenced property in Somerville, Massachusetts. This report was prepared in accordance with our proposal dated May 4, 2005, and the Limitations and Terms of Agreement contained in Appendix A.

The objective of TGG's work was to characterize soil present as fill material at the above referenced property for planned site construction and to develop a professional opinion as to the potential presence of oil or hazardous materials in the fill material as defined by Massachusetts General Laws, Chapter 21E and the Massachusetts Contingency Plan (MCP). Soil samples were submitted for laboratory analysis of parameters typically required by licensed waste management facilities to characterize the material for potential off-site disposal. A Site Locus and an Exploration Location Plan are attached as Figure 1 and 2, respectively.

SUBSURFACE EXPLORATIONS

A subsurface exploration program, consisting of five soil test borings (P-1 through P-5) and two near surface soil sampling locations (P-6 and P-7), was conducted at the subject property on June 27, 2005. The completed test borings and soil sample locations were observed and logged by TGG. See Figure 2 for the approximate exploration locations.

Soil Test Borings

GeoSearch, Inc. of Fitchburg, Massachusetts used a truck-mounted hydraulic geoprobe rig to advance five soil test borings (P-1 through P-5) at the subject property on June 27, 2005 to obtain soil samples for field screening and laboratory analyses. The geoprobes were generally advanced through existing fill materials into native soil. Upon completion, asphalt patch was installed to fill the hole created in the existing asphalt at locations P-1 through P-4. Soil samples P-6 and P-7 were obtained by hand excavation into the earthen floor of a crawl space under the existing building.

Borings P-1 through P-5 were advanced in fill materials to depths ranging from three foot below ground surface (P-4) to a maximum depth of 9 feet below ground surface (P-5). Fill materials consisted of medium to fine sand and silt, with varying percentages of gravel, and trace amounts of cinder, ash, and brick. Similar fill materials were observed in soil samples obtained at locations P-6 and P-7. The subsurface conditions encountered at the exploration locations are described on the test boring logs attached as Appendix B.

Groundwater

Groundwater levels for this study were recorded at the times and under the conditions noted on the logs. Measurements made within the boreholes during drilling indicated the groundwater table to be located at about five to nine feet below ground surface. The depth to groundwater observed during drilling was consisted with the depth to groundwater measured in monitoring well MW-1 (6.88 feet recorded on June 9, 2005). Refer to Figure 2 for the location of monitoring well MW-1. Groundwater levels may fluctuate due to variations in temperature, rainfall, and other factors.

FIELD SCREENING AND LABORATORY ANALYSES

Soil samples collected during the field exploration program were screened in the field and composite soil samples were delivered to Spectrum Analytical, Inc. (Spectrum), of Agawam, Massachusetts for laboratory analysis.

Qualitative Screening

Soil samples from the soil borings were screened in the field for the potential presence of volatile organic compounds (VOCs) using a portable photoionization detector (PID), equipped with a 10.6 eV lamp. The PID was calibrated with benzene equivalent prior to screening the samples. Screening results from the samples generally indicated non-detectable concentrations of total organic vapors (0.0 units). Soil screening results are presented in Table 1.

Quantitative Analysis - Soil

One composite soil sample was made up from each boring for laboratory analysis of the following parameters: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), pH, specific conductance, reactivity, ignitability, and metals. Prior to compositing the samples, a small volume of soil that was representative of the soil samples obtained from each boring was placed in 40 ml vials containing methanol for VOC analysis. This method was used to minimize the loss of any volatile organic compounds during mixing of the composite soil samples. Soil samples were collected in pre-cleaned, laboratory-provided glassware and preserved in the field in accordance with the test method protocols. Samples were delivered on ice and under a chain of custody to Spectrum Analytical, Inc. for laboratory analysis.

Results of the laboratory analyses indicated that the compounds tested were below the laboratory reporting limits except for TPH, selected SVOCs (polyaromatic hydrocarbons or PAHs), and selected metals. Metals were detected at concentrations below their applicable Department of Environmental Protection (DEP) reportable concentrations for soil category RCS-1; soil category RCS-1 pertains to soils located on or within 500 feet of a residential dwelling, residentially zoned property, school, park, or playground. Identified metals concentrations are also below background concentrations established by the DEP for soils containing coal ash or wood ash associated with fill material.

Selected PAH compounds were identified at concentrations above the applicable DEP reportable concentrations but below background concentrations established by the DEP for natural soils and/or soil containing coal ash or wood ash associated with fill material.

Identified concentrations for TPH in most of the soil samples were below the applicable DEP reportable concentration of 200 mg/kg; however, a TPH concentration of 344 mg/kg was reported for soil sample P-7. TGG requested that the laboratory further evaluate this soil sample in an effort to determine whether the reported TPH concentration may be indicative of background concentrations related to the PAHs identified in the fill material or if the analytical result represents a reportable release condition for the site. The laboratory indicated in their analytical report that the reported TPH concentration for the soil sample obtained from soil sample P-7 is related to a hydrocarbon background source such as asphalt, coal ash, compressed coal, or coal tar; cinder and ash were observed in soil samples obtained at sample locations P-6 and P-7. Therefore, the TPH concentration reported in sample P-7 is not an actual petroleum product, and does not represent a reportable release condition.

Refer to Table 1 for a summary of parameters detected above the laboratory reporting limits, with a comparison to DEP RCS-1 reportable concentrations and DEP identified background levels in soil; the complete laboratory report is contained as Appendix C.

CONCLUSIONS

This report presents the results of our limited subsurface assessment at the above referenced property in Somerville, Massachusetts. This report was prepared in accordance with our proposal dated June 8, 2005, and the Limitations and Terms of Agreement contained in Appendix A.

The objective of TGG's work was to characterize soil present as fill material at the above referenced property for planned site construction and to develop a professional opinion as to the potential presence of oil or hazardous materials in the fill material as defined by Massachusetts General Laws, Chapter 21E. Soil samples were submitted for laboratory analysis of the parameters typically required by licensed waste management facilities to characterize materials for off-site disposal.

Fill materials consisted of medium to fine sand and silt, with varying percentages of gravel, and trace amounts of cinder, ash, and brick were identified in borings P-1 through P-5. Similar fill materials were observed in soil samples obtained at locations P-6 and P-7 in the crawl space under the existing building. Depth to groundwater observed during drilling ranged from 5 to 9 feet below ground surface.

Selected metals, PAHs, and TPH were identified above the laboratory reporting limits in soil samples P-1 through P-7. Identified concentrations of metals and PAHs are below background concentrations established by the DEP for soil containing coal ash or wood ash associated with fill material. TPH identified in soil at concentrations above the DEP reportable concentrations was determined by the laboratory to be associated with a non-petroleum source of hydrocarbon and is related to a hydrocarbon background source such as asphalt, coal ash, compressed coal, or coal tar; cinder and ash were observed in soil samples obtained at sample locations P-6 and P-7.

The MCP contains an exemption where the identification of compounds at concentrations above applicable DEP reportable concentrations does not require notification to the DEP of a release condition for soils containing coal or wood ash associated with fill material.

RECOMMENDATIONS

Existing fill material that is exposed or disturbed during site construction can be reused as backfill material under buildings, if it is appropriate from a geotechnical standpoint, or under paved surfaces. Existing fill material that cannot be reused on the property cannot be transported off-site as clean fill due to the presence of PAHs and TPH in the soil. Based on our review of the analytical results, excess fill material would be acceptable for off-site disposal or reuse as daily cover at a licensed in-state or out-of-state landfill.

Although the DEP does not require the remediation of compounds present at levels consistent with background, it is recommended that potential exposures be mitigated whenever possible in residential settings, which would include school facilities where children are present. Placement of three feet of clean soil over existing fill containing coal ash and/or wood ash in unpaved areas is recommended to mitigate the potential for direct contact with the fill material. Boring logs conducted during previous geotechnical studies conducted by TGG between 2001 and 2002 indicated that a buffer of soil up to approximately one foot in thickness is present above the ash fill in the area of the property that is currently in use as a ball field. According to SMMA, clean fill will be brought in during the course of site restoration following building construction to increase the thickness of the soil buffer in unpaved areas.

The existing upper three feet of material, consisting of topsoil and ash fill, will be removed from the infield area of the ball field and from the vegetable garden area to be protective of more intensive property uses; these areas are to be backfilled with clean material. The topsoil will be stripped from approximately one-half of remainder of the ball field and a four-inch layer of crushed stone will be placed in that area during construction. Upon completion of building construction, the original topsoil and an additional four to six inches of topsoil will be placed over the layer of crushed stone in that portion of the ball field.

It has been a pleasure assisting you with this project. Please feel free to contact us with any questions or comments.

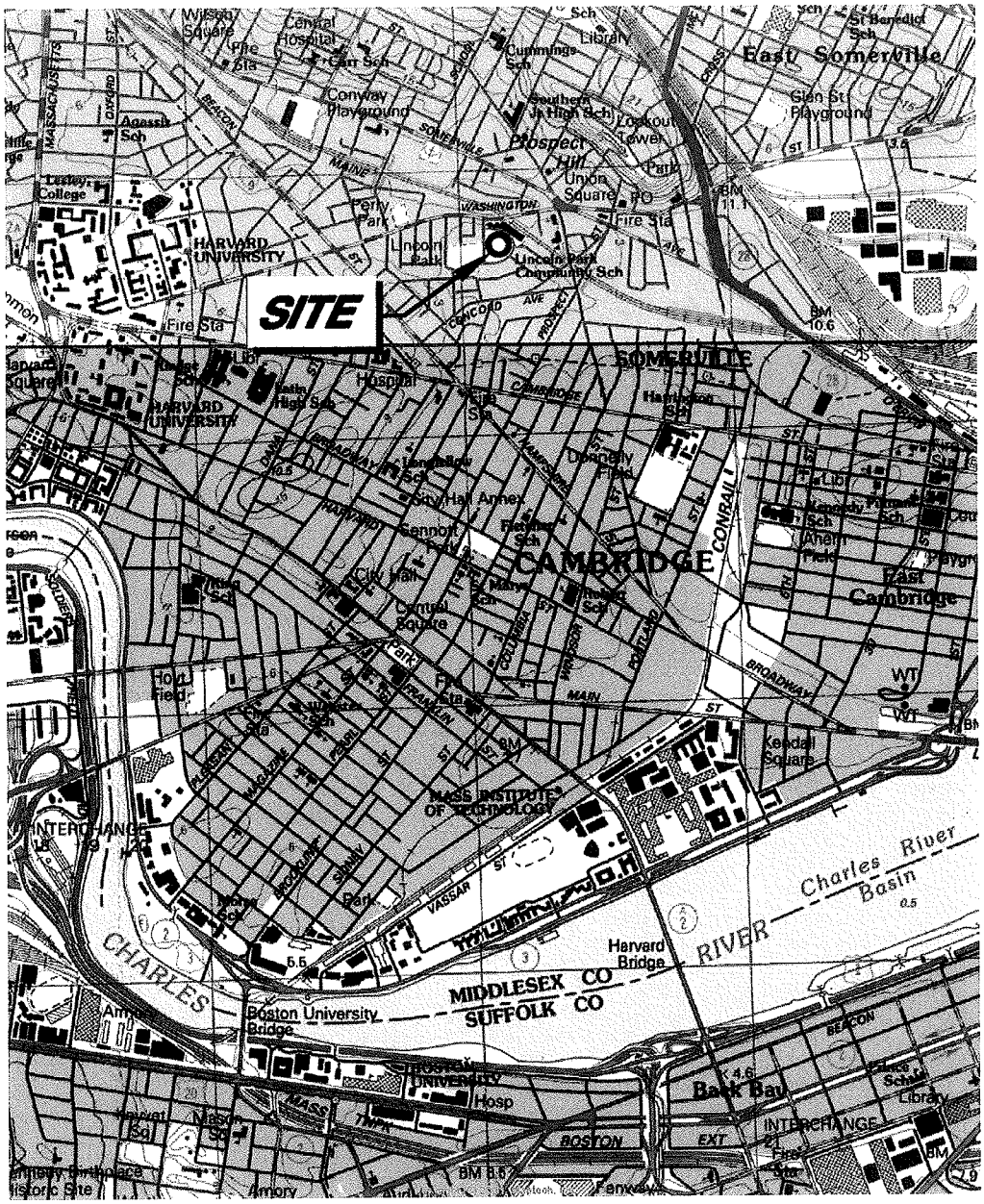
Very truly yours,

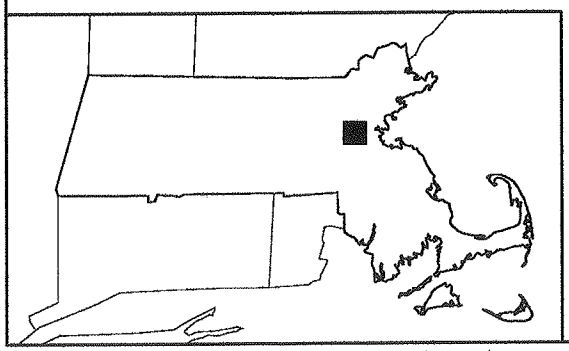
THE GEOTECHNICAL GROUP
Environmental Division

Andrea Stiller, LSP
Associate

Ellen R. Thibodeau, LSP
Senior Project Manager

Attachments: Figure 1: Site Locus Plan
Figure 2: Exploration Location Plan
Table 1: Soil Analytical Results
Appendix A: Limitations and Terms of Agreement
Appendix B: Test Boring Logs
Appendix C: Laboratory Report





LINCOLN PARK COMMUNITY SCHOOL
SOMERVILLE, MASSACHUSETTS

LOCAU PLAN

SOURCE
1985 USGS NORTH BOSTON, MA QUADRANGLE MAP
(NOT TO SCALE)

REV No.	DATE	INT.	- DESCRIPTION -

DRAWN BY: JJP
REVIEWED BY: SPO

DATE: 6/22/05
JOB No. HE3351

TGG

FIGURE No.1

CADD FILES PROVIDED
ENTITLED "GRADING &
/05, ORIGINAL SCALE

INGS WERE APPROXIMATELY
REMENTS, LINE OF SIGHT
SITE FEATURES. THIS DATA
CURATE ONLY TO THE
THODS USED.

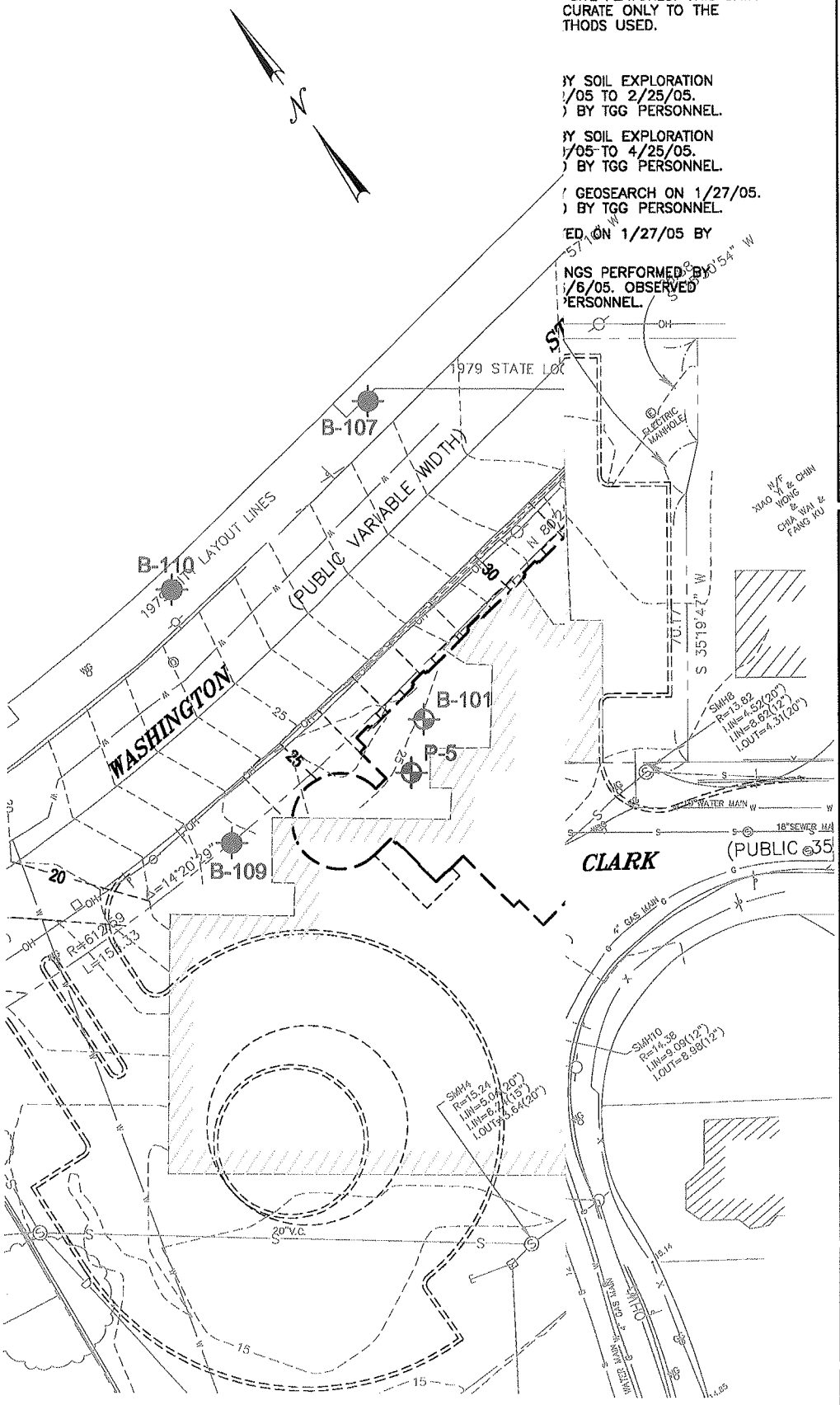
Y SOIL EXPLORATION
/05 TO 2/25/05.
BY TGG PERSONNEL.

Y SOIL EXPLORATION
/05 TO 4/25/05.
BY TGG PERSONNEL.

GEOSEARCH ON 1/27/05.
BY TGG PERSONNEL.

ED ON 1/27/05 BY

NGS PERFORMED BY
/6/05. OBSERVED
ERSONNEL.



REV No.	DATE	INT.	- DESCRIPTION -

DRAWN BY: JJP | REVIEWED BY: SPO

DATE: 7/5/05 | SCALE: 1"=40' | JOB No. HE3351

LINCOLN PARK COMMUNITY SCHOOL SOMERVILLE, MASSACHUSETTS

EXPLORATION LOCATION PLAN

TGG

FIGURE No. 2

ERVILLE\PLANS\335100F03.DWG

June 27, 2005
File No. HE3351

Table 1
Soil Analytical Results
Lincoln Park School
Somerville, Massachusetts

Sample ID	P-1/Comp	P-2/Comp	P-3/Comp	P-4/Comp	P-5/Comp	P-6/Comp	P-7/Comp	Reportable Concentrations	DEP Background Concentrations	
Date Sampled	6/27/05	6/27/05	6/27/05	6/27/05	6/27/05	6/27/05	6/27/05			
Sample Depth (feet)	0.25-6	0.25-6	0.25-5	0.25-3	0-9	0-1	0-1	RCS-1	Natural Soil	Soil with Coal Ash or Wood Wood Ash Associated with Fill Material
Field Screening Results (ppm)	ND	ND	ND	ND	ND	ND	ND			
Volatile Organic Compounds (ug/kg)										
All Analyzed Compounds	ND	ND	ND	ND	ND	ND	ND	-	-	-
Semivolatile Organic Compounds (ug/kg)										
Benzo (a) anthracene	ND	289	1,800	ND	ND	1,130	939	700	2,000	9,000
Benzo (a) pyrene	ND	ND	1,560	ND	ND	1,180	923	700	2,000	7,000
Benzo (b) fluoranthene	ND	ND	1,110	ND	ND	840	581	700	2,000	8,000
Benzo (g,h,I) perylene	ND	ND	839	ND	ND	503	ND	1,000,000	1,000	3,000
Benzo (k) fluoranthene	ND	ND	1,090	ND	ND	675	668	NS	1,000	4,000
Chrysene	ND	332	1,940	ND	ND	1,370	1,010	7,000	2,000	7,000
Fluoranthene	ND	435	3,410	ND	ND	1,680	1,500	1,000,000	4,000	10,000
Indeno (1,2,3-cd) pyrene	ND	ND	820	ND	ND	559	468	700	1,000	3,000
Pyrene	ND	445	2,220	ND	ND	1,790	1,540	700,000	4,000	20,000
Fluorene	ND	ND	ND	ND	ND	ND	ND	NA	1,000	2,000
Phenanthrene	ND	ND	2,340	ND	ND	781	649	100,000	3,000	20,000
Anthracene	ND	ND	851	ND	ND	ND	ND	1,000,000	1,000	4,000
Total Petroleum Hydrocarbons (mg/kg)										
TPH 8100 by GC-Fingerprint	39.7	ND	169	ND	ND	197	344	200	-	-
Polychlorinated Biphenyls (ug/kg)										
PCBs	ND	ND	ND	ND	ND	ND	ND	2,000	-	-
RCRA 8 Metals (mg/kg)										
Arsenic	8.71	9.48	12.5	9.96	8.5	7.42	7.54	30	20	20
Barium	17.9	20	33.3	24.8	31.7	37.7	37.9	1,000	50	50
Cadmium	ND	ND	0.917	ND	ND	1.35	1.23	30	2	3
Chromium	12.9	14.1	17.3	18.2	23	17.7	18.2	1,000	30	40
Mercury	ND	ND	0.352	ND	ND	0.489	0.436	20	0.3	1
Lead	6.4	15.6	79.2	3.7	35.4	120	124	300	100	600
Silver	ND	ND	ND	ND	ND	ND	ND	100	0.6	5
Selenium	ND	ND	ND	ND	ND	ND	ND	400	0.5	1
General Chemistry Parameters										
Flashpoint (°F)	> 200	> 200	> 200	> 200	> 200	> 200	> 200	NS	-	-
pH (pH units)	9.87	8.2	8.48	8.01	9.34	8.2	7.8	NS	-	-
Reactivity (mg/kg)	Negative	Negative	Negative	Negative	Negative	Negative	Negative	NS	-	-
Reactivity Cyanide	ND	ND	ND	ND	ND	ND	ND	NS	-	-
Reactivity Sulfide	ND	ND	ND	ND	ND	ND	ND	NS	-	-
Specific Conductance	102	215	158	76.3	90.1	89.1	92.8	NS	-	-

Notes:

1. ND indicates compound not detected above laboratory detection limits.
2. NT indicates compound not analyzed.
3. NS indicates no MCP standard exists for the specified compound.
4. Not all compounds analyzed are presented in this table. See laboratory analytical data for complete list of analytes.
5. Modified EPA Method 8100 for TPH could not identify the type of oil, therefore termed, "unidentified"; TPH result was quantified using standard for Fuel Oil #6.
6. DEP Background Concentrations obtained for natural soil and soil containing coal or wood ash associated with fill material (May 23, 2002 Update to Section 2.3 Guidance for Disposal Site Risk Characterization in Support of the Massachusetts Contingency Plan (1992).

LIMITATIONS

1. Observations were made of the site as indicated within the Report. If areas exist which were inaccessible or not included in the scope of work, and therefore not observed, TGG can render no opinion as to the conditions in that area. This includes but is not limited to the areas covered by buildings, stockpiles, construction materials, and vegetation.

2. In preparing this Report, TGG referenced work completed by others. Due to the potential for errors, omissions or inaccuracies that may exist there is some risk associated with reliance on such information. Although there may have been some corroboration provided by multiple sources, TGG cannot be responsible for the accuracy or completeness of the information reviewed or received during the course of this work

3. The conclusions and recommendations contained in this Report are based in part upon the data obtained from soil samples collected from subsurface explorations completed at the referenced property. The nature and extent of variations between these explorations may not become evident until additional work is undertaken at the site. If variations or latent conditions then appear evident, it will be necessary to reevaluate the conclusions and recommendations of this report.

4. The purpose of this Report was to provide environmental services at the subject site with respect to the presence in the environment of hazardous material or oil, as defined in Massachusetts General Laws Chapter 21E. No specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

5. This report was prepared for the exclusive use of Symmes, Maini & McKee Associates, solely for use in connection with environmental studies of the property located at Lincoln Park Community School in Somerville, Massachusetts. This report was prepared in accordance with generally accepted environmental engineering practice. No other warranty, expressed or implied, is made.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, Massachusetts

Boring No. P-1
Sheet 1 of 1
File No. HE3351
Review by: Ellen Thibodeau

Boring Co.	GeoSearch	Boring Location:	See Plan
Foreman	Brian	Ground Elev.	N/A
TGG Observer	Stephanie Orlow	Date Start > End	6/27/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
6/27	AM	8 feet	5± feet	

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem.	Strata Change	Sample Description
S-1	0.25-4	DP	48	40		.25	Asphalt
						Fill	Light brown, fine SAND, some Silt.
							Wet, light brown, fine SAND, some Silt.
							Light brown, fine SAND, some Silt.
S-2	4-8	DP	36	44		6.0	Wet, light brown, fine SAND, some Silt.
						Peat 7.0	Wet, black to dark brown SILT. some (+) Roots, trace fine sand.
						Sand & Gravel 8.0	Wet, medium to dark brown, fine to coarse SAND, some fine to coarse Gravel, little (-) Silt.
							Bottom of exploration

Remarks:
1. **Groundwater observed at approximately 5± feet.**
2. **Bottom of boring at 8± feet.**

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, Massachusetts

Boring No. P-2
Sheet 1 of 1
File No. HE3351
Review by: Ellen Thibodeau

Boring Co.	GeoSearch	Boring Location:	See Plan
Foreman	Brian	Ground Elev.	N/A
TGG Observer	Stephanie Orlow	Date Start > End	6/27/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
6/27	AM	8 feet	6± feet	

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem.	Strata Change	Sample Description
S-1	0.25-4	DP	48	38		.25	Asphalt
							Medium brown, fine to medium SAND, little fine to medium Gravel, trace Silt.
						Granular Fill	Medium to dark brown, fine SAND, some Silt, trace fine to medium Gravel, trace (+) Cinder and Brick.
S-2	4-8	DP	48	40		6.0	Light brown, fine SAND, some Silt, little Brick, trace Ash.
						Sand 8.0	Wet, brown to gray, fine to coarse SAND, little fine Gravel, trace Silt.
							Bottom of boring.

Remarks:
1. **Groundwater observed at approximately 6± feet.**
2. **Bottom of boring at 8± feet.**

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, Massachusetts

Boring No. P-3
Sheet 1 of 1
File No. HE3351
Review by: Ellen Thibodeau

Boring Co.	GeoSearch
Foreman	Brian
TGG Observer	Stephanie Orlow
Boring Location:	See Plan
Ground Elev.	N/A
Date Start > End	6/27/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Tim	Depth to Bottom	Depth to Water	Rem.
6/27	AM	8 feet	6± feet	

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem.	Strata Change	Sample Description
S-1	0.25-4	DP	48	40		.25	Asphalt
						Fill	Medium to dark brown, fine to coarse SAND, some fine to medium Gravel, little (-) Silt. trace Brick, Glass & Cinder.
						5.0	Brown, fine SAND and SILT.
S-2	4-8	DP	48	42		Peat 6.5	Black to dark brown Silt, some fine Sand, some Roots.
						Sand 8.0	Wet, brown, fine to coarse SAND, trace Silt.
							Bottom of boring.

Remarks:
1. **Groundwater observed at approximately 6± feet.**
2. **Bottom of boring at 8± feet.**

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, Massachusetts

Boring No. P-4
Sheet 1 of 1
File No. HE3351
Review by: Ellen Thibodeau

Boring Co.	GeoSearch	Boring Location:	See Plan
Foreman	Brian	Ground Elev.	N/A
TGG Observer	Stephanie Orlow	Date Start > End	6/27/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Tim	Depth to Bottom	Depth to Water	Rem.
6/27	AM	8 feet	6± feet	

Sample Data

	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem.	Strata Change	Sample Description
	S-1	0.25-4	DP	48	40		.25	Asphalt
							Granular Fill 3.0	Light brown, fine to medium SAND, little fine to medium Gravel, little (+) Silt.
							Sand & Silt 4.0	Light brown, fine to medium SAND and SILT, little (+) fine to medium Gravel.
5	S-2	4-8	DP	48	45		Sand 6.0	Medium brown, fine SAND, some Silt.
							Sand & Gravel 7.0	Wet, brown to gray, fine to coarse SAND and fine to coarse GRAVEL, trace Silt.
							Silty Sand 8.0	Wet, brown to gray, fine SAND and SILT.
10								Bottom of boring.
15								
20								
25								

Remarks:
1. **Groundwater observed at approximately 6± feet.**
2. **Bottom of boring at 8± feet.**

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, Massachusetts

Boring No. P-5
Sheet 1 of 1
File No. HE3351
Review by: Ellen Thibodeau

Boring Co.	GeoSearch	Boring Location:	See Plan
Foreman	Brian	Ground Elev.	N/A
TGG Observer	Stephanie Orlow	Date Start > End	6/27/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Tim	Depth to Bottom	Depth to Water	Rem.
6/27	AM	8 feet	9± feet	

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem.		
	S-1	0.25-4	DP	48	36		Fill 2.5	Dark brown, fine to medium SAND, little (+) Silt, trace (+) Glass, trace fine Gravel and Roots.
							Boulder 3.5	
5	S-2	4-8	DP	48	40		Sand and Gravel	Medium brown, fine to coarse Sand, some fine to medium Gravel, little Silt.
							9.0	Medium brown, fine to coarse SAND, some fine to coarse Gravel, little Silt.
10	S-3	8-12	DP	48	36		Silty Clay 11.0	Wet, brown to dark brown, Silty CLAY, little fine to medium Sand.
15								Bottom of boring.
20								
25								

Remarks:
1. **Groundwater observed at approximately 9± feet.**
2. **Bottom of boring at 12± feet.**

Report Date:
08-Jul-05 14:56

☑ Final Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

The Geotechnical Group, Inc.
100 Crescent Road
Needham, MA 02494
Attn: Ellen Thibodeau

Project: Lincoln Park School-Somerville, MA
Project #: HE3351

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SA30139-01	P-1/Comp	Soil	27-Jun-05 08:30	28-Jun-05 16:10
SA30139-02	P-2/Comp	Soil	27-Jun-05 09:00	28-Jun-05 16:10
SA30139-03	P-3/Comp	Soil	27-Jun-05 09:30	28-Jun-05 16:10
SA30139-04	P-4/Comp	Soil	27-Jun-05 09:55	28-Jun-05 16:10
SA30139-05	P-5/Comp	Soil	27-Jun-05 10:30	28-Jun-05 16:10
SA30139-06	P-6/Comp	Soil	27-Jun-05 12:00	28-Jun-05 16:10
SA30139-07	P-7/Comp	Soil	27-Jun-05 12:45	28-Jun-05 16:10

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. All applicable NELAC requirements have been met.
Please note that this report contains 57 pages of analytical data including Chain of Custody document(s).
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Massachusetts Certification # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538/2972
New York # 11393/11840
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393

Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method indicated. Please refer to our "Quality" webpage at www.spectrum-analytical.com for a full listing of our current certifications.

NOTE:

Per client request for further evaluation of sample SA30139-07 to determine the potential hydrocarbon source, the following summarizes the process of this sample. Spectrum has analyzed the aforementioned samples for total petroleum hydrocarbons via modified SW846 8100 method in addition to method SW846 8270 for semivolatile organic compounds. I Hanibal C. Tayeh have reviewed the GC/FID and GCMS chromatograms for this sample. Subsequently, it is my professional opinion, that the Total Petroleum Hydrocarbon (TPH) concentration reported is related to a hydrocarbon-background source such as asphalt, coal ash, compressed coal or coal tar and not an actual petroleum product. A portion of the TPH concentration is related to poly aromatic hydrocarbons (PAHs).

CASE NARRATIVE:

The data set for work order SA30139 complies with internal QC criteria for the methods performed. The samples were received @ 6.0 degrees Celsius. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2004 Rev.4, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended 70%-130% recovery range, a range has been set based on historical control limits. Please refer to "Notes and Definitions" for all sample/analyte qualifiers. Qualifiers will note any exceedance levels and issues relating to sample analysis/matrix.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-1/Comp SA30139-01	HE3351	Soil	27-Jun-05 08:30	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	28-Jun-05	28-Jun-05	5061926	BD	
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
67-64-1	Acetone	BRL	767 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
107-13-1	Acrylonitrile	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
71-43-2	Benzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-25-2	Bromoform	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
74-83-9	Bromomethane	BRL	76.7 µg/kg dry	50	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	383 µg/kg dry	50	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	192 µg/kg dry	50	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-00-3	Chloroethane	BRL	76.7 µg/kg dry	50	"	"	"	"	"	
67-66-3	Chloroform	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
74-87-3	Chloromethane	BRL	76.7 µg/kg dry	50	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	76.7 µg/kg dry	50	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	76.7 µg/kg dry	50	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	383 µg/kg dry	50	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-1/Comp SA30139-01	HE3351	Soil	27-Jun-05 08:30	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
1634-04-4	Methyl tert-butyl ether	BRL	38.3 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	383 µg/kg dry	50	"	"	"	"	"	
75-09-2	Methylene chloride	BRL	383 µg/kg dry	50	"	"	"	"	"	
91-20-3	Naphthalene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
100-42-5	Styrene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
108-88-3	Toluene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	76.7 µg/kg dry	50	"	"	"	"	"	
95-47-6	o-Xylene	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	383 µg/kg dry	50	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	38.3 µg/kg dry	50	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	383 µg/kg dry	50	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	767 µg/kg dry	50	"	"	"	"	"	
Surrogate recoveries:										
460-00-4	*4-Bromofluorobenzene*	*102*	*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*91.4*	*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*69.6*	*70-130 %*		"	"	"	"	"	S-GC
1868-53-7	*Dibromofluoromethane*	*78.2*	*70-130 %*		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
8006-61-9	Gasoline	BRL	31.8 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
68476-30-2	Fuel Oil #2	BRL	31.8 mg/kg dry	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL	31.8 mg/kg dry	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL	31.8 mg/kg dry	1	"	"	"	"	"	
M09800000	Motor Oil	BRL	31.8 mg/kg dry	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL	31.8 mg/kg dry	1	"	"	"	"	"	
J00100000	Aviation Fuel	BRL	31.8 mg/kg dry	1	"	"	"	"	"	
	Unidentified	39.7	31.8 mg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-1/Comp SA30139-01	HE3351	Soil	27-Jun-05 08:30	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
	Other Oil	Calculated as	31.8 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
	Total Petroleum Hydrocarbons	39.7	31.8 mg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
3386-33-2	*1-Chlorooctadecane*	*70.4*	*40-140 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GC										
Polychlorinated Biphenyls by SW846 8082			Prepared by method	SW846 3545A						
12674-11-2	PCB 1016	BRL	29.3 µg/kg dry	1	SW846 8082	29-Jun-05	30-Jun-05	5061936	TG/	
11104-28-2	PCB 1221	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
11141-16-5	PCB 1232	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
53469-21-9	PCB 1242	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
12672-29-6	PCB 1248	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
11097-69-1	PCB 1254	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
11096-82-5	PCB 1260	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
37324-23-5	PCB 1262	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
11100-14-4	PCB 1268	BRL	29.3 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*80.1*	*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*85.3*	*30-150 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
83-32-9	Acenaphthene	BRL	227 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
208-96-8	Acenaphthylene	BRL	227 µg/kg dry	1	"	"	"	"	"	
62-53-3	Aniline	BRL	227 µg/kg dry	1	"	"	"	"	"	
120-12-7	Anthracene	BRL	227 µg/kg dry	1	"	"	"	"	"	
1912-24-9	Atrazine	BRL	227 µg/kg dry	1	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL	227 µg/kg dry	1	"	"	"	"	"	
92-87-5	Benzidine	BRL	227 µg/kg dry	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	BRL	227 µg/kg dry	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	BRL	227 µg/kg dry	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	BRL	227 µg/kg dry	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL	227 µg/kg dry	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	BRL	227 µg/kg dry	1	"	"	"	"	"	
65-85-0	Benzoic acid	BRL	227 µg/kg dry	1	"	"	"	"	"	
100-51-6	Benzyl alcohol	BRL	227 µg/kg dry	1	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	BRL	227 µg/kg dry	1	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	BRL	227 µg/kg dry	1	"	"	"	"	"	
39638-32-9	Bis(2-chloroisopropyl)ether	BRL	227 µg/kg dry	1	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL	227 µg/kg dry	1	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL	227 µg/kg dry	1	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL	227 µg/kg dry	1	"	"	"	"	"	
86-74-8	Carbazole	BRL	227 µg/kg dry	1	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
106-47-8	4-Chloroaniline	BRL	227 µg/kg dry	1	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL	227 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-1/Comp SA30139-01	HE3351	Soil	27-Jun-05 08:30	28-Jun-05

Semivolatile Organic Compounds by GCMS

Semivolatile Organic Compounds by SW846 8270C — Prepared by method SW846 3545A

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
95-57-8	2-Chlorophenol	BRL	227 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
7005-72-3	4-Chlorophenyl phenyl ether	BRL	227 µg/kg dry	1	"	"	"	"	"	
218-01-9	Chrysene	BRL	227 µg/kg dry	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	227 µg/kg dry	1	"	"	"	"	"	
132-64-9	Dibenzofuran	BRL	227 µg/kg dry	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	227 µg/kg dry	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	227 µg/kg dry	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	227 µg/kg dry	1	"	"	"	"	"	
91-94-1	3,3'-Dichlorobenzidine	BRL	227 µg/kg dry	1	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
84-66-2	Diethyl phthalate	BRL	227 µg/kg dry	1	"	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL	227 µg/kg dry	1	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL	227 µg/kg dry	1	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL	227 µg/kg dry	1	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL	227 µg/kg dry	1	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL	227 µg/kg dry	1	"	"	"	"	"	
206-44-0	Fluoranthene	BRL	227 µg/kg dry	1	"	"	"	"	"	
86-73-7	Fluorene	BRL	227 µg/kg dry	1	"	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL	227 µg/kg dry	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	227 µg/kg dry	1	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL	227 µg/kg dry	1	"	"	"	"	"	
67-72-1	Hexachloroethane	BRL	227 µg/kg dry	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	227 µg/kg dry	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	BRL	227 µg/kg dry	1	"	"	"	"	"	
78-59-1	Isophorone	BRL	227 µg/kg dry	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	227 µg/kg dry	1	"	"	"	"	"	
95-48-7	2-Methylphenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
108-39-4,106-4	3,4-Methylphenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL	227 µg/kg dry	1	"	"	"	"	"	
88-74-4	2-Nitroaniline	BRL	227 µg/kg dry	1	"	"	"	"	"	
99-09-2	3-Nitroaniline	BRL	227 µg/kg dry	1	"	"	"	"	"	
100-01-6	4-Nitroaniline	BRL	907 µg/kg dry	1	"	"	"	"	"	
98-95-3	Nitrobenzene	BRL	227 µg/kg dry	1	"	"	"	"	"	
88-75-5	2-Nitrophenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
100-02-7	4-Nitrophenol	BRL	907 µg/kg dry	1	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL	227 µg/kg dry	1	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL	227 µg/kg dry	1	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL	227 µg/kg dry	1	"	"	"	"	"	
87-86-5	Pentachlorophenol	BRL	907 µg/kg dry	1	"	"	"	"	"	
85-01-8	Phenanthrene	BRL	227 µg/kg dry	1	"	"	"	"	"	
108-95-2	Phenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
129-00-0	Pyrene	BRL	227 µg/kg dry	1	"	"	"	"	"	
110-86-1	Pyridine	BRL	227 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-1/Comp SA30139-01	HE3351	Soil	27-Jun-05 08:30	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method		SW846 3545A					
120-82-1	1,2,4-Trichlorobenzene	BRL	227 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
95-95-4	2,4,5-Trichlorophenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL	227 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
321-60-8	*2-Fluorobiphenyl*	*57.6*	*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*59.8*	*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*59.0*	*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*40.0*	*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*78.2*	*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*42.5*	*15-110 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	1.06 mg/kg dry	1	SW846 6010B	29-Jun-05	01-Jul-05	5061913	HB	
7440-38-2	Arsenic	8.71	1.59 mg/kg dry	1	"	"	"	"	"	
7440-39-3	Barium	17.9	0.530 mg/kg dry	1	"	"	"	"	"	
7440-43-9	Cadmium	BRL	0.265 mg/kg dry	1	"	"	"	"	"	
7440-47-3	Chromium	12.9	0.530 mg/kg dry	1	"	"	"	"	"	
7439-97-6	Mercury	BRL	0.183 mg/kg dry	1	SW846 7471A	"	01-Jul-05	5061914	YP	
7439-92-1	Lead	6.40	0.794 mg/kg dry	1	SW846 6010B	"	01-Jul-05	5061913	HB	
7782-49-2	Selenium	BRL	1.59 mg/kg dry	1	"	"	"	"	"	
Toxicity Characteristics										
	Flashpoint	> 200	°F	1	SW846 1010	30-Jun-05	30-Jun-05	5062077	LK	
	pH	9.87	pH Units	1	SW846 9045C	30-Jul-05 11:00	30-Jul-05	5070031	BD	HT-2
Reactivity Cyanide/Sulfide			Prepared by method		General Preparation					
	Reactivity	Negative	mg/kg dry	1	SW846 Ch. 7.3	29-Jun-05	29-Jun-05	5062033	LK	
	Reactive Cyanide	BRL	24.9 mg/kg dry	1	"	"	"	"	"	
	Reactive Sulfide	BRL	49.8 mg/kg dry	1	"	"	"	"	"	
General Chemistry Parameters										
	% Solids	93.4	%	1	SM2540 G Mod.	29-Jun-05	30-Jun-05	5061974	JAK	
	Specific Conductance (EC)	102	uS/cm	1	SM2510B	01-Jul-05	01-Jul-05	5070064	BD	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-2/Comp SA30139-02	HE3351	Soil	27-Jun-05 09:00	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	28-Jun-05	28-Jun-05	5061926	BD	
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
67-64-1	Acetone	BRL	858 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
107-13-1	Acrylonitrile	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
71-43-2	Benzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-25-2	Bromoform	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
74-83-9	Bromomethane	BRL	85.8 µg/kg dry	50	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	429 µg/kg dry	50	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	214 µg/kg dry	50	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-00-3	Chloroethane	BRL	85.8 µg/kg dry	50	"	"	"	"	"	
67-66-3	Chloroform	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
74-87-3	Chloromethane	BRL	85.8 µg/kg dry	50	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	85.8 µg/kg dry	50	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	85.8 µg/kg dry	50	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	429 µg/kg dry	50	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-2/Comp SA30139-02	HE3351	Soil	27-Jun-05 09:00	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
1634-04-4	Methyl tert-butyl ether	BRL	42.9 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	429 µg/kg dry	50	"	"	"	"	"	
75-09-2	Methylene chloride	BRL	429 µg/kg dry	50	"	"	"	"	"	
91-20-3	Naphthalene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
100-42-5	Styrene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
108-88-3	Toluene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	85.8 µg/kg dry	50	"	"	"	"	"	
95-47-6	o-Xylene	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	429 µg/kg dry	50	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	42.9 µg/kg dry	50	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	429 µg/kg dry	50	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	858 µg/kg dry	50	"	"	"	"	"	
Surrogate recoveries:										
460-00-4	*4-Bromofluorobenzene*	*103*	*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*93.4*	*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*68.4*	*70-130 %*		"	"	"	"	"	S-GC
1868-53-7	*Dibromofluoromethane*	*78.6*	*70-130 %*		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
8006-61-9	Gasoline	BRL	32.5 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
68476-30-2	Fuel Oil #2	BRL	32.5 mg/kg dry	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL	32.5 mg/kg dry	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL	32.5 mg/kg dry	1	"	"	"	"	"	
M09800000	Motor Oil	BRL	32.5 mg/kg dry	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL	32.5 mg/kg dry	1	"	"	"	"	"	
J00100000	Aviation Fuel	BRL	32.5 mg/kg dry	1	"	"	"	"	"	
	Unidentified	BRL	32.5 mg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-2/Comp SA30139-02	HE3351	Soil	27-Jun-05 09:00	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
	Other Oil	BRL	32.5 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
	Total Petroleum Hydrocarbons	BRL	32.5 mg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
3386-33-2	*1-Chlorooctadecane*	*61.7*	*40-140 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GC										
Polychlorinated Biphenyls by SW846 8082			Prepared by method	SW846 3545A						
12674-11-2	PCB 1016	BRL	30.9 µg/kg dry	1	SW846 8082	29-Jun-05	30-Jun-05	5061936	TG/	
11104-28-2	PCB 1221	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
11141-16-5	PCB 1232	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
53469-21-9	PCB 1242	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
12672-29-6	PCB 1248	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
11097-69-1	PCB 1254	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
11096-82-5	PCB 1260	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
37324-23-5	PCB 1262	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
11100-14-4	PCB 1268	BRL	30.9 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*90.0*	*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*94.8*	*30-150 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
83-32-9	Acenaphthene	BRL	238 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
208-96-8	Acenaphthylene	BRL	238 µg/kg dry	1	"	"	"	"	"	
62-53-3	Aniline	BRL	238 µg/kg dry	1	"	"	"	"	"	
120-12-7	Anthracene	BRL	238 µg/kg dry	1	"	"	"	"	"	
1912-24-9	Atrazine	BRL	238 µg/kg dry	1	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL	238 µg/kg dry	1	"	"	"	"	"	
92-87-5	Benzidine	BRL	238 µg/kg dry	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	289	238 µg/kg dry	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	BRL	238 µg/kg dry	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	BRL	238 µg/kg dry	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL	238 µg/kg dry	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	BRL	238 µg/kg dry	1	"	"	"	"	"	
65-85-0	Benzoic acid	BRL	238 µg/kg dry	1	"	"	"	"	"	
100-51-6	Benzyl alcohol	BRL	238 µg/kg dry	1	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	BRL	238 µg/kg dry	1	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	BRL	238 µg/kg dry	1	"	"	"	"	"	
39638-32-9	Bis(2-chloroisopropyl)ether	BRL	238 µg/kg dry	1	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL	238 µg/kg dry	1	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL	238 µg/kg dry	1	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL	238 µg/kg dry	1	"	"	"	"	"	
86-74-8	Carbazole	BRL	238 µg/kg dry	1	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
106-47-8	4-Chloroaniline	BRL	238 µg/kg dry	1	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL	238 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-2/Comp SA30139-02	HE3351	Soil	27-Jun-05 09:00	28-Jun-05

Semivolatile Organic Compounds by GCMS

Semivolatile Organic Compounds by SW846 8270C — Prepared by method SW846 3545A

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
95-57-8	2-Chlorophenol	BRL	238 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
7005-72-3	4-Chlorophenyl phenyl ether	BRL	238 µg/kg dry	1	"	"	"	"	"	
218-01-9	Chrysene	332	238 µg/kg dry	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	238 µg/kg dry	1	"	"	"	"	"	
132-64-9	Dibenzofuran	BRL	238 µg/kg dry	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	238 µg/kg dry	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	238 µg/kg dry	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	238 µg/kg dry	1	"	"	"	"	"	
91-94-1	3,3'-Dichlorobenzidine	BRL	238 µg/kg dry	1	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
84-66-2	Diethyl phthalate	BRL	238 µg/kg dry	1	"	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL	238 µg/kg dry	1	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL	238 µg/kg dry	1	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL	238 µg/kg dry	1	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL	238 µg/kg dry	1	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL	238 µg/kg dry	1	"	"	"	"	"	
206-44-0	Fluoranthene	435	238 µg/kg dry	1	"	"	"	"	"	
86-73-7	Fluorene	BRL	238 µg/kg dry	1	"	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL	238 µg/kg dry	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	238 µg/kg dry	1	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL	238 µg/kg dry	1	"	"	"	"	"	
67-72-1	Hexachloroethane	BRL	238 µg/kg dry	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	238 µg/kg dry	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	BRL	238 µg/kg dry	1	"	"	"	"	"	
78-59-1	Isophorone	BRL	238 µg/kg dry	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	238 µg/kg dry	1	"	"	"	"	"	
95-48-7	2-Methylphenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
108-39-4,106-4	3,4-Methylphenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL	238 µg/kg dry	1	"	"	"	"	"	
88-74-4	2-Nitroaniline	BRL	238 µg/kg dry	1	"	"	"	"	"	
99-09-2	3-Nitroaniline	BRL	238 µg/kg dry	1	"	"	"	"	"	
100-01-6	4-Nitroaniline	BRL	953 µg/kg dry	1	"	"	"	"	"	
98-95-3	Nitrobenzene	BRL	238 µg/kg dry	1	"	"	"	"	"	
88-75-5	2-Nitrophenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
100-02-7	4-Nitrophenol	BRL	953 µg/kg dry	1	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL	238 µg/kg dry	1	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL	238 µg/kg dry	1	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL	238 µg/kg dry	1	"	"	"	"	"	
87-86-5	Pentachlorophenol	BRL	953 µg/kg dry	1	"	"	"	"	"	
85-01-8	Phenanthrene	BRL	238 µg/kg dry	1	"	"	"	"	"	
108-95-2	Phenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
129-00-0	Pyrene	445	238 µg/kg dry	1	"	"	"	"	"	
110-86-1	Pyridine	BRL	238 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-2/Comp SA30139-02	HE3351	Soil	27-Jun-05 09:00	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method		SW846 3545A					
120-82-1	1,2,4-Trichlorobenzene	BRL	238 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
95-95-4	2,4,5-Trichlorophenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL	238 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
321-60-8	*2-Fluorobiphenyl*	*55.2*	*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*46.1*	*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*65.1*	*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*55.2*	*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*77.2*	*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*44.0*	*15-110 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	1.08 mg/kg dry	1	SW846 6010B	29-Jun-05	01-Jul-05	5061913	HB	
7440-38-2	Arsenic	9.48	1.63 mg/kg dry	1	"	"	"	"	"	
7440-39-3	Barium	20.0	0.542 mg/kg dry	1	"	"	"	"	"	
7440-43-9	Cadmium	BRL	0.271 mg/kg dry	1	"	"	"	"	"	
7440-47-3	Chromium	14.1	0.542 mg/kg dry	1	"	"	"	"	"	
7439-97-6	Mercury	BRL	0.197 mg/kg dry	1	SW846 7471A	"	01-Jul-05	5061914	YP	
7439-92-1	Lead	15.6	0.813 mg/kg dry	1	SW846 6010B	"	01-Jul-05	5061913	HB	
7782-49-2	Selenium	BRL	1.63 mg/kg dry	1	"	"	"	"	"	
Toxicity Characteristics										
	Flashpoint	> 200	°F	1	SW846 1010	30-Jun-05	30-Jun-05	5062077	LK	
	pH	8.20	pH Units	1	SW846 9045C	30-Jul-05 11:00	30-Jul-05	5070031	BD	HT-2
Reactivity Cyanide/Sulfide			Prepared by method		General Preparation					
	Reactivity	Negative	mg/kg dry	1	SW846 Ch. 7.3	29-Jun-05	29-Jun-05	5062033	LK	
	Reactive Cyanide	BRL	24.9 mg/kg dry	1	"	"	"	"	"	
	Reactive Sulfide	BRL	49.7 mg/kg dry	1	"	"	"	"	"	
General Chemistry Parameters										
	% Solids	90.8	%	1	SM2540 G Mod.	29-Jun-05	30-Jun-05	5061974	JAK	
	Specific Conductance (EC)	215	uS/cm	1	SM2510B	01-Jul-05	01-Jul-05	5070064	BD	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-3/Comp SA30139-03	HE3351	Soil	27-Jun-05 09:30	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	28-Jun-05	28-Jun-05	5061926	BD	
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
67-64-1	Acetone	BRL	988 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
107-13-1	Acrylonitrile	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
71-43-2	Benzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-25-2	Bromoform	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
74-83-9	Bromomethane	BRL	98.8 µg/kg dry	50	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	494 µg/kg dry	50	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	247 µg/kg dry	50	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-00-3	Chloroethane	BRL	98.8 µg/kg dry	50	"	"	"	"	"	
67-66-3	Chloroform	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
74-87-3	Chloromethane	BRL	98.8 µg/kg dry	50	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	98.8 µg/kg dry	50	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	98.8 µg/kg dry	50	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	494 µg/kg dry	50	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-3/Comp SA30139-03	HE3351	Soil	27-Jun-05 09:30	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
1634-04-4	Methyl tert-butyl ether	BRL	49.4 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	494 µg/kg dry	50	"	"	"	"	"	
75-09-2	Methylene chloride	BRL	494 µg/kg dry	50	"	"	"	"	"	
91-20-3	Naphthalene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
100-42-5	Styrene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
108-88-3	Toluene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	98.8 µg/kg dry	50	"	"	"	"	"	
95-47-6	o-Xylene	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	494 µg/kg dry	50	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	49.4 µg/kg dry	50	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	494 µg/kg dry	50	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	988 µg/kg dry	50	"	"	"	"	"	
Surrogate recoveries:										
460-00-4	*4-Bromofluorobenzene*	*102*	*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*90.4*	*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*70.0*	*70-130 %*		"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*80.6*	*70-130 %*		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
8006-61-9	Gasoline	BRL	33.4 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
68476-30-2	Fuel Oil #2	BRL	33.4 mg/kg dry	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL	33.4 mg/kg dry	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	Calculated as	33.4 mg/kg dry	1	"	"	"	"	"	
M09800000	Motor Oil	BRL	33.4 mg/kg dry	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL	33.4 mg/kg dry	1	"	"	"	"	"	
J00100000	Aviation Fuel	BRL	33.4 mg/kg dry	1	"	"	"	"	"	
	Unidentified	169	33.4 mg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-3/Comp SA30139-03	HE3351	Soil	27-Jun-05 09:30	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
	Other Oil	BRL	33.4 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
	Total Petroleum Hydrocarbons	169	33.4 mg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
3386-33-2	*1-Chlorooctadecane*	*78.2*	*40-140 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GC										
Polychlorinated Biphenyls by SW846 8082			Prepared by method	SW846 3545A						
12674-11-2	PCB 1016	BRL	28.8 µg/kg dry	1	SW846 8082	29-Jun-05	30-Jun-05	5061936	TG/	
11104-28-2	PCB 1221	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
11141-16-5	PCB 1232	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
53469-21-9	PCB 1242	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
12672-29-6	PCB 1248	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
11097-69-1	PCB 1254	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
11096-82-5	PCB 1260	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
37324-23-5	PCB 1262	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
11100-14-4	PCB 1268	BRL	28.8 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*80.1*	*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*90.2*	*30-150 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
83-32-9	Acenaphthene	BRL	481 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
208-96-8	Acenaphthylene	BRL	481 µg/kg dry	2	"	"	"	"	"	
62-53-3	Aniline	BRL	481 µg/kg dry	2	"	"	"	"	"	
120-12-7	Anthracene	851	481 µg/kg dry	2	"	"	"	"	"	
1912-24-9	Atrazine	BRL	481 µg/kg dry	2	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL	481 µg/kg dry	2	"	"	"	"	"	
92-87-5	Benzidine	BRL	481 µg/kg dry	2	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	1,800	481 µg/kg dry	2	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	1,560	481 µg/kg dry	2	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	1,110	481 µg/kg dry	2	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	839	481 µg/kg dry	2	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	1,090	481 µg/kg dry	2	"	"	"	"	"	
65-85-0	Benzoic acid	BRL	481 µg/kg dry	2	"	"	"	"	"	
100-51-6	Benzyl alcohol	BRL	481 µg/kg dry	2	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	BRL	481 µg/kg dry	2	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	BRL	481 µg/kg dry	2	"	"	"	"	"	
39638-32-9	Bis(2-chloroisopropyl)ether	BRL	481 µg/kg dry	2	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL	481 µg/kg dry	2	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL	481 µg/kg dry	2	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL	481 µg/kg dry	2	"	"	"	"	"	
86-74-8	Carbazole	BRL	481 µg/kg dry	2	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
106-47-8	4-Chloroaniline	BRL	481 µg/kg dry	2	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL	481 µg/kg dry	2	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-3/Comp SA30139-03	HE3351	Soil	27-Jun-05 09:30	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
95-57-8	2-Chlorophenol	BRL	481 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
7005-72-3	4-Chlorophenyl phenyl ether	BRL	481 µg/kg dry	2	"	"	"	"	"	
218-01-9	Chrysene	1,940	481 µg/kg dry	2	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	481 µg/kg dry	2	"	"	"	"	"	
132-64-9	Dibenzofuran	BRL	481 µg/kg dry	2	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	481 µg/kg dry	2	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	481 µg/kg dry	2	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	481 µg/kg dry	2	"	"	"	"	"	
91-94-1	3,3′-Dichlorobenzidine	BRL	481 µg/kg dry	2	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
84-66-2	Diethyl phthalate	BRL	481 µg/kg dry	2	"	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL	481 µg/kg dry	2	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL	481 µg/kg dry	2	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL	481 µg/kg dry	2	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL	481 µg/kg dry	2	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL	481 µg/kg dry	2	"	"	"	"	"	
206-44-0	Fluoranthene	3,410	481 µg/kg dry	2	"	"	"	"	"	
86-73-7	Fluorene	BRL	481 µg/kg dry	2	"	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL	481 µg/kg dry	2	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	481 µg/kg dry	2	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL	481 µg/kg dry	2	"	"	"	"	"	
67-72-1	Hexachloroethane	BRL	481 µg/kg dry	2	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	820	481 µg/kg dry	2	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	BRL	481 µg/kg dry	2	"	"	"	"	"	
78-59-1	Isophorone	BRL	481 µg/kg dry	2	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	481 µg/kg dry	2	"	"	"	"	"	
95-48-7	2-Methylphenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
108-39-4,106-4	3,4-Methylphenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
91-20-3	Naphthalene	BRL	481 µg/kg dry	2	"	"	"	"	"	
88-74-4	2-Nitroaniline	BRL	481 µg/kg dry	2	"	"	"	"	"	
99-09-2	3-Nitroaniline	BRL	481 µg/kg dry	2	"	"	"	"	"	
100-01-6	4-Nitroaniline	BRL	1920 µg/kg dry	2	"	"	"	"	"	
98-95-3	Nitrobenzene	BRL	481 µg/kg dry	2	"	"	"	"	"	
88-75-5	2-Nitrophenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
100-02-7	4-Nitrophenol	BRL	1920 µg/kg dry	2	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL	481 µg/kg dry	2	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL	481 µg/kg dry	2	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL	481 µg/kg dry	2	"	"	"	"	"	
87-86-5	Pentachlorophenol	BRL	1920 µg/kg dry	2	"	"	"	"	"	
85-01-8	Phenanthrene	2,340	481 µg/kg dry	2	"	"	"	"	"	
108-95-2	Phenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
129-00-0	Pyrene	2,220	481 µg/kg dry	2	"	"	"	"	"	
110-86-1	Pyridine	BRL	481 µg/kg dry	2	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-3/Comp SA30139-03	HE3351	Soil	27-Jun-05 09:30	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
120-82-1	1,2,4-Trichlorobenzene	BRL	481 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
95-95-4	2,4,5-Trichlorophenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL	481 µg/kg dry	2	"	"	"	"	"	
Surrogate recoveries:										
321-60-8	*2-Fluorobiphenyl*	*62.1*	*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*60.5*	*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*61.7*	*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*62.6*	*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*51.4*	*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*56.4*	*15-110 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	1.05 mg/kg dry	1	SW846 6010B	29-Jun-05	01-Jul-05	5061913	HB	
7440-38-2	Arsenic	12.5	1.58 mg/kg dry	1	"	"	"	"	"	
7440-39-3	Barium	33.3	0.527 mg/kg dry	1	"	"	"	"	"	
7440-43-9	Cadmium	0.917	0.263 mg/kg dry	1	"	"	"	"	"	
7440-47-3	Chromium	17.3	0.527 mg/kg dry	1	"	"	"	"	"	
7439-97-6	Mercury	0.352	0.197 mg/kg dry	1	SW846 7471A	"	01-Jul-05	5061914	YP	
7439-92-1	Lead	79.2	0.790 mg/kg dry	1	SW846 6010B	"	01-Jul-05	5061913	HB	
7782-49-2	Selenium	BRL	1.58 mg/kg dry	1	"	"	"	"	"	
Toxicity Characteristics										
	Flashpoint	> 200	°F	1	SW846 1010	30-Jun-05	30-Jun-05	5062077	LK	
	pH	8.48	pH Units	1	SW846 9045C	30-Jul-05 11:00	30-Jul-05	5070031	BD	HT-2
Reactivity Cyanide/Sulfide			Prepared by method	General Preparation						
	Reactivity	Negative	mg/kg dry	1	SW846 Ch. 7.3	29-Jun-05	29-Jun-05	5062033	LK	
	Reactive Cyanide	BRL	24.6 mg/kg dry	1	"	"	"	"	"	
	Reactive Sulfide	BRL	49.3 mg/kg dry	1	"	"	"	"	"	
General Chemistry Parameters										
	% Solids	88.9	%	1	SM2540 G Mod.	29-Jun-05	30-Jun-05	5061974	JAK	
	Specific Conductance (EC)	158	uS/cm	1	SM2510B	01-Jul-05	01-Jul-05	5070064	BD	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-4/Comp SA30139-04	HE3351	Soil	27-Jun-05 09:55	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	28-Jun-05	28-Jun-05	5061926	BD	
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
67-64-1	Acetone	BRL	725 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
107-13-1	Acrylonitrile	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
71-43-2	Benzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-25-2	Bromoform	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
74-83-9	Bromomethane	BRL	72.5 µg/kg dry	50	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	363 µg/kg dry	50	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	181 µg/kg dry	50	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-00-3	Chloroethane	BRL	72.5 µg/kg dry	50	"	"	"	"	"	
67-66-3	Chloroform	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
74-87-3	Chloromethane	BRL	72.5 µg/kg dry	50	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	72.5 µg/kg dry	50	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	72.5 µg/kg dry	50	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	363 µg/kg dry	50	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-4/Comp SA30139-04	HE3351	Soil	27-Jun-05 09:55	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
1634-04-4	Methyl tert-butyl ether	BRL	36.3 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	363 µg/kg dry	50	"	"	"	"	"	
75-09-2	Methylene chloride	BRL	363 µg/kg dry	50	"	"	"	"	"	
91-20-3	Naphthalene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
100-42-5	Styrene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
108-88-3	Toluene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	72.5 µg/kg dry	50	"	"	"	"	"	
95-47-6	o-Xylene	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	363 µg/kg dry	50	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	36.3 µg/kg dry	50	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	363 µg/kg dry	50	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	725 µg/kg dry	50	"	"	"	"	"	
Surrogate recoveries:										
460-00-4	*4-Bromofluorobenzene*	*103*	*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*88.4*	*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*67.4*	*70-130 %*		"	"	"	"	"	S-GC
1868-53-7	*Dibromofluoromethane*	*78.2*	*70-130 %*		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
8006-61-9	Gasoline	BRL	29.8 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
68476-30-2	Fuel Oil #2	BRL	29.8 mg/kg dry	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL	29.8 mg/kg dry	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL	29.8 mg/kg dry	1	"	"	"	"	"	
M09800000	Motor Oil	BRL	29.8 mg/kg dry	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL	29.8 mg/kg dry	1	"	"	"	"	"	
J00100000	Aviation Fuel	BRL	29.8 mg/kg dry	1	"	"	"	"	"	
	Unidentified	BRL	29.8 mg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-4/Comp SA30139-04	HE3351	Soil	27-Jun-05 09:55	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
	Other Oil	BRL	29.8 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
	Total Petroleum Hydrocarbons	BRL	29.8 mg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
3386-33-2	*1-Chlorooctadecane*	*59.8*	*40-140 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GC										
Polychlorinated Biphenyls by SW846 8082			Prepared by method	SW846 3545A						
12674-11-2	PCB 1016	BRL	27.6 µg/kg dry	1	SW846 8082	29-Jun-05	30-Jun-05	5061936	TG/	
11104-28-2	PCB 1221	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
11141-16-5	PCB 1232	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
53469-21-9	PCB 1242	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
12672-29-6	PCB 1248	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
11097-69-1	PCB 1254	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
11096-82-5	PCB 1260	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
37324-23-5	PCB 1262	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
11100-14-4	PCB 1268	BRL	27.6 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*85.1*	*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*85.1*	*30-150 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
83-32-9	Acenaphthene	BRL	223 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
208-96-8	Acenaphthylene	BRL	223 µg/kg dry	1	"	"	"	"	"	
62-53-3	Aniline	BRL	223 µg/kg dry	1	"	"	"	"	"	
120-12-7	Anthracene	BRL	223 µg/kg dry	1	"	"	"	"	"	
1912-24-9	Atrazine	BRL	223 µg/kg dry	1	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL	223 µg/kg dry	1	"	"	"	"	"	
92-87-5	Benzidine	BRL	223 µg/kg dry	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	BRL	223 µg/kg dry	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	BRL	223 µg/kg dry	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	BRL	223 µg/kg dry	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL	223 µg/kg dry	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	BRL	223 µg/kg dry	1	"	"	"	"	"	
65-85-0	Benzoic acid	BRL	223 µg/kg dry	1	"	"	"	"	"	
100-51-6	Benzyl alcohol	BRL	223 µg/kg dry	1	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	BRL	223 µg/kg dry	1	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	BRL	223 µg/kg dry	1	"	"	"	"	"	
39638-32-9	Bis(2-chloroisopropyl)ether	BRL	223 µg/kg dry	1	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL	223 µg/kg dry	1	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL	223 µg/kg dry	1	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL	223 µg/kg dry	1	"	"	"	"	"	
86-74-8	Carbazole	BRL	223 µg/kg dry	1	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
106-47-8	4-Chloroaniline	BRL	223 µg/kg dry	1	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL	223 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-4/Comp SA30139-04	HE3351	Soil	27-Jun-05 09:55	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
95-57-8	2-Chlorophenol	BRL	223 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
7005-72-3	4-Chlorophenyl phenyl ether	BRL	223 µg/kg dry	1	"	"	"	"	"	
218-01-9	Chrysene	BRL	223 µg/kg dry	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	223 µg/kg dry	1	"	"	"	"	"	
132-64-9	Dibenzofuran	BRL	223 µg/kg dry	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	223 µg/kg dry	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	223 µg/kg dry	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	223 µg/kg dry	1	"	"	"	"	"	
91-94-1	3,3'-Dichlorobenzidine	BRL	223 µg/kg dry	1	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
84-66-2	Diethyl phthalate	BRL	223 µg/kg dry	1	"	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL	223 µg/kg dry	1	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL	223 µg/kg dry	1	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL	223 µg/kg dry	1	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL	223 µg/kg dry	1	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL	223 µg/kg dry	1	"	"	"	"	"	
206-44-0	Fluoranthene	BRL	223 µg/kg dry	1	"	"	"	"	"	
86-73-7	Fluorene	BRL	223 µg/kg dry	1	"	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL	223 µg/kg dry	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	223 µg/kg dry	1	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL	223 µg/kg dry	1	"	"	"	"	"	
67-72-1	Hexachloroethane	BRL	223 µg/kg dry	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	223 µg/kg dry	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	BRL	223 µg/kg dry	1	"	"	"	"	"	
78-59-1	Isophorone	BRL	223 µg/kg dry	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	223 µg/kg dry	1	"	"	"	"	"	
95-48-7	2-Methylphenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
108-39-4,106-4	3,4-Methylphenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL	223 µg/kg dry	1	"	"	"	"	"	
88-74-4	2-Nitroaniline	BRL	223 µg/kg dry	1	"	"	"	"	"	
99-09-2	3-Nitroaniline	BRL	223 µg/kg dry	1	"	"	"	"	"	
100-01-6	4-Nitroaniline	BRL	892 µg/kg dry	1	"	"	"	"	"	
98-95-3	Nitrobenzene	BRL	223 µg/kg dry	1	"	"	"	"	"	
88-75-5	2-Nitrophenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
100-02-7	4-Nitrophenol	BRL	892 µg/kg dry	1	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL	223 µg/kg dry	1	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL	223 µg/kg dry	1	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL	223 µg/kg dry	1	"	"	"	"	"	
87-86-5	Pentachlorophenol	BRL	892 µg/kg dry	1	"	"	"	"	"	
85-01-8	Phenanthrene	BRL	223 µg/kg dry	1	"	"	"	"	"	
108-95-2	Phenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
129-00-0	Pyrene	BRL	223 µg/kg dry	1	"	"	"	"	"	
110-86-1	Pyridine	BRL	223 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-4/Comp SA30139-04	HE3351	Soil	27-Jun-05 09:55	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method		SW846 3545A					
120-82-1	1,2,4-Trichlorobenzene	BRL	223 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
95-95-4	2,4,5-Trichlorophenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL	223 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
321-60-8	*2-Fluorobiphenyl*	*70.7*	*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*52.4*	*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*40.1*	*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*65.8*	*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*89.8*	*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*55.6*	*15-110 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	0.998 mg/kg dry	1	SW846 6010B	29-Jun-05	01-Jul-05	5061913	HB	
7440-38-2	Arsenic	9.96	1.50 mg/kg dry	1	"	"	"	"	"	
7440-39-3	Barium	24.8	0.499 mg/kg dry	1	"	"	"	"	"	
7440-43-9	Cadmium	BRL	0.250 mg/kg dry	1	"	"	"	"	"	
7440-47-3	Chromium	18.2	0.499 mg/kg dry	1	"	"	"	"	"	
7439-97-6	Mercury	BRL	0.168 mg/kg dry	1	SW846 7471A	"	01-Jul-05	5061914	YP	
7439-92-1	Lead	3.70	0.749 mg/kg dry	1	SW846 6010B	"	01-Jul-05	5061913	HB	
7782-49-2	Selenium	BRL	1.50 mg/kg dry	1	"	"	"	"	"	
Toxicity Characteristics										
	Flashpoint	> 200	°F	1	SW846 1010	30-Jun-05	30-Jun-05	5062077	LK	
	pH	8.01	pH Units	1	SW846 9045C	30-Jul-05 11:00	30-Jul-05	5070031	BD	HT-2
Reactivity Cyanide/Sulfide			Prepared by method		General Preparation					
	Reactivity	Negative	mg/kg dry	1	SW846 Ch. 7.3	29-Jun-05	29-Jun-05	5062033	LK	
	Reactive Cyanide	BRL	24.9 mg/kg dry	1	"	"	"	"	"	
	Reactive Sulfide	BRL	49.8 mg/kg dry	1	"	"	"	"	"	
General Chemistry Parameters										
	% Solids	96.0	%	1	SM2540 G Mod.	29-Jun-05	30-Jun-05	5061974	JAK	
	Specific Conductance (EC)	76.3	uS/cm	1	SM2510B	01-Jul-05	01-Jul-05	5070064	BD	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-5/Comp SA30139-05	HE3351	Soil	27-Jun-05 10:30	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	28-Jun-05	28-Jun-05	5061926	BD	
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
67-64-1	Acetone	BRL	909 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
107-13-1	Acrylonitrile	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
71-43-2	Benzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-25-2	Bromoform	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
74-83-9	Bromomethane	BRL	90.9 µg/kg dry	50	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	454 µg/kg dry	50	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	227 µg/kg dry	50	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-00-3	Chloroethane	BRL	90.9 µg/kg dry	50	"	"	"	"	"	
67-66-3	Chloroform	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
74-87-3	Chloromethane	BRL	90.9 µg/kg dry	50	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	90.9 µg/kg dry	50	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	90.9 µg/kg dry	50	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	454 µg/kg dry	50	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-5/Comp SA30139-05	HE3351	Soil	27-Jun-05 10:30	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						VOC10
1634-04-4	Methyl tert-butyl ether	BRL	45.4 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	454 µg/kg dry	50	"	"	"	"	"	
75-09-2	Methylene chloride	BRL	454 µg/kg dry	50	"	"	"	"	"	
91-20-3	Naphthalene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
100-42-5	Styrene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
108-88-3	Toluene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	90.9 µg/kg dry	50	"	"	"	"	"	
95-47-6	o-Xylene	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	454 µg/kg dry	50	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	45.4 µg/kg dry	50	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	454 µg/kg dry	50	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	909 µg/kg dry	50	"	"	"	"	"	
Surrogate recoveries:										
460-00-4	*4-Bromofluorobenzene*	*105*	*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*89.2*	*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*72.0*	*70-130 %*		"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*80.2*	*70-130 %*		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
8006-61-9	Gasoline	BRL	33.2 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
68476-30-2	Fuel Oil #2	BRL	33.2 mg/kg dry	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL	33.2 mg/kg dry	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	BRL	33.2 mg/kg dry	1	"	"	"	"	"	
M09800000	Motor Oil	BRL	33.2 mg/kg dry	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL	33.2 mg/kg dry	1	"	"	"	"	"	
J00100000	Aviation Fuel	BRL	33.2 mg/kg dry	1	"	"	"	"	"	
	Unidentified	BRL	33.2 mg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-5/Comp	HE3351	Soil	27-Jun-05 10:30	28-Jun-05
SA30139-05				

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
	Other Oil	BRL	33.2 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
	Total Petroleum Hydrocarbons	BRL	33.2 mg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
3386-33-2	*1-Chlorooctadecane*	*59.7*	*40-140 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GC										
Polychlorinated Biphenyls by SW846 8082			Prepared by method	SW846 3545A						
12674-11-2	PCB 1016	BRL	30.5 µg/kg dry	1	SW846 8082	29-Jun-05	30-Jun-05	5061936	TG/	
11104-28-2	PCB 1221	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
11141-16-5	PCB 1232	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
53469-21-9	PCB 1242	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
12672-29-6	PCB 1248	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
11097-69-1	PCB 1254	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
11096-82-5	PCB 1260	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
37324-23-5	PCB 1262	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
11100-14-4	PCB 1268	BRL	30.5 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*89.8*	*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*75.1*	*30-150 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
83-32-9	Acenaphthene	BRL	231 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
208-96-8	Acenaphthylene	BRL	231 µg/kg dry	1	"	"	"	"	"	
62-53-3	Aniline	BRL	231 µg/kg dry	1	"	"	"	"	"	
120-12-7	Anthracene	BRL	231 µg/kg dry	1	"	"	"	"	"	
1912-24-9	Atrazine	BRL	231 µg/kg dry	1	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL	231 µg/kg dry	1	"	"	"	"	"	
92-87-5	Benzidine	BRL	231 µg/kg dry	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	BRL	231 µg/kg dry	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	BRL	231 µg/kg dry	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	BRL	231 µg/kg dry	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL	231 µg/kg dry	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	BRL	231 µg/kg dry	1	"	"	"	"	"	
65-85-0	Benzoic acid	BRL	231 µg/kg dry	1	"	"	"	"	"	
100-51-6	Benzyl alcohol	BRL	231 µg/kg dry	1	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	BRL	231 µg/kg dry	1	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	BRL	231 µg/kg dry	1	"	"	"	"	"	
39638-32-9	Bis(2-chloroisopropyl)ether	BRL	231 µg/kg dry	1	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL	231 µg/kg dry	1	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL	231 µg/kg dry	1	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL	231 µg/kg dry	1	"	"	"	"	"	
86-74-8	Carbazole	BRL	231 µg/kg dry	1	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
106-47-8	4-Chloroaniline	BRL	231 µg/kg dry	1	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL	231 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-5/Comp SA30139-05	HE3351	Soil	27-Jun-05 10:30	28-Jun-05

Semivolatile Organic Compounds by GCMS

Semivolatile Organic Compounds by SW846 8270C — Prepared by method SW846 3545A

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
95-57-8	2-Chlorophenol	BRL	231 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
7005-72-3	4-Chlorophenyl phenyl ether	BRL	231 µg/kg dry	1	"	"	"	"	"	
218-01-9	Chrysene	BRL	231 µg/kg dry	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	231 µg/kg dry	1	"	"	"	"	"	
132-64-9	Dibenzofuran	BRL	231 µg/kg dry	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	231 µg/kg dry	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	231 µg/kg dry	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	231 µg/kg dry	1	"	"	"	"	"	
91-94-1	3,3'-Dichlorobenzidine	BRL	231 µg/kg dry	1	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
84-66-2	Diethyl phthalate	BRL	231 µg/kg dry	1	"	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL	231 µg/kg dry	1	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL	231 µg/kg dry	1	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL	231 µg/kg dry	1	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL	231 µg/kg dry	1	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL	231 µg/kg dry	1	"	"	"	"	"	
206-44-0	Fluoranthene	BRL	231 µg/kg dry	1	"	"	"	"	"	
86-73-7	Fluorene	BRL	231 µg/kg dry	1	"	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL	231 µg/kg dry	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	231 µg/kg dry	1	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL	231 µg/kg dry	1	"	"	"	"	"	
67-72-1	Hexachloroethane	BRL	231 µg/kg dry	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	231 µg/kg dry	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	BRL	231 µg/kg dry	1	"	"	"	"	"	
78-59-1	Isophorone	BRL	231 µg/kg dry	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	231 µg/kg dry	1	"	"	"	"	"	
95-48-7	2-Methylphenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
108-39-4,106-4	3,4-Methylphenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL	231 µg/kg dry	1	"	"	"	"	"	
88-74-4	2-Nitroaniline	BRL	231 µg/kg dry	1	"	"	"	"	"	
99-09-2	3-Nitroaniline	BRL	231 µg/kg dry	1	"	"	"	"	"	
100-01-6	4-Nitroaniline	BRL	922 µg/kg dry	1	"	"	"	"	"	
98-95-3	Nitrobenzene	BRL	231 µg/kg dry	1	"	"	"	"	"	
88-75-5	2-Nitrophenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
100-02-7	4-Nitrophenol	BRL	922 µg/kg dry	1	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL	231 µg/kg dry	1	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL	231 µg/kg dry	1	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL	231 µg/kg dry	1	"	"	"	"	"	
87-86-5	Pentachlorophenol	BRL	922 µg/kg dry	1	"	"	"	"	"	
85-01-8	Phenanthrene	BRL	231 µg/kg dry	1	"	"	"	"	"	
108-95-2	Phenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
129-00-0	Pyrene	BRL	231 µg/kg dry	1	"	"	"	"	"	
110-86-1	Pyridine	BRL	231 µg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-5/Comp	HE3351	Soil	27-Jun-05 10:30	28-Jun-05
SA30139-05				

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method		SW846 3545A					
120-82-1	1,2,4-Trichlorobenzene	BRL	231 µg/kg dry	1	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
95-95-4	2,4,5-Trichlorophenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL	231 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
321-60-8	*2-Fluorobiphenyl*	*62.7*	*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*55.4*	*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*51.5*	*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*50.2*	*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*70.4*	*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*48.5*	*15-110 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	1.06 mg/kg dry	1	SW846 6010B	29-Jun-05	01-Jul-05	5061913	HB	
7440-38-2	Arsenic	8.50	1.59 mg/kg dry	1	"	"	"	"	"	
7440-39-3	Barium	31.7	0.528 mg/kg dry	1	"	"	"	"	"	
7440-43-9	Cadmium	BRL	0.264 mg/kg dry	1	"	"	"	"	"	
7440-47-3	Chromium	23.0	0.528 mg/kg dry	1	"	"	"	"	"	
7439-97-6	Mercury	BRL	0.184 mg/kg dry	1	SW846 7471A	"	01-Jul-05	5061914	YP	
7439-92-1	Lead	35.4	0.793 mg/kg dry	1	SW846 6010B	"	01-Jul-05	5061913	HB	
7782-49-2	Selenium	BRL	1.59 mg/kg dry	1	"	"	"	"	"	
Toxicity Characteristics										
	Flashpoint	> 200	°F	1	SW846 1010	30-Jun-05	30-Jun-05	5062077	LK	
	pH	9.34	pH Units	1	SW846 9045C	30-Jul-05 11:00	30-Jul-05	5070031	BD	HT-2
Reactivity Cyanide/Sulfide			Prepared by method		General Preparation					
	Reactivity	Negative	mg/kg dry	1	SW846 Ch. 7.3	29-Jun-05	29-Jun-05	5062033	LK	
	Reactive Cyanide	BRL	24.6 mg/kg dry	1	"	"	"	"	"	
	Reactive Sulfide	BRL	49.2 mg/kg dry	1	"	"	"	"	"	
General Chemistry Parameters										
	% Solids	90.1	%	1	SM2540 G Mod.	29-Jun-05	30-Jun-05	5061974	JAK	
	Specific Conductance (EC)	159	uS/cm	1	SM2510B	01-Jul-05	01-Jul-05	5070064	BD	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-6/Comp SA30139-06	HE3351	Soil	27-Jun-05 12:00	28-Jun-05

CAS No.	*Analyte(s)*	*Result*	**RDL/Units*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Batch*	*Analyst*	*Flag*
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	28-Jun-05	28-Jun-05	5061926	BD	
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						
67-64-1	Acetone	BRL	1010 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
107-13-1	Acrylonitrile	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
71-43-2	Benzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-25-2	Bromoform	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
74-83-9	Bromomethane	BRL	101 µg/kg dry	50	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	506 µg/kg dry	50	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	253 µg/kg dry	50	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-00-3	Chloroethane	BRL	101 µg/kg dry	50	"	"	"	"	"	
67-66-3	Chloroform	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
74-87-3	Chloromethane	BRL	101 µg/kg dry	50	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	101 µg/kg dry	50	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	101 µg/kg dry	50	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	506 µg/kg dry	50	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-6/Comp	HE3351	Soil	27-Jun-05 12:00	28-Jun-05
SA30139-06				

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						
1634-04-4	Methyl tert-butyl ether	BRL	50.6 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	506 µg/kg dry	50	"	"	"	"	"	
75-09-2	Methylene chloride	BRL	506 µg/kg dry	50	"	"	"	"	"	
91-20-3	Naphthalene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
100-42-5	Styrene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
108-88-3	Toluene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	101 µg/kg dry	50	"	"	"	"	"	
95-47-6	o-Xylene	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	506 µg/kg dry	50	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	50.6 µg/kg dry	50	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	506 µg/kg dry	50	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	1010 µg/kg dry	50	"	"	"	"	"	
Surrogate recoveries:										
460-00-4	*4-Bromofluorobenzene*	*105*	*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*89.4*	*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*72.8*	*70-130 %*		"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*81.6*	*70-130 %*		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
8006-61-9	Gasoline	BRL	32.1 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
68476-30-2	Fuel Oil #2	BRL	32.1 mg/kg dry	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL	32.1 mg/kg dry	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	Calculated as	32.1 mg/kg dry	1	"	"	"	"	"	
M09800000	Motor Oil	BRL	32.1 mg/kg dry	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL	32.1 mg/kg dry	1	"	"	"	"	"	
J00100000	Aviation Fuel	BRL	32.1 mg/kg dry	1	"	"	"	"	"	
	Unidentified	197	32.1 mg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-6/Comp SA30139-06	HE3351	Soil	27-Jun-05 12:00	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
	Other Oil	BRL	32.1 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
	Total Petroleum Hydrocarbons	197	32.1 mg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
3386-33-2	*1-Chlorooctadecane*	*71.2*	*40-140 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GC										
Polychlorinated Biphenyls by SW846 8082			Prepared by method	SW846 3545A						
12674-11-2	PCB 1016	BRL	28.3 µg/kg dry	1	SW846 8082	29-Jun-05	30-Jun-05	5061936	TG/	
11104-28-2	PCB 1221	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
11141-16-5	PCB 1232	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
53469-21-9	PCB 1242	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
12672-29-6	PCB 1248	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
11097-69-1	PCB 1254	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
11096-82-5	PCB 1260	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
37324-23-5	PCB 1262	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
11100-14-4	PCB 1268	BRL	28.3 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*90.1*	*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*110*	*30-150 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
83-32-9	Acenaphthene	BRL	477 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
208-96-8	Acenaphthylene	BRL	477 µg/kg dry	2	"	"	"	"	"	
62-53-3	Aniline	BRL	477 µg/kg dry	2	"	"	"	"	"	
120-12-7	Anthracene	BRL	477 µg/kg dry	2	"	"	"	"	"	
1912-24-9	Atrazine	BRL	477 µg/kg dry	2	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL	477 µg/kg dry	2	"	"	"	"	"	
92-87-5	Benzidine	BRL	477 µg/kg dry	2	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	1,130	477 µg/kg dry	2	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	1,180	477 µg/kg dry	2	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	840	477 µg/kg dry	2	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	503	477 µg/kg dry	2	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	675	477 µg/kg dry	2	"	"	"	"	"	
65-85-0	Benzoic acid	BRL	477 µg/kg dry	2	"	"	"	"	"	
100-51-6	Benzyl alcohol	BRL	477 µg/kg dry	2	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	BRL	477 µg/kg dry	2	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	BRL	477 µg/kg dry	2	"	"	"	"	"	
39638-32-9	Bis(2-chloroisopropyl)ether	BRL	477 µg/kg dry	2	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL	477 µg/kg dry	2	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL	477 µg/kg dry	2	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL	477 µg/kg dry	2	"	"	"	"	"	
86-74-8	Carbazole	BRL	477 µg/kg dry	2	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
106-47-8	4-Chloroaniline	BRL	477 µg/kg dry	2	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL	477 µg/kg dry	2	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-6/Comp SA30139-06	HE3351	Soil	27-Jun-05 12:00	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
95-57-8	2-Chlorophenol	BRL	477 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
7005-72-3	4-Chlorophenyl phenyl ether	BRL	477 µg/kg dry	2	"	"	"	"	"	
218-01-9	Chrysene	1,370	477 µg/kg dry	2	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	477 µg/kg dry	2	"	"	"	"	"	
132-64-9	Dibenzofuran	BRL	477 µg/kg dry	2	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	477 µg/kg dry	2	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	477 µg/kg dry	2	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	477 µg/kg dry	2	"	"	"	"	"	
91-94-1	3,3´-Dichlorobenzidine	BRL	477 µg/kg dry	2	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
84-66-2	Diethyl phthalate	BRL	477 µg/kg dry	2	"	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL	477 µg/kg dry	2	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL	477 µg/kg dry	2	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL	477 µg/kg dry	2	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL	477 µg/kg dry	2	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL	477 µg/kg dry	2	"	"	"	"	"	
206-44-0	Fluoranthene	1,680	477 µg/kg dry	2	"	"	"	"	"	
86-73-7	Fluorene	BRL	477 µg/kg dry	2	"	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL	477 µg/kg dry	2	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	477 µg/kg dry	2	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL	477 µg/kg dry	2	"	"	"	"	"	
67-72-1	Hexachloroethane	BRL	477 µg/kg dry	2	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	559	477 µg/kg dry	2	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	BRL	477 µg/kg dry	2	"	"	"	"	"	
78-59-1	Isophorone	BRL	477 µg/kg dry	2	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	477 µg/kg dry	2	"	"	"	"	"	
95-48-7	2-Methylphenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
108-39-4,106-44	3,4-Methylphenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
91-20-3	Naphthalene	BRL	477 µg/kg dry	2	"	"	"	"	"	
88-74-4	2-Nitroaniline	BRL	477 µg/kg dry	2	"	"	"	"	"	
99-09-2	3-Nitroaniline	BRL	477 µg/kg dry	2	"	"	"	"	"	
100-01-6	4-Nitroaniline	BRL	1910 µg/kg dry	2	"	"	"	"	"	
98-95-3	Nitrobenzene	BRL	477 µg/kg dry	2	"	"	"	"	"	
88-75-5	2-Nitrophenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
100-02-7	4-Nitrophenol	BRL	1910 µg/kg dry	2	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL	477 µg/kg dry	2	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL	477 µg/kg dry	2	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL	477 µg/kg dry	2	"	"	"	"	"	
87-86-5	Pentachlorophenol	BRL	1910 µg/kg dry	2	"	"	"	"	"	
85-01-8	Phenanthrene	781	477 µg/kg dry	2	"	"	"	"	"	
108-95-2	Phenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
129-00-0	Pyrene	1,790	477 µg/kg dry	2	"	"	"	"	"	
110-86-1	Pyridine	BRL	477 µg/kg dry	2	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-6/Comp SA30139-06	HE3351	Soil	27-Jun-05 12:00	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method		SW846 3545A					
120-82-1	1,2,4-Trichlorobenzene	BRL	477 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
95-95-4	2,4,5-Trichlorophenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL	477 µg/kg dry	2	"	"	"	"	"	
Surrogate recoveries:										
321-60-8	*2-Fluorobiphenyl*	*62.7*	*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*61.0*	*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*78.4*	*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*84.2*	*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*77.6*	*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*60.2*	*15-110 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	1.04 mg/kg dry	1	SW846 6010B	29-Jun-05	01-Jul-05	5061913	HB	
7440-38-2	Arsenic	7.42	1.56 mg/kg dry	1	"	"	"	"	"	
7440-39-3	Barium	37.7	0.519 mg/kg dry	1	"	"	"	"	"	
7440-43-9	Cadmium	1.35	0.259 mg/kg dry	1	"	"	"	"	"	
7440-47-3	Chromium	17.7	0.519 mg/kg dry	1	"	"	"	"	"	
7439-97-6	Mercury	0.489	0.196 mg/kg dry	1	SW846 7471A	"	01-Jul-05	5061914	YP	
7439-92-1	Lead	120	0.778 mg/kg dry	1	SW846 6010B	"	01-Jul-05	5061913	HB	
7782-49-2	Selenium	BRL	1.56 mg/kg dry	1	"	"	"	"	"	
Toxicity Characteristics										
	Flashpoint	> 200	°F	1	SW846 1010	30-Jun-05	30-Jun-05	5062077	LK	
	pH	8.20	pH Units	1	SW846 9045C	30-Jul-05 11:00	30-Jul-05	5070031	BD	HT-2
Reactivity Cyanide/Sulfide			Prepared by method		General Preparation					
	Reactivity	Negative	mg/kg dry	1	SW846 Ch. 7.3	29-Jun-05	29-Jun-05	5062033	LK	
	Reactive Cyanide	BRL	25.0 mg/kg dry	1	"	"	"	"	"	
	Reactive Sulfide	BRL	50.0 mg/kg dry	1	"	"	"	"	"	
General Chemistry Parameters										
	% Solids	89.8	%	1	SM2540 G Mod.	29-Jun-05	30-Jun-05	5061974	JAK	
	Specific Conductance (EC)	89.1	uS/cm	1	SM2510B	01-Jul-05	01-Jul-05	5070064	BD	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-7/Comp SA30139-07	HE3351	Soil	27-Jun-05 12:45	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	28-Jun-05	28-Jun-05	5061926	BD	
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						
67-64-1	Acetone	BRL	1020 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
107-13-1	Acrylonitrile	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
71-43-2	Benzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-25-2	Bromoform	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
74-83-9	Bromomethane	BRL	102 µg/kg dry	50	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	510 µg/kg dry	50	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	255 µg/kg dry	50	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-00-3	Chloroethane	BRL	102 µg/kg dry	50	"	"	"	"	"	
67-66-3	Chloroform	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
74-87-3	Chloromethane	BRL	102 µg/kg dry	50	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	102 µg/kg dry	50	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	102 µg/kg dry	50	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	510 µg/kg dry	50	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-7/Comp SA30139-07	HE3351	Soil	27-Jun-05 12:45	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
Volatile Organic Compounds			Prepared by method	SW846 5030 Soil (high level)						
1634-04-4	Methyl tert-butyl ether	BRL	51.0 µg/kg dry	50	SW 846 8260B	30-Jun-05	30-Jun-05	5062038	tim	
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	510 µg/kg dry	50	"	"	"	"	"	
75-09-2	Methylene chloride	BRL	510 µg/kg dry	50	"	"	"	"	"	
91-20-3	Naphthalene	BRL	76.5 µg/kg dry	50	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
100-42-5	Styrene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
108-88-3	Toluene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	102 µg/kg dry	50	"	"	"	"	"	
95-47-6	o-Xylene	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	510 µg/kg dry	50	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	51.0 µg/kg dry	50	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	510 µg/kg dry	50	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	1020 µg/kg dry	50	"	"	"	"	"	
Surrogate recoveries:										
460-00-4	*4-Bromofluorobenzene*	*105*	*70-130 %*		"	"	"	"	"	
2037-26-5	*Toluene-d8*	*91.2*	*70-130 %*		"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*71.6*	*70-130 %*		"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*81.6*	*70-130 %*		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
8006-61-9	Gasoline	BRL	33.0 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
68476-30-2	Fuel Oil #2	BRL	33.0 mg/kg dry	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	BRL	33.0 mg/kg dry	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	Calculated as	33.0 mg/kg dry	1	"	"	"	"	"	
M09800000	Motor Oil	BRL	33.0 mg/kg dry	1	"	"	"	"	"	
8032-32-4	Ligroin	BRL	33.0 mg/kg dry	1	"	"	"	"	"	
J00100000	Aviation Fuel	BRL	33.0 mg/kg dry	1	"	"	"	"	"	
	Unidentified	344	33.0 mg/kg dry	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-7/Comp SA30139-07	HE3351	Soil	27-Jun-05 12:45	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
TPH 8100 by GC			Prepared by method	SW846 3550B						
	Other Oil	BRL	33.0 mg/kg dry	1	+SW846 8100Mod.	30-Jun-05	01-Jul-05	5062036	KG	
	Total Petroleum Hydrocarbons	344	33.0 mg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
3386-33-2	*1-Chlorooctadecane*	*180*	*40-140 %*		"	"	"	"	"	S-02
Semivolatile Organic Compounds by GC										
Polychlorinated Biphenyls by SW846 8082			Prepared by method	SW846 3545A						
12674-11-2	PCB 1016	BRL	28.4 µg/kg dry	1	SW846 8082	29-Jun-05	30-Jun-05	5061936	TG/	
11104-28-2	PCB 1221	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
11141-16-5	PCB 1232	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
53469-21-9	PCB 1242	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
12672-29-6	PCB 1248	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
11097-69-1	PCB 1254	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
11096-82-5	PCB 1260	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
37324-23-5	PCB 1262	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
11100-14-4	PCB 1268	BRL	28.4 µg/kg dry	1	"	"	"	"	"	
Surrogate recoveries:										
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*100*	*30-150 %*		"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*100*	*30-150 %*		"	"	"	"	"	
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
83-32-9	Acenaphthene	BRL	461 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
208-96-8	Acenaphthylene	BRL	461 µg/kg dry	2	"	"	"	"	"	
62-53-3	Aniline	BRL	461 µg/kg dry	2	"	"	"	"	"	
120-12-7	Anthracene	BRL	461 µg/kg dry	2	"	"	"	"	"	
1912-24-9	Atrazine	BRL	461 µg/kg dry	2	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazine	BRL	461 µg/kg dry	2	"	"	"	"	"	
92-87-5	Benzidine	BRL	461 µg/kg dry	2	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	939	461 µg/kg dry	2	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	923	461 µg/kg dry	2	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	581	461 µg/kg dry	2	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL	461 µg/kg dry	2	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	668	461 µg/kg dry	2	"	"	"	"	"	
65-85-0	Benzoic acid	BRL	461 µg/kg dry	2	"	"	"	"	"	
100-51-6	Benzyl alcohol	BRL	461 µg/kg dry	2	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	BRL	461 µg/kg dry	2	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	BRL	461 µg/kg dry	2	"	"	"	"	"	
39638-32-9	Bis(2-chloroisopropyl)ether	BRL	461 µg/kg dry	2	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	BRL	461 µg/kg dry	2	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	BRL	461 µg/kg dry	2	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	BRL	461 µg/kg dry	2	"	"	"	"	"	
86-74-8	Carbazole	BRL	461 µg/kg dry	2	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
106-47-8	4-Chloroaniline	BRL	461 µg/kg dry	2	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	BRL	461 µg/kg dry	2	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-7/Comp SA30139-07	HE3351	Soil	27-Jun-05 12:45	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method	SW846 3545A						
95-57-8	2-Chlorophenol	BRL	461 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
7005-72-3	4-Chlorophenyl phenyl ether	BRL	461 µg/kg dry	2	"	"	"	"	"	
218-01-9	Chrysene	1,010	461 µg/kg dry	2	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	461 µg/kg dry	2	"	"	"	"	"	
132-64-9	Dibenzofuran	BRL	461 µg/kg dry	2	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	461 µg/kg dry	2	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	461 µg/kg dry	2	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	461 µg/kg dry	2	"	"	"	"	"	
91-94-1	3,3'-Dichlorobenzidine	BRL	461 µg/kg dry	2	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
84-66-2	Diethyl phthalate	BRL	461 µg/kg dry	2	"	"	"	"	"	
131-11-3	Dimethyl phthalate	BRL	461 µg/kg dry	2	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	BRL	461 µg/kg dry	2	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	BRL	461 µg/kg dry	2	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	BRL	461 µg/kg dry	2	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	BRL	461 µg/kg dry	2	"	"	"	"	"	
206-44-0	Fluoranthene	1,500	461 µg/kg dry	2	"	"	"	"	"	
86-73-7	Fluorene	BRL	461 µg/kg dry	2	"	"	"	"	"	
118-74-1	Hexachlorobenzene	BRL	461 µg/kg dry	2	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	461 µg/kg dry	2	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	BRL	461 µg/kg dry	2	"	"	"	"	"	
67-72-1	Hexachloroethane	BRL	461 µg/kg dry	2	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	468	461 µg/kg dry	2	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	BRL	461 µg/kg dry	2	"	"	"	"	"	
78-59-1	Isophorone	BRL	461 µg/kg dry	2	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	461 µg/kg dry	2	"	"	"	"	"	
95-48-7	2-Methylphenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
108-39-4,106-4	3,4-Methylphenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
91-20-3	Naphthalene	BRL	461 µg/kg dry	2	"	"	"	"	"	
88-74-4	2-Nitroaniline	BRL	461 µg/kg dry	2	"	"	"	"	"	
99-09-2	3-Nitroaniline	BRL	461 µg/kg dry	2	"	"	"	"	"	
100-01-6	4-Nitroaniline	BRL	1840 µg/kg dry	2	"	"	"	"	"	
98-95-3	Nitrobenzene	BRL	461 µg/kg dry	2	"	"	"	"	"	
88-75-5	2-Nitrophenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
100-02-7	4-Nitrophenol	BRL	1840 µg/kg dry	2	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	BRL	461 µg/kg dry	2	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	BRL	461 µg/kg dry	2	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	BRL	461 µg/kg dry	2	"	"	"	"	"	
87-86-5	Pentachlorophenol	BRL	1840 µg/kg dry	2	"	"	"	"	"	
85-01-8	Phenanthrene	649	461 µg/kg dry	2	"	"	"	"	"	
108-95-2	Phenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
129-00-0	Pyrene	1,540	461 µg/kg dry	2	"	"	"	"	"	
110-86-1	Pyridine	BRL	461 µg/kg dry	2	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
P-7/Comp SA30139-07	HE3351	Soil	27-Jun-05 12:45	28-Jun-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Semivolatile Organic Compounds by GCMS										
Semivolatile Organic Compounds by SW846 8270C			Prepared by method		SW846 3545A					
120-82-1	1,2,4-Trichlorobenzene	BRL	461 µg/kg dry	2	SW846 8270C	29-Jun-05	01-Jul-05	5061973	M.B	
95-95-4	2,4,5-Trichlorophenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	BRL	461 µg/kg dry	2	"	"	"	"	"	
Surrogate recoveries:										
321-60-8	*2-Fluorobiphenyl*	*67.0*	*30-130 %*		"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*60.1*	*15-110 %*		"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*61.8*	*30-130 %*		"	"	"	"	"	
4165-62-2	*Phenol-d5*	*79.4*	*15-110 %*		"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*74.2*	*30-130 %*		"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*56.2*	*15-110 %*		"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	1.08 mg/kg dry	1	SW846 6010B	29-Jun-05	01-Jul-05	5061913	HB	
7440-38-2	Arsenic	7.54	1.62 mg/kg dry	1	"	"	"	"	"	
7440-39-3	Barium	37.9	0.539 mg/kg dry	1	"	"	"	"	"	
7440-43-9	Cadmium	1.23	0.269 mg/kg dry	1	"	"	"	"	"	
7440-47-3	Chromium	18.2	0.539 mg/kg dry	1	"	"	"	"	"	
7439-97-6	Mercury	0.436	0.188 mg/kg dry	1	SW846 7471A	"	01-Jul-05	5061914	YP	
7439-92-1	Lead	124	0.808 mg/kg dry	1	SW846 6010B	"	01-Jul-05	5061913	HB	
7782-49-2	Selenium	BRL	1.62 mg/kg dry	1	"	"	"	"	"	
Toxicity Characteristics										
	Flashpoint	> 200	°F	1	SW846 1010	30-Jun-05	30-Jun-05	5062077	LK	
	pH	7.80	pH Units	1	SW846 9045C	30-Jul-05 11:00	30-Jul-05	5070031	BD	HT-2
Reactivity Cyanide/Sulfide			Prepared by method		General Preparation					
	Reactivity	Negative	mg/kg dry	1	SW846 Ch. 7.3	29-Jun-05	29-Jun-05	5062033	LK	
	Reactive Cyanide	BRL	24.7 mg/kg dry	1	"	"	"	"	"	
	Reactive Sulfide	BRL	49.4 mg/kg dry	1	"	"	"	"	"	
General Chemistry Parameters										
	% Solids	90.4	%	1	SM2540 G Mod.	29-Jun-05	30-Jun-05	5061974	JAK	
	Specific Conductance (EC)	92.8	uS/cm	1	SM2510B	01-Jul-05	01-Jul-05	5070064	BD	

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5062038 - SW846 5030 Soil (high level)										
Blank (5062038-BLK1)				Prepared & Analyzed: 30-Jun-05						
Acetone	BRL	20.0	µg/kg wet							
Acrylonitrile	BRL	1.0	µg/kg wet							
Benzene	BRL	1.0	µg/kg wet							
Bromobenzene	BRL	1.0	µg/kg wet							
Bromochloromethane	BRL	1.0	µg/kg wet							
Bromodichloromethane	BRL	1.0	µg/kg wet							
Bromoform	BRL	1.0	µg/kg wet							
Bromomethane	BRL	2.0	µg/kg wet							
2-Butanone (MEK)	BRL	10.0	µg/kg wet							
n-Butylbenzene	BRL	1.0	µg/kg wet							
sec-Butylbenzene	BRL	1.0	µg/kg wet							
tert-Butylbenzene	BRL	1.0	µg/kg wet							
Carbon disulfide	BRL	5.0	µg/kg wet							
Carbon tetrachloride	BRL	1.0	µg/kg wet							
Chlorobenzene	BRL	1.0	µg/kg wet							
Chloroethane	BRL	2.0	µg/kg wet							
Chloroform	BRL	1.0	µg/kg wet							
Chloromethane	BRL	2.0	µg/kg wet							
2-Chlorotoluene	BRL	1.0	µg/kg wet							
4-Chlorotoluene	BRL	1.0	µg/kg wet							
1,2-Dibromo-3-chloropropane	BRL	2.0	µg/kg wet							
Dibromochloromethane	BRL	1.0	µg/kg wet							
1,2-Dibromoethane (EDB)	BRL	1.0	µg/kg wet							
Dibromomethane	BRL	1.0	µg/kg wet							
1,2-Dichlorobenzene	BRL	1.0	µg/kg wet							
1,3-Dichlorobenzene	BRL	1.0	µg/kg wet							
1,4-Dichlorobenzene	BRL	1.0	µg/kg wet							
Dichlorodifluoromethane (Freon12)	BRL	2.0	µg/kg wet							
1,1-Dichloroethane	BRL	1.0	µg/kg wet							
1,2-Dichloroethane	BRL	1.0	µg/kg wet							
1,1-Dichloroethene	BRL	1.0	µg/kg wet							
cis-1,2-Dichloroethene	BRL	1.0	µg/kg wet							
trans-1,2-Dichloroethene	BRL	1.0	µg/kg wet							
1,2-Dichloropropane	BRL	1.0	µg/kg wet							
1,3-Dichloropropane	BRL	1.0	µg/kg wet							
2,2-Dichloropropane	BRL	1.0	µg/kg wet							
1,1-Dichloropropene	BRL	1.0	µg/kg wet							
cis-1,3-Dichloropropene	BRL	1.0	µg/kg wet							
trans-1,3-Dichloropropene	BRL	1.0	µg/kg wet							
Ethylbenzene	BRL	1.0	µg/kg wet							
Hexachlorobutadiene	BRL	1.0	µg/kg wet							
2-Hexanone (MBK)	BRL	10.0	µg/kg wet							
Isopropylbenzene	BRL	1.0	µg/kg wet							
4-Isopropyltoluene	BRL	1.0	µg/kg wet							
Methyl tert-butyl ether	BRL	1.0	µg/kg wet							
4-Methyl-2-pentanone (MIBK)	BRL	10.0	µg/kg wet							
Methylene chloride	BRL	10.0	µg/kg wet							
Naphthalene	BRL	1.0	µg/kg wet							
n-Propylbenzene	BRL	1.0	µg/kg wet							
Styrene	BRL	1.0	µg/kg wet							
1,1,1,2-Tetrachloroethane	BRL	1.0	µg/kg wet							
1,1,2,2-Tetrachloroethane	BRL	1.0	µg/kg wet							
Tetrachloroethene	BRL	1.0	µg/kg wet							
Toluene	BRL	1.0	µg/kg wet							

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5062038 - SW846 5030 Soil (high level)										
Blank (5062038-BLK1)				Prepared & Analyzed: 30-Jun-05						
1,2,3-Trichlorobenzene	BRL	1.0	µg/kg wet							
1,2,4-Trichlorobenzene	BRL	1.0	µg/kg wet							
1,1,1-Trichloroethane	BRL	1.0	µg/kg wet							
1,1,2-Trichloroethane	BRL	1.0	µg/kg wet							
Trichloroethene	BRL	1.0	µg/kg wet							
Trichlorofluoromethane (Freon 11)	BRL	1.0	µg/kg wet							
1,2,3-Trichloropropane	BRL	1.0	µg/kg wet							
1,2,4-Trimethylbenzene	BRL	1.0	µg/kg wet							
1,3,5-Trimethylbenzene	BRL	1.0	µg/kg wet							
Vinyl chloride	BRL	1.0	µg/kg wet							
m,p-Xylene	BRL	2.0	µg/kg wet							
o-Xylene	BRL	1.0	µg/kg wet							
Tetrahydrofuran	BRL	10.0	µg/kg wet							
Ethyl ether	BRL	1.0	µg/kg wet							
Tert-amyl methyl ether	BRL	1.0	µg/kg wet							
Ethyl tert-butyl ether	BRL	1.0	µg/kg wet							
Di-isopropyl ether	BRL	1.0	µg/kg wet							
Tert-Butanol / butyl alcohol	BRL	10.0	µg/kg wet							
1,4-Dioxane	BRL	20.0	µg/kg wet							
Surrogate: 4-Bromofluorobenzene	*50.1*		µg/kg wet	*50.0*		*100*	*70-130*			
Surrogate: Toluene-d8	*46.2*		µg/kg wet	*50.0*		*92.4*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*32.9*		µg/kg wet	*50.0*		*65.8*	*70-130*			*S-GC*
Surrogate: Dibromofluoromethane	*39.4*		µg/kg wet	*50.0*		*78.8*	*70-130*			
LCS (5062038-BS1)				Prepared & Analyzed: 30-Jun-05						
Acetone	23.6		µg/kg wet	20.0		118	23-201			
Acrylonitrile	19.8		µg/kg wet	20.0		99.0	70-130			
Benzene	20.9		µg/kg wet	20.0		104	70-130			
Bromobenzene	22.0		µg/kg wet	20.0		110	70-130			
Bromochloromethane	20.7		µg/kg wet	20.0		104	70-130			
Bromodichloromethane	15.0		µg/kg wet	20.0		75.0	70-130			
Bromoform	19.9		µg/kg wet	20.0		99.5	70-130			
Bromomethane	18.5		µg/kg wet	20.0		92.5	48.9-174			
2-Butanone (MEK)	19.2		µg/kg wet	20.0		96.0	8.02-161			
n-Butylbenzene	18.3		µg/kg wet	20.0		91.5	70-130			
sec-Butylbenzene	21.3		µg/kg wet	20.0		106	70-130			
tert-Butylbenzene	21.4		µg/kg wet	20.0		107	70-130			
Carbon disulfide	23.1		µg/kg wet	20.0		116	70-130			
Carbon tetrachloride	14.9		µg/kg wet	20.0		74.5	70-130			
Chlorobenzene	24.6		µg/kg wet	20.0		123	70-130			
Chloroethane	20.1		µg/kg wet	20.0		100	65.8-146			
Chloroform	16.5		µg/kg wet	20.0		82.5	70-130			
Chloromethane	23.6		µg/kg wet	20.0		118	70-130			
2-Chlorotoluene	19.8		µg/kg wet	20.0		99.0	70-130			
4-Chlorotoluene	19.0		µg/kg wet	20.0		95.0	70-130			
1,2-Dibromo-3-chloropropane	17.1		µg/kg wet	20.0		85.5	70-130			
Dibromochloromethane	16.2		µg/kg wet	20.0		81.0	56.8-157			
1,2-Dibromoethane (EDB)	18.8		µg/kg wet	20.0		94.0	70-130			
Dibromomethane	17.4		µg/kg wet	20.0		87.0	70-130			
1,2-Dichlorobenzene	21.3		µg/kg wet	20.0		106	70-130			
1,3-Dichlorobenzene	21.3		µg/kg wet	20.0		106	70-130			
1,4-Dichlorobenzene	20.9		µg/kg wet	20.0		104	70-130			
Dichlorodifluoromethane (Freon12)	26.4		µg/kg wet	20.0		132	70-151			
1,1-Dichloroethane	20.4		µg/kg wet	20.0		102	70-130			
1,2-Dichloroethane	14.7		µg/kg wet	20.0		73.5	70-130			

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5062038 - SW846 5030 Soil (high level)										
LCS (5062038-BS1)			Prepared & Analyzed: 30-Jun-05							
1,1-Dichloroethene	17.6		µg/kg wet	20.0		88.0	70-130			
cis-1,2-Dichloroethene	22.8		µg/kg wet	20.0		114	70-130			
trans-1,2-Dichloroethene	21.1		µg/kg wet	20.0		106	70-130			
1,2-Dichloropropane	21.6		µg/kg wet	20.0		108	70-130			
1,3-Dichloropropane	19.7		µg/kg wet	20.0		98.5	70-130			
2,2-Dichloropropane	10.2		µg/kg wet	20.0		51.0	70-130			QC-2
1,1-Dichloropropene	18.2		µg/kg wet	20.0		91.0	70-130			
cis-1,3-Dichloropropene	17.4		µg/kg wet	20.0		87.0	70-130			
trans-1,3-Dichloropropene	15.6		µg/kg wet	20.0		78.0	70-130			
Ethylbenzene	21.5		µg/kg wet	20.0		108	70-130			
Hexachlorobutadiene	17.9		µg/kg wet	20.0		89.5	70-146			
2-Hexanone (MBK)	18.0		µg/kg wet	20.0		90.0	70-130			
Isopropylbenzene	20.6		µg/kg wet	20.0		103	70-130			
4-Isopropyltoluene	20.5		µg/kg wet	20.0		102	70-130			
Methyl tert-butyl ether	17.5		µg/kg wet	20.0		87.5	70-130			
4-Methyl-2-pentanone (MIBK)	19.1		µg/kg wet	20.0		95.5	43.1-155			
Methylene chloride	21.7		µg/kg wet	20.0		108	70-130			
Naphthalene	21.9		µg/kg wet	20.0		110	70-130			
n-Propylbenzene	20.6		µg/kg wet	20.0		103	70-130			
Styrene	24.4		µg/kg wet	20.0		122	70-130			
1,1,1,2-Tetrachloroethane	19.9		µg/kg wet	20.0		99.5	70-130			
1,1,2,2-Tetrachloroethane	16.0		µg/kg wet	20.0		80.0	70-130			
Tetrachloroethene	19.7		µg/kg wet	20.0		98.5	70-130			
Toluene	20.4		µg/kg wet	20.0		102	70-130			
1,2,3-Trichlorobenzene	21.0		µg/kg wet	20.0		105	70-130			
1,2,4-Trichlorobenzene	20.5		µg/kg wet	20.0		102	70-130			
1,1,1-Trichloroethane	15.1		µg/kg wet	20.0		75.5	70-130			
1,1,2-Trichloroethane	20.1		µg/kg wet	20.0		100	70-130			
Trichloroethene	22.8		µg/kg wet	20.0		114	70-130			
Trichlorofluoromethane (Freon 11)	15.7		µg/kg wet	20.0		78.5	70-138			
1,2,3-Trichloropropane	21.0		µg/kg wet	20.0		105	70-130			
1,2,4-Trimethylbenzene	19.8		µg/kg wet	20.0		99.0	70-130			
1,3,5-Trimethylbenzene	20.2		µg/kg wet	20.0		101	70-130			
Vinyl chloride	17.2		µg/kg wet	20.0		86.0	70-130			
m,p-Xylene	47.0		µg/kg wet	40.0		118	70-130			
o-Xylene	24.4		µg/kg wet	20.0		122	70-130			
Tetrahydrofuran	14.3		µg/kg wet	20.0		71.5	70-130			
Ethyl ether	19.8		µg/kg wet	20.0		99.0	70-143			
Tert-amyl methyl ether	19.2		µg/kg wet	20.0		96.0	70-130			
Ethyl tert-butyl ether	18.3		µg/kg wet	20.0		91.5	70-130			
Di-isopropyl ether	21.6		µg/kg wet	20.0		108	70-130			
Tert-Butanol / butyl alcohol	166		µg/kg wet	200		83.0	70-130			
1,4-Dioxane	135		µg/kg wet	200		67.5	27.7-146			
Surrogate: 4-Bromofluorobenzene	*48.4*		µg/kg wet	*50.0*		*96.8*	*70-130*			
Surrogate: Toluene-d8	*47.1*		µg/kg wet	*50.0*		*94.2*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*35.2*		µg/kg wet	*50.0*		*70.4*	*70-130*			
Surrogate: Dibromofluoromethane	*40.3*		µg/kg wet	*50.0*		*80.6*	*70-130*			
LCS Dup (5062038-BSD1)			Prepared & Analyzed: 30-Jun-05							
Acetone	23.6		µg/kg wet	20.0		118	23-201	0.00	50	
Acrylonitrile	21.8		µg/kg wet	20.0		109	70-130	9.62	25	
Benzene	22.0		µg/kg wet	20.0		110	70-130	5.61	25	
Bromobenzene	23.5		µg/kg wet	20.0		118	70-130	7.02	25	
Bromochloromethane	21.6		µg/kg wet	20.0		108	70-130	3.77	25	
Bromodichloromethane	16.5		µg/kg wet	20.0		82.5	70-130	9.52	25	

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5062038 - SW846 5030 Soil (high level)										
LCS Dup (5062038-BSD1)				Prepared & Analyzed: 30-Jun-05						
Bromoform	21.0		µg/kg wet	20.0		105	70-130	5.38	25	
Bromomethane	18.4		µg/kg wet	20.0		92.0	48.9-174	0.542	50	
2-Butanone (MEK)	20.2		µg/kg wet	20.0		101	8.02-161	5.08	50	
n-Butylbenzene	19.2		µg/kg wet	20.0		96.0	70-130	4.80	25	
sec-Butylbenzene	22.0		µg/kg wet	20.0		110	70-130	3.70	25	
tert-Butylbenzene	21.3		µg/kg wet	20.0		106	70-130	0.939	25	
Carbon disulfide	23.1		µg/kg wet	20.0		116	70-130	0.00	25	
Carbon tetrachloride	15.5		µg/kg wet	20.0		77.5	70-130	3.95	25	
Chlorobenzene	25.7		µg/kg wet	20.0		128	70-130	3.98	25	
Chloroethane	20.1		µg/kg wet	20.0		100	65.8-146	0.00	50	
Chloroform	16.6		µg/kg wet	20.0		83.0	70-130	0.604	25	
Chloromethane	23.5		µg/kg wet	20.0		118	70-130	0.00	25	
2-Chlorotoluene	21.1		µg/kg wet	20.0		106	70-130	6.83	25	
4-Chlorotoluene	20.0		µg/kg wet	20.0		100	70-130	5.13	25	
1,2-Dibromo-3-chloropropane	18.8		µg/kg wet	20.0		94.0	70-130	9.47	25	
Dibromochloromethane	17.1		µg/kg wet	20.0		85.5	56.8-157	5.41	50	
1,2-Dibromoethane (EDB)	20.3		µg/kg wet	20.0		102	70-130	8.16	25	
Dibromomethane	18.2		µg/kg wet	20.0		91.0	70-130	4.49	25	
1,2-Dichlorobenzene	22.0		µg/kg wet	20.0		110	70-130	3.70	25	
1,3-Dichlorobenzene	22.3		µg/kg wet	20.0		112	70-130	5.50	25	
1,4-Dichlorobenzene	21.1		µg/kg wet	20.0		106	70-130	1.90	25	
Dichlorodifluoromethane (Freon12)	27.8		µg/kg wet	20.0		139	70-151	5.17	50	
1,1-Dichloroethane	20.8		µg/kg wet	20.0		104	70-130	1.94	25	
1,2-Dichloroethane	15.5		µg/kg wet	20.0		77.5	70-130	5.30	25	
1,1-Dichloroethene	18.3		µg/kg wet	20.0		91.5	70-130	3.90	25	
cis-1,2-Dichloroethene	23.8		µg/kg wet	20.0		119	70-130	4.29	25	
trans-1,2-Dichloroethene	21.5		µg/kg wet	20.0		108	70-130	1.87	25	
1,2-Dichloropropane	22.3		µg/kg wet	20.0		112	70-130	3.64	25	
1,3-Dichloropropane	20.8		µg/kg wet	20.0		104	70-130	5.43	25	
2,2-Dichloropropane	10.5		µg/kg wet	20.0		52.5	70-130	2.90	25	QC-2
1,1-Dichloropropene	18.7		µg/kg wet	20.0		93.5	70-130	2.71	25	
cis-1,3-Dichloropropene	17.9		µg/kg wet	20.0		89.5	70-130	2.83	25	
trans-1,3-Dichloropropene	16.6		µg/kg wet	20.0		83.0	70-130	6.21	25	
Ethylbenzene	21.7		µg/kg wet	20.0		108	70-130	0.00	25	
Hexachlorobutadiene	18.7		µg/kg wet	20.0		93.5	70-146	4.37	50	
2-Hexanone (MBK)	19.4		µg/kg wet	20.0		97.0	70-130	7.49	25	
Isopropylbenzene	21.5		µg/kg wet	20.0		108	70-130	4.74	25	
4-Isopropyltoluene	20.6		µg/kg wet	20.0		103	70-130	0.976	25	
Methyl tert-butyl ether	19.0		µg/kg wet	20.0		95.0	70-130	8.22	25	
4-Methyl-2-pentanone (MIBK)	18.9		µg/kg wet	20.0		94.5	43.1-155	1.05	50	
Methylene chloride	23.4		µg/kg wet	20.0		117	70-130	8.00	25	
Naphthalene	23.1		µg/kg wet	20.0		116	70-130	5.31	25	
n-Propylbenzene	21.0		µg/kg wet	20.0		105	70-130	1.92	25	
Styrene	25.2		µg/kg wet	20.0		126	70-130	3.23	25	
1,1,1,2-Tetrachloroethane	20.7		µg/kg wet	20.0		104	70-130	4.42	25	
1,1,2,2-Tetrachloroethane	17.3		µg/kg wet	20.0		86.5	70-130	7.81	25	
Tetrachloroethene	20.4		µg/kg wet	20.0		102	70-130	3.49	25	
Toluene	21.0		µg/kg wet	20.0		105	70-130	2.90	25	
1,2,3-Trichlorobenzene	22.7		µg/kg wet	20.0		114	70-130	8.22	25	
1,2,4-Trichlorobenzene	21.1		µg/kg wet	20.0		106	70-130	3.85	25	
1,1,1-Trichloroethane	15.5		µg/kg wet	20.0		77.5	70-130	2.61	25	
1,1,2-Trichloroethane	22.2		µg/kg wet	20.0		111	70-130	10.4	25	
Trichloroethene	22.6		µg/kg wet	20.0		113	70-130	0.881	25	
Trichlorofluoromethane (Freon 11)	16.1		µg/kg wet	20.0		80.5	70-138	2.52	50	

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5062038 - SW846 5030 Soil (high level)										
LCS Dup (5062038-BSD1)				Prepared & Analyzed: 30-Jun-05						
1,2,3-Trichloropropane	22.9		µg/kg wet	20.0		114	70-130	8.22	25	
1,2,4-Trimethylbenzene	20.8		µg/kg wet	20.0		104	70-130	4.93	25	
1,3,5-Trimethylbenzene	20.9		µg/kg wet	20.0		104	70-130	2.93	25	
Vinyl chloride	16.9		µg/kg wet	20.0		84.5	70-130	1.76	25	
m,p-Xylene	48.3		µg/kg wet	40.0		121	70-130	2.51	25	
o-Xylene	26.0		µg/kg wet	20.0		130	70-130	6.35	25	
Tetrahydrofuran	17.1		µg/kg wet	20.0		85.5	70-130	17.8	25	
Ethyl ether	20.3		µg/kg wet	20.0		102	70-143	2.99	50	
Tert-amyl methyl ether	20.3		µg/kg wet	20.0		102	70-130	6.06	25	
Ethyl tert-butyl ether	19.5		µg/kg wet	20.0		97.5	70-130	6.35	25	
Di-isopropyl ether	23.1		µg/kg wet	20.0		116	70-130	7.14	25	
Tert-Butanol / butyl alcohol	187		µg/kg wet	200		93.5	70-130	11.9	25	
1,4-Dioxane	154		µg/kg wet	200		77.0	27.7-146	13.1	25	
Surrogate: 4-Bromofluorobenzene	*49.6*		µg/kg wet	*50.0*		*99.2*	*70-130*			
Surrogate: Toluene-d8	*48.0*		µg/kg wet	*50.0*		*96.0*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*35.6*		µg/kg wet	*50.0*		*71.2*	*70-130*			
Surrogate: Dibromofluoromethane	*41.0*		µg/kg wet	*50.0*		*82.0*	*70-130*			
Matrix Spike (5062038-MS1)	**Source: SA29887-02**			Prepared & Analyzed: 30-Jun-05						
Benzene	20.5		µg/kg dry	20.0	BRL	102	70-130			
Chlorobenzene	26.7		µg/kg dry	20.0	BRL	134	70-130			QM-07
1,1-Dichloroethene	15.4		µg/kg dry	20.0	BRL	77.0	70-130			
Toluene	20.0		µg/kg dry	20.0	BRL	100	70-130			
Trichloroethene	17.6		µg/kg dry	20.0	BRL	88.0	70-130			
Surrogate: 4-Bromofluorobenzene	*50.1*		µg/kg dry	*50.0*		*100*	*70-130*			
Surrogate: Toluene-d8	*46.6*		µg/kg dry	*50.0*		*93.2*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*35.8*		µg/kg dry	*50.0*		*71.6*	*70-130*			
Surrogate: Dibromofluoromethane	*41.7*		µg/kg dry	*50.0*		*83.4*	*70-130*			
Matrix Spike Dup (5062038-MSD1)	**Source: SA29887-02**			Prepared & Analyzed: 30-Jun-05						
Benzene	21.2		µg/kg dry	20.0	BRL	106	70-130	3.85	30	
Chlorobenzene	27.6		µg/kg dry	20.0	BRL	138	70-130	2.94	30	QM-07
1,1-Dichloroethene	16.5		µg/kg dry	20.0	BRL	82.5	70-130	6.90	30	
Toluene	20.8		µg/kg dry	20.0	BRL	104	70-130	3.92	30	
Trichloroethene	18.4		µg/kg dry	20.0	BRL	92.0	70-130	4.44	30	
Surrogate: 4-Bromofluorobenzene	*50.0*		µg/kg dry	*50.0*		*100*	*70-130*			
Surrogate: Toluene-d8	*46.7*		µg/kg dry	*50.0*		*93.4*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*35.1*		µg/kg dry	*50.0*		*70.2*	*70-130*			
Surrogate: Dibromofluoromethane	*41.4*		µg/kg dry	*50.0*		*82.8*	*70-130*			

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5062036 - SW846 3550B										
Blank (5062036-BLK1)				Prepared: 30-Jun-05 Analyzed: 01-Jul-05						
Gasoline	BRL	13.3	mg/kg wet							
Fuel Oil #2	BRL	13.3	mg/kg wet							
Fuel Oil #4	BRL	13.3	mg/kg wet							
Fuel Oil #6	BRL	13.3	mg/kg wet							
Motor Oil	BRL	13.3	mg/kg wet							
Ligroin	BRL	13.3	mg/kg wet							
Aviation Fuel	BRL	13.3	mg/kg wet							
Unidentified	BRL	13.3	mg/kg wet							
Other Oil	BRL	13.3	mg/kg wet							
Total Petroleum Hydrocarbons	BRL	13.3	mg/kg wet							
Surrogate: 1-Chlorooctadecane	*1.93*		mg/kg wet	*3.33*		*58.0*	*40-140*			
LCS (5062036-BS1)				Prepared: 30-Jun-05 Analyzed: 01-Jul-05						
Fuel Oil #2	700	13.3	mg/kg wet	667		105	40-140			
Duplicate (5062036-DUP1)		**Source: SA30139-04**		Prepared: 30-Jun-05 Analyzed: 01-Jul-05						
Gasoline	BRL	30.0	mg/kg dry		BRL				50	
Fuel Oil #2	BRL	30.0	mg/kg dry		BRL				50	
Fuel Oil #4	BRL	30.0	mg/kg dry		BRL				50	
Fuel Oil #6	BRL	30.0	mg/kg dry		BRL				50	
Motor Oil	BRL	30.0	mg/kg dry		BRL				50	
Ligroin	BRL	30.0	mg/kg dry		BRL				50	
Aviation Fuel	BRL	30.0	mg/kg dry		BRL				50	
Unidentified	BRL	30.0	mg/kg dry		BRL				50	
Other Oil	BRL	30.0	mg/kg dry		BRL				50	
Total Petroleum Hydrocarbons	BRL	30.0	mg/kg dry		BRL				50	
Surrogate: 1-Chlorooctadecane	*2.27*		mg/kg dry	*3.77*		*60.2*	*40-140*			

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061936 - SW846 3545A										
Blank (5061936-BLK1)				Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
PCB 1016	BRL	28.6	µg/kg wet							
PCB 1221	BRL	28.6	µg/kg wet							
PCB 1232	BRL	28.6	µg/kg wet							
PCB 1242	BRL	28.6	µg/kg wet							
PCB 1248	BRL	28.6	µg/kg wet							
PCB 1254	BRL	28.6	µg/kg wet							
PCB 1260	BRL	28.6	µg/kg wet							
PCB 1262	BRL	28.6	µg/kg wet							
PCB 1268	BRL	28.6	µg/kg wet							
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*25.7*		µg/kg wet	*28.6*		*89.9*	*30-150*			
Surrogate: Decachlorobiphenyl (Sr)	*24.3*		µg/kg wet	*28.6*		*85.0*	*30-150*			
LCS (5061936-BS1)				Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
PCB 1016	360	28.6	µg/kg wet	357		101	40-140			
PCB 1260	394	28.6	µg/kg wet	357		110	40-140			
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*22.9*		µg/kg wet	*28.6*		*80.1*	*30-150*			
Surrogate: Decachlorobiphenyl (Sr)	*22.9*		µg/kg wet	*28.6*		*80.1*	*30-150*			
Duplicate (5061936-DUP1)	**Source: SA30139-01**			Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
PCB 1016	BRL	28.9	µg/kg dry		BRL				40	
PCB 1221	BRL	28.9	µg/kg dry		BRL				40	
PCB 1232	BRL	28.9	µg/kg dry		BRL				40	
PCB 1242	BRL	28.9	µg/kg dry		BRL				40	
PCB 1248	BRL	28.9	µg/kg dry		BRL				40	
PCB 1254	BRL	28.9	µg/kg dry		BRL				40	
PCB 1260	BRL	28.9	µg/kg dry		BRL				40	
PCB 1262	BRL	28.9	µg/kg dry		BRL				40	
PCB 1268	BRL	28.9	µg/kg dry		BRL				40	
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*23.1*		µg/kg dry	*28.8*		*80.2*	*30-150*			
Surrogate: Decachlorobiphenyl (Sr)	*24.5*		µg/kg dry	*28.8*		*85.1*	*30-150*			
Matrix Spike (5061936-MS1)	**Source: SA30139-01**			Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
PCB 1016	383	29.1	µg/kg dry	364	BRL	105	40-140			
PCB 1260	304	29.1	µg/kg dry	364	BRL	83.5	40-140			
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*24.7*		µg/kg dry	*29.1*		*84.9*	*30-150*			
Surrogate: Decachlorobiphenyl (Sr)	*29.1*		µg/kg dry	*29.1*		*100*	*30-150*			
Matrix Spike Dup (5061936-MSD1)	**Source: SA30139-01**			Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
PCB 1016	351	28.0	µg/kg dry	349	BRL	101	40-140	3.88	50	
PCB 1260	286	28.0	µg/kg dry	349	BRL	81.9	40-140	1.93	50	
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*23.7*		µg/kg dry	*27.9*		*84.9*	*30-150*			
Surrogate: Decachlorobiphenyl (Sr)	*26.5*		µg/kg dry	*27.9*		*95.0*	*30-150*			

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061973 - SW846 3545A										
Blank (5061973-BLK1)				Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
Acenaphthene	BRL	330	µg/kg wet							
Acenaphthylene	BRL	330	µg/kg wet							
Aniline	BRL	330	µg/kg wet							
Anthracene	BRL	330	µg/kg wet							
Atrazine	BRL	330	µg/kg wet							
Azobenzene/Diphenyldiazine	BRL	330	µg/kg wet							
Benzidine	BRL	330	µg/kg wet							
Benzo (a) anthracene	BRL	330	µg/kg wet							
Benzo (a) pyrene	BRL	330	µg/kg wet							
Benzo (b) fluoranthene	BRL	330	µg/kg wet							
Benzo (g,h,i) perylene	BRL	330	µg/kg wet							
Benzo (k) fluoranthene	BRL	330	µg/kg wet							
Benzoic acid	BRL	330	µg/kg wet							
Benzyl alcohol	BRL	330	µg/kg wet							
Bis(2-chloroethoxy)methane	BRL	330	µg/kg wet							
Bis(2-chloroethyl)ether	BRL	330	µg/kg wet							
Bis(2-chloroisopropyl)ether	BRL	330	µg/kg wet							
Bis(2-ethylhexyl)phthalate	BRL	330	µg/kg wet							
4-Bromophenyl phenyl ether	BRL	330	µg/kg wet							
Butyl benzyl phthalate	BRL	330	µg/kg wet							
Carbazole	BRL	330	µg/kg wet							
4-Chloro-3-methylphenol	BRL	330	µg/kg wet							
4-Chloroaniline	BRL	330	µg/kg wet							
2-Chloronaphthalene	BRL	330	µg/kg wet							
2-Chlorophenol	BRL	330	µg/kg wet							
4-Chlorophenyl phenyl ether	BRL	330	µg/kg wet							
Chrysene	BRL	330	µg/kg wet							
Dibenzo (a,h) anthracene	BRL	330	µg/kg wet							
Dibenzofuran	BRL	330	µg/kg wet							
1,2-Dichlorobenzene	BRL	330	µg/kg wet							
1,3-Dichlorobenzene	BRL	330	µg/kg wet							
1,4-Dichlorobenzene	BRL	330	µg/kg wet							
3,3'-Dichlorobenzidine	BRL	330	µg/kg wet							
2,4-Dichlorophenol	BRL	330	µg/kg wet							
Diethyl phthalate	BRL	330	µg/kg wet							
Dimethyl phthalate	BRL	330	µg/kg wet							
2,4-Dimethylphenol	BRL	330	µg/kg wet							
Di-n-butyl phthalate	BRL	330	µg/kg wet							
4,6-Dinitro-2-methylphenol	BRL	330	µg/kg wet							
2,4-Dinitrophenol	BRL	330	µg/kg wet							
2,4-Dinitrotoluene	BRL	330	µg/kg wet							
2,6-Dinitrotoluene	BRL	330	µg/kg wet							
Di-n-octyl phthalate	BRL	330	µg/kg wet							
Fluoranthene	BRL	330	µg/kg wet							
Fluorene	BRL	330	µg/kg wet							
Hexachlorobenzene	BRL	330	µg/kg wet							
Hexachlorobutadiene	BRL	330	µg/kg wet							
Hexachlorocyclopentadiene	BRL	330	µg/kg wet							
Hexachloroethane	BRL	330	µg/kg wet							
Indeno (1,2,3-cd) pyrene	BRL	330	µg/kg wet							
1-Methylnaphthalene	BRL	330	µg/kg wet							
Isophorone	BRL	330	µg/kg wet							
2-Methylnaphthalene	BRL	330	µg/kg wet							
2-Methylphenol	BRL	330	µg/kg wet							

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061973 - SW846 3545A										
Blank (5061973-BLK1)				Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
3,4-Methylphenol	BRL	330	µg/kg wet							
Naphthalene	BRL	330	µg/kg wet							
2-Nitroaniline	BRL	330	µg/kg wet							
3-Nitroaniline	BRL	330	µg/kg wet							
4-Nitroaniline	BRL	1320	µg/kg wet							
Nitrobenzene	BRL	330	µg/kg wet							
2-Nitrophenol	BRL	330	µg/kg wet							
4-Nitrophenol	BRL	1320	µg/kg wet							
N-Nitrosodimethylamine	BRL	330	µg/kg wet							
N-Nitrosodi-n-propylamine	BRL	330	µg/kg wet							
N-Nitrosodiphenylamine	BRL	330	µg/kg wet							
Pentachlorophenol	BRL	1320	µg/kg wet							
Phenanthrene	BRL	330	µg/kg wet							
Phenol	BRL	330	µg/kg wet							
Pyrene	BRL	330	µg/kg wet							
Pyridine	BRL	330	µg/kg wet							
1,2,4-Trichlorobenzene	BRL	330	µg/kg wet							
2,4,5-Trichlorophenol	BRL	330	µg/kg wet							
2,4,6-Trichlorophenol	BRL	330	µg/kg wet							
Surrogate: 2-Fluorobiphenyl	*3380*		µg/kg wet	*6670*		*50.7*	*30-130*			
Surrogate: 2-Fluorophenol	*3310*		µg/kg wet	*6670*		*49.6*	*15-110*			
Surrogate: Nitrobenzene-d5	*2740*		µg/kg wet	*6670*		*41.1*	*30-130*			
Surrogate: Phenol-d5	*3270*		µg/kg wet	*6670*		*49.0*	*15-110*			
Surrogate: Terphenyl-dl4	*4290*		µg/kg wet	*6670*		*64.3*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*2730*		µg/kg wet	*6670*		*40.9*	*15-110*			
LCS (5061973-BS1)				Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
Acenaphthene	4870	330	µg/kg wet	6670		73.0	40-130			
Acenaphthylene	5190	330	µg/kg wet	6670		77.8	40-130			
Aniline	5500	330	µg/kg wet	6670		82.5	40-130			
Anthracene	5620	330	µg/kg wet	6670		84.3	40-130			
Atrazine	6690	330	µg/kg wet	6670		100	40-130			
Azobenzene/Diphenyldiazine	4640	330	µg/kg wet	6670		69.6	40-130			
Benzidine	682	330	µg/kg wet	6670		10.2	40-130			QC-2
Benzo (a) anthracene	4940	330	µg/kg wet	6670		74.1	40-130			
Benzo (a) pyrene	4680	330	µg/kg wet	6670		70.2	40-130			
Benzo (b) fluoranthene	4150	330	µg/kg wet	6670		62.2	40-130			
Benzo (g,h,i) perylene	4620	330	µg/kg wet	6670		69.3	40-130			
Benzo (k) fluoranthene	5880	330	µg/kg wet	6670		88.2	40-130			
Benzoic acid	141	330	µg/kg wet	6670		2.11	40-130			QC-2
Benzyl alcohol	4330	330	µg/kg wet	6670		64.9	40-130			
Bis(2-chloroethoxy)methane	3560	330	µg/kg wet	6670		53.4	40-130			
Bis(2-chloroethyl)ether	6610	330	µg/kg wet	6670		99.1	40-130			
Bis(2-chloroisopropyl)ether	5980	330	µg/kg wet	6670		89.7	40-130			
Bis(2-ethylhexyl)phthalate	5210	330	µg/kg wet	6670		78.1	40-130			
4-Bromophenyl phenyl ether	4940	330	µg/kg wet	6670		74.1	40-130			
Butyl benzyl phthalate	4580	330	µg/kg wet	6670		68.7	40-130			
Carbazole	8500	330	µg/kg wet	6670		127	40-130			
4-Chloro-3-methylphenol	3720	330	µg/kg wet	6670		55.8	40-130			
4-Chloroaniline	5290	330	µg/kg wet	6670		79.3	40-130			
2-Chloronaphthalene	4570	330	µg/kg wet	6670		68.5	40-130			
2-Chlorophenol	5020	330	µg/kg wet	6670		75.3	40-130			
4-Chlorophenyl phenyl ether	5290	330	µg/kg wet	6670		79.3	40-130			
Chrysene	5370	330	µg/kg wet	6670		80.5	40-130			
Dibenzo (a,h) anthracene	4970	330	µg/kg wet	6670		74.5	40-130			

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061973 - SW846 3545A										
LCS (5061973-BS1)				Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
Dibenzofuran	4980	330	µg/kg wet	6670		74.7	40-130			
1,2-Dichlorobenzene	5210	330	µg/kg wet	6670		78.1	40-130			
1,3-Dichlorobenzene	4940	330	µg/kg wet	6670		74.1	40-130			
1,4-Dichlorobenzene	4810	330	µg/kg wet	6670		72.1	40-130			
3,3'-Dichlorobenzidine	3790	330	µg/kg wet	6670		56.8	40-130			
2,4-Dichlorophenol	3650	330	µg/kg wet	6670		54.7	40-130			
Diethyl phthalate	5120	330	µg/kg wet	6670		76.8	40-130			
Dimethyl phthalate	5100	330	µg/kg wet	6670		76.5	40-130			
2,4-Dimethylphenol	3210	330	µg/kg wet	6670		48.1	40-130			
Di-n-butyl phthalate	5810	330	µg/kg wet	6670		87.1	40-130			
4,6-Dinitro-2-methylphenol	3500	330	µg/kg wet	6670		52.5	40-130			
2,4-Dinitrophenol	2320	330	µg/kg wet	6670		34.8	40-130			QC-2
2,4-Dinitrotoluene	5340	330	µg/kg wet	6670		80.1	40-130			
2,6-Dinitrotoluene	5740	330	µg/kg wet	6670		86.1	40-130			
Di-n-octyl phthalate	4970	330	µg/kg wet	6670		74.5	40-130			
Fluoranthene	5830	330	µg/kg wet	6670		87.4	40-130			
Fluorene	5140	330	µg/kg wet	6670		77.1	40-130			
Hexachlorobenzene	5270	330	µg/kg wet	6670		79.0	40-130			
Hexachlorobutadiene	4290	330	µg/kg wet	6670		64.3	40-130			
Hexachlorocyclopentadiene	5450	330	µg/kg wet	6670		81.7	40-130			
Hexachloroethane	5850	330	µg/kg wet	6670		87.7	40-130			
Indeno (1,2,3-cd) pyrene	4860	330	µg/kg wet	6670		72.9	40-130			
1-Methylnaphthalene	4240	330	µg/kg wet	6670		63.6	40-140			
Isophorone	4240	330	µg/kg wet	6670		63.6	40-130			
2-Methylnaphthalene	3950	330	µg/kg wet	6670		59.2	40-130			
2-Methylphenol	5160	330	µg/kg wet	6670		77.4	40-130			
3,4-Methylphenol	5570	330	µg/kg wet	6670		83.5	40-130			
Naphthalene	3750	330	µg/kg wet	6670		56.2	40-130			
2-Nitroaniline	4220	330	µg/kg wet	6670		63.3	40-130			
3-Nitroaniline	5220	330	µg/kg wet	6670		78.3	40-130			
4-Nitroaniline	6310	1320	µg/kg wet	6670		94.6	40-130			
Nitrobenzene	3450	330	µg/kg wet	6670		51.7	40-130			
2-Nitrophenol	2920	330	µg/kg wet	6670		43.8	40-130			
4-Nitrophenol	4890	1320	µg/kg wet	6670		73.3	40-130			
N-Nitrosodimethylamine	3030	330	µg/kg wet	6670		45.4	40-130			
N-Nitrosodi-n-propylamine	6120	330	µg/kg wet	6670		91.8	40-130			
N-Nitrosodiphenylamine	5240	330	µg/kg wet	6670		78.6	40-130			
Pentachlorophenol	5570	1320	µg/kg wet	6670		83.5	40-130			
Phenanthrene	4860	330	µg/kg wet	6670		72.9	40-130			
Phenol	4590	330	µg/kg wet	6670		68.8	40-130			
Pyrene	4460	330	µg/kg wet	6670		66.9	40-130			
Pyridine	2820	330	µg/kg wet	6670		42.3	40-130			
1,2,4-Trichlorobenzene	3910	330	µg/kg wet	6670		58.6	40-130			
2,4,5-Trichlorophenol	5040	330	µg/kg wet	6670		75.6	40-130			
2,4,6-Trichlorophenol	4240	330	µg/kg wet	6670		63.6	40-130			
Surrogate: 2-Fluorobiphenyl	*3980*		µg/kg wet	*6670*		*59.7*	*30-130*			
Surrogate: 2-Fluorophenol	*2760*		µg/kg wet	*6670*		*41.4*	*15-110*			
Surrogate: Nitrobenzene-d5	*3100*		µg/kg wet	*6670*		*46.5*	*30-130*			
Surrogate: Phenol-d5	*3570*		µg/kg wet	*6670*		*53.5*	*15-110*			
Surrogate: Terphenyl-dl4	*4010*		µg/kg wet	*6670*		*60.1*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4160*		µg/kg wet	*6670*		*62.4*	*15-110*			
Duplicate (5061973-DUP1)				**Source: SA30139-01**	Prepared: 29-Jun-05 Analyzed: 01-Jul-05					
Acenaphthene	BRL	222	µg/kg dry		BRL				50	
Acenaphthylene	BRL	222	µg/kg dry		BRL				50	

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061973 - SW846 3545A										
Duplicate (5061973-DUP1)	**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05							
Aniline	BRL	222	µg/kg dry		BRL				50	
Anthracene	BRL	222	µg/kg dry		BRL				50	
Atrazine	BRL	222	µg/kg dry		BRL				50	
Azobenzene/Diphenyldiazine	BRL	222	µg/kg dry		BRL				50	
Benzidine	BRL	222	µg/kg dry		BRL				50	
Benzo (a) anthracene	BRL	222	µg/kg dry		BRL				50	
Benzo (a) pyrene	BRL	222	µg/kg dry		BRL				50	
Benzo (b) fluoranthene	BRL	222	µg/kg dry		BRL				50	
Benzo (g,h,i) perylene	BRL	222	µg/kg dry		BRL				50	
Benzo (k) fluoranthene	BRL	222	µg/kg dry		BRL				50	
Benzoic acid	BRL	222	µg/kg dry		BRL				50	
Benzyl alcohol	BRL	222	µg/kg dry		BRL				50	
Bis(2-chloroethoxy)methane	BRL	222	µg/kg dry		BRL				50	
Bis(2-chloroethyl)ether	BRL	222	µg/kg dry		BRL				50	
Bis(2-chloroisopropyl)ether	BRL	222	µg/kg dry		BRL				50	
Bis(2-ethylhexyl)phthalate	BRL	222	µg/kg dry		BRL				50	
4-Bromophenyl phenyl ether	BRL	222	µg/kg dry		BRL				50	
Butyl benzyl phthalate	BRL	222	µg/kg dry		BRL				50	
Carbazole	BRL	222	µg/kg dry		BRL				50	
4-Chloro-3-methylphenol	BRL	222	µg/kg dry		BRL				50	
4-Chloroaniline	BRL	222	µg/kg dry		BRL				50	
2-Chloronaphthalene	BRL	222	µg/kg dry		BRL				50	
2-Chlorophenol	BRL	222	µg/kg dry		BRL				50	
4-Chlorophenyl phenyl ether	BRL	222	µg/kg dry		BRL				50	
Chrysene	BRL	222	µg/kg dry		BRL				50	
Dibenzo (a,h) anthracene	BRL	222	µg/kg dry		BRL				50	
Dibenzofuran	BRL	222	µg/kg dry		BRL				50	
1,2-Dichlorobenzene	BRL	222	µg/kg dry		BRL				50	
1,3-Dichlorobenzene	BRL	222	µg/kg dry		BRL				50	
1,4-Dichlorobenzene	BRL	222	µg/kg dry		BRL				50	
3,3'-Dichlorobenzidine	BRL	222	µg/kg dry		BRL				50	
2,4-Dichlorophenol	BRL	222	µg/kg dry		BRL				50	
Diethyl phthalate	BRL	222	µg/kg dry		BRL				50	
Dimethyl phthalate	BRL	222	µg/kg dry		BRL				50	
2,4-Dimethylphenol	BRL	222	µg/kg dry		BRL				50	
Di-n-butyl phthalate	BRL	222	µg/kg dry		BRL				50	
4,6-Dinitro-2-methylphenol	BRL	222	µg/kg dry		BRL				50	
2,4-Dinitrophenol	BRL	222	µg/kg dry		BRL				50	
2,4-Dinitrotoluene	BRL	222	µg/kg dry		BRL				50	
2,6-Dinitrotoluene	BRL	222	µg/kg dry		BRL				50	
Di-n-octyl phthalate	BRL	222	µg/kg dry		BRL				50	
Fluoranthene	BRL	222	µg/kg dry		BRL				50	
Fluorene	BRL	222	µg/kg dry		BRL				50	
Hexachlorobenzene	BRL	222	µg/kg dry		BRL				50	
Hexachlorobutadiene	BRL	222	µg/kg dry		BRL				50	
Hexachlorocyclopentadiene	BRL	222	µg/kg dry		BRL				50	
Hexachloroethane	BRL	222	µg/kg dry		BRL				50	
Indeno (1,2,3-cd) pyrene	BRL	222	µg/kg dry		BRL				50	
Isophorone	BRL	222	µg/kg dry		BRL				50	
1-Methylnaphthalene	BRL	222	µg/kg dry		BRL				50	
2-Methylnaphthalene	BRL	222	µg/kg dry		BRL				50	
2-Methylphenol	BRL	222	µg/kg dry		BRL				50	
3,4-Methylphenol	BRL	222	µg/kg dry		BRL				50	
Naphthalene	BRL	222	µg/kg dry		BRL				50	

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061973 - SW846 3545A										
Duplicate (5061973-DUP1)	**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05							
2-Nitroaniline	BRL	222	µg/kg dry		BRL				50	
3-Nitroaniline	BRL	222	µg/kg dry		BRL				50	
4-Nitroaniline	BRL	890	µg/kg dry		BRL				50	
Nitrobenzene	BRL	222	µg/kg dry		BRL				50	
2-Nitrophenol	BRL	222	µg/kg dry		BRL				50	
4-Nitrophenol	BRL	890	µg/kg dry		BRL				50	
N-Nitrosodimethylamine	BRL	222	µg/kg dry		BRL				50	
N-Nitrosodi-n-propylamine	BRL	222	µg/kg dry		BRL				50	
N-Nitrosodiphenylamine	BRL	222	µg/kg dry		BRL				50	
Pentachlorophenol	BRL	890	µg/kg dry		BRL				50	
Phenanthrene	BRL	222	µg/kg dry		BRL				50	
Phenol	BRL	222	µg/kg dry		BRL				50	
Pyrene	BRL	222	µg/kg dry		BRL				50	
Pyridine	BRL	222	µg/kg dry		BRL				50	
1,2,4-Trichlorobenzene	BRL	222	µg/kg dry		BRL				50	
2,4,5-Trichlorophenol	BRL	222	µg/kg dry		BRL				50	
2,4,6-Trichlorophenol	BRL	222	µg/kg dry		BRL				50	
Surrogate: 2-Fluorobiphenyl	*1640*		µg/kg dry	*2250*		*72.9*	*30-130*			
Surrogate: 2-Fluorophenol	*1290*		µg/kg dry	*2250*		*57.3*	*15-110*			
Surrogate: Nitrobenzene-d5	*1280*		µg/kg dry	*2250*		*56.9*	*30-130*			
Surrogate: Phenol-d5	*1010*		µg/kg dry	*2250*		*44.9*	*15-110*			
Surrogate: Terphenyl-dl4	*1820*		µg/kg dry	*2250*		*80.9*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*1130*		µg/kg dry	*2250*		*50.2*	*15-110*			
Matrix Spike (5061973-MS1)	**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05							
Acenaphthene	2990	224	µg/kg dry	4520	BRL	66.2	40-140			
4-Chloro-3-methylphenol	2910	224	µg/kg dry	4520	BRL	64.4	30-130			
2-Chlorophenol	3480	224	µg/kg dry	4520	BRL	77.0	30-130			
1,4-Dichlorobenzene	4070	224	µg/kg dry	4520	BRL	90.0	40-140			
2,4-Dinitrotoluene	3540	224	µg/kg dry	4520	BRL	78.3	40-140			
4-Nitrophenol	3480	896	µg/kg dry	4520	BRL	77.0	30-130			
N-Nitrosodi-n-propylamine	4110	224	µg/kg dry	4520	BRL	90.9	40-140			
Pentachlorophenol	3690	896	µg/kg dry	4520	BRL	81.6	30-130			
Phenol	3100	224	µg/kg dry	4520	BRL	68.6	30-130			
Pyrene	2040	224	µg/kg dry	4520	BRL	45.1	40-140			
1,2,4-Trichlorobenzene	2370	224	µg/kg dry	4520	BRL	52.4	40-140			
Surrogate: 2-Fluorobiphenyl	*2310*		µg/kg dry	*4520*		*51.1*	*30-130*			
Surrogate: 2-Fluorophenol	*2100*		µg/kg dry	*4520*		*46.5*	*15-110*			
Surrogate: Nitrobenzene-d5	*2040*		µg/kg dry	*4520*		*45.1*	*30-130*			
Surrogate: Phenol-d5	*2470*		µg/kg dry	*4520*		*54.6*	*15-110*			
Surrogate: Terphenyl-dl4	*1680*		µg/kg dry	*4520*		*37.2*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*2540*		µg/kg dry	*4520*		*56.2*	*15-110*			
Matrix Spike Dup (5061973-MSD1)	**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05							
Acenaphthene	3530	226	µg/kg dry	4570	BRL	77.2	40-140	15.3	30	
4-Chloro-3-methylphenol	3380	226	µg/kg dry	4570	BRL	74.0	30-130	13.9	30	
2-Chlorophenol	4140	226	µg/kg dry	4570	BRL	90.6	30-130	16.2	30	
1,4-Dichlorobenzene	3600	226	µg/kg dry	4570	BRL	78.8	40-140	13.3	30	
2,4-Dinitrotoluene	4300	226	µg/kg dry	4570	BRL	94.1	40-140	18.3	30	
4-Nitrophenol	3360	904	µg/kg dry	4570	BRL	73.5	30-130	4.65	30	
N-Nitrosodi-n-propylamine	4450	226	µg/kg dry	4570	BRL	97.4	40-140	6.90	30	
Pentachlorophenol	4610	904	µg/kg dry	4570	BRL	101	30-130	21.2	30	
Phenol	3480	226	µg/kg dry	4570	BRL	76.1	30-130	10.4	30	
Pyrene	2470	226	µg/kg dry	4570	BRL	54.0	40-140	18.0	30	
1,2,4-Trichlorobenzene	2720	226	µg/kg dry	4570	BRL	59.5	40-140	12.7	30	

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061973 - SW846 3545A										
Matrix Spike Dup (5061973-MSD1)	**Source: SA30139-01**			Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Surrogate: 2-Fluorobiphenyl	*2590*		µg/kg dry	*4570*		*56.7*	*30-130*			
Surrogate: 2-Fluorophenol	*2280*		µg/kg dry	*4570*		*49.9*	*15-110*			
Surrogate: Nitrobenzene-d5	*2150*		µg/kg dry	*4570*		*47.0*	*30-130*			
Surrogate: Phenol-d5	*2720*		µg/kg dry	*4570*		*59.5*	*15-110*			
Surrogate: Terphenyl-dl4	*1980*		µg/kg dry	*4570*		*43.3*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*2930*		µg/kg dry	*4570*		*64.1*	*15-110*			

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061913 - SW846 3050B										
Blank (5061913-BLK1)				Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Selenium	BRL	1.50	mg/kg wet							
Lead	BRL	0.750	mg/kg wet							
Silver	BRL	1.00	mg/kg wet							
Arsenic	BRL	1.50	mg/kg wet							
Chromium	BRL	0.500	mg/kg wet							
Cadmium	BRL	0.250	mg/kg wet							
Barium	BRL	0.500	mg/kg wet							
LCS (5061913-BS1)				Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Lead	88.4	0.750	mg/kg wet	100		88.4	85-115			
Selenium	96.8	3.00	mg/kg wet	100		96.8	85-115			
Cadmium	88.4	0.250	mg/kg wet	100		88.4	85-115			
Chromium	91.2	0.500	mg/kg wet	100		91.2	85-115			
Silver	47.8	2.00	mg/kg wet	50.0		95.6	85-115			
Arsenic	89.5	1.50	mg/kg wet	100		89.5	85-115			
Barium	87.8	0.500	mg/kg wet	100		87.8	85-115			
Duplicate (5061913-DUP1)		**Source: SA29658-09**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Selenium	BRL	1.60	mg/kg dry		BRL				35	
Lead	1320	0.799	mg/kg dry		1300			1.53	35	
Silver	BRL	1.07	mg/kg dry		BRL				35	
Chromium	13.5	0.533	mg/kg dry		14.0			3.64	35	
Cadmium	0.954	0.266	mg/kg dry		0.932			2.33	35	
Arsenic	7.31	1.60	mg/kg dry		7.48			2.30	35	
Barium	113	0.533	mg/kg dry		114			0.881	35	
Duplicate (5061913-DUP2)		**Source: SA30139-04**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Lead	6.02	0.743	mg/kg dry		3.70			47.7	35	QR-05
Selenium	BRL	1.49	mg/kg dry		BRL				35	
Chromium	14.8	0.495	mg/kg dry		18.2			20.6	35	
Cadmium	BRL	0.248	mg/kg dry		0.0250				35	
Arsenic	9.60	1.49	mg/kg dry		9.96			3.68	35	
Silver	BRL	0.990	mg/kg dry		BRL				35	
Barium	17.7	0.495	mg/kg dry		24.8			33.4	35	
Matrix Spike (5061913-MS1)		**Source: SA29658-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Lead	597	0.817	mg/kg dry	109	504	85.3	75-125			
Selenium	88.2	1.63	mg/kg dry	109	BRL	80.9	75-125			
Chromium	113	0.544	mg/kg dry	109	11.9	92.8	75-125			
Cadmium	93.9	0.272	mg/kg dry	109	0.205	86.0	75-125			
Arsenic	102	1.63	mg/kg dry	109	8.01	86.2	75-125			
Silver	33.1	1.09	mg/kg dry	54.4	BRL	60.8	75-125			QM-07
Barium	214	0.544	mg/kg dry	109	114	91.7	75-125			
Matrix Spike (5061913-MS2)		**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Selenium	79.3	1.49	mg/kg dry	99.1	BRL	80.0	75-125			
Lead	88.3	0.743	mg/kg dry	99.1	6.40	82.6	75-125			
Chromium	104	0.495	mg/kg dry	99.1	12.9	91.9	75-125			
Cadmium	84.7	0.248	mg/kg dry	99.1	BRL	85.5	75-125			
Silver	29.4	0.991	mg/kg dry	49.5	BRL	59.4	75-125			QM-07
Arsenic	95.7	1.49	mg/kg dry	99.1	8.71	87.8	75-125			
Barium	108	0.495	mg/kg dry	99.1	17.9	90.9	75-125			
Matrix Spike Dup (5061913-MSD1)		**Source: SA29658-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Lead	633	0.819	mg/kg dry	109	504	118	75-125	5.85	35	
Selenium	89.7	1.64	mg/kg dry	109	BRL	82.3	75-125	1.69	35	
Chromium	113	0.546	mg/kg dry	109	11.9	92.8	75-125	0.00	35	
Cadmium	96.3	0.273	mg/kg dry	109	0.205	88.2	75-125	2.52	35	

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061913 - SW846 3050B									
Matrix Spike Dup (5061913-MSD1)	**Source: SA29658-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Arsenic	104	1.64 mg/kg dry	109	8.01	88.1	75-125	1.94	35	
Silver	32.1	1.09 mg/kg dry	54.6	BRL	58.8	75-125	3.07	35	QM-07
Barium	224	0.546 mg/kg dry	109	114	101	75-125	4.57	35	
Matrix Spike Dup (5061913-MSD2)	**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Lead	95.5	0.763 mg/kg dry	102	6.40	87.4	75-125	7.83	35	
Selenium	83.3	1.53 mg/kg dry	102	BRL	81.7	75-125	4.92	35	
Cadmium	86.5	0.254 mg/kg dry	102	BRL	84.8	75-125	2.10	35	
Chromium	104	0.509 mg/kg dry	102	12.9	89.3	75-125	0.00	35	
Arsenic	96.8	1.53 mg/kg dry	102	8.71	86.4	75-125	1.14	35	
Silver	30.1	1.02 mg/kg dry	50.9	BRL	59.1	75-125	2.35	35	QM-07
Barium	108	0.509 mg/kg dry	102	17.9	88.3	75-125	0.00	35	
Reference (5061913-SRM1)			Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Lead	58.9	0.750 mg/kg wet	65.3		90.2	85-115			
Chromium	26.0	0.500 mg/kg wet	29.5		88.1	85-115			
Cadmium	50.6	0.250 mg/kg wet	59.3		85.3	85-115			
Arsenic	34.3	1.50 mg/kg wet	36.9		93.0	85-115			
Barium	6.48	0.500 mg/kg wet	6.75		96.0	85-115			
Reference (5061913-SRM2)			Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Lead	56.5	0.750 mg/kg wet	63.8		88.6	85-115			
Arsenic	33.2	1.50 mg/kg wet	36.0		92.2	85-115			
Barium	6.06	0.500 mg/kg wet	6.59		92.0	85-115			
Batch 5061914 - EPA200/SW7000 Series									
Blank (5061914-BLK1)			Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	BRL	0.179 mg/kg wet							
LCS (5061914-BS1)			Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	0.851	0.179 mg/kg wet	0.893		95.3	80-120			
Duplicate (5061914-DUP1)	**Source: SA29658-09**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	0.821	0.191 mg/kg dry		1.24			40.7	35	QR-04
Duplicate (5061914-DUP2)	**Source: SA30139-04**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	BRL	0.176 mg/kg dry		BRL				35	
Matrix Spike (5061914-MS1)	**Source: SA29658-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	1.12	0.194 mg/kg dry	0.452	0.607	113	75-125			
Matrix Spike (5061914-MS2)	**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	0.497	0.188 mg/kg dry	0.437	BRL	114	75-125			
Matrix Spike Dup (5061914-MSD1)	**Source: SA29658-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	1.02	0.175 mg/kg dry	0.408	0.607	101	75-125	9.35	35	
Matrix Spike Dup (5061914-MSD2)	**Source: SA30139-01**		Prepared: 29-Jun-05 Analyzed: 01-Jul-05						
Mercury	0.448	0.181 mg/kg dry	0.421	BRL	106	75-125	10.4	35	

Toxicity Characteristics - Quality Control

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5062033 - General Preparation										
Blank (5062033-BLK1)				Prepared & Analyzed: 29-Jun-05						
Reactivity	Negative		mg/kg wet							
Reactive Cyanide	BRL	25.0	mg/kg wet							
Reactive Sulfide	BRL	50.0	mg/kg wet							
Duplicate (5062033-DUP1)		Source: SA30047-04		Prepared & Analyzed: 29-Jun-05						
Reactivity	Negative		mg/kg dry		0.00				200	
Reactive Cyanide	BRL	25.0	mg/kg dry		BRL				20	
Reactive Sulfide	BRL	50.0	mg/kg dry		BRL				20	
Batch 5062077 - General Preparation										
Reference (5062077-SRM1)				Prepared & Analyzed: 30-Jun-05						
Flashpoint	70		°F	75.0		93.3	81-119			
Batch 5070031 - General Preparation										
Duplicate (5070031-DUP1)		Source: SA30214-01		Prepared & Analyzed: 30-Jul-05						
pH	8.99		pH Units		8.91			0.894	5	

General Chemistry Parameters - Quality Control

Analyte(s)	Result	*RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5061974 - General Preparation										
Duplicate (5061974-DUP1)		Source: SA29914-10		Prepared: 29-Jun-05 Analyzed: 30-Jun-05						
% Solids	82.1		%		77.3			6.02	20	
Batch 5070064 - General Preparation										
LCS (5070064-BS1)				Prepared & Analyzed: 01-Jul-05						
Specific Conductance (EC)	147		uS/cm	147		100	95-105			
Duplicate (5070064-DUP1)		Source: SA30233-01		Prepared & Analyzed: 01-Jul-05						
Specific Conductance (EC)	196		uS/cm		198			1.02	5	
Reference (5070064-SRM1)				Prepared & Analyzed: 01-Jul-05						
Specific Conductance (EC)	198		uS/cm	200		99.0	80-120			

Notes and Definitions

*TPH	Calculated as
_F	> 200
HT-2	This sample was received outside the EPA recommended holding time for the analysis specified.
Neg	Negative
QC-2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QR-04	Analyses are not controlled on RPD values from sample concentrations less than the reporting limit. QC batch accepted based on LCS and/or LCSD QC results
QR-05	RPD out of acceptance range.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
vext2	Field extracted
VOC10	The VOC field preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

Gasoline - includes regular, unleaded, premium, etc.
Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
Fuel Oil #4 - includes #4 fuel oil
Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
Motor Oil - includes virgin and waste automobile oil
Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
Aviation Fuel - includes kerosene, Jet A and JP-4
Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as *TPH (Calculated as).

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Validated by:
Hanibal C. Tayeh, Ph.D.
Nicole Brown

MADEP MCP ANALYTICAL METHOD REPORT CERTIFICATION FORM

MADEP RTN [1]:					
This form provides certifications for the following Spectrum Analytical, Inc. work order #: SA30139					
Matrix	☐ Groundwater	☐ Soil/Sediment	☐ Drinking Water	☐ Other	
MCP SW-846 Methods Used	☐ 8260B	☐ 8151A	☐ 8330	☐ 6010B	☐ 7470A/1A
	☐ 8270C	☐ 8081A	☐ VPH	☐ 6020	☐ 9014M [2]
	☐ 8082	☐ 8021B	☐ EPH	☐ 7000S [3]	☐ 7196A

1 List Release Tracking Number (RTN), if known
2 M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method
3 S - SW-846 Methods 7000 Series List individual method and analyte

An affirmative response to questions A, B, C and D is required for "Presumptive Certainty" status

A	Were all samples received by the laboratory in a condition consistent with that described on the Chain of Custody documentation for the data set?	☐ Yes ☐ No
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	☐ Yes ☐ No
C	Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☐ Yes ☐ No
D	***VPH and EPH methods only***: Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective methods)?	☐ Yes ☐ No

A response to questions E and F below is required for "Presumptive Certainty" status

E	Were all analytical QC performance standards and recommendations for the specified methods achieved?	☐ Yes ☐ No
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	☐ Yes ☐ No

All negative responses are addressed in a case narrative on the cover page of this report.

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

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Date: 7/8/2005

SA 30139

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:
- ☐ Standard TAT - 7 to 10 business days.
- ☒ Rush TAT - Date Needed: 7/1/05
- All TATs subject to laboratory approval. Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: TRC
100 Crescent Rd
Needham MA
Project Mgr.: E. Thibodeau

Invoice To: Same

P.O. No.: HE3351 RQN: Special

Project No.: HE3351
Site Name: Lincoln Park School
Location: Somerville State: MA
Sampler(s): S. Orlow

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH_3OH 8=$NaHSO_4$ 9=_____ 10=_____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
X1=_____ X2=_____ X3=_____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses: TPH 8100	VOC 8260	SVOC 8270	RCRA 8	PCBs	Flashpoint	pH + Conductivity	Reactivity	QA Reporting Notes:
B01391-01	P-1/comp	6/27/05	8:30 Am	C	SO	7	2	3			X	X	X	X	X	X	X	X	Note: MDLs
-02	P-2/comp	6/27/05	9:00 Am	C	SO	7	2	3			X	X	X	X	X	X	X	X	below
-03	P-3/comp	6/27/05	9:30 Am	C	SO	7	2	3			X	X	X	X	X	X	X	X	RC-S1 and
-04	P-4/comp	6/27/05	9:55 Am	C	SO	7	2	2			X	X	X	X	X	X	X	X	RC-S2
-05	P-5/comp	6/27/05	10:30 Am	C	SO	7	2	3			X	X	X	X	X	X	X	X	Standards
-06	P-6/comp	6/27/05	12:00 Pm	C	SO	7	2	2			X	X	X	X	X	X	X	X	
-07	P-7/comp	6/27/05	12:45 Pm	C	SO	7	2	2			X	X	X	X	X	X	X	X	

☐ Provide MCP CAM Report
Were all field QC requirements met as per MADEP CAM Section 2.0?
☐ Yes ☐ No
(Response required for CAM report)

State specific reporting standards if applicable, please list below.

☒ Fax results when available to (781) 449-1283
☐ E-mail to _____
EDD Format _____

Condition upon receipt: ☐ Iced ☐ Ambient ☒ °C 6 Ref

Relinquished by:	Received by:	Date:	Time:
Steve Orlow		6/28/05	1219
		6/28/05	16:30

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The Geotechnical Group Inc.
CONSULTING GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERS

Sept 21, 2012
File No. S2042

Gale Associates, Inc.
163 Libbey Parkway
Weymouth, MA 02189

Attention: Mr. Sean T. Boyd, EIT

RE: Preliminary Geotechnical Engineering Report
Lincoln Park Community Ice Rink
Washington Street
Somerville, MA
Gale JN: 715610

Dear Sean:

The Geotechnical Group, Inc. (TGG) is pleased to present the results of our investigation phase geotechnical engineering studies for the above referenced site. The purpose of our studies was to gather subsurface information within the area of the proposed ice skating rink and associated skate rental building In 2002 we performed a series of subsurface investigations throughout the Lincoln Park area and some of the information obtained from that study will also be incorporated into this study. We used this information as a basis for our preliminary recommendations included in this preliminary geotechnical engineering report and for developing additional recommendations regarding foundation and slab support.. Our findings, conclusions and recommendations are subject to the Statement of Limitations attached to this report in Appendix A.

SITE AND PROJECT DESCRIPTION

The site, located within Lincoln Park in Somerville, Massachusetts, is bordered by Washington Street and residential properties to the north, the Lincoln Parkway to the south, Perry Street to the west, and Clark Street and residential properties to the east. The existing Lincoln Park Community School is located at the northeastern portion of the site. Pavement and playground areas cover the ground surface around the existing school building. Athletic fields, basketball courts, paved walkways, and landscaping occupy the remainder of the site. The proposed skating rink and concession building will be located at the southwestern corner of the park in the area of the existing basketball court.

The topography of the site is relatively flat with ground surface elevations range from about 13± to 15±. Reportedly, a pond once occupied the central portion of the site but has since been filled in to achieve the current grading at the site.

The proposed development includes the construction of an ice skating rink within that footprint of the existing basketball court and a single story building adjacent to the rink that will be used for skate rental and other accommodations. It is our understanding that the ice rink will be located at an elevation about 1 ft above the existing basketball court. The asphalt covering the court will be over-excavated and the surface will be raised by placing 4inches of crushed stone, 6 inches of stone dust, and 2 inches of insulation prior to placing a 5 to 7 inch thick pad of concrete. It is our understanding that the proposed single story building will have a finish floor elevation close to or just above the existing site grading (Elevation 15±). Keeping proposed site grading as close to the existing grading will be an important design consideration at this site to limit post construction building settlements as discussed later in this report.

SUBSURFACE EXPLORATIONS

TGG performed several subsurface exploration tests in the Lincoln park area in 2001, 2002, and 2012. Borings B-1, B-4, and B-5 from the 2002 study are within close proximity to the development area for the proposed ice rink so it will be included in our analysis along with borings TGG-1 and TGG-2 which were performed on July 30, 2012 specifically for the ice rink project. The information gathered from these boring will be directed at assessing the general subsurface conditions, in a preliminary manner, at the site with particular emphasis on identifying the depth to natural ground, and the quality and reuse potential of the on-site soils.

Soil Exploration Corporation performed borings B-1, B-4, and B-5 in 2002 and New England Boring Contractors performed boring TGG-1 and TGG-2 in 2012. All the borings were performed under the full time observation of TGG. Borings B-1, TGG-1, and TGG-2, performed within the proposed construction area, extended through about 3 to 27 feet of existing fill material, and up to 23 feet of natural silty clay, terminating in either natural clay or glacial till at depths varying from 26 to 28 feet below existing grades. Groundwater was detected at depths ranging from 4 to 8 feet below grade elevation. The variation in depth of groundwater could be attributed to seasonal variation and the depth to the natural clay stratum. The groundwater measures for TGG-1 and TGG-2 were estimated from measurement of standing water within the borehole. Groundwater was detected in boring B-1, at a depth of about 4 feet below grade. The measurements for B-1 should be considered more accurate since the measurements were taken from an installed two inch diameter PVC observation well.

The test boring logs, which contain the Standard Penetration Test (SPT) results, soil descriptions and additional information are contained in Appendix B. The soil samples retrieved in the split spoon sampler during each SPT were visually classified in general accordance with the Burmister Soil

Classification System. These classifications are also shown on the attached boring logs.

The exploration locations for both the 2002 and 2012 investigations are shown approximately in Figure 1. There locations were determined by our field staff by pacing, tape measurement and line of sight from the existing site features and should therefore be considered accurate to the degree implied by the methods used.

LABORATORY SOIL TESTING

A geotechnical laboratory testing program consisting of consolidation testing, unconfined triaxial compression testing (UC), sieve analysis, Atterberg Limits, and natural water contents was performed on representative soil samples collected during the 2002 exploration phase of this study. The purpose of the testing was to aid in classifying the soil composition and to evaluate soil stress history, and engineering behavior in terms of strength, compressibility and consolidation potential.

The testing was performed in general accordance with the testing requirements of ASTM and the results are discussed in the next section as well as summarized in Appendix C of this report.

SUBSURFACE CONDITIONS

The subsurface soil conditions within the proposed skating rink and building area can be generally characterized as consisting of surficial fill deposits underlain by natural silty clay. Where the silty clay was fully penetrated, glacial till deposits were encountered to the depths explored. A general description of the main individual deposits encountered is discussed below. Refer to the test boring logs for additional information.

Existing Fill

Previous site development (playing fields) and landfilling have resulted in the surficial fill deposit that blankets the site. The existing surficial fill within the skating rink area appears to vary in thickness from about 3± to 27± feet in thickness. The density and composition vary considerably between the 2012 borings and the 2002 boring. The fill material typically consists of fine to coarse sand and gravel with varying amounts of cinders, brick and ash. The fill material was densely compacted at the two 2012 test boring sites (TGG-1 and TGG-2) but loosely compacted at the 2002 (B-1) site. There is an existing light pole located close to test Boring B-1 which seems to indicate that the area around B-1 has been compacted after the 2002 investigation in order to support the pole and provide a firm surface for the basketball court. A boring was scheduled in this area for the 2012 study, however at the time of the boring operation there was not sufficient information available about the location of utilities so that boring was not performed.

Natural Marine Deposits (Silty Clay)

At all boring locations within the area of the proposed rink and concession building, a thick deposit of silty clay underlies the fill at depths ranging from 3± to 26± feet below the grade elevation. The stiffness of the marine clay decreases with depth and ranges from very stiff to medium stiff. At test boring TGG-1 the marine clay deposit was fully penetrated with a thickness of about 9± feet terminating in glacial till.

Natural Glacial Till

A deposit commonly known as glacial till was encountered below the silty marine clay in boring TGG-1 at a depth of about 19± feet below grade. The glacial till is considered dense based upon the results of the Standard Penetration Testing and typically consists of a gray, heterogeneous mixture of sand, gravel and silt with the gravel and sand fraction predominating.

Groundwater

Groundwater levels for our studies were recorded in the completed test borings at the times and under the conditions noted on the logs. Measurements made within the observation well installed at boring B-1, which is considered more representative than those made in the boreholes upon completion, indicates the groundwater table to be located approximately 4± feet below the existing ground surface in the ice rink and building area. This depth roughly corresponds to an Elevation of about 9.5± to 11± within the proposed skating rink and building area.

Based on this observation, control of groundwater may be a construction issue during excavation and construction of the slab for the ice rink and for the building and will become an issue during installation of the foundation of the building and deep utilities. It should be expected, that groundwater levels will fluctuate due to variations in temperature, rainfall and other factors. Therefore, groundwater levels during construction and thereafter may be different than those reported herein.

GEOTECHNICAL ENGINEERING CONSIDERATIONS AND RECOMMENDATIONS

The important geotechnical consideration for this project is the foundation support method and compressibility of the soils at and below foundation level. The existing fill at the site may be unsuitable for foundation support due to the general nature of fill which is characterized by erratic density, composition and settlement potential. The proposed skating rink should not be supported above these soils without proper verification to their composition and uniformity of the subsurface as excessive settlements would likely occur under the structural loads. There are several way to provide proper foundation support to the propose ice rink and concession building. The cost for the support methods vary considerably. More subsurface information is necessary to select a cost effective solution to foundation support.

There are three methods commonly used to provide foundation support in areas where the soil is unsuitable for construction. The first method is to excavate the soil and replace with engineered lifts of structural fill. The second method is to use various types of piles to extend through the unsuitable soil and bear on firm natural soil underlying the unsuitable soils. The third method is to condition the soil to be able to support the designed loads.

The depth to firm natural ground beneath existing grades within the skating rental building area appears to be on the order of approximately 10 feet. In our opinion, this depth makes it technically feasible to completely excavate the fill and replace it with engineered lifts of structural fill for support of shallow spread footings with a slab on grade. This is the recommended procedure specified in the Foundation and Concrete Notes, Drawing S101- Concessions and Maintenance Foundation Plan, provided by Gale Associates. However, it will be necessary to deal with groundwater issues during the construction process, Also, there is a premium costs associated with disposing of the excavated fill soils and the economics of excavating and replacing the existing fill may begin to look less attractive unless most of the existing fill can be reused on-site as compacted structural fill. Based upon our limited explorations, we feel that a substantial quantity of the existing fill withing the building footprint may be reusable as structural soil fill provided the uniform composition of the existing fill is verified and that the soil is properly prepared.

The depth to firm natural ground beneath existing grades within the skating rink area appears to between 3 feet to 26 feet. There may be some regions within the footprint of the proposed skating rink where the depth of fill makes it technically unfeasible to completely excavate and replace it with structural fill. Groundwater was located 4 ft below the existing surface so it could be a major issue in deciding the proper support for the rink area.

The area within the footprint of the proposed ice rink seems to have been prepared and compacted after 2002 when the original test borings were performed. Based on the information obtained, the 2012 borings indicate that the fill was densely compacted. The 2002 boring B-1 indicates that the soil is loosely compacted. A visual inspection of the area seems to support the fact that the soil within the proposed area of ice rink has been significantly compacted as evident by the surface quality of the exisiting basketball court. Also, the apparent vertical stability of the lamp post, located very close to test boring B-1 indicates that the area around B-1 must have been compacted after the 2002 subsurface investigation. This should be verified by a test boring.

One possible way to support the ice rink is to condition the soil using geopiers which are equally spaced piers of compacted aggregate rock that extend through the unsuitable soil. Geopiers can be an effectively priced alternative to provide support to a slab on grade. Another alternative is to use deep soil densification and precharging to engineer the existing fill to accept the designed surcharge loading. Since, the slab for the proposed ice rink is located at a finished grade very close to the elevation of the existing basketball court and the slab would impose a very small dead load, this may be the most cost effective way to construct the rink.

A more extensive test boring program is necessary to further evaluate the subsurface conditions at the site and provide the most cost effective alternative for the construction of the ice rink and

associated concession building.

We very much appreciate the opportunity to work with you on this project and look forward to assisting you throughout the project. Please feel free to contact us should you have any questions or require additional information.

Very truly yours,

THE GEOTECHNICAL GROUP, INC.

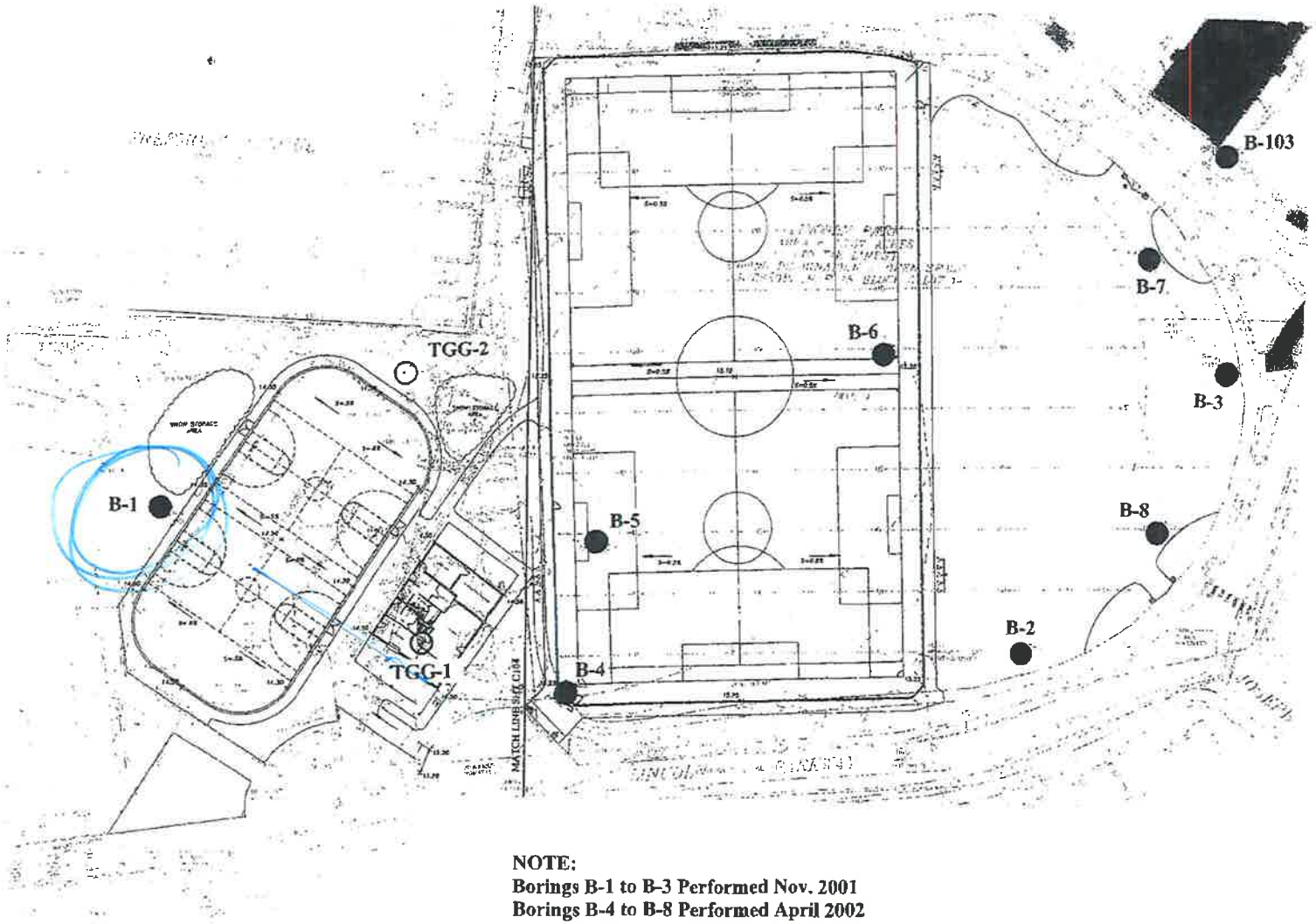
John Sullivan
President

James Kramer, PE.
Project Manager

Cc: Mr. John Perry, P.E.

Attachments: Figures 1 and 2 - Exploration Location Sketches
Appendix A - Statement of Limitations
Appendix B - Test Boring Logs
Appendix C - Laboratory Test Results

FIGURES



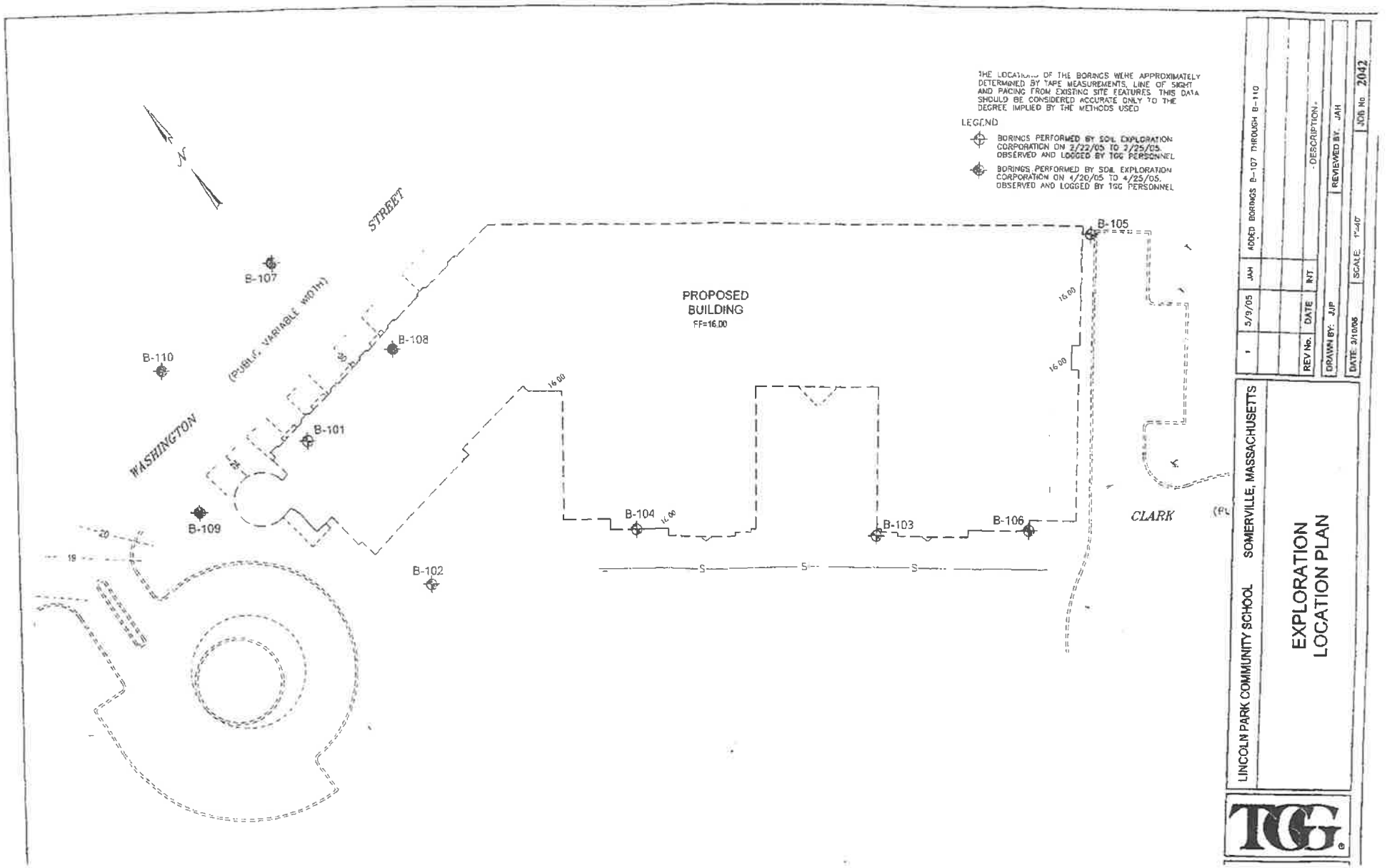
NOTE:
Borings B-1 to B-3 Performed Nov. 2001
Borings B-4 to B-8 Performed April 2002
Borings TGG-1 & TGG-2 Performed July 2012
All locations are approximate.

REV No. | DATE | - DESCRIPTION -
DRAWN BY: JPS | REVIEWED BY: GG
DATE: 8/28/12 | SCALE: N.T.S | JOB No. 2042

ICE RINK AND TRF FIELDS PROJECT
LONCOLN PARK, SOMERVILLE, MA
EXPLORATION LOCATION PLAN

TGG

FIGURE No. 1


THE LOCATIONS OF THE BORINGS WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS, LINE OF SIGHT AND PACING FROM EXISTING SITE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED
LEGEND
BORINGS PERFORMED BY SOIL EXPLORATION CORPORATION ON 3/22/05 TO 3/25/05. OBSERVED AND LOGGED BY TGG PERSONNEL
BORINGS PERFORMED BY SOIL EXPLORATION CORPORATION ON 4/20/05 TO 4/25/05. OBSERVED AND LOGGED BY TGG PERSONNEL
N
STREET
(PUBLIC, VARIABLE WIDTH)
WASHINGTON
PROPOSED BUILDING
FF=16.00
B-101
B-102
B-103
B-104
B-105
B-106
B-107
B-108
B-109
B-110
16.00
CLARK
S
20
19
1
5/9/05
JAH
ADDED BORINGS B-107 THROUGH B-110
REV No.
DATE
INIT
DESCRIPTION
DRAWN BY: JJP
REVIEWED BY: JAH
DATE: 3/10/05
SCALE: 1"=40'
JOB No. 2042
LINCOLN PARK COMMUNITY SCHOOL SOMERVILLE, MASSACHUSETTS
EXPLORATION LOCATION PLAN
TGG

APPENDIX A

STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS

Explorations

The analysis and recommendations submitted in this report are based in part upon the data obtained from subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

The stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

Water level readings have been made in the explorations at the time and under the conditions stated on the logs. This data has been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors that are different from the time the measurements were made.

Review

In the event that any change in the nature, design or location of the proposed structure are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork recommendations may be properly interpreted and implemented in the design and specifications.

Construction

It is recommended that this firm be retained to provide soil engineering services during the construction phase of the work. This is to observe compliance with design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

Use of Report

This report has been prepared for the exclusive use of Dacon Corporation for specific application to the Proposed Commercial Group in Framingham, Massachusetts, in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

APPENDIX C

LABORATORY TEST RESULTS

THE GEOTECHNICAL GROUP, INC.

UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** SL-867
LOCATION: Somerville, MA	**DATE:** May 8, 2002

Boring No.:	B-6	Logged By:	jaf
Tube No.:	TS-1	Length of Sample (in.)	19.0
Depth:	24-26'	Diameter of Tube (in.)	2.8 Shelby

Sample Depth (feet)	Laboratory Log TOP	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
		4		
24		5	Top of Sample	
		6	Grey Silty Clay	
		7		
		8	Torvane = 0.30 tsf	
		9		
		10	Seams of silt	
		11		
	W-1	12	Sample W-1 for water content	
		13		
	UCC-1	14	Sample UCC-1 for Unconfined Compressive Strength	31.7
		15		
		16		
25		17	Sample C-1 for Consolidation	33.2
		18	Torvane = 0.50 tsf	
		19		
		20		
		21		
		22		
		23		
		24	Bottom of sample	
		25		
	Disturbed sample	26		
		27		
		28		
		29		
26		30		

THE GEOTECHNICAL GROUP, INC.

UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** SL-867
LOCATION: Somerville, MA	**DATE:** May 8, 2002

Boring No.:	B-5	Logged By:	jaf
Tube No.:	TS-1	Length of Sample (in.)	24.0
Depth:	15-17'	Diameter of Tube (in.)	2.8 Shelby

Sample Depth (feet)	Laboratory Log TOP	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
		4		
15		5	Top of Sample	
		6	Grey Silty Clay	
		7		
		8		
		9		
		10		
		11		
	W-1	12	Sample W-1 for water content	32.1
		13	Torvane = 0.50 tsf	
		14		
		15		
		16		
16		17		
	UCC-1	18	Sample UCC-1 for Unconfined Compressive Strength	33.5
		19		
		20		
		21		
		22		
		23	Torvane = 0.50 tsf	
		24		
		25		
		26		
		27		
		28		
		29		
17		30	Bottom of sample	

THE GEOTECHNICAL GROUP, INC.

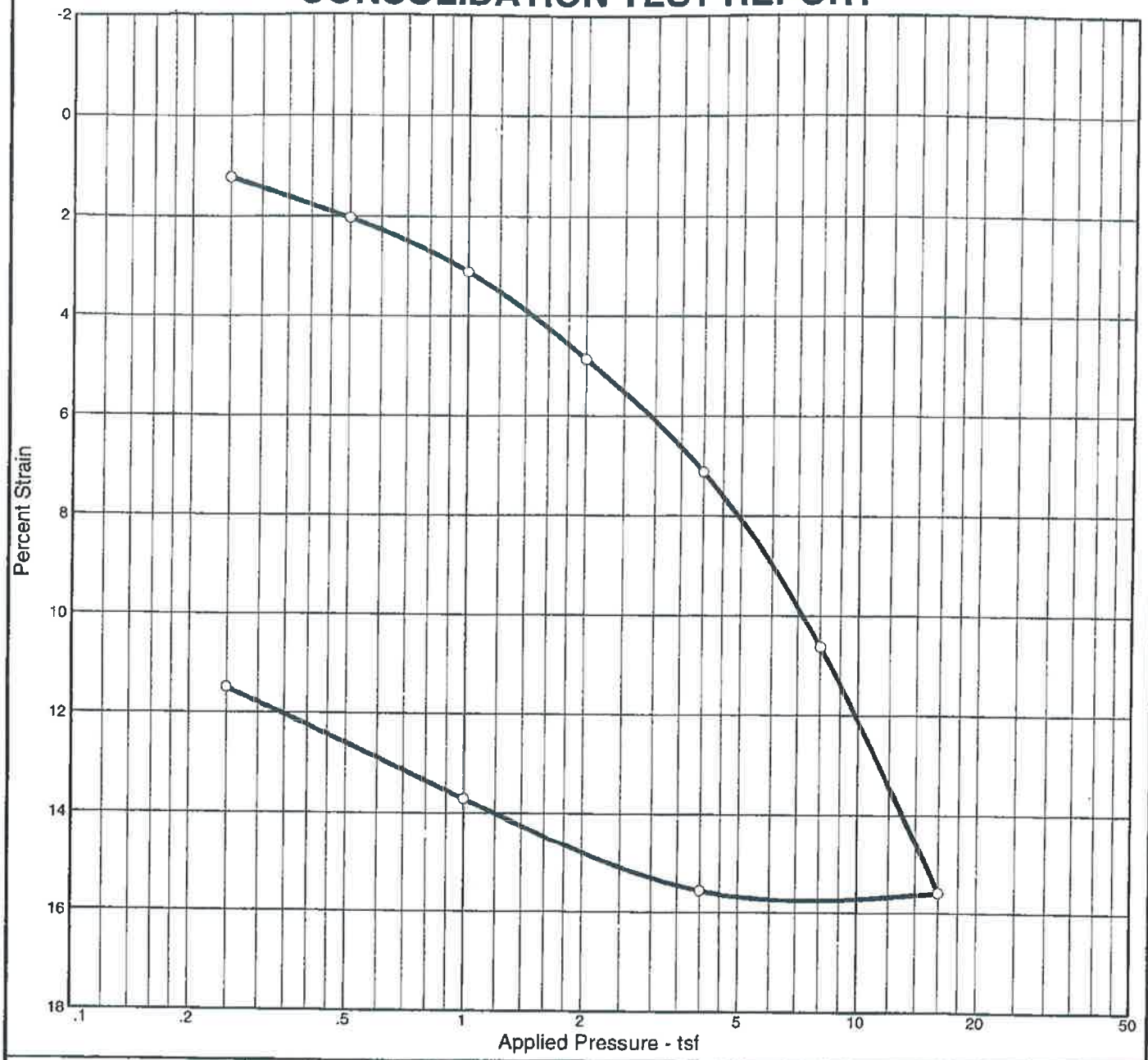
UNDISTURBED TUBE LOG

PROJECT: Lincoln Park Community School	**FILE NO:** SL-867
LOCATION: Somerville, MA	**DATE:** May 8, 2002

Boring No.:	B-4	Logged By:	jaf
Tube No.:	TS-1	Length of Sample (in.)	23.0
Depth:	12-14'	Diameter of Tube (in.)	2.8 Shelby

Sample Depth (feet)	Laboratory Log TOP	Sample Length (inches)	Description	Water Content (%)
		1		
		2		
		3		
		4		
12		5	Top of Sample	
		6	Grey Silty Clay	
		7		
		8		
		9		
		10		
		11	Seams of silt	
	W-1	12	Sample W-1 for water content	31.3
		13	Torvane = 0.50 tsf	
		14		
		15		
		16		
13		17		
	UCC-1	18	Sample UCC-1 for Unconfined Compressive Strength	30.7
		19		
		20		
		21		
		22		
		23	Torvane = 0.50 tsf	
		24		
		25		
		26		
		27		
		28		
		29		
14		30	Bottom of sample	

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
100.0 %	35.3 %	85.4	28	9	2.65	CL	A-4(8)	0.933

MATERIAL DESCRIPTION

Lean clay

Project No. Y1657.01 **Client:**

Project: Lincoln Park Community School
Somerville, MA

Source: Boring B-6 **Sample No.:** TS-1 **Elev./Depth:** 24-26'

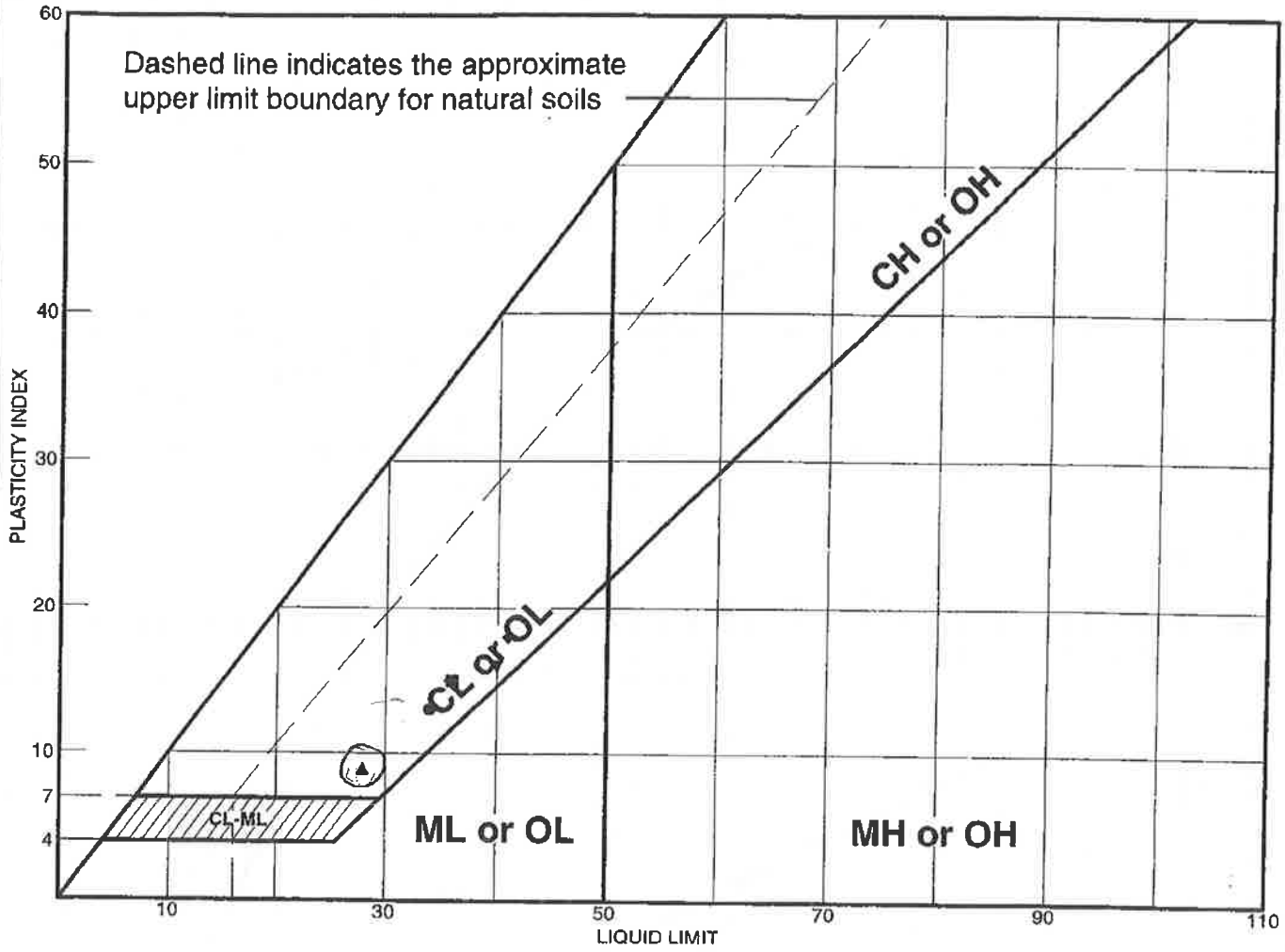
Remarks:
natural soil

CONSOLIDATION TEST REPORT

THE GEOTECHNICAL GROUP, INC.

Lab No. SL-867

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	w_n	LL	PL	PI	%<#40	%<#200	USCS
●	Grey Clay	27.4	34	21	13			
■	Grey Clay	35.1	36	21	15			
▲	Lean clay	31.7	28	19	9	100.0	98.6	CL
◆	Lean clay	33.5	41	23	18	100.0	96.2	CL
▼	Grey Clay	30.7	40	24	16			

Project No. Y1657.01 **Client:**

Project: Lincoln Park Community School
Somerville, MA

● **Source:** Boring B-8 **Sample No.:** S-3 **Elev./Depth:** 10-12'
■ **Source:** Boring B-7 **Sample No.:** S-4 **Elev./Depth:** 15-17'
▲ **Source:** Boring B-6 **Sample No.:** TS-1 **Elev./Depth:** 24-26'
◆ **Source:** Boring B-5 **Sample No.:** TS-1 **Elev./Depth:** 15-17'
▼ **Source:** Boring B-4 **Sample No.:** TS-1 **Elev./Depth:** 12-14'

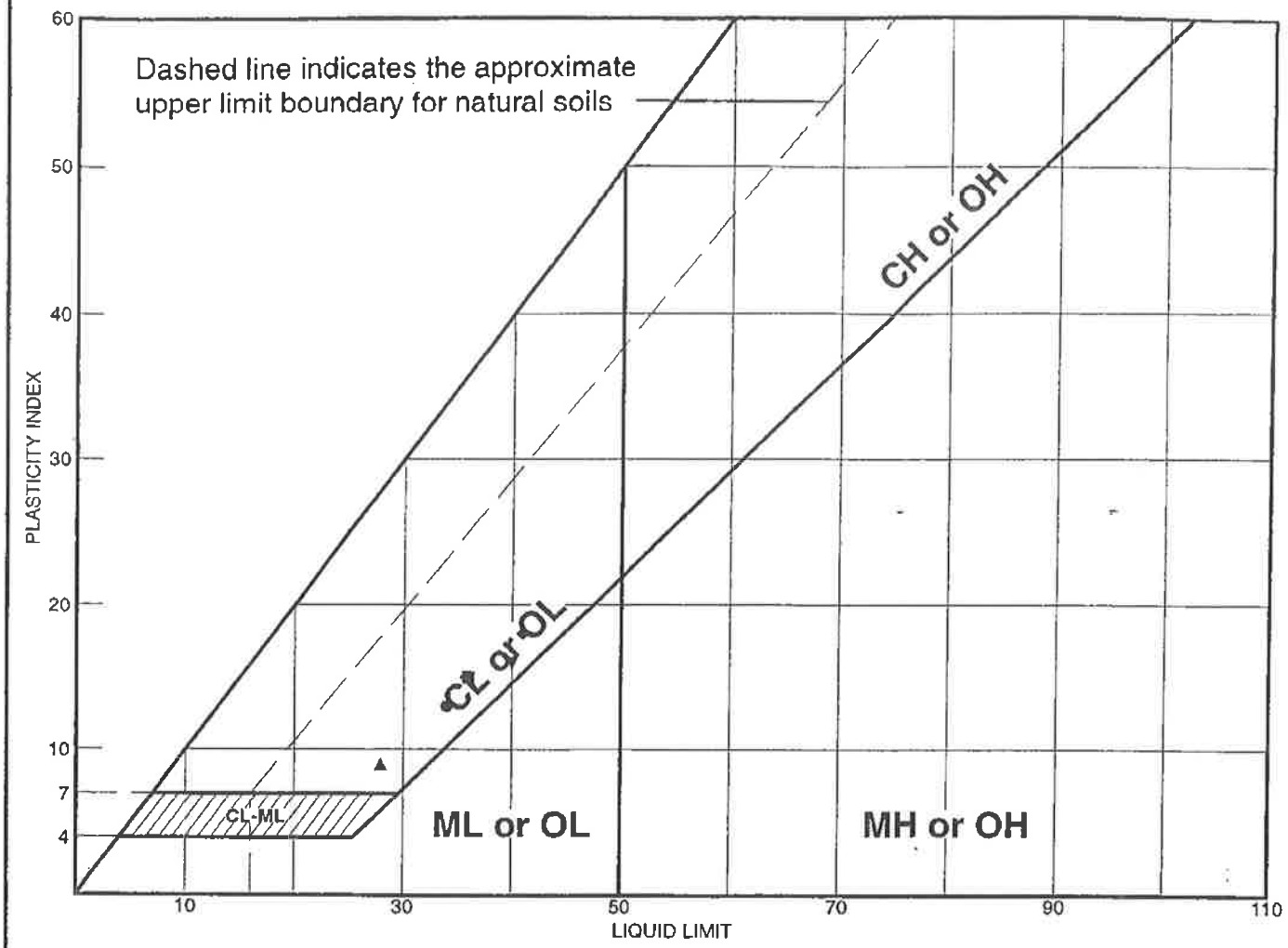
LIQUID AND PLASTIC LIMITS TEST REPORT

THE GEOTECHNICAL GROUP, INC.

Remarks:
● natural soil as rec'd w% = 27.4
■ natural soil as rec'd w% = 35.1
▲ natural soil as rec'd w% = 31.7
◆ natural soil as rec'd w% = 33.5
▼ natural soil as rec'd w% = 30.7

Lab No. SL-867

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	W_n	LL	PL	PI	%<#40	%<#200	USCS
●	Grey Clay		34	21	13			
■	Grey Clay		36	21	15			
▲	Lean clay	39.7	28	19	9	100.0	98.6	CL
◆	Lean clay	33.5 / 32.6%	41	23	18	100.0	96.2	CL
▼	Grey Clay	31.3%	40	24	16			

Project No. Y1657.01 **Client:**

Project: Lincoln Park Community School
Somerville, MA

● **Source:** Boring B-8	**Sample No.:** S-3	**Elev./Depth:** 10-12'
■ **Source:** Boring B-7	**Sample No.:** S-4	**Elev./Depth:** 15-17'
▲ **Source:** Boring B-6	**Sample No.:** TS-1	**Elev./Depth:** 24-26'
◆ **Source:** Boring B-5	**Sample No.:** TS-1	**Elev./Depth:** 15-17'
▼ **Source:** Boring B-4	**Sample No.:** TS-1	**Elev./Depth:** 12-14'

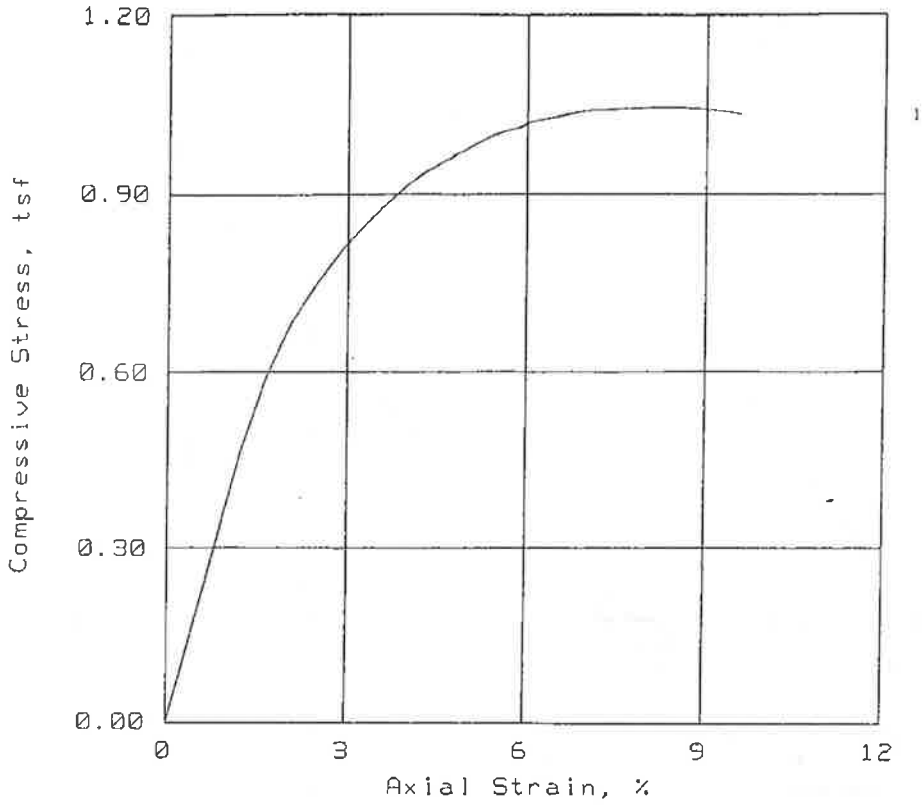
Remarks:
- ● natural soil
- ■ natural soil
- ▲ natural soil
- ◆ natural soil
- ▼ natural soil

LIQUID AND PLASTIC LIMITS TEST REPORT

THE GEOTECHNICAL GROUP, INC.

Lab No. SL-867

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	1.04			
Undrained shear strength, tsf	0.52			
Failure strain, %	8.3			
Strain rate, in/min	0.0900			
Water content, % (specimen after test)	30.7			
Wet density, pcf	121.4			
Dry density, pcf	92.9			
Saturation, %	100.0			
Void ratio	0.8409			
Specimen diameter, in	2.87			
Specimen height, in	6.00			
Height/diameter ratio	2.09			

Description: grey clay

LL = 40	PL = 24	PI = 16	ASS. GS= 2.739	Type: 2.8" shelby

Project No.: Y1657.01
Date: 5/7/02
Remarks:

Lab. No.: SL-867

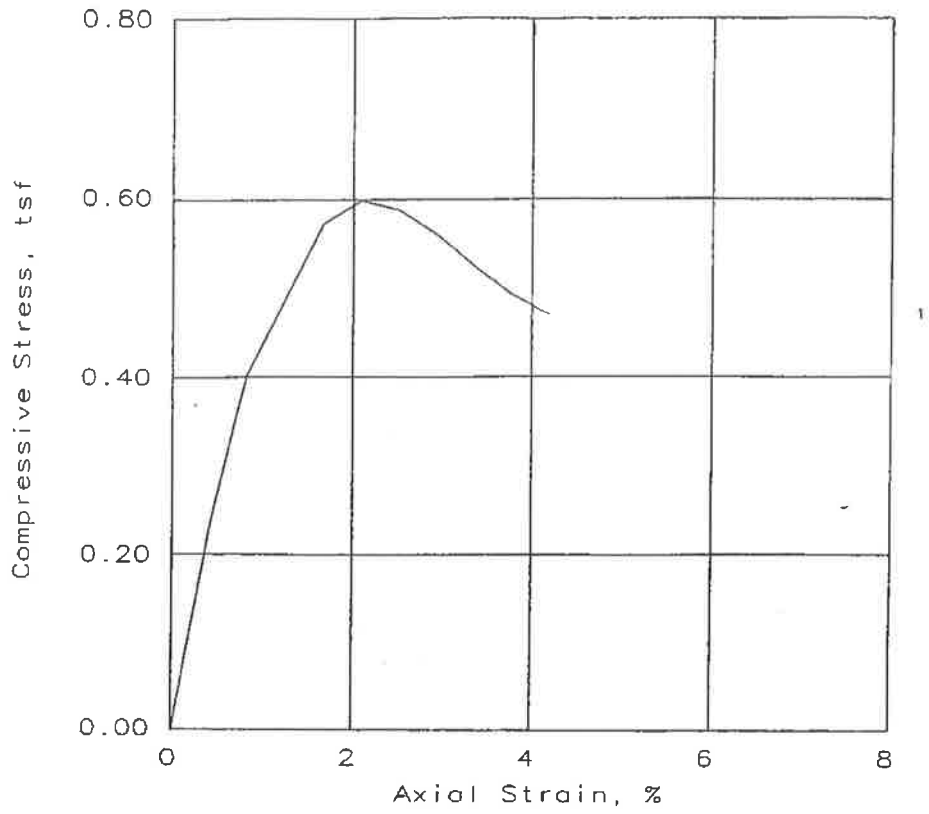
Client:

Project: Lincoln Park Community School
Somerville, MA
Location: Boring B-4
TS-1

UNCONFINED COMPRESSION TEST

THE GEOTECHNICAL GROUP, INC.

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	0.60			
Undrained shear strength, tsf	0.30			
Failure strain, %	2.1			
Strain rate, in/min	0.0900			
Water content, % (specimen after test)	33.5			
Wet density, pcf	119.7			
Dry density, pcf	89.7			
Saturation, %	100.4			
Void ratio	0.9208			
Specimen diameter, in	2.87			
Specimen height, in	5.98			
Height/diameter ratio	2.08			

Description: Grey lean clay

LL = 41	PL = 23	PI = 18	ASS. GS= 2.76	Type: 2.8" shelby

Project No.: Y1657.01
Date: 5/7/02
Remarks:

Lab. No.: SL-867

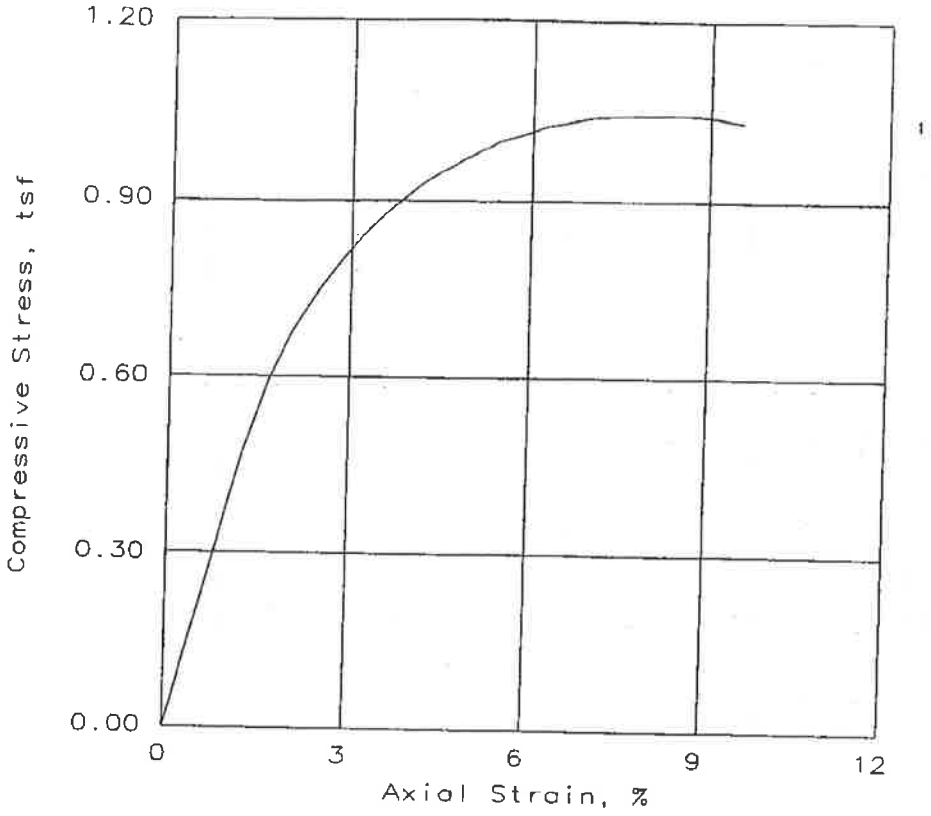
Client: [redacted]

Project: Lincoln Park Community School
Somerville, MA
Location: Boring B-5
TS-1

UNCONFINED COMPRESSION TEST

THE GEOTECHNICAL GROUP, INC.

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	1.04			
Undrained shear strength, tsf	0.52			
Failure strain, %	8.3			
Strain rate, in/min	0.0900			
Water content, % (specimen after test)	30.7			
Wet density, pcf	121.4			
Dry density, pcf	92.9			
Saturation, %	100.0			
Void ratio	0.8409			
Specimen diameter, in	2.87			
Specimen height, in	6.00			
Height/diameter ratio	2.09			

Description: grey clay

LL = 40	PL = 24	PI = 16	ASS. GS= 2.739	Type: 2.8" shelby

Project No.: Y1657.01
Date: 5/7/02
Remarks:

Client:

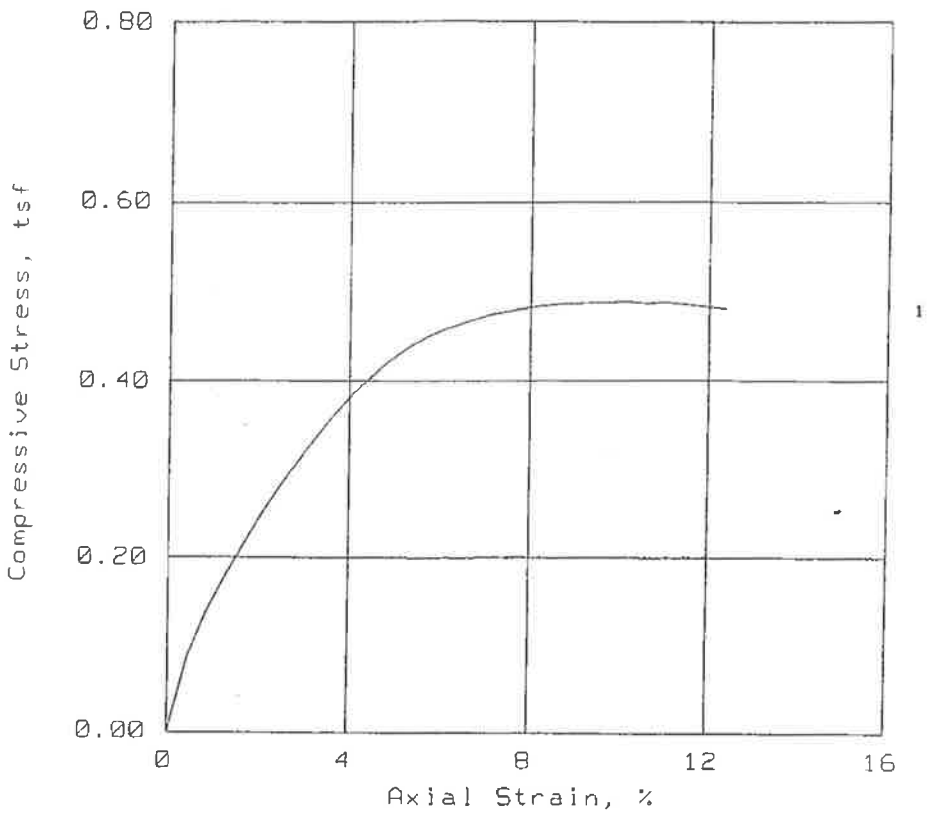
Project: Lincoln Park Community School
Somerville, MA
Location: Boring B-4
TS-1

UNCONFINED COMPRESSION TEST

Lab. No.: SL-867

THE GEOTECHNICAL GROUP, INC.

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	0.49			
Undrained shear strength, tsf	0.24			
Failure strain, %	10.2			
Strain rate, in/min	0.0800			
Water content, % (specimen after test)	31.7			
Wet density, pcf	121.5			
Dry density, pcf	92.2			
Saturation, %	100.0			
Void ratio	0.8795			
Specimen diameter, in	2.87			
Specimen height, in	5.65			
Height/diameter ratio	1.97			

Description: grey clay

LL = 28	PL = 19	PI = 9	ASS. GS= 2.777	Type: 2.8" shelby

Project No.: Y1657.01
Date: 5/7/02
Remarks:

Lab. No.: SL-867

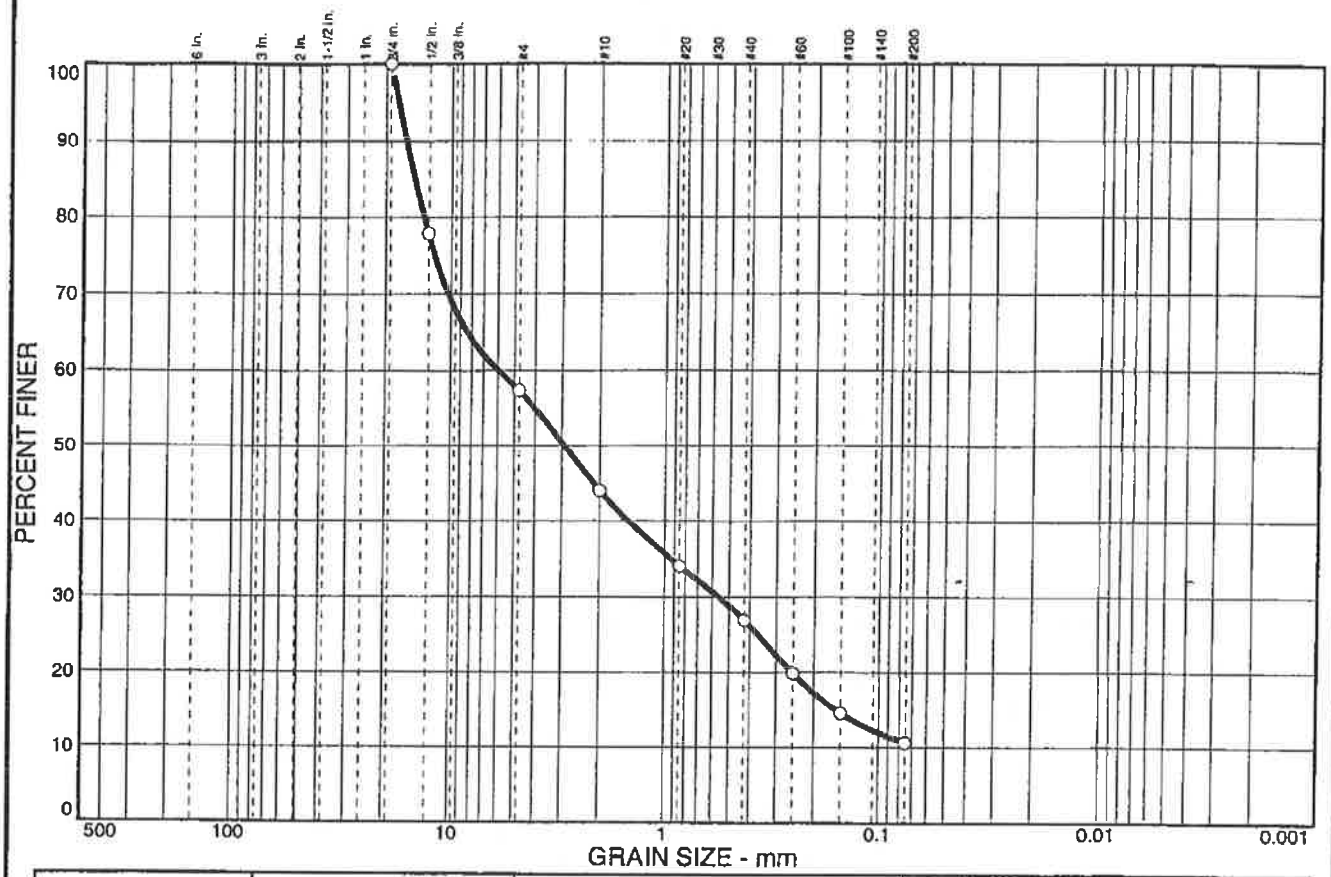
Client:

Project: Lincoln Park Community School
Somerville, MA
Location: Boring B-6
TS-1

UNCONFINED COMPRESSION TEST

THE GEOTECHNICAL GROUP, INC.

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	42.7	13.3	17.1	16.3	10.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	77.8		
#4	57.3		
#10	44.0		
#20	34.1		
#40	26.9		
#60	19.8		
#100	14.5		
#200	10.6		

* (no specification provided)

Soil Description

Poorly graded sand with silt and gravel

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 14.7 D_{60}= 5.96 D_{50}= 2.92
D_{30}= 0.559 D_{15}= 0.159 D_{10}=
C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-1-a

Remarks

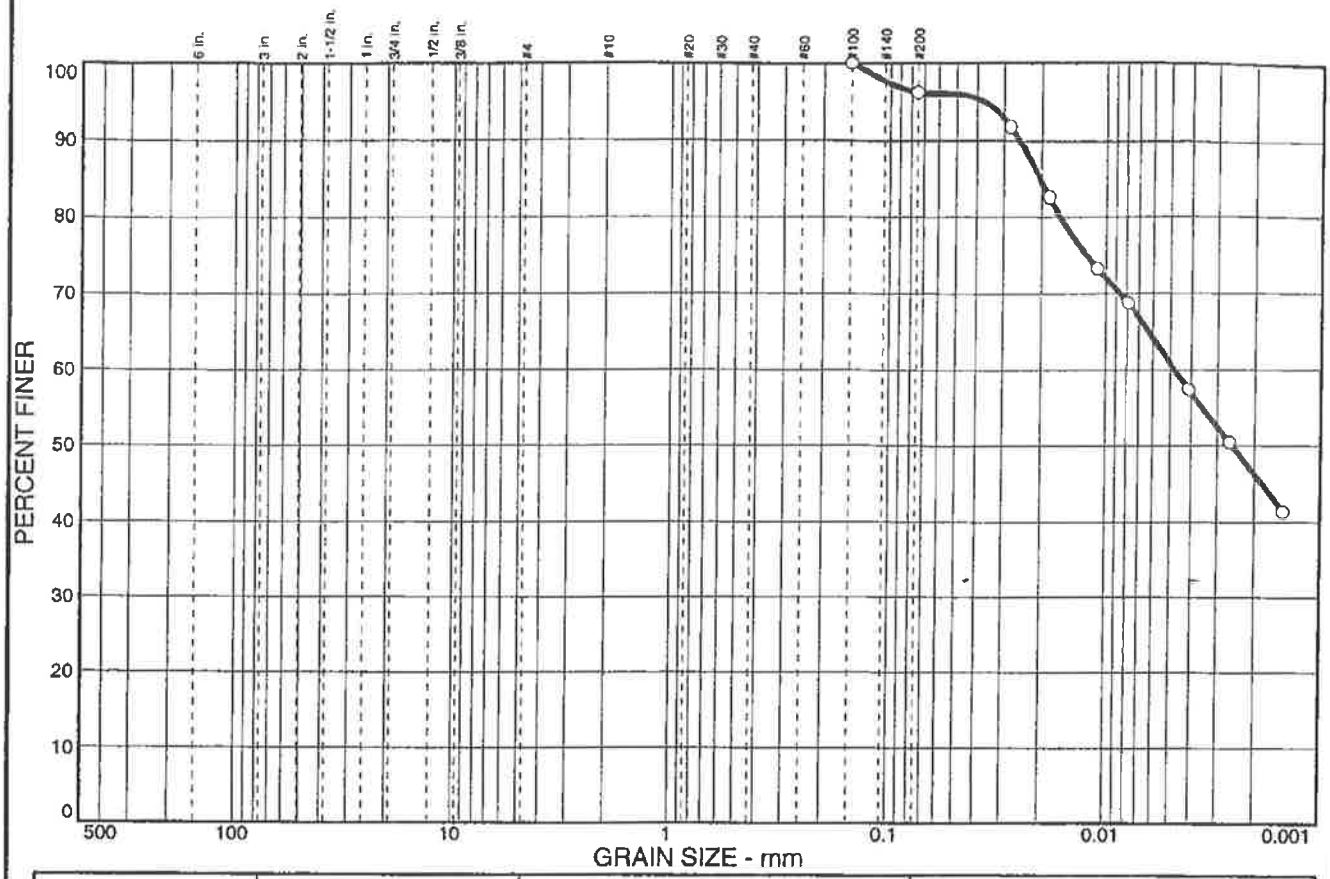
natural soil
as rec'd w% = 8.2

Sample No.: S-8 **Source of Sample:** Boring B-4 **Date:** 5/7/02
Location: **Elev./Depth:** 24-26'

THE GEOTECHNICAL GROUP, INC.

Client:
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.01 **Lab No.** SL-867

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	3.8	35.4	60.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#100	100.0		
#200	96.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 41 PI= 18

Coefficients

D_{85}= 0.0204 D_{60}= 0.0048 D_{50}= 0.0025
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(19)

Remarks

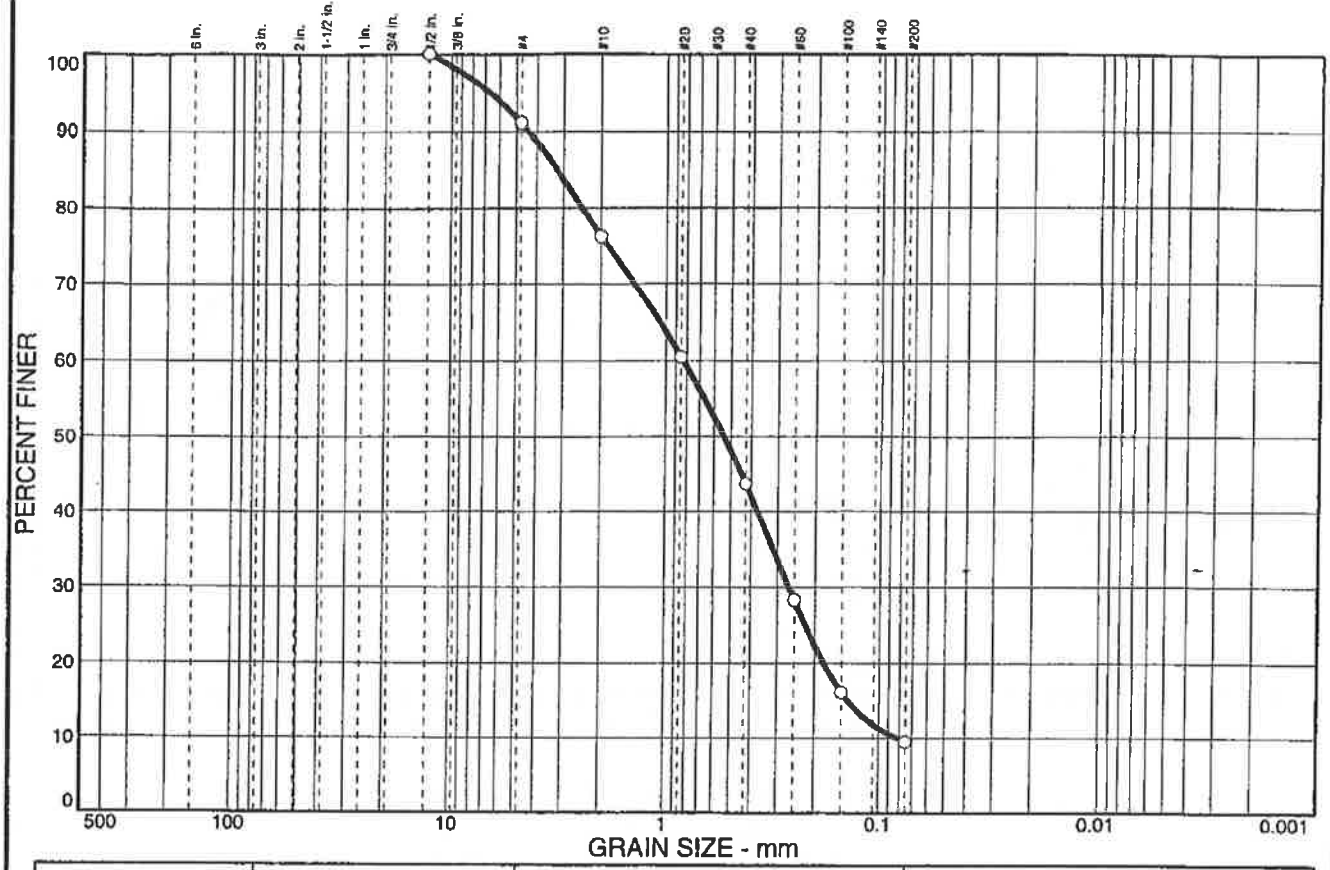
natural soil
as rec'd w% = 33.5

Sample No.: TS-1 **Source of Sample:** Boring B-5 **Date:** 5/7/02
Location: **Elev./Depth:** 15-17'

THE GEOTECHNICAL GROUP, INC.

Client:
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.01 **Lab No.** SL-867

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	8.9	14.8	32.6	34.2	9.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
#4	91.1		
#10	76.3		
#20	60.5		
#40	43.7		
#60	28.3		
#100	16.1		
#200	9.5		

* (no specification provided)

Soil Description

Well-graded sand with silt

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 3.23 D_{60}= 0.830 D_{50}= 0.539
D_{30}= 0.265 D_{15}= 0.140 D_{10}= 0.0819
C_u= 10.13 C_c= 1.04

Classification

USCS= SW-SM AASHTO= A-1-b

Remarks

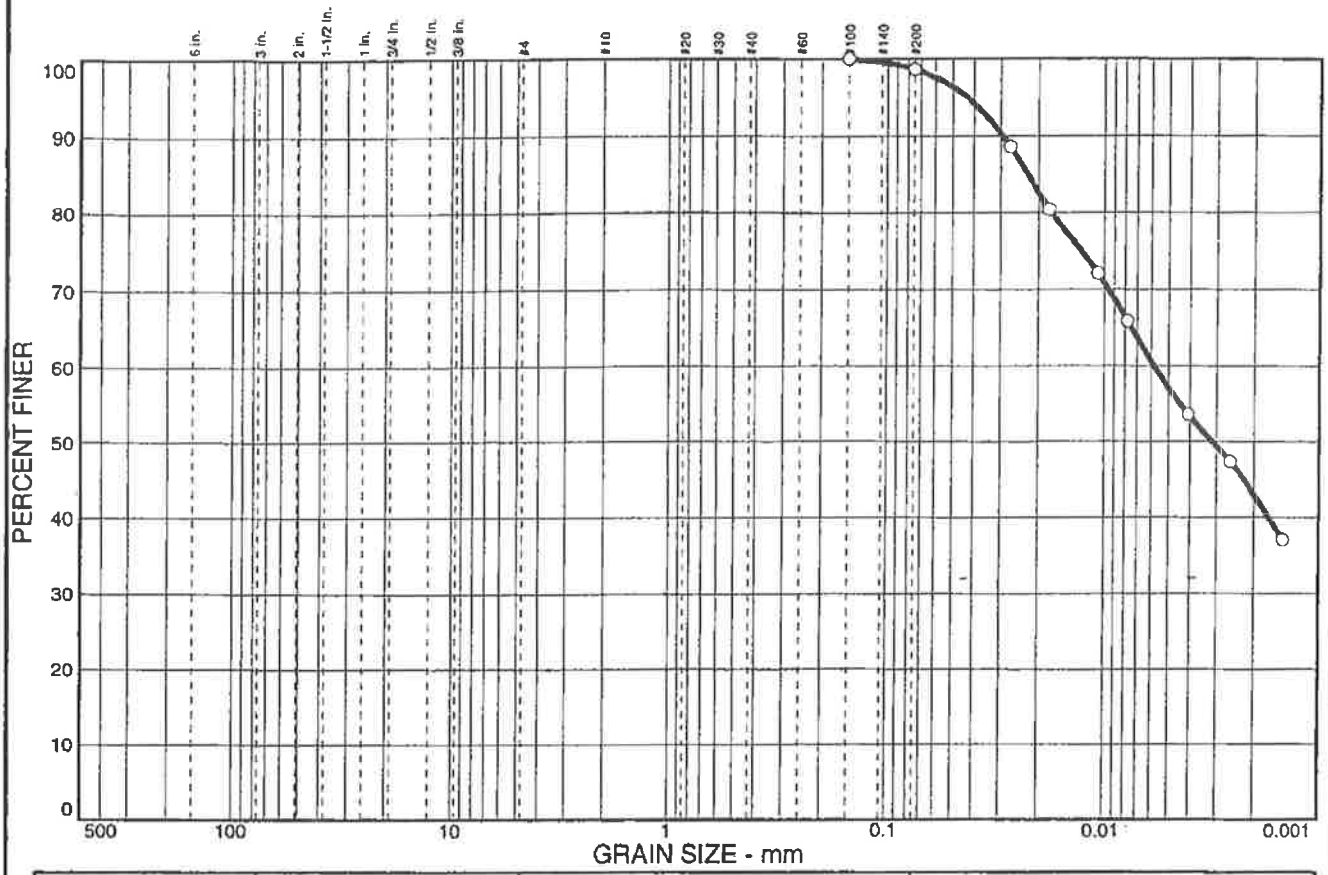
natural soil
as rec'd w% = 14.2

Sample No.: S-2 **Source of Sample:** Boring B-6 **Date:** 5/7/02
Location: **Elev./Depth:** 5-7'

THE GEOTECHNICAL GROUP, INC.

Client:
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.01 **Lab No.** SL-867

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	1.4	41.5	57.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#100	100.0		
#200	98.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 28 PI= 9

Coefficients

D_{85}= 0.0226 D_{60}= 0.0058 D_{50}= 0.0031
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(8)

Remarks

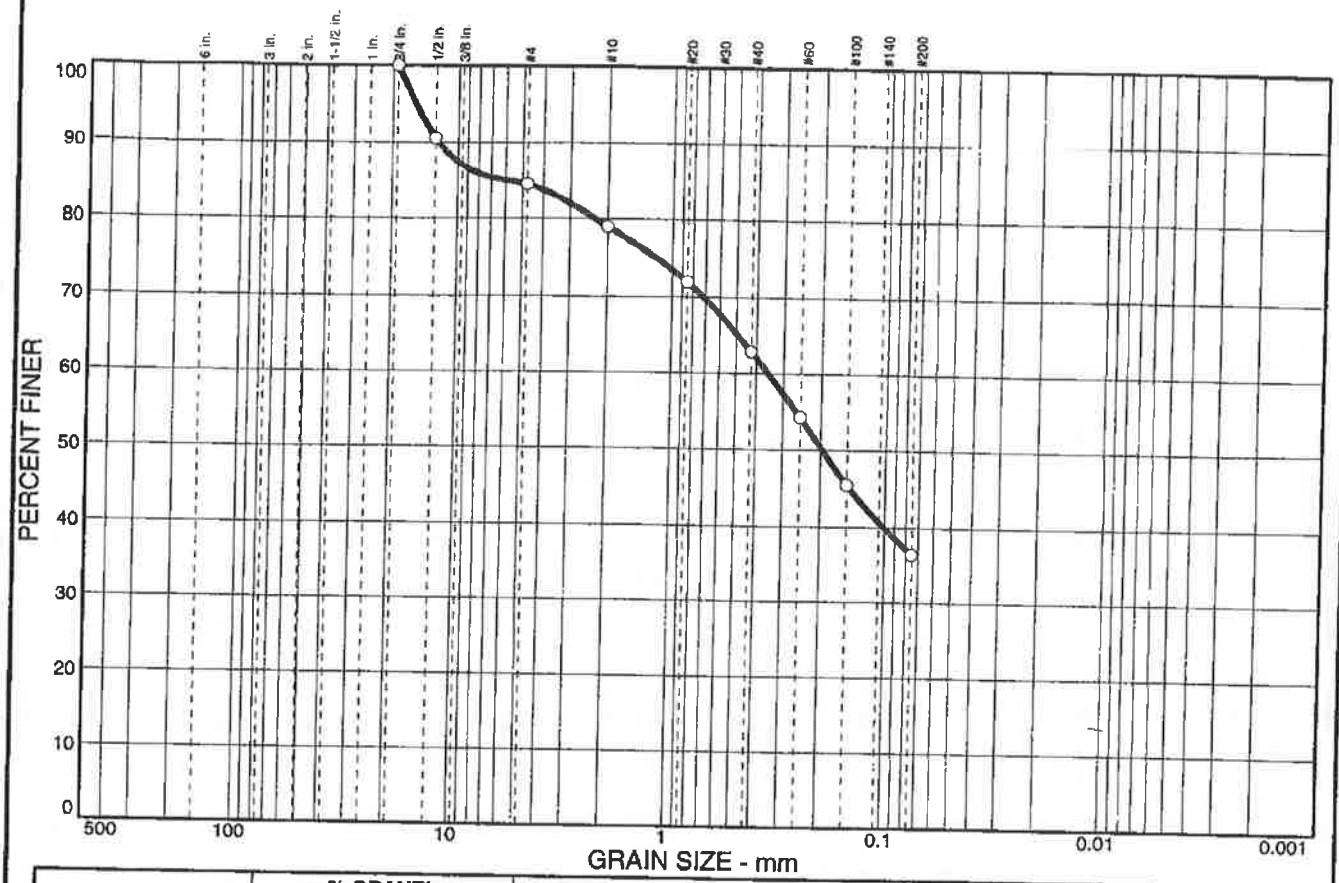
natural soil
as rec'd w% = 31.7

Sample No.: TS-1 **Source of Sample:** Boring B-6 **Date:** 5/7/02
Location: **Elev./Depth:** 24-26'

THE GEOTECHNICAL GROUP, INC.

Client:
Project: Lincoln Park Community School
Somerville, MA
Project No: Y1657.01 **Lab No.** SL-867

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	15.5	5.5	16.1	26.4	36.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	90.6		
#4	84.5		
#10	79.0		
#20	72.0		
#40	62.9		
#60	54.3		
#100	45.5		
#200	36.5		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 5.80 D_{60}= 0.352 D_{50}= 0.196

D_{30}= D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

existing fill
as rec'd w% = 12.5

Sample No.: S-1 **Source of Sample:** Boring B-7 **Date:** 5/7/02

Location: **Elev./Depth:** 0-2'

THE GEOTECHNICAL GROUP, INC.

Client:

Project: Lincoln Park Community School
Somerville, MA

Project No: Y1657.01 **Lab No.** SL-867

APPENDIX B

TEST BORING LOGS

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

-PROJECT-
Lincoln Park Ice Rink
Somerville, MA

Boring No.: TGG - 1
Sheet 1 of 2
File No.: S2042.01
Review by: JPS

Boring Co.	N.E. Boring Contractors	Boring Location	See Exploration Location Plan
Foreman	Norman	Ground Elevation	14.0
TIO Observer	Jay Kramer	Date Start > End	7/30/2012 7:30AM

Sampling Protocol

Unless otherwise noted, borings were accomplished using a washed casing technique. Samples were recovered using a 2-inch I.D. split spoon sampler, driven by blows of a 140 lb. Hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
30-Jul	7:30	26'	8'	1

El.	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem.	Strata Change	Sample Description
							0.75	Top Soil with Grass
14	S-1	0 -2	10-12-19-20	24	12"			
							FILL	
10	S-2	4 - 6	53-31-10-8	24	10"			Brown to black dense fine to coarse Sand, little Gravel, little Silt with trace wood glass et al
						1	10	
5	S-3	9 -11	3-4-8-9	24	10"			Moist stiff gray Clay
							FILL	
0	S-4	14 - 16	4-4-3-4	24	20			Moist medium stiff gray Clay
							19	
-5	S-5	19 - 21	21-19-16-5	24	3	2	GLACIAL TILL	Dense dark gray fine to medium sand fine to coarse gravel little clay. Glacial Till
						3		
-10	S-6	24 - 26	15-25-20-24	24	15		26	
							Bottom of Boring	
-14								

Remarks:

1. Top 6" of spoon had pieces of
2. Pushed a rock ahead of the spoon
3. Rig Bouncing on change of strata (Glacial Till)

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

-PROJECT-
Lincoln Park Ice Rink
Somerville, MA

Boring No. TGG - 2
Sheet 1 of 2
File No. S2042.01
Review By: JPS

Boring Co.	N.E. Boring Contractors	Boring Location	See Exploration Location Plan
Foreman	Norman	Ground Elevation	13.5
RO Observer	Jay Kramer	Date Start > End	7/30/2012 11:30AM

Sampling Protocol

Unless otherwise noted, borings were accomplished using a washed casing technique. Samples were recovered using a 2-inch I.D. split spoon sampler, driven by blows of a 140 lb. Hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
30-Jul	11:30	26 '	4ft	1

El.	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem.	Strata Change	Sample Description
							0.75	Top Soil with Grass
13.5	S-1	0 -2	6-23-28-20	24	18		FILL	Brown to black dense fine to coarse Sand, little fine to coarse Gravel, little Silt with trace wood glass, etc
						1	3.0	
9.5	S-2	4 - 6	11-16-18-17	24	20		V. STIFF CLAY	Very Stiff gray mottled rust brown Clay
							8.0	
4.5	S-3	9 -11	8-10-11-9	24	24		CLAY	Very stiff to medium stiff moist gray Clay
-0.5	S-4	14 - 16	4-4-3-4	24	20			
-5.5	S-5	19 - 21	6-9-5-6	24	24			
-10.5	S-6	24 - 26	3-3-2-4	24	24		26	
							Bottom of Boring	
-13.5								

Remarks:
Wet probably perched water on

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No.	B-1
	Sheet 1 of 2
File No.	Y1657
Review by:	John Gannon

Boring Co.	Soil Exploration Corporation
Foreman	Tim Flores
TGG Observer	Mark Zambernardi

Boring Location:	See Exploration Location Plan
Ground Elev.	13.5±
Date Start > End	11/27/01

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
11/27	Drilling	12±'	4±'	2, 3

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6in.	Pen.	Rec.	Rem.	
	S-1	0-2.0	5-14-12-12	24	18		Medium dense, brown to dark brown, fine to medium SAND and SILT, trace fine to coarse Gravel, trace (-) Brick, Black CINDERS.
	S-2	2.0-3.0	9-13	12	12		Olive, SILTY CLAY, trace brown fine to medium Sand, trace (-) Roots.
	S-2A	3.0-4.0	9-8	12	4		
5	S-3	4.0-6.0	1-1/12"-1	24	8		Wet, very loose, gray, CINDERS.
	S-4	6.0-8.0	1-1/12"-1	24	12		Wet, Very loose, black, CINDERS and DEBRIS.
	S-5	8.0-10.0	1-1/12"-2	24	14		Wet, very loose, gray, CINDERS.
10	S-6	10.0-12.0	1/12"-1/12"	24	12		Wet, very loose, gray to beige, CINDERS.
	S-7	12.0-14.0	1/12"-1/12"	24	12		Wet, very loose, gray to black, CINDERS.
	S-8	14.0-16.0	1-1/12"-1	24	14		Wet, very loose, gray, CINDERS.
15						Fill	Wet, loose, black to gray to brown, CINDERS with a 1± inch thick layer of brown, fine to medium SAND, some (+) Silt.
	S-9	16.0-18.0	1-2-3-2	24	12		Wet, loose, beige to gray, CINDERS, some fine to medium Sand, some Silt.
	S-10	18.0-20.0	3-1-6-6	24	15		Wet, very loose, brown, CINDERS.
20	S-11	20.0-22.0	3-2-1-2	24	10		Wet, very loose to loose, brown to black, CINDERS, trace fine Gravel.
	S-12	22.0-24.0	3-2-2-2	24	12		Wet, black, CINDERS.
	S-13	24.0-24.5	1	6	6		Wet, very loose, dark gray to olive, ORGANIC SILT and SILTY CLAY, little fine Sand, trace (-) Roots.
25	S-13A	24.5-26.0	1-1-2	18	18		Wet, dark gray to brown to olive, ORGANIC SILT and SILTY CLAY, little fine Sand.
	S-14	26.0-26.5	3	6	6	26.5	
	S-14A	26.5-28.0	4-4-4	18	18	Clay	Wet, medium stiff to stiff, olive, CLAY and SILT, trace fine Sand.

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No.	B-1
	Sheet 2 of 2
File No.	Y1657
Review by:	John Gannon

Boring Co.	Soil Exploration Corporation
Foreman	Tim Flores
TGG Observer	Mark Zambernardi
Boring Location:	See Exploration Location Plan
Ground Elev.	13.5±
Date Start > End	11/27/01

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
11/27	Drilling	12±'	4±'	2, 3

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6in.	Pen.	Rec.	Rem.	
	S-15	30.0-32.0	1-2-1-2	24	24		Clay 32.0 — Wet, soft, olive, SILTY CLAY with a seam of olive, fine SAND.
						1	Bottom of Boring at 32± feet. –
35							
40							
45							
50							
55							

Remarks:

1. The boring was terminated at 32± feet.
2. The depth to groundwater was interpreted from the moisture content of sample no. S-3.
3. A groundwater monitoring well was installed upon completion of the borehole. The well contained screen from 2± to 12± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No.	B-2
	Sheet 1 of 1
File No.	Y1657
Review by:	John Gannon

Boring Co.	Soil Exploration Corporation
Foreman	Tim Flores
TGG Observer	Mark Zambernardi
Boring Location:	See Exploration Location Plan
Ground Elev.	14.5±
Date Start > End	11/27/01

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
11/27	Drilling	22±'	10±'	3

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6in.	Pen.	Rec.	Rem.	
	S-1	0-1.0	4-9	12	12		Brown to dark brown, fine to medium SAND, some Silt, trace fine Gravel, trace (-) Glass, Black to beige, CINDERS.
	S-1A	1.0-2.0	9-8	12	12		
							Fill
5							
	S-2	5.0-7.0	20-23-15-14	24	20		Dense, brown, fine to coarse SAND, and fine to coarse GRAVEL, trace (+) Silt.
						1	7.0
10	S-3	10.0-12.0	23-16-11-9	24	10		Wet, medium dense, brown, fine GRAVEL and fine to coarse SAND, trace (+) Silt.
							Sand & Gravel
15	S-4	15.0-17.0	11-8-10-9	24	17		Wet, medium dense, gray fine SAND, trace Silt, overlying fine to coarse SAND, trace fine Gravel, trace (-) Silt, overlying fine to coarse GRAVEL, some fine to coarse Sand, little (+) Silt.
						1	17.0
20							Sand
	S-5	20.0-22.0	9-12-28-90	24	24		Wet, dense, gray, fine SAND, trace Silt.
						2, 4	22.0
							Bottom of Boring at 22.0± feet.
25							

Remarks:

1. Approximation location of strata change.
2. The boring was terminated at 22± feet.
3. The depth to groundwater was interpreted from the moisture content of sample no. S-3.
4. The upper 2± feet of the borehole was filled with concrete upon completion.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No.	B-3
	Sheet 1 of 1
File No.	Y1657
Review by:	John Gannon

Boring Co.	Soil Exploration Corporation
Foreman	Tim Flores
TGG Observer	Mark Zambernardi
Boring Location:	See Exploration Location Plan
Ground Elev.	14±
Date Start > End	11/27/01

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
11/27	Drilling	13.5±	8±	3, 4

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6in.	Pen.	Rec.	Rem.	
	S-1	0-.5	5-11-9	18	16		Medium dense, dark brown to tan, fine to medium SAND, some Silt, trace fine Gravel, trace (-) Roots.
	S-1A	1.5-2.0	6	6	6		
	S-2	2.0-4.0	4-5-5-5	24	12		
							Fill
5	S-3	4.0-6.0	7-4-5-5	24	2	1	Dark brown, fine to medium SAND and SILT. Stiff, ORGANIC SILT, little fine Sand, trace fine Gravel.
							6.0 BRICK
	S-4	6.0-8.0	6-7-8-8	24	20	1	Stiff, to very stiff, bluish-gray, SILTY CLAY, trace Roots with frequent seams of tan to gray, fine SAND.
	S-5	8.0-10.0	3-4-5-6	24	22		Wet, stiff, grayish-olive, SILTY CLAY with frequent seams of grayish-olive fine SAND.
10	S-6	10.0-12.0	5-6-8-8	24	24		Wet, stiff, grayish-olive, SILTY CLAY with frequent seams of grayish-olive fine Sand.
15	S-7	15.0-17.0	3-2-3-4	24	24		Wet, medium stiff, olive, SILTY CLAY with frequent seams of beige fine SAND.
							Clay
20	S-8	20.0-22.0	1-1-2-3	24	24		Wet, soft, olive, SILTY CLAY with frequent seams of beige fine Sand.
							25.0
25	S-9	25.0-27.0	8-16-16-11	24	22		Wet, dense, grayish-olive, fine to medium SAND, some Silty Clay, little (+) Silt, little fine to coarse Gravel.
						2	Clayey Sand 27.0
							Bottom of Boring at 27.0± feet.

Remarks:

1. Rust-staining observed in sample.
2. The boring was terminated at 27± feet.
3. The depth to groundwater was interpreted from the moisture content of sample no. S-3.
4. A groundwater monitoring well was installed upon completion of the borehole. The well contained screen from 3± to 13± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No.	B-4
	Sheet 1 of 1
File No.	Y1657.01
Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike Camacho
TGG Observer	Jason Mammone
Boring Location:	See Exploration Location Plan
Ground Elev.	15±
Date Start > End	4/16/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/16	Drilling	28±	3±	1

Sample Data						Strata Change	Sample Description
No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
S-1	0-1	4-7	12	8			Dry, tan, fine to medium SAND and SILT.
S-1A	1-2	8-11	12	8			Dry, dark brown, fine to coarse SAND, some fine to coarse Gravel, little Silt, trace cinders, trace (-) brick.
S-2	2-4	8-10-8-11	24	15			Medium dense, dry, dark brown, fine to medium SAND, some (+) Silt, little (+) fine to coarse Gravel, trace cinders.
						Granular Fill	
S-3	5-7	1-1-1-1	24	12	1		Very loose, wet, CINDERS, little fine to medium Sand, little Silt, trace fine Gravel.
					2	7.0	
S-4	7-9	WOH-18"-1	24	15		Organic Silt	Very loose, wet, gray to brown, Organic SILT, trace fine Sand.
					3	9.0	
S-5	10-12	2-3-2-4	24	20			Medium stiff, wet, gray, Silty CLAY with occasional seams of fine SAND.
TS-1	12-14	Pushed	24	24	4		
						Silty Clay	
S-6	15-17	3-2-5-4	24	22	5		Medium stiff, wet, gray, Silty CLAY, little (+) fine Sand.
S-7	19-20	6-7	12	6	6,7	20.0	Wet, gray, Silty CLAY, little (+) fine Sand.
S-7A	20-21	9-12	12	8			Wet, gray, fine to coarse GRAVEL, little (+) Silt, little (+) fine to coarse Sand.
						Glacial Till	
S-8	24-26	22-20-19-10	24	16			Dense, wet, gray, fine to coarse GRAVEL, some (-) fine to coarse Sand, little Silt.
S-9	26-28	18-21-19-16	24	16			
						28.0	Dense, wet, gray, fine to coarse GRAVEL, little fine to coarse Sand, little Silt.
							Bottom of the boring at 28.0 feet.

Remarks:
1. Groundwater encountered at about 3± feet while drilling.
2. Strata change encountered at about 7± feet while drilling.
3. Change in drilling difficulty encountered at about 9± feet. Possible strata change.
4. Shelby tube TS-1 pushed from 12 to 14± feet.
5. Switched to 4-inch flush jointed casing at about 15± feet. Borehole was advanced using wash boring techniques.
6. Continued advancing borehole using "open hole" method and wash boring techniques at 20± feet.
7. Strata change encountered at about 20± feet while drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log	- PROJECT -	Boring No.	B-5
			Sheet 1 of 3
	Lincoln Park Community School Somerville, MA	File No.	Y1657.01
		Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike Camacho	Ground Elev.	15±
TGG Observer	Jason Mammone	Date Start > End	4/16/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/16	Drilling	68±	5±	2

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
	S-1	0-0.5	4	6	4			Dry, tan, fine to medium SAND and SILT, trace fine Gravel.
	S-1A	0.5-2	7-7-12	18	10			Medium dense, dark brown, fine to coarse Sand, some (+) Silt, little fine to coarse Gravel, trace (-) Brick.
							Granular Fill 5.0	
5						1		
	S-2	5-7	WOH/12"-4-4	24	18		Organic Silt 7.0	Very loose to loose, wet, gray to brown, Organic SILT, little (+) fine Sand.
	S-3	7-9	4-6-7-10	24	18			Stiff, wet, gray, Silty CLAY, little (-) fine Sand.
10								
	S-4	10-12	4-8-11-7	24	18			Very stiff, wet, gray, Silty CLAY with a 4-inch seam of fine Sand and Silt.
15								
	TS-1	15-17	PUSHED	24	24	2	Silty Clay	
	S-5	17-19	8-5-6-5	24	22			Stiff, wet, gray, Silty CLAY with occasional seams of fine Sand.
20								
	S-6	20-22	3-1-2-3	24	22			Soft, wet, gray, Silty CLAY with occasional seams of fine Sand.
25								
	S-7	25-27	WOH/6"-3-4-6	24	22			Medium stiff, wet, gray, Silty CLAY with occasional seams of fine Sand.

Remarks:
1. Groundwater was encountered at about 5± feet while drilling.
2. Shelby tube sample TS-1 pushed from 15 to 17± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No. B-5
Sheet 2 of 3
File No. Y1657.01
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike Camacho	Ground Elev.	15±
TGG Observer	Jason Mammone	Date Start > End	4/16/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/16	Drilling	68±	5±	1

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
	S-8	30-32	3-3-3-4	24	22			Medium stiff, wet, gray, Silty CLAY with occasional seams of Sand.
35	S-9	35-37	6-8-8-11	24	15			Very stiff, wet, gray, Silty CLAY, little Gravel, trace (+) fine to coarse Sand.
40	S-10	40-42	WOH/12"-4-5	24	22			Soft to medium stiff, wet, gray, Silty CLAY with occasional seams of Sand.
45	S-11	45-47	3-4-4-5	24	20		Silty Clay	Medium stiff to stiff, wet, gray, Silty CLAY with occasional seams of fine Sand.
	TS-2	48-50	PUSHED	24	24	3		
50	S-12	50-52	7-5-5-6	24	22			Stiff, wet, gray, Silty CLAY.
55	S-13	55-57	WOH/6"-5-5-4	24	22			Stiff, wet, gray, Silty CLAY.

Remarks:
3. Shelby tube TS-2 pushed from 48 to 50± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-5
Lincoln Park Community School Somerville, MA		Sheet 3 of 3
	File No.	Y1657.01
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike Camacho	Ground Elev.	15±
TGG Observer	Jason Mammone	Date Start > End	4/16/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/16	Drilling	68±	5±	1

Sample Data						Strata Change	Sample Description
No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
S-14	59-61	WOH/6"-3-3-4	24	22			Medium stiff, wet, gray, Silty CLAY.
						Silty Clay	
						68.0	
							Bottom of boring at 68.0± feet.

65 70 75 80 85

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No. B-6
Sheet 1 of 2
File No. Y1657.01
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike Camacho
TGG Observer	Jason Mammone
Boring Location:	See Exploration Location Plan
Ground Elev.	15±
Date Start > End	4/17/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/17	Drilling	39±	5±	2

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
S-1	0-2	6-10-9-6	24	20			Medium dense, dry, tan to dark brown, fine to coarse SAND, some (+) Silt, little (+) fine to coarse Gravel, trace (-) Brick.
						Granular Fill	
					1	5.0	
S-2	5-7	7-11-11-17	24	18			Medium dense, wet, brown, fine to coarse SAND, trace fine Gravel, trace Silt.
						Sand	
						10.0	
S-3	10-12	2-3-3-4	24	15			Medium stiff, wet, gray, Silty CLAY with occasional seams of fine Sand.
S-4	15-17	WOH/12"-2-2	24	20			Very soft, wet, gray, Silty CLAY with frequent seams of fine Sand.
						Silty Clay	
S-5	20-22	WOH/12"-1-1	24	20	2		Very soft, wet, gray, Silty CLAY with occasional seams of fine Sand.
TS-1	24-26	PUSHED	24	24	3		

Remarks:
1. Groundwater encountered at about 5± feet while drilling.
2. Switched to 4-inch flush jointed casing at about 20± feet and advanced the borehole using "open hole" method and wash boring techniques.
3. Shelby tube TS-1 pushed from 24 to 26± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No. B-6
Sheet 2 of 2
File No. Y1657.01
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike Camacho
TGG Observer	Jason Mammone
Boring Location:	See Exploration Location Plan
Ground Elev.	15±
Date Start > End	4/17/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/16	Drilling	39±	5±	2

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
							Silty Clay
						4	33.0
35							
	S-6	35-37	8-8-10-16	24	12		Boney Sand & Gravel
							Medium dense, wet, gray, fine to coarse GRAVEL, little fine to coarse Sand, trace Silt.
	S-7	37-39	9-13-10-11	24	12		
							Medium dense, wet, gray, fine to coarse GRAVEL, little fine to coarse Sand, trace Silt.
40							39.0
							Bottom of boring at 39.0± feet.
45							
50							
55							

Remarks:
4. Strata change encountered at about 33± feet while drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-7
Lincoln Park Community School Somerville, MA		Sheet 1 of 3
	File No.	Y1657.01
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike Camacho	Ground Elev.	14±
TGG Observer	Jason Mammone	Date Start > End	4/16/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/18	Drilling	77±	6±	1

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	S-1	0-2	4-3-4-4	24	12		Loose, dry, dark brown to tan, fine to medium SAND and SILT, trace (+) fine to coarse Gravel.
							Granular Fill
5							5.0
	S-2	5-6.5	3-7-7	18	12	1	Medium dense, wet, gray, fine to coarse SAND, some (+) fine to coarse Gravel, trace Silt.
	S-2A	6.5-7	5	6	6	2	Sand & Gravel 6.5
							Wet, gray, Silty CLAY with occasional seams of fine Sand.
10							
	S-3	10-12	2-5-7-9	24	18	3	Stiff, wet, gray, Silty CLAY with occasional seam of fine Sand.
15							Silty Clay
	S-4	15-17	2-2-3-3	24	22		Medium stiff, wet, gray, Silty CLAY with occasional seams of fine Sand.
20							
	S-5	20-22	WOH/12"-1-1	24	22	4	Very soft, wet, gray, Silty CLAY with occasional seam of fine Sand.
25							
	S-6	25-27	WOH/12"-3-3	24	22		Soft, wet, gray, Silty CLAY with occasional seams of fine Sand.

Remarks:
1. Groundwater encountered at about 6± feet while drilling.
2. Strata change encountered at about 6.5 feet while drilling.
3. 6-inch seam of sand encountered within the split spoon sample.
4. Borehole advanced using "open hole" method and wash boring techniques.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No. B-7
Sheet 2 of 3
File No. Y1657.01
Review by Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike Camacho
TGG Observer	Jason Mammone
Boring Location:	See Exploration Location Plan
Ground Elev.	14±
Date Start > End	4/18/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/18	Drilling	77±	6±	1

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem
S-7	30-32	WOH/24"	24	22	

Strata Change	Sample Description
Silty Clay	Very soft, wet, gray, Silty CLAY with occasional seams of fine Sand.

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No. B-7
Sheet 3 of 3
File No. Y1657.01
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike Camacho
TGG Observer	Jason Mammone
Boring Location:	See Exploration Location Plan
Ground Elev.	14±
Date Start > End	4/16/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/18	Drilling	77±	6±	1

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
65							Silty Clay
70						5	70.0
75	S-8	75-77	12-13-18-23	24	12		Dense, wet, gray, fine to coarse SAND, some fine to coarse Gravel, some Silt.
							77.0
80							Bottom of boring at 77.0 feet.
85							

Remarks:

5. Strata change encountered at about 70± feet while drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
Somerville, MA

Boring No.	B-8
	Sheet 1 of 2
File No.	Y1657.01
Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike Camacho
TGG Observer	Jason Mammone

Boring Location:	See Exploration Location Plan
Ground Elev.	14±
Date Start > End	4/16/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/18	Drilling	32±	5±	1

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem
S-1	0-2	6-5-4-4	24	18	
					1
S-2	5-6.5	WOH/12"-1	18	12	
S-2A	6.5-7	2	6	6	2
S-3	10-12	2-3-5-5	24	12	
					3
S-4	15-17	4-7-17-17	24	10	
					4
S-5	20-22	3-4-6-5	24	18	
S-6	25-27	11-18-18-17	24	18	

Strata Change	Sample Description
Granular Fill 5.0	Loose, dry, dark brown, fine to coarse SAND, some (-) Silt, little fine to coarse Gravel, trace Cinders.
Organic Silt 6.5	Very loose, wet, gray to dark brown, Organic SILT.
Silty Clay 13.0	Wet, gray, Silty CLAY with occasional seams of fine to Sand. Medium stiff to stiff, wet, gray, Silty CLAY with occasional seams of fine Sand, trace fine Gravel, trace fine to coarse Sand.
Boney Sand & Gravel 19.0	Medium dense, wet, gray, fine to coarse GRAVEL, little (-) fine to coarse Sand, trace Silt.
Sand	Loose to medium dense, wet, gray, fine to coarse SAND, trace (-) Silt. Dense, wet, gray, fine to coarse SAND, trace (+) fine to coarse Gravel, trace (-) Silt.

Remarks:
1. Groundwater encountered at about 5± feet while drilling.
2. Strata change encountered at about 6.5± feet .
3. Strata change encountered at about 13± feet while drilling.
4. Strata change encountered at about 19± feet while drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-8
Lincoln Park Community School Somerville, MA		Sheet 2 of 2
	File No.	Y1657.01
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike Camacho	Ground Elev.	14±
TGG Observer	Jason Mammone	Date Start > End	4/18/02

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4 inch inside diameter hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 Lb. CME automatic trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/18	Drilling	32±	5±	1

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
S-7	30-32	8-7-10-12	24	15		Sand 32.0	Medium dense, wet, gray, fine to coarse SAND, little (+) fine to coarse Gravel, trace (-) Silt.
							Bottom of boring at 32.0 feet.

35 40 45 50 55

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-106
Sheet 1 of 3
File No. Y1657.02
Review by: Wayne McArdle

Boring Co. Soil Exploration Corporation
Foreman Eric
TGG Observer Jeremy Haugh

Boring Location: See Exploration Location Plan
Ground Elev. 15±
Date Start > End 2/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/25	1000	70'±	9'±	7

Sample Data						Strata Change	Sample Description
No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
						Asphalt 0.3	Asphalt.
						Fill	
					1	8.0	
S-1	10-12	10-4-4-6	24	24		Silty Clay	Wet, medium stiff, gray, SILT and CLAY with frequent layers of tannish-gray Silt.
S-2	15-17	3-2-2-2	24	22	2		Wet, soft, gray, SILTY CLAY with occasional layers of gray Clayey Silt. (PP=1.0 tsf)
S-3	24-26	2-2-3-2	24	16			Wet, medium stiff, gray, SILTY CLAY. (PP=0.5 tsf)

Remarks: PP=Pocket Penetrometer
1. Strata change based on drilling difficulty
2. Augers removed from borehole and 4 inch diameter flush joint casing advanced to 15± feet utilizing wash boring techniques.
3. Advanced borehole to 70± feet utilizing open hole drilling techniques.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -		Boring No.	B-106
Lincoln Park Community School 290 Washington Street Somerville, MA			Sheet 2 of 3
		File No.	Y1657.02
		Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Eric	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/25	1000	70'±	9'±	7

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
35	TS-1	34-36	PUSHED	24	24	4	Wet, gray, SILTY CLAY. (TV=0.5 tsf)
	S-4	36-38	1-3-3-3	24	24		Wet, medium stiff, gray, SILTY CLAY, trace (-) fine Sand with occasional layers of Sandy Silt.
							Silty Clay
40							
45							
50							
55							

Remarks: TV=Torvane
4. Pushed Shelby tube sampler from 34± to 36± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-106
		Sheet 3 of 3
Lincoln Park Community School 290 Washington Street Somerville, MA	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Eric	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/25	1000	70'±	9'±	7

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
							Silty Clay
65							
						5	69.0
						6	Sand & Gravel 70.0
70							Bottom of Boring at about 70.0± feet.
75							
80							
85							

Remarks:
5. Drilling became more difficult at 69± feet indicating strata change.
6. Boring terminated at 70± feet.
7. Depth to groundwater measured during drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-107
Sheet 1 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co. Soil Exploration Corporation
Foreman Rich
TGG Observer Jeremy Haugh

Boring Location: See Exploration Location Plan
Ground Elev. 30±
Date Start > End 4/20/05

Sampling Protocol
Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH86 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/20	Compl.	60'±	22'±	2

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
5	S-1	5-7	13-10-12-11	24	8		Fill	Medium dense, brown, fine to coarse GRAVEL and fine to coarse SAND, trace (+) Silt.
10	S-2	10-12	4-4-2-2	24	6			Loose, light brown, fine to coarse SAND, little Silt, trace fine Gravel.
15	S-3	15-17	57-10-7-4	24	14			Medium dense, brown, fine to coarse SAND, some fine to coarse Gravel, little (-) Silt, trace Concrete, trace (-) Cinders, Glass.
20	S-4	20-22	10-11-12-13	24	22		20.0	Dry to moist, medium dense, tan to gray, fine to medium SAND, trace Silt, trace (-) Roots.
25	S-5	25-27	16-12-12-12	24	8		Sand	Wet, medium dense, orangish-tan, fine SAND, little Silt.
							29.0 Silty Sand	

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No.	B-107
	Sheet 2 of 3
File No.	Y1657.03
Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	30±
Date Start > End	4/20/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/20	Compl.	61'±	22'±	2

	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
	S-6	30-32	14-12-13-13	24	18			Wet, medium dense, tan, SILT and fine SAND.
35	S-7	35-37	12-9-10-9	24	18		Silty Sand	Wet, medium dense, gray, fine SAND, little Silt, trace Clay with frequent seams of Silty Clay.
40	S-8	40-42	9-8-13-14	24	14			Wet, medium dense, gray, fine SAND, little Silt.
							45.0	
45	S-9	45-47	3-1-7-3	24	18		Silty Clay With Frequent Layers of Silt & Fine Sand	Wet, stiff, gray, CLAYEY SILT, some fine Sand, trace (-) fine Gravel.
	S-10	47-49	4-5-6-6	24	24			Wet, stiff, gray, CLAYEY SILT, some fine Sand.
50	S-11	50-52	5-4-5-7	24	20			Wet, stiff, gray, CLAYEY SILT, some fine Sand.
55	S-12	55-57	4-3-3-3	24	24			Wet, medium stiff, gray, SILTY CLAY, little fine Sand.
	S-13	59-61	2-2-5-3	24	20			Wet, medium stiff, gray, fine SAND and SILTY CLAY.

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-107
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 3 of 3
	File No.	Y1657.03
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Rich	Ground Elev.	30±
TGG Observer	Jeremy Haugh	Date Start > End	4/20/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/20	Compl.	61'±	22'±	2

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
					1	61.0*	
							Bottom of Boring at about 61.0± feet.

Remarks: *Silty Clay with Frequent Layers of Silt & Fine Sand
1. Boring terminated at 61± feet.
2. Depth to groundwater measured upon completion of boring.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-108
Sheet 1 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Rich	Ground Elev.	28±
TGG Observer	Jason Mammone	Date Start > End	4/21/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch inside diameter flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 automatic drop hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/21	a.m.	70.8±'	22±'	2

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
5	S-1	5-7	4-2-2-1	24	8			Very loose to loose, dry, brown, fine to coarse SAND, little (+) fine to coarse Gravel, trace (+) Silt.
10	S-2	10-12	5-4-7-4	24	8		Fill	Medium dense, dry, brown, fine to coarse GRAVEL and fine to coarse SAND, trace (+) Silt.
						1, 2		
15	S-3	15-17	1-1-1-2	24	15			Very loose, wet, dark brown to brown, fine to medium SAND and SILT, little (-) fine to coarse Gravel.
						3	19.0	
20	S-4	20-22	5-5-5-9	24	18			Loose to medium dense, tan to orange-tan, fine to medium SAND, little Silt.
							Sand	
25	S-5	25-27	4-7-10-10	24	15			Medium dense, wet, gray to orange-tan, fine SAND, trace Silt.

Remarks:
1. Pushed casing through possible obstruction from about 12 to 14± feet.
2. Groundwater was encountered at about 24± at the time of the boring.
3. Change in driving difficulty encountered at about 19± feet. Possible strata change.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -		
Lincoln Park Community School 290 Washington Street Somerville, MA	Boring No.	B-108
	Sheet	2 of 3
	File No.	Y1657.03
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Rich	Ground Elev.	28±
TGG Observer	Jason Mammone	Date Start > End	4/21/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch inside diameter flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 automatic drop hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/21	a.m.	70.8±'	22±'	2

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
	S-6	30-32	9-8-7-11	24	15		Sand	Medium dense, wet, gray, fine SAND, little (-) Silt.
							35.0	
35	S-7	35-37	6-5-3-1	24	20		Sandy Silt	Loose, wet, gray, SILT, some fine Sand.
							40.0	
40	S-8	40-42	WOH / 18"-2	24	18		Silty Clay With Frequent Layers of Silt & Fine Sand	Very soft, wet, gray, SILTY CLAY, little fine SAND with frequent seams of fine Sand. PP< 0.25 TSF
45	TS-1	45-47	PUSHED	24	24	4		
	S-9	48-50	WOH / 18"-3	24	24			Very soft, wet, gray, SILTY CLAY, little fine Sand with frequent seams of fine Sand. PP= 0.25 TSF
50								
55	S-10	55-57	WOH / 12"-1-2	24	24			Very soft, wet, gray, SILTY CLAY, trace fine Sand with frequent seams of fine Sand.

Remarks:

4. Geoprobe advanced using the "open hole" method and wash boring techniques at about 45± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -		Boring No.	B-108
Lincoln Park Community School 290 Washington Street Somerville, MA			Sheet 3 of 3
		File No.	Y1657.03
		Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Rich	Ground Elev.	28±
TGG Observer	Jason Mammone	Date Start > End	4/21/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch inside diameter flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH96 automatic drop hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/21	a.m.	70.8±'	22±'	2

Sample Data

	No.	Depth	Blows per 6	Pen.	Rec.	Rem	Strata Change	Sample Description
							Silty Clay with Frequent Layers of Silt & Fine Sand	
65								
						5	70.0	
70	S-11	70-70.8	12-50/3"	9	6	6	Glacial Till 70.8	Wet, grayish brown, fine to coarse GRAVEL, little fine to coarse Sand, little Silt
								Refusal of the split spoon at 70.8± feet.
75								LEGEND:
								WOH = Weight of Hammer
								PP = Pocket Pentrometer
80								
85								

Remarks:

5. Change in drilling difficulty encountered at about 70± feet.
6. Refusal of the split spoon encountered at about 70.8± feet. Possible boulder/bedrock.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-109
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 1 of 3
	File No.	Y1657.03
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Rich	Ground Elev.	23±
TGG Observer	Jeremy Haugh	Date Start > End	4/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/22	Drilling	75'±	17'±	4

Sample Data						Strata Change	Sample Description
No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
S-1	5-7	9-7-6-6	24	6			Medium dense, tan, fine to coarse SAND and fine to coarse GRAVEL, trace Silt.
						Fill	
S-2	10-12	14-7-7-7	24	24			Medium dense, tan, fine to coarse SAND, trace (+) fine Gravel, Silt.
S-3	15-17	WOH/6"-1-9-4	24	12			WOOD.
						18.0	
S-4	20-22	10-6-5-7	24	16		Silty Sand	Wet, medium dense, orangish-tan to gray, fine SAND and SILT.
						24.0	
S-5	25-27	1/18"-5	24	24		Silty Clay With Frequent Layers of Silt & Fine Sand	Wet, very soft, gray, SILTY CLAY, trace fine Sand with occasional layers of Sandy Silt.

Remarks: WOH=Weight of Hammer

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-109
Sheet 2 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Rich
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	23±
Date Start > End	4/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/22	Drilling	75'±	17'±	4

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	TS-1	30-32	PUSHED	24	24	1	
	S-6	32-34	1-1-1-2	24	24		Wet, very soft, gray, CLAY and SILT with frequent layers of Silt.
35							
40	S-7	40-42	1-1-1-1	24	24		Silty Clay With Frequent Layers of Silt & Fine Sand — Wet, very soft, gray, SILTY CLAY. (TV=0.25 tsf)
45	TS-2	45-47	PUSHED	24	24	1	
	S-8	47-49	5-4-2-1	24	24		Wet, medium stiff, gray, SILTY CLAY, trace fine Sand with occasional layers of Silty Sand.
50							
55	S-9	55-57	WOH/12"-3-3	24	24		Wet, soft, gray, SILTY CLAY. (TV=0.35 tsf)

Remarks: TV=Torvane WOH=Weight of Hammer
1. Pushed 2 inch diameter Shelby tubes from 30± to 32± feet, 45± to 47± feet and 60± to 62± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-109
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 3 of 3
	File No.	Y1657.03
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Rich	Ground Elev.	23±
TGG Observer	Jeremy Haugh	Date Start > End	4/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 2.5 inch I.D. flush joint casing driven by hydraulic percussion method. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. DH66 auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/22	Drilling	75'±	17'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	TS-3	60-62	PUSHED	24	24	1, 2	
	S-10	62-64	2-2-3-4	24	24		Silty Clay With Frequent Layers of Silt & Fine Sand Wet, medium stiff, gray, SILTY CLAY. (TV=0.4 tsf, PP=0.25-0.5 tsf)
65							
70						3	71.0
							Possible Glacial Till 75.0
75						4	Bottom of Boring at about 75.0± feet.
80							
85							

Remarks: TV=Torvane PP=Pocket Penetrometer
2. Advanced borehole to 75± feet utilizing open hole drilling techniques.
3. Drilling became difficult at 71± feet indicating strata change.
4. Boring terminated at 75± feet.
5. Depth to groundwater observed during drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-110
Sheet 1 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation	**Boring Location:**	See Exploration Location Plan
Foreman	Mike	**Ground Elev.**	26±
TGG Observer	Jeremy Haugh	**Date Start > End**	4/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/25	Drilling	61'±	17'±	5

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
5	S-1	5-7	10-19-10-11	24	24		Fill	Medium dense, brown, fine to coarse SAND, little (+) Silt, little (-) fine Gravel, trace (-) Cinders.
						1		
10	S-2	10-12	5-8-8-7	24	10		14.0	Medium dense, brown, fine to coarse GRAVEL, some (+) fine to coarse Sand, trace (+) Silt, trace (-) Cinders.
15	S-3	15-16.5	3-4-8	18	18		Organics 16.5	Medium dense, dark brown with orangish staining, fine to medium SAND, some (-) Organic Silt, trace (-) plant fibers.
	S-3A	16.5-17	12	6	6		Sand	Moist, gray, fine to coarse SAND, trace Silt.
20	S-4	20-22	5-8-11-14	24	24	2	23.0	Wet, medium dense, tannish-orange to gray, fine SAND, trace Silt.
25	S-5	24-26	9-11-13-14	24	14		Sandy Silt	Wet, medium dense, tan to gray, SILT and fine SAND, trace (-) Clay with occasional seams of dark gray Clay.
	S-6	29-31	6-7-12-12	24	18			Wet, medium dense, gray, SILT, some fine Sand, trace Clay with frequent seams of Clayey Silt.

Remarks:
1. Augers grinding from 8± to 14± feet.
2. Removed augers from borehole and advanced 3± inch I.D. flush joint casing to 61± feet utilizing wash boring techniques.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-110
Sheet 2 of 3
File No. Y1657.03
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	26±
Date Start > End	4/25/05

Sampling Protocol
Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/25	Drilling	61'±	17'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
	S-7	34-36	8-16-18-9	24	18		Sandy Silt — Wet, dense, gray, SILT and fine SAND.
35							
							38.0
	S-8	39-41	3-3-3-3	24	24		Wet, medium stiff, gray SILT and CLAY, trace (-) fine Sand with frequent seams of Sandy Silt.
40							
	S-9	44-46	3-1-2-1	24	24		Wet, soft, gray, CLAY and SILT with frequent seams of Silt.
45							
	TS-1	49-51	PUSHED	24	24	3	Silty Clay With Frequent Layers of Silt & Fine Sand
50							
	S-10	51-53	2-2-4-3	24	16		Wet, medium stiff, gray, fine SAND and SILT.
55							
	S-11	59-61	2-4-5-8	24	24		Wet, medium stiff, gray SILTY CLAY, trace fine Sand with occasional layers of Silty Sand.

Remarks:
3. Pushed 2 inch diameter Shelby tube from 49± to 51± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No.	B-110
	Sheet 3 of 3
File No.	Y1657.03
Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	26±
Date Start > End	4/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME auto trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
4/25	Drilling	61'±	17'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
						4	61.0*	
								Bottom of Boring at about 61.0± feet.
65								
70								
75								
80								
85								

Remarks: *Silty Clay With Frequent Layers of Silt & Fine Sand
4. Boring terminated at 61± feet.
5. Groundwater observed during drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-101
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 1 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	25±
TGG Observer	Jeremy Haugh	Date Start > End	2/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/22	0930	73'±	15'±	7

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
	S-1	0.5-2.5	5-5-4-4	24	24			Loose, brown, fine to coarse SAND, little (+) Silt, trace fine Gravel, trace (-) Asphalt.
5	S-2	5-7	4-15-11-15	24	15		Fill	Medium dense, brownish-gray, fine to coarse SAND and fine to coarse GRAVEL, little (-) Silt.
10	S-3	10-12	1-28-43-13	24	4	1, 2		Moist, very dense, brown, fine to coarse SAND, some Silt, fine to coarse Gravel.
15	S-4	15-16	9-8	12	7		16.0	Wet, brownish-gray, fine to medium SAND, little (+) Silt.
	S-4A	16-17	6-4	12	9		Sand	Wet, orangish-tan or gray, fine to medium SAND, little Silt.
20	S-5	20-21.5	3-6-9	18	18		21.5	Wet, medium dense, orange, fine SAND, trace Silt.
	S-5A	21.5-22	12	6	6			Wet, gray, SILT and fine SAND.
25	S-6	25-27	4-9-12-12	24	24		Sandy Silt	Wet, medium dense, gray, SILT and fine SAND, trace (-) Clay with frequent seams of gray Clayey Silt.

Remarks:
1. Possible concrete observed in split spoon sampler at 10.5± feet.
2. Augers grinding from 10.5± to 13± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-101
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 2 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	25±
TGG Observer	Jeremy Haugh	Date Start > End	2/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/22	0930	73'±	15'±	7

Sample Data						Strata Change	Sample Description
No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
S-7	30-32	3-9-8-13	24	24	3	Sandy Silt	Wet, medium dense, gray, SILT, some fine Sand, little Clay.
						33.0	
S-8	35-37	3-5-7-6	24	24		Silty Clay	Wet, stiff, gray, CLAYEY SILT, trace (-) fine Sand with occasional layers of gray Silty Sand.
S-9	40-42	4-4-3-3	24	24			Wet, medium stiff, gray, SILTY CLAY, trace (-) fine Sand with frequent layers of gray Silty Sand.
S-10	45-47	2-3-3-3	24	24			Wet, medium stiff, gray, SILTY CLAY, trace (-) fine Sand with occasional layers of gray Silty Sand.
S-11	48-50	2-3-3-4	24	24	4		Wet, medium stiff, gray, SILTY CLAY.

Remarks:
3. Approximate 6± inch thick layer of gray SILTY CLAY observed at 30± feet in sample no. S-7.
4. Advanced boring to 73± feet utilizing open hole drilling techniques.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-101
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 3 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	25±
TGG Observer	Jeremy Haugh	Date Start > End	2/22/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/22	0930	73'±	15'±	7

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
65							Silty Clay	
						5	70.0	
70								
	S-12	71-73	18-23-13-12	24	12		Sand & Gravel	Wet, dense, gray, fine to coarse SAND and fine to coarse GRAVEL, some (-) Silt.
						6	73.0	
								Bottom of Boring at about 73.0± feet.
75								
80								
85								

Remarks:
5. Augers grinding at about 70± feet indicating strata change.
6. Boring terminated at 73± feet.
7. Depth to groundwater measured during drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-102
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 1 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/22/05 > 2/23/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/22	1400	63.5'±	9'±	7

	Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
						1		
							Fill	
5								
	S-1	5-6	2-3	12	4		6.0	Brown, fine to coarse SAND, some Silt, trace fine Gravel.
	S-1A	6-7	9-8	12	12		Sand	Moist, orangish-tan, fine to coarse SAND, trace (+) fine Gravel, trace Silt.
							9.0	
10	S-2	10-12	4-4-4-4	24	24	2		Moist, medium stiff, gray, SILTY CLAY.
15	TS-1	14-16	PUSHED	24	12	3		
	S-3	16-18	2-2-2-2	24	24		Silty Clay	Wet, soft, gray, SILT, some Clay.
	S-4	19-21	1-2-1-2	24	24	4		Wet, soft, gray, SILTY CLAY.
20								
25								
	S-5	29-31	6-5-3-7	24	24			Wet, medium stiff, gray, CLAYEY SILT.

Remarks:
1. Augers grinding from 3± to 5± feet.
2. Removed augers from borehole and advanced 4 inch diameter flush joint casing to 19± feet utilizing wash boring techniques.
3. Pushed 3 inch diameter Shelby tube sampler from 14± to 16± feet.
4. Advanced borehole to 63.5± feet utilizing open hole drilling techniques.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-102
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 2 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/22/05 > 2/23/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/22	1400	63.5'±	9'±	7

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
35							
	S-6	39-41	2-1-2-2	24	24		Wet, soft, gray, SILTY CLAY.
40						Silty Clay	
45							
	S-7	49-51	6-4-4-5	24	24		Wet, medium stiff, gray, CLAYEY SILT.
50							
55							

Remarks:

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Test Boring Log

- PROJECT -	Boring No.	B-102
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 3 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/22/05 > 2/23/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/22	1400	63.5'±	9'±	7

Sample Data						Strata Change	Sample Description
No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
						Silty Clay 62.5	
					5	Sand & Gravel 63.5	
					6		Bottom of Boring at about 63.5± feet.
65							
70							
75							
80							
85							

Remarks:
5. Augers grinding from 62.5± to 63.5± feet indicating strata change.
6. Boring terminated at 63.5± feet.
7. Depth to groundwater measured during drilling.

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Test Boring Log

- PROJECT -		
Lincoln Park Community School 290 Washington Street Somerville, MA	**Boring No.**	B-103
		Sheet 1 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co	Soil Exploration Corporation	**Boring Location:**	See Exploration Location Plan
Foreman	Mike	**Ground Elev.**	15±
TGG Observer	Jeremy Haugh	**Date Start > End**	2/23/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/23	1300	67'±	9'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem		
							Asphalt 0.3	Asphalt.
						1		
							Fill	
5								
							8.0	
10	S-1	10-12	4-7-9-7	24	12		Sand	Wet, medium dense, grayish-brown, fine to coarse SAND, little fine Gravel, trace (-) Silt.
15							15.5	Wet, orangish-tan to gray, SILT and fine SAND.
	S-2	15-15.5	1	6	3	2		
	S-2A	15.5-17	2-2-2	18	18			
						3		
20							Silty Clay	Wet, soft, gray, CLAY and SILT with frequent seams of Clayey Silt. (PP=0.75 tsf)
	S-3	24-26	2-2-1-2	24	24			Wet, soft, gray, SILTY CLAY, trace (-) fine Sand with occasional layers of Sandy Silt.
25								

Remarks: PP=Pocket Penetrometer
1. Augers grinding from 2± to 8± feet.
2. Augers removed from borehole and advanced 4 inch diameter flush joint casing to 19± feet utilizing wash boring techniques.
3. Advanced borehole to 67± feet utilizing open hole drilling techniques.

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Test Boring Log

- PROJECT -	Boring No.	B-103
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 2 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Mike	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/23/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/23	1300	67'±	9'±	5

Sample Data						Strata Change	Sample Description
	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	
							Silty Clay
35							
40							
45							
50							
55							

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No.	B-103
	Sheet 3 of 3
File No.	Y1657.02
Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Mike
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	15±
Date Start > End	2/23/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. CME Auto Trip hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/23	1300	67'±	15'±	5

Sample Data

	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem
65						4
70						
75						
80						
85						

Strata Change	Sample Description
Silty Clay	
67.0	
Refusal	Bottom of Boring at about 67.0± feet.

Remarks:
4. Refusal to roller bit at 67± feet. Boring terminated.
5. Depth to groundwater measured during drilling.

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Test Boring Log

- PROJECT -	Boring No.	B-104
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 1 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Eric	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/24/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/24	0900	64.5'±	9'±	6

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem
					1
S-1	10-10.5	5	6	4	
S-1A	10.5-12	6-7-9	18	18	
S-2	15-17	4-3-3-4	24	24	1
					2
TS-1	20-22	PUSHED	24	24	3
S-3	22-24	3-4-2-4	24	24	

Strata Change	Sample Description
Asphalt 0.3	Asphalt.
Fill	
10.5	Wet, grayish-brown, fine to coarse SAND, trace fine Gravel, trace (-) Silt.
	Moist, stiff, gray, SILTY CLAY. (PP=2.25 tsf)
	Wet, medium stiff, gray, SILTY CLAY, trace (-) fine Sand with frequent seams of Sandy Silt. (PP=0.5 tsf)
Silty Clay	
	Wet, medium stiff, gray, SILT CLAY with occasional seams of gray Silt.

Remarks: PP=Pocket Penetrometer

1. Removed augers from borehole and advanced 4 inch diameter flush joint casing to 19± feet utilizing wash boring techniques.
2. Advanced borehole to 64.5± feet utilizing open hole drilling techniques.
3. Pushed Shelby tube sampler from 20± to 22± feet.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-104
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 2 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co.	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Eric	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/24/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/24	0900	64.5'±	9'±	6

Sample Data

	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
35								
	S-4	39-41	1-2-3-2	24	24		Silty Clay	Wet, medium stiff, gray, SILTY CLAY.
40								
45								
50								
55								

Remarks:

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -	Boring No.	B-104
Lincoln Park Community School 290 Washington Street Somerville, MA		Sheet 3 of 3
	File No.	Y1657.02
	Review by:	Wayne McArdle

Boring Co:	Soil Exploration Corporation	Boring Location:	See Exploration Location Plan
Foreman	Eric	Ground Elev.	15±
TGG Observer	Jeremy Haugh	Date Start > End	2/24/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/24	0900	64.5'±	9'±	6

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
						Silty Clay	
						63.5	
					4	Sand & Gravel	
					5	64.5	
							Bottom of Boring at about 64.5± feet.

65 70 75 80 85

Remarks:
4. Drilling difficulty increased from 63.5± to 64.5± feet indicating strata change.
5. Boring terminated at 64.5± feet.
6. Depth to groundwater measured during drilling.

THE GEOTECHNICAL GROUP, INC.

Test Boring Log

- PROJECT -
Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-105
Sheet 1 of 2
File No. Y1657.02
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Eric
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	15±
Date Start > End	2/24/05 > 2/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/24	1300	49'±	9'±	7

Sample Data

No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem	Strata Change	Sample Description
						Asphalt 0.1	Asphalt.
						Fill 4.0	
					1		
						Organic Fill 10.0	
S-1	10-12	4-6-8-5	24	10	2	Silty Clay	Wet, stiff, gray, SILTY CLAY.
S-2	15-17	4-4-5-4	24	14	3, 4		Wet, stiff, gray, CLAY and SILT with frequent seams of gray Clayey Silt.
S-3	19-21	1-2-5-2	24	24			Wet, medium stiff, gray, SILTY CLAY, trace (-) coarse Sand.
S-4	24-26	2-2-1-2	24	24			Wet, soft, gray, SILTY CLAY, trace (-) coarse Sand.

Remarks:
1. Strata change based on auger flight spoils.
2. Wood observed at top of split spoon sampler at 10± feet.
3. Augers removed from borehole and 4 inch diameter flush joint casing advanced to 14± feet utilizing wash boring techniques.
4. Advanced borehole to 49± feet utilizing open hole drilling techniques.

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Test Boring Log

- PROJECT -

Lincoln Park Community School
290 Washington Street
Somerville, MA

Boring No. B-105
Sheet 2 of 2
File No. Y1657.02
Review by: Wayne McArdle

Boring Co.	Soil Exploration Corporation
Foreman	Eric
TGG Observer	Jeremy Haugh
Boring Location:	See Exploration Location Plan
Ground Elev.	15±
Date Start > End	2/24/05 > 2/25/05

Sampling Protocol

Unless otherwise noted, borings were accomplished using 4-inch I.D. hollow stem augers. Samples were recovered using a 2-inch O.D. split spoon sampler, driven by blows of a 140 lb. safety hammer falling 30 inches.

Ground Water Readings (See Notes)

Date	Time	Depth to Bottom	Depth to Water	Rem.
2/24	1300	49'±	9'±	7

Sample Data

	No.	Depth	Blows per 6 in.	Pen.	Rec.	Rem
35	S-5	34-36	6-8-9-11	24	18	
40	S-6	39-41	5-7-7-7	24	24	
46						5
	S-7	47-49	35-46-32-24	24	24	
						6
50						
55						

Strata Change	Sample Description
	Wet, very stiff, gray, SILTY CLAY, trace Gravel, trace (-) coarse Sand.
Silty Clay	Wet, stiff, gray, CLAY, trace Silt. (PP=1.25 tsf)
46.5	
Sand & Gravel 49.0	Wet, very dense, gray, fine to coarse GRAVEL and medium to coarse SAND, trace (-) Silt.
	Bottom of Boring at about 49.0± feet.

Remarks: PP=Pocket Penetrometer
5. Drilling became more difficult at 46.5± feet indicating strata change.
6. Boring terminated at 49± feet.
7. Depth to groundwater measured during drilling.

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MEMORANDUM

TO: Cheri Ruane, Brandon Kunkel

FROM: Kevin MacKinnon, PG, PH-GW

DATE: 11/19/15

SUBJECT: Lincoln Park Irrigation Well Yield & Water Quality

On November 3rd, 2015, Tom Hydro of Weston & Sampson conducted a step-rate pumping test on a 6-inch bedrock well located in Lincoln Park in Somerville, MA. The objective of the test was two-fold, to identify the safe yield of the well and to determine if the water quality was suitable for irrigating natural turf fields and/or cooling artificial turf.

Background

In 2007, the City of Somerville undertook a project to convert a previously drilled geothermal test borehole into a bedrock irrigation well for the purpose of watering the soccer field and surrounding ground cover behind the Dr. Albert F. Argenziano School at Lincoln Park. The project included removal and disposal of the geoloop and grout, flush out, development and testing of the bedrock well and the installation of a submersible well pumping system. The finished well was originally drilled to a depth of 300-feet, but an apparent partial collapse of the bedrock structure resulted in an obstruction at a reported depth of 187-feet. Upon completion of the testing procedures the permanent well pump was installed to an approximate depth of 150-feet +/- and the wellhead completed with the installation of a vault that houses the well, discharge piping and electrical controls.

Historical operation of the well has been sporadic primarily due to repeated failures and faulting of the electrical controls. Over time it was determined that the damp environment of the vault enclosure was the main contributing factor to the performance issues with the controls. A local service firm has been used to inspect and remedy the controls issues and since the last service call in the early spring the system has been performing well throughout the summer of 2015. During this time the well yield has reportedly been sufficient to satisfy the system demands with no excessive dewatering of the well observed.

While the well water was originally also used to water the bedded plantings next to the school, this practice was discontinued due to a stubborn residue that was being deposited on the building exterior and classroom windows.

Work Completed

As part of the proposed upgrades to the soccer field at the Lincoln Park facility, Weston & Sampson has been asked to assist the City in evaluating the current condition of the irrigation to determine its suitability for long term use for continued irrigation and field temperature control. While there were preliminary reports of the well being dewatered by the pumping activities and the presence of a white colored residue on surfaces following irrigation, observations made by City DPW personnel deny both assertions.

In order to confirm the short term production capacity of the existing irrigation well, a step-rate pumping test was conducted on the well using the existing submersible well pumping equipment. For this testing the well

discharge was directed from wellhead piping through a hose and discharged to waste on site into a storm drain. Flow measurements were made by timing the flow into a 5-gallon pail and water level measurements throughout the testing period would be taken using an electric tape. The test was conducted for a period of up to 4-hours by a W&S Technician. Immediately prior to shutdown of the testing, a water sample was collected for analysis to obtain a current water chemistry profile. This information was compared to the water chemistry report from the initial testing procedures from May of 2007.

Step-Rate Pumping Test

A step rate pumping test was conducted on November 3, 2015 in an effort to evaluate well efficiencies of the irrigation well at various pumping rates. The step-rate pumping test was conducted at one 120 minute step and two 60 minute steps at rates of 60, 73, and 85gallons per minute (gpm). The final rate of 85 gpm was the highest rate possible for the existing pump installed in the well. The following table summarizes the results of the step-rate pumping test in terms of pumping rate (Q), drawdown (s), and specific capacity (Q/s).

Table 1: Step Rate Pumping Test Results

Step	Q (gpm)	s (ft)	Q/s (gpm/ft)
1	60	49.30	1.22
2	73	64.03	1.14
3	85	80.78	1.05

As is shown by the table and graphics (Figure A-1) provided herein of this memo, minimal efficiency losses were realized at the higher pumping rates. Additionally, extrapolation of this data was conducted to evaluate whether stabilization criteria may be met at the higher pumping rates. This chart is also provided in Attachment A, as Figure A-2.

Finally, a summary of the well specifications, pumping test data, and results is provided below in Table 2.

Table 2: Pumping Test Data Summary and Safe Yield Calculation

Well Specifications, Pumping Test Data, and Results						
Lincoln Park Irrigation Well						
Specifications				*Calculation Variables*		
Well Diameter	6	inches		Specific Capacity (Pumping Test)	1.05	gpm/ft
Well Depth	300	feet		Specific Capacity (180-Day Drawdown)	0.94	gpm/ft
				Safety Factor	10	feet
Pump Intake Depth	120.0	feet btc		Available Drawdown (Pumping Test)	103.65	feet
Pumping Test Data				*Results*		
Static Water Level	6.35	feet		**Safe Yield** (Calculated Specific Capacity)	**109**	**gpm**
Final Pumping Rate	85	gpm		**Safe Yield** (180-day Specific Capacity)	**98**	**gpm**
Pumping Water Level	87.13	feet				
Maximum Drawdown	80.78	feet				
180-Day Drawdown	90.06	feet				

As shown in Table 2, the safe yield of the well is conservatively estimated to be approximately 98 gallons per minute.

Water Quality

Water quality sampling was conducted at the beginning and end of the pumping test described above. The intent was to a) verify the water quality was acceptable for irrigating natural turf and nearby gardens within the park and b) for cooling of an artificial turf field. The sample results are attached as Attachment B of this memo.

Since there are no regulated standards for irrigation water in Massachusetts, the results were compared to the drinking water standards. The analysis revealed the following parameters above drinking water maximum contaminant levels (Table 3).

Table 3: Water Quality Results from end of Pumping Test

Parameter	Result (mg/L)	MCL (mg/L)
Iron	0.47	0.3
Manganese	0.057	0.05
Sodium	197	20/250 *
Chloride	257	250
Total Dissolved Solids	664	500

* Massachusetts Guideline = 20, EPA = 250

The only concern with respect to irrigation water was the elevated concentrations of sodium and chloride. Plant roots absorb sodium and transport it to leaves where it can accumulate and cause injury to the plant. Additionally, a more common deleterious effect of sodium results from its effect on soil structure as it can cause deflocculation (breakdown) of soil clay particles, ultimately reducing the soil's permeability. The best indicator of sodium's effect is a water's Sodium Adsorption Ratio (SAR). As a general rule, water with an SAR value below 3 is considered safe for turf and other ornamental plants. The SAR is calculated using the following formula:

$$SAR = \frac{Na}{\sqrt{(Ca + Mg)/2}}$$

The results for the Lincoln Park well is 6.98, slightly elevated.

Another parameters used to evaluate water quality data for the purpose of irrigating turf is the electrical conductivity (ECw), which is directly related to the salt content of the water. This value can be derived from the Total Dissolved Solids (TDS) result with the following relationship?

$$ECw\ \left(\frac{mmhos}{cm}\right) x\ 640 = TDS\ (\frac{mg}{L})$$

The results for the Lincoln Park well is 1.04 mmhos/cm, again slightly elevated.

The results reveal slightly elevated levels of anions and cations that produce salts, which is not uncommon from a bedrock well in New England. The water quality is favorable for use as irrigation water for turf fields, the nearby gardens and for use to cool artificial turf.

Figure A-1
Lincoln Park Step Rate Pumping Test
(November 3, 2015)

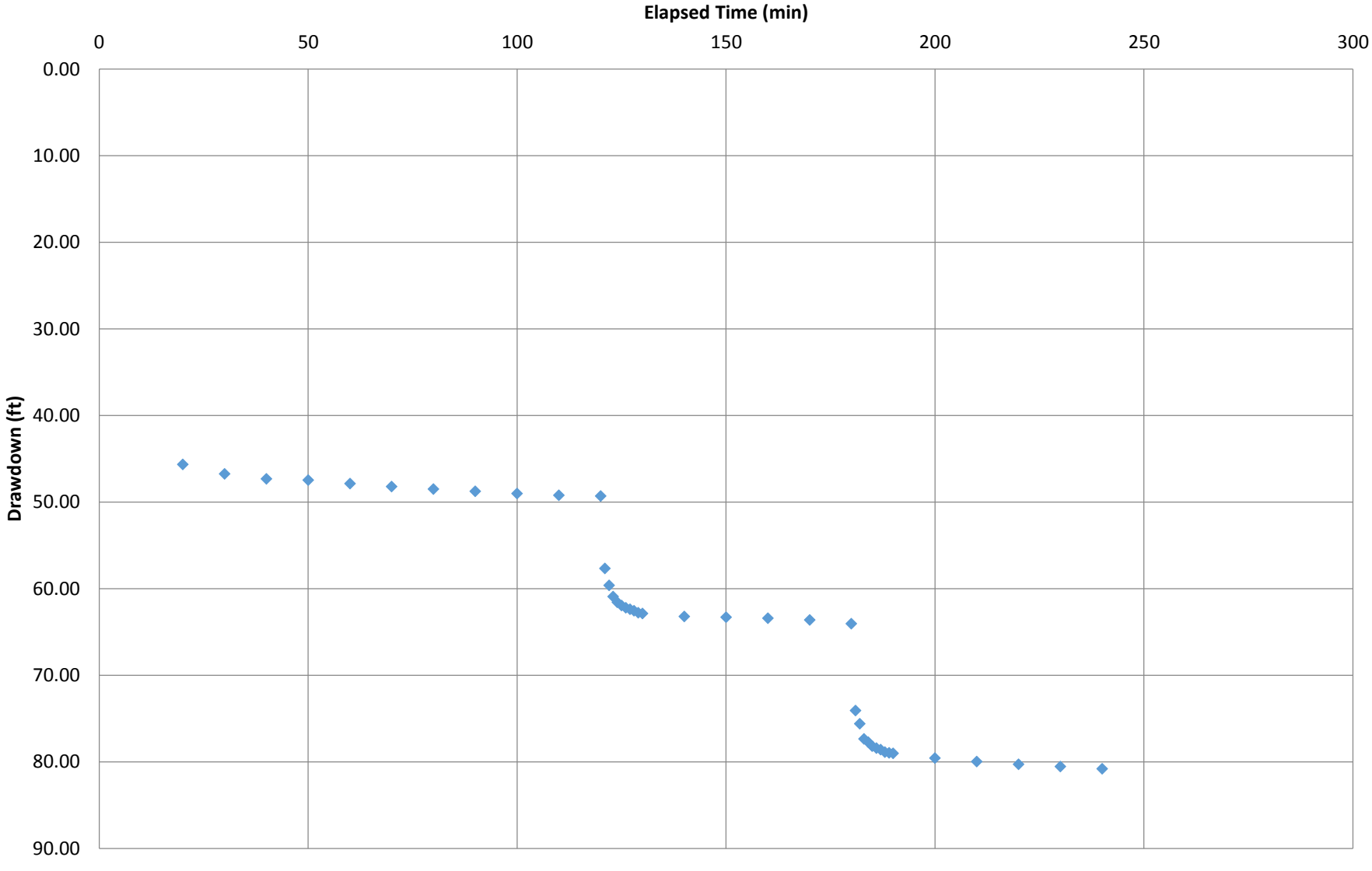
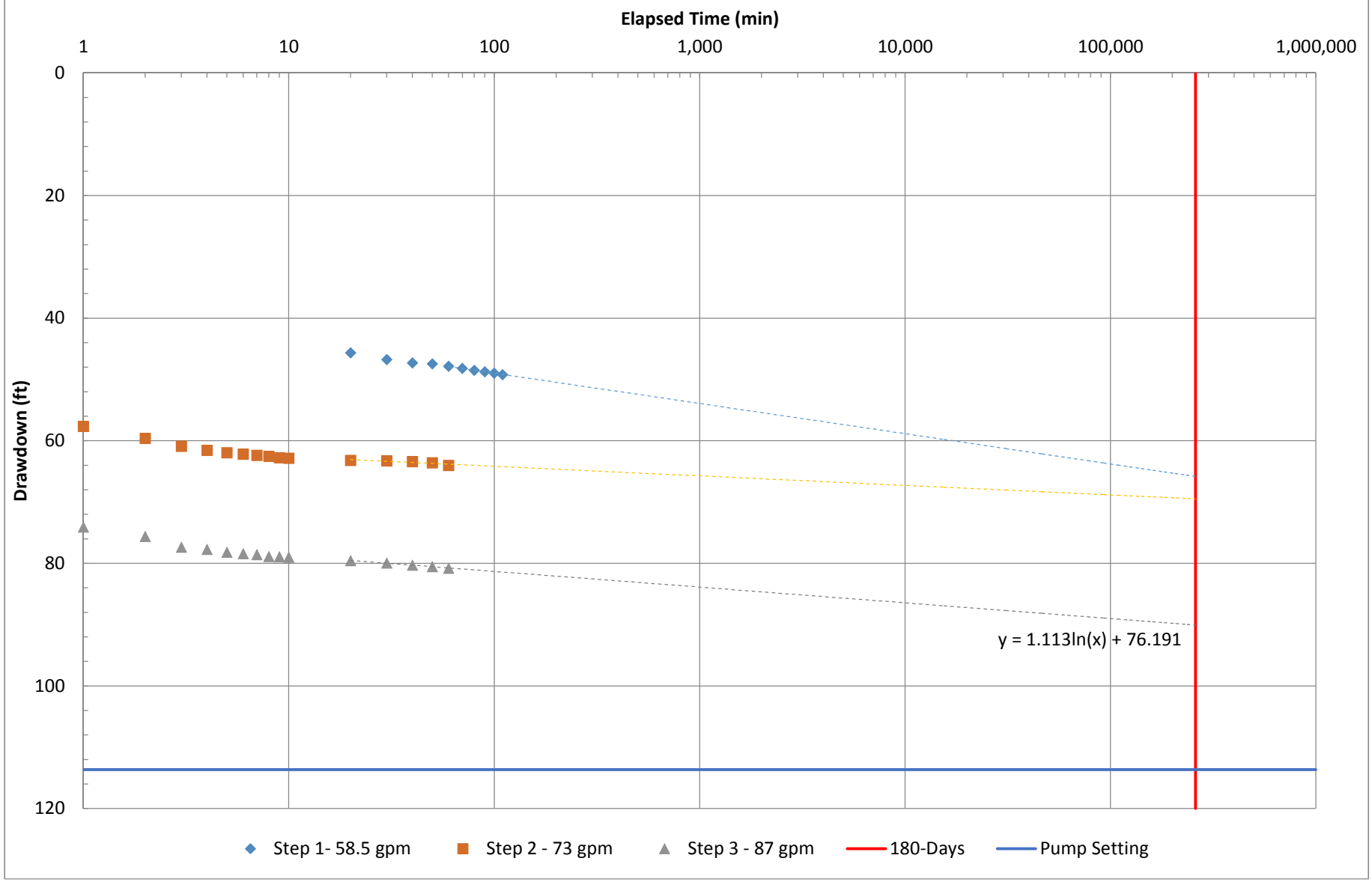


Figure A-2

Lincoln Park Step Rate Pumping Test Extraploations
(November 3, 2015)



Nashoba Analytical, LLC Tel: 978-391-4428 Fax: 978-391-4643 LabNumber: **161067**

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Client:

Weston and Sampson

Five Centennial Drive

Peabody, MA 01960-7985

ReportDate: 11/30/2015

Certificate of Analysis

Lincoln Park Well, 290 Washington St., Somerville MA

Parameter	Method		Result	MCL	MRL	Date of Analysis	Analyst
- Start-up Sample							
Sampled: 11/3/2015 9:30:00 AM by Tom Hydro							
Total Coliform Bacteria, /100ML	MF-SM9222B		0	0/Absent	0	11/3/2015 3:50:00 PM	M-MA1118
Aluminum, MG/L	EPA 200.7		ND	0.2	0.02	11/5/2015	M-MA1118
Antimony, MG/L	EPA 200.8		ND	0.006	0.001	11/13/2015	M-CT008
Arsenic, Total, MG/L	SM 3113B		ND	0.01	0.001	11/4/2015	M-MA1118
Barium, MG/L	EPA 200.7		0.048	2	0.001	11/5/2015	M-MA1118
Beryllium, MG/L	EPA 200.7		ND	0.004	0.001	11/5/2015	M-MA1118
Cadmium, MG/L	EPA 200.8		ND	0.005	0.001	11/13/2015	M-CT008
Calcium, MG/L	EPA 200.7		26.2	Not Spec	0.2	11/5/2015	M-MA1118
Chromium, MG/L	EPA 200.8		ND	0.1	0.001	11/13/2015	M-CT008
Copper, MG/L	EPA 200.7		ND	1.3	0.003	11/5/2015	M-MA1118
Iron, MG/L	EPA 200.7	#	0.77	0.3	0.003	11/5/2015	M-MA1118
Lead, MG/L	SM 3113B		ND	0.015	0.001	11/4/2015	M-MA1118
Magnesium, MG/L	EPA 200.7		18.3	Not Spec	0.1	11/5/2015	M-MA1118
Manganese, MG/L	EPA 200.7	#	0.062	0.05	0.002	11/5/2015	M-MA1118
Mercury, MG/L	EPA 245.2		ND	0.002	0.0002	11/11/2015	M-CT008
Molybdenum, MG/L	EPA 200.7		ND	Not Spec	0.002	11/6/2015	M-MA1118
Nickel, MG/L	EPA 200.7		ND	0.1	0.001	11/5/2015	M-MA1118
Potassium, MG/L	EPA 200.7		12.7	Not Spec	0.1	11/5/2015	M-MA1118
Selenium, MG/L	EPA 200.8		ND	0.05	0.005	11/13/2015	M-CT008
Silica as SiO2, MG/L	EPA 200.7		18.5	Not Spec	0.25	11/5/2015	M-MA1118
Silver, MG/L	EPA 200.7		ND	0.1	0.003	11/5/2015	M-MA1118
Sodium, MG/L	EPA 200.7		183	See Note	0.2	11/5/2015	M-MA1118
Zinc, MG/L	EPA 200.7		0.098	5	0.002	11/5/2015	M-MA1118
Alkalinity, MG/L	SM 2320B		162	Not Spec	1	11/3/2015	M-MA1118
Bromide, MG/L	EPA 300.0		0.3	Not Spec	0.1	11/16/2015	M-MA1118
Carbon Dioxide, MG/L	SM 4500-CO2-C		10	Not Spec	1	11/3/2015	M-MA1118
Chloride, MG/L	EPA 300.0	#	260	250	1	11/3/2015	M-MA1118
Color Apparent, CU	SM 2120B		10	15	0	11/3/2015	M-MA1118
Conductivity, UMHOS/CM	SM 2510B		1318	Not Spec	1	11/3/2015	M-MA1118

MCL=Maximum Contaminant Level (EPA Limit), MRL = Minimum Reporting Level

Sodium Guidelines- Mass 20, EPA 250, # = Result Exceeds Limit or Guideline

ND = None Detected (<MRL), * = Background Bacteria Noted

Massachusetts Certified
Laboratory #M-MA1118

David L. Knowlton
Laboratory Director

Nashoba Analytical, LLC Tel: 978-391-4428 Fax: 978-391-4643 LabNumber: **161067**

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Client:

Weston and Sampson

Five Centennial Drive

Peabody, MA 01960-7985

ReportDate: 11/30/2015

Certificate of Analysis

Lincoln Park Well, 290 Washington St., Somerville MA

Parameter	Method		Result	MCL	MRL	Date of Analysis	Analyst
Cyanide, MG/L	SM 4500-CN-C,E		ND	0.2	0.01	11/12/2015	M-CT008
Fluoride, MG/L	EPA 300.0		ND	4	0.1	11/3/2015	M-MA1118
Hardness, Total, MG/L	SM 2340B		141	Not Spec	1	11/5/2015	M-MA1118
Nitrate as N, MG/L	EPA 300.0		ND	10	0.05	11/3/2015	M-MA1118
Nitrite as N, MG/L	EPA 300.0		ND	1	0.02	11/3/2015	M-MA1118
pH, PH AT 25C	SM 4500-H-B		7.4	6.5 - 8.5	NA	11/3/2015	M-MA1118
Sulfate, MG/L	EPA 300.0		110	250	1	11/3/2015	M-MA1118
Total Dissolved Solids, MG/L	SM 2540C	#	672	500	1	11/3/2015	M-MA1118
Turbidity, NTU	EPA 180.1		4.8	Not Spec	0.1	11/3/2015	M-MA1118
Gross Alpha, PCI/L	EPA 900.0		6.1 +/- 0.7	15	3.0	11/23/2015	KNL
Gross Beta, PCI/L	EPA 900.0		16.0 +/- 1.6		2.4	11/23/2015	KNL
Radon, PCI/L	EPA 913.0		1510	10000	100	11/4/2015	M-MA072

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Massachusetts Certified
Laboratory #M-MA1118

David L. Knowlton
Laboratory Director

Nashoba Analytical, LLC Tel: 978-391-4428 Fax: 978-391-4643 LabNumber: **161069**

31A Willow Road, Ayer MA 01432 Website: http://www.NashobaAnalytical.com Use this number with all correspondence

Client:

Weston and Sampson

Five Centennial Drive

Peabody, MA 01960-7985

ReportDate: 11/30/2015

Certificate of Analysis

Lincoln Park Well, 290 Washington St., Somerville MA

Parameter	Method		Result	MCL	MRL	Date of Analysis	Analyst
- Shut-down Sample							
Sampled: 11/3/2015 1:20:00 PM by Tom Hydro							
Total Coliform Bacteria, /100ML	MF-SM9222B		0	0/Absent	0	11/3/2015 3:50:00 PM	M-MA1118
Aluminum, MG/L	EPA 200.7		ND	0.2	0.02	11/5/2015	M-MA1118
Antimony, MG/L	EPA 200.8		ND	0.006	0.001	11/13/2015	M-CT008
Arsenic, Total, MG/L	SM 3113B		ND	0.01	0.001	11/4/2015	M-MA1118
Barium, MG/L	EPA 200.7		0.047	2	0.001	11/5/2015	M-MA1118
Beryllium, MG/L	EPA 200.7		ND	0.004	0.001	11/5/2015	M-MA1118
Cadmium, MG/L	EPA 200.8		ND	0.005	0.001	11/13/2015	M-CT008
Calcium, MG/L	EPA 200.7		26.3	Not Spec	0.2	11/5/2015	M-MA1118
Chromium, MG/L	EPA 200.8		ND	0.1	0.001	11/13/2015	M-CT008
Copper, MG/L	EPA 200.7		ND	1.3	0.003	11/5/2015	M-MA1118
Iron, MG/L	EPA 200.7	#	0.47	0.3	0.003	11/5/2015	M-MA1118
Lead, MG/L	SM 3113B		ND	0.015	0.001	11/4/2015	M-MA1118
Magnesium, MG/L	EPA 200.7		19.6	Not Spec	0.1	11/5/2015	M-MA1118
Manganese, MG/L	EPA 200.7	#	0.057	0.05	0.002	11/5/2015	M-MA1118
Mercury, MG/L	EPA 245.2		ND	0.002	0.0002	11/11/2015	M-CT008
Molybdenum, MG/L	EPA 200.7		ND	Not Spec	0.002	11/6/2015	M-MA1118
Nickel, MG/L	EPA 200.7		ND	0.1	0.001	11/5/2015	M-MA1118
Potassium, MG/L	EPA 200.7		12.9	Not Spec	0.1	11/5/2015	M-MA1118
Selenium, MG/L	EPA 200.8		ND	0.05	0.005	11/13/2015	M-CT008
Silica as SiO2, MG/L	EPA 200.7		19.4	Not Spec	0.25	11/5/2015	M-MA1118
Silver, MG/L	EPA 200.7		ND	0.1	0.003	11/5/2015	M-MA1118
Sodium, MG/L	EPA 200.7		197	See Note	0.2	11/5/2015	M-MA1118
Zinc, MG/L	EPA 200.7		0.046	5	0.002	11/5/2015	M-MA1118
Alkalinity, MG/L	SM 2320B		162	Not Spec	1	11/3/2015	M-MA1118
Bromide, MG/L	EPA 300.0		0.3	Not Spec	0.1	11/16/2015	M-MA1118
Carbon Dioxide, MG/L	SM 4500-CO2-C		7.5	Not Spec	1	11/3/2015	M-MA1118
Chloride, MG/L	EPA 300.0	#	257	250	1	11/3/2015	M-MA1118
Color Apparent, CU	SM 2120B		5	15	0	11/3/2015	M-MA1118
Conductivity, UMHOS/CM	SM 2510B		1335	Not Spec	1	11/3/2015	M-MA1118

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Peabody, MA 01960-7985

ReportDate: 11/30/2015

Certificate of Analysis

Lincoln Park Well, 290 Washington St., Somerville MA

Parameter	Method		Result	MCL	MRL	Date of Analysis	Analyst
Cyanide, MG/L	SM 4500-CN-C,E		ND	0.2	0.01	11/12/2015	M-CT008
Fluoride, MG/L	EPA 300.0		ND	4	0.1	11/3/2015	M-MA1118
Hardness, Total, MG/L	SM 2340B		146	Not Spec	1	11/5/2015	M-MA1118
Nitrate as N, MG/L	EPA 300.0		ND	10	0.05	11/3/2015	M-MA1118
Nitrite as N, MG/L	EPA 300.0		ND	1	0.02	11/3/2015	M-MA1118
pH, PH AT 25C	SM 4500-H-B		7.4	6.5 - 8.5	NA	11/3/2015	M-MA1118
Sulfate, MG/L	EPA 300.0		111	250	1	11/3/2015	M-MA1118
Total Dissolved Solids, MG/L	SM 2540C	#	664	500	1	11/3/2015	M-MA1118
Turbidity, NTU	EPA 180.1		1.2	Not Spec	0.1	11/3/2015	M-MA1118
Gross Alpha, PCI/L	EPA 900.0		6.3 +/- 0.7	15	2.7	11/23/2015	KNL
Gross Beta, PCI/L	EPA 900.0		14.5 +/- 1.6		2.3	11/23/2015	KNL
Radon, PCI/L	EPA 913.0		1840	10000	100	11/4/2015	M-MA072

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