LOT AT S. END OF ELIZABETH SETON CAMPUS
WESTCHESTER COUNTY
YONKERS, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: V00687-3

Prepared for:
The City of Yonkers
40 South Broadway
Yonkers, New York 10701

Prepared by:
The City of Yonkers
Department of Engineering
40 South Broadway – Room 315
Yonkers, New York 10701

Revised by:
Lockwood, Kessler & Bartlett, Inc.
1 Aerial Way
Syosset, NY 11791

Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date
1	August 2025	Updated 2016 SMP to reflect the change in site use to public ballfield, and the June 2025 SMP template	
2	Sepetember 2025	Updated August 2025 SMP per DEC comments.	
3	April 2026	Updated September 2025 SMP per DEC comments.	

APRIL 2026

CERTIFICATION STATEMENT

I PAUL N. SUMMERFIELD certify that I am currently a NYS registered professional engineer and that this revised Site Management Plan was prepared in accordance with the applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

P.N. Summerfield P.E. NY 064542

4/21/26 DATE

TABLE OF CONTENTS

Section	Description	Page
LIST OF ACRONYMS		
ES	**EXECUTIVE SUMMARY**	
1.0	**INTRODUCTION**	1
1.1	General	1
1.2	Revisions and Alterations	2
1.3	Notifications	2
2.0	**SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS**	3
2.1	Site Location and Description	3
2.2	Physical Setting	3
2.2.1	Land Use	3
2.2.2	Geology	3
2.2.3	Hydrogeology	4
2.3	Investigation and Remedial History	4
2.4	Remedial Action Objectives	5
2.5	Remaining Contamination	5
2.5.1	Soil	5
2.5.2	Groundwater	5
2.5.3	Soil Vapor	6
2.6	Remedial History	6
3.0	**INSTITUTIONAL AND ENGINEERING CONTROL PLAN**	10
3.1	General	10
3.2	Institutional Controls	10
3.3	Engineering Controls	11
3.3.1	Soil Cover	11
3.3.2	Site Security	11
3.3.3	Criteria for Completion of Remediation/Termination of Remedial Systems	11
4.0	**MONITORING PLAN**	12
4.1	General	12
4.2	Site-wide Inspection	12
5.0	**OPERATION AND MAINTENANCE PLAN**	15
5.1	General	15

TABLE OF CONTENTS (Continued)

Section	Description	Page
6.0	**PERIODIC ASSESSMENTS/EVALUATIONS**	17
6.1	Climate Change Vulnerability Assessment	17
6.2	Green Remediation Evaluation	18
7.0	**REPORTING REQUIREMENTS**	20
7.1	Site Management Reports	20
7.2	Periodic Review Report	21
7.2.1	Certification of IC/EC	23
7.3	Corrective Measures Work Plan	24
7.4	Remedial System Optimization Report	24
8.0	**REFERENCES**	25

List of Tables

1. Site Contacts 2
2. Inspection/Report Schedule 20

List of Figures

1. Site Location 1a
2. Site Plan 1b

List of Appendices

Appendix A - Excavation Work Plan with Community Air Monitoring Plan

Appendix B - Metes and Bounds, As-built Survey Map & Deed Restriction

Appendix C – RAWP and RCWP

Appendix D – Health and Safety Plan

Appendix E - Site-wide Inspection Form

Appendix F – Final Design Plans

Appendix G – Site Investigation Report

Appendix H – Yonkers Landfill Modifications Plans

Appendix I – Copy of Manufacturer's Field Maintenance Procedures

List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Greenhouse Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
P.E. or PE	Professional Engineer
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study

ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification: #V00687-3, Lot at S. End of Elizabeth Seton Campus, 1061 North Broadway, Yonkers, NY

Institutional Controls:	1. With the new cover, the property may be used for restricted residential or active recreational, such as public ballfields.	
	2. The ICs for the site include the VCA and the Deed Restriction filed with the Westchester County Clerk.	
	3. All ECs must be inspected at a frequency and in a manner defined in the SMP.	
Engineering Controls:	1. Cover system (includes ballfield surface)	
	2. Site security (signs, fences).	
Inspections:		Frequency
1. Site inspection (includes new ballfield).		Annually
Monitoring:		
1. No environmental monitoring at this site.		
Maintenance:		
1. Ballfield maintenance per manufacturer.		As recommended
Reporting:		
2. Periodic Review Report		Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this SMP.

1.0 INTRODUCTION

1.1 General

This SMP is a required element of the remedial program for the Lot at S. End of Elizabeth Seton Campus Site located in Yonkers, New York (hereinafter referred to as the "site"). See Figure 1. The Site is currently in the New York State (NYS) VCP, Site No. V00687-3, which is administered by the NYSDEC.

On January 20, 2004 Iona College entered into a VCA with the NYSDEC to remediate a 3.4-acre portion of the 7.5-acre site. Subsequent to that agreement, the City of Yonkers took over ownership of the site and was added to the VCA on January 2, 2009. The VCA required the Remedial Parties to investigate and remediate contaminated media at the site. Figure 2 shows the site location and boundaries of this 3.4-acre area subject to this VCA. The boundaries of the site are more fully described in the As-built Survey Map and metes and bounds site description that is part of the Deed Restriction for the site provided in Appendix A.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". ICs and ECs have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. A Deed Restriction, recorded with the Westchester County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Deed Restriction. Failure to properly implement the SMP is a violation of the Deed Restriction; and

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 and the VCA for the site, and thereby subject to applicable penalties.



FIGURE 1

SITE LOCATION
1061 NORTH BROADWAY, YONKERS, N.Y.

LKB ENGINEERING

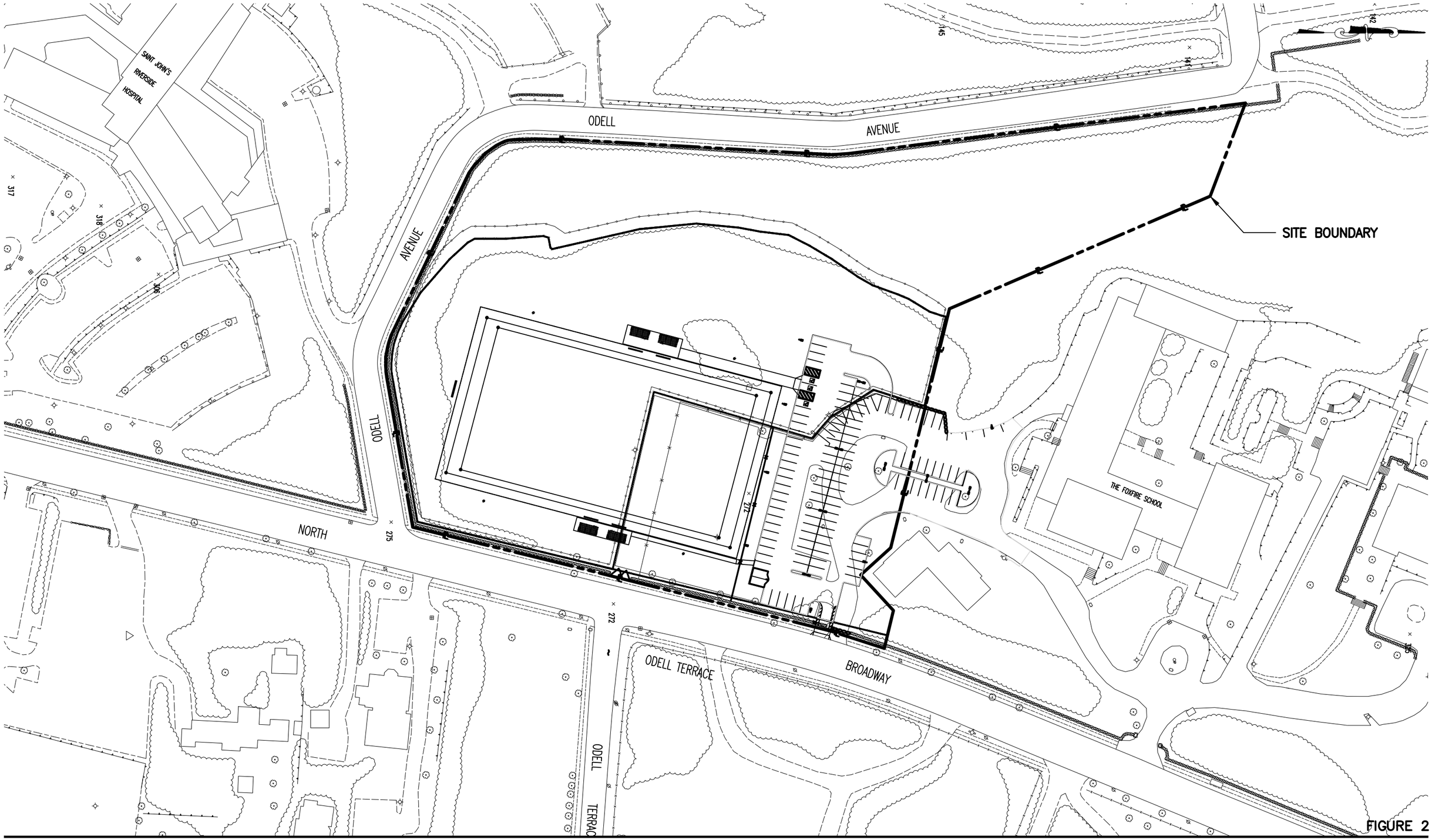


FIGURE 2

SITE BOUNDARY
1061 NORTH BROADWAY, YONKERS, N.Y.

LKB ENGINEERING

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in NYS. A list of contacts for persons involved with the site is provided in Table 1 of this SMP.

This SMP was prepared initially by the City of Yonkers Engineering Department in 2016, in accordance with the requirements in DER-10 (Technical Guidance for Site Investigation and Remediation, May 2010), and guidelines provided by NYSDEC. It has been updated by LKB to reflect the change in site usage to a public ballfield and the June 2025 SMP template. This SMP addresses the means for implementing the ICs and ECs in the Deed Restriction for the site.

1.2 Revisions and Alterations

Revisions and alterations to this SMP will be proposed in writing to the NYSDECs project manager. The NYSDEC can also make changes to the SMP or request revisions from the remedial party. All approved alterations must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a NYS PE. In accordance with the Deed Restriction for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC DER-10 for the following reasons:

1. 60-day advance notice of any proposed changes in site use that are required under the terms of the VCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the EWP. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the abovementioned 60-day advance notice is also required.

4. Notice within 48 hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.

5. Notice within 48 hours of any non-routine maintenance activities.

6. Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

8. At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Voluntary Cleanup Agreement (VCA), and all approved work plans and reports, including this SMP.

9. Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

Table 1 on the following page lists contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information.

Table 1: Site Contacts

Name	**Contact Information**	**Required Notification***
Matthew Hubicki, NYSDEC PM	(518) 402-9605 matthew.hubicki@dec.ny.gov	All Notifications
Steven McCague, NYSDEC Supervisor	(518)-402-8108 steven.mccague@dec.ny.gov	All Notifications
Renata Ockerby, NYSDOH PM	(518) 402-7867 renata.ockerby@health.ny.gov	Notifications 4, 6 & 7

* Note: Numbers in this column reference the numbered bullets in the notification list in this section.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in the City of Yonkers, County of Westchester, New York and is identified as a portion of Section 3, Block 3515, Lot 115 on the City of Yonkers Tax Map Section 3. The site is an approximately 7.5-acre area bounded by a school to the north, Odell Avenue to the south and west, and North Broadway to the east (see Figure 2). Appendix A contains an as-built survey map with a metes and bounds survey description which fully describe the boundaries of the site. Also included in Appendix A is a copy of the Deed Restriction for the site. The site is owned by the City of Yonkers.

2.2 Physical Setting

2.2.1 Land Use

The site is filled land that has been covered with clean soil and converted into a public synthetic turf ballfield.

2.2.2 Geology

The site is situated at the top of the slope that forms the east bank of the Hudson River, at a location that is approximately 250 feet higher and 1,300 feet due east. As noted in the project RCWP, bedrock underlying the site is Fordham Gneiss, a type of regional metamorphic rock comprised of quartz, feldspar and various dark minerals. The RCWP also notes that surface geology in the area of the site is characterized by a discontinuous layer of glacial till of variable thickness. The till was deposited beneath glacial ice and consists of a compact, relatively impermeable mixture of unconsolidated materials that can range in grain size from clay to boulders. Bedrock forms outcrops where till is absent.

The total volume of fill at the site, overlying pre-existing conditions, is estimated to be about 17,700 cubic yards, with an average thickness of approximately 5 feet. According to available information, the fill was brought to the site around the year 1990

for leveling purposes. A cross-sectional view of the site can be found on Sheet 2 of the Project Design Plans in Appendix F.

2.2.3 Hydrogeology

The occurrence of groundwater in the area of the site is noted in the RCWP to be limited, as neither the gneiss bedrock nor the overlying glacial till is known to produce appreciable amounts of groundwater. Further, the RCWP cites United States Geological Survey Bulletin GW-35 - The Groundwater Resources of Westchester County, New York, which states that wells screened in gneiss produce small to moderate quantities of water, and that wells screened in the till generally yield less than five gallons per minute.

The RCWP notes the following site characteristics: no observed groundwater seeps along the steeper western slope of the site; high elevation of the slope, and; bedrock outcrops are noted to be present along a portion of Odell Avenue bordering the western portion of the site. Due to these conditions, the depth to groundwater at the site was estimated to be at least 60 feet, and the water table was determined to be located in bedrock.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. The Site Investigation Report itself is provided in Appendix G.

Generally, the RI determined that elevated concentrations (in excess of the recommended soil cleanup objectives in NYSDEC Part 375 Table 6.8b Commercial Use Restriction) of benzo(a)pyrene and six (6) other polycyclic aromatic hydrocarbons (PAHs) were detected in fill materials disposed of at the site. Additionally, elevated concentrations of copper, lead, mercury and zinc were detected in isolated locations within the on-site fill materials. Detailed test data of the fill materials can be found in Appendix G – Site Investigation Report.

2.4 Remedial Action Objectives

The RAOs for the site are identified in the Deed Restriction, and are restated below:

- Prevent direct contact with/ingestion of the fill materials.
- Prevent use of groundwater without adequate monitoring, and if required, treatment.

In order to meet the above-referenced objectives, the report proposed a remedy of installing a clean soil cover over the contaminated soil of the site, as well as providing institutional controls for the site to regulate and limit contact with contaminated fill and groundwater resources. A groundwater use restriction also prevents usage of groundwater at the site without adequate monitoring, and if necessary, treatment.

2.5 Remaining Contamination

2.5.1 Soil

The pre-existing site included an obvious and visible main fill area that bordered the existing parking lot on the west and southwest, as well as an unpaved area south of the existing parking lot. The main fill area contained the majority of the fill at the site. These areas were investigated on March 26 and 29, 2004, with additional investigation work performed on June 17, 2004.

2.5.2 Groundwater

As noted above, groundwater in the area of the site is located in the bedrock underlying the site, estimated to be at least 60 feet below ground. No sampling of groundwater or soil vapor was completed during the site investigation. The Site Investigation Report performed for the site used laboratory testing of leachate generated from the on-site fill materials, combined with a qualitative assessment of groundwater usage near the site, to evaluate potential site impacts to the groundwater. Further investigation of these media will be required if any change in site use is contemplated.

The Site Investigation Report concluded that the existing contamination of the site did not pose significant impact to groundwater. The NYSDEC concurred with this assessment, provided that adequate institutional controls be established to prevent the use of groundwater as a source of potable or process water without proper monitoring or treatment, as determined by the Westchester County Department of Health.

2.5.3 Soil Vapor

The Site Investigation Report referenced above indicated that during the excavation of sixteen (16) test pits, air monitoring for total volatile organic compounds (VOC's), combustible gas (methane) and hydrogen sulfide (H_2S) was performed. The investigation indicated that VOC's and methane were not detected, and H_2S was only detected at low, background concentrations. It also noted that these findings were consistent with the age and composition of the fill, as well as with the results of laboratory analyses of fill samples collected during the investigation. Based upon the data presented in the Site Investigation Report, emissions of VOCs, methane and H_2S were not expected to be a concern during remediation activities.

2.6 Remediation History

The site was remediated in accordance with the remedy selected by the NYSDEC in the Decision Document dated March 20, 2008, as well as in accordance with the following documents: Remedial Action Work Plan (RAWP) dated October 29, 2004-Revised March 24, 2005 and the Remedial Closure Work Plan (RCWP) dated November 28, 2007 and approved by the NYSDEC March 20, 2008, both of which are included in Appendix C; and the Final Biddable Design Specifications and Plans dated December 10, 2010 and approved by NYSDEC, which are included in Appendix F.

The remedial work was performed in 2011 and the remediated property had been used for open/green space and a passive park since then. In 2023, the site use was changed from a passive park to a public ballfield, and a synthetic turf ballfield with an underdrain system was constructed on top of the existing vegetated soil cover in accordance with the Bid Documents that were approved by the NYSDEC, and the

Corrective Measures Work Plan (CMWP) dated May 16, 2023; see Appendix F for the design plans.

The following is a summary of the Remedial Actions performed at the site:

1. An above-grade fill pile was initially thought to be comprised primarily of broken asphalt, through a previous surficial visual observation by the City's consulting engineer, LKB. During construction operations, City inspectors observed the excavation of the pile; visually inspected the volume of pile material; and found it to be composed of only a minor amount of asphalt. As the fill pile material characteristics were found to be visually similar to the rest of the on-site material, the pile was spread out with the on-site material and graded as part of action 5 below; The project site was noted not to contain any miscellaneous debris (i.e., tires, etc.) that would have required separate disposal;
2. Several large dead trees that died as a result of fill being placed around their bases were removed;
3. Subsurface explorations of the site were performed at the probable location of the root cellar, cited in the RCWP as possibly existing on site. No evidence of a root cellar was discovered;
4. Re-graded the site as per the construction documents and as necessary to maintain proper drainage;
5. Performed a topographic survey of the site to verify proper grade elevations;
6. Covered the fill in relatively flat, accessible areas of the site with a minimum of one foot of clean soil and established vegetative cover (grass and wildflower mix);
7. Covered the steep western slope of the site with crushed rock, including removal of existing trees;
8. Prevented public access to the steep western slope of the site using appropriate fencing and signage;

9. Performed another topographic survey of the site to verify adequate thickness of the clean soil cover;
10. Executed and recorded an appropriate property deed restriction for the Site, to restrict land use to a passive open space use and prevent future exposure to any contamination remaining at the site;
11. Developed and began the implementation of this SMP for the long-term management of remaining contamination as required by the Deed Restriction, which includes plans for: (1) ICs and ECs, (2) inspections, and (3) reporting.

Remedial activities were completed at the site in November, 2011. No materials were removed from the site. All existing material was graded on site and covered with the approved Capping System. No long-term treatment systems were installed as part of the site remedy.

All existing materials that were on the site prior to commencing the project were left on site and included construction and demolition debris such as asphalt, concrete and ash. The volume of this material is estimated to be approximately 17,700 cubic yards, with an average thickness of approximately 5 feet. These materials are the source of the contaminants present in the fill on the site.

An indicator layer was installed over all existing fill areas that were to be "Capped". The indicator layer consists of orange colored high density polyethylene material. The indicator layer is located a minimum of 12" below the surface of the imported capping materials.

The soil capping material placed on top of the existing contaminated material is a minimum 24-inch thick clean soil layer. This material conforms to the Restricted Use Soil Cleanup Objectives for the Protection of Public Health – Commercial and Protection of Groundwater, as per Table 375-6.8(b) of the 6NYCRR Part 375 Regulations.

The soil cap material was obtained from the NYCDEP Eastview Wetland Mitigation Project, located in Greenburgh, New York. The volume of this material totaled 4,370 cubic yards of clean fill, and 1,273 cubic yards of topsoil. The as-built

topographic survey, when compared to the pre-existing surface topography, confirmed that the actual thickness of the installed soil cap material was at least 12-inches thick.

A pre-existing 6" vitrified clay sanitary sewer pipe still exists on-site. This sanitary sewer flows almost due north through the property, from the upstream sanitary sewer manhole located midway down the northern end of the crushed rock stabilized, sloped portion of the project site, to the next downstream manhole located approximately 200 feet offsite to the north. The City of Yonkers maintains this sanitary sewer line as a part of the City's active sanitary sewer system. All pre-existing sanitary sewer piping and sanitary sewer manhole structures were left undisturbed, and will be maintained in the future as part of the sanitary sewer collection system of the City.

The 12-inch soil cover installed by the 2011 remedial construction remains in place. An additional 12-inches of clean soil was placed on top of it to provide an additional barrier and achieve grades for the ballfield by the 2023 Change in Use project. The synthetic turf field has an underdrain system that collects infiltration and conveys it to an off-site recharge basin via the City storm sewer system. The crushed rock cover on the steep western slope was not disturbed.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contaminated soil exists beneath the site, ICs and ECs are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all EC/ICs at the site. This IC/EC plan is one component of the SMP and is subject to revision by NYSDEC project manager.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Deed Restriction;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the EWP for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC project manager.

3.2 Institutional Controls

The site has a series of ICs in the form of site restrictions. Adherence to these ICs is required by the Deed Restriction. The specific Site restrictions that apply are:

- With the new cover, the property may be used for restricted residential or active recreational use, which included public ballfields, provided that the long-term ECs and ICs included in this SMP are employed.

- The property may not be used for a higher level of use, such as unrestricted residential use without additional remediation and amendment of the Deed Restriction, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP, EWP and HASP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use;
- The City of Yonkers will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the site at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow, and will be made by an expert that the NYSDEC finds acceptable.

ICs identified in the Deed Restriction may not be discontinued without an amendment to or extinguishment of the Deed Restriction.

3.3 Engineering Controls

3.3.1 Soil Cover

Exposure to remaining contamination in soil/fill at the site is prevented by a soil cover system placed over the site. This cover system is comprised of a minimum of 24 inches of clean soil. On top of this soil cover, a synthetic turf ballfield with an underdrain system was constructed. The EWP provided in Appendix B outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring Plan included

in Section 4 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a HASP and associated CAMP prepared for the site and provided in Appendices D and B, respectively. Any breach of the site's cover system must be performed or overseen by a PE in the City of Yonkers Engineering Department.

3.3.2 Security

Procedures for monitoring, operating and maintaining the site security measures are provided in the following sections of this SMP. This SMP also addresses inspection procedures that must occur after any severe weather condition has taken place that may affect on-site ECs.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

4.0 MONITORING PLAN

4.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. This Monitoring Plan may only be revised with the approval of NYSDEC.

4.2 Site-Wide Inspection

Site-wide inspections will be performed annually. These inspections will be conducted when the ground surface is visible (i.e., no snow cover). Site-wide inspections will be performed by a NYS PE in the City of Yonkers Engineering Department. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs. During these inspections, an inspection form will be completed as provided in Appendix E – Site-wide Inspection Form. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- Whether stormwater management systems, such as basins and outfalls, are working as designed;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the

SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Deed Restriction;
- Achievement of remedial performance criteria; and
- If site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public. The remedial party will submit follow-up status reports to the NYSDEC within 45 days of the event on actions taken to respond to any emergency event requiring ongoing responsive action, describing and documenting actions taken to restore the effectiveness of the ECs.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This site does not utilize mechanial remedial systems such as slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

Inspection and maintenance of the ballfield and appurtenances will be performed in accordance with the manufacturer's recommendations, provided in Appendix I.

Site-wide inspections will be performed annually for the first five years, then at a frequency determined by the NYSDEC project manager. These periodic inspections must be conducted when the ground surface is visible (i.e. no snow cover). Site-wide inspections will be performed or overseen by a PE in the City of Yonkers Engineering Department. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix E – Site-wide Inspection Form. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- Whether stormwater management systems, such as basins and outfalls, are working as designed;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public. The remedial party will submit follow-up status reports to the NYSDEC within 45 days of the event on actions taken to respond to any emergency event requiring ongoing responsive action, describing and documenting actions taken to restore the effectiveness of the ECs.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a current vulnerability assessment that evaluates the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding. This section also identifies vulnerability assessment updates that will be conducted for the site in Periodic Review Reports.

The results of the assessment is that the site is not vulnerable to climate change. The specific findings are summarized below:

- Flood Plain: The site is not located in a flood plain, low-lying or low-groundwater recharge area. The site is situated on high ground and underlain by dry solid bedrock.
- Sea Level Rise: The is site not near the shoreline or susceptible to sea level rise or storm surge event. The elevation of the site is approximately 300 feet above sea level.
- Site Drainage and Storm Water Management: No areas of the site flood during severe rain events. The ballfield is underlain by a subsurface drainage system.

- Erosion: The site is not subject to erosion. The ballfield portion of the site is synthetic turf. The western slope of the site is covered by large heavy stone rip-rap.
- High Wind: No areas of the site are susceptible to damage from high wind or falling objects. The site features are flat, and there are no trees on it. The light pole foundations have been designed to handle storm force winds.
- Drought. The site is not susceptible to drought. The ballfield is synthetic and does not require irrigation.
- Electricity: The site is connected to the City of Yonkers power grid, and is therefore no more susceptible to power outages than the rest of the city. There are no powered remedial systems at the site, so outages have no impact of the remedy.
- Spill/Contaminant Release: No areas of the site are susceptible to a spill/release due to storm damage or flooding. The residual contamination in the fill is negligible .
- Wildfires: There is no risk of wildfires in the immediate area due to its urban setting.

Accordingly, no climate change-related items need to be included in the SMP.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section provides an environmental footprint analysis of the remedy, as implemented at the time of this SMP. This section of the SMP also provides a summary of green remediation evaluations to be completed for the site during site management and reported in PRRs.

The results of the evaluation are that the site, remedy and reuse are consistent with the DER-31 and have no significant impacts. The specific results are summarized below:

- Waste Generation: No waste was moved offsite during the remediation. No waste is generated by the remedy as it does not entail any active remedial systems. Waste generated by the public during ball games is negligible. It is deposited in source-separated containers cans, and collected and disposed of or recycled by the City of Yonkers as appropriate.
- Energy Usage: Energy usage at the site is limited to powering ball field lighting during night games using LED bulbs, and is therefore negligible.
- Emissions: There are no measurable emissions from the site.
- Water Usage: No water is used at the site.
- Land and/or Ecosystems: No land or ecosystems were disturbed during the remediation. Work was limited to the filled area.

Based on the site, its use, and the above findings, the greener remedy suggestions, BMPs, and related evaluations, optimizations, and reporting in Sections 6.2 and 6.3 of the SMP template do not apply to this site, and are therefore not included in this SMP.

7.0 REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection and maintenance events will be recorded on the site-wide inspection form provided in Appendix E. All site management inspection and maintenance events will be overseen by a NYS PE in the City of Yonkers Engineering Department.

All applicable inspection forms and other records, including system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 2 and summarized in the Periodic Review Report.

Table 2: Inspection/Report Schedule

Task/Report	Reporting Frequency*
Inspection/Maintenance Report	Annually and After Significant Events
Periodic Review Report	Annually, or as otherwise determined by the NYSDEC

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC project manager.

Inspections will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Any observations, conclusions, or recommendations.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

7.2 Periodic Review Report

A PRR will be submitted to the NYSDEC project annually, unless less frequent submittals are requested by the NYSDEC. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix A. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 30 days of the end of each certification period.

PRRs will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- Description of any change of use, import of materials, or excavation that occurred during the certifying period.
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

The PRR will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

7.2.1 Certification of IC/ECs

Following the last inspection of the reporting period, a PE licensed to practice in NYS will prepare, and include in the PRR, the following certification as per the requirements of NYSDEC DER-10:

"For each IC or EC identified for the site, I certify that all of the following statements are true:

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the Deed Restriction;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Paul N. Summerfield, P.E., of the City of Yonkers Engineering Department, 40 South Broadway – Room 315, Yonkers, New York 10701, am certifying as Owner's Designated Site Representative."

The PRR will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager. The PRR may also need to be submitted in hard-copy format if requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control or failure to conduct site management activities, a Corrective Measures Work Plan will be submitted to the NYSDEC project manager for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC project manager.

7.4 Remedial System Optimization Report

Not anticipated to be required for this site, as the site does not have any remedial systems that may require optimization.

8.0 REFERENCES

6 NYCRR Part 375, Environmental Remediation Programs, effective December 31, 2025.

NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation", issued May 2010.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (plus Addenda dated April 2,000, June 2004 and February 2023).

Appendix A

Excavation Work Plan

APPENDIX A – EXCAVATION WORK PLAN

Introduction:

This Excavation Work Plan (EWP) outlines the procedures required to be implemented in the event the barrier layer for the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. The EWP shall ensure that pre-existing cap and site conditions are re-established.

Applicable Standards, Guidance and Criteria:

The following standards, guidance and criteria (SGC's) will apply to any future excavation, or similar actions conducted at the Site that breach, penetrate or temporarily remove and/or disturb any remaining contaminates underlying the barrier layer of the site cover system:

- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response;
- 6 NYCRR Part 750 through 758 – Implementation of NPDES Program in NYS ("SPDES Regulations");
- TAGM 4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (Oct 1989);
- 6NYCRR Part 375 Table 375-6.8(b) – Restricted Use Soil Cleanup Criteria;
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations;
- Air Guide 1 – Guidelines for the Control of Toxic Ambient Air Contaminants; and NYSDOH Generic Community Air Monitoring Plan.

A-1 NOTIFICATION

At least 60 days prior to the start of any ground intrusive activities anticipated to encounter remaining contamination, the site owner or their representative will notify the Department. Currently, this notification will be made to:

Primary Contact: Chief - Site Control Section
NYSDEC – Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7020

Secondary Contact: Mr. Matthew Hubicki – Environmental Engineer
NYSDEC – Division of Environmental Remediation, Bureau C
625 Broadway – 11th Floor
Albany, New York 12233-7014

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP provided in Appendix F of the Final Engineering Report for the site remediation project;
- Identification of disposal facilities for potential waste streams;
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

Listing of Project Entities

A list of parties associated with any particular excavation activities shall be kept on site, with appropriate contact phone numbers and other relevant information. A sample list of project parties is illustrated below:

- City of Yonkers
- Consulting Engineer
- General Contractor
- Environmental Sub Contractor
- Additional Subcontractor's

A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

A-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be segregated based upon the specific zone of material excavated into. Excavations no deeper than a depth of 12-inches or until the barrier layer is reached shall be segregated and kept separate from materials excavated below the barrier layer. Stockpiles of different materials will be kept separate and covered at all times with

appropriately anchored and identified tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

A-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Truck transport routes shall be defined separately for each discrete excavation project. Each excavation project, however, will require that all trucks loaded with site materials will exit the site via North Broadway. Specific truck routes beyond this point will depend on the ultimate destination, and shall be defined for each individual project as may be required. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; [(g) community input [where necessary]]

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

A-6 MATERIALS DISPOSAL OFF-SITE

Generally, no material shall be allowed to be removed from the site. If special circumstances exist which require materials to be removed from the site, all soil/fill/solid

waste excavated to be removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

If required, off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCO's is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

A-7 MATERIALS REUSE ON-SITE

Stockpiles of excavated material will be segregated based upon the specific zone of material that is excavated. Excavated material from a depth of no greater than 12-inches, or until the barrier layer is reached, shall be segregated and stockpiled separately from materials excavated below the barrier layer. Stockpiles of different materials will be kept separate and covered at all times with appropriately anchored and identified tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Chemical concentrations of contaminants in the pre-existing contamination zone is represented and described in the Site Investigation Report in Appendix G of the SMP. On-site materials with chemical concentrations consistent with those described in the SIR

will be acceptable to remain on-site in the existing contamination zone, as long as these materials remain below the barrier layer. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

A-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

A-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities into the contaminated material zone, the cover system will be restored in a manner that complies with the following documents: Remedial Action Work Plan (RAWP) dated October 29, 2004-Revised March 24, 2005; Remedial Closure Work Plan (RCWP) dated November 28, 2007 and approved by the NYSDEC March 20, 2008; and the Final Biddable Design Specifications and Plans (RD) dated December 10, 2010 and approved by NYSDEC.

The demarcation layer, consisting of orange snow fencing material or equivalent material will be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

A-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils shall be required to meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Imported soils shall also be required to meet the contamination levels cited for the "Commercial" landuse category indicated in Table 375-6.8(b) Restricted Use Soil Cleanup Objectives Soils that do not meet these requirements will not be allowed to be imported onto the site. Solid waste will not be allowed to be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

A-11 STORMWATER POLLUTION PREVENTION

Stormwater Pollution Prevention Plan (SWPPP)

A project-specific Storm Water Pollution Prevention Plan shall be specifically prepared for each excavation project in question, as required. Erosion and sediment

controls for all excavation and ground disturbing work shall be placed and maintained in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control and the site-specific Storm Water Pollution Prevention Plan. A copy of the approved SWPPP plan and weekly inspection reports shall be kept on-site by the Contractor.

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

A-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical

analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCB's), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

A-13 HEALTH & SAFETY PLAN/COMMUNITY AIR MONITORING PLAN

Required Documentation:

The following documents shall be required to be prepared for any action which breaches, penetrates or temporarily removes any portion of the cover system in order to penetrate the underlying contaminated material:

1. **Site Specific Health & Safety Plan (HASP)**

   A specific Health and Safety Plan (HASP) shall be produced for each excavation project by the project Contractor, which shall be developed by competent authority and be adopted for use by any party performing work at the site. The Health and Safety Plan (HASP) shall be utilized to protect the health and safety of the on-site personnel and the general public during excavation operations at the site.

   Each HASP shall address the potential physical and chemical hazards that workers and/or the public could face while the planned activities are performed. It shall establish procedures to minimize their exposure through safe work practices and personal protective equipment. The HASP shall be developed to conform with the requirements of the United States Environmental Protection Agency Standard Operating Safety Guide (USEPA, 1988) and the United States Department of Labor, Occupational Safety and Health Administration (OSHA) regulation, Title 29 Code of Federal Regulations, Part 1910.120 (29 CFR Part

1910.120), "Hazardous Waste Operations and Emergency Response" and (29 CFR Part 1929.21), "Safety and Health Regulations for Construction-Confined or Enclosed Space".

All work performed under the Excavation Work Plan shall be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. As such, each HASP shall include the following subjects, at a minimum:

A. Safety Management Policies;

B. Emergency Evacuation Plan;

C. Mental Health Emergency or Crisis Procedures;

D. Fall Protection Policy;

E. Hazard Communication Plan;

F. Occupational Health Hazard;

G. Personal Protective Equipment;

H. Maintenance and Protection of Traffic;

I. Equipment Safety;

J. Respiratory Protection Program;

K. Fire Safety Plan;

L. Trenching and Excavation Safety Manual;

M. Protection of Underground and Overhead;

N. Permit Required Confined Space Entry Policy;

O. Material Safety Data Sheets (MSDS)

An example of a HASP utilized for the site during the remediation of the property can be found in Appendix F of the Final Engineering Report for the project.

2. Community Air Monitoring Plan (CAMP)

Reference is made to NYSDEC Division of Environmental Remediation Publication **DER-10 – Technical Guidance for Site Investigation and Remediation**. Specifically, Appendix 1A of DER-10 **"New York State Department of Health Generic Community Air Monitoring Plan"** (copy attached) shall be utilized as a generic CAMP for any intrusive work activities on-site that penetrate below the 12-inch barrier layer. Monitoring protocols, response levels and actions for volatile organic compounds (VOC's) and particulates (dust) shall be as indicated in the Generic CAMP, included herein.

Air monitoring shall be performed utilizing a Photo Ionization Detector (PID), capable of detecting total volatiles, hydrogen sulfide, carbon monoxide, oxygen and combustible gas. PID readings shall be recorded as recommended in the CAMP. The PID shall be used for the field screening of VOC's, and for measuring Combustible Gas - Lower Exposure Limit (LEL), Oxygen, Carbon Monoxide, and Hydrogen Sulfide. Dust monitors shall be utilized at both upwind and downwind locations to monitor any dust generated by the work. Daily reports shall be kept and recorded in the CAMP Field Data Sheets & Final Monitoring Report.

A figure showing the location of air sampling stations based on generally prevailing wind conditions will be provided for each specific project, depending on the location of the excavation work, and will be shown in an appropriate Figure. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

A-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include utilizing staff to identify odors at the site boundaries. If nuisance odors are identified at the site

boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of dedicated on-site water truck for road wetting. The truck will be equipped with water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.

- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

A-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix B

Metes and Bounds, As-built Survey Map & Deed Restriction

The Office of the Westchester County Clerk: This page is part of the instrument; the County Clerk will rely on the information provided on this page for purposes of indexing this instrument. To the best of submitter's knowledge, the information contained on this Recording and Endorsement Cover Page is consistent with the information contained in the attached document.

533573366DLR0015

Westchester County Recording & Endorsement Page

Submitter Information

Name:	Benchmark Title Agency, LLC	Phone:	914-250-2400
Address 1:	Domenica Stancato	Fax:	914-422-1550
Address 2:	222 Bloomingdale Road	Email:	dstancato@benchmarkta.com
City/State/Zip:	White Plains NY 10605	Reference for Submitter:	BRS1201730C

Document Details

Control Number: **533573366** Document Type: **Declaration (DLR)**

Package ID: 20131222300158001001 Document Page Count: **7** Total Page Count: **8**

Parties

☐ Additional Parties on Continuation page

1st PARTY		2nd PARTY	
1: YONKERS CITY OF	- Other	1: YONKERS CITY OF	- Other
2:		2:	

Property

☐ Additional Properties on Continuation page

Street Address: 1061 NORTH BROADWAY Tax Designation: 3-3515-115

City/Town: YONKERS Village:

Cross- References

☐ Additional Cross-Refs on Continuation page

1: 442951235 2: 3: 4:

Supporting Documents

Recording Fees

Statutory Recording Fee:	$40.00
Page Fee:	$40.00
Cross-Reference Fee:	$0.50
Mortgage Affidavit Filing Fee:	$0.00
RP-5217 Filing Fee:	$0.00
TP-584 Filing Fee:	$0.00
Total Recording Fees Paid:	**$80.50**

Transfer Taxes

Consideration:	$0.00
Transfer Tax:	$0.00
Mansion Tax:	$0.00
Transfer Tax Number:	

Mortgage Taxes

Document Date:

Mortgage Amount:

Basic:	$0.00
Westchester:	$0.00
Additional:	$0.00
MTA:	$0.00
Special:	$0.00
Yonkers:	$0.00
Total Mortgage Tax:	**$0.00**

Dwelling Type: Exempt: ☐

Serial #:

RECORDED IN THE OFFICE OF THE WESTCHESTER COUNTY CLERK

Recorded: 01/30/2014 at 10:30 AM

Control Number: **533573366**

Witness my hand and official seal

Timothy C.Idoni
Westchester County Clerk

Record and Return To

☐ Pick-up at County Clerk's office

BENCHMARK TITLE AGENCY LLC
222 BLOOMINGDALE RD
SUITE 102
WHITE PLAINS, NY 10605

BCS120173Oc

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 11th day of December, 2013, by The City of Yonkers and having an office for the transaction of business at City Hall, 40 South Broadway, Yonkers, NY 10701.

WHEREAS, the Lot at the South End of Elizabeth Seton Campus (Site No. V00687), is the subject of a Voluntary Cleanup Agreement executed by The City of Yonkers as part of the New York State Department of Environmental Conservation's (the "Department's) Voluntary Cleanup Program, namely that parcel of real property located on 1061 North Broadway in The City of Yonkers, County of Westchester, State of New York, which is part of lands conveyed by Iona College to The City of Yonkers by deed dated 9/17/2004 and recorded in the Westchester County Clerks Office under Control Number 442951235 and being more particularly described in Schedule "A," attached to this declaration and made a part hereof, and hereinafter referred to as "the Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE, The City of Yonkers, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Schedule "B" and made a part hereof.

Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated soils.

Third, the owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of engineering controls required for the Remedy, which are described in the SMP, unless in each instance the owner first obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial Use as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial Use as described in 6 NYCRR Part 375-1.8(g)(2)(iv) without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Department or the Westchester County Department of Health.

Sixth, the owner of the Property shall provide a periodic certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional and engineering controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired.

Seventh, the owner of the Property shall continue in full force and effect any institutional and engineering controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

Eighth, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Voluntary Cleanup Agreement requires to be recorded, and hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.

Ninth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

By: _____

Print Name: Susan Gerry

Title: Deputy Mayor Date: 12-11-13

premises:

1061 N. Broadway
Yonkers, NY 10701
Sec 3
BL 3515
Lot 115

STATE OF NEW YORK)

) s.s.:

COUNTY OF WESTCHESTER)

On the 11th day of December, in the year 2015 before me, the undersigned, personally appeared Susan Gerry, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Michael V. Curti

Notary Public State of New York

MICHAEL V CURTI
Notary Public, State of New York
No. 02CU8221882
Qualified in Westchester County
My Commission Expires May 2016

SCHEDULE A
LINER LIMITS

All that certain piece or parcel of land situate, lying and being in the City of Yonkers, County of Westchester, State of New York being more particularly described as follows:

FROM A POINT formed by the intersection of the westerly side of North Broadway and the northerly side of Odell Avenue, THENCE North 21 degrees 44 minutes 53 seconds West a distance of 38.60 feet to the POINT OF BEGINNING;

RUNNING THENCE through the subject parcel known as Section 3, Block 3515, Lot 115 the following twenty five—(25) courses and distances:

1) THENCE South 51 degrees 19 minutes 53 seconds West a distance of 17.64 feet to a point;
2) THENCE South 74 degrees 04 minutes 46 seconds West a distance of 46.95 feet to a point;
3) THENCE South 77 degrees 20 minutes 31 seconds West a distance of 54.20 feet to a point;
4) THENCE North 88 degrees 47 minutes 17 seconds West a distance of 32.65 feet to a point;
5) THENCE North 84 degrees 00 minutes 50 seconds West a distance of 47.04 feet to a point;
6) THENCE North 56 degrees 47 minutes 48 seconds West a distance of 137.53 feet to a point;
7) THENCE North 25 degrees 02 minutes 41 seconds West a distance of 38.33 feet to a point;
8) THENCE North 25 degrees 10 minutes 33 seconds West a distance of 18.27 feet to a point;
9) THENCE North 19 degrees 38 minutes 30 seconds East a distance of 22.34 feet to a point;
10) THENCE North 24 degrees 31 minutes 53 seconds East a distance of 31.11 feet to a point;
11) THENCE North 11 degrees 59 minutes 35 seconds West a distance of 36.19 feet to a point;
12) THENCE North 15 degrees 37 minutes 03 seconds West a distance of 27.06 feet to a point;
13) THENCE North 10 degrees 33 minutes 21 seconds East a distance of 21.53 feet to a point;
14) THENCE North 03 degrees 26 minutes 37 seconds West a distance of 28.11 feet to a point;
15) THENCE North 20 degrees 40 minutes 21 seconds East a distance of 25.48 feet to a point;
16) THENCE North 18 degrees 17 minutes 57 seconds East a distance of 42.69 feet to a point;
17) THENCE North 18 degrees 16 minutes 01 seconds East a distance of 39.78 feet to a point;
18) THENCE North 31 degrees 18 minutes 05 seconds East a distance of 39.49 feet to a point;
19) THENCE North 03 degrees 40 minutes 55 seconds East a distance of 25.90 feet to a point;
20) THENCE North 32 degrees 24 minutes 48 seconds East a distance of 37.98 feet to a point;
21) THENCE North 32 degrees 08 minutes 54 seconds East a distance of 47.75 feet to a point;
22) THENCE North 25 degrees 10 minutes 22 seconds East a distance of 53.10 feet to a point;
23) THENCE North 17 degrees 04 minutes 05 seconds East a distance of 42.09 feet to a point;
24) THENCE North 23 degrees 57 minutes 36 seconds East a distance of 21.81 feet to a point;
25) THENCE South 82 degrees 38 minutes 44 seconds East a distance of 27.02 feet to a point;

THENCE along the boundary of the subject parcel South 68 degrees 28 minutes 19 seconds East a distance of 117.32 feet to a point;

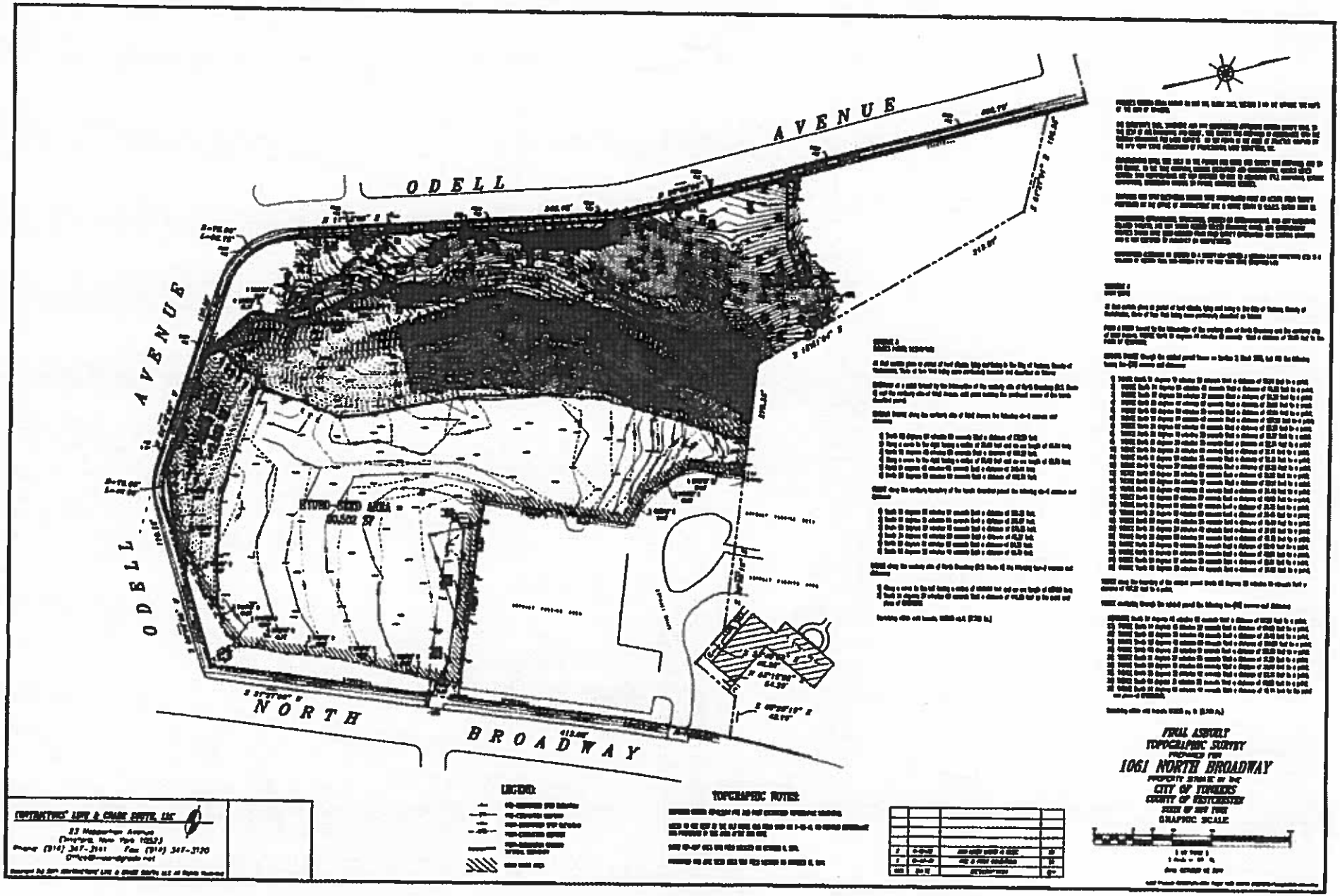
THENCE continuing through the subject parcel following the ten—(10) courses and distances;

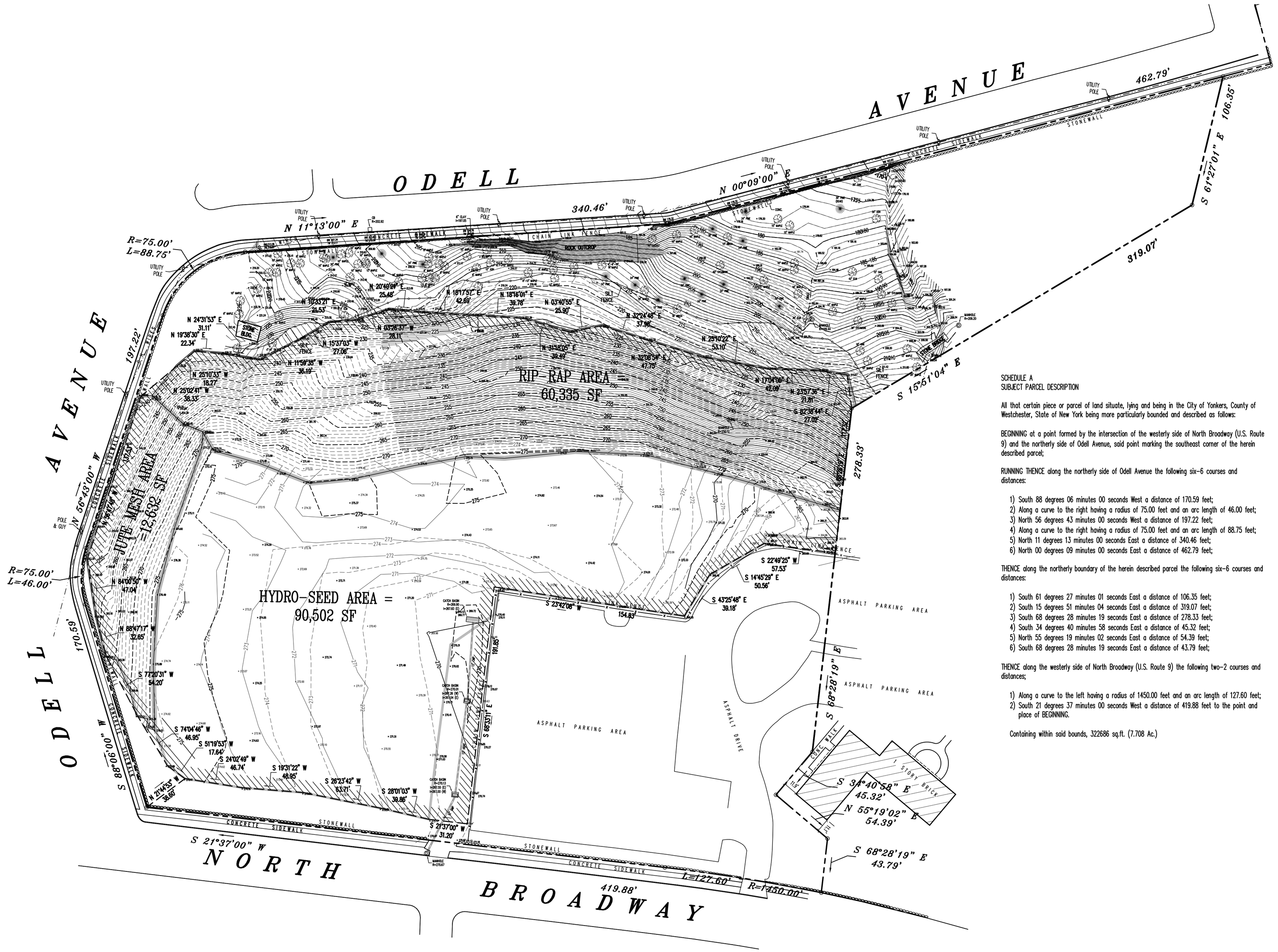
26) THENCE South 22 degrees 49 minutes 25 seconds West a distance of 57.53 feet to a point;
27) THENCE South 14 degrees 45 minutes 29 seconds East a distance of 50.56 feet to a point;

28) THENCE South 43 degrees 25 minutes 48 seconds East a distance of 39.18 feet to a point;
29) THENCE South 23 degrees 42 minutes 08 seconds West a distance of 154.83 feet to a point;
30) THENCE South 68 degrees 33 minutes 11 seconds East a distance of 191.85 feet to a point;
31) THENCE South 21 degrees 37 minutes 00 seconds West a distance of 31.20 feet to a point;
32) THENCE South 28 degrees 01 minutes 03 seconds West a distance of 39.86 feet to a point;
33) THENCE South 26 degrees 23 minutes 42 seconds West a distance of 63.71 feet to a point;
34) THENCE South 19 degrees 31 minutes 22 seconds West a distance of 48.95 feet to a point;
35) THENCE South 24 degrees 02 minutes 49 seconds West a distance of 46.74 feet to the point and place of BEGINNING.

Containing within said bounds 163038 sq. ft. (3.743Ac.)

SCHEDULE B


ODELL AVENUE
ODELL AVENUE
NORTH BROADWAY
STUDY AREA
80,502 SF
LEGEND:
TOPOGRAPHIC NOTES:
FINAL ASBUILT
TOPOGRAPHIC SURVEY
PREPARED FOR
1061 NORTH BROADWAY
PROPERTY SITUATE IN THE
CITY OF YONKERS
COUNTY OF WESTCHESTER
STATE OF NEW YORK
GRAPHIC SCALE



PREMISES HEREON BEING KNOWN AS LOT 115, BLOCK 3515, SECTION 3 ON THE OFFICIAL TAX MAPS OF THE CITY OF YONKERS.

THE SURVEYOR'S SEAL, SIGNATURE AND ANY CERTIFICATION APPEARING HEREON SIGNIFY THAT, TO THE BEST OF HIS KNOWLEDGE AND BELIEF, THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE MINIMUM STANDARDS FOR LAND SURVEYS AS SET FORTH IN THE CODE OF PRACTICE ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS, INC.

CERTIFICATIONS SHALL RUN ONLY TO THE PERSON FOR WHOM THIS SURVEY WAS PREPARED, AND ON HIS BEHALF, TO THE TITLE COMPANY, LENDING INSTITUTION AND GOVERNMENTAL AGENCY LISTED HEREON; SAID CERTIFICATIONS ARE NOT INTENDED TO RUN TO ADDITIONAL TITLE COMPANIES, LENDING INSTITUTIONS, SUBSEQUENT OWNERS OR FUTURE CONTRACT VENDEES.

CONTOURS AND SPOT ELEVATIONS HEREON WERE INTERPOLATED FROM AN ACTUAL FIELD SURVEY PERFORMED BY THE OFFICE OF CONTRACTORS' LINE & GRADE SOUTH IN U.S.G.S. DATUM NAVD 88.

UNDERGROUND IMPROVEMENTS, STRUCTURES, UTILITIES OR ENCROACHMENTS, AND ANY EASEMENTS RELATED THERETO, ARE NOT SHOWN HEREON UNLESS OTHERWISE NOTED. ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS AND IS NOT CERTIFIED TO ACCURACY OR COMPLETENESS.

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

SCHEDULE A
SUBJECT PARCEL DESCRIPTION

All that certain piece or parcel of land situate, lying and being in the City of Yonkers, County of Westchester, State of New York being more particularly bounded and described as follows:

BEGINNING at a point formed by the intersection of the westerly side of North Broadway (U.S. Route 9) and the northerly side of Odell Avenue, said point marking the southeast corner of the herein described parcel;

RUNNING THENCE along the northerly side of Odell Avenue the following six-6 courses and distances:

1) South 88 degrees 06 minutes 00 seconds West a distance of 170.59 feet;
2) Along a curve to the right having a radius of 75.00 feet and an arc length of 46.00 feet;
3) North 56 degrees 43 minutes 00 seconds West a distance of 197.22 feet;
4) Along a curve to the right having a radius of 75.00 feet and an arc length of 88.75 feet;
5) North 11 degrees 13 minutes 00 seconds East a distance of 340.46 feet;
6) North 00 degrees 09 minutes 00 seconds East a distance of 462.79 feet;

THENCE along the northerly boundary of the herein described parcel the following six-6 courses and distances:

1) South 61 degrees 27 minutes 01 seconds East a distance of 106.35 feet;
2) South 15 degrees 51 minutes 04 seconds East a distance of 319.07 feet;
3) South 68 degrees 28 minutes 19 seconds East a distance of 278.33 feet;
4) South 34 degrees 40 minutes 58 seconds East a distance of 45.32 feet;
5) North 55 degrees 19 minutes 02 seconds East a distance of 54.39 feet;
6) South 68 degrees 28 minutes 19 seconds East a distance of 43.79 feet;

THENCE along the westerly side of North Broadway (U.S. Route 9) the following two-2 courses and distances;

1) Along a curve to the left having a radius of 1450.00 feet and an arc length of 127.60 feet;
2) South 21 degrees 37 minutes 00 seconds West a distance of 419.88 feet to the point and place of BEGINNING.

Containing within said bounds, 322686 sq.ft. (7.708 Ac.)

SCHEDULE A
LINER LIMITS

All that certain piece or parcel of land situate, lying and being in the City of Yonkers, County of Westchester, State of New York being more particularly described as follows:

FROM A POINT formed by the intersection of the westerly side of North Broadway and the northerly side of Odell Avenue, THENCE North 21 degrees 44 minutes 53 seconds West a distance of 38.60 feet to the POINT OF BEGINNING;

RUNNING THENCE through the subject parcel known as Section 3, Block 3515, Lot 115 the following twenty five-(25) courses and distances:

1) THENCE South 51 degrees 19 minutes 53 seconds West a distance of 17.64 feet to a point;
2) THENCE South 74 degrees 04 minutes 46 seconds West a distance of 46.95 feet to a point;
3) THENCE South 77 degrees 20 minutes 31 seconds West a distance of 54.20 feet to a point;
4) THENCE North 88 degrees 47 minutes 17 seconds West a distance of 32.65 feet to a point;
5) THENCE North 84 degrees 00 minutes 50 seconds West a distance of 47.04 feet to a point;
6) THENCE North 56 degrees 47 minutes 48 seconds West a distance of 137.53 feet to a point;
7) THENCE North 25 degrees 02 minutes 41 seconds West a distance of 38.33 feet to a point;
8) THENCE North 25 degrees 10 minutes 33 seconds West a distance of 18.27 feet to a point;
9) THENCE North 19 degrees 38 minutes 30 seconds East a distance of 22.34 feet to a point;
10) THENCE North 24 degrees 31 minutes 53 seconds East a distance of 31.11 feet to a point;
11) THENCE North 11 degrees 59 minutes 35 seconds West a distance of 36.19 feet to a point;
12) THENCE North 15 degrees 37 minutes 03 seconds West a distance of 27.06 feet to a point;
13) THENCE North 10 degrees 33 minutes 21 seconds East a distance of 21.53 feet to a point;
14) THENCE North 03 degrees 26 minutes 37 seconds West a distance of 28.11 feet to a point;
15) THENCE North 20 degrees 40 minutes 21 seconds East a distance of 25.48 feet to a point;
16) THENCE North 18 degrees 17 minutes 57 seconds East a distance of 42.69 feet to a point;
17) THENCE North 18 degrees 16 minutes 01 seconds East a distance of 39.78 feet to a point;
18) THENCE North 31 degrees 18 minutes 05 seconds East a distance of 39.49 feet to a point;
19) THENCE North 03 degrees 40 minutes 55 seconds East a distance of 25.90 feet to a point;
20) THENCE North 32 degrees 24 minutes 48 seconds East a distance of 37.98 feet to a point;
21) THENCE North 32 degrees 08 minutes 54 seconds East a distance of 47.75 feet to a point;
22) THENCE North 25 degrees 10 minutes 22 seconds East a distance of 53.10 feet to a point;
23) THENCE North 17 degrees 04 minutes 05 seconds East a distance of 42.09 feet to a point;
24) THENCE North 23 degrees 57 minutes 36 seconds East a distance of 21.81 feet to a point;
25) THENCE South 82 degrees 38 minutes 44 seconds East a distance of 27.02 feet to a point;

THENCE along the boundary of the subject parcel South 68 degrees 28 minutes 19 seconds East a distance of 117.32 feet to a point;

THENCE continuing through the subject parcel the following ten-(10) courses and distances;

26) THENCE South 22 degrees 49 minutes 25 seconds West a distance of 57.53 feet to a point;
27) THENCE South 14 degrees 45 minutes 29 seconds East a distance of 50.56 feet to a point;
28) THENCE South 43 degrees 25 minutes 48 seconds East a distance of 39.18 feet to a point;
29) THENCE South 23 degrees 42 minutes 08 seconds West a distance of 154.83 feet to a point;
30) THENCE South 68 degrees 33 minutes 11 seconds East a distance of 191.85 feet to a point;
31) THENCE South 21 degrees 37 minutes 00 seconds West a distance of 31.20 feet to a point;
32) THENCE South 28 degrees 01 minutes 03 seconds West a distance of 39.86 feet to a point;
33) THENCE South 26 degrees 23 minutes 42 seconds West a distance of 63.71 feet to a point;
34) THENCE South 19 degrees 31 minutes 22 seconds West a distance of 48.95 feet to a point;
35) THENCE South 24 degrees 02 minutes 49 seconds West a distance of 46.74 feet to the point and place of BEGINNING.

Containing within said bounds 163038 sq. ft. (3.743 Ac.)

FINAL ASBUILT TOPOGRAPHIC SURVEY

PREPARED FOR

1061 NORTH BROADWAY

PROPERTY SITUATE IN THE

CITY OF YONKERS

COUNTY OF WESTCHESTER

STATE OF NEW YORK

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

Date: OCTOBER 19, 2011

LEGEND:

- 273.46 — PRE-EXCAVATION SPOT ELEVATION
- 276 — PRE-EXCAVATION CONTOUR
- 275.42 — POST-EXCAVATION SPOT ELEVATION
- 278 — POST-EXCAVATION CONTOUR
- POST-EXCAVATION EROSION MATERIAL BOUNDARY
- LINER LIMITS AREA

TOPGRAPHIC NOTES:

CONTOURS HEREON REPRESENT PRE AND POST EXCAVATION TOPOGRAPHIC CONDITIONS.

AREAS TO THE WEST OF THE SILT FENCE WAS FIELD SHOT ON 5-28-11. NO FURTHER DISTURBANCE WAS PERFORMED IN THIS AREA AFTER THIS DATE.

STONE RIP-RAP AREA WAS FIELD LOCATED ON OCTOBER 6, 2011.

HYDROSEED AND JUTE MESH AREA WAS FIELD LOCATED ON COTOBER 16, 2011.

NO.	DATE	DESCRIPTION	BY
2	4-12-12	ADD LINER LIMITS & DESC.	TH
1	11-17-11	PRE & POST CONDITIONS	TH

CONTRACTORS' LINE & GRADE SOUTH, LLC
23 Nepperhan Avenue
Elmsford, New York 10523
Phone: (914) 347-3141 Fax: (914) 347-3120
Office@lineandgrade.net

Copyright (c) 2011 CONTRACTORS' LINE & GRADE SOUTH, LLC All Rights Reserved.

Land Projects R2004\11-1934 Pugni 1061 NORTH BROADWAY\dwg\1934-Base.dwg

Appendix C

Remedial Closure

Work Plan

REMEDIAL CLOSURE WORK PLAN

FOR THE FILL AT

SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY, YONKERS, NY 10701
SITE NUMBER V-00687-3

Prepared By:

Lockwood, Kessler & Bartlett, Inc.
Consulting Engineers
1 Aerial Way
Syosset, NY 11791

Prepared For:

City of Yonkers
Yonkers City Hall
40 South Broadway
Yonkers, NY 10701-3883

Submitted To:

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1696

October 29, 2004 (Revised March 24, 2005)

ENGINEER'S CERTIFICATION



TABLE OF CONTENTS

Section Number and Title		Page Number
1.0	INTRODUCTION	1
2.0	SITE DESCRIPTION AND BACKGROUND INFORMATION	3
3.0	REMEDIAL ACTION OBJECTIVES	6
4.0	APPLICABLE STANDARDS, GUIDANCE AND CRITERIA	7
5.0	REMEDY SELECTION	8
6.0	REMEDIAL ACTION TASKS	10
7.0	MONITORING DURING CONSTRUCTION	17
8.0	POST-CLOSURE ACTIVITIES	18
9.0	SCHEDULE	19
10.0	COST ESTIMATE	20

Figure Number and Title	Follows Page Number
1. SITE LOCATION	1
2. SITE BOUNDARY	1
3. CURRENT AERIAL PHOTO OF SITE	3
4. REMEDIAL ACTION SCHEDULE	19

Table Number and Title	Follows Page Number
1. BUDGETARY COST ESTIMATE	20

Appendices

A. Copies of NYSDEC Letters Dated July 23, 2004, September 10, 2004, and February 3, 2005

B. REMEDIAL ACTION SELECTION REPORT

C. QUALITATIVE EXPOSURE ASSESSMENT

D. Catalog Cuts for Geosynthetic and Indicator Layer

E. Documents Containing Information on Background Concentrations of Metals and/or Polycyclic Aromatic Hydrocarbons

F. HEALTH AND SAFETY PLAN

G. NYSDOH Generic Community Air Monitoring Plan and NYSDEC TAGM 4031

H. NYSDEC Region 3 Annual Post-Closure Monitoring & Maintenance Report for Landfills

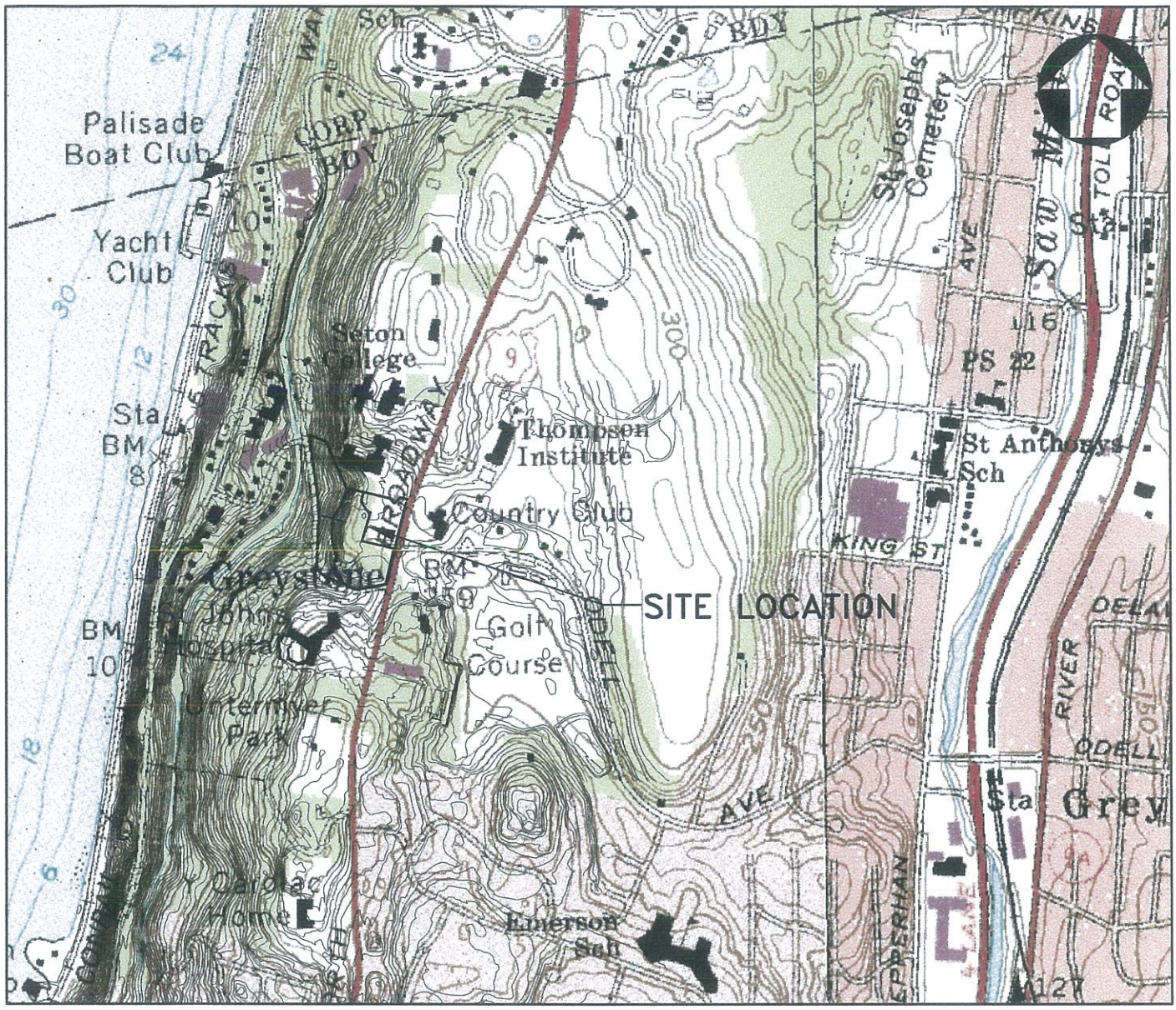
I. DRAWINGS 1 THROUGH 5

1.0 INTRODUCTION

This Remedial Closure Work Plan (RCWP) was prepared by Lockwood, Kessler & Bartlett, Inc. (LKB) at the request of the City of Yonkers (City). It presents the means by which the fill on the parcel known as Section 3, Block 3515, Lot 115, located at 1061 North Broadway in Yonkers, NY (the Site) will be remediated. The Site is identified by its section, block and lot designation to distinguish it from the adjacent parcel, which shares the same street address. The location of the Site is shown in Figure 1. This RCWP was prepared pursuant to the Voluntary Cleanup Agreement (VCA) between the prior owner, Iona College, and the New York State Department of Environmental Conservation Region 3 (NYSDEC). The City purchased the property from Iona College on September 17, 2004, and retained LKB on October 14, 2004 to complete the RCWP and submit it to the NYSDEC by November 5, 2004, the date stipulated by the NYSDEC.

The Site encompasses approximately 3.4 acres of the 7.5-acre parcel. The boundaries of the Site are shown in Figure 2. The Site includes an obvious and visible main fill area that borders the existing parking lot on the west and southwest, as well as an unpaved area located south of the existing parking lot. Based on observations made during the site investigation, the main fill area contains the majority of the fill at the Site. However, a thin surface layer of fill and several above-grade piles of fill are present in the unpaved area located south of the existing parking lot. These two areas were investigated during the site investigation performed on March 26 and 29, 2004. During that site investigation, a berm constructed of fill was discovered along a portion of the south boundary of the Site. The fill berm was investigated during additional work performed on June 17, 2004.

The site investigation was performed pursuant to the Site Investigation Work Plan (Work Plan) dated January 8, 2004 and revised February 26, 2004. The revised Work Plan was approved by the NYSDEC in a letter dated March 18, 2004. A Site Investigation Report was submitted on May 3, 2004. This report was revised pursuant to a comment letter from the NYSDEC dated June 16, 2004. The revised Site Investigation Report was submitted to the NYSDEC on June 29, 2004. The report included a Conceptual Site Remediation Plan, a Remedial Action Selection Report and a Qualitative Exposure Assessment. The NYSDEC approved the revised report in a letter dated July 23, 2004. The NYSDEC extended the submission date for the RCWP until November 5, 2004 in a letter dated September 10, 2004. Copies of these two letters are provided in Appendix A of this RCWP. The RCWP was submitted to the NYSDEC on October 29, 2004. The NYSDEC provided comments on the RCWP in a letter dated February 3, 2005. A copy of this letter is also provided in Appendix A. This RCWP addresses the comments in that letter.



APPROX. SCALE: 1"=2000'

FIGURE 1

SITE LOCATION

1061 NORTH BROADWAY, YONKERS, N.Y.

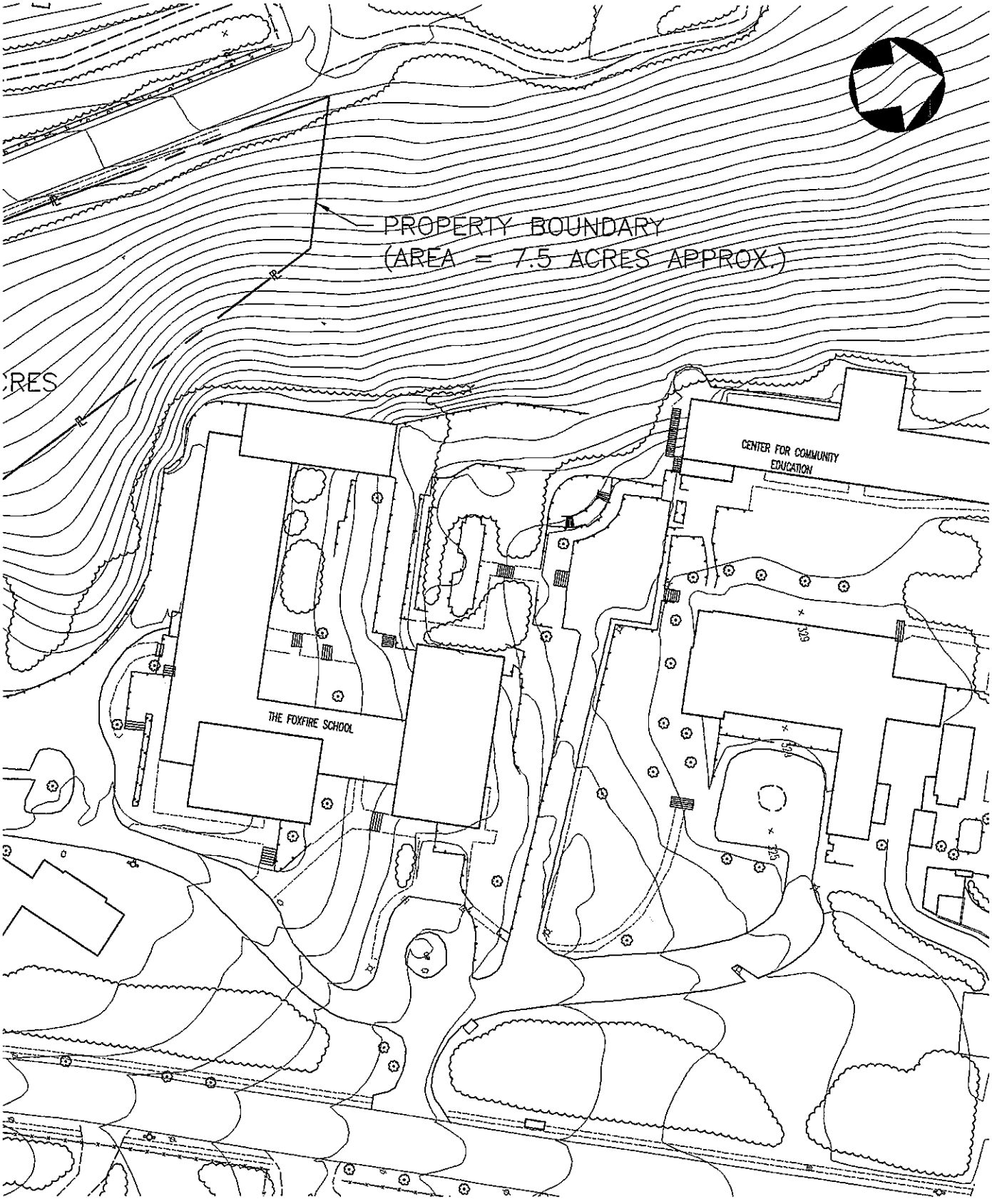
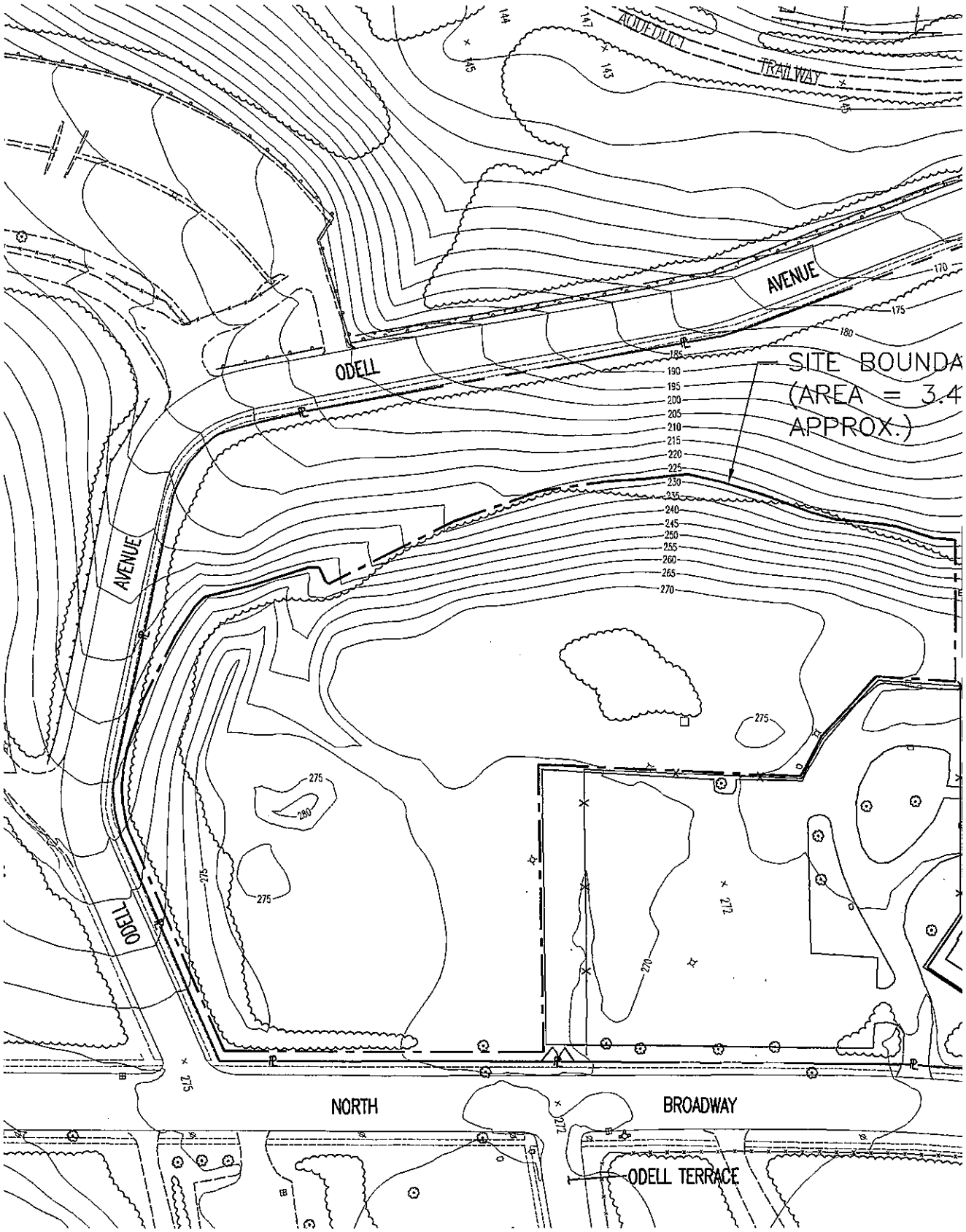


FIGURE 2

SITE BOUNDARY

1061 NORTH BROADWAY, YONKERS, N.Y.


AQUEDUCT
TRAILWAY
AVENUE
ODELL
SITE BOUNDA
(AREA = 3.4
APPROX.)
AVENUE
ODELL
NORTH
BROADWAY
ODELL TERRACE

SCALE: 1"=100'

This RCWP is based on the Conceptual Site Remediation Plan presented in the revised Site Investigation Report, and includes the information listed in Section 5.3 of the NYSDEC document titled "Draft DER-10 Technical Guidance for Site Investigation and Remediation, December 2002 (12/25/02)" (a.k.a., "DER-10") as appropriate.

2.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

A current aerial photo of the Site is provided in Figure 3. The lateral extent of the Site is indicated in Figure 3 by a dashed line labeled "SITE BOUNDARY". The obvious and visible main fill area is evident as the well-vegetated oval-shaped area bordering the parking lot on the west and southwest. A separate dashed line indicates the approximate boundary of this area. The main fill area begins at the edge of the existing parking lot and extends to the west and south, out onto the pre-existing slope. The approximate lateral dimensions of the main fill area are 400 feet long by 180 feet wide. Assuming that this fill area has a wedge-shaped distribution and an average thickness of five feet, the volume of the fill in this area is estimated to be approximately 13,300 cubic yards.

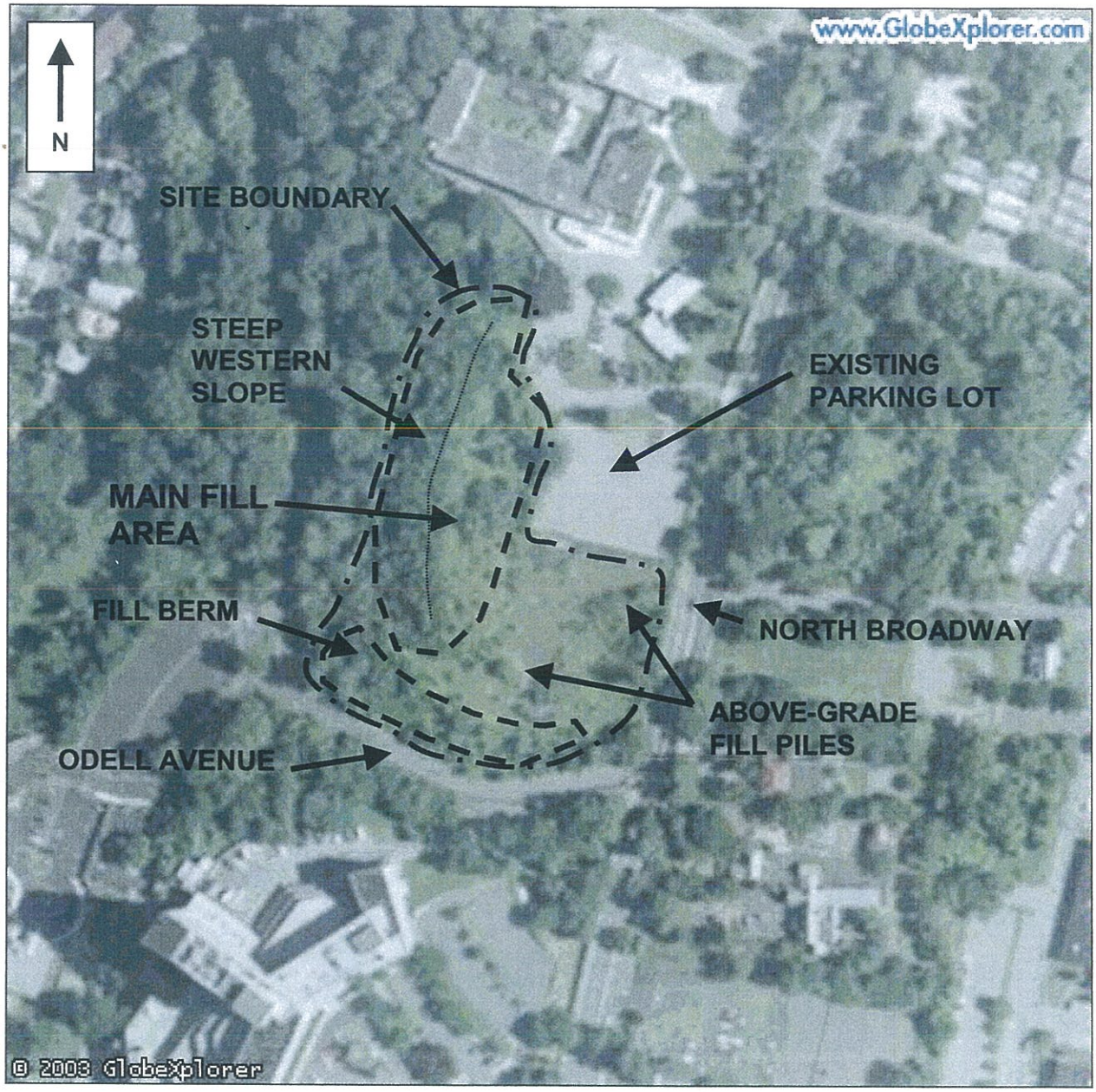
Also note in Figure 3 that the unpaved area bordering the existing parking lot to the south appears to be undisturbed. However, during the site investigation, a thin surface layer of fill and several above-grade piles of fill material were noted in this area. The volume of fill in the unpaved area is estimated to be 1,600 cubic yards. This estimate is based on an average fill thickness of one foot over this area of approximately 36,100 square feet, and an additional 250 cubic yards for the above-grade fill piles.

A berm constructed of the same fill is also present along a portion of the south boundary of the Site. Another dashed line shows the location of the fill berm. The total volume of fill comprising the berm is estimated to be 2,800 cubic yards. This estimate assumes that the average thickness of the berm is five feet, the same as the main fill area.

The total volume of fill at the Site is therefore estimated to be 17,700 cubic yards. According to available information, the fill was brought to the Site around 1990 for the purpose of raising the grade to extend the existing parking lot. The total volume of fill estimated to be required for this project was 36,000 cubic yards. However, Iona College halted the work due to concerns about the quality of the fill before all of the fill could be delivered.

The Site is bordered on the north by the Foxfire School, on the east by North Broadway, and on the south and west by Odell Avenue. Faculty parking is located between the school and the Site. No private residences are located immediately adjacent to the Site. The approximate linear distances to the closest receptors are listed below:

- North: 140 feet to The Foxfire School;
- South: 125 feet to St. Johns Riverside Hospital;
- East: 350 feet to nearest residence; and
- West: 350 feet to nearest residence.



APPROXIMATE SCALE: 1 INCH = 200 FEET

FIGURE 3

CURRENT AERIAL PHOTO OF SITE

LKB

The Site is currently well vegetated, although several trees have died as a result of fill being placed around their bases. The steep western slope of the main fill area is stable. Fence and/or walls separate the Site from adjacent properties and roadways.

The contemplated end use of the Site specified in the VCA is "Restricted Residential". This category was selected because of the four categories available under the Voluntary Cleanup Program (VCP), it most closely matched the planned use of the Site as undeveloped open space and was consistent with the anticipated level of remedial activities at the Site. Specifically, as per the May 2002 Draft Voluntary Cleanup Program Guide, the category of "Restricted Residential" is defined as "Residential uses such as homes, apartments, mobile home parks, dormitories, schools and day-care facilities are allowed but require engineering and/or institutional controls for the use to be protective". This is the second most restrictive land use category under the VCP. The other three categories available under the VCP are "Unrestricted", "Restricted Commercial" and "Restricted Industrial". The most restrictive land use category of "Unrestricted" was not applicable to this Site because engineering and/or institutional controls were expected to be required. The other two less restrictive categories were not applicable to this Site because of the planned use of the Site as open space.

As shown in Figure 1, the Site is situated at the top of the slope that forms the east bank of the Hudson River. Note that the elevation of the Site is approximately 250 feet higher than that of the river, and that the Site is located approximately 1,300 feet from the river. Also note that the topographic contours of the Site shown in this figure are similar to existing spot elevations in the unpaved area, which indicates that the land surface elevation in the unpaved area has not changed appreciably since 1966, the date of the USGS map. Moreover, review of Figure 1 indicates that the steep western slope of the Site area is a pre-existing feature and is the norm for this area.

Review of the geologic map of this area, specifically the New York State Museum and Science Service Map and Chart Series No. 15 Lower Hudson Sheet, indicates that the bedrock underlying the Site is the Fordham Gneiss, a type of regional metamorphic rock comprised of quartz, feldspar and various dark minerals (e.g., biotite).

Review of the surficial geologic map of this area, specifically the New York State Museum – Geological Survey Map and Chart Series #40 Lower Hudson Sheet, indicates that the surficial geology of this area is characterized by discontinuous layer of glacial till of variable thickness. The till was deposited beneath glacial ice and consists of a compact, relatively impermeable mixture of unconsolidated materials that can range in grain size from clay to boulders. Bedrock outcrops where the till is absent.

Consistent with the geology of the area, the occurrence of ground water in the site area is limited as neither the gneiss bedrock nor the overlying glacial till is known to produce appreciable amounts of ground water. Specifically, United States Geological Survey Bulletin GW-35, titled "The Ground Water Resources of Westchester County, New York", states that wells screened in the gneiss produce "small to moderate quantities of water" and that wells screened in the till "generally yield less than 5 gallons of water per minute".

Given the fact that no groundwater seeps were observed along the steep western slope of the Site, the height of the slope, and the fact that bedrock outcrops are present along the portion of Odell Avenue bordering the Site to the west, the depth to ground water at the Site is at least 60 feet and the water table is located in bedrock. Moreover, it should be noted that ground water in the area is not used as a potable water supply. Specifically, according to the City of Yonkers 2003 Annual Water Quality Report, the entire supply for the City of Yonkers is provided by the New York City Reservoir System.

The Site does not impact fish or wildlife. Specifically, there are no wetlands or surface-water bodies on, or adjacent to, the Site, and the Site is situated in an urban setting.

3.0 REMEDIAL ACTION OBJECTIVES

Two remedial action objectives (RAOs) for the Site were identified in the July 23, 2004 NYSDEC letter approving the revised Site Investigation Report. These RAOs are restated below:

- Prevent Ingestion/Direct Contact with the Contaminated Fill Materials, and
- Prevent Usage of Groundwater Without Adequate Monitoring, and if Necessary, Treatment.

These RAOs will be achieved by means of the engineering and institutional controls described in Section 5.0. These controls will be maintained by means of a Site-specific Operation, Maintenance and Monitoring Plan, which will be prepared in accordance with Section 6.0 of DER-10 following remediation.

4.0 APPLICABLE STANDARDS, GUIDANCE AND CRITERIA

In accordance with Draft DER-10, the remedial work performed at the Site will be subject to full-time inspection by qualified personnel, and plans and reports will be certified by a New York State-licensed Professional Engineer, as required.

In addition, the following standards, guidance and criteria (SGCs) apply to the remedial actions to be conducted at the Site:

- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response;
- 6 NYCRR Part 750 through 758 – Implementation of NPDES Program in NYS ("SPDES Regulations");
- TAGM 4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (Oct 1989);
- TAGM 4046 – Determination of Soil Cleanup Objectives and Cleanup Levels (January 1994);
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations;
- Air Guide 1 – Guidelines for the Control of Toxic Ambient Air Contaminants; and
- NYSDOH Generic Community Air Monitoring Plan.

5.0 REMEDY SELECTION

To expedite the remedial process for this Site, a Conceptual Site Remediation Plan was prepared in conjunction with the Site Investigation Report and submitted as Section 6.0 of that report. The plan was based on a Remedial Action Selection Report and a Qualitative Exposure Assessment, which were also prepared in conjunction with the Site Investigation Report and submitted as Appendices J and K of that report, respectively. Copies of the Remedial Action Selection Report and the Qualitative Exposure Assessment are provided in Appendices B and C of this RCWP, respectively.

The objective of the Conceptual Site Remediation Plan was to prevent direct contact with the fill while maintaining the end use of the Site as open space. The key elements of the plan are restated below:

1. Remove and recycle the above-grade fill pile that is comprised primarily of asphalt, as it is a localized source of PAHs.
2. Remove and dispose of the miscellaneous debris (tires, etc.) located near the southwest corner of the parking lot.
3. Remove the several large dead trees that were killed as a result of fill being placed around their bases, as they are a potential hazard due to falling limbs.
4. Re-grade the Site as necessary to maintain proper drainage.
5. Perform a topographic survey of the Site to establish grade elevations.
6. Cover the fill in accessible (i.e., relatively flat) areas of the Site with a minimum of one foot of clean soil and establish vegetative cover (e.g., turf grass or a grass and wildflower mix, as appropriate).
7. Cover the steep western slope of the Site with non-eroding material such as crushed rock, including removal of existing trees.
8. Prevent public access to the steep western slope using fencing and signage, screen with landscaping as appropriate.
9. Perform another topographic survey of the Site to verify the thickness of the clean soil cover.
10. Register an appropriate property deed restriction for the Site.

The Remedial Action Selection Report concluded that the preferred remedial alternative for the Site is installation of a clean soil cover with institutional controls. The specific reasons for selecting this alternative were:

- Overall, it is protective of human health and the environment;
- It is effective both short-term and long-term;
- It provides for reduction in toxicity and accessibility; and
- It is feasible in that it is well suited to site conditions, technologically feasible and cost-effective.

The overall finding of the Qualitative Exposure Assessment is that the Site does not currently pose a significant risk to public health or the environment, and will not do so in the future.

The Conceptual Site Remediation Plan was the basis for the Remedial Action Tasks discussed below in Section 6.0. Two aspects of the conceptual plan have been modified. First, in lieu of performing topographic surveys before and after capping, it is proposed to dig a sufficient number of test holes to physically measure the thickness of the cap and augment as necessary. Second, it is proposed that the steep western slope of the main fill area be stabilized with a geosynthetic, soil and vegetation rather than crushed rock.

6.0 REMEDIAL ACTION TASKS

The following eight (8) remedial action tasks are proposed to achieve the two RAOs listed in Section 3.0:

- Task 1: Establish Site Access and Staging Area;
- Task 2: Preliminary Site Work;
- Task 3: Install Soil Erosion and Storm Water Runoff Controls;
- Task 4: Stabilize Steep Western Slope of Main Fill Area;
- Task 5: Cap Fill Areas with Clean Soil;
- Task 6: Install Fencing and Signage;
- Task 7: Comply with Remedial Action Report Requirements; and
- Task 8: Establish Institutional Controls.

A description of each task is provided below.

Task 1: Establish Site Access and Staging Area

The City owns the Site. Therefore, it will not be necessary to obtain permission to access the Site from a third party. The site entrance is a gate located on North Broadway, directly across from Odell Terrace. Entrance from other areas is prevented by a four-foot-high rock wall or fencing. The staging area will be the southern portion of the existing parking lot, which is part of the parcel owned by the City. A portion of the chain-link fence located on the south side of the parking lot will be removed and gated to provide access to the staging area from the site entrance. Additional fencing will be installed along the north property line bordering The Foxfire School. The locations of the site entrance, new fencing and staging area are shown in Drawing No. 1. A typical fencing detail is provided in Drawing No. 5.

Task 2: Preliminary Site Work

The Site is currently overgrown with vegetation. Some miscellaneous debris, for example discarded tires, is located along the south boundary of the existing parking lot. Based on a historical drawing obtained from Iona College, a subsurface structure labeled "Root Cellar" may be present within the main fill area. This RCWP assumes that the root cellar still exists and that its entrance is covered by fill. The preliminary site work that will be performed to address these conditions consists of the following three subtasks:

Subtask 2a: Clear and Grub

Vegetation will be cleared to the extent necessary to provide access to the work area. The approximate extent of vegetation clearing is shown in Drawing No. 1. The vegetation at the Site consists primarily of weeds, shrubs and saplings. The weeds and shrubs will be cleared utilizing a brush-hog mower. Saplings will be cut to grade utilizing a chainsaw. Some large, mature trees are also present along the west side of the existing parking lot and toward the base of the main fill area. Some of these trees have been killed as a result of fill being placed around them. These dead trees, as well as live trees that will interfere with the remedial work, will be cut to grade utilizing a chainsaw. The cut wood will be removed from the Site and properly disposed of offsite. Mowed vegetation will be left to decompose naturally. Grubbing will only be performed in areas to be re-graded, such as the above-grade fill piles, and other areas as necessary, to minimize disturbance of the fill. Grubbing debris will be removed from the Site and properly disposed of offsite.

Subtask 2b: Remove Miscellaneous Debris

The miscellaneous debris present at the Site will be removed prior to the start of the remedial construction activities, and will be disposed of offsite as solid waste.

Subtask 2c: Locate and Demolish Root Cellar

The approximate location of the root cellar is shown in Drawing No. 1. The field location of the root cellar will be determined based on measuring from fixed referenced points. The entrance will be exposed by scraping away the fill with a backhoe or similar piece of heavy equipment. The interior will be visually inspected from outside to verify that it is empty. The root cellar will then be demolished and filled in with fill from one of the nearby above-grade fill piles.

Task 3: Install Soil Erosion and Storm Water Runoff Controls

Since grubbing will only be performed in limited areas to minimize disturbance of the fill, it is expected that the potential for soil erosion will be limited. However, as a precaution, silt fencing will be installed along the down slope boundary of the work area prior to construction. The approximate location of the silt fencing is shown in Drawing No. 2. A typical silt fencing detail is provided in Drawing No. 5. The silt fencing will be inspected periodically to ensure that it is intact.

Based on visual observation of land surface topography and Site features, the only significant source of storm water runoff onto the Site is from the existing parking lot, which slopes to the southwest, and adjacent upslope portions of The Foxfire School property. The majority of this runoff will be diverted to one or more catch basins that will be installed in the southwest corner of the parking lot and

piped to the existing City drainage system. The approximate locations of the catch basin(s) and piping are shown in Drawing No. 2. Typical details for the catch basin(s) and piping are shown in Drawing No. 5. Since the Site is vegetated and covered by soil, the amount of runoff from the Site itself is expected to be minimal.

Task 4: Stabilize Steep Western Slope of Main Fill Area

The steep western slope of the main fill area will be stabilized by covering it with a geosynthetic filled with soil and vegetated. A catalog cut of the proposed geosynthetic is provided in Appendix D. The approximate boundary of the slope area to be stabilized is shown in Drawing No. 3. A generalized slope stabilization cross-section is provided in Drawing No. 5.

Prior to installing the geosynthetic, an indicator layer will be installed on the side slopes of the fill area to provide a physical warning to anyone who may inadvertently perform future excavation this area. The indicator layer is described in Subtask 5c below. The geosynthetic will be covered with a minimum one-foot thickness of clean soil. The acceptance criteria for the clean soil are described in Subtask 5d below.

It should be noted that the surface of the steep western slope of the main fill area is comprised primarily of inert material such as pieces of concrete and rock rather than soil. Some of this debris, situated at the base of slope at the north end of main fill area, may be located on the adjacent property. During the fieldwork, the location of this debris will be determined relative to the property line and relocated onsite if necessary.

Task 5: Cap Fill Areas with Clean Soil

This is the key task that will achieve the first remedial action objective, which is to prevent ingestion/direct contact with the contaminated fill. The overall approach toward completing this task is to minimize disturbance to the main fill area and fill berm by utilizing the soil contained in the above-grade fill piles for the majority of the regrading needed to improve drainage. This specific work to be performed under this task consists of the following six (6) subtasks:

Subtask 5a: Remove Above-Grade Fill Pile Comprised of Asphalt

One of the above-grade fill piles located in the unpaved area south of the existing parking lot is comprised primarily of asphalt. Since the asphalt is a concentrated source of PAHs, this pile will be removed from the Site and properly disposed of. The location of this pile is shown in Drawing No. 4. The work will be documented with photographs and manifests, and the results will be included as an appendix in the Remedial Action Report.

Subtask 5b: Regrade Fill Areas in Preparation for Capping

Prior to installing the soil cap, a limited amount of regrading will be performed to improve drainage. It is anticipated that the volume of soil contained in the above-grade fill piles will be sufficient to complete the majority of this regrading and that only minor regrading of the main fill area and fill berm will be required, thereby minimizing disturbance of these areas. However, it is also anticipated that portions of the fill berm will need to be regraded to accommodate the soil cap between the fill berm and the rock wall bordering Odell Avenue. This work will be performed utilizing appropriate heavy equipment such as bulldozers. A detailed grading and drainage plan will be prepared as part of the bid documents.

Subtask 5c: Install Indicator Layer

An indicator layer will be installed on top of regraded fill surface to provide a physical warning to anyone who may inadvertently perform future excavation in the capped area. This layer will consist of a cost-effective material such as plastic barrier fencing. A catalog cut for this material is provided in Appendix D. The actual material that will be utilized will be selected based on a cost comparison of the various options available. This analysis will be performed as part of the bid document preparation.

Subtask 5d: Locate Soil Source(s)

The purpose of the soil cap is to prevent direct contact/ingestion with the underlying fill. The cap will be vegetated, therefore, the soil utilized for the cap will need to be capable of sustaining vegetation. However, since the site investigation demonstrated that the fill does not impact ground water, the cap does not need to restrict percolation of water. Therefore, there are no permeability-related restrictions on the soil source.

It is estimated that 4,500 cubic yards of clean soil will be required for capping. The soil utilized for the cap will be from a clean source, such as a construction project on previously undisturbed land. The specific soil-acceptance criteria are listed below:

Environmental Criteria:

Each soil source will be tested for each of the NYSDEC TAGM 4046 parameters listed in Tables 1 through 4 of Appendix A of the TAGM, as well as total organic carbon per Appendix B of the TAGM. The testing frequency will be one analysis per every 500 cubic yards of soil, for a total of up to nine (9) samples. An NYSDOH ELAP-certified laboratory will perform the tests. The results will be compared to the Recommended Soil Cleanup Objectives (RSCOs) listed in the TAGM. It is anticipated that background concentrations of some parameters, such

as polycyclic aromatic hydrocarbons (PAHs) and certain metals, may be higher than their respective RSCO. Therefore, the results will also be compared to other publicly available information as necessary. This information includes the new soil-quality standards being developed by the NYSDEC for the Brownfields Program, if they become available prior to performing this subtask; or the following documents, which were also utilized to assess soil-quality conditions for the site investigation:

1. Background Levels of Heavy Metals in Soils of the Lower Hudson Valley, Preliminary Summary of Results, NYSDEC Region 3, July 1, 2003.
2. NYSDEC – List of Carcinogen PAHs.
3. Urban Area Polycyclic Aromatic Hydrocarbons Study Tiered Approach to Corrective Action Objectives, City of Chicago with Illinois EPA, undated.
4. Technical Update, Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil, Massachusetts DEP, 1992.

These documents are provided in Appendix E.

Other Criteria:

To ensure that the soil cap is capable of sustaining vegetation, the soil source(s) will be tested to verify that criteria/nutrients are present in the following ranges:

- Organic content of less than 20 percent;
- pH in the range of 6.0 to 7.5;
- Soluble salts concentration of less than 500 parts per million.

The same soil source(s) will be utilized for the slope stabilization performed under Task 4.0.

Subtask 5e: Install Soil Cap

A cap consisting of a minimum of one-foot (12 inches) of clean soil capable of supporting plant growth from the above source(s) will be installed within the limits shown in Drawing No. 4. A typical capping cross-section is shown in Drawing No. 5. The soil will be installed utilizing a combination of appropriate equipment such as small bulldozers and backhoes, and hand placement. Following placement, a sufficient number of shallow test holes will be dug and the thickness of the cap measured and recorded to confirm that the minimum depth was achieved. Areas with less than the minimum required cap thickness will be amended and retested.

Subtask 5f: Revegetate Capped Area

The capped area will be revegetated by hydroseeding with a mixture of annual rye grass to provide short-term soil stabilization, and low-growing deer-resistant prairie-grass and -flower seed mix as a long-term ground cover.

Task 6: Install Fencing and Signage

The Site is surrounded on three sides by a rock wall, which will remain after remediation. "No Trespassing" signs will be place at regular intervals along the walled portions of the Site boundary. The new chain-link fence installed along the property boundary with The Foxfire School under Task 1 will secure the northern boundary of the Site. A fencing and signage plan will be developed as part of the bid documents.

Task 7: Comply with Remedial Action Report Requirements

This task will entail collecting the information necessary to prepare the remedial action report, including the field measurements required to prepare "As-Built" drawings, and establishing a permanent survey benchmark.

This will include copies of inspection reports and photographic records, and a report signed by an engineer licensed in the State of New York.

Task 8: Establish Institutional Controls

Two institutional controls are proposed to assist in meeting the RAOs for the Site. The first is a land use restriction that will help minimize the potential for exposure/direct contact to the fill by restricting digging at the Site and use of the Site to undeveloped open space. The land use restriction will specifically state that the Site can not be utilized for residential development. The second is a ground water use restriction that will prevent usage of ground water at the Site without adequate monitoring, and if necessary, treatment.

These institutional controls will contain the following information:

- A map showing the area of control;
- A description of the controls;
- An Owner's Agreement to maintain the controls;
- Documentation that adjacent property owners have been notified;
- A description of the type and extent of contamination;
- A description of the remedial action and its projected duration; and
- Limitations on site use due to contamination.

The institutional controls will be prepared in conjunction with the bid documents and will be in the form of a Declaration of Covenants and Restrictions to run with the property deed, which will be submitted to the NYSDEC for review and acceptance prior being filed with the City Clerk's office.

7.0 MONITORING DURING CONSTRUCTION

Air monitoring for total volatile organic compounds (VOCs), combustible gas (methane) and hydrogen sulfide (H_2S) was performed during the excavation of 16 test pits for the site investigation. VOCs and methane were not detected, and H_2S was only detected at low, background concentrations. These findings are consistent with the age and composition of the fill, as well as the results of the laboratory analyses of the fill samples collected during the site investigation, and indicate that the fill is not a significant source of VOCs, methane or H_2S emissions. Moreover, the fill excavated from the test pits did not exhibit objectionable odors.

Consequently, emissions of VOCs, methane and H_2S are not expected to be a concern during the remediation. Nevertheless, as a precaution, air monitoring for these parameters will be performed during Subtask 5b: Regrade Fill Areas in Preparation for Capping. This monitoring will be performed as per the Health and Safety Plan provided in Appendix F.

Monitoring for fugitive dust emissions will be performed during field tasks that may have the potential to generate unacceptable levels of dust. This monitoring will be performed as per the NYSDOH Generic Community Air Monitoring Plan and NYSDEC TAGM 4031-Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (Oct 1989). Copies of these documents are provided in Appendix G.

8.0 POST-CLOSURE ACTIVITIES

The remediation will be documented in a Remedial Action Report prepared in accordance with Section 5.8 of DER-10. Since engineering and institutional controls are proposed, an Operation, Maintenance and Monitoring Manual (OM&M) will be required pursuant to Section 6.1 of DER-10. The OM&M will be prepared in accordance with Section 6.2 of DER-10, and implemented in accordance with Section 6.4 of DER-10. Certification of the engineering and institutional controls will be provided in accordance with Section 6.5 of DER-10. Annual inspections of the Site will be conducted by a New York State-licensed professional engineer. The results of the inspections will be documented on the NYSDEC Region 3's Annual Post-Closure Monitoring & Maintenance Report for Landfills. A copy of this document is provided in Appendix H.

The Site will ultimately be closed-out in accordance with Section 6.7 of DER-10.

9.0 SCHEDULE

A Remedial Action Schedule has been prepared in accordance with Section 5.7 of DER-10 and is provided in Figure 4 on the following page. The schedule is monthly and referenced to notice to proceed. It will be modified to include actual dates once the RCWP has been approved by the NYSDEC.

Figure 4
Remedial Action Schedule
Remediation of Fill at Section 3, Block 3515, Lot 115
1061 North Broadway, Yonkers, NY

WORK ITEM	WORK SCHEDULE, IN MONTHS[1]																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Prepare Bid Documents																			
Bid Solicitation/Review/Acceptance																			
Remedial Action Tasks																			
Task 1 - Establish Site Access and Staging Area																			
Task 2 - Preliminary Site Work (includes Clearing and Grubing, Removing Miscellaneous Debris, Locating and Demolishing Root Cellar, and Fence Installation in Parking Lot)																			
Task 3 - Install Soil Erosion and Storm Water Runoff Controls																			
Task 4 - Stabilize Steep Western Slope of Main Fill Area																			
Task 5 - Cap Fill Areas with Clean Soil (includes Removal of Above-Grade Fill Pile Comprised of Asphalt, Regrading Fill Areas in Preparation for Capping, Installing Indicator Layer, Locating Soil Source(s), Installing Soil Cap, and Revegetating Capped Area)																			
Task 6 - Install Fencing and Signage at Top of Steep Western Slope																			
Task 7 - Comply with Remedial Action Report Requirements																			
Task 8 - Establish Institutional Controls (includes Land Use Restriction and Ground Water Use Restriction)																			
Prepare Remedial Action Report																			
Prepare Operation, Maintanance awnd Monitoring (OM&M) Plan																			
Implement OM&M Plan																			
NYSDEC Final Inspection																			*

Notes:

1. Schedule starts from NYSDEC DER Approval of RAWP

10.0 COST ESTIMATE

A Budgetary Cost Estimate is provided in Table 1 on the following page. A detailed cost estimate will be prepared as part of the bid documents.

Table 1

Budgentary Cost Estimate of the Remediation of Fill at Section 3, Block 3515, Lot 115 1061 North Broadway, Yonkers, NY October-2004

ITEM NO.	DESCRIPTION	QTY.	UNIT	UNIT COST	AMOUNT (5)
1	Chain Link Fence	330	LF (1)	30.00	$ 9,900.00
2	Clearing & Grubbing	1	LS (2)	15,000.00	$ 15,000.00
3	Locate & Demolish Root Celar	1	LS	1,500.00	$ 1,500.00
4	Silt Fence	700	LF	6.00	$ 4,200.00
5	Catch Basin & Piping	1	LS	14,000.00	$ 14,000.00
6	Slope Stabilization	3400	SY (3)	20.30	$ 69,000.00
7	Above Grade Asphalt Removal	110	CY (4)	25.00	$ 2,800.00
8	Regrading Fill Area	1	LS	20,000.00	$ 20,000.00
9	Indicator Layer	13000	SY	2.60	$ 33,800.00
10	Clean Cover Soil	5485	CY	18.00	$ 98,700.00
11	Hydroseeding	16500	SY	1.30	$ 21,500.00
12	Sign	8	EACH	75.00	$ 600.00
13	Engineering Services	-	LS	-	$ 58,200.00
				SUB TOTAL =	**$ 349,200.00**
14	Contingencies (6)	-	LS	-	$ 29,100.00
				TOTAL =	**$ 378,300.00**

Notes

1. Linear feet
2. Lump sum
3. Square yards
4. Cubic yards
5. All costs rounded to nearest $100.
6. Contingency is 10% of items 1 - 12.

APPENDIX A

APPENDIX A

Copies of NYSDEC Letters Dated July 23, 2004, September 10, 2004
and February 3, 2005

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
200 White Plains Road – 5th Floor, Tarrytown, New York 10591-5805
Phone: (914) 332-1835 • **FAX:** (914) 332-4670
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

July 23, 2004

ANTHONY D DOUGHERTY ESQ
DOUGHERTY & ASSOCIATES
450 SEVENTH AVENUE
NEW YORK, NY 10123

Re: Site Name: Elizabeth Seton Campus of Iona College Parking Lot
Volunteer: Iona College
Site #: V - 00687-3 Index #: W3-0981-03-12

Dear Mr. Dougherty:

Thank you for submitting the Elizabeth Seton Campus of Iona College Parking Lot revised Site Investigation Report dated June 29, 2004 and addendum dated July 8, 2004. Lockwood, Kessler & Bartlett, Inc. (LKB) of Syosset, New York prepared the Report for Iona College c/o Dougherty & Associates. The Report was submitted to the New York State Department of Environmental Conservation (DEC) in response to our June 16, 2004 technical comments letter and pursuant to the above referenced Voluntary Cleanup Agreement between the Department and Iona College. The revised Site Investigation Report is approved.

Based on the results of the investigation, the DEC has determined that remediation of the site is necessary. The investigation states that elevated concentrations of benzo(a)pyrene and six other polycyclic aromatic hydrocarbons (PAHs) were detected in fill materials disposed of at the site in excess of the corresponding recommended soil cleanup objectives listed in DEC/Division of Environmental Remediation Technical and Administrative Guidance Memorandum #4046. In addition to the PAH contamination elevated concentrations of copper, lead, mercury and zinc were detected from isolated locations within the on-site fill materials. Remediation is necessary to prevent direct contact or inhalation of these contaminants. The investigation results are consistent with the description of existing contamination in Paragraph I.B of the Agreement especially regarding semivolatile organic compounds and metals.

The investigation used laboratory testing of leachate generated from the on-site fill materials combined with a qualitative assessment of ground water usage near the site to evaluate potential site impacts to ground water. The investigation concludes that the existing contamination does not pose of significant impact to ground water. The Department concurs with this assessment provided adequate institutional controls are established to prevent the use of ground water as a source of potable or process water without proper monitoring and/or treatment as determined by the Westchester County Department of Health.

After evaluating the nature and extent of contamination as well as the exposure assessments associated with this site, two site-specific preliminary remedial action objectives have been identified. First, prevent

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
200 White Plains Road – 5th Floor, Tarrytown, New York 10591-5805
Phone: (914) 332-1835 • **FAX:** (914) 332-4670
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

September 10, 2004

ANTHONY D DOUGHERTY ESQ
DOUGHERTY & ASSOCIATES
450 SEVENTH AVENUE
NEW YORK, NY 10123

Re: Site Name: Elizabeth Seton Campus of Iona College Parking Lot
Volunteer: Iona College
Site #: V - 00687-3 Index #: W3-0981-03-12

Dear Mr. Dougherty:

The New York State Department of Environmental Conservation (DEC) has received a request to submit the Remedial Closure Work Plan for Elizabeth Seton Campus of Iona College Parking Lot by November 5, 2004 instead of September 23, 2004 as stated in the Department's July 23, 2004 Site Investigation Report approval letter. The request was submitted to the DEC on September 3, 2004 by Lockwood, Kessler & Bartlett, Inc. (LKB) of Syosset, New York for Iona College c/o Dougherty & Associates. The request is acceptable. Please submit a Remedial Action Work Plan that fully addresses both remedial action objectives stated in our July 23rd letter **by November 5, 2004.**

If you have any questions, need additional information please contact me at (914) 332-1835 ext. 321 or adlent@gw.dec.ny.us

Sincerely,

Andrew D. Lent

Andrew D. Lent
Engineering Geologist II

cc: J. Gerlach (Lockwood, Kessler & Bartlett, Inc.)
C. Torres (Westchester County DOH)

GW-cc: F. Navratil (NYSDOH)
R. Baldwin
D. D'Ambrosio
K. Grzyb
R. Pergadia
J. Schmitt

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road, New Paltz, New York 12561-1696
Phone: (845) 256-3153 • **FAX:** (845) 255-3414
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

February 3 , 2005

JOHN GERLACH
LOCKWOOD, KESSLER & BARTLETT, INC
ONE AERIAL WAY
SYOSSET, NY 11791

Re: Iona College Parking Lot, Site # V00687-3
Section 3, Block 3515, Lot 115
C-Yonkers, Westchester County

Dear Mr. Gerlach:

The Department has reviewed the Remedial Closure Plan which you submitted on behalf of the City of Yonkers. In order for this work plan to be approved, revisions must be made to address the attached comments. If there are any questions regarding the requirements outlined in the attached comments, please contact me at 845-256-3153.

Sincerely,

Steven Parisio
Environmental Remediation Geologist

Attachment

cc w/attachment:
Mark Morfopoulus, City of Yonkers
Anthony Dougherty, Esq., Dougherty & Associates
K. Comerford, NY State Department of Health
Carlos Torres, Westchester Co Dept of Health

Iona College - Site # V-00687-3
Comments on Adequacy of Remedial Closure Work Plan
Prepared by S. Parisio
January 31, 2005

The Remedial Closure Work Plan, prepared by Lockwood, Kessler & Bartlett, Inc. (LKB), dated October 29, 2004, and submitted on behalf of the City of Yonkers has been reviewed. Comments relating to the adequacy of the submitted document and modifications which are needed for its approval are provided below:

1. As specified in paragraph II.A of the Voluntary Cleanup Agreement (VCA), this document must be labeled as the "Remedial Closure Work Plan". The document must also be labeled with the Site Number, which is V-00687-3.

2. The work plan indicates that the side slopes of the fill area will be covered with a geosynthetic which is filled with soil and vegetated, but no minimum thickness of cover soil is specified. The need to cover the fill material to prevent human and environmental exposure to contaminants is no less on the side slopes than it is on the top of the fill area where a minimum soil thickness of one foot is proposed. Although access to pedestrian traffic is more difficult on the side slopes than on the flat areas, the potential for erosion of cover soils will be greater on the side slopes, notwithstanding the geosynthetic reinforcement. Further, the need for an adequate thickness of soil which is suitable as a medium for establishing vegetation will be no less on the side slopes than on the top. For this reason, the work plan cannot be approved unless a minimum thickness of one foot of clean soil is proposed on the side slopes as well as on the flat areas. In addition, the demarcation layer separating the fill material and the cover soils must also be provided on the side slopes.

3. The acceptance criteria for cover soil described under subtask 5d in section 6.0 of the work plan will require modification. As proposed, the work plan indicates that concentrations of some parameters such as PAHs and certain unspecified metals may exceed TAGM 4046 recommended soil cleanup objectives (RSCOs) and that these parameters will be compared to available information regarding background concentrations. If values other than those listed in TAGM 4046 are going to be used to determine the acceptability of cover soils, the parameters in question and the alternative acceptability criteria must be specified in the work plan before it is approved. Background levels for heavy metals in soils of the Lower Hudson Valley Region were developed by Department staff and are generally acceptable for this purpose. In the case of PAHs, there are currently no published values for background levels which are accepted by the Department for use in this region as an alternative to the TAGM 4046 criteria. If soils meeting the TAGM 4046 criteria for PAHs cannot be located for use as cover material, the volunteer will be required to develop technically defensible site specific background levels in accordance with procedures which are acceptable to the Department.

4. In order to be acceptable, the institutional controls described in the Remedial Closure Work Plan and in the Post-Closure Operation, Maintenance & Monitoring Work Plan must include provisions for

annual inspection, reporting and certification of the cap integrity by a professional engineer as well as explicit prohibitions against installation of water supply wells or land uses other than undeveloped open space.

5. Although the VCA refers to the site end use as "restricted residential", the Remedial Closure Work Plan indicates that the end use for the site will be undeveloped open space. Since the site will not be used for residential purposes, the proposed one foot of cover soil is considered adequate. (Two feet of cover soil would be required if the end use were to be residential development.) To avoid any future confusion regarding allowable end uses, documents which are incorporated into the VCA upon approval by the Department, must specifically state that the site will remain as undeveloped open space and will not be used for the purpose of residential development. In addition, a Declaration of Covenants and Restrictions (DCR) which restricts the end use of the site to undeveloped open space must be submitted for Department approval. Once the DCR is approved by the Department, it must be filed with the County Clerk and evidence that the DCR has been recorded must be provided to the Department.

APPENDIX B

APPENDIX B

REMEDIAL ACTION SELECTION REPORT

REMEDIAL ACTION SELECTION REPORT
for
Fill In The Parking Lot At The South End Of
Iona College's Elizabeth Seton Campus
1061 North Broadway, Yonkers, NY 10701
(Site #V-00687-3, Index #W3-0981-12)

1.0 INTRODUCTION

This Remedial Action Selection Report (RASR) was prepared pursuant to New York State Department of Environmental of Environmental Conservation (NYSDEC) requirements. It pertains to the fill material located in the vicinity of the parking lot at the south end of Iona College's Elizabeth Seton Campus (Site). The location of the Site is shown in Figure 1.

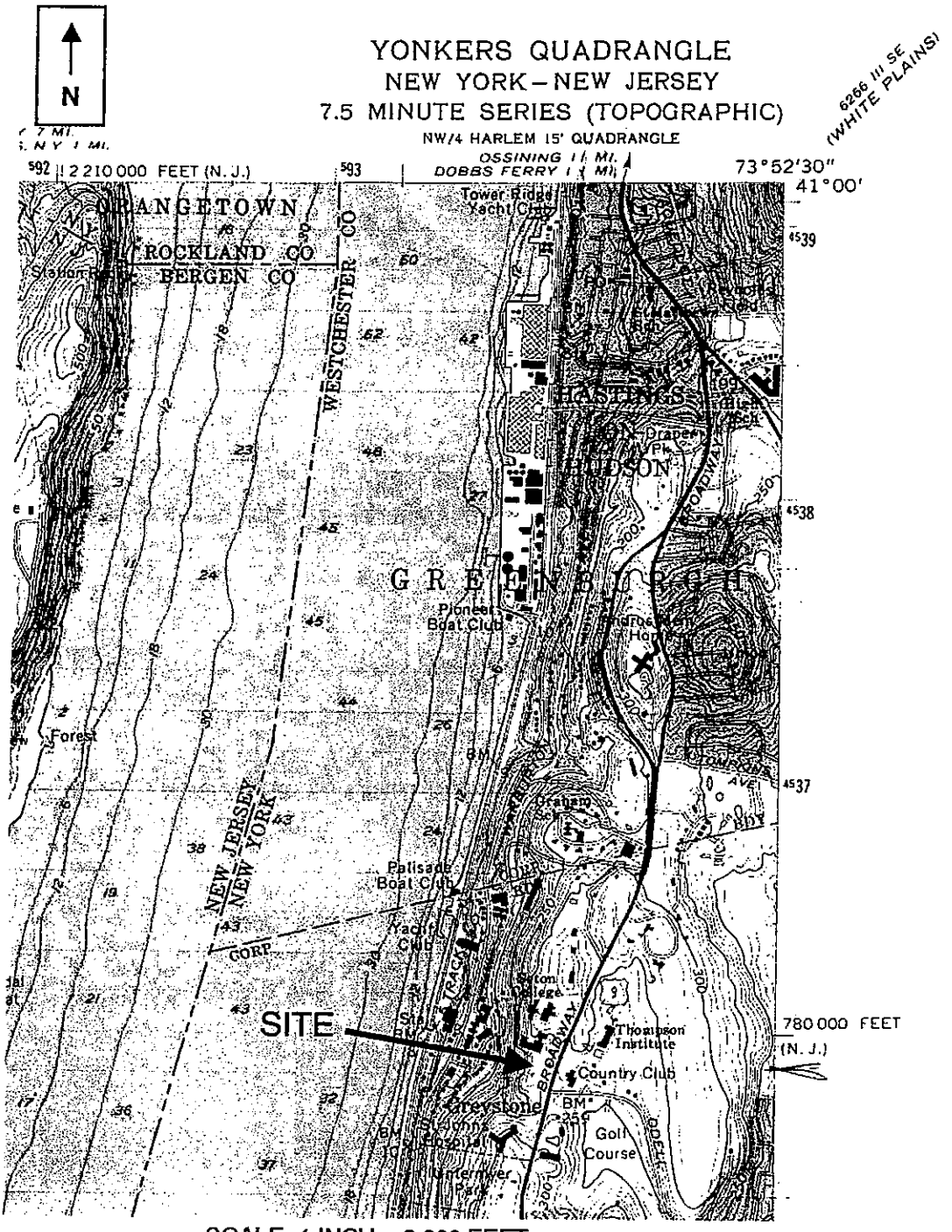
This RASR was performed as part of the remedy selection process for the Site. It complies with Section 375-1.10 (Remedy Selection) of the New York Code of Rules and Regulations, and meets the requirements of Section 7.4 (Remedial Action Selection (RAS) Report) of the NYSDEC Draft Voluntary Cleanup Guide, dated May 2002.

The following remedial remedies were considered for the Site:

- Alternative 1: No Action;
- Alternative 2: Installation of Clean Soil Cover and Institutional Controls; and
- Alternative 3: Complete Removal.

This RASR provides an analysis of the above remedial alternatives with respect to the following requirements:

- Standards, Criteria and Guidance;
- Overall Protectiveness of Human Health and the Environment;
- Short-term Effectiveness and Impacts;
- Long-term Effectiveness and Permanence;
- Reduction of Toxicity, Mobility and Volume; and



SCALE: 1 INCH = 2,000 FEET

FIGURE 1

SITE LOCATION MAP

- Feasibility.

Each of these requirements is discussed below in Sections 2.0 through 7.0, respectively. The scopes of the discussions are in keeping with the Site's size, setting and relatively benign nature. The conclusion of this analysis is presented in Section 8.0.

2.0 STANDARDS, CRITERIA AND GUIDANCE

The analysis of remedial alternatives was based on complying with the most stringent of the standards, criteria and guidance utilized by the United States Environmental Protection Agency, the NYSDEC, and the New York State Department of Health. The most stringent are those utilized by the NYSDEC. Specifically, they are the Recommended Soil Cleanup Objectives published in the Division of Environmental Remediation's Technical and Administrative Guidance Memorandum (TAGM) 4046, and the Ambient Water Quality Standards and Guidance Values published in the Division of Water's Technical and Operational Guidance Series (TOGS) 1.1.1. Site-specific conditions were also considered in determining compliance with these documents.

3.0 OVERALL PROTECTIVENESS OF HUMAN HEALTH AND ENVIRONMENT

The results of the site investigation determined that the Site currently is not a significant threat to human health or the environment. Specifically, there are no off-site impacts, and the only potential on-site impact is associated with above-background levels polycyclic aromatic hydrocarbons (PAHs) in soil. Due to their presence, direct contact with the soil may pose a slightly higher risk relative to other nearby areas that do no contain the fill. However, it should be noted that the Site is well vegetated and that the PAHs in the soil will continue to break down over time.

3.1 Alternative 1: No Action

Although the results of the site investigation determined that the Site currently is not a significant risk to public health or the environment, there is potential for future risks associated with the no action alternative due to direct contact with above-background levels of PAHs in soil.

3.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

The key elements of this alternative are as follows:

1. Remove and recycle an above-grade fill pile that is comprised primarily of asphalt, as it is a localized source of PAHs.

2. Remove and dispose of the miscellaneous debris (tires, etc.) located near the southwest corner of the parking lot.

3. Remove the several large dead trees that were killed as a result of fill being placed around their bases, as they are a potential hazard due to falling limbs.

4. Re-grade the Site as necessary to maintain proper drainage.

5. Perform a topographic survey of the Site to establish grade elevations.

6. Cover the fill in accessible (i.e., relatively flat) areas of the Site with a minimum of one foot of clean soil and establish vegetative cover (e.g., turf grass or a grass and wildflower mix, as appropriate).

7. Perform another topographic survey of the Site to verify the thickness of the clean soil cover.

8. Prevent public access to the steep western slope using fencing and signage, screen with landscaping as appropriate. (Note: as this slope is stable and well vegetated, no further action is required.

9. Register an appropriate property deed restriction for the Site.

This alternative will prevent direct contact with the fill while maintaining the proposed end use of the Site, which is open space.

3.3 Alternative 3: Complete Removal

While complete removal would virtually eliminate potential future risks to human health and the environment, the work will result in short-term releases to the environment and there is potential to re-mobilize contaminants.

4.0 SHORT-TERM EFFECTIVENESS AND IMPACTS

4.1 Alternative 1: No Action

Although the Site is well vegetated and the PAHs in the fill will continue to break down over time, the short-term effectiveness of this alternative is limited by the fact that in the meantime the potential risk associated with the PAHs will remain.

4.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

This alternative is effective in the short-term because it will eliminate the potential risk associated with the PAHs and will maintain the intended end use of the Site as open space.

4.3 Alternative 3: Complete Removal

This alternative would be effective in the long-term, but will have significant impacts on the adjacent community associated, for example, with noise, dust, runoff and potential re-mobilization of contaminants. Moreover, this alternative is not consistent with the proposed end use of the Site as open space.

5.0 LONG-TERM EFFECTIVENESS AND PERMANENCE

5.1 Alternative 1: No Action

This alternative is effective in the long term because the PAHs in the fill will continue to break down over time. However, in the meantime, there would remain a potential risk associated with the PAHs.

5.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

This alternative is effective in the long term because it prevents direct contact with the fill while maintaining the proposed end use of the Site as open space.

5.3 Alternative 3: Complete Removal

This alternative is effective in the long term in that it entails permanent removal of the fill. However, has the Site is situated on a steep hillside, removal of the fill would eliminate the ability to use the Site as public open space.

6.0 REDUCTION OF TOXICITY, MOBILITY AND VOLUME

6.1 Alternative 1: No Action

This alternative does not provide for reduction of toxicity mobility and volume of the fill other than the gradual breakdown of the PAHs associated with natural processes.

6.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

This alternative provides reduction in the toxicity, and accessibility of the waste by preventing direct contact with the soil while the PAHs break down over time.

6.3 Alternative 3: Complete Removal

This alternative ensures reduction in toxicity and volume, but may potentially increase mobility by exposing contaminants to the environment.

7.0 FEASIBILITY

7.1 Alternative 1: No Action

This alternative, while obviously feasible, does not meet the remedial objectives for the Site.

7.2 Alternative 2:Installation of Clean Soil Cover and Institutional Controls

This alternative is feasible because it is well suited to site conditions, is capable of being carried out with available technology, and is cost-effective. It also meets the remedial objectives for the Site.

7.3 Alternative 3: Complete Removal

This alternative is technically feasible but is not cost-effective and there is potential for re-mobilizing contaminants. Moreover, this alternative is not consistent with the proposed end use of the Site as open space.

8.0 CONCLUSION

The conclusion of this analysis is that Alternative 2: Installation of Clean Soil Cover and Institutional Controls is the preferred alternative for the Site. The specific reasons for this determination are as follows:

- Overall, it is protective of human health and the environment;
- It is effective both short-term and long-term;
- It provides for reduction in toxicity and accessibility; and
- It is feasible in that it is well suited to site conditions, technologically feasible and cost-effective.

APPENDIX C

APPENDIX C

QUALITATIVE EXPOSURE ASSESSMENT

QUALITATIVE EXPOSURE ASSESSMENT

for

Fill In The Parking Lot At The South End Of
Iona College's Elizabeth Seton Campus
1061 North Broadway, Yonkers, NY 10701
(Site #V-00687-3, Index #W3-0981-12)

1.0 INTRODUCTION

This qualitative exposure assessment (Assessment) was performed to support the Remedial Closure Work Plan (Plan). It is based on the information provided in the Site Investigation Report (SIR) and the Plan. Since this information is readily available, it is not reproduced verbatim in this assessment. Instead, a summary of the key information is provided and specific information in these documents is referenced by page number, as appropriate.

The overall finding of this assessment is that the Site does not currently pose a significant risk to public health and the environment, and will not do so in the future. This determination is based on the results of the environmental monitoring performed and the remedial plan for the Site, as described in the SIR and the Plan. The specific findings are detailed below in the form of assessments of current and future exposures associated with the various environmental pathways.

2.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE AIR PATHWAY

Based on the air monitoring performed during the site investigation, the air pathway is not currently a significant exposure pathway. This determination is based in the fact that no volatile organic compounds (VOCs) or combustible gas, and only background levels of hydrogen sulfide were detected during health and safety monitoring during the test pit excavation and sampling work (SIR, p. 3). These findings are consistent with available information regarding the composition and age of the Site. Moreover, based on visual observation, the Site is not currently a significant source of fugitive dust emissions as it is well-vegetated (SIR, p. 2).

Based on the scope of work specified in the Plan, the air pathway will not be a significant exposure pathway in the future either. Specifically, once closure is complete, conditions at the Site will be similar to current conditions except that a clean soil cover will be installed and seeded (SIR p. 16). There is potential for fugitive dust emissions during closure in conjunction with re-grading and installation of the soil cover. If necessary, the Owner will take appropriate steps, such as the use of tarps and/or water spraying, to minimize fugitive dust emissions and workers may wear dust masks during these activities. There is also potential for fugitive dust emissions from the soil cover until the new vegetation becomes well established. However, since this dust will be from clean soil, the only environmental concern associated with it is silica. If necessary, the Owner will take appropriate steps, such as installing erosion control blankets on the land surface, to minimize dust emissions until the new vegetation becomes established.

3.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE SOIL PATHWAY

Based on the soil-quality data collected during the site investigation, the soil pathway is not currently a significant exposure pathway. This determination is based on the fact that the Site is well vegetated (SIR, p. 2). As such, the potential for direct dermal contact by humans or animals with soil is low. This determination is also based on the results of the test pit soil sampling results, which showed that except for polycyclic aromatic carbons, the chemical quality of the soil is not a risk with respect to dermal exposure (SIR, p.15).

Based on the scope of work specified in the Plan, the soil pathway will not present a significant risk of exposure in the future. Specifically, the Site will then be covered by a minimum of one foot of clean soil and re-vegetated. In addition, a deed restriction will be placed on future excavation, and periodic inspections will be performed.

4.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE SURFACE WATER PATHWAY

There are no surface-water bodies in the vicinity of the Site which could potentially be impacted by the Site. Therefore, there is no potential current or future exposure associated with the surface-water pathway.

5.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE SEDIMENT PATHWAY

There are no surface-water bodies in the vicinity of the Site which could potentially be impacted by the Site. Therefore, there is no potential current or future exposure associated with the sediment pathway.

6.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE GROUND WATER PATHWAY

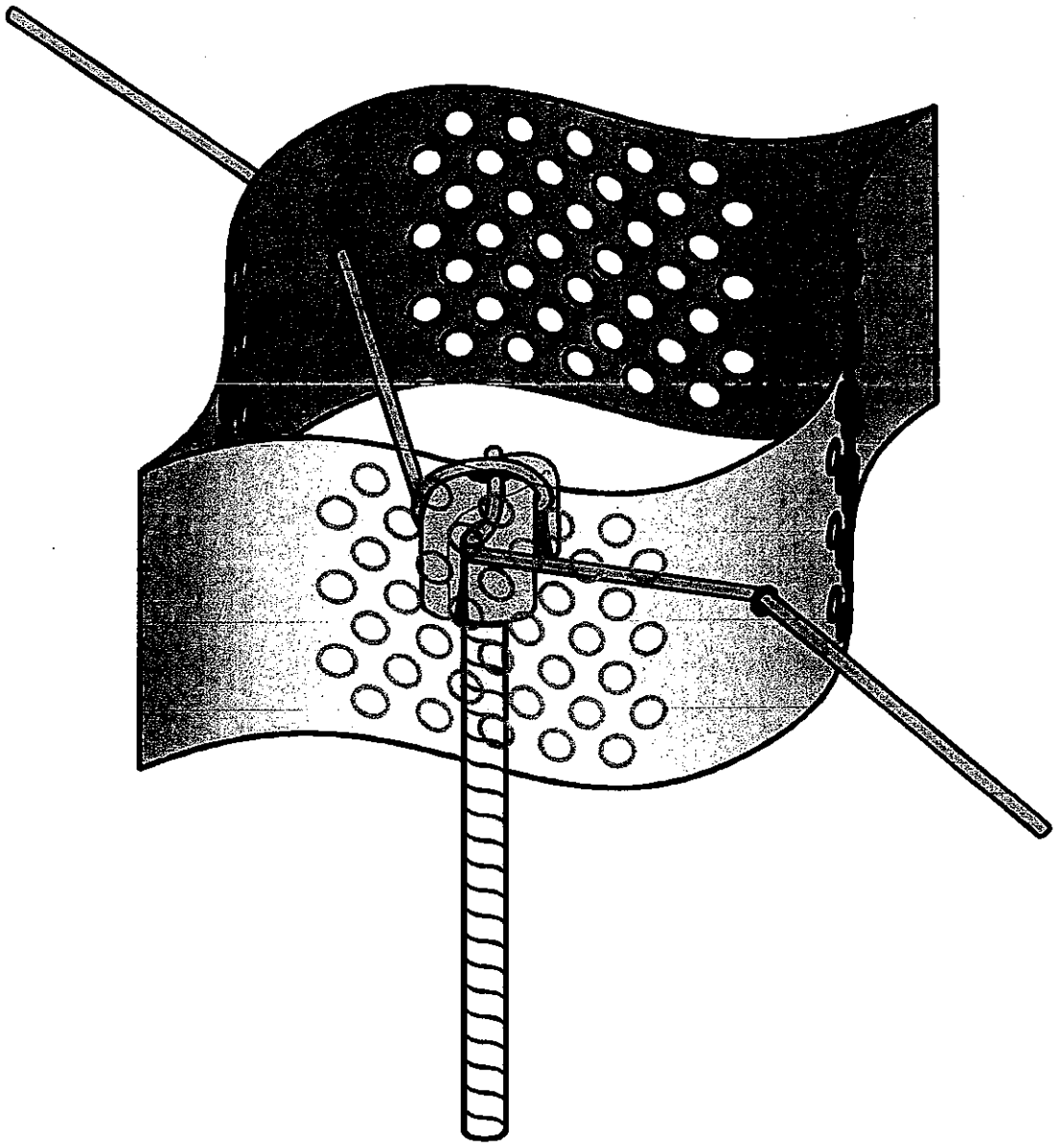
Based on the information contained in the SIR, the ground water pathway is not a viable exposure pathway. Specifically, based on field observations, the occurrence of groundwater is limited to a thin, discontinuous seasonal zone overlying bedrock. Moreover, the fill does not leach significant concentrations of PAHs or lead, and is not a significant source of VOCs, the non-PAH semivolatile organic compounds, pesticides, polychlorinated biphenyls (PCBs) or metals. Consequently, there is minimal potential for the Site to impact ground water.

APPENDIX D

APPENDIX D

Catalog Cuts for Geosynthetic and Indicator Layer

GEOWEB® CELLULAR CONFINEMENT SYSTEM
V-SERIES MATERIAL SPECIFICATION



PRESTO PRODUCTS COMPANY, P.O. BOX 2399, APPLETON, WISCONSIN, USA 54912-2399
Telephone: 920-738-1118 or 800-548-3424 - Fax: 920-738-1222
e-mail: info@prestogeo.com www.prestogeo.com/
CD-8 Effective Date:27-Apr-04 Revision: 2

GEOWEB® CELLULAR CONFINEMENT SYSTEM
V-SERIES MATERIAL SPECIFICATION

Contents

Perforated V-Series Geoweb® System Performance & Material Specification Summary 1
Manufacturing Certification 2
Substitutions 2
Product Certification 2
Product Warranty 3
Specifier Choice for Certification and Warranty 3
Geoweb Base Material 3
Polyethylene - Stabilized with Carbon Black 3
Polyethylene - Colored and Stabilized with HALS 3
Specifier Choice for Base Material 4
Strip Properties and Assembly 4
Perforated Textured Strip/Cell (Recommended) 4
Non-perforated Textured Strip/Cell 4
Assembly 4
Specifier Choice for Strip Properties and Assembly 5
Cell and Seam Properties 5
Cell Nominal Length & Width, Density, and Nominal Area 5
Nominal Cell Depth 6
Cell Seam Peel Strength Test 6
Short-Term Seam Peel-Strength Test 6
Long-Term Seam Peel-Strength Test 6
10,000-hour Seam Peel Strength Certification 6
Specifier Choice for Seam and Cell Properties 7
Geoweb Section Properties – GW20V Cell 7
GW20V Geoweb Section 7
Geoweb Section Properties – GW30V Cell 8
GW30V Geoweb Section 8
Geoweb Section Properties – GW40V Cell 9
GW40V Geoweb Section 9
Specifier Choice for Section Properties .....

Polyester Tendons 10
Kevlar® Aramid Tendons 11
Polypropylene Tendons 11
The ATRA® Clip Restraint Pin 11
Specifier Choice for Tendons and Restraint Pins 11
Geoweb Section Anchoring Components 12
Anchoring Requirements 12
Anchor Systems 12
ATRA® GFRP Anchor – Pre-Assembled Unit 12
Other ATRA® Anchors 12
ATRA® GFRP Anchor 12
Steel ATRA® Anchor 13
Galvanized Steel ATRA® Anchor 13
Metal ATRA® Anchor 13
Stake Types 13
GFRP Stakes 13
Steel J-pin Stakes 13
Straight Steel Stakes 13
Straight Metal Stakes 13
Wood Stakes 14
Specifier Choice for Anchoring Systems 14
Disclaimer 14
Appendix A 15
Short-Term Seam Strength Test Procedure 15
Frequency of Test 15
Test Sample Preparation 15
Short-term Seam Peel Strength Test 15
Definition of Pass / Failure 15
The Tested Value 15
Visual Failure Mode 15
Appendix B 16
Long-Term Seam-Strength Test Procedure 16
Frequency of Test 16
Test Sample Preparation 16
Long-term Seam Peel Strength Test 16
Definition of Pass / Failure 16

Perforated V-Series Geoweb® System Performance & Material Specification Summary

	Property	Value			Test Method
Base Material	Material Composition	Polymer – Polyethylene with density of 0.935 – 0.965 g/cm³ (58.4 - 60.2 lb/ft³)			ASTM D 1505
	Color	Black - from Carbon Black	Tan, Green, Other Colors with no heavy metal content		N/A
	Stabilizer	Carbon black content 1.5% - 2% by weight	Hindered amine light stabilizer (HALS) 1.0% by weight of carrier		N/A
	Minimum ESCR	3000 hr			ASTM D 1693
	Sheet Thickness	1.27 mm -5% +10% (50 mil –5% +10%)			ASTM D 5199
Strip Properties	Surface Treatment	**Performance:** The polyethylene strips shall be textured and perforated such that the peak friction angle between the surface of the textured / perforated plastic and a #40 silica sand at 100% relative density shall be no less than 85% of the peak friction angle of the silica sand in isolation when tested by the direct shear method per ASTM D 5321. The quantity of perforations shall remove 19.6% ± 3% of the cell wall area.	**Material:** The polyethylene strips shall be textured with a multitude of rhomboidal (diamond shape) indentations. The rhomboidal indentations shall have a surface density of 22 – 31 per cm² (140 – 200 per in²). In addition, the strips shall be perforated with horizontal rows of 10 mm (0.4 in) diameter holes. Perforations within each row shall be 19 mm (0.75 in) on-center. Horizontal rows shall be staggered and separated 12 mm (0.50 in) relative to the hole centers. The edge of strip to the nearest edge of perforation shall be 8 mm (0.3 in) minimum and the centerline of the weld to the nearest edge of perforation shall be 18 mm (0.7 in) minimum.		

Cell & Seam Properties	Cell Details	Cell Depth	Nominal Dimensions ±10%		Density per m² (yd²)	Nominal Area ±1%
			Length	Width		
	GW20V	75 mm (3 in) 100 mm (4 in) 150 mm (6 in) 200 mm (8 in)	224 mm (8.8 in)	259 mm (10.2 in)	34.6 (28.9)	289 cm² (44.8 in²)
	GW30V		287 mm (11.3 in)	320 mm (12.6 in)	21.7 (18.2)	460 cm² (71.3 in²)
	GW40V		475 mm (18.7 in)	508 mm (20.0 in)	8.3 (6.9)	1,206 cm² (187.0 in²)

Short-term Seam Peel Strength	Cell Depth	Average Certified Cell Seam Strength
	75 mm (3 in)	1060 N (240 lbf)
	100 mm (4 in)	1420 N (320 lbf)
	150 mm (6 in)	2130 N (480 lbf)
	200 mm (8 in)	2840 N (640 lbf)

Long-term Seam Peel Strength	Long-term seam peel strength test shall be performed on all resin or pre-manufactured sheet or strips. A 100 mm (4.0 in) wide seam sample shall support a 72.5 kg (160 lb) load for a period of 168 hours (7 days) minimum in a temperature-controlled environment undergoing a temperature change on a 1-hour cycle from ambient room to 54°C (130°F). Ambient room temperature is per ASTM E 41	
10,000-hour Seam Peel Strength Certification	Presto shall provide data showing that the high-density polyethylene resin used to produce the Geoweb sections has been tested using an appropriate number of seam samples and varying loads to generate data indicating that the seam peel strength shall survive a loading of at least 95 kg (209 lbf) for a minimum of 10,000 hours.	

Section Properties	Section Dimension	Section Width	Section Length Range (Cells Long: 18, 21, 25, 29, 34)	
		Variable	Minimum	Maximum
	GW20V	2.3 m (7.7 ft) to 2.8 m (9.2 ft)	3.7 m (12.0 ft)	8.3 m (27.3 ft)
	GW30V		4.7 m (15.4 ft)	10.7 m (35.1 ft)
	GW40V		7.7 m (25.4 ft)	17.8 m (58.2 ft)

Manufacturing Certification

Presto Products Company (the manufacturer) shall have earned a certificate of registration, which demonstrates that its quality-management system for its Geoweb (geocell) cellular confinement system is currently registered to the ISO 9001:2000 quality standards. The scope of the ISO 9001:2000 registration shall be for the sale, design and manufacture of Geoweb cellular confinement system (geocell) product from incoming raw materials (resin) to finished product. Earned registration shall be verifiable by providing a copy of the current continuous registration certificate upon the customer's written request.

Under the scope of the ISO quality standard, Presto Products Company (the manufacturer) shall compile, keep record of, and provide for any customer order or production lot, when requested at the time of order placement, actual and certified values for the following:

1. Resin Lot Number
2. Resin Density
3. Carbon Black content (where applicable)
4. High Pressure Oxidation Induction Time (HPOIT) (where applicable)
5. Sheet Thickness
6. Short-term Seam Peel Strength
7. Long-term Seam Peel Strength - 7-day hot box method

Substitutions

No material will be considered as an equivalent to the geocell material specified herein unless it meets all areas of this specification without exception. Manufacturers seeking to supply what they represent as equivalent material must submit records, data, independent test results, samples, certifications, and documentation deemed necessary by the Engineer to prove equivalency. The Engineer shall approve or disapprove other manufacturers materials within 60 days after all submitted information is studied and tested.

Product Certification

Presto Products Company (the manufacturer) shall provide certification of compliance to all applicable testing procedures and related specifications upon the customer's written request. Request for certification shall be submitted no later than the date of order placement.

GEOWEB® CELLULAR CONFINEMENT SYSTEM V-SERIES MATERIAL SPECIFICATION

Product Warranty

Presto Products Company (the manufacturer) shall warrant each Geoweb cellular confinement system section that it ships to be free from defects in materials and workmanship at the time of manufacture. Presto's exclusive liability under this warranty or otherwise will be to furnish without charge to Presto's customer at the original f.o.b. point a replacement for any section which proves to be defective under normal use and service during the 10-year period which begins on the date of shipment by Presto. Presto reserves the right to inspect any allegedly defective section in order to verify the defect and ascertain its cause.

This warranty shall not cover defects attributable to causes or occurrences beyond Presto's control and unrelated to the manufacturing process, including, but not limited to, abuse, misuse, mishandling, neglect, improper storage, improper installation, improper alteration or improper application.

PRESTO MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, WRITTEN OR ORAL, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, IN CONNECTION WITH THE GEOWEB CELLULAR CONFINEMENT SYSTEM. In no event shall Presto be liable for any special, indirect, incidental or consequential damages for the breach of any express or implied warranty or for any other reason, including negligence, in connection with the Geoweb cellular confinement system.

Specifier Choice for Certification and Warranty

The Specifier shall determine the applicability of Manufacturing Certification, Product Certification and a Product Warranty and state which of the above is to be part of the project specifications.

Geoweb Base Material

NOTE: All measurements and colorants are subject to manufacturing tolerances unless otherwise stated.

Polyethylene - Stabilized with Carbon Black

Polyethylene used to make strips for Presto Geoweb sections shall have a density of 0.935 - 0.965 g/cm³ (58.4 - 60.2 lb/ft³) tested per ASTM D1505.

Polyethylene used to make strips for Presto Geoweb sections shall have an Environmental Stress Crack Resistance (ESCR) of 3000 hour tested per ASTM D1693.

Carbon black shall be used for ultra-violet light stabilization. Carbon black content shall be 1.5% - 2% by weight through the addition of a carrier with a certified carbon black content. The carbon black shall be homogeneously distributed throughout the material.

The resin manufacturer's certification of polyethylene density and ESCR shall be available upon request from Presto (the Geoweb manufacturer). Presto shall certify the percentage of carbon black.

Polyethylene - Colored and Stabilized with HALS

Polyethylene used to make strips for Presto Geoweb sections shall have a density of 0.935 - 0.965 g/cm³ (58.4 - 60.2 lb/ft³) tested per ASTM D1505.

Polyethylene used to make strips for Presto Geoweb sections shall have an Environmental Stress Crack Resistance (ESCR) of 3000 hour tested per ASTM D1693.

The color(s) of the polyethylene shall be (Tan, Green, other). Colorants shall be non-heavy metal types.

The colorant shall be homogeneously distributed throughout the material.

Hindered amine light stabilizer (HALS) shall be used for ultra-violet light stabilization. HALS content shall be 1.0% by weight through the addition of a carrier with a certified HALS concentrate. The HALS shall be homogeneously distributed throughout the material.

Colored polyethylene facia panels on Geoweb sections used for earth retention systems shall have a High Pressure Oxidation Induction Time (HPOIT) of 820 minutes minimum per ASTM D5885 *Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High Pressure Differential Scanning Calorimetry.*

The resin manufacturer's certification of polyethylene density, ESCR and HPOIT shall be available upon request from Presto (the Geoweb manufacturer). Presto shall certify the percentage of HALS.

Specifier Choice for Base Material

The polyethylene used for all Geoweb material meets the same standards. The specifier shall state the desired color. The color determines which ultraviolet light stabilizer is to be used. Polyethylene stabilized with carbon black is used for most applications. Colored polyethylene stabilized with HALS is generally used for the facia strip for Geoweb earth retention systems.

Strip Properties and Assembly

NOTE: All measurements are subject to manufacturing tolerances unless otherwise stated.

Perforated Textured Strip/Cell (Recommended)

Polyethylene sheet used to make strips for Presto Geoweb sections shall have a thickness of 1.27 mm -5% +10% (50 mil -5% +10%) prior to any surface disruption. The strips shall have a perforated, textured surface. **Performance:** The peak friction angle between the surface of the perforated, textured plastic and a #40 silica sand at 100% relative density shall be no less than 85% of the peak friction angle of the silica sand in isolation when tested by the direct shear method per ASTM D 5321. The quantity of perforations shall remove 19.6% ± 3% of the cell wall area. **Material:** The surface texturing shall be a multitude of rhomboidal (diamond shape) indentations. The rhomboidal indentations shall have a surface density of 22 - 31 per cm² (140 - 200 per in²). The thickness of the textured sheet shall be 1.52 mm ±0.15 mm (60 mil ±6 mil) determined per ASTM D5199. The perforations shall be horizontal rows of 10 mm (0.4 in) diameter holes. Perforations within each row shall be 19 mm (0.75 in) on-center. Horizontal rows shall be staggered and separated 12 mm (0.50 in) relative to the hole centers. The edge of strip to the nearest edge of perforation shall be 8 mm (0.3 in) minimum and the centerline of the weld to the nearest edge of perforation shall be 18 mm (0.7 in) minimum.

Non-perforated Textured Strip/Cell

Polyethylene sheet used to make strips for Presto Geoweb sections shall have a thickness of 1.27 mm -5% +10% (50 mil -5% +10%) prior to any surface disruption. The strips shall have a textured surface. **Performance:** The peak friction angle between the surface of the textured plastic and a #40 silica sand at 100% relative density shall be no less than 85% of the peak friction angle of the silica sand in isolation when tested by the direct shear method per ASTM D 5321. **Material:** The surface texturing shall be a multitude of rhomboidal (diamond shape) indentations. The rhomboidal indentations shall have a surface density of 22 - 31 per cm² (140 - 200 per in²). The thickness of the textured sheet shall be 1.52 mm ±0.15 mm (60 mil ±6 mil) determined per ASTM D5199.

Assembly

Presto Geoweb [*Cell Type*] sections shall be fabricated using strips of sheet polyethylene each having a length of ... (per Table 1) and a width equal to the cell depth. Polyethylene strips shall be connected using full-depth, ultrasonic spot-welds aligned perpendicular to the longitudinal axis of the strip. Weld spacing shall be ... (per Table 1). The ultrasonic weld melt-pool width shall not exceed 25 mm (1.0 in).

Table 1 Strip Lengths & Weld Spacing for Cell Types

Cell Type	GW20V	GW30V	GW40V
Strip Length	3.61 m (142 in)	3.61 m (142 in)	3.61 m (142 in)
Weld Spacing	356 mm ± 2.5 mm (14.0 in ± 0.10 in)	445 mm ± 2.5 mm (17.5 in ± 0.10 in)	711 mm ±2.5 mm (28.0 in ± 0.10 in)

Specifier Choice for Strip Properties and Assembly

The specifier shall state the desired strip/cell type: Perforated Textured or Non-Perforated Textured and use either the **Performance** or **Material** language. Refer to *THE GEOWEB SYSTEM TECHNICAL OVERVIEW* documents for recommendations.

Cell and Seam Properties

NOTE: All measurements are nominal and subject to manufacturing tolerances unless otherwise stated.

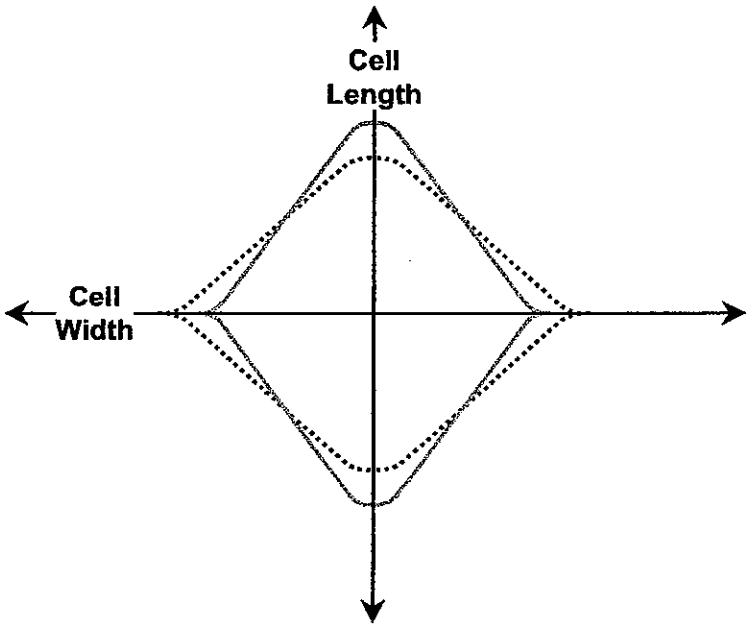


Figure 1 Variable Expansion of the Geoweb Cell

Cell Nominal Length & Width, Density, and Nominal Area

The individual cells of the GW(TT)V Geoweb section shall have a variable dimensions depending on expansion. The nominal cell dimensions, density and nominal area are illustrated in Figure 1.

Type (TT)	Nominal Dimensions ±10%		Density per m² (yd²)	Nominal Area ±1%
	Length	Width		
GW20V	224 mm (8.8 in)	259 mm (10.2 in)	34.6 (28.9)	289 cm² (44.8 in²)

GW30V	287 mm (11.3 in)	320 mm (12.6 in)	21.7 (18.2)	460 cm² (71.3 in²)
GW40V	475 mm (18.7 in)	508 mm (20.0 in)	8.3 (6.9)	1206 cm² (187.0 in²)

Nominal Cell Depth

The Geoweb section shall have a nominal cell depth of (D).

Depth (D) = 200 mm (8.0 in) 150 mm (6.0 in) 100 mm (4.0 in) 75 mm (3.0 in)

Cell Seam Peel Strength Test

NOTE: All measurements are subject to manufacturing tolerances unless otherwise stated.

Short-Term Seam Peel-Strength Test

Short-term cell seam peel-strength shall be uniform over the full depth of the cell. Minimum short-term seam peel-strengths shall be:

- 2840 N (640 lbf) .....for the 200 mm (8 in) depth cell.
- 2130 N (480 lbf)..... for the 150 mm (6 in) depth cell.
- 1420 N (320 lbf) .....for the 100 mm (4 in) depth cell.
- 1060 N (240 lbf) .....for the 75 mm (3 in) depth cell.

Short-term seam peel strength shall be tested per Appendix A.

Long-Term Seam Peel-Strength Test

Long-term seam peel-strength test shall be performed on all resin or pre-manufactured sheet or strips. A 100 mm (4.0 in) wide seam sample shall support a 72.5 kg (160 lb) load for a period of **168 hours** (7 days) **minimum** in a temperature-controlled environment that undergoes change on a 1-hour cycle from room temperature to 54°C (130°F). Room temperature is defined in ASTM E41.

Long-term seam peel strength shall be tested per Appendix B.

10,000-hour Seam Peel Strength Certification

Presto shall provide data showing that the high-density polyethylene resin used to produce the Geoweb sections has been tested using an appropriate number of seam samples and varying loads to generate data indicating that the seam peel strength shall survive a loading of at least 95 kg (209 lbf) for a minimum of 10,000 hours.

Specifier Choice for Seam and Cell Properties

The specifier shall state the desired cell size: either the GW20V, GW30V or GW40V Geoweb section and the cell depth. Refer to *THE GEOWEB SYSTEM TECHNICAL OVERVIEW* documents for recommendations.

The specifier shall also state the Short-Term Seam Peel-Strength Test and the Long-Term Seam Peel-Strength Test. There are three possibilities for seams for a Geoweb section. First, is two carbon black stabilized strips welded together. This is most typical for Geoweb sections used in all application areas. Second, is a carbon black strip welded to a HALS stabilized strip. This is typically used when a colored facia is desired on the Geoweb earth retention system. Third, is two HALS stabilized strips welded together. However, this is uncommon and would apply only to fully colored Geoweb sections. Presto should be consulted before specifying fully colored Geoweb sections. In the Long Term Seam Peel-Strength Test, the load capacity is given for seams made of two carbon-black stabilized strips welded together and a carbon black stabilized strip welded to a HALS stabilized strip.

Geoweb Section Properties – GW20V Cell

NOTE: All measurements are subject to manufacturing tolerances unless otherwise stated.

GW20V Geoweb Section

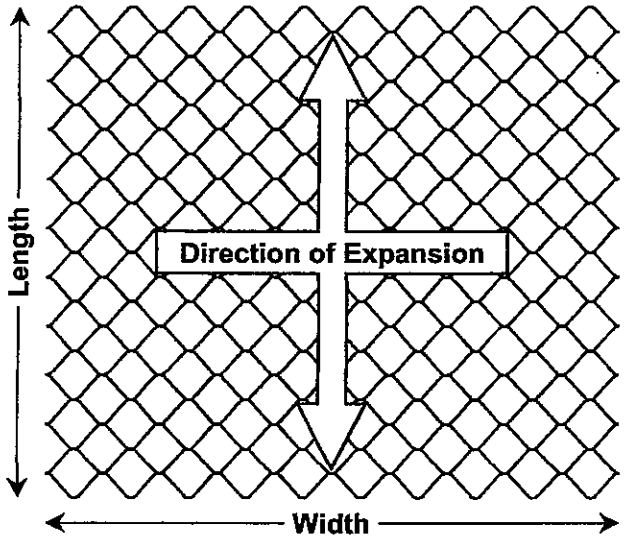


Figure 2 GW20V Geoweb Section

Presto Geoweb GW20V section dimensions shall be as indicated in Figure 2. Sections shall have a nomenclature of "GW20VDWWLL" where "GW20V" indicates the cell size, "D" indicates the cell depth in inches, "WW" indicates the number of cells wide, and "LL" indicates the number of cells long. Sections shall have expanded dimensions per Table 2. An example of the GW20V Geoweb section nomenclature is GW20V81029 where the section cell depth is 8 in or 200 mm and the section is 10 cells wide and 29 cells in length.

Table 2 Available GW20V Geoweb Section Dimensions - 10 Cells Wide

Cells Long	Minimum Expansion Length m	Minimum Expansion Length ft	Minimum Expansion Width m	Minimum Expansion Width ft	Maximum Expansion Length m	Maximum Expansion Length ft	Maximum Expansion Width m	Maximum Expansion Width ft	Nominal Area m²	Nominal Area ft²
18	3.7	12.0	2.8	9.2	4.4	14.5	2.3	7.7	10.4	112
21	4.3	14.0			5.1	16.9			12.1	131
25	5.1	16.7			6.1	20.1			14.5	156
29	5.9	19.4			7.1	23.3			16.8	181
34	6.9	22.7			8.3	27.3			19.7	212

Geoweb Section Properties – GW30V Cell

NOTE: All measurements are subject to manufacturing tolerances unless otherwise stated.

GW30V Geoweb Section

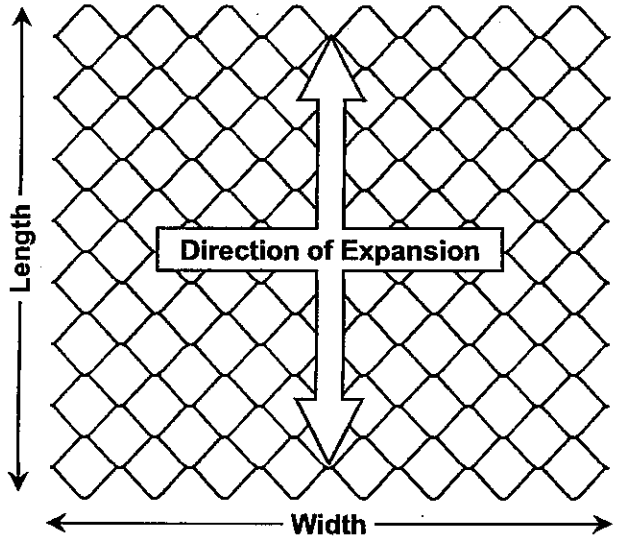


Figure 3 GW30V Geoweb Section

Presto Geoweb GW30V section dimensions shall be as indicated in Figure 3. Sections shall have a nomenclature of "GW30VDWWLL" where "GW30V" indicates the cell size, "D" indicates the cell depth in inches, "WW" indicates the number of cells wide, and "LL" indicates the number of cells long. Sections shall have expanded dimensions per Table 3. An example of the GW30V Geoweb section nomenclature is GW30V60829 where the section cell depth is 6 in or 150 mm and the section is 8 cells wide and 29 cells in length.

Table 3 Available GW30V Geoweb Section Dimensions - 8 Cells Wide

Cells Long	Minimum Expansion Length m	Minimum Expansion Length ft	Minimum Expansion Width m	Minimum Expansion Width ft	Maximum Expansion Length m	Maximum Expansion Length ft	Maximum Expansion Width m	Maximum Expansion Width ft	Nominal Area m²	Nominal Area ft²
18	4.7	15.4	2.8	9.2	5.7	18.6	2.3	7.6	13.3	143

21	5.5	18.0		6.6	21.7	15.5	167
25	6.5	21.4		7.9	25.8	18.4	198
29	7.6	24.8		9.1	30.0	21.4	230
34	8.9	29.1		10.7	35.1	25.0	270

Geoweb Section Properties – GW40V Cell

NOTE: All measurements are subject to manufacturing tolerances unless otherwise stated.

GW40V Geoweb Section

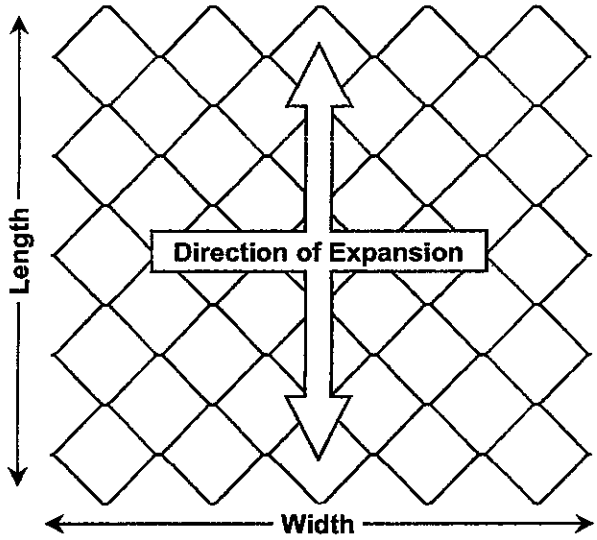


Figure 4 GW40V Geoweb Section

Presto Geoweb GW40V section dimensions shall be as indicated in Figure 4. Sections shall have a nomenclature of "GW40VDWWLL" where "GW40V" indicates the cell size, "D" indicates the cell depth in inches, "WW" indicates the number of cells wide, and "LL" indicates the number of cells long. Sections shall have expanded dimensions per Table 4. An example of the GW40V Geoweb section nomenclature is GW40V40525 where the section cell depth is 4 in or 100 mm and the section is 5 cells wide and 25 cells in length.

Table 4 Available GW40V Geoweb Section Dimensions - 5 Cells Wide

Cells Long	Minimum Expansion Length m	Minimum Expansion Length ft	Minimum Expansion Width m	Minimum Expansion Width ft	Maximum Expansion Length m	Maximum Expansion Length ft	Maximum Expansion Width m	Maximum Expansion Width ft	Nominal Area m²	Nominal Area ft²
18	7.7	25.4	2.8	9.1	9.4	30.8	2.3	7.5	21.7	234
21	9.0	29.6			11.0	36.0			25.3	273
25	10.7	35.2			13.1	42.8			30.2	325
29	12.5	40.9			15.1	49.7			35.0	377
34	14.6	47.9			17.8	58.2			41.0	441

Specifier Choice for Section Properties

The specifier shall state the desired Geoweb section type(s) and size(s). Refer to *THE GEOWEB SYSTEM TECHNICAL OVERVIEW* documents for recommendations.

Geoweb Section Special Features

NOTE: All measurements are subject to manufacturing tolerances unless otherwise stated.

Tendoned Geoweb Sections

Geoweb sections shall be provided with a series of aligned holes through the cell walls for the insertion of tendons. Tendons are inserted in the field such that they pass through the Geoweb section in the direction of expansion. Hole diameter shall be 10 mm (0.375 in) and positioned according to the requirements of the tendon design. See Figure 5.

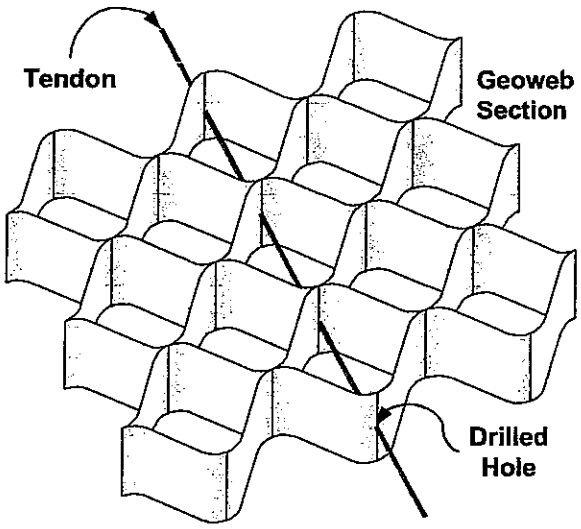


Figure 5 Drilled Geoweb Section with Tendon

Specifier Choice for Special Features

The specifier shall state which of the special Geoweb section features are required for the application. Refer to *THE GEOWEB SYSTEM TECHNICAL OVERVIEW* documents for recommendations.

Tendons

Polyester Tendons

The polyester tendon shall be manufactured from bright, high-tenacity, industrial-continuous-filament polyester yarn woven into a braided strap. Elongation shall be 9-15% at break. The tendon reference name, diameter / width and minimum break-strength shall be per Table 5.

Table 5 Polyester Tendons

Reference Name	Tendon Diameter / Width	Tendon Minimum Break-strength

	mm	in	kN	lbf
TP-31	13	0.500	3.11	700
TP-67	19	0.750	6.70	1506
TP-93	19	0.750	9.30	2090

Kevlar® Aramid Tendons

The Kevlar® aramid tendon shall be a woven strap having the reference name, width and minimum break-strength per Table 6.

Table 6 Kevlar® Aramid Tendon

Reference Name	Tendon Diameter / Width		Tendon Minimum Break-strength	
	mm	in	kN	lbf
TK-89	10	0.375	8.90	2000
TK-133	16	0.625	13.34	3000

Polypropylene Tendons

The polypropylene tendon shall be 3-strand twisted rope having the reference name, diameter and minimum break-strength per Table 7.

Table 7 Polypropylene Tendon

Reference Name	Tendon Diameter / Width		Tendon Minimum Break-strength	
	mm	in	kN	lbf
TPP-44	6 dia	0.25 dia	4.40	990

The ATRA® Clip Restraint Pin

The ATRA® Clip shall be used as a load transfer pin within the tendoned Geoweb® system. The ATRA® Clip Restraint Pin shall transfer load from the infilled Geoweb cells to the tendon. The ATRA® Clip shall be molded from high-strength polyethylene.

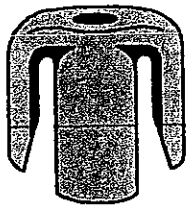


Figure 6 ATRA® Clip

Specifier Choice for Tendons and Restraint Pins

The specifier shall state which tendon is to be used. Tendon strength must meet design requirements for the application. The specifier shall also state if the ATRA® Clip restraint pin is needed. Refer to *THE GEOWEB SYSTEM TECHNICAL OVERVIEW* documents for recommendations.

Geoweb Section Anchoring Components

NOTE: All measurements are subject to manufacturing tolerances unless otherwise stated.

Anchoring Requirements

Geoweb sections, with or without tendons, shall be anchored in accordance with construction drawings. Rows of ATRA® Anchors or stake anchors shall engage and bear against the cell walls, or engage and hold the integral tendons against the foundation soil. The size, type and distribution of ATRA® Anchor (stake anchors) shall be in accordance with the construction drawings.

Anchor Systems

ATRA® GFRP Anchor – Pre-Assembled Unit

The ATRA® GFRP Anchor shall be a pre-assembled unit consisting of the ATRA® Clip inserted onto the ATRA® GFRP stake so that the end of the stake is flush with or 3 mm (1/8 in) maximum above the top of the ATRA® Clip. Prior to inserting the ATRA® Clip on the end of the stake, the stake end shall be ground or filed so it has a bevel and is free from all burrs.

The ATRA® GFRP stake shall be composed of glass fiber-reinforced polymer with the outer surface of the stake sand coated and deformed by a helical wrap of glass. Glass reinforcement content shall be 75% minimum by weight and shall be continuous longitudinal filament. Polymer shall be vinyl ester, isopthalic polyester, or other matrix material. The outer surface of the stake shall be sand coated and deformed by a helical wrap of glass. The ATRA® GFRP stake shall have a minimum tensile strength of 655 MPa (95 ksi) per ASTM D638. The stake shall be non-magnetic, non-conducting and corrosion resistant. The stake diameter shall be 12-13 mm (1/2 in). The length shall be per construction drawings.

The pre-assembled ATRA® GFRP Anchors are available from Presto Products Company. Contact Presto for available lengths.



Figure 7
ATRA® GFRP Anchor

Other ATRA® Anchors

ATRA® GFRP Anchor

The ATRA® GFRP Anchor shall be made by properly inserting the ATRA® Clip onto a straight stake so that the end of the stake is flush with or 3 mm (1/8 in) maximum above the top of the ATRA® Clip. Prior to inserting the ATRA® Clip on the end of the stake, the stake end shall be ground or filed so it has a bevel and is free from all burrs. The stake shall be composed of glass fiber-reinforced polymer (GFRP) with the outer surface of the stake sand coated and deformed by a helical wrap of glass. Glass reinforcement content shall be 75% minimum by weight and shall be continuous longitudinal filament. The use of non-continuous filament is strictly prohibited. Polymer shall be vinyl ester, isopthalic polyester, or other matrix material. The stake shall have a minimum tensile strength of 655 MPa (95 ksi) per ASTM D638. The stake shall be non-magnetic, non-conducting and corrosion resistant. The stake length shall be per construction drawings.

Steel ATRA® Anchor

The Steel ATRA® Anchor shall be made by properly inserting the ATRA® Clip onto a straight stake so that the end of the stake is flush with or 3 mm (1/8 in) maximum above the top of the ATRA® Clip. Prior to inserting the ATRA® Clip on the end of the stake, the stake end shall be ground or filed so it has a bevel and is free from all burrs. The stake shall consist of straight 12-13 mm (#4) steel reinforcing rod. The stake length shall be per construction drawings.

Galvanized Steel ATRA® Anchor

The Galvanized Steel ATRA® Anchor shall be made by properly inserting the ATRA® Clip onto a straight stake so that the end of the stake is flush with or 3 mm (1/8 in) maximum above the top of the ATRA® Clip. Prior to inserting the ATRA® Clip on the end of the stake, the stake end shall be ground or filed so it has a bevel and is free from all burrs. The stake shall consist of straight 12-13 mm (#4) steel reinforcing rod hot dipped galvanized per AASHTO M-218. The stake length shall be per construction drawings.

Metal ATRA® Anchor

The ATRA® Anchor shall be made by properly inserting the ATRA® Clip onto a straight stake so that the end of the stake is flush with or 3 mm (1/8 in) maximum above the top of the ATRA® Clip. Prior to inserting the ATRA® Clip on the end of the stake, the stake end shall be ground or filed so it has a bevel and is free from all burrs. The stake shall consist of straight 12-13 mm (½ in) _____ (state metal type) rod. The stake length shall be per construction drawings.

Stake Types

GFRP Stakes

The GFRP Stake shall be composed of glass fiber-reinforced polymer with a sand coating. Glass reinforcement content shall be 75% minimum by weight and shall be continuous longitudinal filament. The use of non-continuous filament is strictly prohibited. Polymer shall be vinyl ester, isopthalic polyester, or other matrix material. The outer surface of the stake shall be sand coated and deformed by a helical wrap of glass. The stake shall have a minimum tensile strength of 655 MPa (95 ksi) per ASTM D638. The stake shall be non-magnetic, non-conducting and corrosion resistant. The stake diameter and length shall be per construction drawings.

Steel J-pin Stakes

Steel J-pin stakes shall be fabricated from mild steel or reinforcing steel rod. Each stake shall have a minimum-radius, 180-degree return at one end. Rod diameter shall be 8 mm (0.3125 in), 10 mm (0.375 in), 12 mm (0.50 in), 16 mm (0.625 in) or 20 mm (0.75 in). Stake length shall be per the construction drawings. When specified, galvanizing shall be per AASHTO M-218.

Straight Steel Stakes

Straight steel stakes shall be fabricated from mild steel or reinforcing steel rod. Rod diameter shall be 8 mm (0.3125 in), 10 mm (0.375 in), 12 mm (0.50 in), 16 mm (0.625 in) or 20 mm (0.75 in). Stake length shall be per the construction drawings. When specified, galvanizing shall be per AASHTO M-218.

Straight Metal Stakes

Straight metal shall be fabricated from _____ (state metal type) rod. Rod diameter shall be 8 mm (0.3125 in), 10 mm (0.375 in), 12 mm (0.50 in), 16 mm (0.625 in) or 20 mm (0.75 in). Stake length shall be per the construction drawings.

Wood Stakes

Wood stakes shall be made from _____ (state wood type) and shall be free from knots that effect the strength of the stake. The stakes shall have a cross section of _____ by _____ and be _____ long.

Specifier Choice for Anchoring Systems

The specifier shall state which of the anchoring methods are required for the application and choose from the stated options. Refer to *THE GEOWEB SLOPE PROTECTION SYSTEM* and/or *CHANNEL PROTECTION SYSTEM TECHNICAL OVERVIEW* for recommendations. Note, the pre-assembled glass fiber-reinforced polymer ATRA® GFRP Anchors are available from Presto. Other ATRA® Anchors are not available from Presto.

Disclaimer

This document has been prepared for the benefit of customers interested in the Presto Geoweb Cellular Confinement System. It was reviewed carefully prior to publication. Presto Products Company assumes no liability and makes no guarantee or warranty as to its accuracy or completeness. Final determination of the suitability of any information or material for the use contemplated, or for its manner of use, is the sole responsibility of the user. Geoweb® and ATRA® are registered trademarks of Presto Products Company.

Appendix A

Short-Term Seam Strength Test Procedure

Frequency of Test

The short-term seam peel strength test (referred to as the 'test' in this section) shall be performed on a geocell section randomly taken directly from the production line each two hours.

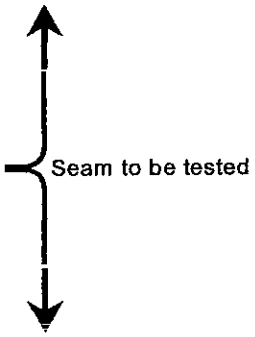


Figure A1

Test Sample Preparation

Randomly choose 10 welds within the selected section and cut those welds from the section such that 10 cm (4 in) of material exist on each side of the weld. The test sample shall have a general appearance as illustrated in Figure A1. Prior to testing, the test samples shall have air cool for a minimum of 30 minutes from the time the selected geocell section was manufactured.

Short-term Seam Peel Strength Test

The apparatus used for testing the short-term seam peel strength shall be of such configuration that the jaws of the clamp shall not over stress the sample during the test period. Load shall be applied at a rate of 300 mm (12 in) per minute and be applied for adequate time to determine the maximum load. The date, time and load shall be recorded.

Short-term seam peel strength shall be defined as the maximum load applied to the test sample. Minimum required short-term seam peel strength shall be:

- 2840 N (640 lbf) for the 200 mm (8 in) depth cell
- 2130 N (480 lbf) for the 150 mm (6 in) depth cell
- 1420 N (320 lbf) for the 100 mm (4 in) depth cell
- 1060 N (240 lbf) for the 75 mm (3 in) depth cell.

Definition of Pass / Failure

Two methods shall be used to determine acceptability of the manufactured geocell sections. The successful passing of the short-term seam peel test shall not be used to determine acceptable of the polyethylene for use in manufacturing of the geocell sections. Acceptability of the polyethylene shall be determined through tests conducted in Appendix B.

The Tested Value

If more than one of the tested seam samples fails to meet the minimum peel strength, all sections manufactured after the previously successful test shall be rejected.

If all tested seam samples meet the minimum peel strength, all geocell sections manufactured since the last successful test shall be considered to have passed the test.

When one of the tested seam samples fails to meet the minimum peel strength, another 10 samples shall be randomly selected and cut from the previously selected section. If more than one of these samples fails, all sections manufactured after the previously successful test shall be rejected. Otherwise, all geocell sections manufactured since the last successful test shall be considered to have passed the test.

Visual Failure Mode

After each sample is tested, the seam shall be examined to determine the failure mode. Two failure modes are possible.

- Material failure within and adjacent to the weld indicated by material strain and
- Weld failure resulting in complete separation of the seam and shows little or no material strain.

Upon examination, when the failure mode results in complete separation of the seam and indicates little or no material strain, product manufactured shall be rejected.

Appendix B

Long-Term Seam-Strength Test Procedure

Frequency of Test

The long-term seam peel strength test (referred to as the 'test' in this section) shall be performed:

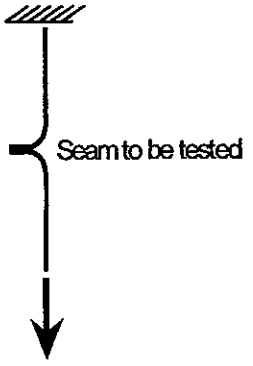


Figure B1

1. on each new resin lot number if the geocell manufacturer extrudes the sheet or strip used to produce the geocell material.
2. on each new order of sheet and/or strip if the geocell manufacturer does not extrude the sheet and/or strip used to produce the geocell material.

Test Sample Preparation

A test sample shall be made using four of the strips meeting all aspects of the material portion of this specification. The four strips are to be welded together using a warm welder producing a 2-cell long section of geocell product. The 2-cell section of geocell shall have 3 rows of welds connecting the four strips. The rows of welds are to be labeled A, B and C. The individual welds within each row shall be numbered consecutively from left to right starting with the number 1 (one).

The sample shall air cool for a minimum of 30 minutes. Randomly choose 10 welds and cut those welds from the geocell sample such that 10 cm (4 in) of material exist on each side of the weld. These samples shall be cut to a width of 10 cm (4 in). Properly identify each weld using the row letter and weld number.

These samples are now ready to be tested.

Long-term Seam Peel Strength Test

The long-term seam peel strength test shall take place within an environmentally controlled chamber that undergoes temperature change on a 1-hour cycle from room temperature to 54°C (130°F). Room temperature shall be defined per ASTM E41.

Within the environmentally controlled chamber, one of the ends of the samples (10 samples in total) shall be secured to a stationary upper clamp. The jaws of the clamp shall be of such configuration that the grip does not over stress the sample during the test period. The sample shall be secured so that its axis is vertical and the welds being tested are horizontal as the sample hangs within the environmentally controlled chamber.

A weight of 72.5 kg (160 lb) shall be lifted via a hoist or lift platform and attached to the free lower end, of the sample. The weight shall be lowered in a way so that no impact load occurs on the sample being tested. The weight shall be sufficient distance from the floor of the chamber so that the weight will not touch the floor of the chamber as the sample undergoes creep during the test period. The date and hour the weight is applied shall be recorded.

The temperature cycle shall commence immediately within the environmentally controlled chamber. The test period for the applied load shall be 168 hours.

Definition of Pass / Failure

If any of the 10 seams fail prior to the end of the 168-hour (7-day) period, the date and hour of the failure shall be recorded and the polyethylene resin and strip material shall be considered unsuitable for geocell manufacturing.

Perforated V-Series Geoweb® System Performance & Material Specification Summary

GW20V - 150 mm (6 in) Depth

	Property	Value		Test Method
Base Material	Material Composition	Polymer – Polyethylene with density of 0.935 – 0.965 g/cm³ (58.4 - 60.2 lb/ft³)		ASTM D 1505
	Color	Black - from Carbon Black	Tan, Green, Other Colors with no heavy metal content	N/A
	Stabilizer	Carbon black content 1.5% - 2% by weight	Hindered amine light stabilizer (HALS) 1.0% by weight of carrier	N/A
	Minimum ESCR	3000 hr		ASTM D 1693
	Sheet Thickness	1.27 mm -5% +10% (50 mil –5% +10%)		ASTM D 5199
Strip Properties	Surface Treatment	**Performance:** The polyethylene strips shall be textured and perforated such that the peak friction angle between the surface of the textured / perforated plastic and a #40 silica sand at 100% relative density shall be no less than 85% of the peak friction angle of the silica sand in isolation when tested by the direct shear method per ASTM D 5321. The quantity of perforations shall remove 22.1% ± 0.5% of the cell wall area.	**Material:** The polyethylene strips shall be textured with a multitude of rhomboidal (diamond shape) indentations. The rhomboidal indentations shall have a surface density of 22 – 31 per cm² (140 – 200 per in²). In addition, the strips shall be perforated with horizontal rows of 10 mm (0.4 in) diameter holes. Perforations within each row shall be 19 mm (0.75 in) on-center. Horizontal rows shall be staggered and separated 12 mm (0.50 in) relative to the hole centers. The edge of strip to the nearest edge of perforation shall be 8 mm (0.3 in) minimum and the centerline of the weld to the nearest edge of perforation shall be 18 mm (0.7 in) minimum.	

Cell & Seam Properties	Cell Details	Depth	Nominal Dimensions ±10%		Density per m² (yd²)	Nominal Area ±1%
			Length	Width		
	GW20V	150 mm (6 in)	224 mm (8.8 in)	259 mm (10.2 in)	36.4 (28.9)	289 cm² (44.8 in²)

Cell & Seam Properties	Short-term Seam Peel Strength	Cell Depth: 150 mm (6 in)	Minimum Certified Cell Seam Strength: 2130 N (480 lbf)
	Long-term Seam Peel Strength	Long-term seam peel-strength test shall be performed on all resin or pre-manufactured sheet or strips. A 100 mm (4.0 in) wide seam sample shall support a 72.5 kg (160 lb) load for a period of 168 hours (7 days) minimum in a temperature-controlled environment undergoing a temperature change on a 1-hour cycle from ambient room to 54°C (130°F). Ambient room temperature is per ASTM E 41.	

Section Properties	Section Dimension	Section Width	Section Length Range (Cells Long: 18, 21, 25, 29, 34)	
		Variable	Minimum	Maximum
	GW20V	2.3 m (7.7 ft) to 2.8 m (9.2 ft)	3.7 m (12.0 ft)	8.3 m (27.3 ft)

Certifications & Warranties	Geoweb® Material	Geoweb® sections are manufactured under a quality management system that is ISO-9001:2000 certified. For additional certification and warranty information, refer to the ***Geoweb® Cellular Confinement System V Series Material Specification.***

PRESTO PRODUCTS COMPANY
PO BOX 2399, APPLETON, WI 54912-2399
PHONE: 800-548-3424 OR 920-738-1118 FAX: 920-738-1222
EMAIL: info@prestogeo.com www.prestogeo.com

U.S. FENCE

< Previous

Next >

Home

View Cart

Index

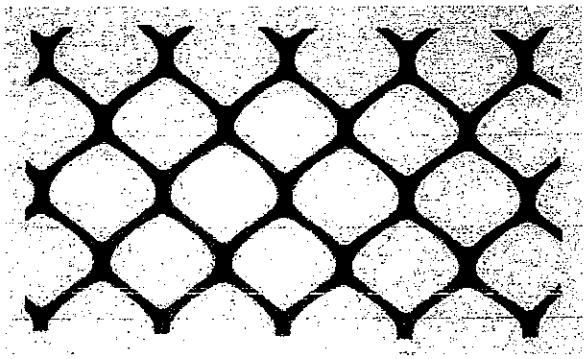
Categories

Search

Sentry Construction/Security Fence

Secura

COLOR: ORANGE



Safe, smooth, and attractive construction and/or security fence. Its diamond mesh ensures aesthetic appeal, while smooth top and bottom borders make it less likely to cut and scrape adjacent materials during construction. Use where safety is a top priority!

Email this product to a friend

Item No.	Description	Amount	Qty.
	4' x 50'	$51.50	0
	4' x 100'	$94.50	0
	5' x 50'	$84.95	0
	6' x 50'	$94.50	0

BUY THIS ITEM NOW
ADD TO CART
YOU CAN REMOVE ANY TIME

CALL OUR US FOR ANY FENCING NEEDS

U.S. Fence • 100 State Street • Dept. 312 • Erie PA 16507

Toll Free: 800-331- 2973 • Fax: 814-455-5167 • E-mail: sales@us-fence.com

APPENDIX E

APPENDIX E

Documents Containing Information on Background Concentrations
of Metals and/or Polycyclic Aromatic Hydrocarbons

New York State Department of Environmental Conservation
Region 3 Office/Solid Waste Program

Background Levels of Heavy Metals in Soils of the Lower Hudson Valley

Preliminary Summary of Results
July 1, 2003

In March of 2003, a study was carried out by Solid Waste Program staff in the Region 3 Office of the New York State Department of Environmental Conservation (DEC) to characterize background concentrations of heavy metals in soils of the lower Hudson Valley. This preliminary report provides a summary of the methods and results. A full report is in preparation and will be issued after evaluation of the data has been completed.

This study area is the lower Hudson Valley region of southeastern New York State, an area of 4,552 square miles which includes the counties of Westchester, Rockland, Putnam, Orange, Sullivan, Dutchess and Ulster. Twenty sites were selected for collection of soil samples and three replicate samples were collected at each sampling location to provide a total of sixty samples. The locations selected for sampling were undeveloped sites exhibiting mature natural vegetation with no apparent signs of fill placement, waste disposal or other types of recent anthropogenic disturbance. Care was taken to select sites where the only likely source of anthropogenic contamination would be atmospheric deposition. The sites selected were on publically owned properties managed by the DEC, the State Department of Parks or the Westchester County Department of Parks. The geographic coordinates of each sampling location were determined in the field using a global positioning satellite (GPS) receiver and these data were imported into a geographic information system (GIS) file which was used to create a map of the sampling locations (Figure 1). Names and geographic coordinates of each sampling location are provided in Table 1.

At each sampling location, the three replicate samples were collected within a 10-foot radius. The samples were collected from the upper six inches of the mineral soil (excluding the O horizon, where present) using a core sampler incorporating a 2-inch diameter stainless steel core barrel, a removable stainless steel cutting head, a 2-inch diameter removable butyrate plastic liner and a sliding-weight drive hammer. A new liner was used for each sample and sealed with plastic end-caps to serve as a sample container for shipment of the sample to the laboratory. Based on the design of the sampler, samples come in contact with the inside surface of the cutting head and the inside surface of the core liner only. To prevent cross-contamination, the cutting head was removed and cleaned with de-ionized water after collection of each sample.

Samples were stored at less that 4 degrees centigrade prior to and during shipment to the contract laboratory for analysis. All samples arrived at the laboratory within acceptable holding times, properly preserved and with appropriate chain of custody seals and documentation.

At the contract laboratory, all samples were analyzed for eleven heavy metals using methods consistent with EPA's SW-846 protocols and the DEC Analytical Services Protocol (ASP). The metals analyzed included arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc. In accordance with SW-846 protocols, prior to analysis for all metals, one gram of sample was digested using nitric acid, hydrogen peroxide and hydrochloric acid. All metals determinations, with the exception of mercury, were carried out using inductively coupled plasma atomic emission spectrometry (ICP-AES). Mercury was determined using the cold vapor atomic absorption method.

Table 2 provides summary statistics for each of the metals analyzed along with comparisons of the results to DEC guidance values and results from other studies. The full data set is provided in Table 3. It is anticipated that the results of this study will be useful to DEC/Region 3 staff in evaluating environmental impacts at sites which are filled using imported soils or soil-like wastes.

Questions regarding this preliminary report should be directed to Steven Parisio at 845-256-3139.

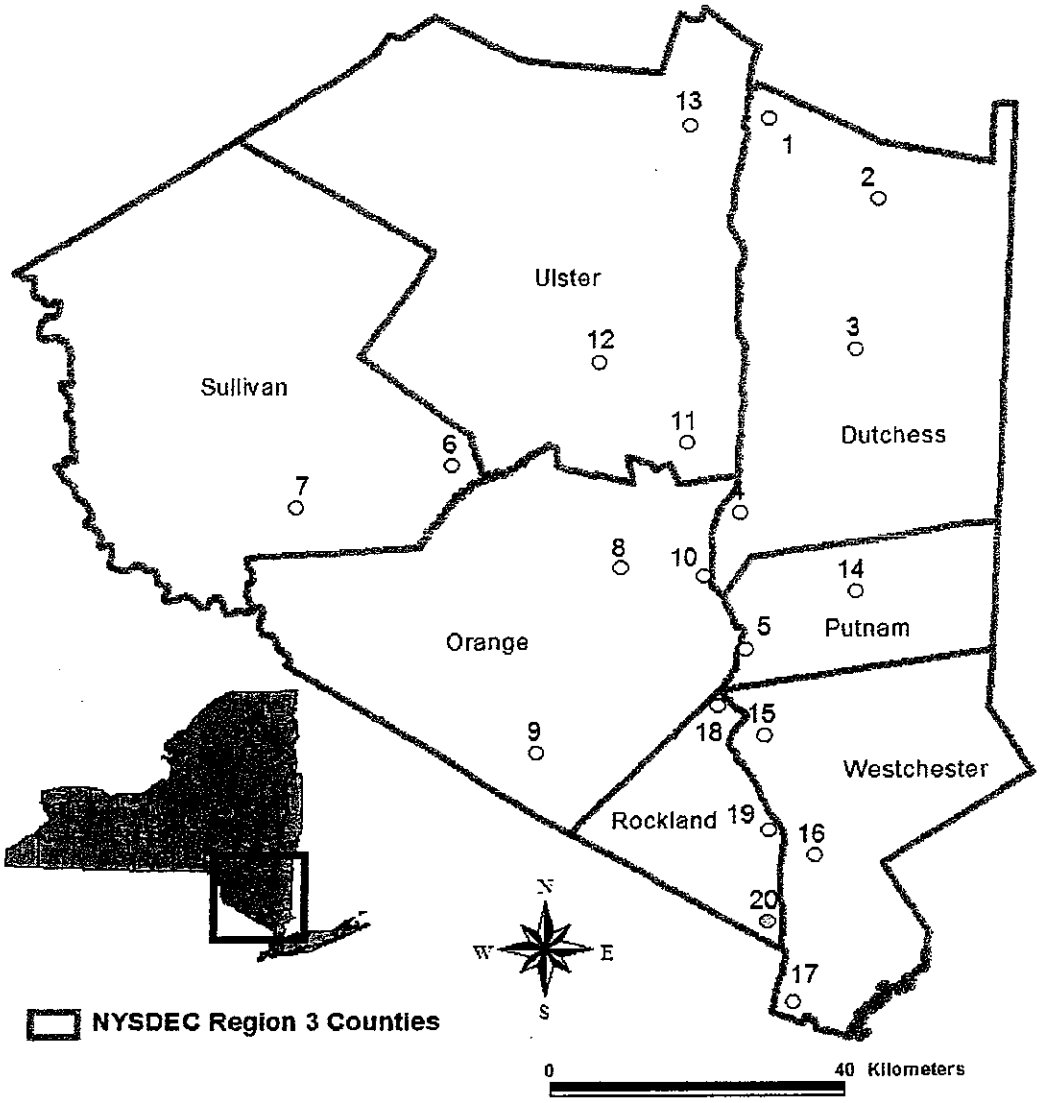


FIGURE 1. Sampling Locations for Background Soil Metals Concentrations, New York

Refer to Table 1 for names of sampling locations

Table 1. Soil Sampling Locations					
Site No.	County	Park/Property Name	Managed By	Date Sampled	Geographic Coordinates
1	Dutchess	Tivoli Bay	DEC	3/10/03	N:42.03632, W:73.89645
2	Dutchess	Stissing Mtn	DEC	3/10/03	N:41.93383, W:73.7179
3	Dutchess	Taconic/Hereford	DEC	3/10/03	N:41.74659, W:73.76030
4	Dutchess	Stony Kill Farm	DEC	3/10/03	N:41.54293, W:73.95121
5	Putnam	Castle Rock	DEC	3/10/03	N:41.37013, W:73.94498
6	Sullivan	Wurtsboro Ridge	DEC	3/11/03	N:41.60621, W:74.42667
7	Sullivan	Neversink River	DEC	3/11/03	N:41.55457, W:74.68181
8	Orange	Stewart State Forest	DEC	3/11/03	N:41.47451, W:74.14892
9	Orange	Mt. Peter Hawk Watch Trailway	DEC	3/11/03	N:41.24484, W:74.28831
10	Orange	Kowawese	DEC	3/11/03	N:41.46286, W:74.01263
11	Ulster	Hemlock Ridge	DEC	3/12/03	N:41.63142, W:74.03738
12	Ulster	Shawangunk	DEC	3/12/03	N:41.73427, W:74.18067
13	Ulster	Highwoods	DEC	3/12/03	N:42.02909, W:74.02744
14	Putnam	California Hill	DEC	3/24/03	N:41.44169, W:73.76609
15	Westchester	Blue Mountain Reservation	Westchester Co. Parks	3/24/03	N:41.26223, W:73.91644
16	Westchester	Rockefeller Preserve	State Parks	3/24/03	N:41.11065, W:73.83748
17	Westchester	Tibbetts Brook Park	Westchetser Co. Parks	3/24/03	N:40.92714, W:73.87445
18	Rockland	Bear Mountain	State Parks	3/35/03	N:41.30057, W:73.99174
19	Rockland	Hook Mountain	State Parks	3/35/03	N:41.14383, W:73.91217
20	Rockland	Tallman Mountain	State Parks	3/25/03	N:41.02887, W:73.91627

Table 2. Region 3 Background Soils Heavy Metals Concentrations - Summary Statistics and Comparisons

	As	Ba	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Zn
Minimum	2.2	38.5	0.24	0.04U	11.2	5.8	6.9	0.04	8.7	0.20	35.7
Maximum	23.1	187	2.2	1.2	51.2	64.8	303	0.92	54.5	2.9	225
Median	5.5	61.9	0.58	0.12	17.9	17.6	33.1	0.13	16.7	0.73	75.4
Mean	6.6	74.2	0.67	0.18	19.4	20.9	57.8	0.20	19.2	0.88	80.2
Standard Deviation	3.8	31.8	0.34	0.20	7.1	11.4	67.5	0.18	8.1	0.60	31.7
Coefficient of Variation	0.58	0.43	0.51	1.1	0.37	0.55	1.2	0.9	0.42	0.68	0.40
90 % UCL	7.4	81.1	0.75	0.22	20.9	23.4	72.5	0.24	21.0	1.0	87.1
TAGM 4046	7.5	300	0.16	1	10	25	-	0.1	13	2	20
% Values Exceeding TAGM 4046	24	0	100	2	100	22	-	66	80	5	100
Mean for NJ Soils	4.46	-	0.93	0.37	12.3	17.2	58.4	0.46	10.3	0.07	73.4
Mean for Eastern US Soils (USGS)	7.4	-	0.85	-	22	22	17	0.12	18	0.45	50

NOTES:

1. All concentrations are given in mg/kg.
2. In order to perform statistical calculations, non-detect values were assigned a value of one half of the detection limit.
3. "TAGM 4046" refers to DEC's Technical & Administrative Guidance Memorandum (TAGM) #4046, entitled "Determination of soil cleanup objectives and cleanup levels".
4. Mean metals concentrations for NJ soils were taken from the 1993 study by the New Jersey Department of Environmental Protection.
5. Mean metals concentrations for Eastern US soils were taken from Shacklette and Boerngen (1984) Element concentrations in soils and other surficial materials of the coterminous United States. USGS Professional Paper 1270.

Table 3. Background Heavy Metals Concentrations in Undisturbed Natural Soils of the Lower Hudson Valley (Page 1 of 3)

Site No./County/Name	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc
01/Dutchess/Tivoli Bay	5.8	74.7	0.58	0.11	14.4	16.1	26.4	0.06	16.4	0.81	57.9
	4.7	58.7	0.47	0.06	11.8	12.6	22.2	0.04	13.3	0.48	45.2
	5.2	59.2	0.49	0.06U	12.8	13.1	19.9	0.05	14.3	0.54	48.2
02/Dutchess/Stissing Mountain	4.4	47.7	0.57	0.11	24.5	17.6	23.8	0.07	29.4	0.48	91.6
	5.1	46.1	0.59	0.06	25	17.9	43.2	0.06	30.4	1.2	96.9
	4.8	46.6	0.62	0.05U	22.3	16.5	17.4	0.06	28.5	0.73	89.6
03/Dutchess/Taconic-Hereford	7.0	55.6	0.78	0.04U	17.3	17.6	16.6	0.05	22.7	0.71	79.3
	8.5	55.7	0.79	0.06	17.9	18.6	43	0.12	26.6	0.73	91.9
	7.5	48.8	0.70	0.10	15.5	16.6	19.3	0.09	22.4	0.62	78.6
04/Dutchess/Stony Kill Farm	6.9	53.7	0.57	0.09	12.6	13.5	74.7	0.18	15.8	1.1	68.1
	7.6	53.0	0.56	0.11	14.4	15.2	42.2	0.14	16.6	1.4	72.7
	6.5	56.0	0.53	0.07	13.6	14.4	33.1	0.14	16.7	0.82	70.3
05/Putnam/Castle Rock	14.3	99.7	1.4	0.19	29.4	32.4	59.1	0.34	31.0	0.83U	135
	23.1	187	2.2	0.42	51.2	64.8	82.6	0.36	54.5	2.9	225
	11.2	82.6	1.2	0.21	24.3	30.0	49.6	0.29	26.3	1.2	124
06/Sullivan/Wurtsboro Ridge	8.8	99.9	1.0	0.18	26.8	29	33.8	0.10	26.6	1.3	99.4
	15.5	136	1.6	0.12	39.1	44.2	24.9	0.06	41.5	0.96	132
	8.9	96.6	0.91	0.31	21.5	25.6	102	0.14	23.7	1.4	89.9
07/Sullivan/Neversink River	6.6	66.2	0.29	0.17	13.8	25.5	215	0.24	8.7	1.1	97.8
	5.5	42.0	0.24	0.06	11.3	49.4	59.9	0.23	9.3	0.49	52.8
	7.3	50.7	0.32	0.11	13.2	12.1	50.5	0.15	10.8	0.84	59.2

Notes:
1. All concentrations are given in mg/kg.
2. Concentrations below the method detection limit (MDL) are designated by the MDL followed by the "U" data qualifier.

Table 3. Background Heavy Metals Concentrations in Undisturbed Natural Soils of the Lower Hudson Valley (Page 2 of 3)

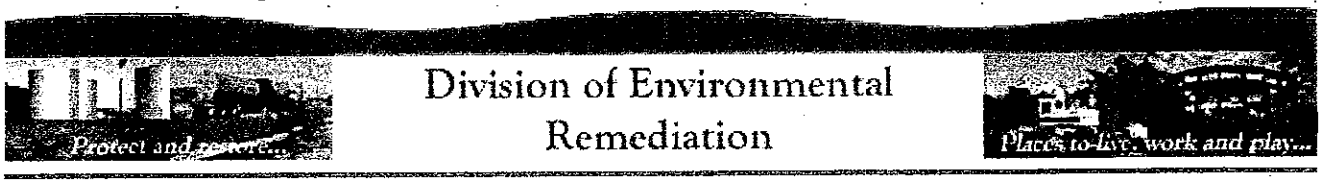
Site No./County/Name	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc
08/Orange/Stewart State Forest	17.7	90.9	0.34	0.42	11.2	16.6	95.1	0.10	14.9	0.62	88.1
	4.7	92.2	0.57	0.17	13.5	18.1	209	0.69	15.8	0.60	91.5
	5.4	141	0.63	0.30	14.9	19.5	303	0.92	18	0.69	125
09/Orange/Mt Peter Hawk Watch Trailway	6.0	61.9	0.98	0.25	15.4	14.3	51.3	0.18	16.0	0.51	84.2
	3.8	61.1	1.4	0.19	15.7	11.1	20	0.1	17.4	0.38	80.8
	6.5	60.9	1.4	0.18	18.7	18.1	36.1	0.11	20.5	0.45U	91.4
10/Orange/Kowawese	4.7	38.5	0.45	0.11	14.1	20.4	12.7	0.08	22.4	0.37U	59.7
	5.3	48	0.58	0.14	19.3	24.9	17.1	0.05	28	0.49U	76.6
	4.4	42.4	0.54	0.17	14.6	20	13.1	0.09	24.1	0.37U	57.4
11/Ulster/Hemlock Ridge	6.4	77.8	0.40	0.27	13.5	11	89.9	0.14	13	1.3	74
	2.2	72.8	0.56	0.05U	17.4	5.8	6.9	0.12	12.8	0.48U	67.2
	4.1	56.5	0.62	0.04U	22.6	14.8	12.6	0.09	22	0.04U	72
12/Ulster/Shawangunk	5.2	83.2	0.83	0.11	17.3	10.8	15.9	0.10	19.5	0.47U	71.9
	5.6	82.4	0.64	0.20	13.9	14	53.8	0.11	15.6	0.53	75.1
	5.7	92.1	0.72	0.27	14.7	11.5	43.3	0.11	16.6	0.55	84.9
13/Ulster/Highwoods	6.0	85.3	0.52	0.32	16.8	12.2	29.6	0.12	14.2	0.76	72.3
	4.8	58.8	0.49	0.10	16.3	11.7	19.3	0.09	15.2	0.61	54.9
	7.6	67.4	0.59	0.08	20.3	12.7	26.8	0.13	17.9	0.57U	60.4
14/Putnam/California Hill	2.9	141	0.38	0.41	14.8	23.2	60.4	0.15	10.5	1.9	93.8
	2.9	107	0.67	0.19	22	33	24.8	0.13	10.9	0.63	77
	2.2	90.7	0.65	0.11	22.2	24.5	13.9	0.15	11.6	0.53	66.4

Notes:
1. All concentrations are given in mg/kg.
2. Concentrations below the method detection limit (MDL) are designated by the MDL followed by the "U" data qualifier.

Table 3. Background Heavy Metals Concentrations in Undisturbed Natural Soils of the Lower Hudson Valley (Page 3 of 3)

Site No./County/Name	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc
15/Westchester/Blue Mountain Reservation	5.5	68.7	0.57	0.19	21.5	15.9	26.5	0.38	18.2	0.83	67.1
	4.5	94.5	0.69	0.15	31.3	20.3	13.2	0.48	27.5	1.1	75.4
	3.3	80	0.54	0.06	21.9	15.1	7.4	0.42	18.3	0.66	53.8
16/Westchester/ Rockefeller Preserve	3.5	50	0.60	0.06	18.5	8.5	10.5	0.05	11.3	0.39U	35.7
	3.3	58.6	0.66	0.08	19.7	9.6	15.2	0.20	12.7	0.45U	41
	4.9	49.4	0.61	0.11	18.7	10.9	24.3	0.26	12.5	0.78	41.7
17/Westchester/Tibbetts Brook Park	7.8	126	0.51	0.94	23.8	31.3	208	0.41	20.8	1.5	126
	15.0	57.1	0.43	0.28	29.7	48.6	190	0.52	18.9	2.6	89.9
	9.6	165	0.45	1.2	30.9	42.8	301	0.65	28.3	2.5	161
18/Rockland/Bear Mountain State Park	4.6	39.9	0.72	0.05	13.7	14.5	15.5	0.05	13.5	0.88	42.5
	3.1	57.7	0.44	0.15	17.9	13.9	33.0	0.22	14.0	1.8	51.6
	3.9	44.6	0.80	0.05U	14.7	17.1	9.5	0.36	14.0	0.89	43.3
19/Rockland/Hook Mountain State Park	4.0	89.8	0.53	0.20	18.5	23.2	47.7	0.30	20.4	1.4	76.4
	5.3	64.2	0.52	0.12	17.8	27.7	113	0.29	19.5	0.92	79.3
	9.6*	1060*	0.40*	9.2*	15.9*	29.2*	1380*	0.20*	17.6*	1.5*	1750*
20/Rockland/Tallman Mountain State Park	6.4	46.5	0.31	0.06U	22.9	19.4	48.2	0.11	12.5	1.6	68.2
	6.8	79.0	0.55	0.36	22.0	21.9	69.7	0.17	14.0	1.3	89.2
	7.6	39.5	0.46	0.09	20.7	20.6	64.6	0.13	12.0	1.1	59.1

Notes:
1. All concentrations are given in mg/kg.
2. Concentrations below the method detection limit (MDL) are designated by the MDL followed by the "U" data qualifier.
3. Values marked with an asterisk are considered to be outlier values or are values associated with a sample which is being omitted from statistical calculations because it exhibits values for one or more metals which are considered to be outlier values.



Carcinogenic PAHs

This list of 7 carcinogenic PAHs are those that the DEC and DOH have agreed should comprise total cPAHs, when total cPAHs are used for cleanup limits. These are compounds for which there is sufficient evidence for carcinogenicity in animals as categorized by the U.S. Environmental Protection Agency (US EPA, 1993) and/or the International Agency for Research on Cancer (IARC, 1987).

NOTE: *Check with Jim Harrington before setting cPAH cleanup requirements. Also, see July 21, 1997 memo from Jim on soil cleanup requirements for cPAHs.*

Compound:	CAS Number	Synonyms:
Indeno(1,2,3-cd)pyrene	193-39-5	-
Benzo(a)anthracene	56-55-3	1,2 benzanthracene
Benzo(a)pyrene	50-32-8	BaP : 3,4 benzopyrene : many others
Benzo(b)fluoranthene	205-99-2	3,4 benzofluoranthene : benz(e)acephenanthrylene
Benzo(k)fluoranthene	207-08-9	11,12 benzofluoranthene
Chrysene	218-01-9	1,2 benzphenanthracene
Dibenzo(a,h)anthracene	53-70-3	1,2,5,6 dibenzanthracene

Benzo(a)pyrene Toxicity Equivalence

A new screening tool is now being applied to PAH concentrations at sites under the review of the NYSDEC and NYSDOH. The benzo(a)pyrene toxicity equivalent will be used for screening surface soil results, establishing site specific background levels for surface soils, and to define the degree of restrictions (e.g. commercial vs. residential use, engineering controls) that may be necessary due to remaining subsurface contamination.

The benzo(a)pyrene toxicity equivalent is calculated by multiplying the concentration of the individual carcinogenic PAHs by the following factors

PAH	Multiplier
Benzo(a)pyrene	1.00
Dibenzo(a,h)anthracene	1.00
Benzo(a)anthracene	0.10
Benzo(b)fluoranthene	0.10
Indeno(1,2,3-cd)pyrene	0.10
Benzo(k)fluoranthene	0.01
Chrysene	0.01

References:

U.S. EPA. 1993. Integrated Risk Information System (IRIS) Data base.

Urban Area Polycyclic Aromatic Hydrocarbons Study
Tiered Approach to Corrective Action Objectives

Two background studies were recently completed investigating certain polycyclic aromatic hydrocarbon (PAHs) concentration levels in urban areas. One study was conducted within the limits of the City of Chicago and the other in urbanized areas across Illinois outside of Chicago. The City of Chicago study was conducted in consultation with the Illinois EPA. The Electric Power Research Institute (EPRI), in consultation with Illinois EPA, conducted the other study. The purpose of these studies was to determine background concentrations for some common PAHs in urban areas.

Where do PAHs come from?
PAHs come from a variety of sources; the majority of these sources are from the combustion or burning of fuels. Generally, any burning of an organic material such as coal, oil or wood will generate PAHs, and the existence of these chemicals is common throughout our society. Planes, automobiles, coal heating, forest fires, and power generation have all greatly contributed to the existence of these chemicals.

Why are PAHs a concern?
PAHs are a concern because they have been shown to have both a toxic and carcinogenic response in humans. Exposure to large amounts of PAHs can be harmful to human health.

What are background concentrations?
Background concentrations are generally considered to be the level or amount of a chemical found in common areas not associated with a particular contaminant release. Parks, roadways, residential yards, non-industrialized properties, etc., are typical background areas.

The definition from Tiered Approach to Corrective Action Objectives (TACO) is:

> "Area Background" means concentrations of regulated substances that are consistently present in the environment in the vicinity of a site that are the result of natural conditions or human activities, and not the result solely of releases at the site. [415 ILCS 5/58.2]

How is this background concentration utilized?

Illinois EPA has published regulations establishing a methodology for setting remediation objectives for a number of chemicals. These risk-based objectives establish safe concentrations for chemicals for various exposure pathways. These regulations are referred to as TACO.

Illinois EPA has reviewed the reports of background concentrations of PAHs submitted by the City of Chicago Department of the Environment titled (*"Polynuclear Aromatic Hydrocarbon Background Study, City of Chicago"*) and for the Electric Power Research

Institute (EPRI; *Final Report on Background PAHs in Surface Soil in Illinois*). Illinois EPA finds these reports to be appropriately conducted studies yielding scientifically valid data regarding the background levels of PAHs in Illinois urban surface soils. Illinois EPA believes the data for the carcinogenic PAHs could form the basis for amending the current risk-based TACO soil remediation objectives to account for background occurrence. Until such amendments are adopted, remedial applicants for sites where PAHs are a concern may utilize the data from the two reports in developing site-specific remediation objectives under TACO.

Such use must occur in an appropriately conservative manner until final amended TACO values are determined through the rulemaking process. Illinois EPA recommends that since the data sets for nearly all the individual PAHs in both studies were found to be lognormally distributed, the lognormal 95th percentiles of the data sets should be the values used for comparison purposes. The 95th percentiles calculated from the Chicago background study are to be used inside the Chicago city limits. The EPRI study determined background PAH concentrations for locations both within and outside of Metropolitan Statistical Areas (MSAs). The 95th percentiles calculated for the EPRI study are the comparison values used outside the Chicago city limits. Since all samples in both data sets were collected within urban areas having population densities of at least 1,000 people per square mile and a minimum population of at least 10,000, these comparison values should only be used for sites in areas with similar characteristics. (i.e., the background PAH data should not be used for rural communities, farm land, etc.). These comparison values could be used to support a Tier III impractical remediation determination (35 Illinois Administration Code 742.920) in accordance with the TACO regulations. These values are included in the following table:

Background Carcinogenic PAH 95th Percentile Concentrations (mg/kg)

PAH Name	Chicago	Within MSA	Outside of MSA
Benzo(a)anthracene	1.1	1.8	0.72
Benzo(b)fluoranthene	1.5	2.0	0.70
Benzo(k)fluoranthene	1.0	1.7	0.63
Benzo(a)pyrene	1.3	2.1	0.98
Chrysene	1.1	2.7	1.1
Dibenzo(a,h)anthracene	0.20	0.42	0.15
Indeno(1,2,3-c,d)pyrene	0.86	1.6	0.51

Metropolitan Statistical Area (MSA)--A Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000. The Metropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

This definition of MSA is available at http://www.census.gov/population/www/estimates/aboutmetro.html.

MSAs for Illinois are identified in 35 Illinois Administration Code 742.Appendix A Table G of TACO

Procedure: This background information can be used with TACO rules. Until such time as the Illinois Pollution Control Board incorporates this study as a rule, a site undergoing remediation and seeking a No Further Remediation letter in such programs as the Site Remediation Program or the Leaking Underground Storage Tank Program may use these data to establish site-specific remediation objectives (see Section 742.920). Persons wishing to use these background data in the application of TACO will need to reference the applicable report and need not resubmit the applicable report in its entirety. This reference will reduce the amount of paperwork in requesting the use of the data. Of course, all other information requirements from the individual programs are still necessary.

In addition, for sites outside of Chicago, it must be determined whether the remediation site is located in a urban area similar to the sampled areas (population densities of at least 1,000 people per square mile and a minimum population of at least 10,000) to justify the establishment of background concentrations in accordance with 35 Illinois Administration Code 742.415. This is required for both MSA and non-MSA areas.

Massachusetts Department of ENVIRONMENTAL PROTECTION

t e c h n i c a l u p d a t e

Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil

Updates: Section 2.3 *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan* (1992)

Discussion

Polycyclic Aromatic Hydrocarbons ("PAHs") are ubiquitous and consistently present in the environment and are typically formed during the incomplete burning of organic material including wood, coal, oil, gasoline and garbage. PAHs are also found in crude oil, coal tar, creosote and asphalt. Historically, PAHs have been associated with human activities such as cooking, heating homes and industries and fuel for operating automobiles, although low levels of PAHs are also present in the environment from natural sources, such as forest fires. Their presence in the environment at higher concentrations is an artifact of habitation and is due to the widespread practice of emptying fireplaces, stoves, boilers, garbage, etc. in rural and urban areas over the past several hundred years. As a result, it is very common to detect "background" levels of PAHs in soils. Metals are both naturally occurring and found in man-made materials (such as paint, fuel, fertilizers and pesticides) widely distributed in the environment. Naturally occurring metals present in wood and coal are often found concentrated in ash residue.

DEP has obtained background data from various sources documenting the concentrations of PAHs and metals in soil affected by human activities, particularly soil associated with wood ash and coal ash. These levels are representative of typical concentrations found in areas with fill material, *not* pristine conditions. DEP has also compiled background soil data for metals that are representative of undisturbed, natural conditions.

The identification of generic values for PAHs and metals in soil is intended to streamline the risk characterization process (310 CMR 40.0900) and determination of applicable Response Action Outcome Category (310 CMR 40.1000). Nothing in this Technical Update obviates the need to establish location-specific background conditions for other purposes, such as compliance with the anti-degradation provisions of the Massachusetts Contingency Plan ("MCP") described at 310 CMR 40.0032(3).

Definition of Background (310 CMR 40.0006)

Background means those levels of oil and hazardous material that would exist in the absence of the disposal site of concern which are either:

(a) ubiquitous and consistently present in the environment at and in the vicinity of the disposal site of concern; and attributable to geologic or ecological conditions, or atmospheric deposition of industrial process or engine emissions;
(b) attributable to coal ash or wood ash associated with fill material;
(c) releases to groundwater from a public water supply system; or
(d) petroleum residues that are incidental to the normal operation of motor vehicles.

Basis of the Background Levels for Soil

The background levels were selected following an analysis of several datasets, including:

Data (30-140 samples) collected to represent background at c.21E sites located in non-urban areas, gathered from a review of DEP files,
Site-specific background samples generated for locations in Worcester (68 samples) and Watertown (17 samples),
Data (750-1,000 samples) collected by Mass Highway Department as part of the Central Artery/Tunnel (CA/T) project and presented in a draft document *Background Soil Contaminant Assessment* (CDM, April 1996),
Data (590 natural soil samples from depths of 10 to 70 feet) collected by Haley & Aldrich, Inc. in the Boston Area
Preliminary data compiled by the Massachusetts Licensed Site professional Association from background data submitted by its members,
Published data (62 samples) from ENSR, Inc. from 3 New England locations, and
Generic background data published by the Agency for Toxic Substances and Disease Registry (ATSDR).

There is not one concentration of a chemical, of course, which can correctly be labeled ***the*** background level. Hundreds of years of human activities have only broadened the naturally occurring range of concentrations reported as "background", and this range is best thought of as a statistical distribution. In the evaluation of environmental contamination, we often select point values from the range of background levels, and consider these to be representative of background. The use of such point-value "background" levels is essentially a short-cut method that allows consideration of background in the absence of site-specific information. The intent of DEP policy is to protect public health while minimizing the routine site-specific determinations at sites in the statewide cleanup program.

"Natural" Soil

- Generally, the 90th percentile value from the MA DEP 1995 dataset was the point-value identified as background.
- In the absence of data in the MA DEP 1995 dataset, a lower percentile value from the CDM 1996 dataset was chosen as background.

Soil Containing Fill Material

- Generally, the 90th percentile value from the CDM 1996 dataset was point-value identified as background.
- In the absence of data in the CDM 1996 dataset, the 90th percentile value from the "natural" soil (MA DEP, 1995) dataset was chosen as background.

Applicability of the Values Listed in Table 1

Table 1 presents two lists of background concentrations: one for use with natural soils, and the second for use with soils containing either coal ash or wood ash associated with fill material, or other material consistent with the regulatory definition of background. The list for use with natural soils may be compared to site soil concentrations with no site-specific justification. The use of the list for soil containing fill material must be accompanied by documentation that the soil at the site does, in fact, contain coal ash or wood ash associated with fill material (or other material consistent with the regulatory definition of background). Such documentation may include information about the site history, soil strata, physical evidence or visual observations (including microscopic).

Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of
Massachusetts
Jane Swift, Governor

Executive Office of
Environmental Affairs
Bob Durand, Secretary

Department of
Environmental Protection
Lauren A. Liss, Commissioner

Produced by the
Office of Research & Standards,
May 2002.
Printed on recycled paper.

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.



Elevated chemical concentrations and/or and urban setting are not, *per se*, sufficient evidence to justify use of the higher background levels.

Comparison of Site Concentrations to the Background Levels for Soil

Section 2.3 of the DEP's *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan* (1995) describes the use of DEP-published generic background values. If the site investigation indicates the presence of fill material in the soil, and *all* reported concentrations of an oil or hazardous material ("OHM") fall below the applicable value published in Table 1, then it may concluded that the OHM is present at background concentrations. In other words, the values published in Table 1 are to be compared to the maximum reported concentration at the site. This Technical Update does not modify or change this comparison.

Table 1 lists background levels for "natural" soil and for soil containing coal ash and wood ash associated with fill material. A detailed summary of the data is attached in Appendix A. The applicability of these background concentrations to a site should be determined based upon the presence or absence of fill material containing coal ash or wood ash. If all contaminant concentrations are found to be equal to or less than the applicable background concentrations, a Class A-1 Response Action Outcome may be an option at the site, and no Activity and Use Limitation is required.

Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of
Massachusetts
Jane Swift, Governor

Executive Office of
Environmental Affairs
Bob Durand, Secretary

Department of
Environmental Protection
Lauren A. Liss, Commissioner

Produced by the
Office of Research & Standards,
May 2002.
Printed on recycled paper.

This information is available in
alternate format by calling our
ADA Coordinator at
(617) 574-6872.

Background Concentrations Different Than The MADEP-Published Values

Appendix A describes the wide ranges seen in the distributions of background concentrations. MADEP's choice of point values within these ranges balances the need to eliminate background chemicals from the risk assessment with the need to retain for evaluation those chemicals whose presence is related to the disposal practices at the site.

It is inevitable that at some sites the use of the values listed in Table 1 will incorrectly require the assessment of some "true" background concentrations of OHM at the high end of the background range. Conversely, some chemicals that *are* related to the disposal practices at a site (and are not background) will be screened out of the risk assessment by the use of the Table 1 concentrations. The goal is to minimize **both** kinds of error.

In many cases, additional information about the location of the site, the nature of the soils or the known or suspected disposal practices may be used to justify the application of different literature values or site-specific background information. DEP's adoption of the generic, statewide values presented in this Technical Update does not negate the validity of site-specific background information, when such information is available and of appropriate data quality. The level of effort necessary for such a justification will depend on the specific circumstances. For example, such a justification would be straightforward for elevated arsenic concentrations in soil at a gasoline-release site in an area of the state known to have geological formations rich in arsenic. The level of effort would be significantly higher at a tannery site in the same area due to the facility's historic use of arsenic. Similarly, the presence of elevated chromium or barium concentrations in marine clay deposits could generally be attributable to natural background absent known or suspected sources of the chemical at the site.

Minimizing Exposure to Soils Containing Elevated Background Material and/or Material Exempt from M.G.L. c.21E

As discussed in this Technical Update, M.G.L. Chapter 21E and the Massachusetts Contingency Plan (the statute and regulations) do not require remediation of chemicals present at levels consistent with background, even if such concentrations would otherwise pose a significant risk of harm to health, safety, public welfare or the environment. The statute also exempts several other environmental conditions (such as lead from lead paint or gasoline and pesticides applied according to their label) that could pose a Significant Risk.

While such conditions are not subject to regulation by DEP, the Department encourages parties to mitigate potential exposures whenever possible. Such mitigation measures could include:

- providing clean soil (down to a depth of 3 feet) in residential settings, and
- providing clean corridors for utility lines.

For Further Information

For further information about this Technical Update, please contact Paul W. Locke, Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108, telephone: (617) 556-1052, email: Paul.Locke@state.ma.us.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Polycyclic Aromatic Hydrocarbons (PAHs) (Update) August, 1995.

Bradley, L.J.N., Magee, B.H., and Allen, S.L. 1994. Background Levels of Polycyclic Aromatic Hydrocarbons (PAH) and Selected Metals in New England Urban Soils. Journal of Soil Contamination, 3(4):349-361

Camp Dresser & McKee (CDM). 1995. CA/T ROW Background Soil Contaminant Assessment. Prepared for the Massachusetts Highway Department, Central Artery/Tunnel Project.

Haley & Aldrich, Inc. 2001. Boston Background Soil Quality Data, May 22, 2001. Memorandum to Brian Moran, MA DEP Bureau of Waste Site Cleanup.

Licensed Site Professional Association (LSPA) 2001. Summary of Selected Results, LSPA Anthropogenic Fill Soils Project, April 2001. Personal Communication.

Massachusetts Department of Environmental Protection (MA DEP). 1995. Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan. BWSC/ORS-95-141.

Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of Massachusetts
Jane Swift, Governor

Executive Office of Environmental Affairs
Bob Durand, Secretary

Department of Environmental Protection
Lauren A. Liss, Commissioner

Produced by the Office of Research & Standards, May 2002.
Printed on recycled paper.

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

Table 1.

MADEP Identified Background Levels in Soil

OIL OR HAZARDOUS MATERIAL	Concentration in "Natural" Soil mg/kg	Concentration in Soil Containing Coal Ash or Wood Ash Associated With Fill Material mg/kg
ACENAPHTHENE[2]	0.5	2
ACENAPHTHYLENE[2]	0.5	1
ANTHRACENE[2]	1	4
ALUMINUM[1]	10,000	10,000
ANTIMONY	1	7
ARSENIC	20	20
BARIUM[1]	50	50
BENZO(a)ANTHRACENE[2]	2	9
BENZO(a)PYRENE[2]	2	7
BENZO(b)FLUORANTHENE[2]	2	8
BENZO(g,h,i)PERYLENE[2]	1	3
BENZO(k)FLUORANTHENE[2]	1	4
BERYLLIUM	0.4	0.9
CADMIUM	2	3
CHROMIUM (TOTAL)	30	40
CHROMIUM(III)	30	40
CHROMIUM(VI)	30	40
CHRYSENE[2]	2	7
COBALT[1]	4	4
COPPER	40	200
DIBENZO(a,h)ANTHRACENE[2]	0.5	1
FLUORANTHENE[2]	4	10
FLUORENE[2]	1	2
INDENO(1,2,3-cd)PYRENE[2]	1	3
IRON[1]	20,000	20,000
LEAD	100	600
MAGNESIUM[1]	5,000	5,000
MANGANESE[1]	300	300
MERCURY	0.3	1
METHYLNAPHTHALENE, 2-[2]	0.5	1
NAPHTHALENE[2]	0.5	1
NICKEL	20	30
PHENANTHRENE[2]	3	20
PYRENE[2]	4	20
SELENIUM	0.5	1
SILVER	0.6	5
THALLIUM	0.6	5
VANADIUM[1]	30	30
ZINC	100	300

(Values rounded to one significant figure.)

[1] In the absence of fill-specific data, the "natural" soil value has been adopted.

[2] In the absence of data specific to "natural" soil, a lower percentile value from the fill data set has been adopted.

Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of
Massachusetts
Jane Swift, Governor

Executive Office of
Environmental Affairs
Bob Durand, Secretary

Department of
Environmental Protection
Lauren A. Liss, Commissioner

Produced by the
Office of Research & Standards,
May 2002.
Printed on recycled paper.

This information is available in
alternate format by calling our
ADA Coordinator at
(617) 574-6872.



Levels of PAHs and Metals in Soil from Various Datasets

Appendix A - Detailed Data Summary

	Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
			<---------- PERCENTILES ---------->				
Total PAHs							
CA/T Project	873	2.7	0.08	2.6	92	230	3000
ENSR - Urban Soils	62	10.97	2.292				167
Total Carcingenic PAHs							
CA/T Project	873	1.5	0.022	1.1	42	95	1200
ENSR - Urban Soils	62	4.86	0.68				78
Total Noncarcinogenic PAHs							
CA/T Project	873	1.9	0.08	1.6	54	140	1900
ENSR - Urban Soils	62	6.11	1.612				89
Acenaphthene							
CA/T Project	868	0.18	0.024	0.18	1.9	4.1	42
Med City/Mill Brook	67	NC	ND (64)	NC	NC	NC	1.7
ENSR - Urban Soils	62	0.128	ND (32)				3.4
Acenaphthylene							
CA/T Project	869	0.17	0.037	0.17	1	1.9	10
Med City/Mill Brook	67	NC	ND (65)	NC	NC	NC	0.76
ENSR - Urban Soils	62	0.133	ND (38)				1.1
Anthracene							
CA/T Project	872	0.2	0.033	0.2	3.8	10	130
Med City/Mill Brook	68	NC	ND (52)	NC	0.592	1.2	3.4
ENSR - Urban Soils	62	0.184	ND (8)				5.7
Benzo[a]pyrene							
CA/T Project	873	0.3	0.031	0.3	7.4	17	230
LSPA Project	489	0.44	ND (220)	0.44	15.3	NC	222
Watertown	17	0.95	0.6	NC	3.39	4.77	6.08
Med City/Mill Brook	67	NC	ND (43)	NC	2.02	3.3	9.7
ENSR - Urban Soils	62	0.686	ND (5)				13
ATSDR Range:			0.165				0.22
Benzo[a]anthracene							
CA/T Project	872	0.33	0.045	0.33	8.5	19	250
LSPA Project	490	0.563	ND (206)	0.563	17.6	NC	796
Watertown	17	0.411	0.021	0.48	2.52	6.04	6.05
Med City/Mill Brook	68	NC	ND (38)	NC	2.39	3.8	15
ENSR - Urban Soils	62	0.672	ND (4)				15
ATSDR Range:			0.169				59
Benzo[b]fluoranthene							
CA/T Project	873	0.68	0.045	0.4	8.4	18	270
LSPA Project	486	NC	ND (258)	NC	11	NC	250
Watertown	17	1.4	0.6	0.6	6.78	6.79	7.08
ENSR - Urban Soil	62	0.722	ND (7)				12
ATSDR Range:			15				62

Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

	Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
			<---------- PERCENTILES ---------->				
Benzo[g,h,i]perylene							
CA/T Project	871	0.2	0.045	0.2	3.1	7.7	77
Med City/Mill Brook	67	NC	ND (52)	NC	1.2	1.41	5.2
ENSR - Urban Soil	62	0.461	ND (26)				5.9
ATSDR Range:			0.9				47
Benzo[k]fluoranthene							
CA/T Project	869	0.21	0.045	0.21	4	9.7	150
LSPA Project	475	NC	ND (289)	NC	11.4	NC	110
Watertown	17	0.502	0.065	0.406	3.35	4.47	5.13
ENSR - Urban Soil	62	0.834	ND (3)				25
ATSDR Range:			0.3				26
Chrysene							
CA/T Project	873	0.35	0.022	0.35	7.3	18	240
LSPA Project	490	0.59	ND (204)	0.59	20.3	NC	420
Watertown	17	0.32	0.016	0.404	4.55	5.06	6.6
Med City/Mill Brook	68	NC	ND (42)	NC	2.1	3.6	14
ENSR - Urban Soil	62	0.844	ND (2)				21
ATSDR Range:			0.251				0.64
Dibenzo[a,h]anthracene							
CA/T Project	866	0.17	0.045	0.17	1.1	2.1	39
Watertown	17	0.195	0.155	NC	0.494	0.604	0.64
Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	1.6
ENSR - Urban Soils	62	0.245	ND (30)				2.9
Fluoranthene							
CA/T Project	873	0.89	0.035	0.61	14	33	490
Med City/Mill Brook	68	NC	ND (32)	0.376	4.2	11	40
ENSR - Urban Soils	62	1.38	ND (2)				39
ATSDR Range:			0.2				166
Fluorene							
CA/T Project	873	0.18	0.028	0.18	2.3	5.5	79
Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	2
ENSR - Urban Soils	62	0.141	ND (27)				3.3
Indeno[1,2,3-cd]pyrene							
CA/T Project	871	0.2	0.022	0.2	2.8	7	100
LSPA Project	475	NC	ND (304)	NC	6.3	NC	130
Watertown	17	1.752	1.2	NC	5.64	6.2	7.2
Med City/Mill Brook	68	NC	ND (50)	NC	1.5	2	6
ENSR - Urban Soil	62	0.532	ND (19)				6
ATSDR Range:			8				61
2-Methylnaphthalene							
CA/T Project	789	0.15	0.03	0.15	0.96	2.2	13
Med City/Mill Brook	68		ND (67)	NC	NC	NC	0.77
ENSR - Urban Soil	62	0.121	ND (43)				0.64

Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

		Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
				<---------- PERCENTILES ---------->				
Naphthalene								
	CA/T Project	867	0.17	0.016	0.17	1.4	3	28
	Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	1.9
	ENSR - Urban Soils	62	0.0917	ND (27)				0.66
Phenanthrene								
	CA/T Project	873	0.8	0.029	0.47	15	38	480
	Med City/Mill Brook	68	NC	ND (38)	NC	2.7	5.6	16
	ENSR - Urban Soils	62	0.788	ND (1)				36
Pyrene								
	CA/T Project	873	0.89	0.034	0.61	16	35	440
	Med City/Mill Brook	68	NC	ND (32)	0.343	4.29	9	30
	ENSR - Urban Soil	62	1.54	ND (1)				11
	ATSDR Range:			0.145				147
Aluminum								
	DEP 1995	30	5536	387	7800	13000	16000	24000
Antimony								
	DEP 1995	90	0.2	ND (0.002)	0.34	1.4	4.8	22
	CA/T Project	746	NC	0.25	1	7	12	160
Arsenic								
	DEP 1995	139	4.7	ND (0.1)	4.8	16.7	24.5	99
	CA/T Project	754	5.3	0.25	5.4	14	21	99
	H&A 2001	589	5.5	ND	5.57	11	12.9	23
Barium								
	DEP 1995	64	15	0.42	15.7	45.2	52.8	104
	H&A 2001	490	35	ND	35.7	80.9	89.3	680
Beryllium								
	DEP 1995	103	0.21	0.03	0.23	0.39	0.53	1.6
	CA/T Project	746	0.5	0.03	0.5	0.88	2	7.5
	H&A 2001	22	0.5	ND	0.63	1.15	1.2	1.3
Cadmium								
	DEP 1995	127	0.43	ND (0.01)	0.29	2.06	3.4	5.9
	CA/T Project	756	0.5	0.1	0.5	3	5	25
	H&A 2001	572	1.8	ND	1.26	1.63	1.63	3
Chromium								
	DEP 1995	147	10.3	0.02	10.6	28.6	38.8	105
	CA/T Project	756	13	1	15	39	50	530
	H&A 2001	589	22	ND	22	43.9	49.6	94
Cobalt								
	DEP 1995	10	0.8	ND (0.5)	NC	4.4	4.5	4.7
Copper								
	DEP 1995	103	7.7	ND (0.5)	7.3	37.7	56.1	160
	CA/T Project	742	34	1	30	170	320	5300
	H&A 2001	22	26	6	27	47.5	64.5	130

Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

		Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
				<---------- PERCENTILES ---------->				
Iron								
	DEP 1995	30	6031	444	7200	17000	22500	50000
Lead								
	DEP 1995	141	19.5	1	19.1	98.7	158	326
	CA/T Project	850	51	0.05	53	570	1100	11000
	LSPA Project	457	83	ND (5)	83	640	NC	10600
	H&A 2001	583	15	ND	24.4	78.9	112	300
Magnesium								
	DEP 1995	30	1028	ND (250)	1300	4900	6700	11000
Manganese								
	DEP 1995	30	81.5	ND (3)	110	300	365	460
Mercury								
	DEP 1995	107	0.043	ND (0.0002)	0.066	0.28	0.43	1.4
	CA/T Project	785	0.15	0.001	0.15	1.4	2.6	23
	H&A 2001	583	0.2	ND	0.19	0.74	1.1	2.5
Nickel								
	DEP 1995	103	4.6	ND (0.5)	5.1	16.6	22.7	48
	CA/T Project	740	14	1	14	31	41	220
	H&A 2001	22	34.5	5	35	67.5	70	101
Selenium								
	DEP 1995	93	0.1	ND (0.0005)	0.17	0.5	1	4.6
	CA/T Project	756	0.5	0.1	0.5	1	2.1	57
	H&A 2001	426	0.84	ND	0.74	1.36	1.58	2.8
Silver								
	DEP 1995	117	0.09	ND (0.003)	0.07	0.58	0.91	82
	CA/T Project	756	1	0.19	1	5	7.3	81
	H&A 2001	335	0.64	ND	NC	NC	NC	0.64
Thallium								
	DEP 1995	71	0.1	ND (0.005)	NC	0.6	1.65	5
	CA/T Project	734	NC	0.035	1	5	5	50
Vanadium								
	DEP 1995	30	7.6	ND (1)	10.3	28.5	38.5	46.6
Zinc								
	DEP 1995	112	29.3	3.52	27.7	116.4	131.2	190
	CA/T Project	746	84	5.8	73	340	590	5000
	H&A 2001	22	67	15	58.5	103	106	120

APPENDIX F

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

FOR REMEDIATING THE FILL AT

SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY, YONKERS, NY 10701

Prepared By:

Lockwood, Kessler & Bartlett, Inc.
Consulting Engineers
1 Aerial Way
Syosset, NY 11791

Prepared For:

City of Yonkers
Yonkers City Hall
40 South Broadway
Yonkers, NY 10701-3888

Submitted To:

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
200 White Plains Road – 5th Floor
Tarrytown, NY 10591

October 29, 2004

TABLE OF CONTENTS

Section Number and Title	Page Number
1.0 INTRODUCTION	1
2.0 MANAGEMENT	1
3.0 SITE DESCRIPTION	1
4.0 HAZARD EVALUATION	2
5.0 PROTECTIVE EQUIPMENT	3
6.0 AIR MONITORING/ACTION LEVELS	4
6.1 Volatile Organic Compounds	4
6.2 Hydrogen Sulfide	5
6.3 Combustible Gas	5
6.4 Equipment Calibration and Maintenance	5
7.0 SITE CONTROL	6
8.0 DECONTAMINATION	6
8.1 Personal Protective Equipment	6
8.2 Equipment Decontamination	7
9.0 TRAINING	7
10.0 HEALTH MONITORING	7
11.0 CONTINGENCY PLAN/EMERGENCY PROCEDURES	8
12.0 FIRE/EXPLOSION OR ACCIDENTS CAUSING POTENTIAL OFF-SITE MIGRATION OF ON-SITE CONTAMINANTS	9
13.0 PERSONAL PROTECTIVE EQUIPMENT FAILURE	10
14.0 EMERGENCY TELEPHONE NUMBERS	10
15.0 COMMUNITY HEALTH AND SAFETY	10

Figure Number and Title	Follows Page Number
1. SITE LOCATION	1

Table Number and Title	Follows Page Number
1. OCCUPATIONAL AIRBORNE CONTAMINANT EXPOSURE LEVELS	2

1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been developed to protect the health and safety of the on-site personnel and the general public during remediation of the fill at Section 3, Block 3515, Lot 115, 1061 North Broadway, Yonkers, NY (the Site). This HASP addresses the potential physical and chemical hazards that workers and/or the public may face while the planned activities are performed. It establishes procedures to minimize their exposure through safe work practices and personal protective equipment. The HASP has been developed to conform with the requirements of the United States Environmental Protection Agency Standard Operating Safety Guide (USEPA, 1988) and the United States Department of Labor, Occupational Safety and Health Administration (OSHA) regulation, Title 29 Code of Federal Regulations, Part 1910.120 (29 CFR Part 1910.120), "Hazardous Waste Operations and Emergency Response" and 29 CFR Part 1929.21, "Safety and Health Regulations for Construction-Confined or Enclosed Space".

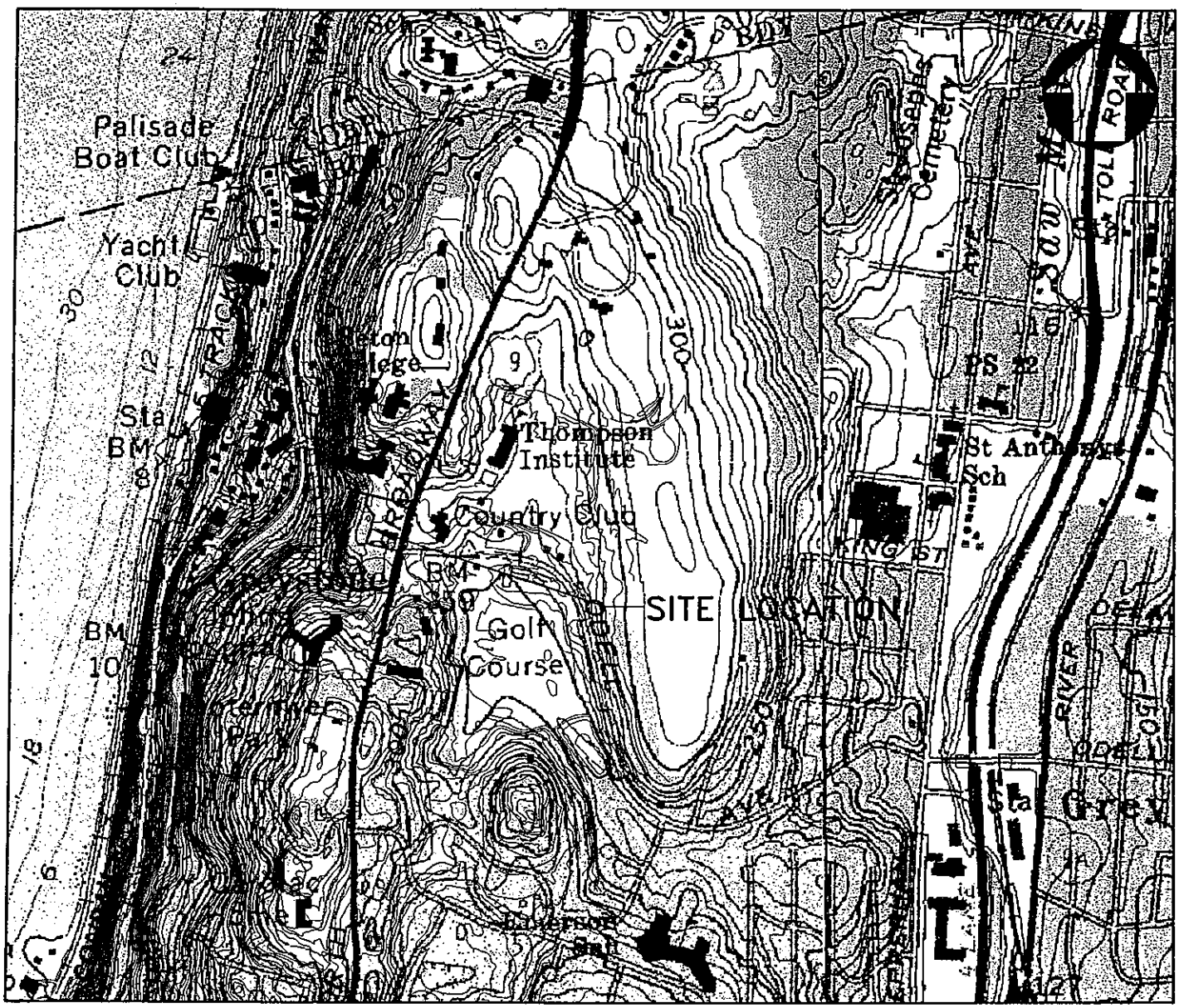
2.0 MANAGEMENT

All remedial equipment will be provided and operated by licensed City contractors under the direction of Lockwood, Kessler & Bartlett, Inc. (LKB). LKB (a.k.a., the Engineer) will also be acting as the Site Safety Officer (SSO). The SSO will be responsible for ensuring that construction operations are performed in accordance with the requirements of the HASP. The SSO is empowered to make the routine decisions regarding working conditions, monitoring and safety equipment selection. At the beginning of each day, personnel will be briefed on the expected activities for that day by the SSO. Should the Engineer witness activities not in conformance with this HASP at any time during the construction operations, he may the contractor to take immediate corrective action.

3.0 SITE DESCRIPTION

The location of the Site is shown in Figure 1. The Site consists of approximately 3.4 acres of filled land on a 7.5-acre parcel. Specifically, it consists of a main fill area that extends out onto a pre-existing steep slope, a flat area that contains a thin veneer of fill and some above-grade fill piles, and a fill berm. The total amount of fill at the Site is estimated to be 17,700 cubic yards. A current aerial photograph of the Site, showing the various features of the Site such as the main fill area and fill berm, is shown in Figure 2.

The fill was brought to the Site around 1990 for the purpose of raising the grade to extend the existing parking lot. The work was halted due to concerns regarding the environmental quality of the fill. Subsequent investigation determined that the fill contains above background levels of certain polycyclic aromatic hydrocarbons (PAHs) and metals.



APPROX. SCALE: 1"=2000'

FIGURE 1

SITE LOCATION

1061 NORTH BROADWAY, YONKERS, N.Y.

The remedial activities will consist of clearing and grubbing, installing fencing and drainage, stabilizing the steep western slope of the main fill area, capping the fill areas with clean soil. Therefore, there are no requirements for confined space entry, shoring and stabilization for this project.

4.0 HAZARD EVALUATION

The potential physical and chemical hazards associated with the Site have been evaluated based on current information available, visual inspection, and professional judgement.

The potential chemical hazards, which may be encountered include:

- Possible presence of explosive levels of gases (e.g., methane);
- Possible inhalation of toxic gases (e.g., hydrogen sulfide and volatile organic compounds);
- Possible dermal contact with contaminated fill materials; and
- Possible exposure to unacceptable levels of fugitive dust.

Explosive and inhalation hazards will be protected against as described in Section 6.0 (Air Monitoring/Action Levels). Dermal contact with non-volatile or volatile compounds shall be guarded against by wearing adequate protective clothing as described in the Section 5.0 (Protective Equipment). The NYSDOH Generic Community Air Monitoring Plan and NYSDEC TAGM 4031 in Appendix F of the Remedial Action Work Plan will ensure protection of the general public with respect to inhalation issues.

The primary potential exposure pathway is through inhalation. Table 1 provides the recognized allowable occupational exposure levels for this pathway. These data will be used to determine action levels for air monitoring during the remediation.

Physical hazards typically encountered at excavation work sites may be a concern during this program. These include the existence of open holes, shallow trenches, uneven terrain, slippery ground surfaces and the operation of heavy equipment. Basic safety apparel such as hard hats, steel-toed work shoes and safety glasses will be utilized as necessary to reduce physical hazard potential.

Work involving the use of heavy equipment will have hazards associated with their use. These may include being struck by moving parts or equipment while in motion. Precautions which should be taken to preclude injuries include:

- Training personnel in proper equipment operating procedures;
- Inspect equipment regularly to maintain it in proper working order;
- Keep non-essential personnel out of the work area;

TABLE 1
OCCUPATIONAL AIRBORNE CONTAMINANT EXPOSURE LEVELS

COMPOUND	CAS #	OSHA PEL TWA (ppm)	
Chloromethane	74-87-3	100	
Bromomethane	74-83-9	20	C
Vinyl Chloride	75-01-4	1	
Chloroethane	75-00-3	1000	
Methylene Chloride	75-09-2	25	P
Acetone	67-64-1	1000	
Carbon Disulfide	75-15-0	20	
1,1-Dichloroethene	75-35-4	5	A
1,1-Dichloroethane	75-34-3	100	
Trans-1,2-Dichloroethene	540-59-0	200	
Chloroform	67-66-3	50	C
1,2-Dichloroethane	107-06-2	50	
2-Butanone	78-93-3	200	
1,1,1-Trichloroethane	71-55-6	350	
Carbon Tetrachloride	56-23-5	10	
Vinyl Acetate	108-05-4	10	A
Bromodichloromethane	75-27-4	NA	
1,1,2,2-Tetrachloroethane	79-34-5	5	
1,2-Dichloropropane	78-87-5	75	
Trans-1,3-Dichloropropene	542-75-6	1	A
Trichloroethene	79-01-6	100	
Dibromochloromethane	124-48-1	NA	
1,1,2-Trichloroethane	79-00-5	10	
Benzene	71-43-2	1	
cis-1,3-Dichloropropene	542-75-6	1	A
Bromoform	75-25-2	0.5	
2-Hexanone	591-78-6	100	
4-Methyl-2-Pentanone	108-101-1	100	
Tetrachloroethene	127-18-4	100	
Toluene	108-88-3	200	
Chlorobenzene	108-90-7	75	
Ethyl Benzene	100-41-4	100	
Styrene	100-42-5	100	
O + M Xylene	95-47-6,108-38-3	100	
P Xylene	106-42-3	100	
Hydrogen Sulfide	7783-06-4	20 10 15	S A A,S

NA= Not Available
PEL's= Occupational Safety & Health Administration Permissible Exposure Limits
TWA= 8-Hour Time Weighted Averages
C= Ceiling, the concentration that should not be exceeded during any part of the working day.
P= Concentration to be reduced to this Proposed value.
A= No OSHA value available, value presented is that published by ACGIH.
S= Short-term Exposure Level, STEL, a 15-minute TWA exposure that should not be exceeded at any time during a workday.

- Prohibit loose-fitting clothing or loose long hair around moving equipment;
- Maintain designated speed limits onsite;
- Do not exceed rated load capacity of equipment;
- In areas where equipment operators have limited sight distance, provide a second person to assist in equipment operation or navigation (in particular when backing up vehicles) and;
- Set parking brakes before shutting off vehicles.

While slip, trip and fall hazards are possible within the work zone, precautions will be taken to maintain the working area free of unnecessary materials, equipment or conditions, which may cause these hazards.

Therefore, this HASP addresses the following hazards:

- Explosive levels of gases encountered during excavation and grading;
- Exposure to toxic gases such as VOCs and hydrogen sulfide; and
- Dermal contact with potentially contaminated soil.

5.0 PROTECTIVE EQUIPMENT

The SSO is responsible for determining the appropriate personal protective equipment to be used in each work area based on the type of operations being performed and the action levels specified herein. The use of additional personal protective equipment shall be determined by the SSO as necessary based on the contaminants reported at the Site, their reported concentrations and the potential for dermal contact. Specific types of personal protective equipment shall be determined by the SSO and shall be chosen based on chemical resistance and break-through time information.

Based on the hazard evaluation, all on-site work will be initiated in Level D protection. If the established action level is exceeded, the level of protection will be upgraded to Level C or Level B. The following is a description of the personal protective equipment required for each level:

Level D

- Hard hat
- Disposable coveralls (optional)
- Safety glasses, goggles, or faceshield
- Steel-toe and shank, chemical-resistant boots
- Chemical-resistant gloves
- Hearing protection, noise reduction rating (NNR) of 35 decibels

Level C

- Full face air purifying respirator equipped with approved filter cartridges
- Hard hat
- Disposable coveralls (optional)
- Steel-toe and shank, chemical-resistant boots
- Chemical-resistant gloves
- Hearing protection, noise reduction rating (NNR) or 35 decibels

Level B

- Full face Positive-pressure, supplied air respirators
- Saran-coated Tyvek™ or PVC coveralls (chemical-resistant)
- Inner or outer chemical resistant gloves
- Boots (outer) chemical resistant, steel toe and shank
- Hard hat
- Two-way radio communication.

No changes to the specified level of protection, other than those specified in the HASP, shall be made without approval of the SSO.

6.0 AIR MONITORING/ACTION LEVELS

6.1 Volatile Organic Compounds

The SSO will monitor the air within the breathing zone of the work area with a direct reading photoionization device for the presence of volatile organic compounds (VOCs). The breathing zone is defined as the area from shoulder height to waist height. Air monitoring will be conducted daily, prior to initiation of field activities and periodically during the field activities.

The instruments that will be utilized include photoionization detectors (PIDs), which are particularly sensitive to halogenated organic compounds such as vinyl chloride. The PID devices will utilize a lamp with an ionization potential of 10.6 eV (e.g. for the Photovac Tip) or 10.2 eV (e.g. for the Hnu). They will be calibrated prior to each usage with a 100 ppm isobutylene gas. Colorimetric tubes for benzene and vinyl chloride will be used periodically to provide data on the concentration of the specific compounds. Although these two compounds are not expected to be present, they have the most restrictive PEL's of all the VOCs that could potentially be present.

When a VOC concentration greater than or equal to 1.0 ppm above background is sustained for a period of at least 1 minute in the breathing zone with the PID, colorimetric tubes will be utilized to determine whether specific compounds are present. A positive reading in excess of 1 ppm on a benzene or vinyl chloride colorimetric tube will temporarily suspend operations to allow the area to ventilate. During this period, the

workers will move to an upwind area to limit their potential exposure. Work in Level D protection will resume when the vinyl chloride and/or benzene concentrations fall below 1 ppm, which will be confirmed with additional colorimetric tubes. If after venting for 15 minutes, the concentration of vinyl chloride and/or benzene does not fall below 1 ppm, then the work will resume with the level of protection upgraded to Level B, employing a full face, positive pressure, supplied air respirator. Once in Level B, vinyl chloride and benzene colorimetric tubes will be used every 30 minutes to monitor the presence of the contaminates. When this monitoring indicates that the concentrations are less than 1 ppm then the level of protection will be downgraded to Level D.

If air monitoring indicates that VOCs excluding benzene and vinyl chloride are present at 5.0 ppm or greater above background, Level C, protection employing on organic vapor cartridge shall be required for work to continue. Personnel that are certified and have masks fit tested will be utilized to perform the work. If air monitoring indicates that VOCs excluding benzene and vinyl chloride are present at 25.0 ppm or greater above background, Level B protection employing a full face, positive pressure, supplied air respirator shall be required for work to continue. If air monitoring indicates that benzene alone or vinyl chloride alone are each less than 1.0 ppm above background but a combination of VOCs and benzene and vinyl chloride are present at 5.0 ppm or greater above background, protective measures including, but not limited to, saran-coated Tyvek™ and supplied air respirators shall be required for work to continue.

6.2 Hydrogen Sulfide

The SSO will monitor for hydrogen sulfide on a regular basis utilizing a hand-held meter to ensure that the levels of hydrogen sulfide in the breathing zone do not exceed the action levels listed in Table 1.

6.3 Combustible Gas

The SSO shall periodically monitor the work area for explosive levels of methane. A Combustible Gas Indicator will be used to monitor potentially flammable concentrations of gas. At readings less than 10 percent (0.5% gas) of the Lower Explosive Limit, work shall continue. At readings from 10-25 (0.5% to 1.25% gas) percent of the LEL, work will continue with extreme caution as higher levels are encountered. If a reading of 25 percent (1.25%) of the LEL is achieved, then all work shall be stopped and the area should be allowed to vent until safe conditions are achieved. In the event that natural venting does not reduce the level of combustible gas then mechanical venting with intrinsically safe units will be allowed. No open flames or smoking will be allowed at any time in the restricted and decontamination areas.

6.2 Equipment Calibration and Maintenance

All monitoring equipment will be calibrated and maintained in accordance with manufacturer's recommendations. A copy of the user's manual for each piece of monitoring equipment will be kept onsite.

7.0 SITE CONTROL

Prior to the start of construction operations, the SSO shall divide the area surrounding the work into three zones: restricted zone (exclusion zone), decontamination zone (contaminant reduction zone) and a clean zone (support zone). The exclusion zone is a limited access area, which shall be established at the location of the immediate work area where the greatest potential hazards exist. Personnel shall exit the exclusion zone by passing through the decontamination zone. The clean zone shall serve as a meeting and storage area and shall be the only zone on-site where eating, drinking and smoking will be allowed. Maintaining access control between work zones will be the responsibility of the SSO. All visitors to the Site, requiring entrance beyond the clean zone, will be recorded on a visitor's log.

8.0 DECONTAMINATION

8.1 Personal Protective Equipment

Upon leaving the exclusion zone, all personnel must undergo appropriate decontamination, **if applicable.** The decontamination requirements will depend on the level of protection used within the exclusion zone and the degree of contamination.

The decontamination area will contain a tub of wash water, a tub of rinse water, a plastic-lined drum for disposal of expendable clothing and a first aid kit.

For complete decontamination, all personnel will observe the following procedures upon leaving the exclusion zone:

- Wash outer boots and outer gloves in tub of decon solution, which shall consist of detergent in water.
- Rinse outer boots and outer gloves in tub of rinse water.
- Remove outer boots and outer gloves and place in disposal drum.
- If using a respirator, remove respirator, dispose of cartridge if necessary, and place respirator in plastic bag.
- Remove and dispose of disposable chemical resistant suit.
- Remove and dispose of inner gloves.

Respirators (if used) shall be sanitized daily and stored in plastic bags. Reusable equipment (rubber boots, etc.) shall be decontaminated properly and stored in plastic bags. Disposable equipment shall be placed in plastic bags or drums and disposed of properly. Personnel shall wash face and hands before leaving the decontamination area.

Decontamination solutions shall be supplied at the decontamination zone. The wash solution will consist of water and detergent such as Alconox or sodium phosphate; and the rinse solution will consist of clean water.

Contaminated wash solutions shall be collected for disposal at an on-site locations approved by the Engineer. All other disposable health and safety equipment will be decontaminated and disposed of non-hazardous waste.

8.2 Equipment Decontamination

Equipment will be cleaned of any visible excess material prior to leaving the exclusion zone, **if applicable.** Soiled equipment will be washed with brushes, detergent solution, rinse water and pressurized steam as deemed necessary.

Large equipment shall be decontaminated by steam cleaning prior to leaving the Site if necessary. Smaller equipment shall be decontaminated by washing with a detergent solution and rinsing with clean water. The rinse water will be disposed of at on-site location approved by the Engineer. The SSO will monitor decontamination procedures.

9.0 TRAINING

Personnel working on-site, and any personnel who must enter the exclusion zone, must be familiar with the site hazards and employ appropriate safety procedures.

10.0 HEALTH MONITORING

This work is expected to occur in the summer months when ambient temperatures may be high. Heat-related injuries can be prevented by wearing light clothing and taking rest periods in a cool place. The SSO will monitor the workers for the initial signs of heat stress, heat exhaustion and heat stroke as identified below:

Symptoms of Heat Stress:

- Sluggishness or fainting while standing;
- Red, blister-like skin rashes;
- Painful muscle spasms; and
- Profuse sweating, weakness, rapid pulse, dizziness, nausea and usually a headache.

Treatment: Move to a cool shady area, drink fluids with electrolytes, rest.

Symptoms of Heat Exhaustion:

- Body temperature over 100 degrees F;
- Low blood sugar;
- Fast Pulse;
- Moist skin, sweating;
- Muscle cramps and tenderness;
- Nausea, vomiting;
- Dizziness or lightheadedness;
- Confusion; and
- Headache.

Treatment: Same as for heat stress.

Symptoms of Heat Stroke:

- Temperature over 105 degrees F;
- Weakness, dizziness;
- Blurred vision;
- Confusion, delirium, unconsciousness (can progress to coma);
- Seizures;
- No sweating;
- Pale, dry skin; and
- Fast breathing, fast irregular pulse, high blood pressure.

Treatment: Remove clothing, take to ER immediately.

Should a worker exhibit these symptoms, the on-site SSO shall be consulted immediately so that proper measures can be taken to correct the condition.

11.0 CONTINGENCY PLAN/EMERGENCY PROCEDURES

The SSO shall be notified of emergencies. The City's contractor(s) shall be responsible for ensuring that the appropriate emergency procedures are followed and for maintaining a first aid kit in the vicinity of field operations and treating the injured parties. The standard emergency procedures in the following sections will be used by on-site personnel.

The main site excavation route is through the site entrance to North Broadway.

On-site verbal communications should not be a problem since it is expected that all tasks will be performed in Level D protection. However, should verbal communications be difficult at times due to personal protective equipment or noise, a universal set of hand signals will be used.
They are as follows:

Hand gripping throat:	Can't breathe.
Grip partner's wrist or place hands around waist:	Leave work area immediately.
Hand on top of head:	Need assistance.
Thumbs up:	OK. I'm all right.
Thumbs down:	No. Negative.

Should job-related injuries occur, they will be reported to the SSO. If medical attention is needed, the injured worker will be decontaminated, if necessary and/or possible, prior to leaving the Site. The SSO will investigate the cause of the accident and corrective measures will be taken before the work can resume. It will be the responsibility of the SSO to complete an accident reporting form (OSHA 101) for all injuries, and issue copies to appropriate organizations.

In addition, the following safe work practices will be in effect:

- No eating, drinking or smoking in the exclusion zone.
- No sources of ignition, such as matches or lighters, will be permitted in the exclusion or support zones.
- During hazardous weather conditions, such as lighting and thunderstorms, work will cease immediately.

12.0 FIRE/EXPLOSION OR ACCIDENTS CAUSING POTENTIAL OFF-SITE MIGRATION OF ON-SITE CONTAMINANTS

In the event a fire or explosion occurs, or in the event an accident or unavoidable occurrence results in the potential off-site migration of site-related contaminants, the SSO shall notify the Yonkers Fire and Police Departments and on-site workers shall be moved to a safe distance from the area. The air downwind of any fire or explosion shall be monitored immediately to protect workers and the nearby community. All other appropriate notifications will be made in accordance with existing Fire and Police Department notification procedures, including notifying the community downwind of the Site and taking other appropriate measures.

13.0 PERSONAL PROTECTIVE EQUIPMENT FAILURE

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person shall immediately leave the exclusion zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

14.0 EMERGENCY TELEPHONE NUMBERS

Cellular phones will be available onsite.

The emergency telephone numbers are as follows:

St. Johns Riverside Hospital Emergency Room	**(914) 964-4278**
Francis Davis, ER Director	
Local Fire/Police Emergency	**911**

The hospital is located directly south of the Site, across Odell Avenue on the same side of the street at 967 North Broadway. The entrance to the ER is off North Broadway and the ER is located in the main hospital building. To reach the hospital, turn right (south) onto North Broadway, pass Odell Avenue on the right and then turn right into the hospital entrance. Follow signs to the ER.

15.0 COMMUNITY HEALTH AND SAFETY

This HASP has been prepared to ensure the safety of on-site personnel and the general public. The implementation of the requirements stipulated in this HASP should result in eliminating the potential for off-site exposure pathways. In addition, it should be noted that if necessary exposed soil areas will be sprayed with water to reduce dust. Moreover, should the SSO become aware of any accident or unavoidable occurrence which may result in the potential off-site migration of on-site contaminants, he shall immediately alert the City and the Fire and Police Departments and shall implement procedures outlined by the Fire and Police Departments for alerting and protecting the local community.

APPENDIX G

APPENDIX G

NYSDOH Generic Community Air Monitoring Plan
and NYSDEC TAGM 4031

G. C. ENVIRONMENTAL, INC.
CONSULTANTS CONTRACTORS

May 18, 2011

R. Pugni & Sons, Inc.
25 Bedell Road
Katonah, NY 10536

Subject: H&S Monitoring
1061 North Broadway
Yonkers, NY 10701
GCE Proposal No. 11178

Dear Mr. Pugni:

G. C. Environmental, Inc. (GCE) has reviewed the LKB Health and Safety Plan for Remediating the Fill at 1061 North Broadway, Yonkers NY 10701 dated November 20, 2007. GCE recommends that R. Pugni & Sons, Inc. utilize and accept this plan with exception of Section 6.1 Volatile Organic Compounds, page 5. Testing for Vinyl chloride and/or benzene via colorimetric tube.

GCE plans to utilize a Photo Ionization Detector (PID) for the field screening of Volatile Organic Compounds (VOC's) and a 4 gas meter measuring Combustible Gas - Lower Exposure Limit (LEL), Oxygen, Carbon Monoxide, and Hydrogen Sulfide. Benzene is included in the LEL combustible gas readings.

For the Community Air Monitoring Plan (CAMP) GCE will utilize two Dust Trak II Desktop Model 8530 real time dust monitors at upwind and downwind locations.

If you have any questions please call me at (631) 206-3700.

Sincerely,

Gerald Hickson
Senior Associate

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

D:\Drew\Gcampr1.doc

TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM #4031

FUGITIVE DUST SUPPRESSION AND PARTICULATE MONITORING PROGRAM AT INACTIVE HAZARDOUS WASTE SITES

TO: Regional Hazardous Waste Remediation Engrs., Bur. Directors & Section Chiefs

FROM: Michael J. O'Toole, Jr., Director, Division of Hazardous Waste Remediation

SUBJECT: DIVISION TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM -- FUGITIVE DUST SUPRESSION AND PARTICULATE MONITORING PROGRAM AT INACTIVE HAZARDOUS WASTE SITES

DATE: Oct 27, 1989

Michael J. O'Toole, Jr. (signed)

1. Introduction

Fugitive dust suppression, particulate monitoring, and subsequent action levels for such must be used and applied consistently during remedial activities at hazardous waste sites. This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2. Background

Fugitive dust is particulate matter--a generic term for a broad class of chemically and physically diverse substances that exist as discrete particles, liquid droplets or solids, over a wide range of sizes--which becomes airborne and contributes to air quality as a nuisance and threat to human health and the environment.

On July 1, 1987, the United States Environmental Protection Agency (USEPA) revised the ambient air quality standard for particulates so as to reflect direct impact on human health by setting the standard for particulate matter less than ten microns in diameter (PM_{10}); this involves fugitive dust whether contaminated or not. Based upon an examination of air quality composition, respiratory tract deposition, and health effects, PM_{10} is considered conservative for the primary standard--that requisite to protect public health with an adequate margin of safety. The primary standards are 150 ug/m^3 over a 24-hour averaging time and 50 ug/m^3 over an annual averaging time. Both of these standards are to be averaged arithmetically.

There exists real-time monitoring equipment available to measure PM_{10} and capable of integrating over a period of six seconds to ten hours. Combined with an adequate fugitive dust suppression program, such equipment will aid in preventing the off-site migration of contaminated soil. It will also protect both on-site personnel from exposure to high levels of dust and the public around the site from any exposure to any dust. While specifically intended for the protection of on-site personnel as well as the public, this program is not meant to replace long-term monitoring which may be required given the contaminants inherent to the site and its air quality.

3. Guidance

A program for suppressing fugitive dust and monitoring particulate matter at hazardous waste sites can be developed without placing an undue burden on remedial activities while still being protective of health and environment. Since the responsibility for implementing this program ultimately will fall on the party performing the work, these procedures must be incorporated into appropriate work plans. The following fugitive dust suppression and particulate monitoring program will be employed at hazardous waste sites during construction and other activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Such activities shall also include the excavation, grading, or placement of clean fill, and control measures therefore should be considered.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM_{10}) with the following minimum performance standards:

   Object to be measured: Dust, Mists, Aerosols
   Size range: <0.1 to 10 microns
   Sensitivity: 0.001 mg/m^3
   Range: 0.001 to 10 mg/m^3
   Overall Accuracy: ±10% as compared to gravimetric analysis of stearic acid or reference dust

   Operating Conditions:
   Temperature: 0 to 40°C
   Humidity: 10 to 99% Relative Humidity

   Power: Battery operated with a minimum capacity of eight hours continuous operation

   Automatic alarms are suggested.

   Particulate levels will be monitored immediately downwind at the working site and integrated over a period not to exceed 15 minutes. Consequently, instrumentation

shall require necessary averaging hardware to accomplish this task; the P-5 Digital Dust Indicator as manufactured by MDA Scientific, Inc. or similar is appropriate.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the entity operating the equipment to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m^3 over the integrated period not to exceed 15 minutes. While conservative, this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m^3, the upwind background level must be measured immediately using the same portable monitor. If the working site particulate measurement is greater than 100 ug/m^3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see Paragraph 7). Should the action level of 150 ug/m^3 be exceeded, the Division of Air Resources must be notified in writing within five working days; the notification shall include a description of the control measures implemented to prevent further exceedences.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM_{10} at or above the action level. Since this situation has the potential to migrate contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

    1. Applying water on haul roads.
    2. Wetting equipment and excavation faces.
    3. Spraying water on buckets during excavation and dumping.
    4. Hauling materials in properly tarped or watertight containers.
    5. Restricting vehicle speeds to 10 mph.
    6. Covering excavated areas and material after excavation activity ceases.
    7. Reducing the excavation size and/or number of excavations.

    Experience has shown that utilizing the above-mentioned dust suppression techniques, within reason as not to create excess water which would result in

unacceptable wet conditions, the chance of exceeding the 150 ug/m^3 action level at hazardous waste site remediations is remote. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. If the dust suppression techniques being utilized at the site do not lower particulates to an acceptable level (that is, below 150 ug/m^3 and no visible dust), work must be suspended until appropriate corrective measures are approved to remedy the situation. Also, the evaluation of weather conditions will be necessary for proper fugitive dust control--when extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended.

There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require appropriate toxics monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX H

NYSDEC Region 3
Annual Post-Closure Monitoring & Maintenance Report for Landfills

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3/SOLID WASTE PROGRAM
ANNUAL POST-CLOSURE MONITORING & MAINTENANCE REPORT FOR LANDFILLS

This report form provides a standard format for owners of closed municipal solid waste landfills to report to the Department regarding post-closure monitoring and maintenance activities which have occurred during the past year. Use of this form will ensure that information needed by the operator and Department staff is readily available. Reporting of non-essential information is avoided. By completing and submitting this form on an annual basis, all reporting requirements connected with the closed landfill are satisfied and there is no need to submit any additional reports or paperwork. This form should be submitted once per year on a schedule which coincides with completion of the annual or fourth quarter groundwater monitoring event.

SECTION A - FACILITY DATA

1. REPORTING PERIOD (mm/dd/yy to mm/dd/yy): _____

2. OWNER OF LANDFILL: _____

3. ADDRESS OF LANDFILL: _____

_____

4. LOCATION OF LANDFILL: County: _____ Municipality: _____

5. CONTACT PERSON: Name: _____ Address: _____
Phone: _____ _____

6. SIZE OF LANDFILL (Acres): _____

7. PERIOD OF OPERATION (Yr to Yr): _____

8. DATE OF COMPLETION OF CLOSURE CONSTRUCTION (mm/yy): _____

9. TYPE OF LANDFILL CAP (check one): ____Geomembrane ____ Clay ____ Composite
____ Other - Specify _____

10. LANDFILL GAS MANAGEMENT (Check all that apply): ____ Passive Venting ____ Flares
____ Gas Filter ____ Gas Collection ____ Power Generation ____Other- Specify _____

11. LEACHATE MANAGEMENT: Does the landfill have a leachate collection system ? __ Y __ N

12. DATE OF CLOSURE CERTIFICATION (mm/dd/yy): _____

13. NAME OF CERTIFYING ENGINEER: _____

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3/SOLID WASTE PROGRAM
ANNUAL POST-CLOSURE MONITORING & MAINTENANCE REPORT FOR LANDFILLS

---

14. GRANTED REGULATORY RELIEF VARIANCES (Check all that apply): ___Topsoil Layer ___Barrier Layer ___Barrier Protection Layer ____Gas Vent Layer I ___Gas Vent Layer II ___Post Closure Monitoring I ___Post Closure Monitoring II

15. DATE OF LAST MOWING OF VEGETATIVE COVER:_____

SECTION B - LANDFILL INSPECTION

1. DATE OF LAST INSPECTION (mm/dd/yy): _____

2. NAME(S) OF INSPECTOR(S): _____

3. Was entire landfill surface and entire landfill perimeter inspected ? __ Y __ N; If no, describe extent of inspection:

_____
_____

4. Was the entire landfill surface covered with suitable vegetation (e.g. shallow rooting) and free of soil erosion ? ___ Y ___ N; If no, identify problems identified and corrective actions taken or planned:

_____
_____
_____

5. Were active leachate discharges, iron-stained surface soils or other signs of leachate breakouts noted ? ___ Y ___ N; If yes, describe the nature of the problem and corrective actions taken or planned:

_____
_____
_____

6. Were areas of surface water ponding observed on the landfill surface ? ___ Y ___ N; If yes, describe the nature of the problem and corrective actions taken or planned:

_____
_____
_____

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3/SOLID WASTE PROGRAM
ANNUAL POST-CLOSURE MONITORING & MAINTENANCE REPORT FOR LANDFILLS

---

7. Were odors detected on or in the vicinity of the landfill ? ___ Y ___ N; If yes, describe the nature of the problem and corrective actions taken or planned:

8. Were vectors or evidence of vectors observed ? ___ Y ___ N; If yes, describe the nature of the problem and corrective actions taken or planned:

9. Was damage to the landfill cover system, gas vents, monitoring wells, leachate collection system or other landfill components observed ? ___ Y ___ N; If yes, describe the nature of the problem and corrective actions taken or planned:

10. Were there signs of dumping, ruts caused by vehicle tires, camp fires, or other signs of unauthorized public access or encroachment ? ___ Y ___ N; If yes, describe the nature of the problem and corrective actions taken or planned:

11. Were any other problems noted in addition to those identified in items 4 through 10, above ? ___ Y ___ N; If yes, describe the nature of the problem and corrective actions taken or planned:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3/SOLID WASTE PROGRAM
ANNUAL POST-CLOSURE MONITORING & MAINTENANCE REPORT FOR LANDFILLS

SECTION C - WATER QUALITY MONITORING

1. CURRENT WATER QUALITY MONITORING PROGRAM (Check One):

_____ Quarterly Routine/Annual Baseline _____ Semi-Annual Baseline _____ Annual Baseline
_____ Other - Specify:_____

2. DATE OF MOST RECENT WATER QUALITY SAMPLING EVENT (mm/dd/yy): _____

3. INDICATE EACH SAMPLING EVENT COMPLETED DURING PAST YEAR AND ATTACH THE *DATA SUMMARY SHEETS* FOR EACH SAMPLING EVENT:

____ 1st Quarter ____ 2nd Quarter ____ 3rd Quarter _____ 4th Quarter

4. LIST AND DESCRIBE THE WATER QUALITY MONITORING POINTS INCLUDED IN THE PROGRAM BY COMPLETING THE TABLE BELOW:

ID Number	Description: Indicate whether the monitoring point is for groundwater or surface water, upgradient or downgradient, completed in overburden or bedrock, and, if part of a well couplet, shallow or deep

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3/SOLID WASTE PROGRAM
ANNUAL POST-CLOSURE MONITORING & MAINTENANCE REPORT FOR LANDFILLS

5. Using the following table, summarize each parameter detected during the reporting period, at a downgradient monitoring point, at a concentration exceeding the applicable water quality standard. (Include parameters which are undetected, if detection limit exceeds the standard.)

Sample Date	Sampling Point	Parameter	Units	Sample Result	Applicable Standard	Upgradient Results

6. Do results of the most recent water quality monitoring event indicate an improvement or a worsening in water quality when compared with those of previous water quality monitoring events ? ___ Y ___ N; If yes, describe change, attach graphs or tables if appropriate.

_____

_____

_____

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3/SOLID WASTE PROGRAM
ANNUAL POST-CLOSURE MONITORING & MAINTENANCE REPORT FOR LANDFILLS

SECTION D - IMPACTED OR POTENTIALLY IMPACTED RESIDENTIAL WATER SUPPLY WELLS

1. Are there residences served by private water supply wells located less than one mile from the landfill in the downgradient direction and not separated from the landfill by an intervening perennial stream or other groundwater discharge zone ? __Y __N;

If yes, provide the information requested in items 2 through 5, below.

2. Indicate the distance between the downgradient edge of the landfill and the nearest residential water supply well, in feet: _____

3. Have residential wells been sampled to determine whether there has been landfill-water quality impact ? ___Y ___N; If yes, provide the following information:

Date of most recent sampling event (mm/dd/yy): _____ Number of wells tested: _____

Samples collected by: _____ Was the County Health Department notified __Y __N

Parameters tested: _____

4. Using the following table, summarize each parameter detected during the reporting period, at a downgradient monitoring point, at a concentration exceeding the applicable drinking water standard. (Include parameters which are undetected, if detection limit exceeds the standard.)

Sample Date	Homeowner Name or Well ID	Parameter	Units	Sample Result	Applicable Standard

5. Explain cause of parameters exceeding standards, and if due to landfill-derived contamination, indicate what actions have been taken or are planned to mitigate water quality impact.

_____
_____
_____

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGION 3/SOLID WASTE PROGRAM
ANNUAL POST-CLOSURE MONITORING & MAINTENANCE REPORT FOR LANDFILLS

SECTION E - GAS MONITORING

1. Is landfill gas monitoring carried out at the landfill ? __Y __N; If yes, provide the following information:

Type of monitoring (Check all that are applicable):
___ Landfill perimeter survey using temporary boreholes
___ Landfill perimeter survey using permanent gas monitoring wells
___ Landfill gas vents within waste mass (as well as inspection for blockage)
___ Interior survey of on-site and nearby structures
___ Landfill final cover areas where stressed vegetation and/or fissures are evident
___ Continuous automatic monitoring devices installed in buildings
___ Other - Specify: _____

Frequency of Monitoring: __ Quarterly __Semi-annual __Annual __Other- Specify_____

Date of Most Recent Monitoring Event (mm/dd.yy):_____ (Attach data sheet and site plan showing sampling locations)

2. Have any explosive gas readings exceeding 25% of the lower explosive limit been detected during sampling events carried out during the past year ? __Y __N; If yes, indicate whether the readings indicate a potential threat to public safety, what actions have been taken or are planned to mitigate potential safety concerns or the rationale for why corrective action is not needed.

_____
_____
_____
_____

SECTION F - CERTIFICATION OF ACCURACY

I certify that the information provided in this form is accurate and complete, to the best of my knowledge. I understand, that knowingly providing false information, may be grounds for enforcement action.

_____ _____
Name Title

_____ _____
Signature Date

Appendix D

Health and Safety Plan

SITE SECURITY, HEALTH AND SAFETY PLAN
1061 NORTHBROADWAY LANDFILL MODIFICATIONS-ATHLETIC FIELD CONSTRUCTION

Contract No. IFB-6893

City of Yonkers

One Larkin Center

Yonkers, NY 10701

April 25, 2023

Prepared for:

City of Yonkers
One Larkin Center
Yonkers, NY 10701

Prepared by:

Laura Li Industries, LLC
PO Box 195
Purchase, NY 10577

TABLE OF CONTENTS

SECTION 1.0	CORPORATE STATEMENT OF SAFETY POLICY
SECTION 2.0	SCOPE AND DESCRIPTION OF PROJECT
SECTION 3.0	COMPANY SAFETY OFFICERS
SECTION 4.0	EMERGENCY INFORMATION & KEY PERSONNEL
SECTION 5.0	LAURA LI INDUSTRIES, LLC POLICY OF PROGRESSIVE DISCIPLINE
SECTION 6.0	PROJECT SAFETY POLICIES
SECTION 7.0	PROJECT START UP – JOB SITE REQUIREMENTS
SECTION 8.0	PROJECT MANAGER RESPONSIBILITIES
SECTION 9.0	PROJECT SUPERINTENDENT RESPONSIBILITIES
SECTION 10.0	PROJECT FOREMAN RESPONSIBILITIES
SECTION 11.0	SAFETY & HEALTH TRAINING PROGRAM
SECTION 12.0	GENERAL SAFETY RULES
SECTION 13.0	PERSONAL PROTECTIVE EQUIPMENT
SECTION 14.0	SITE SECURITY
SECTION 15.0	RESPONSIBILITIES OF SUBCONTRACTORS, SUPPLIERS, ARCHITECTS ENGINEERS, OWNERS AND VISITORS
SECTION 16.0	HAZARD COMMUNICATION PROGRAM
SECTION 17.0	EQUIPMENT SAFETY
SECTION 18.0	REFERENCE MATERIAL
SECTION 19.0	FALL PROTECTION
SECTION 20.0	ENGINEER'S FIELD OFFICE

APPENDIX 1

SAFETY FORMS/CHECKLISTS

FORM EVSN-1	EMPLOYEE VIOLATION OF SAFETY NOTICE
FORM GESC-1	EMPLOYEE SAFETY INDOCTRINATION CHECKLIST
FORM SSC-1	SUBCONTRACTORS SAFETY CHECKLIST

APPENDIX 2

SECTION A. DISCRIMINATION/HARRASSMENT POLICY

SECTION 1.0

CORPORATE STATEMENT OF SAFETY POLICY

It is the policy of Laura Li Industries, LLC, to conduct all operations with a maximum of safety. Accident prevention, whether it be personal injury or property damage is considered the most important aim/goal of all Laura Li Industries, LLC Projects.

All supervisory employees of Laura Li Industries, LLC must accept responsibility for the prevention of accidents on their Projects.

This Site Security, Health and Safety Plan (Safety Plan) has been established to ensure that a mechanism is in place to protect employees working for Laura Li Industries, LLC and the general public living, working and/or traveling thru the jobsite. Compliance with this Safety Plan is required as such. Laura Li Industries, LLC will ensure that resources and personnel are available for the implementation of this Plan. Throughout the Project, Laura Li Industries, LLC and its Subcontractors will continually monitor the safety of all its employees and make recommendations (or take corrective action) to those personnel in violation of this Program.

Laura Li Industries, LLC is committed to meet all applicable requirements of the Occupational Safety and Health Administration (OSHA) safety and health standards. The procedures and protocols in this Plan have been established to ensure that a mechanism is in place to protect all personnel from any potential hazards.

The content of this Plan may change or undergo revision based upon additional information made available to Laura Li Industries, LLC, or by changes in the technical scope of work.

Laura Etre

Laura Etre
Managing Member

SECTION 2.0

SCOPE AND DESCRIPTION OF PROJECT

Laura Li Industries, LLC, shall perform all work required to in IFB-6893: 1061 NORTH BROADWAY LANDFILL MODIFICATIONS-ATHLETIC FIELD CONSTRUCTION within the limits depicted on the contract documents, and inclusive of the supplemental work necessary to facilitate same.

SECTION 3.0

COMPANY SAFETY OFFICERS

The Safety Director of Laura Li Industries, LLC is Laura Etre. Mrs. Etre will aid the field operations to ensure that LLI's Safety Program is understood, employed, and enforced. In addition to monitoring the Safety Program, he will forward new Safety Bulletins, Safety Aids, and other pertinent data to support the program in the field.

Project Competent Person & Contact Safety Officer #01:

PROJECT SUPERINTENDENT: MARC ETRE, JR.
Laura Li Industries, LLC
PO Box 195
Purchase NY, 10577
Mobile: 914-760-6679

Project superintendent responsibilities are outlined in Section 9.0 of the Plan.

Contact Safety Director & Project Competent Person #02:

GENERAL SUPERINTENDENT: Laura Etre
Laura Li Industries, LLC
PO Box 195
Purchase NY, 10577
Mobile: 516-779-5937

SECTION 4.0

EMERGENCY INFORMATION

The following pertinent information is site specific for this project's location:

Emergency Contacts	Phone Number
Ambulance	**911**
Fire Department	**911**
State Police (NYS)	**911**
Pollution Toxic Chemical Oil Spills	(800) 424-8802
White Plains Hospital	(914) 681-0600
Poison Control Center	(800) 222-1222

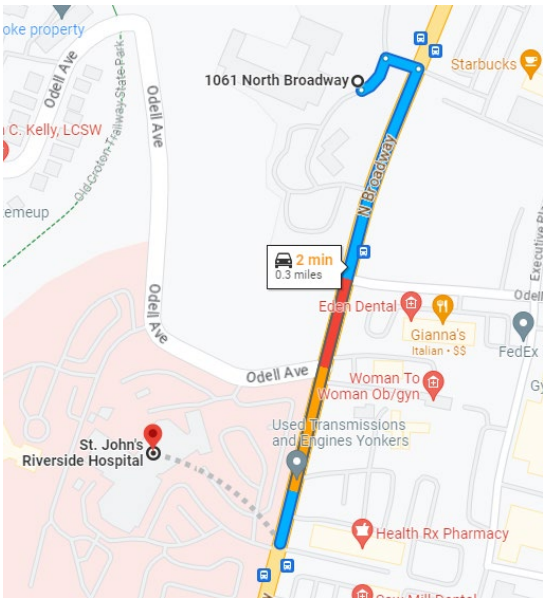
St. John's Riverside Hospital

967 North Broadway, Yonkers, NY 10701
(914) 681-0600

Directions to Hospital:

1. Head northeast toward North Broadway – 118 ft.
2. Turn Right toward N Broadway – 95 ft.
3. Turn right at the 1st cross street onto North Broadway – 0.3 mile
4.

Total Est. Time: 2 minutes
Total Est. Distance: 0.3 mile



This section will be updated by the party performing the work prior to the commencement of such work.

Contractor:	Laura Li Industries, LLC	
Address:	PO Box 195 Purchase NY 10577	
Telephone:	516-779-5937	**Email:** Metre@lauraliindustries.com
Project Manager: Laura Etre		**Contact No.** IFB-6893
Project Superintendent and Qualified Administrator of First Aid: Marc Etre, Jr.		**Contact No.** 914-760-6679

These personnel have the authority and responsibility for implementing the provisions of this program for:

Project Site Location	On-site Contact No.
1061 North Broadway, Yonkers, NY 10701	Marc Etre, Jr. 914-760-6679

All managers and supervisors are responsible for implementing and maintaining the site- specific HASP in their work areas and for answering worker questions about the HASP. A copy of this HASP must and will be available for review.

SECTION 5.0

LAURA LI INDUSTRIES, LLC POLICY OF PROGRESSIVE DISCIPLINE:

PROCEDURES FOR ENSURING WORKPLACE COMPLIANCE

Any employee who violates the regulations outlined in this Safety Program will be subject to disciplinary action. The disciplinary action is to be as follows:

Warning 1: Verbal

The first warning given to the employee will be a verbal warning by the site Superintendent or Foreman. The warning will be then documented (Form EVSN-1) and become a part of the employee's file.

Warning 2: Written

The second warning will be in writing and given to the employee who violates the same or similar safety regulation. (Form EVSN-1). The Project Superintendent/Foreman will review the warning with the employee. This warning also becomes a part of the employee's file.

Warning 3: Suspension

The third warning follows the same procedure as the second warning, except the employee is immediately suspended. The length of the suspension will be handled on a case by case with each employee. After service a suspension, the employee will not be able to return until he/she meets with

the Laura Li Industries, LLC Safety Director to discuss the appropriate corrective action(s). In certain cases, no return will be allowed – 3rd strike is termination.

SECTION 6.0

PROJECT SAFETY POLICIES

Safety rules will be posted where they are accessible to all employees and any visitors that may come to the site. Any specific safety warnings will be posted near entrance to work area.

6.1 **Contractor's Safety Rules**
All employees will be instructed to read and sign their Acknowledgment of the EMPLOYEE SAFETY CHECKLIST. (Form EVSN-1). They will also be issued a Construction Safety Manual.

6.2 **Safety Meetings**
A Toolbox Safety Meeting will be given on the construction site once a week to the employees and a Toolbox Safety Meeting Report listing all attendees, subjects discussed, suggestions offered etc. will be filed in the Contractor's office. These safety talks will be given by the Safety Officer or Assistant Safety Officers. Copies of all Toolbox Safety Meetings will be forwarded to the Sate on a weekly basis.

6.3 **Safety Bulletins**
All safety bulletins will be posted at the field office so that they are available to all employees and any visitors that may be on the site.

6.4 **Site Safety**
All excavations will be protected by barricades and lights (when applicable), temporary fencing or delineators as required to protect the employees and the public from any possible hazards.
All tools and equipment will be inspected periodically so that they can be maintained in a safe operating condition. All work will be performed to adhere to OSHA Regulations.

6.5 **Materials**
All materials that are stored on the jobsite will be staked or laid out in a manner so as not to be a safety hazard.

6.6 **Visitors**
Any visitors that want entry to the construction site will have to report to the Contractor's Office, if applicable, or must contact the Contractor's Project Superintendent via phone call ahead (also posted at entrance) and will be advised of the Safety Rules of the Project to which they must agree with prior to site entry. A sign will be posted in the area to inform them of this requirement. They must wear all necessary Personal Protective Equipment while on site. If they do not adhere to the rules, they will not be permitted access to the construction site.

6.7 **Enforcement**
The Safety Officer(s) will monitor the Safety Program and take any steps necessary to adjust the Program to ever-changing industry-standards and to other appropriate effects if/when applicable. They will instruct all employees regarding adherence to Laura Li Industries, LLC Safety Program.
The Safety Officer(s) will instruct any visitors wishing to gain entry to the site of the rules and if they do not adhere to the rules, they will be asked to leave the site.

SECTION 7.0

PROJECT START UP – JOB SITE REQUIREMENTS

Before and at the start of each Project, there are certain safety items that will be given consideration. These items include:

7.1 Locating and making available emergency and medical services such as: Hospital, Doctor, Clinic, Ambulance, Fire and Police Departments. (Also see Section 4.0 for Emergency Information).

7.2 Posting the phone numbers, and where necessary, the addresses of the above listed medical and emergency services. This information is to be posted in conspicuous places near phones. Emergency phone number posted can be used for this item. (Also see Section 4.0 for Emergency Information).

7.3 Providing an adequate first aid kit that complies with OSHA standards (in a weather-proof container). This must be kept on jobsite.

7.4 Providing necessary personal protective equipment such as: hard hats, safety goggles, body harness, and any other equipment that is incidental to the Project.

7.5 Display the OSHA poster "Safety and Health Protection On-The-Job". Additionally, post the company work rules.

7.6 Preparation of OSHA 300 – Log and Summary of Occupation Injuries and Illnesses.

7.7 Setting up the procedures for the weekly toolbox safety meetings. They are to be held on the same day each week.

7.8 Constructing an approved oxygen and acetylene storage rack at least 20 feet away from the buildings, flammable liquids, and combustible materials, when applicable.

7.9 Keeping all flammable liquids in approved, properly labeled containers, when applicable.

7.10 On jobs where employees provide their own tools, having employees furnish a list of all tools they bring on the job. This list should be checked by the Foreman for accuracy.

7.11 File the names, addresses, and telephone numbers of insurance companies providing coverage for subject site. This information is kept by the Main Office.

7.12 Maintain access to the "Occupational Safety & Health Standards for the Construction Industry" at the jobsite.

7.13 Appointing a qualified administrator of first aid for the Project.

7.14 Keeping on file a company jobsite inspection checklist for the Project.

7.15 Make sure the following areas are given consideration:

a._____Employees parking and transportation
b._____Access and delivery roads.
c._____Adequate storage areas.
d._____Maintaining clear aisles and passageways.
e._Portable drinking water
f._____Sanitary facilities.

7.16 Job Hazard Analysis (JHA) and Safe Work Plan (SWP) for the work elements to be worked on should be available on site. The foreman and workers must be trained on the SWP of the work element they will be working on.

CONSIDERATION OF THESE ITEMS AT THE START OF THE JOB WILL SAVE TIME AND MONEY!
PREVENTION IS PROTECTION!

SECTION 8.0

PROJECT MANAGER RESPONSIBILITIES

The Project Manager is an integral part of the Safety Program. If safety procedures are not taken into consideration when planning a new Project, it becomes very difficult to implement later when the Project is underway.

8.1 The Project Manager should anticipate problems, proceed with caution and plan with safety in mind.

8.2 The Project Manager should review the Construction Safety Standards and increase knowledge of Federal, State and Local Safety Standards.

8.3 The Project Manager is responsible to see that an analysis is made of the plans and specifications with respect to the scope of work and specifics tasks, collaborates with the Project Team in determining exposure to accidents/risks, and the appropriate ways to mitigate them. Consideration is given to protection of the public, personnel, and properties. The Project Manager will participate in performing JHA & developing SWP for each work element.

8.4 The Project Manager reads and reviews LLI's Health and Safety Program on each new project and incorporates site and Owner-specific requirements, where applicable. At times, amendments become part of Appendix PSSR – Project Specific Safety Requirements.

8.5 Review all incident and accident reports.

SECTION 9.0

PROJECT SUPERINTENDENT RESPONSIBILITIES

The key to the implementation of the Safety Program is the Project Superintendent. Just as he coordinates the many facets of any project, he must ensure that the elements of the Safety Program are incorporated into his project.

The Project Superintendent must make sure that safety is regarded as top priority while organizing the details of a successful safety system.

9.1 The Superintendent is responsible for executing the Company's on-site Health and Safety Program and leads by example.

9.2 The Superintendent ensures availability of necessary personal protective equipment, job safety materials, and first-aid essentials.

9.3 The Superintendent instructs personnel that safety practices are to be followed and safe conditions maintained throughout the job. The super will be involved in performing JHA and developing SWP for each work element.

9.4 The Superintendent enforces zero tolerance – personnel are instructed in risk mitigation and safe practices.

9.5 The Superintendent instructs personnel regarding their safety responsibilities and motivates them to promote safety to all.

9.6 The Superintendent requires all Subcontractors to adhere to all OSHA and Site-Specific Safety Regulations.

9.7 The Superintendent will review all near-misses and/or incidents with personnel & Management to ensure corrective action is taken. The super will update the SWP based on lessons learned from near misses or accidents.

9.8 The Superintendent assures that all incident reports are reported to the Main Office and are timely, complete, and concise.

9.9 The Superintendent will ensure access to Federal, State and Local regulations at the jobsite.

9.10 The Project Superintendent must be familiar with the laws pertaining to safety and their basic requirements.

9.11 The Superintendent will monitor all "Toolbox Safety Talks" and attend periodically (when held by Foreman).

9.12 The Superintendent is responsible for job cleanliness. Frequent inspections are made, and corrective measures implemented as needed.

SECTION 10.0

PROJECT FOREMAN RESPONSIBILITIES

As the direct supervisor over the employees, the Foremen plays a crucial role in the success of the Safety Program. The Foreman's day in and day out contact with work personnel puts him in a unique position to make the program work.

The Foreman must conduct the safety meetings and teach both the safety rules and safe thinking. They must be alert for dangers and make certain that precautions are taken.

10.1 The Foreman will see that the entire Safety Program is carried out at the work level.
10.2 He will review laws pertaining to safety with proper Supervisors and be familiar with all safety requirements.
10.3 He will correct and eliminate unsafe practices when observed. The foreman will implement SWP for work elements he is responsible for.
10.4 The Foreman will make sure that no unsafe conditions exist in his work areas and be responsible for hazards he fails to act upon.
10.5 The Foreman also has the responsibility to keep all necessary protective equipment available and to insist that it be used.
10.6 The Foreman must educate and motivate his personnel regarding safety rules, procedures and attitudes. As such, he must conduct safety meetings and instruct all employees in safe procedures and job safety requirements. He must follow up by indoctrinating employees on safety habits and insisting on compliance with the Safety Rules.
10.7 The Foreman must discuss safety in personal contacts with everyone on every operation. He must develop those safety habits, instill caution and teach proper procedure.
10.8 The Foreman must report all accidents promptly and make certain that injuries are cared for.
10.9 The Foreman will investigate all accidents. He will file a complete accident report with the Superintendent and take corrective action.

SECTION 11.0

SAFETY & HEALTH TRAINING PROGRAM

11.1 As soon as practicable, all employees will be briefed in this manual by their respective safety representative and will receive safety training as follows:
- a. Information to acquaint the employee with special requirements at the job site, including traffic regulations.
- b. Description of the nature of the project.
- c. Hazards that may be expected during the work.
- d. Work practices and job conduct.
- e. Warning that violations of safety rules may result in disciplinary action or layoff. (See Section 5).

11.2 Any employee who is assigned to a new task or exposed to specific hazards (i.e. confined space work or work in existing plant areas, etc.) shall receive special orientation as to those potential hazards unique to the task and the proper precautions to be observed.
11.3 As part of an ongoing training program Laura Li Industries, LLC conducts regular safety training meetings. (See Section 6-2 – Safety Meetings). These safety meetings shall be documented by subject, date and time and attendance. Various training materials are available through trade associations and insurance carriers. Workers must be trained on the SWP of specific work element before staring the work.
11.4 Protective devices and personal protective equipment shall be furnished by Laura Li Industries, LLC
- a. The wearing of approved non-conductive safety hats is mandatory. Refer to ANSI Z89.1, Safety Requirements for Industrial Head Protection.

b. Eye protection is always required. Face protection shall be required in those areas specified by the Safety Superintendent and must be used when engaged in drilling, grinding, burning, welding, chipping or when the risk to eye and face injury exists.
c. Lifelines and safety belts shall be used in all applications where required by federal, state or local safety standards, or where there is a fall exposure of ten (10) feet of more.
d. Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table D-1, Permissible Noise Exposures, in Section 1926.52, ear protection devices shall be provided and used.
e. In emergencies, or when controls required by OSHA 1926-55 fail or are inadequate to prevent harmful exposure to employees, appropriate respiratory devices shall be provided by the employer and used.
f. Appropriate work footwear and clothing's shall be worn to minimize hazards from work and to comply with applicable location rules.

SECTION 12.0

GENERAL SAFETY RULES

12.1 All work-related injuries must be immediately reported to your foreman or supervisor the day of the injury. All injuries will be thoroughly investigated.
12.2 New Employee Orientations and Weekly Safety Meetings shall be conducted specific to the hazard exposure(s) in each phase of work. All employees will receive training in our Hazard Communication Program.
12.3 Never start any hazardous job without being completely familiar with the safety techniques that apply to it. Check with your foreman or supervisor if in doubt.
12.4 Proper work clothing will always be worn on all our projects, work boots/shoes and full-length pants included. Any type of sneakers, sandals or casual shoes and tank tops are prohibited.
12.5 Personal Protective Equipment (PPE) is provided by this company. **ANSI APPROVED: HARD HATS, EYE PROTECTION, AND SAFETY VESTS MUST BE WORN AT ALL TIMES ON ALL LAURA LI INDUSTRIES, LLC PROJECTS.** Other PPE required, such as face and hearing protection, life jackets, personal fall protection, and respirators must always be worn when exposure(s) to the related hazards exist while performing your job.
12.6 ONLY if other means of fall prevention are not practical, Full Body Harnesses with one shock absorbing lanyard shall be used for fall protection when working at heights greater than six feet. THIS INCLUDES ALL WORK ACTIVITIES ON ALL LAURA LI INDUSTRIES JOBS.
12.7 Only trained, authorized or licensed personnel will operate or service equipment. Equipment will be operated in accordance with the manufacturer's recommendations.
12.8 Tools, equipment, machinery and work areas must be maintained in a clean and safe manner. Unsafe conditions/defective equipment shall be reported to your foreman/supervisor (immediately).
12.9 Obtain full instructions from your foreman or supervisor before operating an unfamiliar machine.
12.10 Make sure all safety attachments are in place and properly adjusted before operating any machine.
12.11 Do not operate any equipment or machine at unsafe speeds. Never oil, clean, repair or adjust any machine while it is in motion.
12.12 Never repair or adjust any equipment or machine unless you are specifically authorized to do so by your supervisor/foreman or without properly locking out and tagging the main switch.

12.13 Equipment operators must always safeguard other workers.
12.14 Approved lockout/tag out procedures shall be used whenever employees could be harmed by an accidental system or equipment start-up.
12.15 All electrical tools/equipment will be protected using Ground Fault Circuit Interrupters (GFCI's).
12.16 Housekeeping is essential. Put tools and equipment away when not in use. Work areas, machinery and all Laura Li Industries, LLC facilities shall always be maintained clean and orderly.
12.17 Do not lift items that are too heavy or too bulky. Ask for assistance.
12.18 All posted warning signs; signals and safety rules shall be obeyed.
12.19 Horse play, rowdiness, profane and/or sexually explicit language, reckless driving of vehicles and equipment or a belligerent attitude on the part of any employee toward other company personnel or the general public is forbidden and will not be tolerated
12.20 All Laura Li Industries, LLC sites are considered alcohol free work sites. No alcohol will be allowed on site.
12.21 The use, possession or sale of regulated drugs is prohibited without a doctor's written prescription and management's prior knowledge. Violators will be removed from the project.
12.22 Blatant disregard of Laura Li Industries, LLC safety rules is a possible danger to yourself as well as those around you. Any employee found not in compliance with Laura Li Industries, LLC's safety rules will be terminated immediately.
12.23 Supervisors and foreman are authorized to enforce these safety rules and instruct new employees to perform their job in a safe and efficient manner.

SECTION 13.

PERSONAL PROTECTIVE EQUIPMENT

The need to enforce the use of personal protective equipment (PPE) must be stressed daily. Many injuries are a result of incidents that would never have occurred if individuals were wearing the appropriate equipment. The purpose of PPE is to minimize employee exposure to possible hazards while performing their jobs and help prevent the possibility of injury.

WHEN POSSIBLE, HAZARDS WILL BE ELIMINATED.

PERSONAL PROTECTIVE EQUIPMENT IS NEEDED AS A FINAL DEFENSE TO PROTECT WORKERS FROM HAZARDS THAT ARE OTHERWISE NOT ELIMINATED BY THE UTILIZATION OF OTHER SAFE PRACTICES & MEASURES; EXPOSED EMPLOYEES WILL BE TRAINED IN SELECTION AND USE.

REPLACEMENT PPE WILL BE PROVIDED ONLY WHEN PPE IS WORN OUT OR INTEGRITY HAS BEEN COMPRIMISED.

13.1 **HARD HATS-**ANSI approved hard hats must ALWAYS be worn on ALL JOBS by ALL EMPLOYEES. Extra hard hats must be stored on site and made available for use.
13.2 **EYE PROTECTION-**It is of utmost importance that the correct type of eye protection be provided to suit the specific operation being performed. The eyes, when seriously injured, do not heal as most other injuries, and for this reason we must constantly emphasize the importance of utilizing eye protection.
13.3 **HEARING PROTECTION-**Exposure to loud noises (over 90 dBa) can permanently damage your sense of hearing. When noise exposure is present, such as in pile and sheet driving, drilling, compressors, etc., proper hearing protection must be issued to and worn by employees exposed. A copy of our Hearing Conservation Program is available upon request.

13.4 **FALL PROTECTION-**Where possible, guardrail systems, scaffolding, catch platforms, safety nets or temporary flooring will be used to eliminate a fall exposure. When infeasible, a personal fall arrest system will be used. This will include a safety body harness with a deceleration device and proper anchorage. Safety Belts will NOT be used as part of a personal fall arrest system.

13.5 **RESPIRATORY PROTECTION-** Appropriate respiratory protective devices shall be provided to employees whose work or work area has the potential exposure to airborne contaminants produced in the course of their work. Exposed employees must be medically cleared, fit tested and trained in proper maintenance of respirators. A copy of our Respiratory Protection Program is available upon request.

13.6 **LIFE VESTS-**Coast Guard approved life vests must be worn by all employees working or walking in close proximity to water. Vests must be worn in the correct manner to ensure that heads will remain above water if an employee slips/falls in the water.

SECTION 14.0

SITE SECURITY

14.1 The initial step to ensure security of the site will be to close a section of roadway to all traffic, with the exception of emergency vehicles. Refer to the separate Site Logistics Plan for additional information on this.

14.2 Type 3 Barricades will be positioned across the roadway where the road must be closed (refer to Site Logistics Plan for reference view). Type 3 barricades are most often used for road closings because of their bigger size and visibility. They are positioned across roadways for detours, road closing and other types of traffic control. Orange Safety Fencing will also be installed as necessary to separate key areas of the work zone.

14.3 Any visitors will have to report to the Contractor and be given temporary access prior to entering the construction area. Signs will be posted to notify everyone of that regulation.

14.4 All visitors will report to the Contractor's Project Superintendent or Foreman prior to entering any work areas.

14.5 Parking on site is at the Project Superintendent's or Foreman's discretion; however, the primary rule applies where vehicles of the employees or visitors will not be allowed to park in the construction area except for those needed to perform the work.

14.6 Materials being delivered to the site will be unloaded within the Project limits and stored along the side of the closed roadway, ensuring that emergency access is not prohibited.

SECTION 15.0

RESPONSIBILITIES OF ALL SUBCONTRACTORS, SUPPLIERS, CONSTRUCTION MANAGERS, ARCHITECTS, ENGINEERS, OWNERS, AND VISITORS ON JOBSITE

15.1 All the above people are required to comply with safety and health standards, rules and regulations set forth in Laura Li Industries, LLC Safety Program, the Occupational Safety & Health Administration and all municipalities (both State and Local).

15.2 All are required to "check in" with Laura Li Industries, LLC Project Manager/Superintendent before entering the jobsite.

15.3 Any alleged accident or injury is to be reported to Laura Li Industries, LLC Project Manager/Superintendent immediately.

15.4 All site attendees must report any unsafe condition that may come to their attention to the Project Manager/Superintendent.

SECTION 16.0

HAZARD COMMUNICATION WRITTEN PROGRAM

This program has been prepared to comply with the requirements of the Federal OSHA standard 1926.59 and to ensure that information necessary for the safe use, handling and storage of hazardous chemicals is provided to and made available to employees.

This program includes guidelines on identification of chemical hazards and the preparation and proper use of containers labels, placards and other types of warning devices.

An extensive Site-Specific Hazard Communication Program including all MSDS sheets are in Laura Li Industries, LLC job site trailers or secured staging area if a job site trailer is not present. (Available upon request).

Laura Li Industries, LLC wants to make sure that each employee is aware of the Hazard Communication Program or HazCom. This program was initiated to let you know what materials are considered hazardous. Hazardous chemicals can fall into four categories:

1. Flammable
2. Corrosive
3. Toxic
4. Reactive

To find out if any chemical or substance that you are working with is Hazardous, reference should be made to the notebook in the office titled "HazCom Program and MSDS Sheets." The Material Safety Data Sheet (MSDS) has detailed information on the chemical or substance in question. The MSDS will include the following information:

1. Identity of the chemical.
2. Physical and chemical characteristics of the hazardous chemical.
3. Known acute and chronic health effects and related health information.
4. Exposure limits.
5. Whether the chemical is a carcinogen
6. Precautionary measures.
7. Emergency and first aid procedures.
8. Identification of the organization responsible for preparing the MSDS.

Warning labels are to be on each container which contains a hazardous chemical. The identity of the hazard, the appropriate hazard warning or physical hazard, health hazard, Manufacturer's name and address and the Chemical Abstract Service must be on each warning label.

Note: OSHA-29-CFR-1910.1200 – Labeling (F) (7)

The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers and are intended for immediate use.

A. Chemical Inventory

1. Laura Li Industries, LLC maintains an inventory of all known chemicals in use on the worksite. A chemical inventory list is available from the Superintendent.

2. Hazardous chemicals brought onto the worksite by Laura Li Industries, LLC will be included on the hazardous chemical inventory list.

B. Container Labeling

1. All chemicals on site will be stored in their original or approved containers with a proper label attached, except small quantities for immediate use. Any container not properly labeled should be given to the Project Superintendent of labeling or proper disposal.
2. Workers may dispense chemicals from original containers only in small quantities intended for immediate use. Any chemical left after work is completed must be returned to the original container or Project Superintendent for proper handling.
3. No unmarked containers of any size are to be left in the work area unattended.
4. Laura Li Industries, LLC will rely on manufacturer applied labels whenever possible, and will ensure that these labels are maintained. Containers that are not labeled or on which the manufacturer's label has been removed will be relabeled.
5. Laura Li Industries, LLC will ensure that each container is labeled with the identity of the hazardous chemical contained and any appropriate hazard warnings.

C. Material Safety Data Sheets (MSDS)

1. Employees working with a Hazardous Chemical may request a copy of the material safety data sheet (MSDS). Requests for MSDS's should be made to the Project Superintendent.
2. MSDS information is available in the office.
3. All applicable MSDS will be provided to the Engineer.

D. Employee Training

Employees will be trained to work safely with hazardous chemicals. Employee training will include:

1. Methods that may be used to detect a release of hazardous chemical(s) in the workplace.
2. Physical and health hazards associated with chemicals.
3. Protective measures to be taken.
4. Safe work practices, emergency responses, and use of personnel protective equipment.
5. Information on the hazard Communication Standard including:

*Labeling and warning systems, and

*An explanation of Material Safety Data Sheets

E. Personnel Protective Equipment (PPE)

1.Required PPE is available from the Project Superintendent. Any employee found in violation of PPE requirements may be subject to disciplinary actions up to and including discharge.

F. Emergency Response

1. Any incident of over exposure or spill of hazardous chemical/substance must be reported to the Project Superintendent at once.
2. The Foremen or the immediate Supervisor will be responsible for ensuring that proper emergency response actions are taken in leak/spill situations.

SECTION 17.0

EQUIPMENT SAFETY

17.1. Laura Li Industries, LLC will comply with all manufacturer's specifications and limitations applicable to the operation and maintenance of all construction equipment. Equipment attachments used will not exceed the capacity, rating, or scope recommended by the manufacturer. Equipment will be equipped with a functional back-up alarm and rotating amber beacon light.

Blind Backing: "Prior to backing where the operator of the vehicle or equipment does not have clear sight, either a flagman shall assist in the reverse movement of the equipment or the operator shall confirm the back of the equipment is cleared by stabilizing the equipment and physically exiting the equipment to check. Only when the rear of the equipment is cleared by the prescribed methods can reverse movement of the equipment commence. The equipment shall set in the reverse gear and allow the back-up signal to sound for five seconds prior to actually moving the equipment."

17.2 No machinery will be modified or altered unless prior written approval is obtained from the manufacturer.

17.3 People who operate any heavy equipment, must be physically fit, mentally sound, emotionally stable, well trained and experienced in operating assigned equipment, and licensed and certified if required by law.

17.4 All personnel will follow the following basic safety rules:

a. Clean mud, oil, and grease from shoes and walkways before climbing onto equipment to operate or provide maintenance. Take extra care to lean residues from pedals before starting engines.

b. Maintain three points of contact at all times to maintain stability while getting on or off a machine. To do this, personnel must maintain contact with one hand and two feet or two hands and one foot. He/she then forms a triangle of contact points which will provide stability while mounting or dismounting.

c. Repair or replace broken or missing handholds and footholds immediately.

d. Replace surfaces of an access system which might become worn or slippery with skid-resistant surfaces.

17.5 Equipment shall be operated only by the following qualified personnel:

a. Designated persons

b. Trainees under the direct supervision of a designated person

No other than the above personnel shall enter the operator's cab or control station, with the exception of persons such as oilers, supervisors, and those specific people authorized by management whose duties required them to do so, and then only in the performance of their duties and with the knowledge of the assigned operator or other appointed person.

SECTION 18.0

REFERENCE MATERIAL

Access to following periodicals/manuals are available at every Project Site:

18.1 Construction OSHA Compliance Handbook – 2004 Construction Season Edition

18.2 Laura Li Industries, LLC Site Specific Hazard Communication Program. The above periodicals/manuals are an integral part of the Laura Li Industries, LLC Site Security and Safety Program. All employees should be encouraged to use the periodicals/manuals as a supplement to the information found in this Program.

SECTION 19.0

FALL PROTECTION

19.1 Purpose:

Set forth requirements to protect employees from a hazard associated with falls. All Fall Protection Systems must meet the requirements of OSHA Part 1926, Subpart M.

19.2 Scope:

Laura Li Industries, LLC Fall Protection Program will be implemented on all jobsites where employees are required to work near, or be exposed to, fall hazards.

19.3 100% Fall Protection:

No exposure to an elevated fall is permitted without protection, and it means continuous protection.

19.4 Duty to have Fall Protection:

a. To protect an employee from free fall more than 6 feet (1.8m)
b. To ensure Employees can only work on surfaces strong enough to support them.

19.5 Fall Protection Systems and Practices:

a. Aerial Lifts

Must meet the requirements of OSHA 29, 1926.556, and ANSI A 92.9-1990.

1. Lift controls will be tested for safe operation daily.
2. Only authorized personnel shall operate an aerial lift.
3. Belting off to an adjacent structure will not be permitted while working from an aerial platform.
4. Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders or other devices for a work position.
5. A body harness shall be worn and a lanyard attached to the boom or basket when working from man aerial lift.
6. An aerial lift shall not be moved when the boom is elevated in a working position with men in the basket, unless the equipment has been specifically designed for this type of operation.
7. Vehicle brakes shall always be set when lift is elevated.
8. Before the aerial device is used, worksite shall be surveyed for hazards such as:
    a. Untamped earth fills.
    b. Ditches.
    c. Drop offs.
    d. Debris.
    e. Overhead obstructions and electrical conductors.
    f. Weather conditions.
    g. Presence of unauthorized personnel.
9. Personal Fall Arrest Systems – Body Harnesses
    (Effective January 1, 1998, the use of a Body Belt for fall arrest will be prohibited)

1.) Personal Fall Arrest Systems must be inspected prior to each use for wear damage and other deterioration. Defective components must be removed from service.

2.) Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.

3.) Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.

4.) Dee-rings and snap hooks shall have minimum tensile strength of 5,000 pounds (22.2kN).

5.) Dee-rings and snap hooks shall be proof-tested to a minimum tensile load of 3,600 pounds (16kN) without cracking, breaking, or taking permanent deformation.

6.) Snap hooks shall be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snap hook by depressing of the snap hook keeper by the connected member, or shall be a locking type snap hook designed and used to prevent disengagement of the snap hook by the contact of the snap hook keeper by the connected member. Effective January 12, 1998, only locking type snap hooks shall be used.

7.)____Unless the snap hook is a locking type and designed for the following connections, snap hooks shall not be engaged:

(i)____Directly to webbing, rope or wire rope

(ii)____to each other

(iii)____to a dee-ring to which another snap hook or other connector is attached

(iv)____to a horizontal lifeline; or

(v)____to any object which is incompatible shaped or dimensioned in a relation to the snap hook such that unintentional disengagement could occur by the connected object being able to depress the snap hook keeper and release itself

8.)____On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect a horizontal lifeline shall be capable of locking in both directions on the lifeline.

9.)____Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.

10.)____Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds (22.2kN).

11.)____(i)Except as provided in (11)(ii) of this section, when vertical lifelines are used, each employee shall be attached to a separate lifeline.

(ii)____During the construction of elevator shafts, two employees may be attached to the same lifeline in the hoist way, provided both employees are working atop a false car that is equipped with guardrails; the strength of the lifeline is 10,000 pounds (5,000 pounds per employee attached) (44.4kN); and all other criteria specified in this paragraph for lifelines have been met.

12.)____Lifelines shall be protected against being cut or abraded.

13.)____Self-retracting lifelines and lanyards which automatically limit free fall distance to 2 feet (0.61m) or less shall be capable of sustaining a minimum tensile load of 3,000 pounds (13.3kN) applied to the device with the lifeline or lanyard in the fully extended position.

14.)____Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet (0.61m) or less, rip stitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds (22.2kN) applied to the device with the lifeline or lanyard in the full extended position.

15.)____Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made from synthetic fibers.

16.)____Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2kN) per employee attached, or shall be designed, installed, and used as follows:

a._____as part of a complete personal fall arrest system which maintains a safety factor of at least two; and

b._____under the supervision of a qualified person.

17.____ Personal fall arrest systems, when stopping a fall, shall:

(i) limit maximum arresting force on an employee to 900 pounds (4kN) when used with a body belt;

(ii) limit maximum arresting force on an employee to 1,800 pounds (8kN) when used with a body harness;

(iii) be rigged such that an employee can neither free fall more than 6 feet (1.8m) nor contact any lower level:

(iv) bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (1.07m); and

(v) have enough strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet (1.8m), or the free fall distance permitted by the system, whichever is less.

18.)___The attachment point of the body belt shall be located in the center of the wearer's back. The attachment point of the body harness shall be located in the center of wears back near shoulder level, or above the wearer's head.

19.)____Body belts, harnesses, and components shall be used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.

20.)____Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

21.)____The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.

SECTION 20.0

ENGINEER'S FIELD OFFICE

The Engineer's Field Office will be a storefront or trailer located at:

- N/A (responsible by others)

The following items will be included in the initial set up checklist:

- AS REQUIRED PER CONTRACT (1)

APPENDIX 1
SAFETY FORMS/CHECKLIST

Employee Violation of Safety Notice **Form EVSN-1**

EMPLOYEE NAME: _____ **DATE OF WARNING: ____/_____/_____**

TRADE: _____ **PROJECT: _____**

LAURA LI INDUSTRIES, LLC REPRESENTATIVE ISSUING VIOLATION: _____

PREVIOUS WARNINGS: _____(WRITTEN) **_____(ORAL)**
(date) **(date)**

EMPLOYER STATEMENT:

_____

_____

EMPLOYEE STATEMENT:

(Only required for written warnings)

_____ I AGREE WITH EMPLOYER'S STATEMENT.

_____ I DISAGREE WITH EMPLOYER'S DESCRIPTION OF VIOLATION.

THE REASONS ARE:

_____

_____

_____

DISCIPLINARY ACTION

_____ NO_____YES

I HAVE READ THIS SAFETY VIOLATION NOTICE AND UNDERSTAND IT.

_____ _____/_____/_____

(Signature of Employee (Only for Written Warnings) **(Date)**

_____ _____/_____/_____

(Signature of Supervisor Who Issued Warning) **(Date)**

(Print Name of Supervisor) **Form GESC-1**

SAFETY INDOCTRINATION CHECKLIST

Employee's Name _____ ***Supervisor*** _____ ***Emp.#*** _____

Date Started to Work _____ ***Job. No.*** _____ ***Shift*** _____

This employee has received safety indoctrination. Employee has been introduced to company-wide safety practices. Specific practices, peculiar to employee's position, have been covered.

1. Indicated by check mark, the protective equipment which the employee's job requires:

_____mandatory eye protection	_____foot protection	_____gloves
_____safety harnesses/belts	_____hard hats	_____breathing masks
_____ear protection	_____wearing apparel	_____others, list:____

Have you been fit tested for a respirator within the last 12 months? Yes / No

If yes, please attach a copy of your current certification card.

Have you been certified in various training courses? (i.e. OSHA 10 Hour Training) Yes / No

If yes, please attach a copy of your current certification cards.

2. Check the general items you have covered with the new employee:

_____fire and evacuation	_____location of FIRST AID KITS
_____location of exits	_____obey posted signs
_____location of extinguishers	_____no running – walk
_____loc. of safety shower (eye wash)	_____no horse play
_____reporting unsafe conditions	_____emergency procedures
_____smoking	_____ (fire or accidents)
_____housekeeping	_____emergency phone numbers
_____speed limit in accordance with	_____MSDS
_____job conditions	_____Required postings- OSHA, Federal & State
_____OSHA 300 log	others, list:_____

3.) Check the general items you have covered in connection with the employee's specific job:

_____ moving equipment	_____ safety harnesses
_____equipment operation	_____electrical hazards
_____gases, cyls., regulators	_____tools
_____toxic chemicals solvent	_____welding and cutting
_____lifting	_____material handling/storage
_____lockout/tagout	_____ladders
_____disposal of solvents and chemicals	_____scaffolds
_____safety belts	_____others,
	list:_____

4.) Training Coordinator's Signature _____ Date_____

5.) Employee's Signature _____ Date _____

Form SSC-1

SUBCONTRACTORS SAFETY CHECKLIST

PROJECT: 1061 North Broadway Landfill Modifications – Athletic Field

SUBCONTRACTOR: Laura Li Industries, LLC

PERSON(S) MAKING INSPECTION: _____

DATE: _____

		YES	NO
1.	OSHA Poster posted?	_____	_____
2.	Have Weekly Toolbox Safety Meetings been held and copies of reports given to Transit?	_____	_____
3.	Have employees been provided with personal protective equipment?		
	- hard hats	_____	_____
	- eye and face protection	_____	_____
	- hearing protection	_____	_____
	-safety belts and lifelines	_____	_____
	-respiratory protection	_____	_____
4.	Are your work areas neat and orderly with properly stored materials and clear walkways? Good Housekeeping prevents accidents.	_____	_____
5.	Ladders inspected and in good condition?	_____	_____
6.	Do your scaffolds have sound footings, proper access? adequate platforms, guardrails and toeboards?	_____	_____
7.	Are tools and equipment in good condition with? required guards in place during use?	_____	_____
8.	Are flammable and combustible materials stored properly?	_____	_____
9.	Are your cords and leads in good condition and kept out of walkways?	_____	_____
10.	Are adequate precautions, such as barricades, signs? etc,. in place to protect people in area from hazards of your work?	_____	_____
11.	Do you have a HAZARD COMMUNICATION PROGRAM and MATERIAL SAFETY DATA SHEETS (MSDS) on site?	_____	_____
12.	Are your personnel properly trained/instructed on HAZCOM?	_____	_____

THIS CHECK LIST IS TO BE FILLED OUT AND RETURNED TO LAURA LI INDUSTRIES, LLC ON THE FIRST AND FIFTEEN OF EACH MONTH

APPENDIX 2
ACTIVITY/TASK HAZARD ANALYSIS

UNDER ATTACHMENT

SECTION A

LAURA LI INDUSTRIES, LLC
POLICY PROHIBITING DISCRIMINATION & HARASSMENT IN THE WORKPLACE

POLICY STATEMENT

LAURA LI INDUSTRIES, LLC is committed to providing its employees with a work environment that is free of discrimination, including harassment, based on any legally protected status. Accordingly, Laura Li Industries, LLC expressly prohibits any form of unlawful discrimination and harassment against any Laura Li Industries, LLC employee by anyone, including managers, co-workers, vendors and customers.

This policy applies to all Laura Li Industries, LLC employees. Every Laura Li Industries, LLC employee must avoid any conduct that could be reasonably interpreted as conduct prohibited by this policy. In addition, every employee should endeavor to protect other employees from unlawful discrimination and harassment and maintain a work environment free from unlawful harassment or intimidation.

PROHIBITED CONDUCT

Conduct prohibited by this policy includes any verbal or physical conduct that could reasonably be perceived as denigrating or showing hostility toward an individual because of the individual's race, color, religion, gender, national origin, age, disability, or other status protected by law, or because of the protected status of the individual's relatives, friends, or associates. Harassing conduct prohibited by this policy includes, but is not limited to:

a) Epithets, slurs, negative stereotyping, or intimidating acts that are based on an individual's protected status, and,

b) Written or graphic material circulated or posted within the workplace that shows hostility toward an individual because of his or her protected status.

SEXUAL HARASSMENTSEXUAL HARASSMENT

Sexual harassment, according to the Equal Employment Opportunity Commission, and for purposes of this policy, consists of unwelcome sexual advances, requests for sexual favors or other verbal or physical acts of a sexual or sex-based nature, where:

a) Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment; or

b) An employment decision affecting an employee is based on that individual's acceptance or rejection of such conduct; or

c) If such conduct interferes with an individual's work performance or creates an intimidating, hostile or offensive working environment.

Sexual harassment is not limited to explicit demands for sexual favors. It refers to behavior that is not welcome, that is personally offensive, that fails to respect the rights of others, that lowers morale or interferes with work effectiveness. Sexual harassment may take various forms, including the following:

a) VERBAL – Sexual innuendoes, suggestive comments, teasing and jokes of a sexual nature, sexual advances or propositions, repeated offensive sexual flirtations, sexually degrading words about an individual, graphic verbal commentary about an individual's body, sexually-oriented language and threats.

b) NON-VERBAL – Displaying or circulating in the workplace obscene or sexually suggestive objects, pictures, or graphic commentaries, leering, whistling and obscene gestures.

c) PHYSICAL – Unwelcome physical contact, including touching, pinching, brushing the body and other types of coerced or offensive sexual activity or physical contact.

PROCEDURES

Laura Li Industries, LLC encourages individuals who believe they are being harassed to firmly and promptly notify the offender that his or her behavior is unwelcome. Additionally, any Laura Li Industries, LLC employee who has witnessed or experienced any conduct which he or she believes to be inconsistent with this policy, has a responsibility and an obligation to report that conduct promptly to his/her immediate supervisor.

All reports of conduct inconsistent with this policy will be promptly and thoroughly investigated. The investigation will include such fact-finding procedures as are deemed necessary including interviews of the complainant, the person accused, and any other person who may have information regarding the alleged discrimination or harassment.

DISCIPLINE/SANCTIONS

Any employee found to have engaged in conduct that violates this policy will be subject to discipline. The disciplinary action taken with respect to each violation will be determined in accordance with the seriousness of the particular offense and may include written warnings, suspension, demotion or discharge.

Laura Li Industries, LLC has the right to impose any sanction or combination of sanctions to deal with the conduct up to and including termination of employment. Laura Li Industries, LLC will advise the complaining part that corrective action has been taken.

Where a hostile work environment has been found to exist, Laura Li Industries, LLC will take reasonable steps to eliminate the conduct creating such an environment.

Employees may also be subject to discipline for inappropriate conduct established during the investigation of a report made under this policy, even if the conduct does not constitute unlawful harassment or violation of this policy.

a) Should either the complainant or alleged offender be dissatisfied with the findings or actions resulting from an allegation or harassment, that individual may further discuss the issues with the E.E.O.C. Additionally, the dissatisfied individual has the right to appeal the decision by submitting his/her written comments in a timely manner to Laura Etre, (listed below) who will render a final decision.

PROTECTION AGAINST RETALIATION

Any employee who reports harassment, registers a complaint pursuant to this policy or participates in an investigation of harassment shall be protected from any form of retaliation. Retaliation is a serious violation of this policy and should be reported immediately.

CONFIDENTIALITY

Laura Li Industries, LLC will endeavor to keep all matters related to investigations conducted under this policy confidential, including statements given by employees. However, no employee can be guaranteed that his or her statement will never be disclosed, as information sometimes must be shared in order to further an investigation. Moreover, in the event of a lawsuit or an administrative proceeding, records and information maintained by Laura Li Industries, LLC and the complainant may not be considered privileged from disclosure.

POLICY TO BE POSTED

Laura Li Industries, LLC will post a copy of this Workplace Discrimination and Harassment Policy in a conspicuous place on the employee bulletin board.

ANY PERSON WHO BELIEVES HE/SHE HAS BEEN SEXUALLY HARASSED OR DISCRIMINATED AGAINST SHOULD CONTACT:
Laura Etre, OR ANY SUPERINTENDENT, OFFICER OR EXECUTIVE AT:

LAURA LI INDUSTRIES, LLC
PO Box 195
Purchase, NY 1077
(516)779-5937

Appendix E

Site-wide Inspection Form

1060 NORTH BROADWAY - NYS DEC SITE NO. V00687-3

SITE INSPECTION RECORD

General Information

Inspection No. ..... Inspected By: .....

Inspection Type: ☐ Annual ☐ Severe Weather ☐ Other .....

Date & Date of Inspection: ..... Time Begin: ..... Time End: .....

Weather Conditions: .....

Site Records Inspected & Reviewed?: ☐ Yes ☐ No

Evaluation of Engineering Controls (provide photo's of all components inspected as noted below)

A. Cover System

1.0 Shallow Slope Areas

1.1 Vegetative Surface Cover: Coverage: ☐ % Condition: ☐ Poor ☐ Fair ☐ Good

1.2 Soil Cap: 8" Clean Fill: Full Depth: ☐ Yes ☐ No Stable: ☐ Yes ☐ No

4" Top Soil: Full Depth: ☐ Yes ☐ No Stable: ☐ Yes ☐ No

1.3 Indicator Layer: Is Layer Exposed: ☐ Yes ☐ No

(describe repair as required): .....

2.0 Steep Side Slope Areas

2.1 Boulder Surface Cover: Full Depth: ☐ Yes ☐ No Stable: ☐ Yes ☐ No

(describe repair as required): .....

2.2 Indicator Layer: Is Layer Exposed: ☐ Yes ☐ No

(describe repair as required): .....

B. Stormwater Management System

1.0 Surface Drainage: Do grades conform to design/as-built conditions: ☐ Yes ☐ No

(describe repair as required): .....

2.0 Off-site Systems: Are off-site systems functioning correctly: ☐ Yes ☐ No

(describe repair as required): .....

C. Site Security System

1.0 Security Fence: Grade flush with base: ☐ Yes ☐ No Any Gaps: ☐ Yes ☐ No

(describe repair as required): .....

2.0 No Trespassing Signs: Are "No Trespassing" signs intact: ☐ Yes ☐ No

(describe repair as required): .....

Summary of Engineering Controls: The Site Engineering Controls referenced above:

Are in place: ☐ Yes ☐ No Performing properly: ☐ Yes ☐ No Are effective: ☐ Yes ☐ No

(describe repair as required): .....

Evaluation of Related Engineering Systems

Sanitary Sewers: Is system intact: ☐ Yes ☐ No Functioning: ☐ Yes ☐ No

(describe repair as required): .....

Evaluation of Institutional Controls

1.0 Is restrictive covenant in effect for the property: ☐ Yes ☐ No

2.0 Are site conditions indicative of a passive use: ☐ Yes ☐ No

(provide explanation as required): .....

1060 NORTH BROADWAY - NYS DEC SITE NO. V00687-3

SITE INSPECTION RECORD (continued)

Health and Safety

1.0 Is there any evidence of unauthorized site entry: ☐ Yes ☐ No

2.0 Is the site secure: ☐ Yes ☐ No

3.0 Is there any evidence of site disturbance: ☐ Yes ☐ No

(provide explanation as required): .....

.....

.....

Site Inspection Summary:

☐ The site is in compliance with applicable New York State Department of Environmental Conservation permits and schedules in the Site Operation and Maintenance Plan.

or

☐ The following activities must be performed for the site to be in compliance with applicable New York State Department of Environmental Conservation permits and schedules in the Site Operation and Maintenance Plan.

.....

.....

.....

.....

.....

.....

By: ..... **Date:** .....

Notes:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Appendix F

Final Design Plans

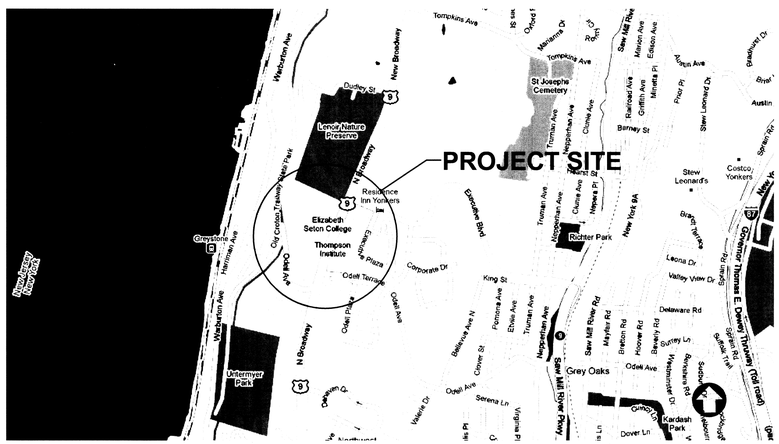
CITY OF YONKERS
WESTCHESTER COUNTY, NEW YORK

CONSTRUCTION DRAWINGS
FOR
REMEDIAL CLOSURE WORK PLAN FOR THE FILL AT SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY, YONKERS, NY 10701

LIST OF DRAWINGS:

COVER SHEET

1. GRADING, LAYOUT AND MATERIALS PLAN
2. CROSS SECTIONs A & B AND MISCELLANEOUS DETAILS
3. GEOWEB DETAILS
4. DRAINAGE STRUCTURES AND TRENCHING DETAILS
5. MISCELLANEOUS SITE DETAILS



LOCATION PLAN
NTS



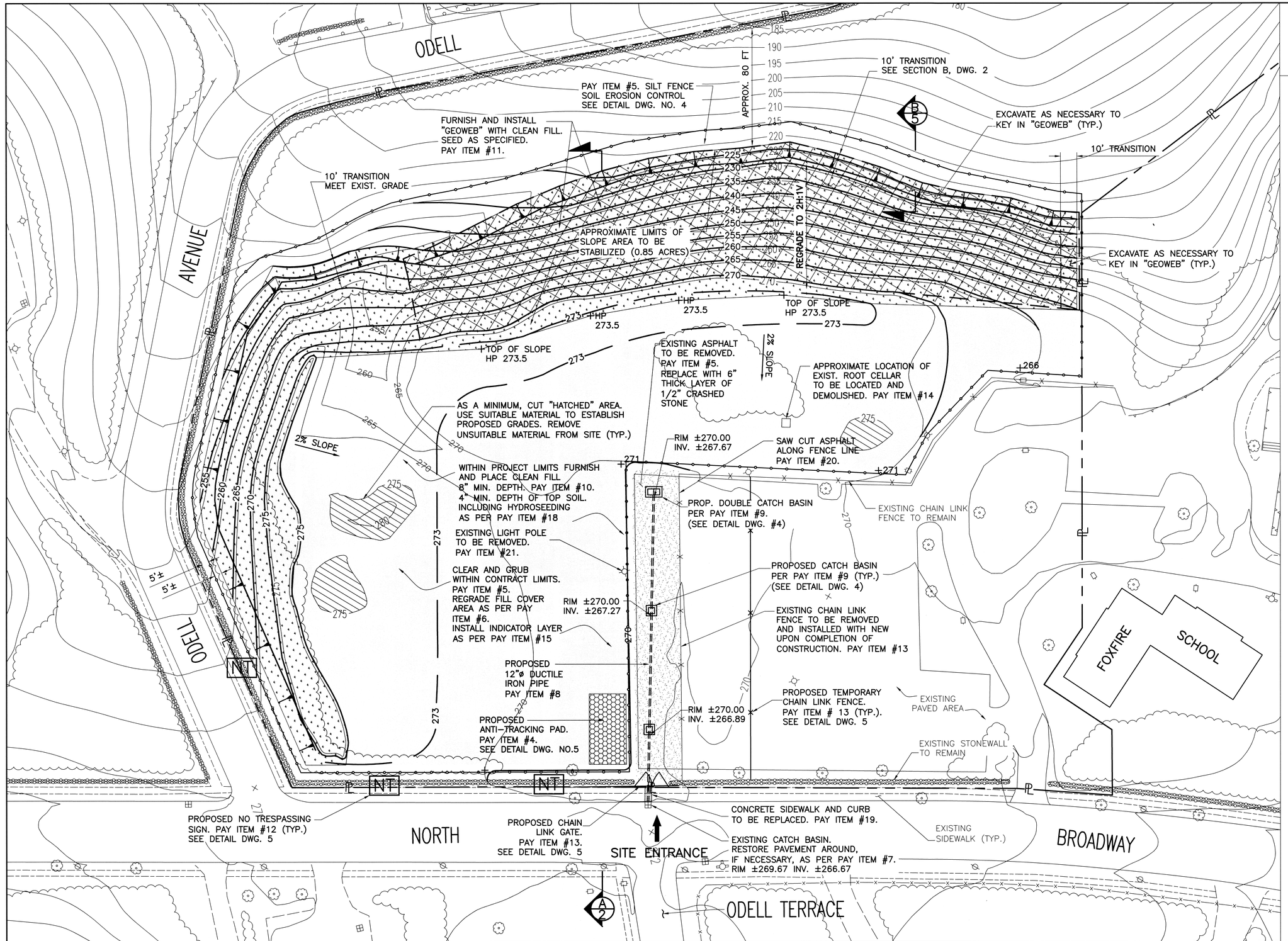
LKB **LOCKWOOD, KESSLER & BARTLETT, INC.**
CONSULTING ENGINEERS PLEASANTVILLE, N.Y.

PAUL LAPPANO, P.E., L.E.E.D. A.P.
VICE PRESIDENT OF ENVIRONMENTAL SERVICES
LOCKWOOD, KESSLER & BARTLETT, INC.

4/14/11
Date

WARNING – IT IS A VIOLATION OF THE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER/ARCHITECT TO ALTER AN ITEM ON THESE PLANS IN ANY WAY.

4341



LEGEND

- EXISTING STOCK PILE AREA
- 226 — EXIST. CONTOUR
- 226 — PROPOSED CONTOUR
- + 273.5 — PROPOSED SPOT GRADE
- PROPOSED "GEOWEB"
- EXISTING VEGETATED AREA
- PROPOSED 12" MIN. DEPTH COVER WITH UNDERLYING INDICATOR LAYER.
- PROPOSED SILT FENCE
- PROPOSED DRAINAGE PIPE
- PROPOSED CHAIN LINK FENCE
- EXISTING CHAIN LINK FENCE
- EXISTING STONE WALL
- + HP 265 — PROPOSED HIGH POINT
- — 273 — PROPOSED CONTOUR 273
- PROPERTY LINE
- PROPOSED SINGLE CATCH BASIN
- PROPOSED DOUBLE CATCH BASIN
- NT — NO TRESPASSING SIGN
- ANTI-TRACKING PAD
- AREA OF ASPHALT TO BE REMOVED APPROXIMATELY 720 SY
- INSTALLATION OF EROSION CONTROL BLANKET AREA, APPROX. 7000 SY

STATE OF NEW YORK — PAUL J. LIBRANDO — 073744 — LICENSED PROFESSIONAL ENGINEER — 9/14/11

NOTES:

1) PROVIDE FILTER FABRIC DROP INLET PROTECTION TO ALL CATCH BASINS ON SITE DURING CONSTRUCTION IN ACCORDING WITH PAY ITEM #4. (SEE DETAIL DWG. 5)

2) EXISTING GRADE SHALL BE MET FOR THE ENTIRE FILL COVER PERIMETER.

3) EXISTING CATCH BASIN ON NORTH BROADWAY, WHERE THE NEW 12" DRAINAGE PIPE WILL BE CONNECTED, TO BE CLEANED AS PER CONTRACT SPECIFICATIONS, PAY ITEM #9.

REV.	DATE	REMARKS
1	4/14/11	Revised to address Building Department comments

CLIENT
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

LOCATION
SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY

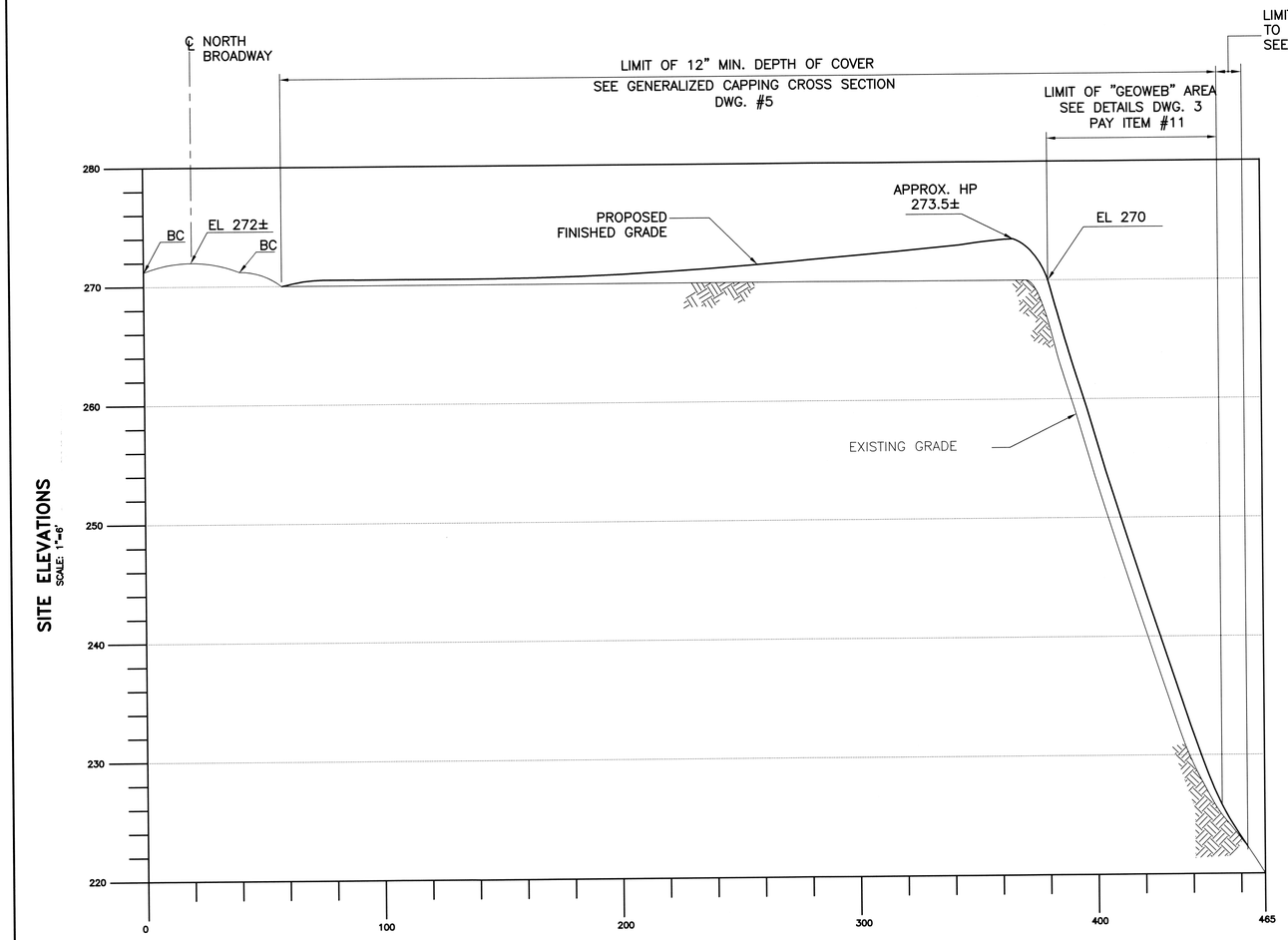
LOCKWOOD, KESSLER & BARTLETT, INC.
CONSULTING ENGINEERS SINCE 1889 SYOSSET, NEW YORK

PROJECT TITLE
REMEDIAL CLOSURE WORK PLAN

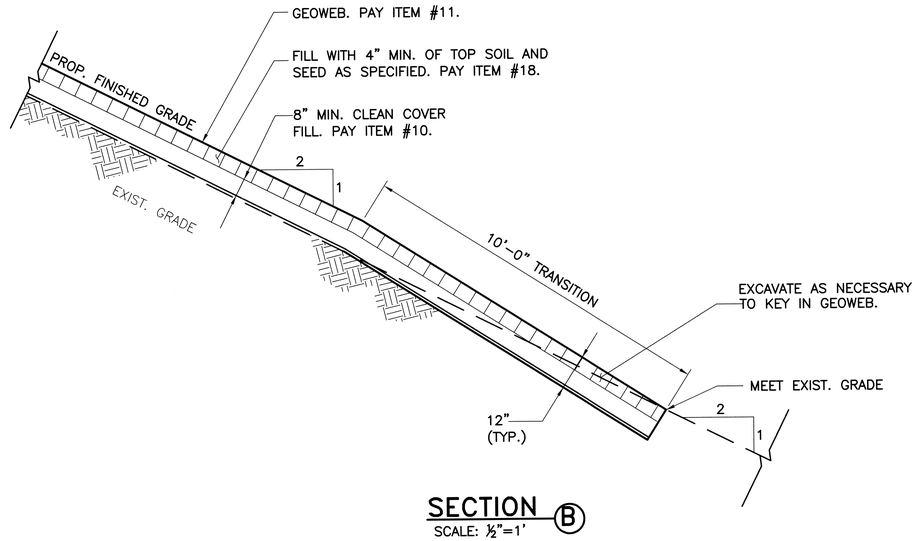
DRAWING TITLE
GRADING, LAYOUT AND MATERIALS PLAN

DESIGN BY:	N.C.
DRAWN BY:	N.C.
CHECKED BY:	P.L.
DATE:	DECEMBER 10, 2010
SCALE:	1"=30'
PROJECT NO.	4341-01
DRAWING NO.	1

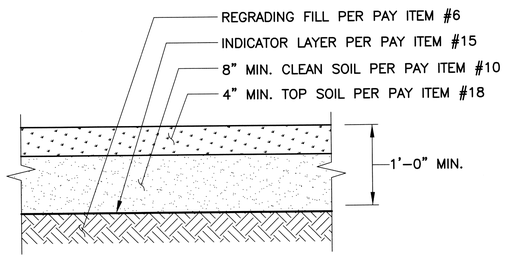
File Name: i:\projects\4341 01 rawp\eng-draft\work\dwg\final - january 2010\revised - 04-13-2011\4341_01_grading and layout and materials plan.dwg
Plot Date: 4/14/2011 2:29 PM
Plotted By: Callipo, Nazzareno



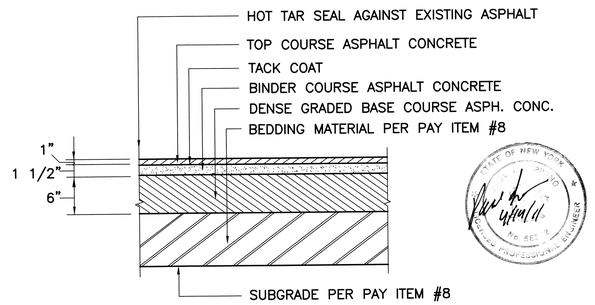
SECTION (A)
SCALE: AS SHOWN



SECTION (B)
SCALE: ½"=1'



GENERALIZED CAPPING CROSS-SECTION
N.T.S.



HOT MIX ASPHALT PAVEMENT RESTORATION
PAY ITEM #7
N.T.S.

REV.	DATE	REMARKS

CLIENT: CITY OF YONKERS
DEPARTMENT OF ENGINEERING

LOCATION: SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY

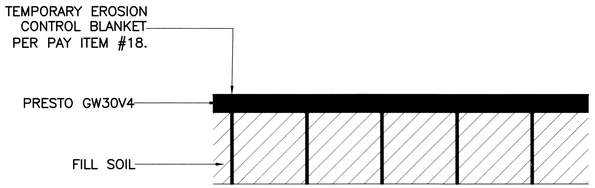
LOCKWOOD, KESSLER & BARTLETT, INC.
CONSULTING ENGINEERS SINCE 1889 SYOSSET, NEW YORK

PROJECT TITLE: REMEDIAL CLOSURE WORK PLAN

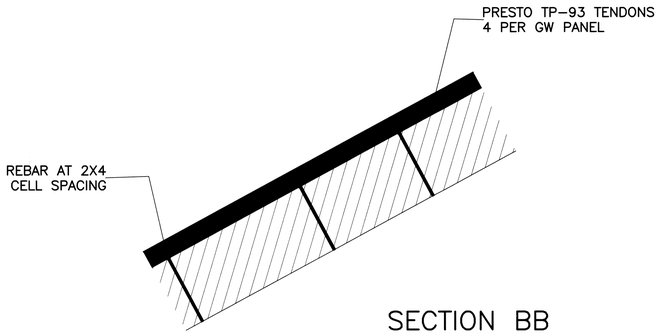
DRAWING TITLE: CROSS SECTION A & B AND MISCELLANEOUS DETAILS

DESIGN BY:	N.C.
DRAWN BY:	N.C.
CHECKED BY:	P.L.
DATE:	DECEMBER 10, 2010
SCALE:	AS NOTED
PROJECT NO.	4341-01
DRAWING NO.	2

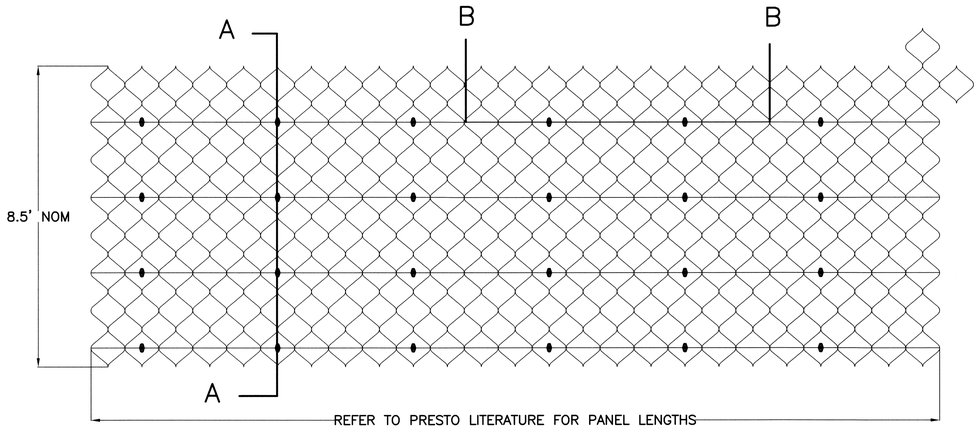
File Name: i:\projects\4341 01 rawp\eng-draft\work\dwg\final - january 2010\final - 12-10-2010\4341_02_cross section a.dwg
Plot Date: 4/14/2011 1:58 PM
Plotted By: Collins, Nazzareno



SECTION AA

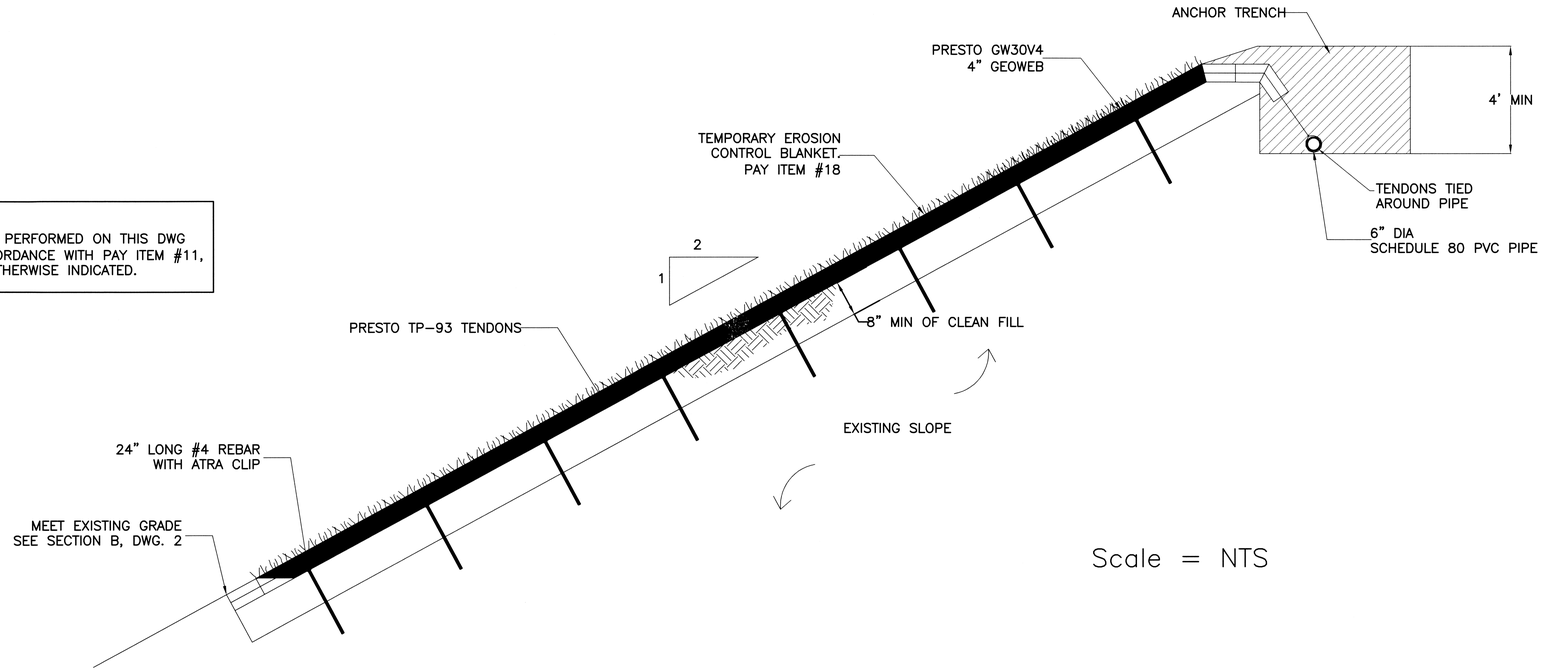


SECTION BB

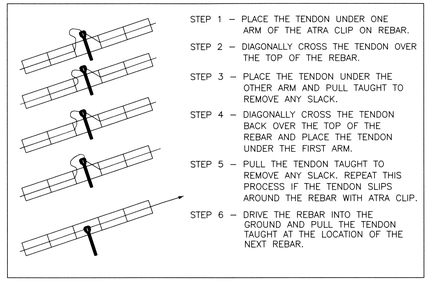


PLAN VIEW OF A SINGLE PANEL

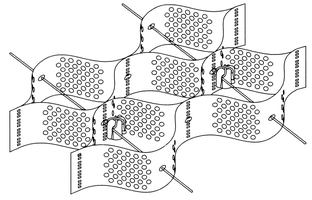
NOTES:
ALL WORK PERFORMED ON THIS DWG IS IN ACCORDANCE WITH PAY ITEM #11, UNLESS OTHERWISE INDICATED.



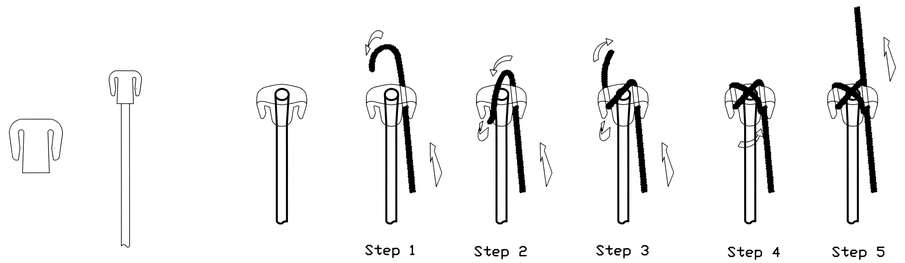
Scale = NTS



REBAR INSTALLATION WITH TENDONS



TYPICAL TENDON DETAIL



ATRA CLIP WITH REBAR

MOORE HITCH DETAIL

File Name: i:\projects\4341 01 rowp\eng-draft\work\dwg\final - january 2010\final - 12-10-2010\4341_03_geoweb details.dwg
Plot Date: 4/14/2011 1:58 PM
Plotted By: Calilao, Nazzareno

REV.	DATE	REMARKS

CLIENT
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

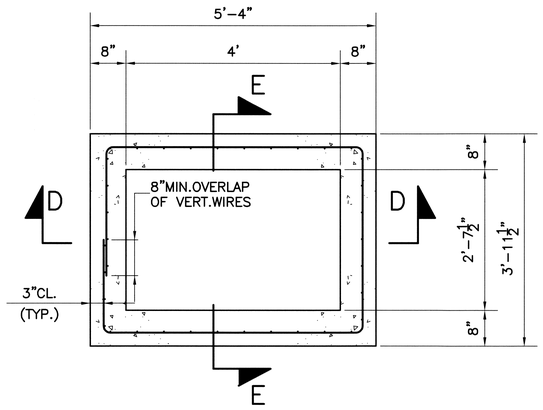
LOCATION
SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY

LOCKWOOD, KESSLER & BARTLETT, INC.
CONSULTING ENGINEERS SINCE 1889 SYOSSET, NEW YORK

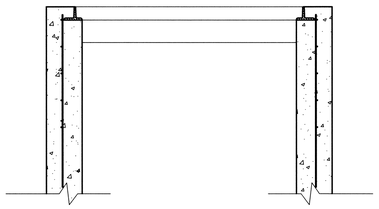
PROJECT TITLE
REMEDIAL CLOSURE WORK PLAN

DRAWING TITLE
GEOWEB DETAILS

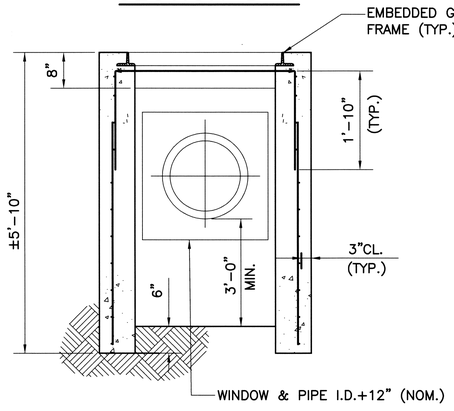
DESIGN BY:	N.C.
DRAWN BY:	N.C.
CHECKED BY:	P.L.
DATE:	DECEMBER 10, 2010
SCALE:	AS NOTED
PROJECT NO.	4341-01
DRAWING NO.	3



PLAN



SECTION D–D



SECTION E–E

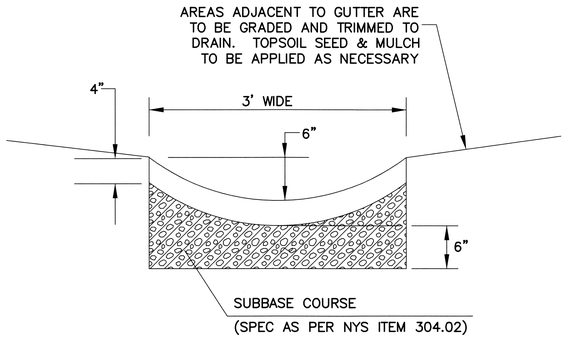
REINFORCED CONCRETE CATCH BASIN
PAY ITEM #9

2 DETAIL
N.T.S.

NOTES:

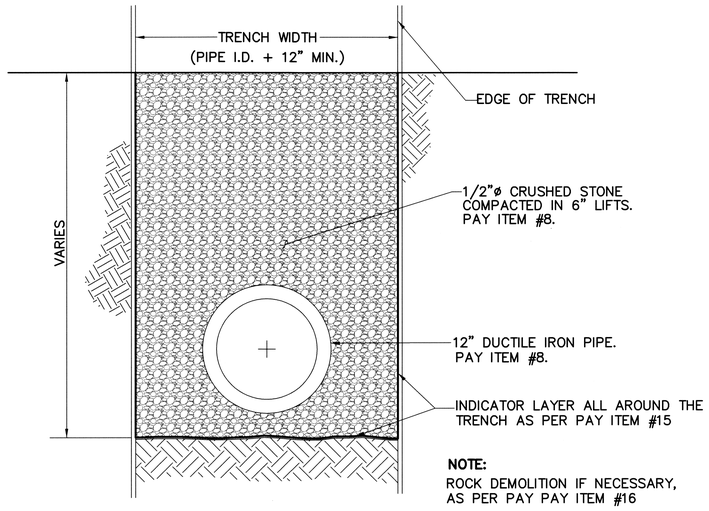
1. REBARS f =40.000 p.s.i., A.S.T.M. A–615
2. W.W.M. 6"x6" f =60,000 p.s.i., A.S.T.M. A–185 PROVIDE 2" COVER AT ENDS OF WIRE, 1" RADIUS BENDS AT CORNERS
3. 3000 PSI CONCRETE AT 28 DAYS. PAY ITEM # 9
4. WINDOW TO BE CAST IN STRUCTURE AS REQUIRED. KNOCK–OUT PANELS WILL NOT BE PERMITTED.
5. GRATE TO BE NEENAH GRATES MODEL #R–3574–2Q OR EQUAL. PAY ITEM #9

NOTE:
ASPHALT CONCRETE GUTTER TO BE BUILT ALONG ODELL AVENUE. TOTAL LENGTH APPOX. 600 LF.



ASPHALT CONCRETE GUTTER (SPECIFICATION AS PER NYS DOT ITEM 624.020101)

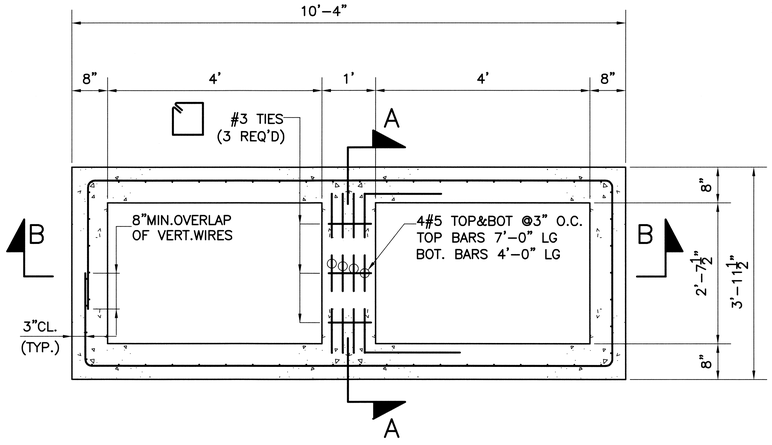
N.T.S.



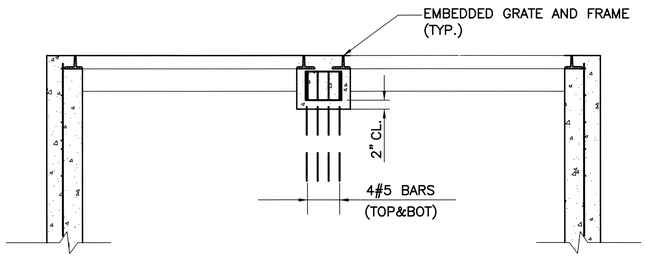
NOTE:
ROCK DEMOLITION IF NECESSARY, AS PER PAY PAY ITEM #16

TYPICAL TRENCH SECTION
STORM DRAINS

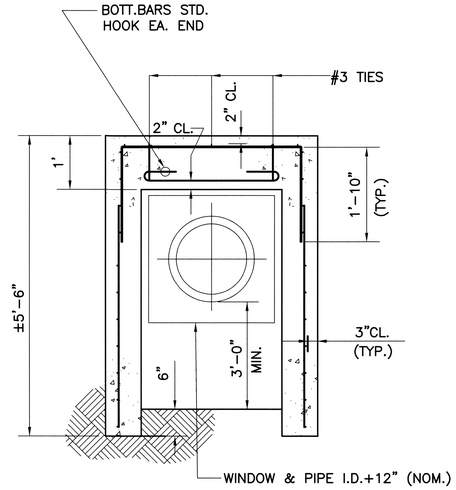
N.T.S.



PLAN



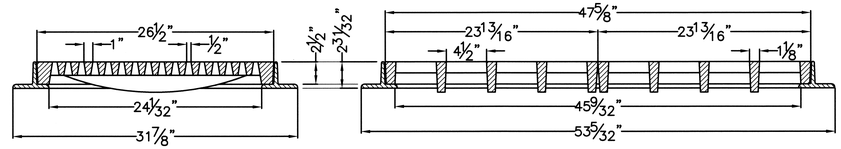
SECTION B–B



SECTION A–A

REINFORCED CONCRETE DOUBLE CATCH BASIN
PAY ITEM #9

1 DETAIL
N.T.S.



NEW HEAVY DUTY INLET FRAME AND DOUBLE GRATE DETAILS
PAY ITEM #9

3 DETAIL
N.T.S.

STATE OF NEW YORK — EXPIRES — 4/19/14 — P.E. — PROFESSIONAL ENGINEER

REV.	DATE	REMARKS	BY
1	7/27/2010	INDICATOR LAYER SHOWN IN TYPICAL TRENCH SECTION	N.C.

CLIENT: CITY OF YONKERS
DEPARTMENT OF ENGINEERING

LOCATION: SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY
YONKERS, NEW YORK

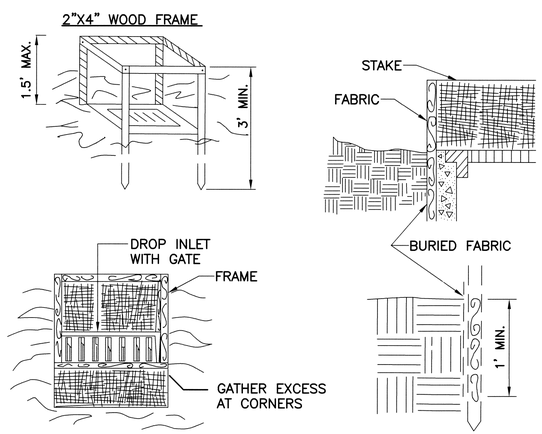
LOCKWOOD, KESSLER & BARTLETT, INC.
CONSULTING ENGINEERS SINCE 1889 SYOSSET, NEW YORK

PROJECT TITLE: REMEDIAL CLOSURE WORK PLAN

DRAWING TITLE: DRAINAGE STRUCTURES AND TRENCHING DETAILS

DESIGN BY:	N.C.
DRAWN BY:	N.C.
CHECKED BY:	P.L.
DATE:	DECEMBER 10, 2010
SCALE:	N.T.S.
PROJECT NO.	4341–01
DRAWING NO.	4

File Name: i:\projects\4341 01 rawp\eng-draft\work\dwg\final - january 2010\final - 12-10-2010\4341_04_drainage structures and trenching details.dwg
Plot Date: 4/4/2013 1:58 PM
Plotted By: Collins, Nazzareno



SYMBOL

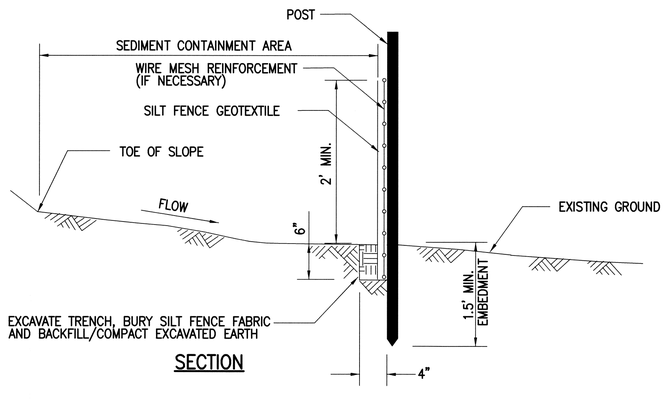
CONSTRUCTION SPECIFICATIONS:

1. FILTER FABRIC SHALL HAVE AN EOS OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

FILTER FABRIC DROP INLET PROTECTION
PAY ITEM #4

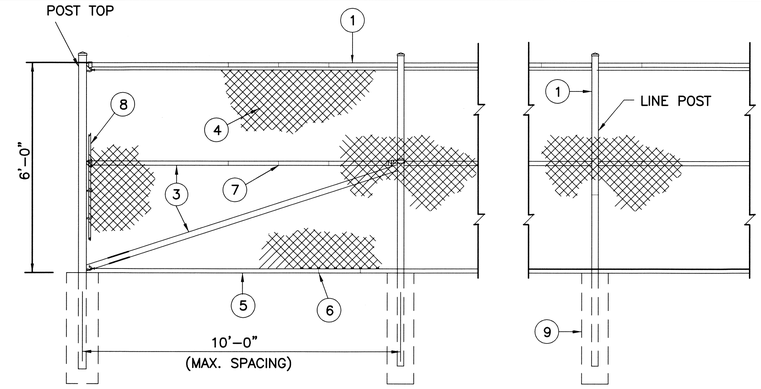
N.T.S.



SECTION

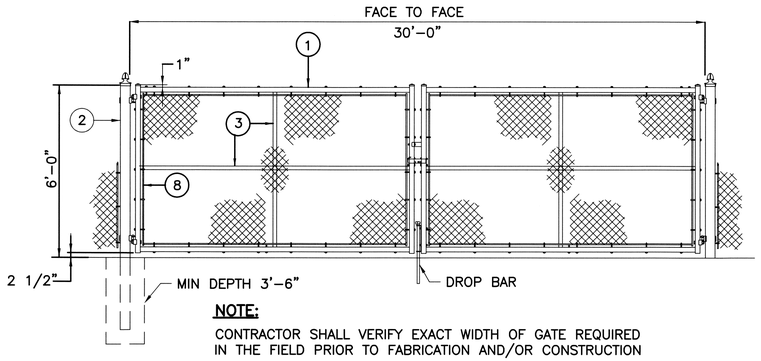
SILT FENCE – TEMPORARY
PAY ITEM #4

N.T.S.



FENCE ELEVATION
PAY ITEM #13

N.T.S



NOTE:
CONTRACTOR SHALL VERIFY EXACT WIDTH OF GATE REQUIRED IN THE FIELD PRIOR TO FABRICATION AND/OR CONSTRUCTION

GATE ELEVATION – DOUBLE SWING GATE
PAY ITEM #13

N.T.S.

FENCE KEY

GENERAL ALL MATERIALS AND GALVANIZING AND PVC COATING WHEN REQUIRED, SHALL CONFORM TO THE SPECIFICATIONS FOR THESE ITEMS. ALL CONCRETE TO BE CLASS B CONCRETE.

(1) 2" O.D. SEAMLESS STEEL PIPE 2.72 LB. PER L.F. LINE POST AND GATE MEMBERS. LINE POST TO BE SPACED EQUIDISTANT ON 10 FOOT MAXIMUM CENTERS.

(2) STANDARD 4" O.D. SEAMLESS STEEL PIPE NOT LESS THAN 9.1 LB. PER L.F. TERMINAL, CORNER, ANGLE, PULL, INTERMEDIATE POSTS, AND GATE POSTS 4' WIDE AND UNDER. 6–5/8" O.D. SEAMLESS STEEL PIPE 18.97 LB. PER L.F. FOR GATE POSTS WHEN GATES ARE OVER 4' WIDE.

(3) STANDARD 1–5/8" O.D. SEAMLESS STEEL PIPE 2.27 LB. PER L.F. TOP AND BRACE RAILS. BRACE RAILS TO BE POSITIONED AS SHOWN UNLESS OTHERWISE ORDERED BY ENGINEER.

(4) FENCE FABRIC #6 GAUGE OPEN HEARTH STEEL WIRE MINIMUM TENSILE STRENGTH 70,000 LBS. PER SQ. IN. HELICALLY WOVEN IN 2" CHAIN LINK DIAMOND PATTERN.

(5) TENSION WIRE #7 GAUGE STEEL WIRE.

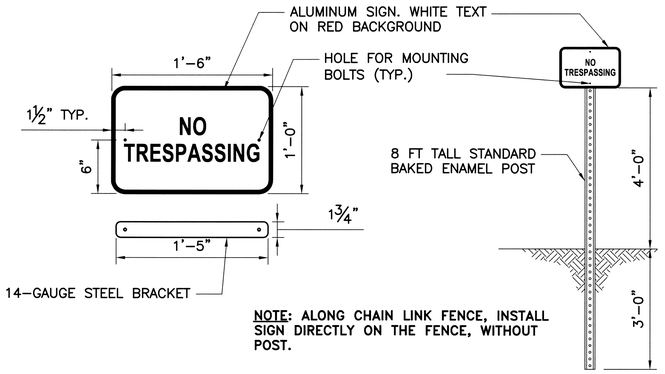
(6) HOG RINGS #11 GAUGE STEEL WIRE SPACED AT 24" INTERVALS.

(7) 1–9" GAUGE STEEL WIRE FABRIC TIES SPACED AT INTERVALS OF 18" ON RAILS AND 12" ON LINE POSTS.

(8) STEEL TENSION BAR 1/4" x 3/4" WITH BANDS SPACED AT INTERVALS OF 15" MAXIMUM TO BE PROVIDED ON VERTICAL MEMBERS OF GATE FRAMES AND ALL FENCE POSTS EXCEPT LINE POST.

(9) CONCRETE FOOTING – 3500 PSI CONCRETE AT 28 DAYS.

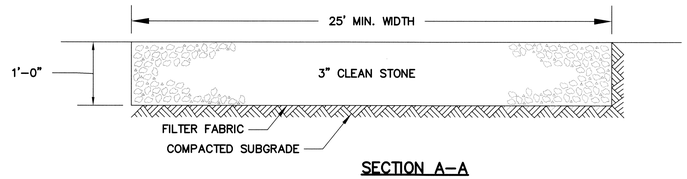
(10) FOR GATE STOPS, LOCKING DEVICE AND PADLOCK, SEE SPECIFICATIONS.



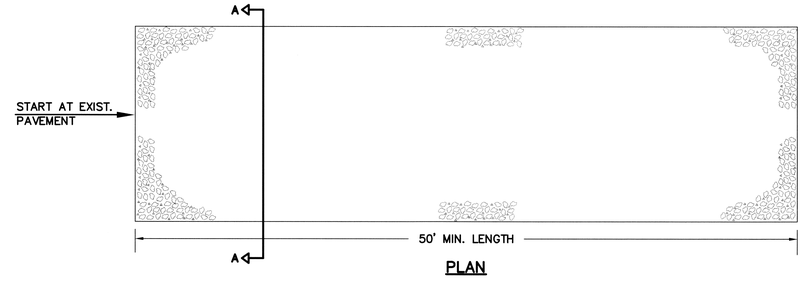
NOTE: ALONG CHAIN LINK FENCE, INSTALL SIGN DIRECTLY ON THE FENCE, WITHOUT POST.

"NO TRESPASSING" SIGN
PAY ITEM #12

N.T.S.



SECTION A–A



PLAN

INSTALLATION NOTES

1. STONE SIZE – USE 3" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGHT – AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – 25 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCUR.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ANTI–TRACKING PAD
PAY ITEM #4

N.T.S.

REV.	DATE	REMARKS	BY

CLIENT
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

LOCATION
SECTION 3, BLOCK 3515, LOT 115
1061 NORTH BROADWAY
YONKERS, NEW YORK

LOCKWOOD, KESSLER & BARTLETT, INC.
CONSULTING ENGINEERS SINCE 1889 SYOSSET, NEW YORK

PROJECT TITLE
REMEDIAL CLOSURE WORK PLAN

DRAWING TITLE
MISCELLANEOUS SITE DETAILS

DESIGN BY:	N.C.
DRAWN BY:	N.C.
CHECKED BY:	P.L.
DATE:	DECEMBER 10, 2010
SCALE:	N.T.S.
PROJECT NO.	4341–01
DRAWING NO.	5

File Name: i:\projects\4341 01 rawp\eng-draft work\dwg\final - january 2010\final - 12-10-2010\4341_05_miscellaneous site details.dwg
Plot Date: 12/10/2010 1:58 PM
Plotted By: Calliope Nazzarano

Appendix G

Site Investigation Report

SITE INVESTIGATION REPORT

FOR THE

FILL IN THE PARKING LOT AT THE SOUTH END OF IONA COLLEGE'S ELIZABETH SETON CAMPUS 1061 NORTH BROADWAY, YONKERS, NY 10701

(Site # V-00687-3, Index # W3-0981-12)

Prepared By:

Lockwood, Kessler & Bartlett, Inc.
Consulting Engineers
1 Aerial Way
Syosset, NY 11791

Prepared For:

Iona College
c/o
Dougherty & Associates
450 Seventh Avenue, Suite 1308
New York, NY 10123

Submitted To:

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
200 White Plains Road – 5th Floor
Tarrytown, NY 10591

May 3, 2004 (Revised June 29, 2004)

SITE INVESTIGATION REPORT

FOR THE

FILL IN THE PARKING LOT AT THE SOUTH END OF IONA COLLEGE'S ELIZABETH SETON CAMPUS 1061 NORTH BROADWAY, YONKERS, NY 10701

(Site # V-00687-3, Index # W3-0981-12)

Prepared By:

Lockwood, Kessler & Bartlett, Inc.
Consulting Engineers
1 Aerial Way
Syosset, NY 11791

Prepared For:

Iona College
c/o
Dougherty & Associates
450 Seventh Avenue, Suite 1308
New York, NY 10123

Submitted To:

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
200 White Plains Road – 5th Floor
Tarrytown, NY 10591

May 3, 2004 (Revised June 29, 2004)

ENGINEER'S CERTIFICATION



TABLE OF CONTENTS

Section Number and Title		Page Number
1.0	Introduction	1
2.0	Site Background Information and Current Conditions	1
3.0	Results of Fill Characterization	4
4.0	Results of Fill Sampling and Analysis	5
4.1	Results of Total Organic Carbon (TOC) Analyses	7
4.2	Results of Volatile Organic Compound (VOC) Analyses	7
4.3	Results of Semivolatile Organic Compound (SVOC) Analyses	8
4.4	Results of Pesticide Analyses	12
4.5	Results of Polychlorinated Biphenyl (PCB) Analyses	13
4.6	Results of Inorganic Parameter (Metals) Analyses	13
5.0	Conclusions and Recommendations	16
6.0	Conceptual Site Remediation Plan	17

Figure Number and Title	Follows Page Number
1. SITE LOCATION MAP	1
2. CURRENT AERIAL PHOTO OF SITE	2
3. SITE PLAN	2
4. TEST PIT LOCATIONS	4
5. SURFACE-SOIL SAMPLE LOCATIONS	5

Table Number and Title	Follows Page Number
1. Summary of Total Organic Carbon (TOC) Results for Soil Samples	7
2. Summary of Volatile Organic Compound Results for Surface-Soil Samples	7
3. Summary of Volatile Organic Compound Results for Subsurface-Soil Samples	7
4. Summary of Semivolatile Organic Compound Results for Surface-Soil Samples	8
5. Summary of Semivolatile Organic Compound Results for Subsurface-Soil Samples	8
6. Summary of Leachable PAH Results for Subsurface-Soil Samples	10
7. Summary of Carcinogenic Polycyclic Aromatic Hydrocarbon Results for Soil Samples	11

TABLE OF CONTENTS (Cont.)

Table Number and Title	Follows Page Number
8. Comparison of cPAH Results to Illinois EPA and Massachusetts DEP Background Levels.	11
9. Summary of Pesticide Results for Surface-Soil Samples	12
10. Summary of Pesticide Results for Subsurface-Soil Samples	12
11. Summary of Polychlorinated Biphenyl (PCB) Results for Surface-Soil Samples	13
12. Summary of Inorganic Parameter (Metals) for Surface-Soil Samples	13
13. Summary of Inorganic Parameter (Metals) for Subsurface-Soil Samples	13

List of Appendices

A. NYSDEC March 18, 2004 Letter Approving Revised Work Plan and NYSDEC June 17, 2004 Letter Commenting on May 3, 2004 Site Investigation Report.

B. INDEPENTDENT TESTING LABORATORY, INC.'S PROPOSED TEST BORING LOCATION PLAN.

C. LKB Letter-Style Report Dated November 7, 2002 Reviewing 1990 Dunn Geoscience Fill Analysis Report.

D. LKB Letter-Style Report Dated September 18, 2003 Reviewing Additional Information for Elizabeth Seton Campus of Iona College, Yonkers, NY.

E. PCB Test Results From 1992 Studies.

F. Representative Site Photographs.

G. Test Pit Logs and Photographs.

H. STL-Connecticut Analytical Reports.

I. Documents Containing Information on Background Concentrations of Metals and/or Polycyclic Aromatic Hydrocarbons.

J. Remedial Action Selection Report.

K. Qualitative Exposure Assessment.

1.0 Introduction

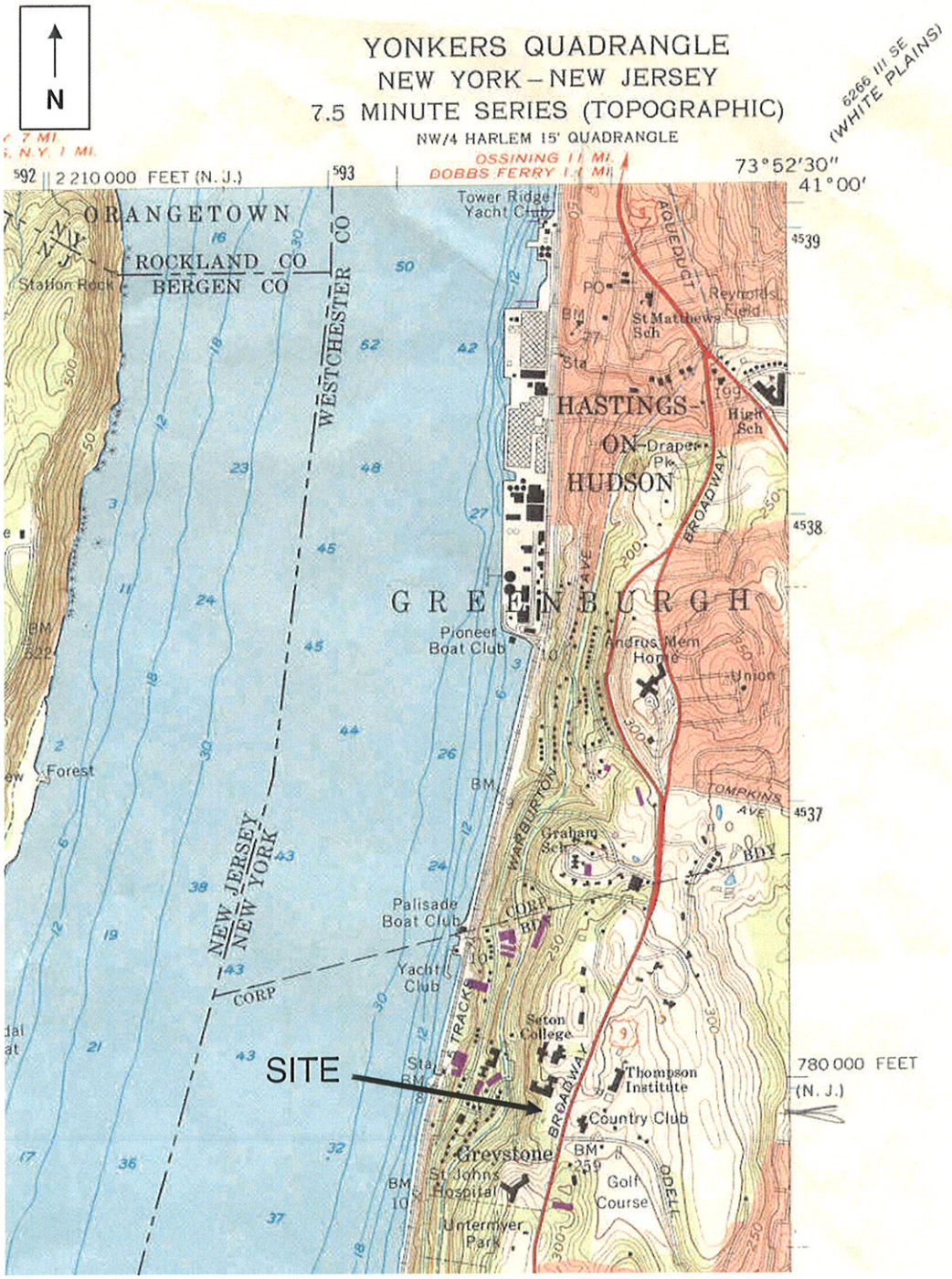
This revised Site Investigation Report (Report) was prepared by Lockwood, Kessler & Bartlett, Inc. (LKB) for Dougherty & Associates and Iona College. It presents the results of the site investigation performed by LKB on March 26 and 29, 2004, and the additional work performed on June 17, 2004 at the request of the New York State Department of Environmental Conservation (NYSDEC) Region 3. The purpose of the site investigation and additional work was to characterize the fill material located in the vicinity of the parking lot at the south end of Iona College's Elizabeth Seton Campus in Yonkers, New York (Site). The location of the Site is shown in Figure 1. The fill was brought to the Site to raise the grade and extend the parking lot.

The Site consists of an obvious and visible main fill area that borders the existing parking lot on the west and southwest, as well as an unpaved area located south of the existing parking lot. Based on observations made during the site investigation, the main fill area contains the majority of the fill at the Site. However, a thin surface layer of fill and several above-grade piles of fill are present in the unpaved area located south of the existing parking lot. These two areas were investigated during the site investigation performed on March 26 and 29, 2004. During that site investigation, a berm constructed of fill was discovered along a portion of the south boundary of the Site. The fill berm was investigated during the additional work performed on June 17, 2004.

This Report is submitted pursuant to a Voluntary Cleanup Agreement (VCA) with the NYSDEC Region 3 under the State's Voluntary Cleanup Program (VCP). The site investigation was performed pursuant to the Site Investigation Work Plan (Work Plan) dated January 8, 2004 and revised February 26, 2004. The revised Work Plan was approved by the NYSDEC in a letter dated March 18, 2004. The revisions in this report were made pursuant to a comment letter from the NYSDEC dated June 16, 2004, on the Site Investigation Report dated May 3, 2004. Copies of these letters are provided in Appendix A. The additional work performed on June 17, 2004 was performed pursuant to Item 2 of the comment letter and followed the methods and procedures in the approved Work Plan.

2.0 Site Background Information and Current Conditions

As shown in Figure 1, the Site is situated at the top of the slope that forms the east bank of the Hudson River. Note that the elevation of the Site is approximately 250 feet higher than that of the river, and that the Site is located approximately 1,300 feet from the river. Also note that the topographic contours of the Site shown in this figure are similar to existing spot elevations in the unpaved area (see Appendix B), which indicates that the land surface elevation in the unpaved area has not changed appreciably since 1966, the date of the USGS map. Moreover, review of Figure 1 indicates that the steep western slope of the Site area is a pre-existing feature. Similarly steep western slopes are present at adjacent properties and are the norm for this area.



SCALE: 1 INCH = 2,000 FEET

FIGURE 1

SITE LOCATION MAP

LKB

Review of the geologic map of this area, specifically the New York State Museum and Science Service Map and Chart Series No. 15 Lower Hudson Sheet, indicates that the bedrock underlying the Site is the Fordham Gneiss, a type of regional metamorphic rock comprised of quartz, feldspar and various dark minerals (e.g., biotite).

Review of the surficial geologic map of this area, specifically the New York State Museum – Geological Survey Map and Chart Series #40 Lower Hudson Sheet, indicates that the surficial geology of this area is characterized by discontinuous layer of glacial till of variable thickness. The till was deposited beneath glacial ice and consists of a compact, relatively impermeable mixture of unconsolidated materials that can range in grain size from clay to boulders. Bedrock outcrops where the till is absent.

Consistent with the geology of the area, the occurrence of ground water in the site area is limited as neither the gneiss bedrock nor the overlying glacial till is known to produce appreciable amounts of ground water. Specifically, United States Geological Survey Bulletin GW-35, titled "The Ground Water Resources of Westchester County, New York", states that wells screened in the gneiss produce "small to moderate quantities of water" and that wells screened in the till "generally yield less than 5 gallons of water per minute". Moreover, based on the fact that no groundwater seeps were observed along the steep western slope of the Site, the height of the slope, and the fact that bedrock outcrops are present along the portion of Odell Avenue bordering the Site to the west, the depth to ground water at the Site is at least 60 feet and the water table is located in bedrock. Moreover, it should be noted that ground water in the site area is not used as a potable water supply. Specifically, according to the City of Yonkers 2003 Annual Water Quality Report, the entire supply for the City of Yonkers is provided by the New York City Reservoir System.

A current aerial photo of the Site is provided in Figure 2. A Site Plan, based on the current aerial photo and field observations, is provided in Figure 3. The lateral extent of the Site is indicated in these figures by a dashed line labeled "SITE BOUNDARY". The obvious and visible main fill area is evident in Figure 2 as the well-vegetated oval-shaped area bordering the parking lot on the west and southwest. A separate dashed line indicates the approximate boundary of this area. The main fill area begins at the edge of the existing parking lot and extends to the west and south, out onto the pre-existing slope. The approximate lateral dimensions of the main fill area are 350 feet long by 150 feet wide. Assuming that this fill area has a wedge-shaped distribution and a maximum thickness of ten feet, the volume of the fill in this area is estimated to be approximately 10,000 cubic yards. Also note in Figure 2 that the unpaved area bordering the existing parking lot to the south appears to be undisturbed. However, during the site investigation, a thin surface layer of fill and several above-grade piles of fill material were noted in this area. The volume of fill in the unpaved area is estimated to be 2,500 cubic yards. This estimate is based on an average fill thickness of two feet over this area of approximately 30,625 square feet, and an additional 250 cubic yards for the above-grade fill piles. A berm constructed of the same fill is also present along a portion of the south boundary of the Site. Another dashed line shows the location of the fill berm. The total volume of fill comprising the berm is estimated to be 4,000 cubic

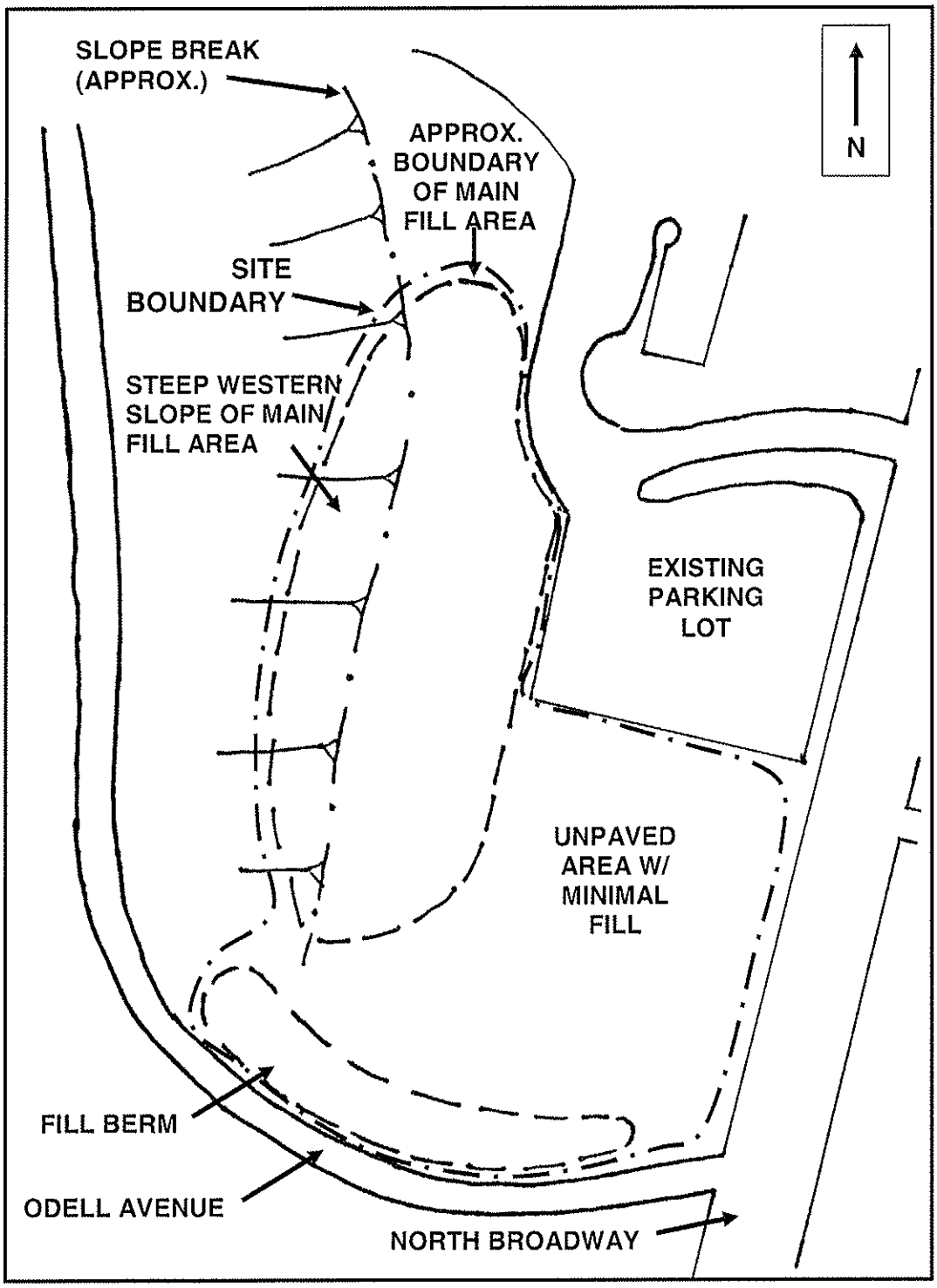


APPROXIMATE SCALE: 1 INCH = 175 FEET

FIGURE 2

CURRENT AERIAL PHOTO OF SITE

LKB



APPROXIMATE SCALE: 1 INCH = 90 FEET

FIGURE 3

SITE PLAN

LKB

yards. This estimate assumes that the average thickness of the berm is ten feet, the same as the main fill area. The total volume of fill at the Site is therefore estimated to be 16,500 cubic yards.

According to available information, the fill was brought to the Site around 1990 for the purpose of raising the grade to extend the existing parking lot. The total volume of fill estimated to be required for this project was 36,000 cubic yards. However, the work was halted by the College due to concerns about the quality of the fill before all of the fill could be delivered.

In December 1990, Dunn Geoscience collected and analyzed samples of the fill material at the Site. Their study concluded that there were no significant environmental concerns associated with the fill material. LKB concurs with their findings (see Appendix C), however, we note that their study appears to have addressed only a portion of the fill (2,800 cubic yards) that is currently estimated to be present at the Site.

In July 1992, additional sampling and analysis of the fill was performed by Stallone Testing Laboratories, Inc. and Independent Testing Laboratories, Inc. LKB's review of these findings determined that the majority of these results are TCLP data that cannot be directly compared to current NYSDEC requirements (see Appendix D). We note, however, that analyses were performed for total concentrations of polychlorinated biphenyls (PCBs) and that PCBs were not detected (see Appendix E). Based on these results, PCBs were not expected to be a concern for subsurface soil at the Site.

The Site is bordered on the north by the Foxfire School, on the east by North Broadway, and on the south and west by Odell Avenue. Faculty parking is located between the school and the Site. No private residences are located immediately adjacent to the Site. The approximate linear distances to the closest receptors are listed below:

- North: 140 feet to the Foxfire School;
- South: 125 feet to St. Johns Riverside Hospital;
- East: 350 feet to nearest residence; and
- West: 350 feet to nearest residence.

The Site is currently well vegetated, although several trees have died as a result of fill being placed around their bases. The steep western slope of the main fill area is stable. Fence and/or walls separate the Site from adjacent properties and roadways. Some representative photographs of the Site are provided in Appendix F.

The contemplated end use of the Site specified in the VCA is "Restricted Residential". This category was selected because of the four categories available under the VCP, it most closely matched the planned use of the Site as open space accessible to the public and was consistent with the anticipated level of remedial activities at the Site. Specifically, as per the May 2002 Draft Voluntary Cleanup Program Guide, the category of "Restricted Residential" is defined as "Residential uses such as homes, apartments, mobile home parks, dormitories, schools and day-care facilities are allowed but require

engineering and/or institutional controls for the use to be protective". This is the second most restrictive land use category under the VCP. The other three categories available under the VCP are "Unrestricted", "Restricted Commercial" and "Restricted Industrial". The most restrictive land use category of "Unrestricted" was not applicable to this Site because engineering and/or institutional controls were expected to be utilized. The other two less restrictive categories were not applicable to this Site because of the planned use of the Site as open space.

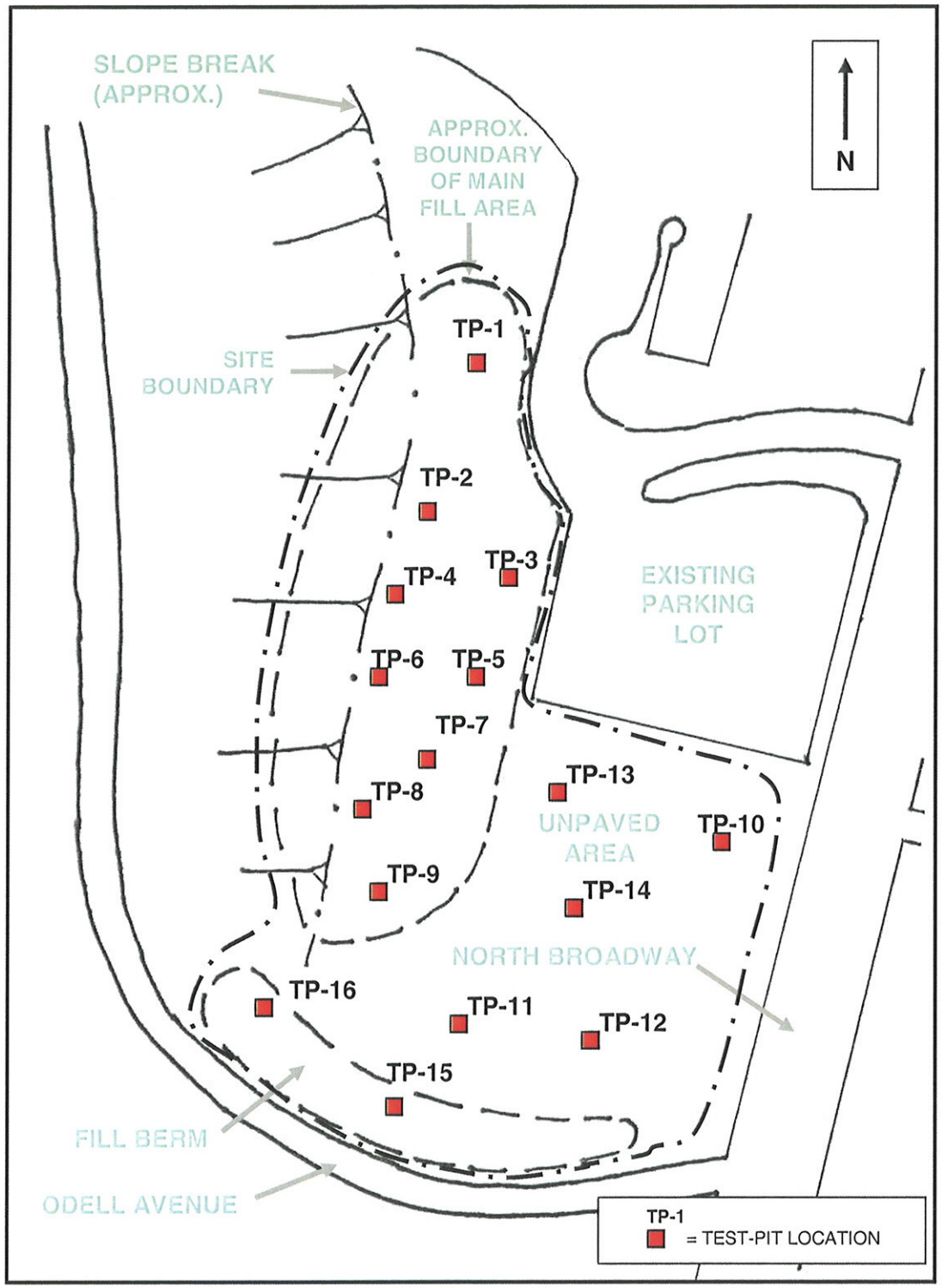
3.0 Results of Fill Characterization

The fill was characterized utilizing test pits, fill/soil sampling and analysis, and visual observation. Specifically, on March 26, 2004, a total of 14 test pits, designated TP-1 through TP-14, were made at the locations shown in Figure 4. As indicated in Figure 4, Test Pits 1 through 9 were made within the main fill area, and were uniformly spaced throughout the accessible portion of this area. Test Pits 10 through 14 were made in the unpaved area bordering the existing parking lot to the south, and confirmed that additional fill is present in this area. At the request of the NYSDEC, on June 17, 2004 two additional test pits, designated Test Pits TP-15 and TP-16, were made in the fill berm area. The existing parking lot pre-dates the fill in question; therefore no test pits were made in the parking lot. The primary purpose of the test pits was to confirm the presence/absence of fill, investigate its nature and depth, and collect samples for laboratory analysis. The lateral extent of the fill was estimated based on visual observation of terrain and vegetation patterns.

Iona College personnel, utilizing a backhoe, made the test pits under LKB's supervision. Where possible, the test pits penetrated the fill and reached undisturbed soil or bedrock. The excavated materials were placed next to each test pit to permit close examination, logging and sampling. The depths of the test pits ranged from one foot to seven feet. Test pit logs are provided in Appendix G. Photographs of Test Pit TP-1 through TP-15 are also provided in Appendix G. No photographs of Test Pit TP-16 were taken due to heavy rainfall that began shortly after this test pit was excavated.

The material from each test pit was screened for volatile organic compounds (VOCs), combustible gas (methane, CH_4) and hydrogen sulfide (H_2S) utilizing a RAE 2000, a Gascope Model 60 and a Jerome 631-X, respectively. VOCs and methane were not detected at any of the test pit locations, and H_2S was not detected above background concentrations (i.e., 5 to 10 parts per billion). In addition, a Community Air Monitoring Program was implemented during the test pit excavation as per the Work Plan. Specifically, in addition to the above test pit monitoring, downwind dust concentrations were monitored utilizing a DustTrak Model 8520 instrument equipped with a 10-micron filter and an environmental enclosure with an omni-directional sampling inlet. Dust levels downwind of the work area were negligible (i.e., <0.1 milligrams per cubic meter).

With the exception of one above-grade pile of fill that is comprised primarily of asphalt, the fill consists of a compact mixture of brown sandy soil, rock fragments, pieces of



APPROXIMATE SCALE: 1 INCH = 90 FEET

FIGURE 4

TEST PIT LOCATIONS

LKB

concrete, pieces of asphalt, bricks and some small pieces of ceramic tile. A small amount (less than one cubic yard) of a gray ash-like material was also noted at Test Pit TP-3, and a small piece of deformed metal was noted in Test Pit TP-15. No obviously processed wood was observed in the fill, although small amount of what appeared to be wood that had been buried with the fill was noted. The thickness of the fill ranged from approximately one to two feet at Test Pits TP-12, TP-13 and TP-14, where bedrock was encountered at shallow depth, to more than six feet at all of the other test pits except Test Pit TP-5. At Test Pit TP-5, 3.5 feet of fill overlying natural soil was observed. A thin water-bearing zone on top of the bedrock was observed at Test Pits TP-12, TP-13 and TP-14. Given the Site's setting on a steep hillside, this zone is expected to be discontinuous and seasonal.

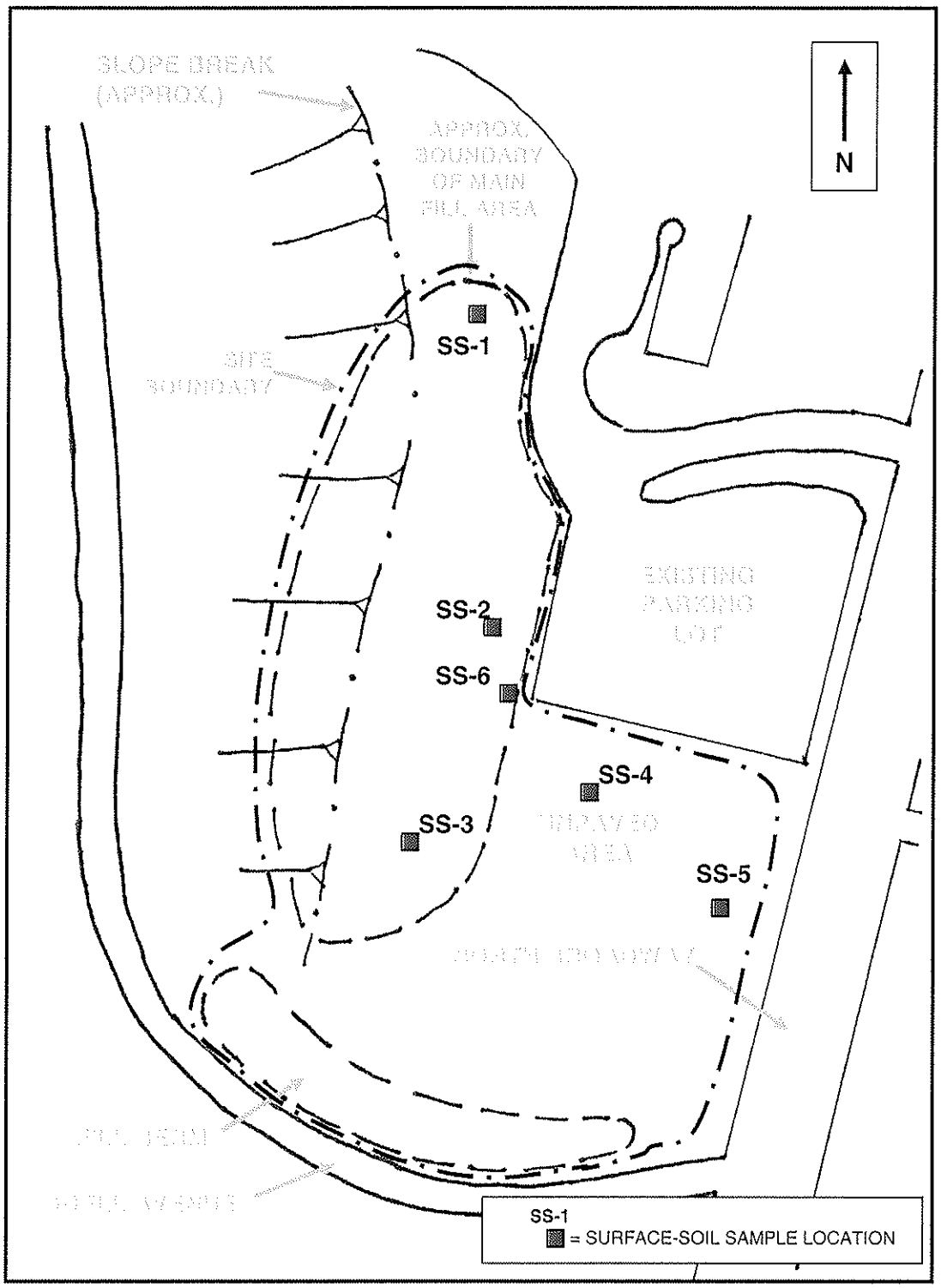
4.0 Results of Fill Sampling and Analysis

A total of 14 subsurface-soil samples were collected. Specifically, one sample per test pit was collected from Test Pits TP-1 though TP-12 and Test Pits TP-15 and TP-16. Test Pits TP-13 and TP-14 were not sampled because only a thin surface layer of fill was encountered at these locations. The samples were designated Subsurface-Soil Samples TP-1 through TP-12, and TP-15 and TP-16, respectively. No discrete layers warranting additional samples were noted. Each sample was collected from the test pit excavation utilizing decontaminated stainless steel sampling equipment. Samples collected for VOC analyses were collected from the lower portion of the sidewall of each excavation directly into 4-ounce glass jars. The sample collection depths of the VOC samples ranged from approximately two to five feet. Samples collected for the other parameters were collected as composites from representative areas of the material excavated from each test pit and homogenized prior to being placed in the appropriate sample bottles. The samples were labeled with the appropriate information (e.g., sample #, date and time collected, etc.), placed in coolers with ice and delivered to STL-Connecticut, a state-certified laboratory in Shelton, CT, under chain of custody protocol.

In addition to the 14 subsurface-soil samples, a total of six surface-soil samples were collected on March 29, 2004 and designated Surface-Soil Samples SS-1 through SS-6. The locations of these samples are shown in Figure 5. Surface-Soil Samples SS-1 through SS-5 were collected from random locations around the Site. Surface-Soil Sample SS-6 was collected from an area near the southwest corner of the parking lot where some debris (e.g., tires) had been thrown over the fence separating the Site from the parking lot. These samples were also collected utilizing decontaminated stainless steel sampling equipment, and were collected from the 0-2" depth interval below vegetation.

The subsurface-soil samples were analyzed for the following parameters:

- Total organic carbon (TOC);
- Volatile organic compounds (VOCs);
- Semivolatile organic compounds (SVOCs);



APPROXIMATE SCALE: 1 INCH = 90 FEET

FIGURE 5

SURFACE-SOIL SAMPLE LOCATIONS

- Pesticides; and
- Inorganic parameters (metals).

The subsurface-soil samples were analyzed for the specific list of parameters contained in Appendices A and B of NYSDEC TAGM 4046, eight additional VOCs that are on the NYSDEC STARS Memo #1 parameter list, and methyl tert-butyl ether (MTBE). These nine VOCs were included pursuant to a December 20, 2000 NYSDEC memorandum consolidating the parameter lists for TAGM 4046 and STARS Memo #1. The surface-soil samples were analyzed for the above list of parameters and polychlorinated biphenyls (PCBs).

The VOC, SVOC, pesticide and PCB results were evaluated by comparing them to the Recommended Soil Cleanup Objectives (RSCOs) listed in Tables 1 through 3 of TAGM 4046. Note that the majority of these RSCOs are for protection of ground water, and are based on a conservative low soil TOC content of 1%. The other RSCOs are based on USEPA health-based criteria dating to 1994, which is when TAGM 4046 was issued. There is a direct correlation between the TOC content of soil and its ability to hold onto contamination. RSCOs calculated using a higher soil TOC content are less stringent. TAGM 4046 states that RSCOs should be based on actual soil TOC content if it is known. Therefore, for each organic parameter detected at concentrations higher than an RSCO for protection of ground water, the RSCO was recalculated using the actual average soil TOC concentrations of the surface-soil samples and Subsurface-Soil Samples TP-1 through TP-12. The TOC results for Subsurface-Soil Samples TP-15 and TP-16 were not available for this report due to a laboratory instrument malfunction but will be provided separately when available. Polycyclic aromatic hydrocarbons (PAHs) detected at concentrations higher than an RSCO based on USEPA health-based criteria were also compared to publicly available information on background concentrations. The inorganic parameter (metals) results were evaluated by comparing them to the RSCOs and/or Eastern USA background concentrations listed in Table 4 of TAGM 4046, as well as other publicly available information on background concentrations.

The subsurface-soil samples were also analyzed for leachable concentrations of PAHs and lead utilizing the ASTM Shake Test and the USEPA Synthetic Precipitation Leaching Procedure (SPLP), respectively. It was anticipated that the total concentrations of some of these parameters might exceed the low RSCOs specified in NYSDEC TAGM 4046 for protection of groundwater. These extract analyses were performed to determine whether they actually leach out of the fill at significant concentrations. These results were compared to the New York State Ambient Water Quality Standards and Guidance Values for Class GA (potable) ground water listed in NYSDEC TOGS 1.1.1. There was no evidence of pulverized C&D debris in the fill, therefore, as per the Work Plan, waste composition analyses were not performed.

The laboratory reports are provided in Appendix H, and summarized in Tables 1 through 13. Note that in these tables the results for non-detected parameters are presented relative to laboratory reporting limits (RLs) rather than method detection limits (MDLs).

The specific results for the surface- and subsurface-soil samples are summarized and discussed in the following subsections.

4.1 Results of Total Organic Carbon (TOC) Analyses

The six surface-soil samples and 14 subsurface-soil samples were analyzed by USEPA Method 9060 for total organic carbon (TOC) content. The results, in percent (%), are summarized in Table 1. As shown in Table 1, the TOC content of the surface-soil samples ranged from 2.9% to 8.1% and averaged 4.8%. The TOC content of the Subsurface-Soil Samples TP-1 through TP-12 ranged from 0.7% to 4.5% and averaged 2.2%. As noted above, the TOC results for Subsurface-Soil Samples TP-15 and TP-16 will be provided separately when available, but are expected to be similar to the results for the other subsurface-soil samples.

4.2 Results of Volatile Organic Compound (VOC) Analyses

The six surface-soil samples and 14 subsurface-soil samples were analyzed by USEPA Method 8260B for the 30 VOCs listed in Table 1 of TAGM 4046, the eight additional VOCs included in NYSDEC STARS Memo #1, and MTBE. The results, in micrograms per kilogram (ug/kg), are summarized and compared to the applicable TAGM 4046 RSCOs in Tables 2 and 3.

Review of Tables 2 and 3 indicates that the fill is not a significant source of VOCs and is not a significant threat to human health or the environment with respect to VOC contamination. Specifically, VOC detections in the surface- and subsurface-soil samples were limited to sporadic, low concentrations of only seven VOCs: acetone, methylene chloride, 2-butanone, toluene, ethylbenzene, xylenes and p-isopropyltoluene. The remaining 32 VOCs were not detected. The concentrations of all seven detected VOCs were lower than their respective TAGM 4046 RSCO.

The VOC detections are summarized in the following table:

Detected VOC	Frequency of Detection		Range of Detection (ug/kg)	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Acetone	2/6	6/14	12JB to 120B	2JB to 7JB
Methylene chloride	1/6	3/14	3J	3J to 4J
2-Butanone	1/6	0/14	10J	NA
Toluene	1/6	11/14	1J	0.6J to 1J
Ethylbenzene	0/6	6/14	NA	0.6J to 1J
Xylene	1/6	6/14	2J	2J to 5J
p-Isopropyltoluene	2/6	0/14	0.8J to 6J	NA

ug/kg – Micrograms per kilogram.
NA – Not applicable.
J – Estimated concentration above MDL but below RL.
B – Parameter also detected in laboratory blank.

TABLE 1
Summary of Total Organic Carbon Results for Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

Surface Soil Sample Number and Result (%)						
SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	Average
8.1	4.1	5.0	2.9	4.8	4.0	4.8

Subsurface-Soil Sample Number and Result (%)						
TP-1	TP-2	TP-3	TP-4	TP-5	TP-6	TP-7
2.6	1.8	1.8	1.6	1.7	2.4	2.4

Subsurface-Soil Sample Number and Result (%)						
TP-8	TP-9	TP-10	TP-11	TP-12	TP-13	TP-14
4.5	0.7	1.8	1.2	4.0	Not Sampled	Not Sampled

Subsurface-Soil Sample Number and Result (%)			
TP-15	TP-16	Average	
Not Available	Not Available	2.2	

TABLE 2
Summary of Volatile Organic Compound Results for Surface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 VOLATILE ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Surface-Soil Sample Number and Result (ug/kg)					
		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
Vinyl Chloride	200	<8	<7	<7	<7	<8	<8
Chloroethane	1,900	<8	<7	<7	<7	<8	<8
1,1 Dichloroethene	400	<8	<7	<7	<7	<8	<8
Trichlorotrifluoroethane	6,000	<8	<7	<7	<7	<8	<8
Carbon disulfide	2,700	<8	<7	<7	<7	<8	<8
Acetone	200	<15	<14	120B	<13	12JB	<15
Methylene chloride	100	<8	<7	<7	3J	<8	<8
trans-1,2-Dichloroethene	300	<8	<7	<7	<7	<8	<8
1,1-Dichloroethane	200	<8	<7	<7	<7	<8	<8
2-Butanone (MEK)	300	<15	<14	10J	<13	<15	<15
Chloroform	300	<8	<7	<7	<7	<8	<8
1,1,1-Trichloroethane	800	<8	<7	<7	<7	<8	<8
Carbon tetrachloride	600	<8	<7	<7	<7	<8	<8
Benzene	60	<8	<7	<7	<7	<8	<8
1,2-Dichloroethane	100	<8	<7	<7	<7	<8	<8
Trichloroethene	700	<8	<7	<7	<7	<8	<8
4-Methyl-2-pentanone	1,000	<15	<14	<14	<13	<15	<15
Toluene	1,500	<8	<7	<7	1J	<8	<8
Tetrachloroethene	1,400	<8	<7	<7	<7	<8	<8
1,3-Dichloropropane	300	<8	<7	<7	<7	<8	<8
Dibromochloromethane	N/A	<8	<7	<7	<7	<8	<8
Chlorobenzene	1,700	<8	<7	<7	<7	<8	<8
Ethylbenzene	5,500	<8	<7	<7	<7	<8	<8
1,1,2,2-Tetrachloroethane	600	<8	<7	<7	<7	<8	<8
1,2,3-Trichloropropane	400	<8	<7	<7	<7	<8	<8
Xylenes (total)	1,200	<8	<7	<7	2J	<8	<8
1,3-Dichlorobenzene	1,600	<8	<7	<7	<7	<8	<8
1,4-Dichlorobenzene	8,500	<8	<7	<7	<7	<8	<8
1,2-Dichlorobenzene	7,900	<8	<7	<7	<7	<8	<8
1,2,4-Trichlorobenzene	3,400	<8	<7	<7	<7	<8	<8
Isopropylbenzene	2,300	<8	<7	<7	<7	<8	<8
n-Propylbenzene	3,700	<8	<7	<7	<7	<8	<8
p-Isopropyltoluene	10,000	<8	<7	0.8J	<7	6J	<8
1,2,4-Trimethylbenzene	10,000	<8	<7	<7	<7	<8	<8
1,3,5-Trimethylbenzene	3,300	<8	<7	<7	<7	<8	<8
n-Butylbenzene	10,000	<8	<7	<7	<7	<8	<8
sec-Butylbenzene	10,000	<8	<7	<7	<7	<8	<8
tert-Butylbenzene	10,000	<8	<7	<7	<7	<8	<8
Methyl tert-butyl ether (MTBE)	120	<8	<7	<7	<7	<8	<8

Notes:
1 - From Appendix A, Table 1 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank.

TABLE 3 (Page 1 of 3)
Summary of Volatile Organic Compound Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 VOLATILE[1] ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)					
		TP-1	TP-2	TP-3	TP-4	TP-5	TP-6
Vinyl Chloride	200	<6	<6	<6	<6	<6	<6
Chloroethane	1,900	<6	<6	<6	<6	<6	<6
1,1 Dichloroethene	400	<6	<6	<6	<6	<6	<6
Trichlorotrifluoroethane	6,000	<6	<6	<6	<6	<6	<6
Carbon disulfide	2,700	<6	<6	<6	<6	<6	<6
Acetone	200	3JB	<11	3JB	5JB	7JB	7JB
Methylene chloride	100	<6	3J	<6	<6	<6	<6
trans-1,2-Dichloroethene	300	<6	<6	<6	<6	<6	<6
1,1-Dichloroethane	200	<6	<6	<6	<6	<6	<6
2-Butanone (MEK)	300	<12	<11	<11	<11	<12	<11
Chloroform	300	<6	<6	<6	<6	<6	<6
1,1,1-Trichloroethane	800	<6	<6	<6	<6	<6	<6
Carbon tetrachloride	600	<6	<6	<6	<6	<6	<6
Benzene	60	<6	<6	<6	<6	<6	<6
1,2-Dichloroethane	100	<6	<6	<6	<6	<6	<6
Trichloroethene	700	<6	<6	<6	<6	<6	<6
4-Methyl-2-pentanone	1,000	<12	<11	<11	<11	<12	<11
Toluene	1,500	0.6J	0.8J	0.6J	0.8J	0.8J	0.9J
Tetrachloroethene	1,400	<6	<6	<6	<6	<6	<6
1,3-Dichloropropane	300	<6	<6	<6	<6	<6	<6
Dibromochloromethane	N/A	<6	<6	<6	<6	<6	<6
Chlorobenzene	1,700	<6	<6	<6	<6	<6	<6
Ethylbenzene	5,500	<6	1J	<6	<6	<6	<6
1,1,2,2-Tetrachloroethane	600	<6	<6	<6	<6	<6	<6
1,2,3-Trichloropropane	400	<6	<6	<6	<6	<6	<6
Xylenes (total)	1,200	<6	4J	<6	<6	<6	<6
1,3-Dichlorobenzene	1,600	<6	<6	<6	<6	<6	<6
1,4-Dichlorobenzene	8,500	<6	<6	<6	<6	<6	<6
1,2-Dichlorobenzene	7,900	<6	<6	<6	<6	<6	<6
1,2,4-Trichlorobenzene	3,400	<6	<6	<6	<6	<6	<6
Isopropylbenzene	2,300	<6	<6	<6	<6	<6	<6
n-Propylbenzene	3,700	<6	<6	<6	<6	<6	<6
p-Isopropyltoluene	10,000	<6	<6	<6	<6	<6	<6
1,2,4-Trimethylbenzene	10,000	<6	<6	<6	<6	<6	<6
1,3,5-Trimethylbenzene	3,300	<6	<6	<6	<6	<6	<6
n-Butylbenzene	10,000	<6	<6	<6	<6	<6	<6
sec-Butylbenzene	10,000	<6	<6	<6	<6	<6	<6
tert-Butylbenzene	10,000	<6	<6	<6	<6	<6	<6
Metyl tert-butyl ether (MTBE)	120	<6	<6	<6	<6	<6	<6

Notes:
1 - From Appendix A, Table 1 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank.

TABLE 3 (Page 2 of 3)
Summary of Volatile Organic Compound Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 VOLATILE[1] ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)					
		TP-7	TP-8	TP-9	TP-10	TP-11	TP-12
Vinyl Chloride	200	<6	<6	<6	<6	<6	<5
Chloroethane	1,900	<6	<6	<6	<6	<6	<5
1,1 Dichloroethene	400	<6	<6	<6	<6	<6	<5
Trichlorotrifluoroethane	6,000	<6	<6	<6	<6	<6	<5
Carbon disulfide	2,700	<6	<6	<6	<6	<6	<5
Acetone	200	<11	2JB	<11	<11	<12	<11
Methylene chloride	100	<6	<6	<6	4J	<6	4J
trans-1,2-Dichloroethene	300	<6	<6	<6	<6	<6	<5
1,1-Dichloroethane	200	<6	<6	<6	<6	<6	<5
2-Butanone (MEK)	300	<11	<11	<11	<11	<12	<11
Chloroform	300	<6	<6	<6	<6	<6	<5
1,1,1-Trichloroethane	800	<6	<6	<6	<6	<6	<5
Carbon tetrachloride	600	<6	<6	<6	<6	<6	<5
Benzene	60	<6	<6	<6	<6	<6	<5
1,2-Dichloroethane	100	<6	<6	<6	<6	<6	<5
Trichloroethene	700	<6	<6	<6	<6	<6	<5
4-Methyl-2-pentanone	1,000	<11	<11	<11	<11	<12	<11
Toluene	1,500	0.6J	0.6J	0.6J	1J	<6	1J
Tetrachloroethene	1,400	<6	<6	<6	<6	<6	<5
1,3-Dichloropropane	300	<6	<6	<6	<6	<6	<5
Dibromochloromethane	N/A	<6	<6	<6	<6	<6	<5
Chlorobenzene	1,700	<6	<6	<6	<6	<6	<5
Ethylbenzene	5,500	0.6J	<6	0.8J	2J	0.5J	0.8J
1,1,2,2-Tetrachloroethane	600	<6	<6	<6	<6	<6	<5
1,2,3-Trichloropropane	400	<6	<6	<6	<6	<6	<5
Xylenes (total)	1,200	2J	<6	3J	5J	2J	2J
1,3-Dichlorobenzene	1,600	<6	<6	<6	<6	<6	<5
1,4-Dichlorobenzene	8,500	<6	<6	<6	<6	<6	<5
1,2-Dichlorobenzene	7,900	<6	<6	<6	<6	<6	<5
1,2,4-Trichlorobenzene	3,400	<6	<6	<6	<6	<6	<5
Isopropylbenzene	2,300	<6	<6	<6	<6	<6	<5
n-Propylbenzene	3,700	<6	<6	<6	<6	<6	<5
p-Isopropyltoluene	10,000	<6	<6	<6	<6	<6	<5
1,2,4-Trimethylbenzene	10,000	<6	<6	<6	<6	<6	<5
1,3,5-Trimethylbenzene	3,300	<6	<6	<6	<6	<6	<5
n-Butylbenzene	10,000	<6	<6	<6	<6	<6	<5
sec-Butylbenzene	10,000	<6	<6	<6	<6	<6	<5
tert-Butylbenzene	10,000	<6	<6	<6	<6	<6	<5
Metyl tert-butyl ether (MTBE)	120	<6	<6	<6	<6	<6	<5

Notes:
1 - From Appendix A, Table 1 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank.

TABLE 3 (Page 3 of 3)
Summary of Volatile Organic Compound Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 VOLATILE[1] ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)			
		TP-13	TP-14	TP-15	TP-16
Vinyl Chloride	200	Not	Not	<5	<6
Chloroethane	1,900	Sampled	Sampled	<5	<6
1,1 Dichloroethene	400			<5	<6
Trichlorotrifluoroethane	6,000			<5	<6
Carbon disulfide	2,700			<5	<6
Acetone	200			<11	<11
Methylene chloride	100			<5	<6
trans-1,2-Dichloroethene	300			<5	<6
1,1-Dichloroethane	200			<5	<6
2-Butanone (MEK)	300			<11	<11
Chloroform	300			<5	<6
1,1,1-Trichloroethane	800			<5	<6
Carbon tetrachloride	600			<5	<6
Benzene	60			<5	<6
1,2-Dichloroethane	100			<5	<6
Trichloroethene	700			<5	<6
4-Methyl-2-pentanone	1,000			<11	<11
Toluene	1,500			<5	<6
Tetrachloroethene	1,400			<5	<6
1,3-Dichloropropane	300			<5	<6
Dibromochloromethane	N/A			<5	<6
Chlorobenzene	1,700			<5	<6
Ethylbenzene	5,500			<5	<6
1,1,2,2-Tetrachloroethane	600			<5	<6
1,2,3-Trichloropropane	400			<5	<6
Xylenes (total)	1,200			<5	<6
1,3-Dichlorobenzene	1,600			<5	<6
1,4-Dichlorobenzene	8,500			<5	<6
1,2-Dichlorobenzene	7,900			<5	<6
1,2,4-Trichlorobenzene	3,400			<5	<6
Isopropylbenzene	2,300			<5	<6
n-Propylbenzene	3,700			<5	<6
p-Isopropyltoluene	10,000			<5	<6
1,2,4-Trimethylbenzene	10,000			<5	<6
1,3,5-Trimethylbenzene	3,300			<5	<6
n-Butylbenzene	10,000			<5	<6
sec-Butylbenzene	10,000			<5	<6
tert-Butylbenzene	10,000			<5	<6
Metyl tert-butyl ether (MTBE)	120			<5	<6

Notes:
1 - From Appendix A, Table 1 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank.

Review of the above table indicates that toluene, ethylbenzene and xylene, which are aromatic hydrocarbons, were detected at greater frequency in the subsurface-soil samples, but that overall, similar low concentrations were detected in the surface- and subsurface-soil samples. Acetone, a solvent, was detected in the laboratory blanks. As such, its presence is attributed to laboratory contamination. Methylene chloride, which is also a solvent, was detected at low concentrations in one surface-soil sample and three subsurface-soil samples. 2-butanone, a solvent, was detected at a low concentration in one surface-soil sample. p-Isopropyltoluene was only detected at low concentrations in two surface-soil samples.

4.3 Results of Semivolatile Organic Compound (SVOC) Analyses

The six surface-soil samples and 14 subsurface-soil samples were analyzed by USEPA Method 8270C for the 45 SVOCs listed in Table 2 of TAGM 4046. The results, in ug/kg, are summarized and compared to the applicable TAGM 4046 RSCOs in Tables 4 and 5.

Review of Tables 4 and 5 indicates that 25 of the 45 SVOCs analyzed for were detected in at least one soil sample. In general, the results are similar for the surface- and subsurface-soil samples. All 17 of the PAHs listed in Table 2 of TAGM 4046 were detected, and overall PAHs are the SVOCs that were detected most frequently and at the highest concentrations. The other SVOCs detected were aniline, phenol, 4-chloroaniline, dibenzofuran, diethyl phthalate, di-n-butyl phthalate, butyl benzyl phthalate and bis(2-ethylhexyl)phthalate. However, these eight SVOCs were generally detected in relatively few samples and/or at relatively low concentrations. Aniline, phenol and diethyl phthalate were only detected in one or two surface-soil samples.

The concentrations of 16 of the 25 detected SVOCs were lower than their respective TAGM 4046 RSCO, and therefore are not a significant threat to human health or the environment. Therefore, the following discussion focuses on these nine SVOCs that were detected at concentrations higher than their respective TAGM 4046 RSCO:

- Aniline
- Phenol
- Benzo(a)anthracene
- Chrysene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(a)pyrene
- Indeno(1,2,3-cd)pyrene
- Dibenzo(a,h)anthracene

The RSCOs for six of these SVOCs, specifically aniline, phenol, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene and indeno(1,2,3-cd)pyrene, are based on

TABLE 4
Summary of Semivolatile Organic Compound Results for Surface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 SEMIVOLATILE[1] ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Surface-Soil Sample Number and Result (ug/kg)					
		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
Aniline	100	<970	<870	**500J**	<1,700	<3,800	<1,000
Phenol	30 or MDL	<970	<870	**87J**	<1,700	<3,800	**76J**
2-Methylphenol	100 or MDL	<970	<870	<860	<1,700	<3,800	<1,000
4-Methylphenol	900 or MDL	<970	<870	<860	<1,700	<3,800	<1,000
2-Chlorophenol	800	<970	<870	<860	<1,700	<3,800	<1,000
Nitrobenzene	200 or MDL	<970	<870	<860	<1,700	<3,800	<1,000
Benzoic acid	2,700	<4,700	<4,200	<4,200	<8,200	<19,000	<4,800
Isophorone	4,400	<970	<870	<860	<1,700	<3,800	<1,000
Napthalene	13,000	<970	<870	<860	<1,700	470J	330J
2,4-Dichlorophenol	400	<970	<870	<860	<1,700	<3,800	<1,000
4-Chloroaniline	220 or MDL	<970	<870	<860	<1,700	<3,800	<1,000
2,4,5-Trichlorophenol	100	<4,700	<4,200	<4,200	<8,200	<19,000	<4,800
2-Methylnapthalene	36,400	<970	<870	<860	<1,700	<3,800	120J
2-Nitroaniline	430 or MDL	<4,700	<4,200	<4,200	<8,200	<19,000	<4,800
4-Chloro-3-methylphenol	240 or MDL	<970	<870	<860	<1,700	<3,800	<1,000
2,6-Dinitrotoluene	1,000	<970	<870	<860	<1,700	<3,800	<1,000
2-Nitrophenol	330 or MDL	<970	<870	<860	<1,700	<3,800	<1,000
3-Nitroaniline	500 or MDL	<4,700	<4,200	<4,200	<8,200	<19,000	<4,800
Dimethyl phthalate	2,000	<970	<870	<860	<1,700	<3,800	<1,000
2,4-Dinitrophenol	200 or MDL	<4,700	<4,200	<4,200	<8,200	<19,000	<4,800
Acenapthylene	41,000	140J	340J	100J	1,400J	1,600J	1,100
Acenapthene	50,000	<970	63J	58J	<1,700	920J	130J
Dibenzofuran	6,200	<970	40J	<860	160J	920J	95J
4-Nitrophenol	100 or MDL	<4,700	<4,200	<4,200	<8,200	<19,000	<4,800
Fluorene	50,000	60J	83J	53J	230J	940J	180J
Hexachlorobenzene	410	<970	<870	<860	<1,700	<3,800	<1,000
Diethyl phthalate	7,100	<970	91J	<860	<1,700	<3,800	<1,000
Pentachlorophenol	1,000 or MDL	<4,700	<4,200	<4,200	<8,200	<19,000	<4,800
Phenanthrene	50,000	560J	720J	530J	4,200	15,000	1,800
Anthracene	50,000	260J	420J	220J	1,000J	3,100J	1,200
Di-n-butyl phthalate	8,100	<970	<870	<860	<1,700	<3,800	<1,000
Fluoranthene	50,000	1,100	1,600	860	6,600	16,000	4,100
Pyrene	50,000	950J	1,400	890	6,400	19,000	3,700
Butyl benzyl phthalate	50,000	<970	<870	<860	<1,700	1,100J	<1,000
Benzo(a)anthracene	224 or MDL	**610J**	**960**	**530J**	**3,600**	**7,700**	**2,300**
Chrysene	400	**620J**	**970**	**600J**	**4,100**	**8,000**	**2,600**
3,3-Dichlorobenzidine	N/A	<1,900	<1,700	<1,700	<3,400	<7,600	<2,000
Bis(2-ethylhexyl)phthalate	50,000	810J	<870	180J	<1,700	<3,800	<1,000
Di-n-octyl phthalate	50,000	<970	<870	<860	<1,700	<3,800	<1,000
Benzo(b)fluoranthene	1,100	620J	860J	540J	**3,500**	**5,700**	**2,800**
Benzo(k)fluoranthene	1,100	620J	**1,200**	540J	**3,100**	**6,300**	**3,300**
Benzo(a)pyrene	61 or MDL	**640J**	**1,100**	**570J**	**3,500**	**6,500**	**3,600**
Indeno(1,2,3-cd)pyrene	3,200	240J	360J	210J	2,300	**4,700**	1,300
Dibenzo(a,h)anthracene	14 or MDL	**100J**	**140J**	**81J**	**830J**	**1,700J**	**360J**
Benzo(g,h,i)perylene	50,000	230J	340J	210J	2,500	5,700	1,200

Notes:
1 - From Appendix A, Table 2 of NYSDEC TAGM 4046.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
MDL - Method detection limit.
J - Estimated concentration above MDL but below RL.
Bold values denote results that are higher than their respective RSCO.

TABLE 5 (Page 1 of 3)
Summary of Semivolatile Organic Compound Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 SEMIVOLATILE[1] ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)					
		TP-1	TP-2	TP-3	TP-4	TP-5	TP-6
Aniline	100	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Phenol	30 or MDL	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
2-Methylphenol	100 or MDL	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
4-Methylphenol	900 or MDL	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
2-Chlorophenol	800	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Nitrobenzene	200 or MDL	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Benzoic acid	2,700	<18,000	<7,200	<14,000	<7,100	<7,500	<7,200
Isophorone	4,400	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Napthalene	13,000	<3,800	380J	710J	170J	<1,600	170J
2,4-Dichlorophenol	400	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
4-Chloroaniline	220 or MDL	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
2,4,5-Trichlorophenol	100	<18,000	<7,200	<14,000	<7,100	<7,500	<7,200
2-Methylnapthalene	36,400	<3,800	270J	410J	<1,500	<1,600	<1,500
2-Nitroaniline	430 or MDL	<18,000	<7,200	<14,000	<7,100	<7,500	<7,200
4-Chloro-3-methylphenol	240 or MDL	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
2,6-Dinitrotoluene	1,000	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
2-Nitrophenol	330 or MDL	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
3-Nitroaniline	500 or MDL	<18,000	<7,200	<14,000	<7,100	<7,500	<7,200
Dimethyl phthalate	2,000	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
2,4-Dinitrophenol	200 or MDL	<18,000	<7,200	<14,000	<7,100	<7,500	<7,200
Acenapthylene	41,000	<3,800	1,200J	1,300J	650J	<1,600	360J
Acenapthene	50,000	<3,800	280J	850J	100J	<1,600	180J
Dibenzofuran	6,200	<3,800	290J	610J	100J	<1,600	120J
4-Nitrophenol	100 or MDL	<18,000	<7,200	<14,000	<7,100	<7,500	<7,200
Fluorene	50,000	<3,800	680J	1,100J	200J	<1,600	210J
Hexachlorobenzene	410	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Diethyl phthalate	7,100	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Pentachlorophenol	1,000 or MDL	<18,000	<7,200	<14,000	<7,100	<7,500	<7,200
Phenanthrene	50,000	1,100J	5,000	12,000	1,600	<1,600	1,600
Anthracene	50,000	510J	2,100	3,300	790J	<1,600	560J
Di-n-butyl phthalate	8,100	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Fluoranthene	50,000	2,100J	5,900	15,000	2,300	240J	2,300
Pyrene	50,000	2,100J	5,800	15,000	2,100	310J	2,200
Butyl benzyl phthalate	50,000	<3,800	<1,500	270J	<1,500	<1,600	<1,500
Benzo(a)anthracene	224 or MDL	**1,500J**	**3,300**	**8,700**	**1,400J**	170J	**1,300J**
Chrysene	400	**1,600J**	**3,400**	**9,000**	**1,400J**	230J	**1,400J**
3,3-Dichlorobenzidine	N/A	<7,600	<3,000	<5,900	<2,900	<3,100	<3,000
Bis(2-ethylhexyl)phthalate	50,000	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Di-n-octyl phthalate	50,000	<3,800	<1,500	<3,000	<1,500	<1,600	<1,500
Benzo(b)fluoranthene	1,100	**1,400J**	**2,500**	**6,500**	1,100J	<1,600	950J
Benzo(k)fluoranthene	1,100	**1,200J**	**3,100**	**7,400**	**1,700**	<1,600	**1,300J**
Benzo(a)pyrene	61 or MDL	**1,500J**	**3,300**	**8,500**	**1,500**	**200J**	**1,400J**
Indeno(1,2,3-cd)pyrene	3,200	460J	1,100J	**3,500**	510J	110J	830J
Dibenzo(a,h)anthracene	14 or MDL	**280J**	**460J**	**1,200J**	**220J**	<1,600	**420J**
Benzo(g,h,i)perylene	50,000	510J	1,100J	3,300	510J	140J	930J

Notes:
1 - From Appendix A, Table 2 of NYSDEC TAGM 4046.
ug/kg - Micrograms per kilogram, results presented relative to reporting limits (RLs).
MDL - Method detection limit.
J - Estimated concentration above MDL but below RL.
Bold values denote results that are higher than their respective RSCO.

TABLE 5 (Page 2 of 3)
Summary of Semivolatile Organic Compound Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 SEMIVOLATILE[1] ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)					
		TP-7	TP-8	TP-9	TP-10	TP-11	TP-12
Aniline	100	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Phenol	30 or MDL	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
2-Methylphenol	100 or MDL	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
4-Methylphenol	900 or MDL	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
2-Chlorophenol	800	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Nitrobenzene	200 or MDL	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Benzoic acid	2,700	<7,100	<7,000	<14,000	<18,000	<7,300	<6,700
Isophorone	4,400	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Napthalene	13,000	150J	150J	580J	<3,700	<1,500	910J
2,4-Dichlorophenol	400	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
4-Chloroaniline	220 or MDL	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
2,4,5-Trichlorophenol	100	<7,100	<7,000	<14,000	<18,000	<7,300	<6,700
2-Methylnapthalene	36,400	<1,500	<1,400	510J	<3,700	<1,500	410J
2-Nitroaniline	430 or MDL	<7,100	<7,000	<14,000	<18,000	<7,300	<6,700
4-Chloro-3-methylphenol	240 or MDL	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
2,6-Dinitrotoluene	1,000	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
2-Nitrophenol	330 or MDL	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
3-Nitroaniline	500 or MDL	<7,100	<7,000	<14,000	<18,000	<7,300	<6,700
Dimethyl phthalate	2,000	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
2,4-Dinitrophenol	200 or MDL	<7,100	<7,000	<14,000	<18,000	<7,300	<6,700
Acenapthylene	41,000	270J	330J	1,400J	600J	540J	1,100J
Acenapthene	50,000	110J	90J	770J	<3,700	100J	380J
Dibenzofuran	6,200	88J	81J	750J	<3,700	<1,500	430J
4-Nitrophenol	100 or MDL	<7,100	<7,000	<14,000	<18,000	<7,300	<6,700
Fluorene	50,000	160J	140J	1,400J	<3,700	160J	650J
Hexachlorobenzene	410	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Diethyl phthalate	7,100	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Pentachlorophenol	1,000 or MDL	<7,100	<7,000	<14,000	<18,000	<7,300	<6,700
Phenanthrene	50,000	1,200J	1,300J	7,400	1,800J	1,500	4,600
Anthracene	50,000	510J	710J	3,500	1,000J	810J	2,100
Di-n-butyl phthalate	8,100	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Fluoranthene	50,000	1,700	2,700	9,200	3,600J	2,900	7,200
Pyrene	50,000	1,800	3,000	11,000	4,700	3,400	8,100
Butyl benzyl phthalate	50,000	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Benzo(a)anthracene	224 or MDL	**1,100J**	**1,800**	**6,000**	**2,700J**	**1,900**	**4,600**
Chrysene	400	**1,100J**	**1,900**	**6,200**	**2,600J**	**2,000**	**4,600**
3,3-Dichlorobenzidine	N/A	<2,900	<2,900	<5,800	<7,500	<3,000	<2,800
Bis(2-ethylhexyl)phthalate	50,000	<1,500	320J	<2,900	<3,700	1,200J	520J
Di-n-octyl phthalate	50,000	<1,500	<1,400	<2,900	<3,700	<1,500	<1,400
Benzo(b)fluoranthene	1,100	700J	**1,300J**	**4,200**	**2,300J**	**1,300J**	**3,500**
Benzo(k)fluoranthene	1,100	1,100J	**1,500**	**6,800**	**2,200J**	**1,900**	**4,800**
Benzo(a)pyrene	61 or MDL	**1,100J**	**1,800**	**7,000**	**2,700J**	**1,900**	**5,000**
Indeno(1,2,3-cd)pyrene	3,200	630J	930J	**4,200**	1,700J	1,100J	2,600
Dibenzo(a,h)anthracene	14 or MDL	**220J**	**410J**	**1,600J**	**880J**	**590J**	**1,300J**
Benzo(g,h,i)perylene	50,000	640J	880J	4,300	1,600J	1,100J	2,500

Notes:
1 - From Appendix A, Table 2 of NYSDEC TAGM 4046.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
MDL - Method detection limit.
J - Estimated concentration above MDL but below RL.
Bold values denote results that are higher than their respective RSCO.

TABLE 5 (Page 3 of 3)
Summary of Semivolatile Organic Compound Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 SEMIVOLATILE[1] ORGANIC COMPOUND	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)			
		TP-13	TP-14	TP-15	TP-16
Aniline	100	Not	Not	<1,400	<1,400
Phenol	30 or MDL	Sampled	Sampled	<1,400	<1,400
2-Methylphenol	100 or MDL			<1,400	<1,400
4-Methylphenol	900 or MDL			<1,400	<1,400
2-Chlorophenol	800			<1,400	<1,400
Nitrobenzene	200 or MDL			<1,400	<1,400
Benzoic acid	2,700			<6,900	<6,900
Isophorone	4,400			<1,400	<1,400
Napthalene	13,000			410J	700J
2,4-Dichlorophenol	400			<1,400	<1,400
4-Chloroaniline	220 or MDL			120J	220J
2,4,5-Trichlorophenol	100			<6,900	<7,000
2-Methylnapthalene	36,400			240J	380J
2-Nitroaniline	430 or MDL			<6,900	<7,000
4-Chloro-3-methylphenol	240 or MDL			<1,400	<1,400
2,6-Dinitrotoluene	1,000			<1,400	<1,400
2-Nitrophenol	330 or MDL			<1,400	<1,400
3-Nitroaniline	500 or MDL			<6,900	<7,000
Dimethyl phthalate	2,000			<1,400	<1,400
2,4-Dinitrophenol	200 or MDL			<6,900	<7,000
Acenapthylene	41,000			790J	580J
Acenapthene	50,000			660J	780J
Dibenzofuran	6,200			350J	660J
4-Nitrophenol	100 or MDL			<6,900	<7,000
Fluorene	50,000			950J	940J
Hexachlorobenzene	410			<1,400	<1,400
Diethyl phthalate	7,100			<1,400	<1,400
Pentachlorophenol	1,000 or MDL			<6,900	<7,000
Phenanthrene	50,000			8,300	7,400
Anthracene	50,000			3,300	2,400
Di-n-butyl phthalate	8,100			140J	<1,400
Fluoranthene	50,000			15,000	8,800
Pyrene	50,000			11,000	6,700
Butyl benzyl phthalate	50,000			<1,400	<1,400
Benzo(a)anthracene	224 or MDL			**8,300**	**4,200**
Chrysene	400			**7,800**	**4,200**
3,3-Dichlorobenzidine	N/A			<2,800	<2,900
Bis(2-ethylhexyl)phthalate	50,000			<1,400	<1,400
Di-n-octyl phthalate	50,000			<1,400	<1,400
Benzo(b)fluoranthene	1,100			**6,200**	**3,400**
Benzo(k)fluoranthene	1,100			**7,200**	**3,600**
Benzo(a)pyrene	61 or MDL			**7,800**	**4,000**
Indeno(1,2,3-cd)pyrene	3,200			1,600	1,000J
Dibenzo(a,h)anthracene	14 or MDL			**710J**	**440J**
Benzo(g,h,i)perylene	50,000			1,100J	790J

Notes:
1 - From Appendix A, Table 2 of NYSDEC TAGM 4046.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
MDL - Method detection limit.
J - Estimated concentration above MDL but below RL.
Bold values denote results that are higher than their respective RSCO.

protection of ground water. The RSCOs for the other three SVOCs are based on USEPA health-based criteria, although TAGM 4046 provides soil cleanup objectives to protect ground water for these SVOCs as well. As noted previously in Section 4.0, the RSCOs and soil cleanup objectives to protect ground water were calculated using a conservative low soil TOC content of 1%. As noted previously in Section 4.1, the actual TOC content of the soil samples was considerably higher and averaged 4.8% for the surface-soil samples and 2.2% for the Subsurface-Soil Samples TP-1 through TP-12. Therefore, the RSCOs and soil cleanup objectives to protect ground water for these nine SVOCs were recalculated according to the formula provided in TAGM 4046 using the average TOC contents of the surface-soil samples and Subsurface-Soil Samples TP-1 through TP-12.

The recalculated RSCOs and soil cleanup objectives for surface and subsurface soil are compared to the maximum concentration of each SVOC in the following table:

SVOC	Surface Soil RSCO (ug/kg)	Surface Soil Max. (ug/kg)	Subsurface Soil RSCO (ug/kg)	Subsurface Soil Max. (ug/kg)
Aniline	331	500J	152	ND
Phenol	130	87J	59	ND
Benzo(a)anthracene	13,248	7,700	6,072	8,700
Chrysene	1,920	8,000	880	9,000
Benzo(b)fluoranthene	5,280	5,700	2,420	6,500
Benzo(k)fluoranthene	5,280	6,300	2,420	7,400
Benzo(a)pyrene	52,800	6,500	24,200	8,500
Indeno(1,2,3-cd)pyrene	15,360	4,700	7,040	4,200
Dibenzo(a,h)anthracene	7.9×10^{9}	1,700	3.6×10^{9}	1,600

ug/kg – Micrograms per kilogram.
ND – Not detected.
J – Estimated concentration above MDL but below RL.

Review of the above table indicates that the maximum concentration of aniline detected in surface soil is still higher than the recalculated surface-soil RSCO. However, it is important to note that aniline was only detected in one surface-soil sample. As such, the average concentration of aniline in the fill is much lower than this RSCO and therefore not a significant threat to public health or the environment. The maximum concentrations of phenol, benzo(a)anthracene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and dibenzo(a,h)anthracene in surface soil are lower than their recalculated surface-soil RSCOs. The maximum concentrations of benzo(b)fluoranthene, benzo(k)fluoranthene and chrysene in surface soil are still higher than their recalculated surface-soil RSCOs. The maximum concentrations benzo(a)pyrene, indeno(1,2,3-cd)pyrene and dibenzo-(a,h)anthracene in subsurface soil are lower than their recalculated subsurface-soil RSCOs. However, the maximum concentrations of benzo(a)anthracene, chrysene, benzo(b)fluoranthene and benzo(k)fluoranthene in subsurface soil are higher than their recalculated subsurface-soil RSCOs.

The above RSCOs and soil cleanup objectives to protect ground water are conservative values that assume that the soil is in direct contact with ground water. In anticipation of

the above results, the subsurface-soil samples were also analyzed by ASTM shake test extraction and USEPA Method 8270C for leachable concentrations of the 17 PAHs listed in Table 2 of TAGM 4046. These PAHs include the above PAHs whose maximum concentrations are still higher than the recalculated subsurface-soil RSCOs, as well as the majority of the SVOCs that were detected in the soil samples. These results, in micrograms per liter (ug/L), are summarized and compared to the New York State Ambient Water Quality Standards and Guidance Values for potable (Class GA) ground water in Table 6.

As shown in Table 6, except for a single detection of a low estimated concentration of phenanthrene in Subsurface-Soil Sample TP-11, none of the 17 PAHs analyzed for were detected. Based on these results, the subsurface soil does not leach significant concentrations of PAHs. The surface-soil samples were not analyzed for leachable PAHs. However, the average TOC content of the surface-soil samples is more than twice as high as that of the Subsurface-Soil Samples TP-1 through TP-12. Moreover, the maximum concentration of chrysene, which is the only PAH whose maximum concentration is higher than the recalculated surface-soil RSCO, detected in surface soil is lower than the maximum concentration detected in subsurface soil. Therefore, it can be reasonably concluded that the surface soil will also not leach significant concentrations of PAHs.

In summary, the above analysis indicates that the concentrations of these nine SVOCs in the fill are not a significant threat to public health or the environment via the ground water pathway.

The three SVOCs with RSCOs based on USEPA health-based criteria, specifically benzo(a)anthracene, benzo(a)pyrene and dibenzo(a,h)anthracene, are PAHs that are classified by USEPA as possible or probable human carcinogens. The RSCOs for these SVOCs correspond to excess lifetime cancer risks of one in one million, and are obtained from USEPA's Health Effects Assessment Summary Tables (HEASTs). It should be noted that although TAGM 4046 states that the NYSDEC compiles and updates the HEASTs on a quarterly basis, the USEPA health-based criteria RSCOs listed in TAGM 4046 date to 1994 when the TAGM was issued. It is likely that some or all of the HEAST-derived values have changed since then. For example, in 1997, the 1993 oral slope factor for benzo(a)pyrene was revised to reflect updated information indicating that this PAH is not as toxic as previously thought. However, it is LKB's understanding that the NYSDEC uses the 1994 USEPA health-based RSCOs as a screening tool to evaluate soil quality. Since the concentrations of benzo(a)anthracene, benzo(a)pyrene and dibenzo(a,h)anthracene detected in the soil samples are higher than their respective RSCOs, a further evaluation of the threat they may pose to human health and the environment is provided in the following paragraphs.

Benzo(a)anthracene, benzo(a)pyrene and dibenzo(a,h)anthracene are three of seven carcinogenic PAHs (cPAHs) that are typically evaluated by NYSDEC and NYSDOH. The other four cPAHs are benzo(k)fluoranthene, benzo(k)fluoranthene, chrysene and indeno(1,2,3-cd)pyrene, which were evaluated above relative to their RSCOs for

TABLE 6
Summary of Leachable PAH Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

Polycyclic Aromatic Hydrocarbon (PAH)	Ground Water[1] Std./GV (ug/L)	Subsurface-Soil Sample Number and Result (ug/L)						
		TP-1	TP-2	TP-3	TP-4	TP-5	TP-6	TP-7
Napthalene	10_{GV}	<20	<20	<20	<20	<20	<20	<20
2-Methylnapthalene	N/A	<20	<20	<20	<20	<20	<20	<20
Acenapthylene	N/A	<20	<20	<20	<20	<20	<20	<20
Acenapthene	20_{GV}	<20	<20	<20	<20	<20	<20	<20
Fluorene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Phenanthrene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Anthracene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Fluoranthene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Pyrene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(a)anthracene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Chrysene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(b)fluoranthene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(k)fluoranthene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(a)pyrene	ND	<20	<20	<20	<20	<20	<20	<20
Indeno(1,2,3-cd)pyrene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Dibenzo(a,h)anthracene	N/A	<20	<20	<20	<20	<20	<20	<20
Benzo(g,h,i)perylene	N/A	<20	<20	<20	<20	<20	<20	<20

Polycyclic Aromatic Hydrocarbon (PAH)	Ground Water[1] Std./GV (ug/L)	Subsurface-Soil Sample Number and Result (ug/L)						
		TP-8	TP-9	TP-10	TP-11	TP-12	TP-15	TP-16
Napthalene	10_{GV}	<20	<20	<20	<20	<20	<20	<20
2-Methylnapthalene	N/A	<20	<20	<20	<20	<20	<20	<20
Acenapthylene	N/A	<20	<20	<20	<20	<20	<20	<20
Acenapthene	20_{GV}	<20	<20	<20	<20	<20	<20	<20
Fluorene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Phenanthrene	50_{GV}	<20	<20	<20	2J	<20	<20	<20
Anthracene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Fluoranthene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Pyrene	50_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(a)anthracene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Chrysene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(b)fluoranthene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(k)fluoranthene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Benzo(a)pyrene	ND	<20	<20	<20	<20	<20	<20	<20
Indeno(1,2,3-cd)pyrene	0.002_{GV}	<20	<20	<20	<20	<20	<20	<20
Dibenzo(a,h)anthracene	N/A	<20	<20	<20	<20	<20	<20	<20
Benzo(g,h,i)perylene	N/A	<20	<20	<20	<20	<20	<20	<20

Notes:
1 - Ambient Water Quality Standard or Guidance Value (GV) from NYSDEC TOGS 1.1.1.
ug/kg - Micrograms per Liter, results are presented relative to reporting limits (RLs).
N/A - Not available.
ND - Not detectable.
J - Estimated concentration above MDL but below RL.
Test Pits TP-13 and TP-14 not sampled.

protection of ground water. Of these cPAHs, benzo(a)pyrene is generally considered to be the most toxic, and the concentrations of the other cPAHs were converted to benzo(a)pyrene toxicity equivalents by multiplying them by factors ranging from 0.01 to 1 depending on their relative toxicity. The results for these cPAHs are summarized, totaled and converted to total cPAH as benzo(a)pyrene equivalents in Table 7.

Review of Table 7 indicates that total cPAH concentrations in the surface-soil samples ranged from 3,071 ug/kg in Surface-Soil Sample SS-3, to 40,600 ug/kg in Surface-Soil Sample SS-5. Total cPAH concentrations as benzo(a)pyrene equivalent ranged from 790 ug/kg in Surface-Soil Sample SS-3 to 10,153 in Surface-Soil Sample SS-5. Surface-Soil Sample SS-5 was collected near North Broadway. The results for this sample may reflect roadway-related influences (e.g., the presence of road dust in the surface soil). Total cPAH concentrations in the subsurface-soil samples ranged from 933 ug/kg in Subsurface-Soil Sample TP-5 to 44,800 ug/kg in Subsurface-Soil Sample TP-3. Total cPAH concentrations as benzo(a)pyrene equivalent ranged from 283 ug/kg to 11,734 ug/kg in these same two samples, respectively. The results for Subsurface-Soil Sample TP-3 are attributed to the small amount of ash-like material observed in this test pit. The average total cPAH concentration of the surface-soil samples (14,984 ug/kg) is approximately 16 percent lower than the average total cPAH concentration of the subsurface-soil samples (17,891 ug/kg). The average total cPAH concentration as benzo(a)pyrene equivalent of the surface-soil samples (3,887 ug/kg) is approximately 13 percent lower than the average total cPAH concentration as benzo(a)pyrene equivalent of the subsurface-soil samples (4,468 ug/kg). These differences are attributed to the fact that PAH degradation rates are typically higher in surface soil than in subsurface soil.

To assess the environmental significance of the cPAH results, they were compared to available information on background levels of cPAHs. Specifically, the results were compared to the urban soil background levels provided in the following two documents:

- A guidance document issued by the Illinois Environmental Protection Agency (IL-EPA) entitled "Urban Area Polycyclic Aromatic Hydrocarbons Study Tiered Approach to Corrective Action Objectives". (The specific data compared were the 95th percentiles for soil within Metropolitan Statistical Areas (MSAs)); and
- A technical update issued by the Massachusetts Department of Environmental Protection (MADEP) entitled "Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil" (The specific data compared were the 90th per-centiles for both "natural" soil and soil containing fill with wood ash and/or coal ash).

Copies of these documents are provided in Appendix I of this report. The results are compared to these background levels in Table 8.

As shown in Table 8, with respect to the individual cPAHs the minimum concentration of each cPAH detected in the soil samples is lower than the IL-DEP and MADEP data. The maximum concentration of each cPAH detected in the soil samples is comparable to the MADEP data for urban soils containing fill with wood ash and/or coal ash. The average

TABLE 7

Summary of Carcinogenic Polycyclic Aromatic Hydrocarbon Results for Soil Samples

Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

NYSDEC CARCINOGENIC[1] PAHS (cPAHs)	BaP Equiv.[1] Factor	Surface-Soil Sample Number and Result (ug/kg)					
		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
Benzo(a)anthracene	0.1	610	960	530	3,600	7,700	2,300
Chrysene	0.01	620	970	600	4,100	8,000	2,600
Benzo(b)fluoranthene	0.1	620	860	540	3,500	5,700	2,800
Benzo(k)fluoranthene	0.01	620	1,200	540	3,100	6,300	3,300
Benzo(a)pyrene (BaP)	1	640	1,100	570	3,500	6,500	3,600
Indeno(1,2,3-cd)pyrene	0.1	240	360	210	2,300	4,700	1,300
Dibenzo(a,h)anthracene	1	100	140	81	830	1,700	360
Total cPAHs:		3,450	5,590	3,071	20,930	40,600	16,260
Total cPAHs as BaP Equivalent:		899	1,480	790	5,342	10,153	4,659

NYSDEC CARCINOGENIC[1] PAHS (cPAHs)	BaP Equiv.[1] Factor	Subsurface-Soil Sample Number and Result (ug/kg)						
		TP-1	TP-2	TP-3	TP-4	TP-5	TP-6	TP-7
Benzo(a)anthracene	0.1	1,500	3,300	8,700	1,400	170	1,300	1,100
Chrysene	0.01	1,600	3,400	9,000	1,400	230	1,400	1,100
Benzo(b)fluoranthene	0.1	1,400	2,500	6,500	1,100	90	950	700
Benzo(k)fluoranthene	0.01	1,200	3,100	7,400	1,700	90	1,300	1,100
Benzo(a)pyrene (BaP)	1	1,500	3,300	8,500	1,500	200	1,400	1,100
Indeno(1,2,3-cd)pyrene	0.1	460	1,100	3,500	510	110	830	630
Dibenzo(a,h)anthracene	1	280	460	1,200	220	43	420	220
Total cPAHs:		7,940	17,160	44,800	7,830	933	7,600	5,950
Total cPAHs as BaP Equivalent:		2,144	1,216	11,734	2,052	283	2,155	1,585

NYSDEC CARCINOGENIC[1] PAHS (cPAHs)	BaP Equiv.[1] Factor	Subsurface-Soil Sample Number and Result (ug/kg)						
		TP-8	TP-9	TP-10	TP-11	TP-12	TP-15	TP-16
Benzo(a)anthracene	0.1	1,800	6,000	2,700	1,900	4,600	8,300	4,200
Chrysene	0.01	1,900	6,200	2,600	2,000	4,600	7,800	4,200
Benzo(b)fluoranthene	0.1	1,300	4,200	2,300	1,300	3,500	6,200	3,400
Benzo(k)fluoranthene	0.01	1,500	6,800	2,200	1,900	4,800	7,200	3,600
Benzo(a)pyrene (BaP)	1	1,800	7,000	2,700	1,900	5,000	7,800	4,000
Indeno(1,2,3-cd)pyrene	0.1	930	4,200	1,700	1,100	2,600	1,600	1,000
Dibenzo(a,h)anthracene	1	410	1,600	880	590	1,300	710	440
Total cPAHs:		9,640	36,000	15,080	10,690	26,400	39,610	20,840
Total cPAHs as BaP Equivalent:		848	10,170	4,298	2,959	7,464	10,270	5,378

Notes:

1 - From NYSDEC document provided in Appendix I.

ug/kg - Micrograms per kilogram.

Estimated results used at face value, non-detectable concentrations are reported as detectable concentrations equal to one-half the MDL for calculation purposes.

Test Pits TP-13 and TP-14 not sampled.

TABLE 8

Comparison of cPAH Results to Illinois EPA and Massachusetts DEP Background Levels[1]

Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

NYSDEC CARCINOGENIC[2] PAHS (cPAHs)	Surface-Soil Sample Results (ug/kg)[3]			IL-EPA	MADEP	MADEP
	Minimum	Maximum	Average	MSAs	Nat. Soil	Soil w/ Ash
Benzo(a)anthracene	530	7,700	2,617	1,800	2,000	8,500
Chrysene	600	8,000	2,815	2,700	2,000	7,300
Benzo(b)fluoranthene	540	5,700	2,337	2,000	2,000	8,400
Benzo(k)fluoranthene	540	6,300	2,510	1,700	1,000	4,000
Benzo(a)pyrene (BaP)	570	6,500	2,652	2,100	2,000	7,400
Indeno(1,2,3-cd)pyrene	210	4,700	1,518	1,600	1,000	2,800
Dibenzo(a,h)anthracene	81	1,700	535	420	500	1,100
Total cPAH:	3,071	40,600	14,984	12,320	10,500	39,500
Total cPAH as BaP Equivalent:	790	10,153	3,887	3,104	3,030	10,583

NYSDEC CARCINOGENIC[2] PAHS (cPAHs)	Subsurface-Soil Sample Results (ug/kg)[3]			IL-EPA	MADEP	MADEP
	Minimum	Maximum	Average	MSAs	Nat. Soil	Soil w/ Ash
Benzo(a)anthracene	170	8,700	3,355	1,800	2,000	8,500
Chrysene	230	9,000	3,388	2,700	2,000	7,300
Benzo(b)fluoranthene	90	6,500	2,531	2,000	2,000	8,400
Benzo(k)fluoranthene	90	7,400	3,135	1,700	1,000	4,000
Benzo(a)pyrene (BaP)	200	8,500	3,407	2,100	2,000	7,400
Indeno(1,2,3-cd)pyrene	110	4,200	1,448	1,600	1,000	2,800
Dibenzo(a,h)anthracene	43	1,600	627	420	500	1,100
Total cPAH:	933	44,800	17,891	12,320	10,500	39,500
Total cPAH as BaP Equivalent:	283	11,734	4,468	3,818	2,440	8,439

Notes:

1 - See Appendix I.

2 - From NYSDEC document provided in Appendix I.

3 - From Table 7.

ug/kg - Micrograms per kilogram.

Estimated results used at face value, non-detectable concentrations are reported as detectable concentrations equal to one-half the MDL for calculation purposes.

concentration of each cPAH detected in the soil samples is higher than the IL-EPA data for MSAs and/or the MADEP data for "natural" soil, but lower than the MADEP data for soil containing fill with wood ash and/or coal ash. The same relative relationships exist for the total cPAH and total cPAH as benzo(a)pyrene equivalent concentrations.

Based on the above comparison, the concentrations of cPAHs in the fill do not appear to be a significant threat to public health or the environment. However, since the average concentrations of individual cPAHs, total cPAH and total cPAH as benzo(a)pyrene equivalent are higher than the IL-EPA data and the MA-DEP data for "natural" soil, the concentrations of cPAHs in the fill may pose a slightly higher risk relative to other nearby areas that do not contain the fill. The cPAHs in the fill will continue to break down over time. However, in the meantime, preventing direct contact with the fill would eliminate this potential risk.

4.4 Results of Pesticide Analyses

The six surface-soil samples and 14 subsurface-soil samples were analyzed by USEPA Method 8081A for the 19 pesticides listed in Table 3 of TAGM 4046. The results, in ug/kg, are summarized and compared to the TAGM 4046 RSCOs in Tables 9 and 10.

Review of these tables indicates that the fill contains low levels of several pesticide compounds, but that the concentrations detected are not a significant threat to human health or the environment. Specifically, 15 of the 19 pesticides compounds analyzed for were detected in the soil samples, however, the concentrations of all 15 detected pesticides compounds are lower than their respective TAGM 4046 RSCOs. The pesticide detections are summarized in the following table:

Detected Pesticide	Frequency of Detection		Range of Detection (ug/kg)	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Alpha-BHC	0/6	3/14	NA	0.042 to 0.51J
Beta-BHC	3/6	4/14	0.43J to 1.8J	0.33J to 0.76J
Delta-BHC	0/6	2/14	NA	0.30J to 0.40J
Heptachlor	1/6	1/14	1.2J	0.41J
Aldrin	3/6	3/14	0.62J to 5.0	0.77J to 1.1J
Heptachlor epoxide	6/6	12/14	0.58J to 3.9	0.48J to 5.1J
Dieldrin	1/6	3/14	5.2	0.010 to 3.6J
4,4'-DDE	6/6	13/14	3.1J to 50	0.012 to 75
Endrin	1/6	0/14	22	NA
4,4'-DDD	6/6	14/14	2.0J to 54	0.038 to 100
4,4'-DDT	6/6	13/14	5.3 to 73	0.058 to 85
Methoxychlor	5/6	8/14	3.0J to 21J	11J to 55J
Gamma-Chlordane	4/6	11/14	1.7J to 3.7	0.50J to 12J
Endrin ketone	3/6	6/14	2.4J to 19	2.4J to 24J
Chlordane	4/6	9/14	14J to 34	17J to 360

ug/kg – Micrograms per kilogram.
NA – Not applicable.
J – Estimated concentration above MDL but below RL.

TABLE 9
Summary of Pesticide Results for Surface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 PESTICIDE[1]	TAGM 4046[1] RSCO (ug/kg)	Surface-Soil Sample Number and Result (ug/kg)					
		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
alpha-BHC	110	<2.5	<2.3	<2.3	<2.2	<2.5	<2.5
beta-BHC	200	<2.5	0.43J	<2.3	<2.2	0.89J	1.8J
delta-BHC	300	<2.5	<2.3	<2.3	<2.2	<2.5	<2.5
gamma-BHC (Lindane)	60	<2.5	<2.3	<2.3	<2.2	<2.5	<2.5
Heptachlor	100	<2.5	<2.3	<2.3	<2.2	1.2J	<2.5
Aldrin	41	1.3J	<2.7	<2.7	0.62J	<2.9	5.0
Heptachlor epoxide	20	1.5J	0.88J	0.58J	0.99J	2.5J	3.9
Endosulfan I	900	<2.5	<2.3	<2.3	<2.2	<2.5	<2.5
Dieldrin	44	<4.9	<4.5	<4.4	<4.3	5.2	<4.9
4,4'-DDE	2,100	40	4.6	3.1J	10	45	50
Endrin	100	<7.5	<6.9	<6.6	<6.6	<7.3	22
Endosulfan II	900	<4.9	<4.5	<4.4	<4.3	<4.8	<4.9
4,4'-DDD	2,900	18	2.0J	2.9J	9.0	54	17
Endosulfan sulfate	1,000	<4.9	<4.5	<4.4	<4.3	<4.8	<4.9
4,4'-DDT	2,100	69	7.8	5.3	20	73	34
Methoxychlor	<10,000	20J	<23	3.0J	21J	12J	15J
gamma-Chlordane	540	3.7	<2.3	1.7J	1.9J	3.3	<2.5
Endrin ketone	N/A	<4.9	<4.5	2.4J	9.1	<4.8	19
Chlordane	540	34	<23	14J	14J	32	<25

Notes:
1 - From Appendix A, Table 3 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.

TABLE 10 (Page 1 of 3)
Summary of Pesticide Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 PESTICIDE[1]	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)					
		TP-1	TP-2	TP-3	TP-4	TP-5	TP-6
alpha-BHC	110	<20	<1.9	<19	<1.9	<2.0	0.51J
beta-BHC	200	<20	0.76J	<19	0.39J	<2.0	0.33J
delta-BHC	300	<20	<1.9	<19	0.30J	<2.0	<1.9
gamma-BHC (Lindane)	60	<20	<1.9	<19	<1.9	<2.0	<1.9
Heptachlor	100	<20	<1.9	<19	<1.9	<2.0	<1.9
Aldrin	41	<23	<2.2	<23	<2.3	<2.3	0.77J
Heptachlor epoxide	20	2.1J	1.8J	5.1J	1.1J	0.48J	1.3J
Endosulfan I	900	<20	<1.9	<19	<1.9	<2.0	<1.9
Dieldrin	44	<38	3.6J	<37	<3.8	<3.9	<3.7
4,4'-DDE	2,100	39	11	75	11	14	12
Endrin	100	<57	<5.6	<57	<5.7	<5.8	<5.6
Endosulfan II	900	<38	<3.7	<37	<3.8	<3.9	<3.7
4,4'-DDD	2,900	68	4.3	100	8.5	5.4	5.0
Endosulfan sulfate	1,000	<38	<3.7	<37	<3.8	<3.9	<3.7
4,4'-DDT	2,100	80	2.8J	79	4.3	9.4	4.6
Methoxychlor	<10,000	<200	13J	55J	23	<20	17J
gamma-Chlordane	540	6.4J	1.6J	12J	1.8J	0.50J	8.5
Endrin ketone	N/A	24J	<3.7	18J	6.8	<3.9	<3.7
Chlordane	540	67J	<19	360	27	<20	54

Notes:
1 - From Appendix A, Table 3 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.

TABLE 10 (Page 2 of 3)
Summary of Pesticide Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 PESTICIDE[1]	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)					
		TP-7	TP-8	TP-9	TP-10	TP-11	TP-12
alpha-BHC	110	<1.9	<3.8	<1.9	<19	<2.0	<18
beta-BHC	200	<1.9	<3.8	0.70J	<19	<2.0	<18
delta-BHC	300	<1.9	<3.8	0.40J	<19	<2.0	<18
gamma-BHC (Lindane)	60	<1.9	<3.8	<1.9	<19	<2.0	<18
Heptachlor	100	<1.9	<3.8	0.41J	<19	<2.0	<18
Aldrin	41	1.0J	<4.4	<2.2	<23	1.1J	<21
Heptachlor epoxide	20	0.84J	1.0J	4.8	2.0J	1.8J	1.6J
Endosulfan I	900	<1.9	<3.8	<1.9	<19	<2.0	<18
Dieldrin	44	<3.6	<7.3	<3.7	<38	<3.9	<35
4,4'-DDE	2,100	12	15	26	18J	9.4	15J
Endrin	100	<5.5	<11	<5.6	<57	<5.9	<52
Endosulfan II	900	<3.6	<7.3	<3.7	<38	<3.9	<35
4,4'-DDD	2,900	22	17	2.6J	19J	6.3	17J
Endosulfan sulfate	1,000	<3.6	<7.3	<3.7	<38	<3.9	<35
4,4'-DDT	2,100	20	36	<3.7	57	14	85
Methoxychlor	<10,000	11J	11J	39	<190	19J	<180
gamma-Chlordane	540	2.7	1.9J	<1.9	5.1J	1.7J	3.7J
Endrin ketone	N/A	<3.6	2.4J	<3.7	23J	<3.9	6.3J
Chlordane	540	24	26J	<19	41J	17J	30J

Notes:
1 - From Appendix A, Table 3 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.

TABLE 10 (Page 3 of 3)
Summary of Pesticide Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

TAGM 4046 PESTICIDE[1]	TAGM 4046[1] RSCO (ug/kg)	Subsurface-Soil Sample Number and Result (ug/kg)			
		TP-13	TP-14	TP-15	TP-16
alpha-BHC	110	Not	Not	0.044	0.042
beta-BHC	200	Sampled	Sampled	<0.0088	<0.0089
delta-BHC	300			<0.0088	<0.0089
gamma-BHC (Lindane)	60			<0.0088	<0.0089
Heptachlor	100			<0.0088	<0.0089
Aldrin	41			<0.0088	<0.0089
Heptachlor epoxide	20			<0.0088	<0.0089
Endosulfan I	900			<0.0088	<0.0089
Dieldrin	44			0.010	0.011
4,4'-DDE	2,100			0.012	<0.0089
Endrin	100			<0.0088	<0.0089
Endosulfan II	900			<0.0088	<0.0089
4,4'-DDD	2,900			0.099	0.038
Endosulfan sulfate	1,000			<0.0088	<0.0089
4,4'-DDT	2,100			0.18	0.058
Methoxychlor	<10,000			<0.0088	<0.0089
gamma-Chlordane	540			<0.0088	<0.0089
Endrin ketone	N/A			<0.0088	<0.0089
Chlordane	540			<0.088	<0.089

Notes:
1 - From Appendix A, Table 3 of NYSDEC TAGM 4046.
RSCO - Recommended Soil Cleanup Objective.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
N/A - Not available.
J - Estimated concentration above MDL but below RL.

Review of the above table indicates that overall, the frequency of detection of each pesticide was similar for the surface- and subsurface-soil samples. Heptachlor epoxide, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT and gamma-Chlordane are the pesticides that were detected most frequently. As shown by the ranges of detection, the concentrations of most of the detected pesticides were higher in the subsurface-soil samples than in the surface-soil samples.

4.5 Results of Polychlorinated Biphenyl (PCB) Analyses

The six surface-soil samples were analyzed by USEPA Method 8082 for the individual PCB Aroclors. The results, in ug/kg, are summarized, totaled, and compared to the TAGM 4046 RSCO for total PCBs in surface soil in Table 11. Note that there are no TAGM 4046 RSCOs for the individual PCB Aroclors.

Review of Table 11 indicates that the surface soil at the Site is not a significant source of PCBs, and that the levels of PCBs in the surface soil are not a significant threat to human health or the environment. Specifically, PCB detections were limited to sporadic, low concentrations of Aroclors 1248, 1254 and/or 1260 in five of the six samples. Total PCB concentrations were lower than the 1,000-ug/kg TAGM 4046 RSCO for surface soil in all six samples, and ranged from not-detected in Surface-Soil Sample SS-2 to 114 ug/kg in Surface-Soil Sample SS-6.

The subsurface-soil samples were not analyzed for PCBs because the results of previous investigations indicate that subsurface soils at the Site are not a significant source of PCBs, and that the levels of PCBs in subsurface soil are not a significant risk to human health or the environment. Specifically, PCBs were not detected in nine subsurface-soil samples collected from three soil borings drilled in July 1992. A copy of these results is provided in Appendix E of this report. The NYSDEC TAGM RSCO for total PCBs in subsurface soil is 10,000 ug/kg.

4.6 Results of Inorganic Parameter (Metals) Analyses

The six surface-soil samples and 14 subsurface-soil samples were analyzed by USEPA Methods 6010B and 9012 (cyanide) for the 24 inorganic parameters listed in Table 4 of TAGM 4046. The 14 subsurface-soil samples were also analyzed by USEPA Synthetic Precipitation Leaching Procedure (SPLP) and Method 6010B for leachable lead. The results, in milligrams per kilogram (mg/kg) and micrograms per liter (ug/L), respectively, are summarized and compared to the applicable TAGM 4046 RSCOs, the Class GA (potable) ground water standard for lead, and/or published background concentrations in Tables 12 and 13.

Overall, the results for the inorganic parameters indicate that the concentrations of these parameters in soil are not a significant threat to human health or the environment. The specific findings are discussed below for each parameter.

TABLE 11
Summary of Polychlorinated Biphenyl (PCB) Results for Surface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

PCB Aroclor	TAGM 4046[1] RSCO (ug/kg)	Surface-Soil Sample Number and Result (ug/kg)					
		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
Aroclor 1016	N/A	<25	<23	<23	<22	<25	<25
Aroclor 1221	N/A	<49	<45	<44	<43	<48	<49
Aroclor 1232	N/A	<25	<23	<23	<22	<25	<25
Aroclor 1242	N/A	<25	<23	<23	<22	<25	<25
Aroclor 1248	N/A	<25	<23	<23	<22	25J	39
Aroclor 1254	N/A	34	<23	<23	26	30	58
Aroclor 1260	N/A	26	<23	7.5J	<22	14J	17J
Total PCB	1,000	60	ND	7.5	26	69	114

Notes:
1 - From Appendix A, Table 3 of NYSDEC TAGM 4046.
ug/kg - Micrograms per kilogram, results are presented relative to reporting limits (RLs).
N/A - Not available.
ND - Not detected.
J - Estimated concentration above MDL but below RL.

TABLE 12
Summary of Inorganic Parameter (Metals) Results for Surface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

Inorganic[1] Parameter	Surface-Soil Sample Number and Result (mg/kg)						TAGM 4046[1] RSCO (mg/kg)	Eastern USA[1] Bkgd. (mg/kg)	NYSDEC[2] Study (mg/kg)	MADEP[2] Study (mg/kg)	NJDEPE[2] Bkgd. (mg/kg)
	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6					
Aluminum	6,390	10,200	6,960	8,710	7,810	9,240	SB	33,000	N/A	10,000	N/A
Antimony	<21.1N	<18.9N	<17.1N	<18.0N	<20.2N	<19.1N	SB	N/A	7.4	1	0.1
Arsenic	5.2JB	4.9JB	4.1JB	3.4JB	5.2JB	5.6JB	7.5 or SB	3 to 12	5.8	20	10.9
Barium	127	121	101	106	783	125	300 or SB	15 to 600	81.1	50	N/A
Beryllium	<3.6	<3.2	<2.9	<3.1	<3.4	<3.3	0.16 (HEAST) or SB	0 to 1.75	0.75	0.4	2.55
Cadmium	<5.4	<4.8	<4.4	<4.6	<5.2	<4.9	1 or SB	0.1 to 1	0.22	2	1.61
Calcium	22,300*	16,500*	45,500*	27,900*	27,200*	13,500*	SB	130 to 50,000	N/A	N/A	N/A
Chromium	18.9*	22.9*	22.4*	23.3*	25.6*	21.6*	10 or SB	1.5 to 40	20.9	30	18.7
Cobalt	5.9	8.6	6.5	7.6	7.8	8.7	30 or SB	2.5 to 60	N/A	4	N/A
Copper	33.5	35.1	586	31.1	42.1	37.0	25 or SB	1 to 50	23.4	40	102
Cyanide (ug/kg)	<723	<684	<679	<645	<752	<759	N/A	N/A	N/A	N/A	N/A
Iron	15,500	20,000	14,700	16,600	20,800	18,600	2,000 or SB	2,000 to 550,000	N/A	20,000	N/A
Lead	124*	181*	121*	114*	1,730*	219*	200 to 500	200 to 500	72.5	100	446
Magnesium	6,220	6,220	21,900	14,100	4,720	6,680	SB	100 to 5,000	N/A	5,000	N/A
Manganese	308	350	284	309	392	360	SB	50 to 5,000	N/A	300	515
Mercury	0.13JB	0.27JB	0.21JB	0.31JB	1.2JB	0.2JB	0.1	0.001 to 0.2	0.24	0.3	1.58
Nickel	16.7	22.9	19.1	25.0	21.9	21.6	13 or SB	0.5 to 25	21	20	28.7
Potassium	1,190	2,180	1,790	1,740	1,460	1,980	SB	8,500 to 43,000	N/A	N/A	N/A
Selenium	<28.9	<25.8	<23.4	<24.6	<27.6	<26.2	2 or SB	0.1 to 3.9	1	0.5	0.13
Silver	<5.4	<4.8	<4.4	<4.6	<5.2	<4.9	SB	N/A	N/A	0.6	0.34
Sodium	370N	185N	166N	156N	235N	137BN	SB	6,000 to 8,000	N/A	N/A	N/A
Thallium	<39.8	<35.5	<32.2	<33.8	<37.9	<36.0	SB	N/A	N/A	0.6	0.24
Vanadium	26.0	34.4	25.4	30.4	34.8	34.7	150 or SB	1 to 300	N/A	30	39.9
Zinc	188	116	118	95.6	493	119	20 or SB	9 to 50	87.1	100	317

Notes: 1 - From Appendix A, Table 4 of NYSDEC TAGM 4046.
2 - See Appendix I.
mg/kg - Milligrams per kilogram, results presented relative to reporting limits (RLs).
ug/kg - Micrograms per kilogram, results presented relative to RLs.
SB - Site background.
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank
N - Spiked sample recovery not within control limits.
* - Duplicate analysis not within control limits.

TABLE 13 (Page 1 of 3)
Summary of Inorganic Parameter (Metals) Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

Inorganic[1] Parameter	Subsurface-Soil Sample Number and Result (mg/kg)						TAGM 4046[1] RSCO (mg/kg)	Eastern USA[1] Bkgd. (mg/kg)	NYSDEC[2] Study (mg/kg)	MADEP[2] Study (mg/kg)	NJDEPE[2] Bkgd. (mg/kg)
	TP-1	TP-2	TP-3	TP-4	TP-5	TP-6					
Aluminum	8,300	7,710	8,970	8,560	11,100	9,150	SB	33,000	N/A	10,000	N/A
Antimony	<15.9N	<14.8N	<16.0N	<15.5N	<16.5N	<14.8N	SB	N/A	7.4	1	0.1
Arsenic	5.6JB	5.2JB	6.7JB	8.0JB	6.2JB	4.5JB	7.5 or SB	3 to 12	5.8	20	10.9
Barium	200	119	332	154	159	216	300 or SB	15 to 600	81.1	50	N/A
Beryllium	<2.7	<2.5	<2.7	<2.6	<2.8	<2.5	0.16 (HEAST) or SB	0 to 1.75	0.75	0.4	2.55
Cadmium	<4.1	<3.8	<4.1	<4.0	<4.2	<3.8	1 or SB	0.1 to 1	0.22	2	1.61
Calcium	38,300	15,500	39,500	21,100	11,200	28,600	SB	130 to 50,000	N/A	N/A	N/A
Chromium	14.5	18.1	17.9	20.7	16.0	18.4	10 or SB	1.5 to 40	20.9	30	18.7
Cobalt	6.6*N	6.5*N	6.5*N	7.1*N	12.0*N	7.2*N	30 or SB	2.5 to 60	N/A	4	N/A
Copper	49.4*N	29.9*N	26.8*N	27.1*N	24.3*N	34.9*N	25 or SB	1 to 50	23.4	40	102
Cyanide (ug/kg)	<564	<546	<563	<549	<588	<545	N/A	N/A	N/A	N/A	N/A
Iron	14,000	16,300	15,600	16,700	16,300	16,100	2,000 or SB	2,000 to 550,000	N/A	20,000	N/A
Lead, total	144	85.2	269	73.8	64.2	93.2	200 to 500	200 to 500	72.5	100	446
Lead, SPLP[3]	4.3JB	<10	<10	<10	<10	<10	25 (ug/L)				
Magnesium	14,500*	7,410*	15,100*	11,900*	3,820*	14,000*	SB	100 to 5,000	N/A	5,000	N/A
Manganese	320	324	286	246	423	278	SB	50 to 5,000	N/A	300	515
Mercury	0.21JBN	0.19JBN	0.43JBN	0.21JBN	0.17JBN	0.15JBN	0.1	0.001 to 0.2	0.24	0.3	1.58
Nickel	16.2	19.1	16.9	21.7	12.9	19.6	13 or SB	0.5 to 25	21	20	28.7
Potassium	1,620	1,580	1,610	2,070	845	2,180	SB	8,500 to 43,000	N/A	N/A	N/A
Selenium	<21.7	<20.3	<21.9	<21.1	<22.6	<20.2	2 or SB	0.1 to 3.9	1	0.5	0.13
Silver	<4.1	<3.8	<4.1	<4.0	<4.2	<3.8	SB	N/A	N/A	0.6	0.34
Sodium	482N	143N	476N	168N	96.7BN	213N	SB	6,000 to 8,000	N/A	N/A	N/A
Thallium	<29.8	<27.9	<30.1	<29.1	<31.1	<27.8	SB	N/A	N/A	0.6	0.24
Vanadium	23.1	33.2	29.2	29.3	24.1	25.2	150 or SB	1 to 300	N/A	30	39.9
Zinc	232*N	107*N	230*N	106*N	101*N	203*N	20 or SB	9 to 50	87.1	100	317

Notes:
1 - From Appendix A, Table 4 of NYSDEC TAGM 4046.
2 - See Appendix I.
3 - Synthetic Precipitation Leaching Procedure, results are in units of micrograms per liter (ug/L), limit is Class GA standard from TOGS 1.1.1.
mg/kg - Milligrams per kilogram, results are presented relative to reporting limits (RLs).
ug/kg - Micrograms per kilogram, results are presented relative to RLs.
SB - Site background.
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank
N - Spiked sample recovery not within control limits.
* - Duplicate analysis not within control limits.

TABLE 13 (Page 2 of 3)
Summary of Inorganic Parameter (Metals) Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

Inorganic[1] Parameter	Subsurface-Soil Sample Number and Result (mg/kg)						TAGM 4046[1] RSCO (mg/kg)	Eastern USA[1] Bkgd. (mg/kg)	NYSDEC[2] Study (mg/kg)	MADEP[2] Study (mg/kg)	NJDEPE[2] Bkgd. (mg/kg)
	TP-7	TP-8	TP-9	TP-10	TP-11	TP-12					
Aluminum	8,220	10,400	7,160	11,500	7,900	3,690	SB	33,000	N/A	10,000	N/A
Antimony	<16.3N	<14.5N	<15.1N	<16.0N	<16.7N	2.0JBN	SB	N/A	7.4	1	0.1
Arsenic	5.1JB	6.2JB	3.3JB	5.5JB	2.9JB	3.1JB	7.5 or SB	3 to 12	5.8	20	10.9
Barium	107	163	87.3	156	110	32.0	300 or SB	15 to 600	81.1	50	N/A
Beryllium	<2.8	<2.5	<2.6	<2.7	<2.9	<2.6	0.16 (HEAST) or SB	0 to 1.75	0.75	0.4	2.55
Cadmium	<4.2	<3.7	<3.9	<4.1	<4.3	<3.9	1 or SB	0.1 to 1	0.22	2	1.61
Calcium	16,300	26,700	19,600	21,400	14,900	34,000	SB	130 to 50,000	N/A	N/A	N/A
Chromium	17.3	18.6	15.4	22.4	17.6	6.7	10 or SB	1.5 to 40	20.9	30	18.7
Cobalt	6.6*N	6.7*N	5.9*N	8.0*N	6.3*N	4.3*N	30 or SB	2.5 to 60	N/A	4	N/A
Copper	30.7*N	52.2*N	42.5*N	35.6*N	25.5*N	32.9*N	25 or SB	1 to 50	23.4	40	102
Cyanide (ug/kg)	195JB	<561	<559	<574	<576	<519	N/A	N/A	N/A	N/A	N/A
Iron	17,700	15,500	13,600	19,200	13,400	8,730	2,000 or SB	2,000 to 550,000	N/A	20,000	N/A
Lead, total	99.9	205	88.5	197	76.6	43.9	200 to 500	200 to 500	72.5	100	446
Lead, SPLP[3]	<10	<10	<10	4.0JB	<10	<10	25 (ug/L)				
Magnesium	6,290*	9,510*	6,310*	10,800*	4,340*	17,000*	SB	100 to 5,000	N/A	5,000	N/A
Manganese	320	297	228	356	265	129	SB	50 to 5,000	N/A	300	515
Mercury	0.20JBN	0.55JBN	0.16JBN	0.17JBN	0.12JBN	0.050JBN	0.1	0.001 to 0.2	0.24	0.3	1.58
Nickel	17.4	17.0	14.6	18.5	20.4	11.3	13 or SB	0.5 to 25	21	20	28.7
Potassium	1,470	1,440	1,680	2,190	1,180	677	SB	8,500 to 43,000	N/A	N/A	N/A
Selenium	<22.3	<19.9	<20.7	<21.9	<22.8	<20.5	2 or SB	0.1 to 3.9	1	0.5	0.13
Silver	<4.2	<3.7	<3.9	<4.1	<4.3	<3.9	SB	N/A	N/A	0.6	0.34
Sodium	163N	181N	206N	211N	206N	265N	SB	6,000 to 8,000	N/A	N/A	N/A
Thallium	<30.7	<27.3	<28.5	<30.1	<31.4	<28.3	SB	N/A	N/A	0.6	0.24
Vanadium	28.2	28.5	21.6	34.5	21.1	34.7	150 or SB	1 to 300	N/A	30	39.9
Zinc	95.6*N	162*N	73.2*N	119*N	98.3*N	47.5*N	20 or SB	9 to 50	87.1	100	317

Notes:
1 - From Appendix A, Table 4 of NYSDEC TAGM 4046.
2 - See Appendix I.
3 - Synthetic Precipitation Leaching Procedure, results are in units of micrograms per liter (ug/L), limit is Class GA standard from TOGS 1.1.1.
mg/kg - Milligrams per kilogram, results are presented relative to reporting limits (RLs).
ug/kg - Micrograms per kilogram, results are presented relative to RLs.
SB - Site background.
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank
N - Spiked sample recovery not within control limits.
* - Duplicate analysis not within control limits.

TABLE 13 (Page 3 of 3)
Summary of Inorganic Parameter (Metals) Results for Subsurface-Soil Samples
Iona College Site, 1061 North Broadway, Yonkers, NY 10701 (Site # V-00687-3, Index # W3-0981-12)

Inorganic[1] Parameter	Subsurface-Soil Sample Number and Result (mg/kg)				TAGM 4046[1] RSCO (mg/kg)	Eastern USA[1] Bkgd. (mg/kg)	NYSDEC[2] Study (mg/kg)	MADEP[2] Study (mg/kg)	NJDEPE[2] Bkgd. (mg/kg)
	TP-13	TP-14	TP-15	TP-16					
Aluminum	Not	Not	8,370	6,060	SB	33,000	N/A	10,000	N/A
Antimony	Sampled	Sampled	<14.3	<12.5	SB	N/A	7.4	1	0.1
Arsenic			2.8JB	2.6JB	7.5 or SB	3 to 12	5.8	20	10.9
Barium			137	91.6	300 or SB	15 to 600	81.1	50	N/A
Beryllium			<2.4	<2.1	0.16 (HEAST) or SB	0 to 1.75	0.75	0.4	2.55
Cadmium			<3.7	<3.2	1 or SB	0.1 to 1	0.22	2	1.61
Calcium			25,200	14,200	SB	130 to 50,000	N/A	N/A	N/A
Chromium			20.5	13	10 or SB	1.5 to 40	20.9	30	18.7
Cobalt			6.4	5.6	30 or SB	2.5 to 60	N/A	4	N/A
Copper			37.6	48.4	25 or SB	1 to 50	23.4	40	102
Cyanide (ug/kg)			N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron			14,700	12,900	2,000 or SB	2,000 to 550,000	N/A	20,000	N/A
Lead, total			125	90.2	200 to 500	200 to 500	72.5	100	446
Lead, SPLP[3]			<10	<10	25 (ug/L)				
Magnesium			11,500	4,720	SB	100 to 5,000	N/A	5,000	N/A
Manganese			266	207	SB	50 to 5,000	N/A	300	515
Mercury			0.20JB	0.21JB	0.1	0.001 to 0.2	0.24	0.3	1.58
Nickel			17.1	12.2	13 or SB	0.5 to 25	21	20	28.7
Potassium			2,100	1,370	SB	8,500 to 43,000	N/A	N/A	N/A
Selenium			<19.5	<17.1	2 or SB	0.1 to 3.9	1	0.5	0.13
Silver			<3.7	<3.2	SB	N/A	N/A	0.6	0.34
Sodium			148	150	SB	6,000 to 8,000	N/A	N/A	N/A
Thallium			<26.8	<23.5	SB	N/A	N/A	0.6	0.24
Vanadium			28.7	22.2	150 or SB	1 to 300	N/A	30	39.9
Zinc			131	99.8	20 or SB	9 to 50	87.1	100	317

Notes:
1 - From Appendix A, Table 4 of NYSDEC TAGM 4046.
2 - See Appendix I.
3 - Synthetic Precipitation Leaching Procedure, results are in units of micrograms per liter (ug/L), limit is Class GA standard from TOGS 1.1.1.
mg/kg - Milligrams per kilogram, results are presented relative to reporting limits (RLs).
ug/kg - Micrograms per kilogram, results are presented relative to RLs.
SB - Site background.
N/A - Not available.
J - Estimated concentration above MDL but below RL.
B - Parameter also detected in laboratory blank
N - Spiked sample recovery not within control limits.
* - Duplicate analysis not within control limits.

Aluminum: Detected in all 20 soil samples at concentrations ranging from 3,690 to 11,500 mg/kg. These concentrations are lower than the 33,000-mg/kg Eastern USA background value provided in Table 4 of TAGM 4046 and consistent with the 10,000-mg/kg value provided in Table 1 of the MADEP background study.

Antimony: Detected in only 1 of 20 soil samples at a low, estimated concentration of 2 mg/kg. Also detected in the laboratory blank for this sample.
Arsenic: Detected in all 20 soil samples at concentrations ranging from 2.6 to 8 mg/kg. Also detected in the laboratory blanks. These concentrations are consistent with the 7.5-mg/kg or SB (site background) RSCO listed in Table 4 of TAGM 4046, as well as the published background concentrations listed in Tables 12 and 13.

Barium: Detected in all 20 soil samples at concentrations ranging from 32 to 783 mg/kg. Except for the maximum concentration, which was detected in Surface-Soil Sample SS-5, the detected concentrations are consistent with the 300-mg/kg or SB RSCO and/or the 15 to 600 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046. The average barium concentration detected in the soil samples (171.3 mg/kg) is consistent with the 300-mg/kg or SB RSCO and/or the 15 to 600 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.

Beryllium: Not detected in any of the 20 soil samples.

Cadmium: Not detected in any of the 20 soil samples.

Calcium: Detected in all 20 soil samples at concentrations ranging from 11,200 to 45,500 mg/kg. These concentrations are consistent with the 130 to 50,000 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.

Chromium: Detected in all 20 soil samples at concentrations ranging from 6.7 to 25.6 mg/kg. These concentrations are consistent with the 10-mg/kg or SB RSCO and/or the 1.5 to 40 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.

Cobalt: Detected in all 20 soil samples at concentrations ranging from 4.3 to 12 mg/kg. These concentrations are consistent with the 30-mg/kg or SB RSCO listed in Table 4 of TAGM 4046.

Copper: Detected in all 20 soil samples at concentrations ranging from 24.3 to 586 mg/kg. Except for the maximum concentration, which was detected in Surface-Soil Samples SS-3, these concentrations are consistent with the 25-mg/kg or SB RSCO and/or the 1 to 50 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046. The average copper concentration detected in the soil samples (63 mg/kg) is consistent with the background value provided by the MADEP study.

Cyanide: Only detected in one soil sample, Subsurface-Soil Sample TP-7, at a concentration of 195 ug/kg. Also detected in the laboratory blank for this sample.

Iron: Detected in all 20 soil samples at concentrations ranging from 8,730 to 20,800 mg/kg. These concentrations are consistent with the 2,000 to 550,000 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046, as well as the 20,000 mg/kg value provided in Table 1 of the MADEP background study.

Lead: Detected in all 20 soil samples at concentrations ranging from 43.9 to 1,730 mg/kg. Except for the maximum concentration, which was detected in Surface-Soil Sample SS-5, these concentrations are consistent with the 200 to 500 mg/kg urban background range listed in Table 4 of TAGM 4046. The average concentration of lead detected in the soil samples (207 mg/kg) is consistent with the 200 to 500 mg/kg urban background range listed in Table 4 of TAGM 4046. The results for leachable lead were non-detectable in 12 of the 14 subsurface-soil samples and much lower than the potable ground water standard for lead in the other two samples.

Magnesium: Detected in all 20 soil samples at concentrations ranging from 3,820 to 21,900 mg/kg. Concentrations in 16 of the 20 soil samples were higher than the 10 to 5,000 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046 and the 5,000 mg/kg value provided in the MADEP background study. However, in the absence of information indicating that the concentrations detected are site-related, they are attributed to background levels.

Manganese: Detected in all 20 soil samples at concentrations ranging from 129 to 423 mg/kg. These concentrations are consistent with the 50 to 5,000 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.

Mercury: Detected in all 20 soil samples at concentrations ranging from 0.05 to 1.2 mg/kg. These concentrations are consistent with the 0.1-mg/kg RSCO and/or the 0.001 to 0.2 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046, and/or the various background study values provided in Tables 12 and 13.

Nickel: Detected in all 20 soil samples at concentrations ranging from 11.3 to 25 mg/kg. These concentrations are consistent with 13 mg/kg or SB RSCO and/or the 0.5 to 25 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.

Potassium: Detected in all 20 soil samples at concentrations ranging from 677 to 2,190 mg/kg. These concentrations are lower than the 8,500 to 43,000 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.

Selenium: Not detected in any of the 20 soil samples.

Silver: Not detected in any of the 20 soil samples.

Sodium: Detected in all 20 soil samples at concentrations ranging from 96.7 to 482 mg/kg. These concentrations are lower than the 6,000 to 8,000 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.

Thallium: Not detected in any of the 20 soil samples.

Vanadium: Detected in all 20 samples at concentrations ranging from 21.1 to 34.7 mg/kg. These concentrations are consistent with the 150 mg/kg or SB RSCO and the 1 to 300 mg/kg Eastern USA background range listed in Table 4 of TAGM 4046.
Zinc: Detected in all 20 soil samples at concentrations ranging from 47.5 to 493 mg/kg. Except for the maximum concentration, which was detected in Surface-Soil Sample SS-5, these concentrations are consistent with the background ranges referenced in Tables 12 and 13. The average zinc concentration detected in the soil samples (147 mg/kg) is also consistent with the background ranges referenced in Tables 12 and 13.

Based on the above findings, as a whole, metals concentrations in the fill do not pose a significant threat to human health or the environment. The levels of barium, lead and zinc in the vicinity of Surface-Soil Sample SS-5 and copper in the vicinity of Surface-Soil Sample SS-3 are higher than background. However, the average concentrations of these metals are within background ranges. Moreover, preventing direct contact with the fill to eliminate potential risks associated with cPAHs will also eliminate the potential risk associated with the localized above-background metals concentrations at these two locations.

5.0 Conclusions and Recommendations

Based on the results of the site investigation, the following conclusions are made:

1. Fill is present throughout the majority of the Site. The current test pits indicate that the depth of the fill ranges from approximately one foot to more than seven feet. At three test pit locations the fill was underlain by bedrock, at one test pit location the fill was underlain by natural soil. The fill could not be penetrated at the other test pit locations. The volume of fill at the Site is estimated at 16,500 cubic yards.

2. With the exception of one fill pile located in the south portion of the Site, which consists primarily of asphalt, the fill consists of a compact mixture of brown sandy soil, rock fragments, large pieces of concrete, pieces of asphalt, bricks and some small pieces of ceramic tile. A small amount (less than one cubic yard) of gray ash-like material was also noted at Test Pit #3, and a small piece of deformed metal that may be ash was observed in Test Pit TP-15. No obviously processed wood was observed in the fill, although a small amount of what appeared to be natural wood that was buried by the fill was noted.

3. The fill is not a significant source of VOCs, non-cPAH SVOCs, pesticides or PCBs and based on comparison to the TAGM 4046 RSCOs the concentrations of these parameters in the fill are not a significant threat to public health or the environment.

4. All seven of the cPAHs were detected in the fill at concentrations higher than their respective TAGM 4046 RSCO. However, analysis of the subsurface-soil samples for

leachable PAHs indicates that the fill does not leach detectable concentrations of PAHs. Comparison of the range of individual cPAH concentrations, total cPAH concentrations and total cPAH concentrations as benzo(a)pyrene equivalent to the range of values from two urban area background studies indicates that while the ranges of cPAH concentrations detected in the fill are consistent with the ranges from the urban area background studies, the average cPAH concentrations in the fill are higher than values provided in the two background studies. Consequently, the concentrations of cPAHs in the fill may pose a slightly higher risk relative to other nearby areas that do not contain the fill. The cPAHs in the fill will break down over time. In the meantime, preventing direct contact with the fill would eliminate this potential risk.

5. The concentrations of inorganic parameters (metals) in the fill are consistent with the TAGM RSCOs and/or background levels except for the levels of barium, lead and zinc in Surface-Soil Sample SS-5 and copper in Surface-Soil Sample SS-3. However, the average concentrations of these metals are within background ranges. Moreover, preventing direct contact with the fill to eliminate the potential risk associated with cPAHs will also eliminate the potential risk associated with the above-background metals concentrations at these two locations.

In keeping with the above conclusions, and the proposed end use of the Site as open space under the VCP land use category of "restricted residential" it is recommended that direct contact with the fill be prevented. A conceptual site remediation plan for accomplishing this is provided in the following section.

6.0 Conceptual Site Remediation Plan

The objective of this conceptual site remediation plan is to prevent direct contact with the fill while maintaining the end use of the Site as open space. The key elements of the plan are presented below:

1. Remove and recycle the above-grade fill pile that is comprised primarily of asphalt, as it is a localized source of PAHs.

2. Remove and dispose of the miscellaneous debris (tires, etc.) located near the southwest corner of the parking lot.

3. Remove the several large dead trees that were killed as a result of fill being placed around their bases, as they are a potential hazard due to falling limbs.

4. Re-grade the Site as necessary to maintain proper drainage.

5. Perform a topographic survey of the Site to establish grade elevations.

6. Cover the fill in accessible (i.e., relatively flat) areas of the Site with a minimum of one foot of clean soil and establish vegetative cover (e.g., turf grass or a grass and wildflower mix, as appropriate).

7. Cover the steep western slope of the Site with non-eroding material such as crushed rock, including removal of existing trees.

8. Prevent public access to the steep western slope using fencing and signage, screen with landscaping as appropriate.

9. Perform another topographic survey of the Site to verify the thickness of the clean soil cover.

10. Register an appropriate property deed restriction for the Site.

A remedial action selection report and qualitative exposure assessment supporting this plan are provided in Appendices J and K, respectively.

APPENDIX A

NYSDEC March 18, 2004 Letter Approving Revised Work Plan and NYSDEC June 17, 2004 Letter Commenting on May 3, 2004 Site Investigation Report

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
200 White Plains Road – 5th Floor, Tarrytown, New York 10591-5805
Phone: (914) 332-1835 • **FAX:** (914) 332-4670
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

March 18, 2004

ANTHONY D DOUGHERTY ESQ
DOUGHERTY & ASSOCIATES
450 SEVENTH AVENUE
NEW YORK, NY 10123

Re: Site Name: Elizabeth Seton Campus of Iona College Parking Lot
Volunteer: Iona College
Site #: V - 00687-3 Index #: W3-0981-03-12

Dear Mr. Dougherty:

Thank you for submitting the Elizabeth Seton Campus of Iona College Parking Lot revised Site Investigation Plan dated February 26, 2004. The revised Work Plan was submitted to the New York State Department of Environmental Conservation (DEC) and the New York State Department of Health (DOH) pursuant to the Voluntary Cleanup Agreement referenced above and our February 20, 2004 Site Investigation Work Plan technical comments letter. Lockwood, Kessler & Bartlett, Inc. of Syosset, New York submitted the revised Work Plan for Iona College.

The DEC and DOH have reviewed the revised Site Investigation Work Plan. The purpose of the investigation is to determine the nature and extent of contamination at the Iona College Parking Lot site. The Work Plan is approved because it provides a satisfactory outline to achieve this objective. Pursuant to the Agreement Paragraph II.B.2 the revised Work Plan is incorporated into and is an enforceable component of the Agreement. **According to the Work Plan Section 12.0 the Site Investigation Report must be submitted to the DEC and DOH by April 30, 2004.**

An acceptable Site Investigation Report must address the following conditions and technical comments.

1. *Prior Notice:* Prior written notice for the proposed field activities should be provided to DEC and DOH at least five days before commencing such activities. The prior notice may be provided to DEC via conventional mail or e-mail at adlent@gw.dec.state.ny.us and fsn01@health.state.ny.us.

2. *Progress Report:* Pursuant to Paragraph III of the Agreement please provide a site investigation progress report to DEC and DOH by April 10, 2004 for any activity conducted in March 2004.

3. *Background Soil Quality Evaluation:* The Work Plan recognizes that a background soil characterization may be applicable pending results of the other site investigation activities. The Work Plan suggests using publically available data in lieu of a site-specific background soil

March 18, 2004

characterization. Please note that the reference provided in Section 6.0 of the Work Plan is a preliminary report and has not been finalized. Calculated soil cleanup levels based on a preliminary report should be avoided. The Site Investigation Report should include a background soil characterization following the criteria listed in Section 3.6 of the Draft DER-10 Technical Guidance for Site Investigation and Remediation if Iona College is considering cleanup levels other than published in DEC/Division of Environmental Remediation Technical Administrative Guidance Memorandum (TAGM) 94-4046.

If you have any questions or need additional information, please call at (914) 332-1835 ext. 321.

Sincerely,

Andrew D. Lent

Andrew D. Lent
Engineering Geologist II

cc: L. Doyle (Westchester County DOH)
J. Gerlach (Lockwood, Kessler & Bartlett, Inc.)

GW-cc: F. Navratil (NYSDOH)
R. Baldwin
D. D'Ambrosio
K. Grzyb
R. Pergadia
J. Schmitt

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
200 White Plains Road – 5th Floor, Tarrytown, New York 10591-5805
Phone: (914) 332-1835 • **FAX:** (914) 332-4670
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

June 16, 2004

ANTHONY D DOUGHERTY ESQ
DOUGHERTY & ASSOCIATES
450 SEVENTH AVENUE
NEW YORK, NY 10123

Re: Site Name: Elizabeth Seton Campus of Iona College Parking Lot
Volunteer: Iona College
Site #: V - 00687-3 Index #: W3-0981-03-12

Dear Mr. Dougherty:

Thank you for submitting the Elizabeth Seton Campus of Iona College Parking Lot Site Investigation Report dated May 3, 2004. Lockwood, Kessler & Bartlett, Inc. (LKB) of Syosset, New York prepared the Report for Iona College c/o Dougherty & Associates. The Report was submitted to the New York State Department of Environmental Conservation (DEC) and the New York State Department of Health (DOH) pursuant to the conditionally approved Site Investigation Work Plan and the above referenced Voluntary Cleanup Agreement between the Department and Iona College. The Work Plan was submitted to DEC on February 26, 2004 and conditionally approved in our correspondence dated March 18, 2004.

The Report satisfies many of the objectives listed in the Work Plan and facilitates better understanding of the on-site environmental conditions. There are a few data gaps and concerns which must be addressed prior to approval of the Report. These technical concerns are listed below for your information and action. Please satisfactorily address each of the technical concerns listed below in a revised Site Investigation Report. Based on a June 14, 2004 conversation with John Gerlach of LKB Iona College is planning to revise the Report to address the following concerns. If this understanding is incorrect please follow the procedures listed in Paragraph II.E.2.

1. Site Area: Figure 2 of the Report and subsequent figures do not clearly identify the horizontal extent of the site. Please clearly identify the horizontal limits of the site on Figures 2 - 5.

2. Fill Berm Area: The Report identifies an approximately 4,000 cubic yard fill berm area as a portion of the site. Analytical or physical testing was not conducted within the fill berm area. Please complete a minimum of two test pit excavations within the fill berm area and collect one sample from each excavation utilizing the protocols listed in the conditionally approved Work Plan. The samples should be analyzed for the same parameters and methods listed in the Work Plan.

3. Community Air Monitoring: The Report does not explicitly mention whether the New York State Department of Health Community Air Monitoring Plan was implemented during ground intrusive activities. Please clarify this matter in the revised Report.

4. Test Pit Excavation Sample Depth: The Report does not explicitly mention the test pit excavation sample intervals. Please provide this information in the revised Report.

5. Data Tables: The Department would prefer modifying the data tables to include the analytical reporting limits (RL) instead of the method detection limits (MDLs). The reporting limits for each parameter are readily found in the laboratory analytical report test result tables.

6. Volatile Organic Compound Evaluation: Section 4.2 of the Report discusses the results of Volatile Organic Compound (VOC) analyses. The Department concurs that VOCs are not a significant source of contamination on-site, based on existing data. Section 4.2 of the Report states that detected VOCs in the fill material is largely due to laboratory contamination. Supporting information for this conclusion is not provided in the Report except for acetone. Please remove the laboratory contamination suggestion or provide references to support the hypotheses.

7. Recommended Soil Cleanup Objectives (Semivolatile Organic Compounds): Section 4.3 of the Report states that the fill material contains elevated levels of selected semivolatile organic compounds (SVOCs) greater than the recommended soil cleanup objectives listed in DEC/Division of Environmental Remediation TAGM 94-4046. The Report also states that "further evaluation is required to assess the threat they (SVOCs) may pose to human health and the environment" without specifying the suggested further evaluation. Please include the suggested "further evaluation" into the Report or remove it from the document.

8. Recommend Soil Cleanup Objectives (Metals): Section 4.6 of the Report concludes that concentrations of analyzed metals in the fill do not pose a significant threat to human health or the environment. The Report also implies that no future action is required regarding the 23 analyzed metals. The Department does not concur with this conclusion based on the site investigation data. It appears that elevated concentrations of barium, copper, lead, mercury and zinc were detected at one or more locations at levels indicative of concern. Please modify the Report accordingly.

9. Contemplated Use: Section 5.0 of the Report states that the proposed end use of the site is open space. The contemplated end use for the site specified in the Agreement is "restricted residential". Please review the definitions listed in the New York State Environmental Conservation Law § 27-1401 - 1431 to ensure that open space contemplated use is consistent with the restricted residential. Including the specified contemplated restricted residential use in the Report is also recommended.

10. Conceptual Site Remediation Plan: The Department concurs with the Report that preventing direct contact with the fill material is required as part of site closure (remediation) activities based on the existing data. The proposed site closure requirements should be included in the Remedial Closure Work Plan

(RCWP) instead of this document. The RCWP should be submitted to the Department following final approval of the Report in accordance with the terms of the Agreement. Please note that the DEC will consider installation of fencing and signs to be inadequate for preventing direct contact with the subject fill material. Reviewing the remedial program requirements listed in ECL § 27-1415 is recommended before preparing the RCWP.

11. Remedial Selection Report: Appendix J of the Report includes a Remedial Selection Report. The Department will not provide technical comments regarding the proposed site closure requirements until the site investigation is completed and the Report is approved. Please include this information and the alternative evaluation in the RCWP as specified in the Agreement. Additional information will be necessary to support the remediation alternative selections.

12. Qualitative Exposure Assessment: Appendix K of the Report includes a Qualitative Exposure Assessment. The Department will not provide technical comments regarding the proposed site exposure assessments until the site investigation is completed and the site investigation report is approved. Please include a qualitative exposure assessment in the RCWP specified in the Agreement. Additional information will be necessary to support the exposure assessments especially the exposures associated with the ground water pathway.

Please submit a revised Report that fully addresses each of the above items **by August 16, 2004** or contact the DEC by July 6, 2004 to schedule a mutually acceptable submission deadline. As a reminder, please include the site number V-00687-3 on all plans, reports and other correspondence regarding this site.

If you have any questions or need additional information, please call at (914) 332-1835 ext. 321.

Sincerely,

Andrew D. Lent

Andrew D. Lent
Engineering Geologist II

cc: L. Doyle (Westchester County DOH)
J. Gerlach (Lockwood, Kessler & Bartlett, Inc.)

GW-cc: F. Navratil (NYSDOH)
R. Baldwin
D. D'Ambrosio
K. Grzyb
R. Pergadia
J. Schmitt

APPENDIX B

INDEPENDENT TESTING LABORATORY, INC.'S PROPOSED TEST BORING LOCATION PLAN

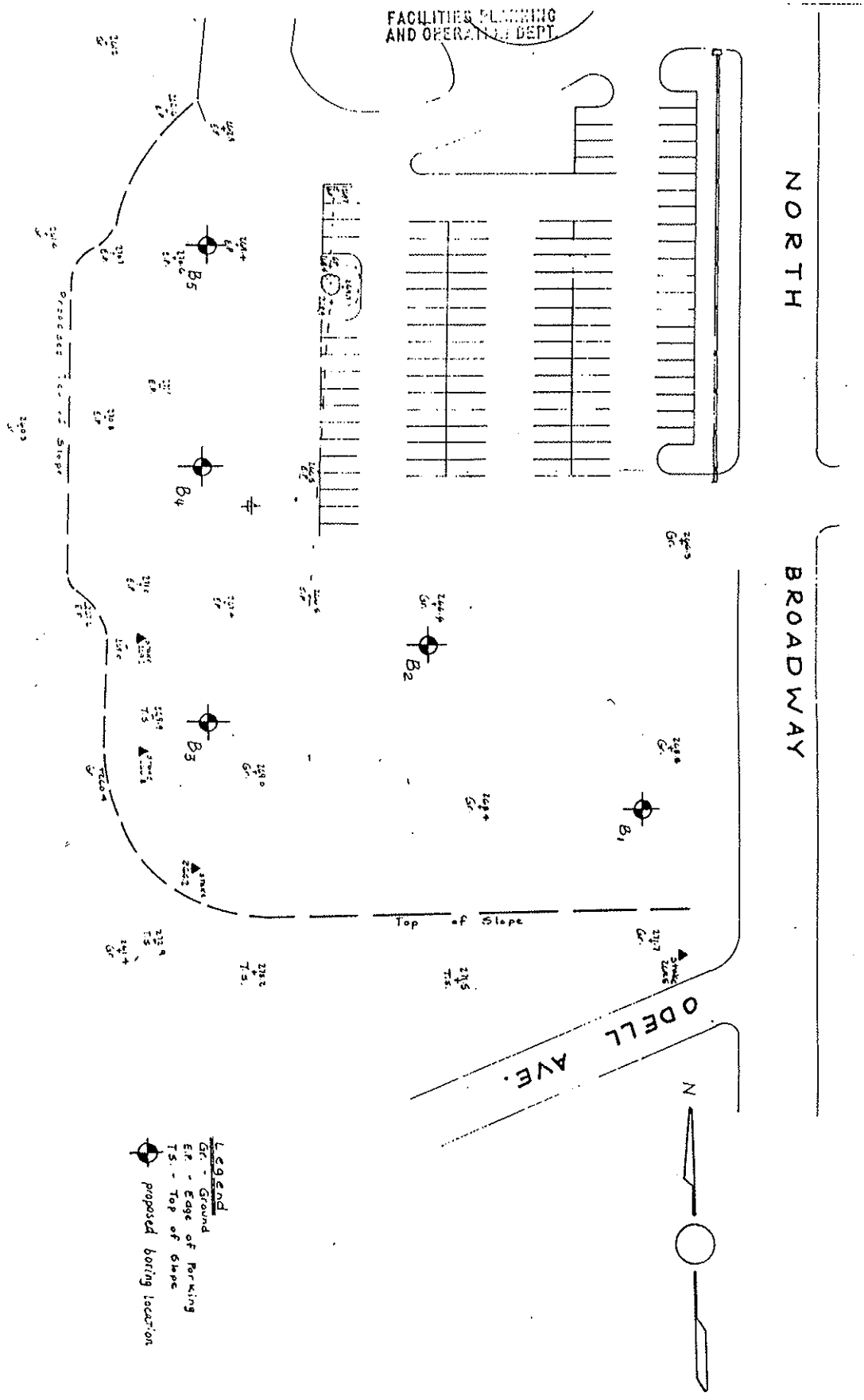
INDEPENDENT TESTING LABORATORIES, INC.

"SERVING NEW YORK METROPOLITAN AREA WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8630 Fax (718) 762-1334

FACILITIES PLANNING AND OPERATIONS DEPT.



PROPOSED TEST BORING LOCATION PLAN — IONA COLLEGE, YONKERS, NY

APPENDIX C

LKB Letter-Style Report Dated November 7, 2002
Reviewing 1990 Dunn Geoscience Fill Analysis Report

LOCKWOOD,
KESSLER &
BARTLETT, INC.

CONSULTING ENGINEERS SINCE 1889

ONE AERIAL WAY, SYOSSET, NEW YORK 11791 (516) 938-0600

TELEFAX (516) 931-6344

November 7, 2002
LKB #2328-01

Anthony D. Dougherty, Esq.
Dougherty & Associates
450 Seventh Avenue, Suite 1308
New York, NY 10123

Re: Review of December 1990 Dunn Geoscience Fill Analysis Report
Elizabeth Seton Campus of Iona College, Yonkers, NY (Report)

Dear Mr. Dougherty,

Lockwood, Kessler & Bartlett, Inc. (LKB) is pleased to submit this technical review of the above-referenced Report in accordance with our proposal dated October 16, 2002. Our findings and recommendation for future action are based on the information contained in the Report, and the understanding that current site conditions are the same as when the Report was prepared.

The Report describes the work performed to characterize the surficial fill material in an undeveloped parcel adjacent to North Broadway. The fill material is located in two separate areas, as shown in Figure 1 of the Report. The main area of fill measures 210 feet by 60 feet and ranges from approximately 2 to 6 feet deep, with an average depth of 4 feet. This equates to an area of 12,600 square feet (0.29 acres) and a volume of 1,867 cubic yards. A smaller area of fill is located approximately 75 feet to the south. No dimensions are provided for this area. For the purposes of this review we assumed that it is one-half the size of the main area of fill, also with an average depth of 4 feet. Based on this assumption, the total area of the fill material is 18,900 square feet (0.43 acres) and the total volume of fill material is 2,800 cubic yards.

Our review consisted of four tasks. The first task was to assess the work performed with respect to currently accepted sampling and analytical procedures. The second task was to compare the data in the Report to current soil cleanup guidelines. The third task was to perform a qualitative assessment of the potential risks to public health and the environment associated with the fill material. The fourth task was to develop a recommendation for further action and the estimated cost. The results of these tasks are summarized below.

Task 1: Assessment of Work Performed With Respect to Current Procedures

LKB assessed the work performed with respect to currently accepted sampling and analytical procedures. Our findings indicate that the work was performed in accordance with these procedures. The key findings with respect to this issue are summarized below:

1. The sampling strategy utilized involved dividing the main area of fill into four sections of similar size, collecting five grab samples from each section in a systematic grid pattern, and combining the grab samples from each section into one composite sample for laboratory analysis of the non-volatile test parameters. Separate samples for laboratory analysis of the volatile test parameters were collected from the center of each section, near the base of the fill material. In addition, two samples were collected from the smaller area of fill located to the south. It is our professional opinion that this sampling strategy was appropriate for this project and provided representative samples of the fill material. Moreover, the fact that 22 test pits were excavated in an area of just 0.43 acres, which equates to one test pit for every 859 square feet of area, allowed for a thorough visual inspection of the fill material.

2. The samples were collected utilizing dedicated, decontaminated stainless steel trowels and hand augers, and placed in coolers with ice prior to being delivered to the analytical laboratory. These procedures are intended to ensure that representative samples are collected.

3. The samples were analyzed for the New York State Department of Environmental Conservation (NYSDEC) Target Compound List (TCL) of organic parameters and Target Analyte List (TAL) of inorganic parameters. These lists were the most extensive lists of soil investigative parameters in common use in 1990, and are still used today. They mirror the United States Environmental Protection Agency (USEPA) TCL and TAL. The fact that the samples were analyzed for these extensive lists of parameters maximized the likelihood that significant contamination, if present, would have been detected. The samples were also analyzed for qualitative hydrocarbon fuel product identification.

4. Based on the laboratory analytical methods listed in the Report, the analyses were performed utilizing NYSDEC- and USEPA-approved methods, and therefore yielded valid, useable results. Moreover, LKB contacted the New York State Department of Health Wadsworth Center and determined that the laboratory utilized was in fact certified in New York State to perform these analyses. Proof of the laboratory's certification status in November 1990 is provided in Attachment 1. It should be noted that the laboratory is no longer in business, and therefore is not on the current list of certified laboratories.

Task 2: Comparison of Results to Current Soil Cleanup Guidelines

The Report provides a detailed assessment of the soil-quality data relative to the interpretive information available in 1990. However, on January 24, 1994, the NYSDEC published a document entitled "*Technical and Administrative Guidance Memorandum #4046, Determination of Soil Cleanup Objectives and Cleanup Levels*" (a.k.a., TAGM 4046), which they currently utilize to assess in-situ soil quality conditions. LKB compared the data provided in the Report to the Recommended Soil Cleanup Objectives (RSCOs) listed in TAGM 4046 to assess environmental conditions with respect to these current guidelines. This comparison is made in Tables 1 and 2 for organic and inorganic parameters, respectively. The results of this comparison are summarized below, first in overall terms and then by parameter group.

1. It is important to note that the data summary table provided in the Report only lists the results for parameters that were detected at least once. It is not a complete list of the parameters tested for. Overall, relatively few TCL/TAL parameters were detected and their concentrations were relatively low. There are approximately 110 TCL/TAL parameters that were analyzed for but not detected. The fact that relatively few parameters were detected and their concentrations were relatively low is indicative of the overall environmental quality of the fill material. The TCL is comprised of the following organic parameter groups: volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs).

2. Only four VOCs were detected, and all detected concentrations were lower than their respective RSCOs. Based on this comparison, as per TAGM 4046, the VOCs detected in the fill material do not pose a significant threat to public health or the environment. Moreover, the VOCs in the fill material have likely decreased since 1990 due to volatilization and biodegradation.

3. Sixteen SVOCs were detected. However, the detected concentrations of all but two, benzo(a)anthracene and chrysene, were lower than their respective RSCOs and therefore, as per TAGM 4046, do not pose a significant threat to public health or the environment. Although benzo(a)anthracene and chrysene were detected at concentrations higher than their respective RSCOs, in our opinion, the concentrations detected do not necessarily indicate a significant threat to public health or the environment. The RSCOs listed in TAGM 4046 are not regulatory limits but rather are guidelines for developing remedial objectives for otherwise pristine sites. The NYSDEC recognizes that certain TCL/TAL parameters are ubiquitous at low concentrations in the environment. Benzo(a)anthracene and chrysene belong to a class of compounds known as polynuclear aromatic hydrocarbons (PAHs), which form during hydrocarbon combustion processes. PAHs are known to be ubiquitous at low concentrations in the environment, particularly in urban areas. Their detection in the fill material is most likely attributable to the presence of asphalt, which

is noted in the Report. Certain PAHs, including these two compounds, are classified as carcinogens and therefore have extremely low, conservative RSCOs. In actuality, the detected concentrations of both parameters are very low, and were only about twice as high as the laboratory detection limits. Based on our experience, the concentrations of PAHs detected in the fill material are typical for urban areas, and similar low concentrations are likely to be present in soil throughout the surrounding area. Moreover, based on our experience on similar projects, the NYSDEC will likely concur with our opinion that the low concentrations of PAHs detected in the fill material do not pose a significant threat to public health or the environment. Finally, we wish to note that one SVOC listed in the data summary table (benzo(a)fluoranthene) appears to be a typographical error as this compound does not appear on our in-house reference lists of known PAHs. This apparent error does not change our findings with respect to SVOCs.

4. A total of 13 pesticide-related compounds were detected. However, the detected concentrations were very low, and most were estimated concentrations below the laboratory's official minimum reporting limits. All detected concentrations were lower than their respective RSCOs. Based on this comparison, as per TAGM 4046, the concentrations of pesticide-related compounds detected in the fill material do not pose a significant threat to public health or the environment.

5. One PCB compound, Arochlor 1254, was detected in the fill material. However, the detected concentrations were much lower the RSCO for total PCBs in surface soils, which is the most stringent criterion available. Based on this comparison, as per TAGM 4046, the PCB concentrations in the fill material do not pose a significant threat to public health or the environment.

6. The concentrations of inorganic parameters (i.e., metals) detected in the fill material were within the background range for Eastern United States/New York State soils for all parameters except mercury, magnesium, nickel and zinc, which were each slightly higher than their respective background values in one to four samples. The average concentrations of mercury and nickel were within the background ranges for these parameters. Therefore, as per TAGM 4046, the concentrations of these parameters in the fill material do not pose a significant threat to public health or the environment. The average concentrations of magnesium and zinc are only slightly higher than the background ranges. The presence of slightly above background levels of these two parameters is consistent with the site's urban setting. The NYSDEC recognizes that background concentrations of certain inorganic parameters (e.g., lead) in urban areas are higher than the ranges listed in TAGM 4046. Based on our experience on similar projects, the NYSDEC will likely concur with our opinion that the concentrations of magnesium and zinc detected in the fill material do not pose a significant threat to human health or the environment.

Task 3: Qualitative Assessment of Risks Associated With the Fill Material

LKB performed a qualitative assessment of the potential risks to public health and the environment associated with the fill material based on the information available. Our findings indicate that the fill material does not pose a significant threat to public health or the environment. The specific reasons for this determination are summarized below:

1. The 1990 study by Dunn Geoscience was performed in accordance with accepted practices and procedures, and therefore yielded valid, useable results.

2. It is our opinion that the number of test pits excavated (22) was sufficient to allow a thorough visual inspection of the fill material. Page 4 of the Report states that "The fill generally did not have any unusual odors or appear to contain anything other than heterogeneous amounts of soil, asphalt, concrete, brick, and small boulders." In our experience, fill materials of this nature do not pose a significant threat to human health or the environment.

3. The results of analytical testing of six representative samples of the fill material by a State-certified laboratory did not detect the majority (104) of the organic parameters on the NYSDEC TCL or six of the inorganic compounds on the NYSDEC TAL. Moreover, the concentrations of the parameters detected were relatively low. The fact that relatively few parameters were detected at relatively low concentrations is indicative of the overall environmental quality of the fill material.

4. Comparison of the concentrations of the parameters detected to the RSCOs in TAGM 4046 indicates that the vast majority are lower than their respective RSCOs and therefore, as per TAGM 4046, do not pose a significant threat to human health or the environment. Although 2 PAHs and 4 metals were detected at concentrations slightly higher than their respective RSCOs, based on our experience on similar projects, the concentrations detected do not pose a significant threat to human health or the environment and are consistent with the site's urban setting. Moreover, based on our experience on similar projects, the NYSDEC will likely concur with our opinion in this matter.

Task 4: Recommendation for Further Action and Estimated Cost

Our recommendation, based on the information available and our understanding that Iona College plans to sell the parcel on which the fill is located, is to let the fill material remain where it is. The low concentrations of the parameters that are slightly higher than their RSCOs are distributed throughout the fill, which precludes removal of specific areas.

This recommendation is consistent with our overall finding that the fill material does not pose a significant threat to human health or the environment. It is also consistent with the possible use of the parcel for open space preservation. Implementing this recommendation will likely require meeting certain requirements of the NYSDEC and the NYSDOH. The NYSDEC will probably require the collection and analysis of additional samples to demonstrate the current environmental quality of the fill material. Additionally, the NYSDEC may require at least two feet of cover soil on top of the fill material. The NYSDOH may require a deed restriction prohibiting any excavations. We assume that your office will handle deed restriction issues, if required. The estimated cost to collect and analyze additional samples, prepare a summary report of the findings and meet with the NYSDEC is $10,000. The estimated cost for two feet of soil cover over 18,900 square feet at $20 per cubic yard is approximately $28,000. Therefore, the total estimated cost to implement this recommendation is $38,000.

LKB hopes that this information is responsive to your needs and thanks you for the opportunity to provide these services. Please contact us if we can be of further assistance.

Sincerely,
LOCKWOOD, KESSLER & BARTLETT, INC.

Paul Lappano

Paul Lappano, P.E.
Director of Environmental Engineering

Attachments

TABLE 1

Comparison of Detected Organic Parameters to NYSDEC TAGM 4046 RSCOs

DETECTED PARAMETER	NYSDEC RSCO (in ug/kg)	SAMPLE NUMBER AND RESULT (in ug/kg)					
		TP-N1	TP-N2	TP-N3	TP-N4	TP-SE	TP-SW
Volatile Orgainic Compounds (VOCs):							
acetone	200	8 J	ND	16	160	ND	4 J
methylene chloride	100	21	8	ND	29	6	ND
toluene	1,500	19	ND	ND	45	6	ND
tetrachloroethene	1,400	1 J	ND	ND	ND	ND	ND
Semivolatile Organic Compound (SVOCs):							
(Non-carcinogens)							
napthalene	13,000	<720	<730	190 J	78 J	<700	<740
2-methylnapthalene	36,400	72 J	37 J	110 J	78 J	<700	<740
acenapthene	50,000	140 J	73 J	<730	120 J	<700	<740
fluorene	50,000	140 J	73 J	40 J	120 J	<700	<740
phenanthrene	50,000	1,100	770	340 J	1,600	<700	180 J
anthracene	50,000	290 J	220 J	110 J	270 J	<700	<740
fluoranthene	50,000	1,300	1,300	410 J	1,400	<700	260 J
pyrene	50,000	1,300	1,200	410 J	1,200	<700	300 J
bis(2-ethylhexyl)phthalate	50,000	2,900	<730	<730	350 J	<700	<740
di-n-octyl phthalate	50,000	110 J	<720	<730	<750	<700	<740
(Known or suspected carcinogens)							
chrysene	400	**500 J**	**590 J**	230 J	**1,200**	<700	<740
benzo(b)fluoranthene	1,100	610 J	700 J	230 J	700 J	<700	<740
benzo(k)fluoranthene	1,100	140 J	400 J	110 J	630 J	<700	<740
benzo(a)fluoranthene	NA	220 J	1,200	<730	940	<700	<740
benzo(a)anthracene	224 or MDL	<720	**1,300**	**530 J**	**660 J**	<700	<740
indeno(1,2,3-C,D)pyrene	3,200	<720	<730	<730	350 J	<700	<740
Pesticide-Related Compounds:							
heptachlor	100	<17	<3.6	<3.8	<3.9	<0.34	<3.6
aldrin	41	<17	<3.6	<3.8	4.7	<0.34	<3.6
heptachlor epoxide	20	<17	<3.6	<3.8	<3.9	<0.34	<3.6
endosulfan I	900	<17	<3.6	<3.8	<3.9	<0.34	<3.6
dieldrin	44	<17	<3.6	<3.8	14.29	<0.34	<3.6
4,4'-DDE	2,100	<17	<3.6	<3.8	6.93	<0.34	<3.6
endosulfan II	900	<17	<3.6	<3.8	<3.9	<0.34	<3.6
4,4'-DDD	2,900	<17	<3.6	<3.8	12.6	<0.34	<3.6
4,4'-DDT	2,100	<17	<3.6	<3.8	11.5	<0.34	<3.6
endrin aldehyde	100	<17	<3.6	<3.8	6.13	<0.34	<3.6
endrin ketone	NA	<17	<3.6	<3.8	<3.9	4.85	<3.6
methoxychlor	<10,000*	<17	<3.6	<3.8	<3.9	<0.34	<3.6
endosulfan sulfate	1,000	<17	<3.6	<3.8	<3.9	<0.34	<3.6
Polychlorinated Biphenyls (PCBs):							
arochlor 1254	1,000* (surface)	<86	<18	34	54	<18	<18

Notes:

1) RSCO = Recommended Soil Cleanup Objective, from NYSDEC TAGM 4046.
2) Sample Numbers and Results are from 1990 Dunn Geoscience Fill Analysis Report.
3) J = Estimated concentration below the laboratory's official minimum reporting limit.
4) Bold font indicates results that are higher than their respective RSCO.
5) ug/kg = micrograms per kilogram
6) ND = Not Detected.
7) NA = Not Available.

TABLE 2

Comparison of Detected Inorganic Parameters to NYSDEC TAGM 4046 Background Concentrations

DETECTED PARAMETER	BACKGROUND RANGE	SAMPLE NUMBER AND RESULT (in mg/kg)					
		TP-N1	TP-N2	TP-N3	TP-N4	TP-SE	TP-SW
aluminum	33,000	4,120	5,990	8,720	9,920	8,480	8,490
barium	15 to 600	62.1	62.8	65	168	77.5	83.7
beryllium	0 to 1.75	ND	0.58	0.54	ND	ND	ND
calcium	130 to 35,000	7,820	6,520	6,280	15,900	2,440	1,870
cobalt	2.5 to 60	5.4	7.8	7.2	5.3	9	7.7
chromium	1.5 to 40	9.2	13.3	16.8	15.2	21.8	24.8
copper	1 to 50	32.7	42.5	26	19.2	22	11.1
iron	2,000 to 550,000	9,430	12,500	14,900	10,400	14,500	13,500
mercury	0.001 to 0.2	ND	0.3	**0.3**	0.2	0.1	0.1
potassium	8,500 to 43,000	930	1,600	1,600	1,200	2,500	2,500
magnesium	100 to 5,000	4,220	4,010	4,130	**8,510**	**5,320**	**5,430**
manganese	50 to 5,000	129	175	246	143	304	223
sodium	6,000 to 8,000	240	360	450	270	180	140
nickel	0.5 to 25	18	**26**	16.5	11.5	15.4	13.8
lead	4 to 500	42.1	51.1	ND	74	25.1	19.3
vanadium	1 to 300	39.2	36.5	23.9	22.2	28.8	27.5
zinc	9 to 50	**58.8**	**56.1**	**71.3**	**107**	42.5	36.4

Notes:

1) Background Ranges are from NYSDEC TAGM 4046 and are in units of mg/kg (milligrams per kilogram).
2) Sample Numbers and Results are from 1990 Dunn Geoscience Fill Analysis Report.
3) ND = Not Detected.
4) Bold font indicates results that are higher than their respective RSCO.

ATTACHMENT 1

INFORMATION FROM WADSWORTH CENTER REGARDING CERTIFICATION STATUS OF LABORATORY

STATE OF NEW YORK
DEPARTMENT OF HEALTH

adsworth Center The Governor Nelson A. Rockefeller Empire State Plaza P.O. Box 509 Albany, New York 12201-0509

Antonia C. Novello, M.D., M.P.H., Dr.P.H.
Commissioner

Dennis P. Whalen
Executive Deputy Commissioner

November 5, 2002

John Gerlack
LKB
One Arial Way
Syosset, NY 11791

Dear Mr. Gerlack:

Enclosed is the information you requested on the accreditations held by CTM Laboratory, up to and including the period of November through December 1990, the interval in question.

Please note that the laboratory changed ownership several times but was in continuous operation and always retained the same ELAP identification number, 10358. At the time the laboratory was closed it was SciLab of Albany,

The key to interpreting the attached printout is as follows:

PW - potable water category
NW - non-potable water category
AI - air and emissions category
SW - solid waste category
APPR - approved
ERAS - erase

If you have any questions, please do not hesitate to contact me at the Program Office at (518) 485-5570.

Sincerely,

Margaret M. Prevost

Margaret M. Prevost
Administrator
Environmental Laboratory
Approval Program

MMP:da

Printout date: 23-Oct-2102

Accreditation changes for Lab id: 10358

SCILAB ALBANY INC (formally CTM)

ANALYTES	10358	30-DEC-1986 09:51:47.82	6
erase NW 24D	10358	30-DEC-1986 09:55:59.25	6
erase NW 245T	10358	30-DEC-1986 09:56:01.85	6
erase NW SLVEX	10358	30-DEC-1986 09:56:04.45	6
erase FW 245T	10358	30-DEC-1986 09:57:47.69	6
ANALYTES	10358	28-JAN-1987 14:19:51.92	6
erase FW 24D	10358	28-JAN-1987 14:26:53.94	6
erase FW SLVEX	10358	28-JAN-1987 14:26:57.07	6
erase FW ACROL	10358	28-JAN-1987 14:27:08.95	6
erase FW ACRYL	10358	28-JAN-1987 14:27:11.41	6
erase FW 124CB	10358	28-JAN-1987 14:27:23.33	6
erase FW 12CLB	10358	28-JAN-1987 14:27:25.86	6
erase FW 13CLB	10358	28-JAN-1987 14:27:28.43	6
erase FW 14CLB	10358	28-JAN-1987 14:27:31.01	6
erase FW 2CNAP	10358	28-JAN-1987 14:27:34.40	6
erase FW HCBNZ	10358	28-JAN-1987 14:27:37.00	6
erase FW HCBUT	10358	28-JAN-1987 14:27:39.64	6
erase FW HCEA	10358	28-JAN-1987 14:27:42.31	6
erase FW HCPEN	10358	28-JAN-1987 14:27:45.00	6
erase FW B2CEE	10358	28-JAN-1987 14:27:57.49	6
erase FW B2CEM	10358	28-JAN-1987 14:28:00.12	6
erase FW 4BPPE	10358	28-JAN-1987 14:28:19.92	6
erase FW 2CPPE	10358	28-JAN-1987 14:28:23.11	6
erase FW NNMEA	10358	28-JAN-1987 14:28:50.34	6
erase FW NNPHA	10358	28-JAN-1987 14:28:53.09	6
erase FW NNPRA	10358	28-JAN-1987 14:28:55.89	6
erase FW 44DDD	10358	28-JAN-1987 14:29:13.43	6
erase FW 44DDE	10358	28-JAN-1987 14:29:16.21	6
erase FW 44DDT	10358	28-JAN-1987 14:29:18.99	6
erase FW ABHC	10358	28-JAN-1987 14:29:21.84	6
erase FW ALDRN	10358	28-JAN-1987 14:29:27.21	6
erase FW BBHC	10358	28-JAN-1987 14:29:30.43	6
erase FW CHLRD	10358	28-JAN-1987 14:29:34.00	6
erase FW DBHC	10358	28-JAN-1987 14:29:37.83	6
erase FW DIELD	10358	28-JAN-1987 14:29:40.14	6
erase FW ENDAL	10358	28-JAN-1987 14:29:45.22	6
erase FW ENDRN	10358	28-JAN-1987 14:29:49.46	6
erase FW ESF1	10358	28-JAN-1987 14:29:59.86	6
erase FW ESFII	10358	28-JAN-1987 14:30:03.72	6
erase FW ESFS	10358	28-JAN-1987 14:30:08.61	6
erase FW HEP	10358	28-JAN-1987 14:30:18.26	6
erase FW HEPEP	10358	28-JAN-1987 14:30:21.89	6
erase FW LRDAN	10358	28-JAN-1987 14:30:25.77	6
erase FW TOXPH	10358	28-JAN-1987 14:30:31.37	6
erase FW BZLBP	10358	28-JAN-1987 14:30:49.54	6
erase FW B2EHP	10358	28-JAN-1987 14:30:52.47	6
erase FW DEPHT	10358	28-JAN-1987 14:30:56.06	6
erase FW DMPHT	10358	28-JAN-1987 14:30:59.37	6
erase FW DBPHT	10358	28-JAN-1987 14:31:03.99	6
erase FW DOPHT	10358	28-JAN-1987 14:31:07.41	6
erase FW P1016	10358	28-JAN-1987 14:31:26.24	6
erase FW P1221	10358	28-JAN-1987 14:31:29.17	6

```
erase FW P1232          10358 28-JAN-1987 14:31:32.04  6
erase FW P1242          10358 28-JAN-1987 14:31:35.42  6
erase FW P1248          10358 28-JAN-1987 14:31:42.74  6
erase FW P1254          10358 28-JAN-1987 14:31:47.38  6
erase FW P1264          10358 28-JAN-1987 14:31:50.30  6
   e FW ANTHE           10358 28-JAN-1987 14:31:50.36  6
erase FW ANTHR          10358 28-JAN-1987 14:31:53.20  6
erase FW ANTHY          10358 28-JAN-1987 14:31:56.17  6
erase FW BAANT          10358 28-JAN-1987 14:33:01.11  6
erase FW BAPYR          10358 28-JAN-1987 14:33:06.05  6
erase FW BBFLU          10358 28-JAN-1987 14:33:10.23  6
erase FW BGHIP          10358 28-JAN-1987 14:33:13.30  6
erase FW BKFLU          10358 28-JAN-1987 14:33:16.26  6
erase FW CHRYS          10358 28-JAN-1987 14:33:20.73  6
erase FW DAHAN          10358 28-JAN-1987 14:33:23.82  6
erase FW FLANT          10358 28-JAN-1987 14:33:27.04  6
erase FW FLENE          10358 28-JAN-1987 14:33:30.15  6
erase FW I123P          10358 28-JAN-1987 14:33:33.09  6
erase FW NAPHT          10358 28-JAN-1987 14:33:36.89  6
erase FW PHANT          10358 28-JAN-1987 14:33:40.53  6
erase FW PYREN          10358 28-JAN-1987 14:33:43.73  6
erase FW 4C3MP          10358 28-JAN-1987 14:33:56.71  6
erase FW 2CPOL          10358 28-JAN-1987 14:33:59.79  6
erase FW 24CPH          10358 28-JAN-1987 14:34:03.14  6
erase FW 24DMP          10358 28-JAN-1987 14:34:06.15  6
erase FW 24DNP          10358 28-JAN-1987 14:34:09.28  6
erase FW 2N46N          10358 28-JAN-1987 14:34:12.70  6
erase FW 2NITP          10358 28-JAN-1987 14:34:15.86  6
erase FW 4NITP          10358 28-JAN-1987 14:34:20.87  6
erase FW PCP            10358 28-JAN-1987 14:34:23.39  6
   'e FW DFNDL          10358 28-JAN-1987 14:34:26.58  6
   .e FW 246CP          10358 28-JAN-1987 14:34:29.59  6
erase FW BENZ           10358 28-JAN-1987 14:35:49.16  6
erase FW CLBNZ          10358 28-JAN-1987 14:35:52.37  6
erase FW ETBNZ          10358 28-JAN-1987 14:36:19.90  6
erase FW TOL            10358 28-JAN-1987 14:36:41.08  6
erase FW BRDCM          10358 28-JAN-1987 14:37:16.21  6
erase FW BRMFM          10358 28-JAN-1987 14:37:19.72  6
erase FW CH3BR          10358 28-JAN-1987 14:37:23.13  6
erase FW CCL4           10358 28-JAN-1987 14:37:26.64  6
erase FW CLEA           10358 28-JAN-1987 14:37:36.99  6
erase FW 2CEVE          10358 28-JAN-1987 14:37:40.42  6
erase FW CLRFM          10358 28-JAN-1987 14:37:44.47  6
erase FW CH3CL          10358 28-JAN-1987 14:37:47.92  6
erase FW C13CP          10358 28-JAN-1987 14:37:51.31  6
erase FW CLDBM          10358 28-JAN-1987 14:37:54.80  6
erase FW DCDFM          10358 28-JAN-1987 14:38:26.53  6
erase FW 11CEA          10358 28-JAN-1987 14:38:29.69  6
erase FW 12CER          10358 28-JAN-1987 14:38:32.74  6
erase FW 11CEE          10358 28-JAN-1987 14:38:35.91  6
erase FW 12CPA          10358 28-JAN-1987 14:38:39.24  6
erase FW MECL2          10358 28-JAN-1987 14:38:42.83  6
erase FW 1122E          10358 28-JAN-1987 14:38:45.98  6
erase FW TETCL          10358 28-JAN-1987 14:38:49.59  6
erase FW T12DE          10358 28-JAN-1987 14:38:53.55  6
erase FW T13CP          10358 28-JAN-1987 14:38:57.22  6
   'e FW 111CE          10358 28-JAN-1987 14:39:00.39  6
e.ase FW 112CE          10358 28-JAN-1987 14:39:03.43  6
erase FW TRICL          10358 28-JAN-1987 14:39:07.60  6
erase FW CL3FM          10358 28-JAN-1987 14:39:11.09  6
```

```
erase FW VNYLC      10358 28-JAN-1987 14:..:14.71  6
erase FW CAPTN      10358 28-JAN-1987 14:39:46.80  6
erase FW DICHL      10358 28-JAN-1987 14:44:10.55  6
erase FW NITREX     10358 28-JAN-1987 14:41:58.39  6
erase FW MXYCL      10358 28-JAN-1987 14:41:01.25  6
    e FW PCNB       10358 28-JAN-1987 14:41:04.22  6
erase FW STROB      10358 28-JAN-1987 14:41:21.12  6
erase FW TFLUR      10358 28-JAN-1987 14:41:29.24  6
erase FW DIOXN      10358 28-JAN-1987 14:42:04.05  6
erase FW MALAT      10358 28-JAN-1987 14:42:29.49  6
erase FW PARAE      10358 28-JAN-1987 14:42:32.89  6
erase FW PARAM      10358 28-JAN-1987 14:42:36.01  6
erase FW ATRAZ      10358 28-JAN-1987 14:42:57.85  6
erase FW FCF        10358 28-JAN-1987 14:43:58.10  6
erase FW FCFCL      10358 28-JAN-1987 14:44:00.77  6
erase FW FESTR      10358 28-JAN-1987 14:44:03.52  6
erase FW TCFCL      10358 28-JAN-1987 14:44:06.22  6
erase FW AL         10358 28-JAN-1987 14:44:25.91  6
erase FW SB         10358 28-JAN-1987 14:44:28.83  6
erase FW BE         10358 28-JAN-1987 14:44:31.60  6
erase FW CR6        10358 28-JAN-1987 14:44:34.38  6
erase FW CO         10358 28-JAN-1987 14:44:37.18  6
erase FW AU         10358 28-JAN-1987 14:44:39.88  6
erase FW MO         10358 28-JAN-1987 14:44:48.14  6
erase FW NI         10358 28-JAN-1987 14:44:50.96  6
erase FW SN         10358 28-JAN-1987 14:45:21.19  6
erase FW TI         10358 28-JAN-1987 14:45:24.52  6
erase FW TL         10358 28-JAN-1987 14:45:27.30  6
erase FW V          10358 28-JAN-1987 14:45:30.33  6
erase FW ACID       10358 28-JAN-1987 14:45:46.64  6
    e FW NH3N       10358 28-JAN-1987 14:45:49.61  6
..  se FW BOD       10358 28-JAN-1987 14:45:52.42  6
erase FW BOR        10358 28-JAN-1987 14:45:55.21  6
erase FW BID        10358 28-JAN-1987 14:45:58.44  6
erase FW CA         10358 28-JAN-1987 14:46:01.23  6
erase FW COD        10358 28-JAN-1987 14:46:13.29  6
erase FW CNCL       10358 28-JAN-1987 14:46:23.95  6
erase FW CN         10358 28-JAN-1987 14:46:27.34  6
erase FW THARP      10358 28-JAN-1987 14:46:30.29  6
erase FW KJELN      10358 28-JAN-1987 14:46:33.27  6
erase FW NO32N      10358 28-JAN-1987 14:46:44.27  6
erase FW NO2        10358 28-JAN-1987 14:46:47.87  6
erase FW OILGR      10358 28-JAN-1987 14:46:51.21  6
erase FW TOC        10358 28-JAN-1987 14:46:54.28  6
erase FW ORGN       10358 28-JAN-1987 14:46:57.36  6
erase FW PO4        10358 28-JAN-1987 14:47:00.38  6
erase FW DO         10358 28-JAN-1987 14:47:03.93  6
erase FW IPHOL      10358 28-JAN-1987 14:47:07.00  6
erase FW K          10358 28-JAN-1987 14:47:15.56  6
erase FW SI         10359 28-JAN-1987 14:47:19.32  6
erase FW SESOL      10358 28-JAN-1987 14:47:22.64  6
erase FW RSTOT      10358 28-JAN-1987 14:47:25.91  6
erase FW RNFLT      10358 28-JAN-1987 14:47:29.22  6
erase FW RSVOL      10358 28-JAN-1987 14:47:32.51  6
erase FW SCOND      10358 28-JAN-1987 14:47:35.82  6
ANALYTES            10358 28-JAN-1987 14:47:48.83  6
    e FW 24DNT      10358 28-JAN-1987 14:51:46.62  6
erase FW 26DNT      10358 28-JAN-1987 14:51:49.91  6
erase FW ISOPR      10358 28-JAN-1987 14:51:52.78  6
erase FW NITBZ      10358 28-JAN-1987 14:51:55.44  6
```

INALYTES	10358	9-FEB-1987 12:[illegible]11.57	12
idd PW ENDRN	10358	9-FEB-1987 12:35:43.21	12
idd PW LNDAN	10358	9-FEB-1987 12:35:49.16	12
idd PW MXYCL	10358	9-FEB-1987 12:35:52.34	12
idd PW TOXPH	10358	9-FEB-1987 12:35:55.52	12
[illegible]PW BRDCH	10358	9-FEB-1987 12:36:11.97	12
[illegible]PW BRMFM	10358	9-FEB-1987 12:36:15.38	12
idd PW CLDBR	10358	9-FEB-1987 12:36:18.03	12
idd PW CLRFM	10358	9-FEB-1987 12:36:20.71	12
INALYTES	10358	16-APR-1987 13:08:34.77	7
irase NW BOR	10358	16-APR-1987 13:10:00.63	7
idd PW 24D	10358	16-APR-1987 13:11:26.88	7
idd PW SLVEX	10358	16-APR-1987 13:11:37.29	7
EXTEND CATS	10358	3-JUN-1987 13:44:35.46	40
INALYTES	10358	4-JUN-1987 09:36:11.98	40
idd NW B2CIE	10358	4-JUN-1987 09:38:22.21	40
idd NW DICHB	10358	4-JUN-1987 09:38:51.56	40
idd NW 245T	10358	4-JUN-1987 09:38:54.38	40
idd NW SLVEX	10358	4-JUN-1987 09:38:57.23	40
idd NW AZNNE	10358	4-JUN-1987 09:39:38.98	40
idd NW DIAZN	10358	4-JUN-1987 09:39:42.72	40
idd NW DISUL	10358	4-JUN-1987 09:39:46.08	40
idd NW DNTNO	10358	4-JUN-1987 09:39:49.72	40
idd NW DNTNS	10358	4-JUN-1987 09:39:53.21	40
idd NW BZLCL	10358	4-JUN-1987 09:41:06.93	40
INALYTES	10358	4-JUN-1987 09:41:06.56	40
idd NW BNZID	10358	4-JUN-1987 09:42:27.92	40
idd NW 33DCB	10358	4-JUN-1987 09:42:31.93	40
INALYTES	10358	26-AUG-1987 14:19:27.61	41
irase NW 2CNAP	10358	26-AUG-1987 14:24:07.64	41
INALYTES	10358	30-SEP-1987 11:24:48.65	40
[illegible]II ACROL	10358	30-SEP-1987 11:28:08.18	40
ADD AI ACRYL	10358	30-SEP-1987 11:28:17.88	40
ADD AI BNZID	10358	30-SEP-1987 11:28:51.59	40
ADD AI 33DCB	10358	30-SEP-1987 11:28:59.80	40
ADD AI HCBUT	10358	30-SEP-1987 11:29:15.59	40
ADD AI HCEA	10358	30-SEP-1987 11:29:28.32	40
ADD AI 124CB	10358	30-SEP-1987 11:29:50.43	40
ADD AI 24DNT	10358	30-SEP-1987 11:30:44.67	40
ADD AI ISOPH	10358	30-SEP-1987 11:31:02.08	40
ADD AI NITBZ	10358	30-SEP-1987 11:31:28.93	40
ADD AI PB	10358	30-SEP-1987 11:32:33.18	40
ADD AI 2CPOL	10358	30-SEP-1987 11:33:23.13	40
ADD AI PCP	10358	30-SEP-1987 11:33:52.47	40
ADD AI OPHOL	10358	30-SEP-1987 11:34:26.66	40
ADD AI ALDRN	10358	30-SEP-1987 11:35:09.71	40
ADD AI LNDAN	10358	30-SEP-1987 11:35:33.68	40
ADD AI CHLRD	10358	30-SEP-1987 11:35:49.72	40
ADD AI DIELD	10358	30-SEP-1987 11:36:03.66	40
ADD AI 44DDT	10358	30-SEP-1987 11:36:16.17	40
ADD AI ENDRN	10358	30-SEP-1987 11:36:28.21	40
ADD AI HEP	10358	30-SEP-1987 11:36:41.05	40
ADD AI TOXPH	10358	30-SEP-1987 11:36:53.36	40
ADD AI HG	10358	30-SEP-1987 11:37:12.15	40
ADD AI BE	10358	30-SEP-1987 11:37:26.48	40
ADD AI P1016	10358	30-SEP-1987 11:38:06.18	40
ADD AI P1221	10358	30-SEP-1987 11:38:20.00	40
[illegible]AI P1232	10358	30-SEP-1987 11:38:26.72	40
ADD AI P1242	10358	30-SEP-1987 11:38:34.20	40
ADD AI P1248	10358	30-SEP-1987 11:38:41.14	40

```
ADD AI P1254        10358 30-SEP-1987 11:  :50.81 40
ADD AI P1260        10358 30-SEP-1987 11:39:59.66 40
ADD AI CCL4         10358 30-SEP-1987 11:39:38.63 40
ADD AI CLBFM        10358 30-SEP-1987 11:39:50.83 40
ADD AI 11CEA        10358 30-SEP-1987 11:39:58.76 40
   I 12CEA          10358 30-SEP-1987 11:40:11.47 40
ADD AI 11CEE        10358 30-SEP-1987 11:40:25.14 40
ADD AI 12CPA        10358 30-SEP-1987 11:40:37.57 40
ADD AI MECL2        10358 30-SEP-1987 11:40:51.58 40
ADD AI 1122E        10358 30-SEP-1987 11:41:06.49 40
ADD AI TETCL        10358 30-SEP-1987 11:41:21.31 40
ADD AI VNYLC        10358 30-SEP-1987 11:41:33.30 40
ADD AI DMTNO        10358 30-SEP-1987 11:42:09.96 40
ADD AI DMTNS        10358 30-SEP-1987 11:42:18.77 40
ADD AI MALAT        10358 30-SEP-1987 11:41:30.25 40
ADD AI PARAE        10358 30-SEP-1987 11:42:41.30 40
ADD AI PARAM        10358 30-SEP-1987 11:42:56.36 40
ADD AI BZLCL        10358 30-SEP-1987 11:43:17.69 40
ADD AI BAPYR        10358 30-SEP-1987 11:45:00.51 40
ADD AI NAPHT        10358 30-SEP-1987 11:45:15.41 40
ADD AI BENZ         10358 30-SEP-1987 11:45:50.27 40
ADD AI CLBNZ        10358 30-SEP-1987 11:46:04.44 40
ADD AI 12CLB        10358 30-SEP-1987 11:46:18.45 40
ADD AI 14CLB        10358 30-SEP-1987 11:46:37.27 40
ADD AI ETBNZ        10358 30-SEP-1987 11:46:51.19 40
ADD AI TOL          10358 30-SEP-1987 11:47:07.40 40
ADD AI 245T         10358 30-SEP-1987 11:50:01.94 40
ADD AI ASBES        10358 30-SEP-1987 11:50:35.83 40
ADD AI C2H4D        10358 30-SEP-1987 11:50:45.65 40
ADD AI ETCOL        10358 30-SEP-1987 11:50:53.21 40
ADD AI BTU          10358 30-SEP-1987 11:51:18.32 40
   I ZS             10358 30-SEP-1987 11:51:31.41 40
ADD SW IGNIT        10358 30-SEP-1987 11:54:05.25 40
ADD SW BA           10358 30-SEP-1987 11:55:27.34 40
ADD SW CD           10358 30-SEP-1987 11:55:47.26 40
ADD SW CR           10358 30-SEP-1987 11:56:05.40 40
ADD SW PB           10358 30-SEP-1987 11:56:24.73 40
ADD SW NI           10358 30-SEP-1987 11:56:45.17 40
ADD SW AG           10358 30-SEP-1987 11:57:11.39 40
ADD SW SB           10358 30-SEP-1987 11:57:39.44 40
ADD SW AS           10358 30-SEP-1987 11:57:54.58 40
ADD SW CR6          10358 30-SEP-1987 11:58:09.33 40
ADD SW HG           10358 30-SEP-1987 11:58:21.34 40
ADD SW SE           10358 30-SEP-1987 11:58:35.83 40
ADD SW ACROL        10358 30-SEP-1987 11:59:06.15 40
ADD SW ACRYL        10358 30-SEP-1987 11:59:17.40 40
ADD SW B2CEM        10358 30-SEP-1987 12:00:01.41 40
ADD SW B2CIE        10358 30-SEP-1987 12:00:13.98 40
ADD SW 24DNT        10358 30-SEP-1987 12:00:34.60 40
ADD SW 26DNT        10358 30-SEP-1987 12:00:50.80 40
ADD SW ISOPH        10358 30-SEP-1987 12:00:59.11 40
ADD SW NITBZ        10358 30-SEP-1987 12:01:09.30 40
ADD SW BZLBP        10358 30-SEP-1987 12:01:39.96 40
ADD SW B2EHP        10358 30-SEP-1987 12:01:48.68 40
ADD SW DEPHT        10358 30-SEP-1987 12:01:58.74 40
ADD SW DMPHT        10358 30-SEP-1987 12:02:10.87 40
   SW DBPHT         10358 30-SEP-1987 12:02:22.47 40
   SW DOPHT         10358 30-SEP-1987 12:02:31.61 40
ADD SW P1016        10358 30-SEP-1987 12:03:57.99 40
ADD SW P1221        10358 30-SEP-1987 12:03:11.94 40
```

Solid Waste accreditation begins

```
ADD SW P1232     10358 30-SEP-1987 12:03:24.22 40
ADD SW P1242     10358 30-SEP-1987 12:03:35.03 40
ADD SW P1248     10358 30-SEP-1987 12:03:46.84 40
ADD SW P1254     10358 30-SEP-1987 12:03:59.56 40
ADD SW P1260     10358 30-SEP-1987 12:04:10.75 40
ADD SW ANTHE     10358 30-SEP-1987 12:04:33.76 40
ADD SW ANTHR     10358 30-SEP-1987 12:04:48.88 40
ADD SW ANTHY     10358 30-SEP-1987 12:05:05.47 40
ADD SW BAANT     10358 30-SEP-1987 12:05:16.61 40
ADD SW BAPYR     10358 30-SEP-1987 12:05:30.18 40
ADD SW BBFLU     10358 30-SEP-1987 12:05:42.58 40
ADD SW BGHIP     10358 30-SEP-1987 12:05:54.35 40
ADD SW CHRYS     10358 30-SEP-1987 12:06:07.45 40
ADD SW DAHAN     10358 30-SEP-1987 12:06:21.67 40
ADD SW FLANT     10358 30-SEP-1987 12:06:35.27 40
ADD SW FLENE     10358 30-SEP-1987 12:06:49.63 40
ADD SW I123P     10358 30-SEP-1987 12:07:04.26 40
ADD SW NAPHT     10358 30-SEP-1987 12:07:15.09 40
ADD SW PHANT     10358 30-SEP-1987 12:07:27.85 40
ADD SW PYREN     10358 30-SEP-1987 12:07:42.27 40
ADD SW 4CSNP     10358 30-SEP-1987 12:08:13.82 40
ADD SW 2CPOL     10358 30-SEP-1987 12:08:27.69 40
ADD SW 24CPH     10358 30-SEP-1987 12:08:42.18 40
ADD SW 24DMP     10358 30-SEP-1987 12:08:55.86 40
ADD SW 24DNP     10358 30-SEP-1987 12:09:09.80 40
ADD SW 2M46N     10358 30-SEP-1987 12:09:22.32 40
ADD SW 2NITP     10358 30-SEP-1987 12:09:36.85 40
ADD SW 4NITP     10358 30-SEP-1987 12:09:50.86 40
ADD SW PCP       10358 30-SEP-1987 12:10:07.26 40
ADD SW OPHOL     10358 30-SEP-1987 12:10:17.54 40
ADD SW 246CP     10358 30-SEP-1987 12:10:32.17 40
ADD SW BENZ      10358 30-SEP-1987 12:10:58.16 40
ADD SW CLBNZ     10358 30-SEP-1987 12:11:09.83 40
ADD SW 12CLB     10358 30-SEP-1987 12:11:18.66 40
ADD SW 13CLB     10358 30-SEP-1987 12:11:37.81 40
ADD SW 14CLB     10358 30-SEP-1987 12:11:52.41 40
ADD SW ETBNZ     10358 30-SEP-1987 12:12:00.30 40
ADD SW TOL       10358 30-SEP-1987 12:13:25.86 40
ADD SW BRDCH     10358 30-SEP-1987 12:13:47.79 40
ADD SW BRMFM     10358 30-SEP-1987 12:14:01.35 40
ADD SW CH3BR     10358 30-SEP-1987 12:14:14.78 40
ADD SW CCL4      10358 30-SEP-1987 12:14:23.58 40
ADD SW CLEA      10358 30-SEP-1987 12:14:35.67 40
ADD SW 2CEVE     10358 30-SEP-1987 12:14:47.39 40
ADD SW CLMFM     10358 30-SEP-1987 12:15:02.87 40
ADD SW CH3CL     10358 30-SEP-1987 12:15:15.99 40
ADD SW T13CP     10358 30-SEP-1987 12:15:27.65 40
ADD SW CLDBR     10358 30-SEP-1987 12:15:37.69 40
ADD SW DCDFM     10358 30-SEP-1987 12:15:48.56 40
ADD SW 11CEA     10358 30-SEP-1987 12:15:59.62 40
ADD SW 12CEA     10358 30-SEP-1987 12:16:14.25 40
ADD SW 11CEE     10358 30-SEP-1987 12:16:23.65 40
ADD SW 12CPA     10358 30-SEP-1987 12:16:42.33 40
ADD SW MECL2     10358 30-SEP-1987 12:16:59.51 40
ADD SW 1122E     10358 30-SEP-1987 12:17:09.66 40
ADD SW TETCL     10358 30-SEP-1987 12:17:21.52 40
ADD SW 111CE     10358 30-SEP-1987 12:17:34.75 40
ADD SW 112CE     10358 30-SEP-1987 12:17:46.29 40
ADD SW TRICL     10358 30-SEP-1987 12:18:05.36 40
ADD SW CL3FM     10358 30-SEP-1987 12:18:15.65 40
```

ADD SW VNYLC	10358	30-SEP-1987	12:[illegible]24.36	40
ADD SW ALDRN	10358	30-SEP-1987	12:18:52.81	40
ADD SW ABHC	10358	30-SEP-1987	12:19:02.17	40
ADD SW BBHC	10358	30-SEP-1987	12:19:11.84	40
ADD SW DBHC	10358	30-SEP-1987	12:19:19.97	40
[illegible] SW LNDAN	10358	30-SEP-1987	12:19:29.84	40
[illegible] SW CHLRD	10358	30-SEP-1987	12:19:37.76	40
ADD SW 44DDD	10358	30-SEP-1987	12:19:45.73	40
ADD SW 44DDE	10358	30-SEP-1987	12:19:53.18	40
ADD SW 44DDT	10358	30-SEP-1987	12:20:01.47	40
ADD SW DIELD	10358	30-SEP-1987	12:20:08.82	40
ADD SW ESFI	10358	30-SEP-1987	12:20:16.34	40
ADD SW ESFII	10358	30-SEP-1987	12:20:24.02	40
ADD SW ESFS	10358	30-SEP-1987	12:20:31.54	40
ADD SW ENDRN	10358	30-SEP-1987	12:20:39.08	40
ADD SW ENDAL	10358	30-SEP-1987	12:20:47.96	40
ADD SW HEP	10358	30-SEP-1987	12:21:05.21	40
ADD SW HEPEP	10358	30-SEP-1987	12:21:18.47	40
ADD SW MXYCL	10358	30-SEP-1987	12:21:27.64	40
ADD SW TOXPH	10358	30-SEP-1987	12:21:36.28	40
ADD SW DICMB	10358	30-SEP-1987	12:21:51.77	40
ADD SW 245T	10358	30-SEP-1987	12:22:47.88	40
ADD SW SLVEX	10358	30-SEP-1987	12:23:06.96	40
ADD SW AZNME	10358	30-SEP-1987	12:23:23.66	40
ADD SW DNTRO	10358	30-SEP-1987	12:23:32.96	40
ADD SW DNTNS	10358	30-SEP-1987	12:23:42.66	40
ADD SW DIAZN	10358	30-SEP-1987	12:23:51.54	40
ADD SW DISUL	10358	30-SEP-1987	12:23:58.82	40
ADD SW MALAT	10358	30-SEP-1987	12:24:06.33	40
ADD SW PARAE	10358	30-SEP-1987	12:24:14.76	40
ADD SW PARAM	10358	30-SEP-1987	12:24:22.58	40
[illegible] SW BZLCL	10358	30-SEP-1987	12:24:38.85	40
ADD SW CN	10358	30-SEP-1987	12:25:11.27	40
ADD SW PHYD	10358	30-SEP-1987	12:25:19.82	40
ADD SW SULFI	10358	30-SEP-1987	12:25:27.82	40
ANALYTES	10358	6-OCT-1987	11:55:30.73	7
ADD NW 2CNAP	10358	6-OCT-1987	11:56:14.85	7
ADD SW 2CNAP	10358	6-OCT-1987	11:57:04.38	7
ADD SW HCBNZ	10358	6-OCT-1987	11:57:11.95	7
ADD SW HCBUT	10358	6-OCT-1987	11:57:18.83	7
ADD SW HCPEN	10358	6-OCT-1987	11:57:24.22	7
ADD SW HCEA	10358	6-OCT-1987	11:57:30.27	7
ADD SW 124CB	10358	6-OCT-1987	11:57:37.78	7
ANALYTES	10358	13-OCT-1987	15:18:50.79	40
ADD NW MXYL	10358	13-OCT-1987	15:24:30.16	40
ADD NW OXYL	10358	13-OCT-1987	15:25:04.16	40
ADD NW PXYL	10358	13-OCT-1987	15:25:54.99	40
ADD NW 24D	10358	13-OCT-1987	15:28:33.12	40
ADD NW EPHYD	10358	13-OCT-1987	15:33:18.74	40
ANALYTES	10358	14-OCT-1987	15:33:35.94	40
ADD AI EPHYD	10358	14-OCT-1987	15:46:34.52	40
ADD AI MXYL	10358	14-OCT-1987	15:47:17.75	40
ADD AI OXYL	10358	14-OCT-1987	15:47:25.40	40
ADD AI PXYL	10358	14-OCT-1987	15:47:32.63	40
ADD AI 24D	10358	14-OCT-1987	15:48:02.47	40
ADD SW TOXIC	10358	14-OCT-1987	15:49:24.71	40
ADD SW MXYL	10358	14-OCT-1987	15:49:50.55	40
[illegible] SW OXYL	10358	14-OCT-1987	15:49:57.36	40
ADD SW PXYL	10358	14-OCT-1987	15:50:05.15	40
ADD SW 24D	10358	14-OCT-1987	15:50:57.20	40

5

```
rase PWTEMP          10358 16-OCT-1987 17:  :14.74  1
NALYTES              10358 19-OCT-1987 11:21:32.98 12
NALYTES              10358  2-NOV-1987 12:29:31.02 12
RASE NW CBOD -PURGE 10358  2-NOV-1987 14:42:44.18  1
P    NW FCFCL-PURGE 10358  2-NOV-1987 14:45:05.91  1
k.   NW TCFCL-PURGE 10358  2-NOV-1987 14:47:24.77  1
RASE NW FESTR-PURGE 10358  2-NOV-1987 14:48:48.65  1
RASE NW SUL  -PURGE 10358  2-NOV-1987 14:50:07.67  1
RASE NW RSVOL-PURGE 10359  2-NOV-1987 14:52:36.41  1
RASE NW ORGN -PURGE 10358 30-NOV-1987 15:55:41.91  1
NALYTES              10358  1-DEC-1987 11:38:57.59  7
DD PW BCMA           10358  1-DEC-1987 11:39:50.14  7
DD PW CH3BR          10358  1-DEC-1987 11:40:08.98  7
DD PW CCL4           10358  1-DEC-1987 11:40:16.79  7
DD PW CLEA           10358  1-DEC-1987 11:40:22.85  7
DD PW CH3CL          10358  1-DEC-1987 11:40:31.04  7
DD PW DBMA           10358  1-DEC-1987 11:40:40.22  7
DD PW DCDFM          10358  1-DEC-1987 11:40:49.65  7
DD PW 11DEA          10358  1-DEC-1987 11:40:58.63  7
DD PW 12DEA          10358  1-DEC-1987 11:41:04.23  7
DD PW 11DEE          10358  1-DEC-1987 11:41:10.91  7
DD PW 12DME          10358  1-DEC-1987 11:41:16.72  7
DD PW T12DE          10358  1-DEC-1987 11:41:22.72  7
DD PW 12DPA          10358  1-DEC-1987 11:41:31.75  7
DD PW 13DPA          10358  1-DEC-1987 11:41:39.81  7
DD PW 22DPA          10358  1-DEC-1987 11:41:45.13  7
DD PW 11DPE          10358  1-DEC-1987 11:41:50.69  7
DD PW C13DP          10358  1-DEC-1987 11:42:00.66  7
DD PW T13DP          10358  1-DEC-1987 11:42:07.22  7
DD PW MECL2          10358  1-DEC-1987 11:42:14.21  7
   W 1112E           10358  1-DEC-1987 11:42:19.57  7
   PW 1122E          10358  1-DEC-1987 11:42:24.86  7
DD PW TETCL          10358  1-DEC-1987 11:42:30.83  7
DD PW 111CE          10358  1-DEC-1987 11:42:36.06  7
DD PW 112CE          10358  1-DEC-1987 11:42:41.44  7
DD PW TRICL          10358  1-DEC-1987 11:42:47.45  7
DD PW CL3FM          10358  1-DEC-1987 11:42:53.30  7
DD PW 123DP          10358  1-DEC-1987 11:42:58.98  7
DD PW VNYLC          10358  1-DEC-1987 11:43:06.21  7
DD PW BENZ           10358  1-DEC-1987 11:43:21.68  7
DD PW BBENZ          10358  1-DEC-1987 11:43:27.39  7
DD PW NBUBZ          10358  1-DEC-1987 11:43:33.14  7
DD PW SBUBZ          10358  1-DEC-1987 11:43:38.86  7
DD PW TBUBZ          10358  1-DEC-1987 11:43:44.65  7
DD PW CLBNZ          10358  1-DEC-1987 11:43:50.10  7
DD PW 2CTOL          10358  1-DEC-1987 11:43:55.73  7
DD PW 4CTOL          10358  1-DEC-1987 11:44:01.15  7
DD PW 12DLB          10358  1-DEC-1987 11:44:06.58  7
DD PW 13DLB          10358  1-DEC-1987 11:44:12.22  7
DD PW 14DLB          10358  1-DEC-1987 11:44:17.40  7
DD PW ETBNZ          10358  1-DEC-1987 11:44:24.85  7
DD PW HCBUT          10358  1-DEC-1987 11:44:30.61  7
DD PW IPBZ           10358  1-DEC-1987 11:44:37.22  7
DD PW PCYM           10358  1-DEC-1987 11:44:44.23  7
DD PW NPBZ           10358  1-DEC-1987 11:44:56.10  7
DD PW STYR           10358  1-DEC-1987 11:45:05.43  7
   PW TOL            10358  1-DEC-1987 11:45:11.95  7
DD PW 123DB          10358  1-DEC-1987 11:45:21.11  7
DD PW 124DB          10358  1-DEC-1987 11:45:33.77  7
DD PW 124MB          10358  1-DEC-1987 11:45:46.81  7
```

```
ADD PW 135MB          10358  1-DEC-1987 11:..:58.95  7
ADD PW MXYL           10358  1-DEC-1987 11:46:06.70  7
ADD PW OXYL           10358  1-DEC-1987 11:44:21.29  7
ADD PW PXYL           10358  1-DEC-1987 11:46:43.04  7
ADD PW 12DBE          10358  1-DEC-1987 11:47:14.76  7
   PW 12B3C           10358  1-DEC-1987 11:47:31.70  7
ANALYTES              10358 10-DEC-1987 13:35:52.98  7
ERASE AI ASBES        10358 10-DEC-1987 13:36:36.93  7
ADD AI FIBER          10358 10-DEC-1987 13:36:49.03  7
ANALYTES              10358 25-APR-1988 09:25:45.65 43
ANALYTES              10358  6-SEP-1988 08:23:36.45  7
ANALYTES              10358 14-SEP-1988 09:55:40.00 43
ANALYTES              10358 15-SEP-1988 15:46:18.76 12
ERASE AI FIBER        10358 15-SEP-1988 15:48:17.88 12
AEDAC enter accreds.  10358  9-JAN-1989 14:39:05.04 12
ACC   z.ERAS aWBID    10358  9-JAN-1989 14:39:40.39 12
ACC P z.ERAS aI24DNT  10358 11-DEC-1989 11:05:11.96 [ELAP,JANET]
ACC P z.ERAS aI33DCB  10358 11-DEC-1989 11:05:52.96 [ELAP,JANET]
ACC P z.ERAS aIACRDL  10358 11-DEC-1989 11:06:17.94 [ELAP,JANET]
ACC P z.ERAS aIACRYL  10358 11-DEC-1989 11:06:43.81 [ELAP,JANET]
ACC P z.ERAS aIBNZID  10358 11-DEC-1989 11:07:52.92 [ELAP,JANET]
ACC P z.ERAS aWDIOXA  10358 11-DEC-1989 11:08:52.71 [ELAP,JANET]
ACC P z.ERAS aIDMTHO  10358 11-DEC-1989 11:09:15.34 [ELAP,JANET]
ACC P z.ERAS aIDMTHS  10358 11-DEC-1989 11:09:22.62 [ELAP,JANET]
ACC P z.ERAS aIETCDL  10358 11-DEC-1989 11:09:30.22 [ELAP,JANET]
ACC P z.ERAS aIISOPH  10358 11-DEC-1989 11:10:33.13 [ELAP,JANET]
ACC P z.ERAS aIMALAT  10358 11-DEC-1989 11:10:58.38 [ELAP,JANET]
ACC P z.ERAS aINITBZ  10358 11-DEC-1989 11:11:43.43 [ELAP,JANET]
ACC P z.ERAS aIPARAE  10358 11-DEC-1989 11:12:12.09 [ELAP,JANET]
ACC P z.ERAS aIPARAM  10358 11-DEC-1989 11:12:18.64 [ELAP,JANET]
AEDAC enter accreds.  10358 28-DEC-1989 13:20:52.46 [ELAP,JOYCE]
      z.PEND aWC13CP  10358 28-DEC-1989 13:21:18.76 [ELAP,JOYCE]
ACC   x.APPR aWTXYL   10358 18-JAN-1990 12:12:44.39 [ELAP,JANET]
ACC   x.APPR aITXYL   10358 18-JAN-1990 14:07:22.27 [ELAP,JANET]
ACC   x.APPR sWTXYL   10358 18-JAN-1990 14:37:16.59 [ELAP,JANET]
ACC P z.ERAS aIMXYL   10358 19-JAN-1990 11:53:11.88 [ELAP,JANET]
ACC P z.ERAS aWMXYL   10358 19-JAN-1990 11:53:12.79 [ELAP,JANET]
ACC P z.ERAS sWMXYL   10358 19-JAN-1990 11:53:13.12 [ELAP,JANET]
ACC P z.ERAS aIPXYL   10358 19-JAN-1990 11:55:35.37 [ELAP,JANET]
ACC P z.ERAS aWPXYL   10358 19-JAN-1990 11:55:35.73 [ELAP,JANET]
ACC P z.ERAS sWPXYL   10358 19-JAN-1990 11:55:36.08 [ELAP,JANET]
ACC P z.ERAS aIOXYL   10358 19-JAN-1990 11:58:04.23 [ELAP,JANET]
ACC P z.ERAS aWOXYL   10358 19-JAN-1990 11:58:04.57 [ELAP,JANET]
ACC P z.ERAS sWOXYL   10358 19-JAN-1990 11:58:04.94 [ELAP,JANET]
AEDAC enter accreds.  10358  7-FEB-1990 12:50:12.08 [ELAP,MARY]
ACC   z.APPR aWC13CP  10358  7-FEB-1990 12:50:43.51 [ELAP,MARY]
AEDAC enter accreds.  10358 15-MAR-1990 14:33:43.00 [ELAP,MARY]
ACC   z.ERAS aWFCF    10358 15-MAR-1990 14:34:03.96 [ELAP,MARY]
ACC   z.ERAS aWSPC    10358 15-MAR-1990 14:34:06.56 [ELAP,MARY]
ACC   z.ERAS aWTCF    10358 15-MAR-1990 14:34:08.75 [ELAP,MARY]
AEDAC enter accreds.  10358 15-MAR-1990 14:34:25.36 [ELAP,MARY]
ACC   z.ERAS pWTCF    10358 15-MAR-1990 14:35:09.73 [ELAP,MARY]
ACC   z.ERAS pWSPC    10358 15-MAR-1990 14:35:11.83 [ELAP,MARY]
AEDAC enter accreds.  10358 24-OCT-1990 12:54:20.42 [ELAP,LINDAM]
ACC   z.PEND pWBENZ   10358 24-OCT-1990 12:54:45.96 [ELAP,LINDAM]
ACC   z.PEND pWBBENZ  10358 24-OCT-1990 12:54:48.04 [ELAP,LINDAM]
  C   z.PEND pWNBUBZ  10358 24-OCT-1990 12:54:50.31 [ELAP,LINDAM]
  C   z.PEND pWSBUBZ  10358 24-OCT-1990 12:54:52.44 [ELAP,LINDAM]
ACC   z.PEND pWTBUBZ  10358 24-OCT-1990 12:54:54.21 [ELAP,LINDAM]
ACC   z.PEND pWCLBNZ  10358 24-OCT-1990 12:54:55.98 [ELAP,LINDAM]
```

```
ACC   z.PEND pW2CTOL 10358 24-OCT-1990 12:5 .37.73 [ELAP,LINDAM]
ACC   z.PEND pW4CTOL 10358 24-OCT-1990 12:54:59.97 [ELAP,LINDAM]
ACC   z.PEND pW12CLB 10358 24-OCT-1990 12:55:01.73 [ELAP,LINDAM]
ACC   z.PEND pW13CLB 10358 24-OCT-1990 12:55:03.48 [ELAP,LINDAM]
      z.PEND pW14CLB 10358 24-OCT-1990 12:55:05.25 [ELAP,LINDAM]
ACC   z.PEND pWETBNZ 10358 24-OCT-1990 12:55:07.51 [ELAP,LINDAM]
ACC   z.PEND pWHCBUT 10358 24-OCT-1990 12:55:09.26 [ELAP,LINDAM]
ACC   z.PEND pWIPBZ  10358 24-OCT-1990 12:55:11.33 [ELAP,LINDAM]
ACC   z.PEND pWPCYM  10358 24-OCT-1990 12:55:13.10 [ELAP,LINDAM]
ACC   z.PEND pWNPBZ  10358 24-OCT-1990 12:55:14.85 [ELAP,LINDAM]
ACC   z.PEND pWSTYR  10358 24-OCT-1990 12:55:16.65 [ELAP,LINDAM]
ACC   z.PEND pWTOL   10358 24-OCT-1990 12:55:18.42 [ELAP,LINDAM]
ACC   z.PEND pW123CB 10358 24-OCT-1990 12:55:20.16 [ELAP,LINDAM]
ACC   z.PEND pW124CB 10358 24-OCT-1990 12:55:22.93 [ELAP,LINDAM]
ACC   z.PEND pW124MB 10358 24-OCT-1990 12:55:24.66 [ELAP,LINDAM]
ACC   z.PEND pW135MB 10358 24-OCT-1990 12:55:26.41 [ELAP,LINDAM]
ACC   z.PEND pWMXYL  10358 24-OCT-1990 12:55:28.28 [ELAP,LINDAM]
ACC   z.PEND pWOXYL  10358 24-OCT-1990 12:55:30.03 [ELAP,LINDAM]
ACC   z.PEND pWPXYL  10358 24-OCT-1990 12:55:31.78 [ELAP,LINDAM]
AEDRC enter accreds. 10358 26-NOV-1990 14:33:32.42 [ELAP,LINDAM]
ACC   z.APPR pWBENZ  10358 26-NOV-1990 14:33:59.88 [ELAP,LINDAM]
ACC   z.APPR pWBBENZ 10358 26-NOV-1990 14:34:01.69 [ELAP,LINDAM]
ACC   z.APPR pWNBUBZ 10358 26-NOV-1990 14:34:03.96 [ELAP,LINDAM]
ACC   z.APPR pWSBUBZ 10358 26-NOV-1990 14:34:05.78 [ELAP,LINDAM]
ACC   z.APPR pWTBUBZ 10358 26-NOV-1990 14:34:07.64 [ELAP,LINDAM]
ACC   z.APPR pWCLBNZ 10358 26-NOV-1990 14:34:09.44 [ELAP,LINDAM]
ACC   z.APPR pW2CTOL 10358 26-NOV-1990 14:34:11.26 [ELAP,LINDAM]
ACC   z.APPR pW4CTOL 10358 26-NOV-1990 14:34:13.08 [ELAP,LINDAM]
ACC   z.APPR pW12CLB 10358 26-NOV-1990 14:34:14.88 [ELAP,LINDAM]
ACC   z.APPR pW13CLB 10358 26-NOV-1990 14:34:16.67 [ELAP,LINDAM]
      z.APPR pW14CLB 10358 26-NOV-1990 14:34:18.84 [ELAP,LINDAM]
ACC   z.APPR pWETBNZ 10358 26-NOV-1990 14:34:20.66 [ELAP,LINDAM]
ACC   z.APPR pWHCBUT 10358 26-NOV-1990 14:34:22.46 [ELAP,LINDAM]
ACC   z.APPR pWIPBZ  10358 26-NOV-1990 14:34:24.24 [ELAP,LINDAM]
ACC   z.APPR pWPCYM  10358 26-NOV-1990 14:34:26.04 [ELAP,LINDAM]
ACC   z.APPR pWNPBZ  10358 26-NOV-1990 14:34:27.82 [ELAP,LINDAM]
ACC   z.APPR pWSTYR  10358 26-NOV-1990 14:34:29.66 [ELAP,LINDAM]
ACC   z.APPR pWTOL   10358 26-NOV-1990 14:34:31.46 [ELAP,LINDAM]
ACC   z.APPR pW123CB 10358 26-NOV-1990 14:34:33.62 [ELAP,LINDAM]
ACC   z.APPR pW124CB 10358 26-NOV-1990 14:34:35.41 [ELAP,LINDAM]
ACC   z.APPR pW124MB 10358 26-NOV-1990 14:34:37.23 [ELAP,LINDAM]
ACC   z.APPR pW135MB 10358 26-NOV-1990 14:34:39.03 [ELAP,LINDAM]
ACC   z.APPR pWMXYL  10358 26-NOV-1990 14:34:40.91 [ELAP,LINDAM]
ACC   z.APPR pWOXYL  10358 26-NOV-1990 14:34:42.72 [ELAP,LINDAM]
ACC   z.APPR pWPXYL  10358 26-NOV-1990 14:34:44.54 [ELAP,LINDAM]
AEDRC enter accreds. 10358  2-JAN-1991 13:26:57.12 [ELAP,SHIRLEY]
ACC   x.APPR aW245TC 10358  2-JAN-1991 13:27:24.53 [ELAP,SHIRLEY]
ACC   x.APPR aWCRESO 10358  2-JAN-1991 13:27:34.80 [ELAP,SHIRLEY]
ACC   x.APPR aWMETEK 10358  2-JAN-1991 13:27:37.91 [ELAP,SHIRLEY]
ACC   x.APPR aWPYRID 10358  2-JAN-1991 13:27:40.92 [ELAP,SHIRLEY]
ACC   x.APPR sWTCLP  10358  2-JAN-1991 13:28:05.17 [ELAP,SHIRLEY]
AEDRC enter accreds. 10358 16-JAN-1991 15:19:51.95 [ELAP,SHIRLEY]
ACC   z.ERRS aWACID  10358 16-JAN-1991 15:20:25.92 [ELAP,SHIRLEY]
AEDRC enter accreds. 10358 21-MAY-1991 11:11:41.76 [ELAP,JOYCE]
ACC   x.APPR aIFLUOR 10358 21-MAY-1991 11:12:06.44 [ELAP,JOYCE]
ACC   x.APPR aINO3   10358 21-MAY-1991 11:12:08.57 [ELAP,JOYCE]
      x.APPR aISO4   10358 21-MAY-1991 11:12:10.69 [ELAP,JOYCE]
AEDRC enter accreds. 10358 23-MAY-1991 16:00:49.53 [ELAP,LINDAM]
ACC   z.ERRS aIBTU   10358 23-MAY-1991 16:01:15.95 [ELAP,LINDAM]
ACC   z.ERRS aIZS    10358 23-MAY-1991 16:01:18.39 [ELAP,LINDAM]
```

APPENDIX D

LKB Letter-Style Report Dated September 18, 2003 Reviewing Additional Information for Elizabeth Seton Campus of Iona College, Yonkers, NY

September 18, 2003
LKB # 2328-04

Mr. Anthony D. Dougherty
Dougherty & Associates
450 Seventh Avenue, Suite 1308
New York, NY 10123

Re: Review of Additional Environmental Information for Elizabeth Seton Campus of Iona College, Yonkers, NY

Dear Mr. Dougherty,

Per your request, Lockwood, Kessler & Bartlett, Inc. (LKB) has reviewed the following additional environmental information for the above-referenced site:

- The results of the 1992 laboratory analyses performed by Stallone Testing Laboratories, Inc. (STL);
- The results of the 1992 laboratory analyses performed by Independent Testing Laboratories, Inc. (ITL);
- The text of the July 28, 1995 Phase I Environmental Site Audit prepared by Vollmuth & Brush;
- The September 4, 2003 memorandum from Vollmuth & Brush to the City of Yonkers; and
- Available maps and aerial photographs that provide information on the distribution and volume of fill material at the site.

The results of our review are summarized below. The majority of our comments pertain to evaluation of the 1992 STL and ITL results relative to current NYSDEC requirements, and the available information regarding the distribution and volume of fill at the site. Our key finding is that the majority of the 1992 STL and ITL results cannot be used to assess the environmental quality of the fill/soil relative to current NYSDEC requirements. Consequently, the findings of Vollmuth & Brush's 1995 Phase I report that were based on the 1992 STL and ITL results are no longer valid. Moreover, the potential remedial costs in Vollmuth & Brush's September 4, 2003 memorandum to the City of Yonkers, which are based on their 1995 Phase I report, are no longer valid. Additional sampling and analysis is required to evaluate the environmental quality of the fill/soil relative to current NYSDEC requirements and determine the regulatory status of the site.

A brief discussion of historical testing requirements is helpful in understanding the next steps. Regarding the 1992 soil testing performed by STL and ITL, we wish to note that the majority of this testing consisted of Extraction Procedure Toxicity (EP Tox) and Toxicity Characteristic Leaching Procedure (TCLP) analyses of fill/soil samples. Both of these analytical methods were developed to estimate the concentrations of contaminants that may leach from a waste material as a result of contact with landfill leachate, which is highly acidic. They were/are utilized to determine if a waste material meets the toxicity characteristic of a hazardous waste pursuant to the federal Resource Conservation and Recovery Act (RCRA). The EP Tox method was the first method developed for this purpose. The TCLP method replaced the EP Tox method in the early 1990s and includes additional analytes. Both methods entail placing a sample in a concentrated acidic solution for an extended period (24 hours and 18 hours, respectively) and then analyzing the resulting extract. The results were usually compared to the TCLP Extraction Guidance Values listed in NYSDEC STARS Memo #1, which was developed to address handling and disposal of petroleum-contaminated soil, to assess in-situ soil quality conditions as no other soil-quality standards were available in 1992. In 1994, the NYSDEC published TAGM 4046, which contains recommended soil cleanup objectives (RSCOs) for in-situ soil. In 2000 and 2001, the NYSDEC published several memoranda to resolve inconsistencies between STARS Memo #1 and TAGM 4046.

Currently, the NYSDEC utilizes the TAGM 4046 RSCOs to evaluate in-situ soil quality conditions, including remediation of petroleum spill sites, but relies on STARS Memo #1 to address handling and disposal of petroleum-contaminated soil. The TAGM 4046 RSCOs are based on total soil concentrations rather than leachable concentrations. Consequently, the majority of the 1992 STL and ITL results cannot be used to assess in-situ soil quality conditions relative to current NYSDEC requirements. The EP Tox and TCLP results could be used to assess how fill/soil excavated from the site would be addressed under STARS Memo #1 if the method detection limits were as low as the TCLP Extraction Guidance Values, which are based on the ground water standards. Unfortunately however, the method detection limits for these analyses are based on the federal hazardous waste regulatory levels, which are much higher than the STARS Memo #1 TCLP Extraction Guidance Values.

We also wish to note that the fill material evaluated in the 1990 Dunn Geoscience report is described as soil, asphalt, concrete, brick and small boulders, and the samples collected by STL and ITL are described as brown soil in the bulk asbestos analysis results. Based on these descriptions, we do not expect that the fill/soil at the site will generate highly acidic leachate. Therefore, it is our professional judgement that the EP Tox and TCLP test results overestimated the concentrations of metals (e.g., selenium) that leach out of the in-situ fill/soil. A more appropriate analytical method is the Synthetic Precipitation Leaching Procedure (SPLP), which entails placing a sample in a dilute acidic solution to simulate the effect of rainfall percolating through the in-situ fill/soil.

Regarding the other STL and/or ITL analyses for total concentrations of polychlorinated biphenyls (PCBs), asbestos and total petroleum hydrocarbons (TPH), we note that PCBs and asbestos were not detected in any of the samples. The detection limit for PCBs is consistent with the TAGM 4046 RSCOs. Therefore, these results can be utilized to demonstrate that PCBs are not a concern for this site. Moreover, the asbestos tests were performed utilizing an accepted method. Therefore, these results can be utilized to demonstrate that asbestos is not a concern for this site. TPH was detected in most of the samples collected. However, the NYSDEC does not have a standard for TPH and relies instead on the concentrations of individual contaminants and/or total volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Moreover, it should be noted that the detection of TPH could be associated with the presence of asphalt, which was noted in the 1990 Dunn Geoscience report. Therefore, the TPH results cannot be utilized to evaluate the environmental quality of the fill/soil relative to current NYSDEC requirements.

We have one final comment regarding the previous testing that has to do with the levels of methane reported. Based on the boring sample collection diagrams included in the ITL results (example attached), it is clear that the methane concentrations were in percent (%) of the lower explosive limit (LEL) for methane, which is five percent (5%) gas in air, rather than in percent gas as noted in Vollmuth & Brush's September 4, 2003 memorandum to the City of Yonkers. Consequently, the maximum concentration detected (70% of the LEL) equates to an actual concentration of 3.5% methane in air. The other readings were significantly lower than the maximum. These concentrations should not be considered critical with respect to developing the site.

Regarding the volume of fill present at the site, we reviewed and compared the 1966 USGS topographic map for the Yonkers, NY quadrangle, 1988 and 1996 aerial photographs of the site area from our in-house archives, and a current aerial photograph obtained from mapquest.com. The dimensions of the site were estimated using the Proposed Test Boring Location Plan provided with the ITL results, which appears to show the actual boring locations as well as parking space markings, and the assumption that a typical parking space is eight (8) feet wide. The results of this analysis show what appears to be an oval-shaped filled area bordering the southwest side of the parking lot. The filled area is present in the 1996 aerial photograph but is not present on the 1988 aerial photograph. The filled area is still visible on the current aerial photograph (copy attached) and is well vegetated. Based on this information, the lateral dimensions of the filled area are approximately 350 feet long by 150 feet wide. Comparison of the spot elevations on the ITL site map to the 1966 USGS topographic quadrangle map indicates that the maximum depth of the fill is approximately ten feet. Assuming that the fill has a wedge-shaped distribution on top of the west-sloping pre-existing land surface with an average thickness of five feet, the volume of the fill is estimated to be approximately 10,000 cubic yards. We note that the location of this filled area differs from that of the fill evaluated in the 1990 Dunn Geoscience

report, which was reportedly stockpiled along the east side of the parking lot but does not appear to be present in the 1996 aerial photograph. Moreover, since the volume of the filled area is significantly larger than the 1,900 cubic yards estimate we developed based on the 1990 Dunn Geoscience report, it appears that additional fill may have been brought to the site subsequent to that report. In contrast, comparison of the spot elevations on the ITL Proposed Test Boring Location Plan to the 1966 USGS topographic quadrangle map indicates that in 1992 land surface elevations for the parking lot and the adjacent area to the south are basically the same as in 1966. This suggests that as of 1992, no filling had occurred in these areas.

Regarding potential remedial costs associated with the site, since the majority of the 1992 data cannot be utilized to assess the environmental quality of the fill/soil relative to current NYSDEC requirements, and it appears that additional fill may have been brought to the site subsequent to the 1990 Dunn Geoscience report, additional fill/soil sampling and analysis are required to characterize the environmental quality of the fill/soil relative to TAGM 4046 and STARS Memo #1 before potential remedial costs, if any, can be estimated. The scope of this work should entail collecting representative samples of the fill/soil and analysis of the samples for total concentrations of the VOCs, SVOCs, pesticides, herbicides and metals listed in TAGM 4046 by a state-certified laboratory. Since the 1992 results indicate that PCBs are not a concern, we feel that further analyses for PCBs are not warranted. The results can also be compared to the TCLP Alternative Guidance Values listed in STARS Memo #1 to assess the disposal/reuse options for the fill/soil. The approximate per sample cost for these analyses, excluding dioxins and dibenzofurans, which are typically only analyzed for at sites where they are expected to be present, is $600.00. (The approximate additional cost to analyze a sample for just dioxins and dibenzofurans is $500.00 due to the specialized nature of this analysis.) Assuming that the samples are collected utilizing test pits dug by college personnel and equipment, the cost to collect samples is estimated to be approximately $1,000.00. Therefore, the cost to collect and analyze a total of ten samples (without dioxins and dibenzofurans), compare the results to the TAGM 4046 RSCOs and STARS Memo #1 TCLP Alternative Guidance Values, and prepare a letter-style report of the findings is estimated to be $8,500.00.

Regarding the regulatory status of the site, we wish to note that since the fill material was brought to the site to extend the parking lot, it is considered to be incidental fill for construction. Therefore, if it meets the TAGM 4046 RSCOs and does not contain solid waste materials, it is not subject to the NYSDEC Part 360 regulations. Based on the information we have reviewed to date, it is unclear how the term "landfill" came to be associated with this site.

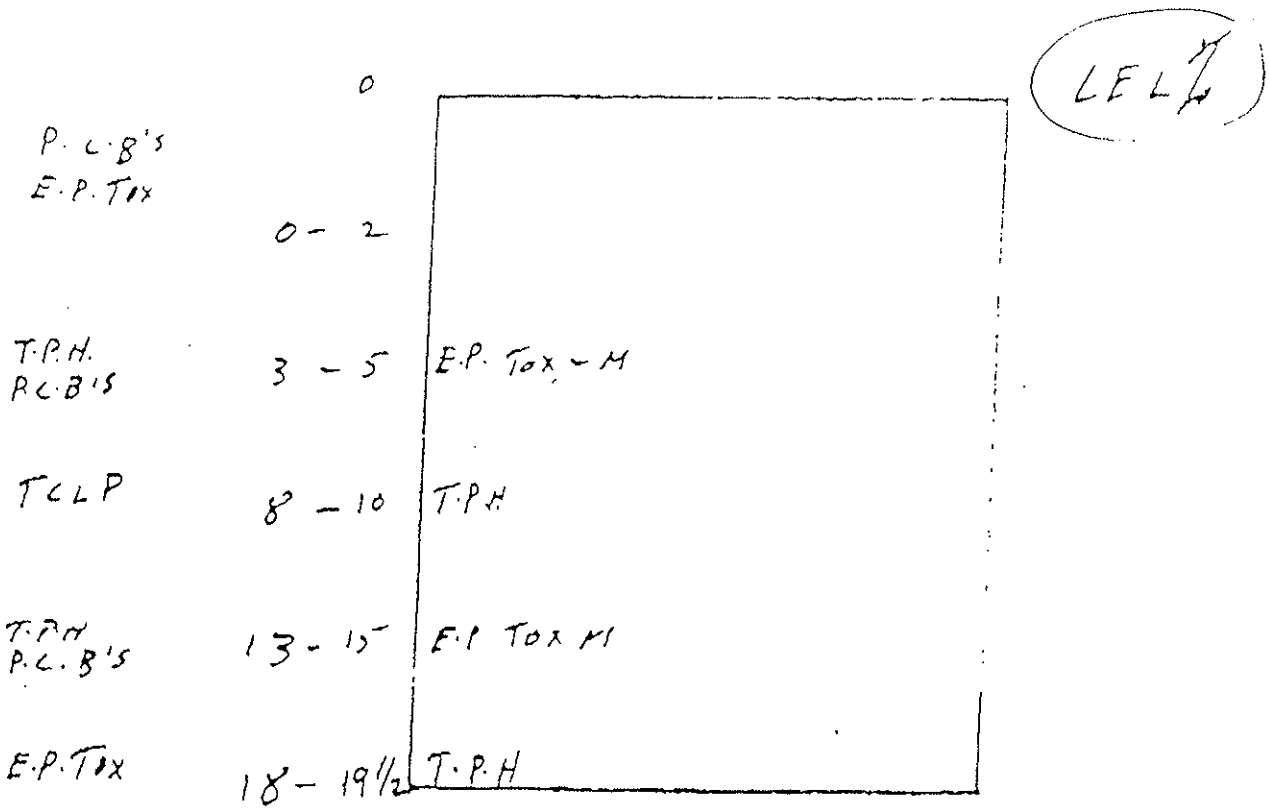
LKB hopes that this information has been responsive to your needs. Please let us know if we can be of further assistance on this project.

Sincerely,
LOCKWOOD, KESSLER & BARTLETT, INC.

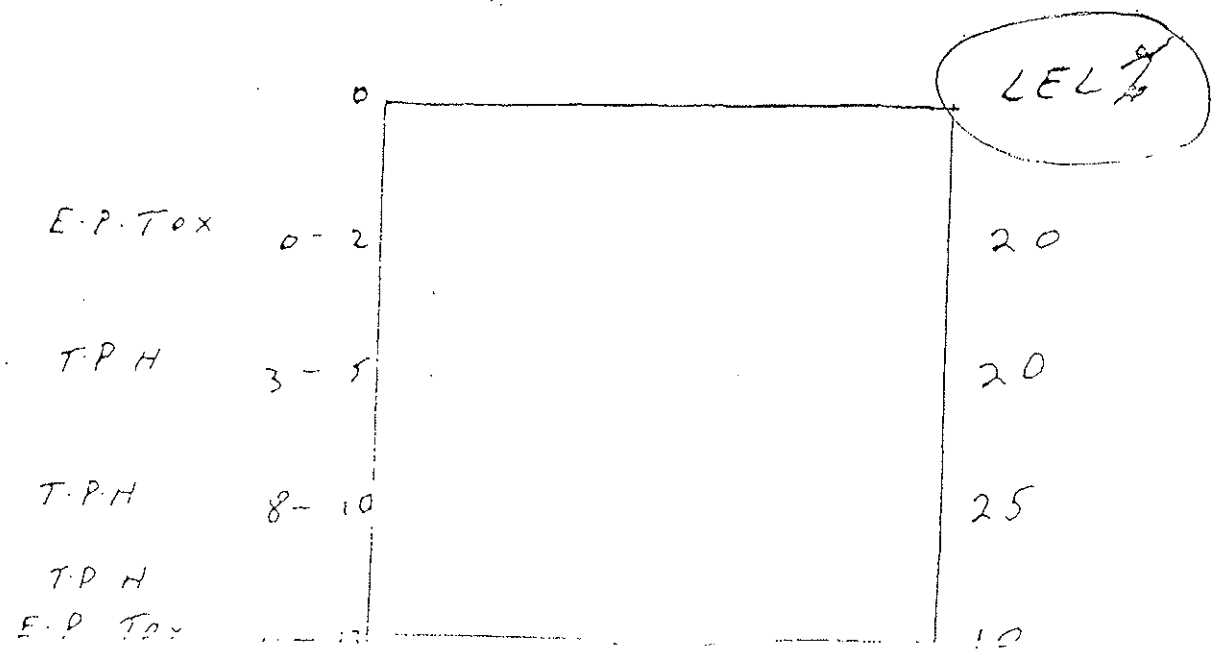
Paul Lappano, P.E.
Director of Environmental Engineering

Diagram of Bore's for Iona College

Bore #1



Bore #2



MAPQUEST.

Home · Help

MAPS | DRIVING DIRECTIONS | ROAD TRIP PLANNER | YELLOW PAGES

maps

HELP ?

- Address
- Airport
- ZIP Code
- City
- Area Code
- Lat / Long
- Road Atlas Key
- Saved Maps

What's Nearby

Search for the nearest:

BORDERS

Search | Clear

Orbitz Travel Deals

Hotels:
Save up to 70% on Orbitz Savers nationwide. Search Yonkers, NY!

Flights:
Find low fares to the New York area!

Rental Cars:
Find special offers on rental prices in the New York area!

ORBITZ

City Guide

- New York Dining
- New York News
- New York Movies
- New York Entertainment

N Broadway & Odell Ave
Yonkers, NY
10701, US

Yonkers Offers:

Hotels | Go

STREET MAP | AERIAL PHOTO

PRINT AERIAL PHOTO | E-MAIL AERIAL PHOTO



SMALL PHOTO

ZOOM IN

ZOOM OUT

CLICKING ON PHOTO WILL: Zoom In | Re-center

All rights reserved. Use Subject to License/Copyright

NAVTECH

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION/REGION 3

OUTLINE OF REQUIREMENTS FOR INVESTIGATION & REMEDIATION OF UNAUTHORIZED C&D DEBRIS DISPOSAL SITES

December 2002

Explanation: The purpose of this outline is to standardize the type of information required in investigations of unauthorized C&D debris disposal sites and to provide consistency in the manner in which that information is used to make decisions regarding requirements for site remediation. Typically these are unpermitted sites which operated under the Part 360 exemption for C&D debris disposal sites but failed to comply with the exemption criteria prescribed at 6 NYCRR Part 360-7.1(b)(1)(i). Fill material typically consists largely of concrete, brick, asphalt pavement, glass, soil and rock but contains minor amounts of other waste types not allowed at exempt disposal sites such as fragments of wood, tile, metal pipes, electrical wiring components, gypsum wallboard, roofing shingles, fiberglass insulation, plastic, fabric, paper, coal and/or coal ash. For cases involving larger quantities of these or other waste types not acceptable at exempt disposal sites, the requirements outlined below may not be adequate to address all regulatory and technical requirements.

This outline is based on experience gained in numerous enforcement cases involving unauthorized disposal of C&D debris and reflects requirements which have typically been included in schedules of compliance and approved work plans. Each consent order is negotiated on a case-by-case basis and this outline should not be construed as an offer of settlement in any particular case. This outline has not been adopted as an official guidance document and is not applicable to any specific case unless it has been incorporated into a fully executed Order on Consent.

This outline specifies requirements for investigation and remediation when non-compliant fill material is left in place. It should not be assumed that all enforcement cases can be settled in this manner. In many cases, based on the nature of the fill material, the results of the investigation, the environmental setting or other factors, the Department may determine that the case can only be settled by removal of the waste/fill material and disposal at an authorized solid waste management facility. In some cases, it may be less expensive to remove and properly dispose of the waste/fill material rather than to comply with the requirements outlined below.

When adopted as part of an Order on Consent, this outline is to be used by the respondent's engineering consultant to prepare a *Site Investigation Work Plan* prior to carrying out the investigation and to prepare a *Site Remediation Plan* after the results of the investigation have been obtained. The site investigation work plan should include a description of the site and its history (section I), and a description of the methods to be used for waste/fill characterization (section II). The respondent should obtain written approval for the work plan from the Department before initiating the work and should contact the Department in advance to schedule a time when Department staff will be available to oversee the work. All work should be carried out with oversight by a project manager who is a NYS licensed professional engineer or other qualified individual acceptable to the Department. It is the responsibility of the project manager to ensure that all work is carried out in a manner which complies with applicable health and safety requirements.

I. Site Background Information - The following information should be included:

a) Figure showing the location of the site on a USGS topographic map;

APPENDIX E

PCB Test Results From 1992 Studies

Stallone Testing Laboratories, Inc.

4465 Bronx Blvd., Bronx, N.Y. 10470
212-325-9200
656 Van Ranst Place, Mamaroneck, New York 10543
(914) 698-5300

ORIGINAL OFFICE COPY

FACILITIES OPERATIONS
SEP 2 11 37 AM '92

Inspecting • Testing • Concrete • Soil • Steel • Water • Research • Chemical Analysis • Core Drilling

Certificate of Test and Analysis

Client: Iona College
Lab. No.: ER-8

Project: Yonkers Campus (N.B'way & Odell Avenue)
Report Date: 8/31/92

Material: Soil from borings

Date: Received 7/13 & 7/15/92

Test: Chemical analysis - 4 samples

Examined with the following results:

SAMPLE BORING NO. (Dept in Ft.)	#2 B1 (3-5)	#4 B1 (13-15)	#26 B6 (3-5)	#28 B6 (13-15)
PCB CONTENT	ND 1	ND 1	ND 1	ND 1
Petroleum Hydrocarbons (418.1)	1460	1420	3930	1490
EP Toxicity: (Metals Only)				
Arsenic	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Barium	0.31	0.42	0.23	0.25
Cadmium	ND 0.02	ND 0.02	ND 0.02	ND 0.02
Chromium	ND 0.05	ND 0.05	ND 0.05	ND 0.05
Lead	ND 0.1	0.10	0.12	ND 0.1
Mercury	ND 0.001	ND 0.001	ND 0.001	ND 0.001
Selenium	ND 0.1	ND 0.1	ND 0.1	ND 0.1
Silver	ND 0.05	ND 0.05	ND 0.05	ND 0.05

All the results are in ppm.
ND=results are less than those shown.

Reported to: 3-Client
1-File

Respectfully submitted
Dominick Stallone
Dominick Stallone

The foregoing information is the property of clients. Reproduction or publication only with our express permission.

INDEPENDENT TESTING LABORATORIES, INC.
"SERVING INDUSTRY WORLDWIDE SINCE 1976"
129-11 18th Avenue - College Point, N.Y. 11356
(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-13-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202A (bore #1)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 0-2 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), axcept from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-13-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202A (bore #1)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 3-5 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), except from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-13-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202A (bore #1)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 13-15 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), axcept from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-14-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202B (bore #3)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 0-2 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), axcept from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-14-92

DATE RECEIVED: 7-14-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202B (bore #3)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 13-15 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), excpt from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-14-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202B (bore #3)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 31-33 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), except from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-15-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202C (bore #6)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 0-2 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), axcept from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-15-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202C (bore #6)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 3-5 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), axcept from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

INDEPENDENT TESTING LABORATORIES, INC.

"SERVING INDUSTRY WORLDWIDE SINCE 1976"

129-11 18th Avenue - College Point, N.Y. 11356

(718) 961-8530 Fax (718) 762-1334

DATE: 9-24-92

DATE RECEIVED: 7-15-92

DATE ANALYZED: 7-25-92

SAMPLE NO.: 6202C (bore #6)

CLIENT: City of Yonkers

METHOD: EPA608, SW846: 8080

LOCATION: 13-15 feet

PROJECT: Iona College

COMPOUND NAME	LABORATORY TEST RESULTS FOR PCB'S
PCB - 1016	NONE DETECTED
PCB - 1221	NONE DETECTED
PCB - 1232	NONE DETECTED
PCB - 1242	NONE DETECTED
PCB - 1248	NONE DETECTED
PCB - 1254	NONE DETECTED
PCB - 1260	NONE DETECTED

NOTE: All the above compounds are less than the method detectionlimits (not detected), axcept from the compounds whose concentration are indicated. There is no maximum allowance level (standard) for the above compounds listed by EPA for the monitoring well water.

CERTIFIED BY _____, LABORTORY DIRECTOR

APPENDIX F

Representative Site Photographs

View of Site looking south from driveway on Foxfire School property:



View of Site looking north showing well vegetated state of land surface:



View of unpaved area south of existing parking lot:



Additional view of unpaved area south of existing parking lot:



View of Site in vicinity of south end of parking lot, looking west:



View of debris located near southwest corner of parking lot (Location of SS-6):



View of above-grade fill pile that is comprised primarily of asphalt:



View of steep western slope showing well vegetated condition of land surface:



View of steep western slope of Site looking southeast from Odell Avenue:



View of Site looking south from Odell Avenue showing bedrock outcrops:



APPENDIX G

Test Pit Logs and Photographs

Test Pit Logs

Test Pit TP-1: Located at fill pile just inside gate. Excavated through side of fill pile and 2.5 feet into underlying fill. Fill consisted of moist brown sandy with some fine to coarse gravel and traces of bricks, concrete, asphalt. No noticeable odors. Field screening shows 0.0 parts per million (ppm) volatile organic compounds (VOCs), 0 percent (%) combustible gas and hydrogen sulfide (H_2S) at background (0.007 ppm).

Test Pit TP-2: Excavated to 6 feet below grade. Encountered fill consisting of brown sandy soil mixed with rock fragments, large pieces of concrete and a few bricks and pieces of asphalt. No noticeable odors. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.007 ppm).

Test Pit TP-3: Fill consisting primarily of brown sandy soil, mixed with concrete, bricks and rock fragments. A small amount (less than one cubic yard) of gray ash-like material encountered at depth of three feet. Excavated around it to verify its limited extent. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.010 ppm).

Test Pit TP-4: Excavated to 5.5 feet below grade. Encountered fill consisting of brown sandy soil mixed with rock fragments, large pieces of concrete and a few bricks. No noticeable odors. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.007 ppm).

Test Pit TP-5: Excavated to 5.5 feet below grade. Encountered fill to 3.5 feet consisting of brown sandy soil mixed with rock fragments, pieces of concrete, a few bricks and a small amount of asphalt. No noticeable odors. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.007 ppm).

Test Pit TP-6: Excavated to 5.5 feet below grade. Encountered fill consisting of brown sandy soil mixed with rock fragments, pieces of concrete, a few bricks and some asphalt. No noticeable odors. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.007 ppm).

Test Pit TP-7: Excavated to 5 feet below grade. Encountered fill consisting of brown sandy soil mixed with rock fragments, a few bricks and some asphalt. No noticeable odors. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.008 ppm).

Test Pit TP-8: Excavated to 5 feet below grade. Encountered fill consisting of brown sandy soil mixed with rock fragments, some asphalt and a few bricks. No noticeable odors. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.008 ppm).

Test Pit TP-9: Excavated to 4.5 feet below grade. Encountered fill consisting of brown sandy soil mixed with rock fragments, concrete, some asphalt and numerous bricks. No noticeable odors. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.010 ppm).

Test Pit TP-10: Located at fill pile near northeast corner of unpaved area south of parking lot. Excavated into pile and two feet into underlying fill. Encountered fill consisting of brown sandy soil mixed with gravel and a few bricks. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.007 ppm).

Test Pit TP-11: Located at small fill pile on southwest corner of unpaved area south of parking lot. Excavated into pile and two feet into underlying fill. Encountered fill consisting of brown sandy soil mixed with gravel and concrete. Field screening shows 0.0 ppm VOCs, 0 % combustible gas and H_2S at background (0.009 ppm).

Test Pit TP-12: Located at small pile near southeast corner of unpaved area south of parking lot. Excavated into side of pile and two feet into underlying fill. Pile consists primarily of asphalt. Underlying fill consists of a thin surface layer of brown soil mixed with pieces of concrete, brick fragments and rocks, underlain by bedrock. A thin zone of ground water was noted on top of the bedrock.

Test Pits TP-13 and TP-14: Excavated to 1.5 to 2 feet. Encountered a thin surface layer of fill consisting of brown soil mixed with brick fragments and stones overlying bedrock. A small amount of ground water was noted on top of the bedrock at both locations, but is likely due to recent rainfall.

Test Pit TP-15: Located in easterly section of fill berm. Excavated into side of fill berm to approximately 4 feet below grade at backhoe. Encountered fill consisting of brown sandy soil mixed with rocks, concrete, brick fragments and asphalt. Also noted a small amount of wood and a small piece of deformed metal. Field readings indicate no VOCs, combustible gas or H_2S present.

Test Pit TP-16: Located in westerly section of fill berm. Excavated into side of fill berm to approximately 7 feet below grade. Encountered fill consisting of brown sandy soil mixed with rocks and some concrete. Field readings indicate no VOCs, combustible gas or H_2S present. No photo available due to heavy rainfall.

View of fill pile that is location of Test Pit #1, looking southwest from fence gate:



View of Test Pit #1 excavation:



View of Test Pit #2 excavation:



View of Test Pit #2 pile:



View of pile that is location of Test Pit #3 and excavation:



View of Test Pit #3 pile:



View of Test Pit #4 excavation:



View of Test Pit #4 pile:



View of Test Pit #5 excavation:



View of Test Pit #5 pile:



View of Test Pit #6 excavation:



View of Test Pit #6 pile:



View of Test Pit #7 excavation:



View of Test Pit #7 pile:



View of Test Pit #8 excavation:



View of Test Pit #8 pile:



View of Test Pit #9 excavation:



View of Test Pit #9 pile:



View of pile that is location of Test Pit #10 and excavation:



View of Test Pit #10 pile:



View of Test Pit #11 excavation:



View of Test Pit #11 pile:



View of Test Pit #12 excavation:



View of Test Pit #12 pile:



View of Test Pit #12 excavation:



View of Test Pit #12 pile:



View of Test Pit #13 excavation:



View of Test Pit #14 excavation:



APPENDIX H

STL-Connecticut Analytical Reports

ANALYTICAL REPORT

JOB NUMBER: 206216

Prepared For:

Lockwood, Kessler & Bartlett, Inc.
One Aerial Way
Syosset, NY 11791

Project: TAGM PROJECT

Attention: John Gerlach

Date: 04/13/2004

Johanna L Dubauskas
Signature

4.13.04
Date

Name: Johanna L. Dubauskas

Title: Project Manager

E-Mail: jdubauskas@stl-inc.com

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

This Report Contains (46) Pages

SEVERN TRENT STL

STL Report : 206216
LOCKWOOD, KESSLER & BARTLETT, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Organic Extraction - Samples were extracted according to method 3541/3550B. The following samples went to an elevated final volume for 3541 semi-volatile extraction:

SS-1	1mL
SS-2	1mL
SS-3	1mL
SS-4	1mL
SS-5	1mL
SS-6	1mL

No other problems were encountered.

Metals – ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Perkin Elmer mercury analyzer; following guidance provided in SW846 according to methods: ICAP – 3050B/6010B; mercury-7471A.

No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound, 1,1,2,2-tetrachloroethane, was above QC limits in the MS and MSD performed on sample SS-6.

Pesticides - Pesticide samples were analyzed by GC/ECD using guidance provided in Method 8081A. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

The surrogate recovery for Decachlorobiphenyl was lost in sample matrix in samples SS-2, SS-3, SS-5, and SS-6 on both columns, and in SS-1 and SS-4 on one column.

Polychlorinated Biphenyls (PCB's) - PCB samples were analyzed by GC/ECD using guidance provided in Method 8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

The surrogate recovery for Decachlorobiphenyl was above QC limits in SS-6 on the RTX-CLPesticidesII column.

The surrogate recovery for Tetrachloro-m-xylene was below QC limits in SS-2 and SS-5 on the RTX-CLPesticidesII column and SS-2, SS-3 and SS-5 on the RTX-CLPesticides column.

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 1ul or 2ul injection was used for all samples and standards. The instrument was calibrated at 10ng/ul (20 ng), 25 ng/ul(50 ng), 40ng/ul(80ng), 60ng/ul(120ng) and 80ng/ul(160ng). Internal standards were added to all samples and standards were at 20ng/ul(40ng).

Sample SS-4,was analyzed at a 1:2 dilution and SS-5 at a 1:4 dilution due to the presence of high levels of target compounds.

Classical Chemistry - Listed below are the wet chemistry analyte methods and references for the samples analyzed in this SDG. No analytical problems were encountered and all holding times were met.

Analyte	Method	Reference
Cyanide, Total	9012	1
TOC	9012	1

References:

1. Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

SEVERN TRENT STL

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Daniel Helfrich
Technical Director

4/12/04
Date

SAMPLE INFORMATION
Date: 04/13/2004

Job Number.: 206216
Customer...: Lockwood, Kessler & Bartlett,Inc.
Attn.....: John Gerlach

Project Number.....: 20001037
Customer Project ID....: TAGM PROJECT
Project Description....: TAGM PROJECT

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
206216-1	SS-1	Soil	03/29/2004	12:00	03/30/2004	09:20
206216-2	SS-2	Soil	03/29/2004	12:15	03/30/2004	09:20
206216-3	SS-3	Soil	03/29/2004	12:30	03/30/2004	09:20
206216-4	SS-4	Soil	03/29/2004	12:40	03/30/2004	09:20
206216-5	SS-5	Soil	03/29/2004	12:50	03/30/2004	09:20
206216-6	SS-6	Soil	03/29/2004	13:00	03/30/2004	09:20

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Chloroethane, Solid*	ND	U		3	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,1-Dichloroethene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Carbon disulfide, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Acetone, Solid*	ND	U	B	3	15	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Methylene chloride, Solid*	ND	U		4	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,1-Dichloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	2-Butanone (MEK), Solid*	ND	U		0.9	15	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Chloroform, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Carbon tetrachloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Benzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,2-Dichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Trichloroethene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.6	15	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Toluene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Tetrachloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,3-Dichloropropane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Dibromochloromethane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Chlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Ethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam

005REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260REV	Isopropylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	n-Propylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	tert-Butylbenzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	Xylenes (total), Solid*	ND	U		2	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	sec-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	p-Isopropyltoluene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	n-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1506	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1506	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	72.4			0.10	0.10	1	%	30706		04/05/04 1635	epm
	% Moisture, Solid	27.6			0.10	0.10	1	%	30706		04/05/04 1635	epm
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Chloroethane, Solid*	ND	U		3	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,1-Dichloroethene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Carbon disulfide, Solid*	ND	U		0.7	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Acetone, Solid*	ND	U	B	2	14	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Methylene chloride, Solid*	ND	U		3	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.8	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,1-Dichloroethane, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	2-Butanone (MEK), Solid*	ND	U		0.8	14	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Chloroform, Solid*	ND	U		0.8	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.7	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Carbon tetrachloride, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Benzene, Solid*	ND	U		0.7	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,2-Dichloroethane, Solid*	ND	U		0.7	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Trichloroethene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.6	14	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Toluene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Tetrachloroethene, Solid*	ND	U		0.8	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,3-Dichloropropane, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Dibromochloromethane, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Chlorobenzene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Ethylbenzene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam

007 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
008 REV	Isopropylbenzene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.8	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	n-Propylbenzene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	tert-Butylbenzene, Solid*	ND	U		0.7	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	Xylenes (total), Solid*	ND	U		2	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	sec-Butylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	p-Isopropyltoluene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	n-Butylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.6	7	1.00000	ug/Kg	30763		04/05/04 1540	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30763		04/05/04 1540	pam

* In Description = Dry Wgt.

Job Number: 206216

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	73.6			0.10	0.10	1	%	30706		04/05/04 1646	epm
	% Moisture, Solid	26.4			0.10	0.10	1	%	30706		04/05/04 1646	epm
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Chloroethane, Solid*	ND		U		3	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	1,1-Dichloroethene, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Trichlorotrifluoroethane, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Carbon disulfide, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Acetone, Solid*	120		B		2	14	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Methylene chloride, Solid*	ND		U	B	3	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	trans-1,2-Dichloroethene, Solid*	ND		U		0.8	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND		U		0.4	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	1,1-Dichloroethane, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	2-Butanone (MEK), Solid*	10		J		0.8	14	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Chloroform, Solid*	ND		U		0.8	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	1,1,1-Trichloroethane, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Carbon tetrachloride, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Benzene, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	1,2-Dichloroethane, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Trichloroethene, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND		U		0.5	14	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Toluene, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Tetrachloroethene, Solid*	ND		U		0.8	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	1,3-Dichloropropane, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Dibromochloromethane, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Chlorobenzene, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30887	04/06/04 1340	pam
	Ethylbenzene, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30887	04/06/04 1340	pam

009 REV

* In Description = Dry Wgt.

Job Number: 206216

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
010 REV	Isopropylbenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.8	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	n-Propylbenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	tert-Butylbenzene, Solid*	ND	U		0.7	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	Xylenes (total), Solid*	ND	U		2	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	sec-Butylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	p-Isopropyltoluene, Solid*	0.8	J		0.4	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	n-Butylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30887		04/06/04 1340	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30887		04/06/04 1340	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	75.3			0.10	0.10	1	%	30706		04/05/04 1656	epm
	% Moisture, Solid	24.7			0.10	0.10	1	%	30706		04/05/04 1656	epm
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Chloroethane, Solid*	ND		U		3	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,1-Dichloroethene, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Trichlorotrifluoroethane, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Carbon disulfide, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Acetone, Solid*	ND		U	B	2	13	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Methylene chloride, Solid*	3		J		3	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	trans-1,2-Dichloroethene, Solid*	ND		U		0.8	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND		U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,1-Dichloroethane, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	2-Butanone (MEK), Solid*	ND		U		0.8	13	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Chloroform, Solid*	ND		U		0.8	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,1,1-Trichloroethane, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Carbon tetrachloride, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Benzene, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,2-Dichloroethane, Solid*	ND		U		0.7	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Trichloroethene, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND		U		0.5	13	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Toluene, Solid*	1		J		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Tetrachloroethene, Solid*	ND		U		0.8	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,3-Dichloropropane, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Dibromochloromethane, Solid*	ND		U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Chlorobenzene, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Ethylbenzene, Solid*	ND		U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam

OIL REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216 Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Isopropylbenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.8	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	n-Propylbenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	tert-Butylbenzene, Solid*	ND	U		0.7	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	Xylenes (total), Solid*	2	J		2	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	sec-Butylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	p-Isopropyltoluene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	n-Butylbenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	7	1.00000	ug/Kg	30736		04/02/04 2033	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.4	7	1.00000	ug/Kg	30736		04/02/04 2033	pam

012 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Chloroethane, Solid*	ND	U		3	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,1-Dichloroethene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Carbon disulfide, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Acetone, Solid*	12	J	B	3	15	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Methylene chloride, Solid*	ND	U		4	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,1-Dichloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	2-Butanone (MEK), Solid*	ND	U		0.9	15	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Chloroform, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Carbon tetrachloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Benzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,2-Dichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Trichloroethene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.6	15	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Toluene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Tetrachloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,3-Dichloropropane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Dibromochloromethane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Chlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Ethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam

013 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260 REV	Isopropylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	n-Propylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	tert-Butylbenzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	Xylenes (total), Solid*	ND	U		2	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	sec-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	p-Isopropyltoluene, Solid*	6	J		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	n-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1650	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1650	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216 Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	65.9			0.10	0.10	1	%	30706		04/05/04 1718	epm
	% Moisture, Solid	34.1			0.10	0.10	1	%	30706		04/05/04 1718	epm
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Chloroethane, Solid*	ND	U		3	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,1-Dichloroethene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Carbon disulfide, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Acetone, Solid*	ND	U	B	3	15	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Methylene chloride, Solid*	ND	U		4	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,1-Dichloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	2-Butanone (MEK), Solid*	ND	U		0.9	15	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Chloroform, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Carbon tetrachloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Benzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,2-Dichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Trichloroethene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.6	15	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Toluene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Tetrachloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,3-Dichloropropane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Dibromochloromethane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Chlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Ethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam

015 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260REV	Isopropylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	n-Propylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	tert-Butylbenzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	Xylenes (total), Solid*	ND	U		2	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	sec-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	p-Isopropyltoluene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	n-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30763		04/05/04 1431	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30763		04/05/04 1431	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216 Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Chloroethane, Solid*	ND	U		3	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,1-Dichloroethene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Carbon disulfide, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Acetone, Solid*	ND	U	B	3	15	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Methylene chloride, Solid*	ND	U	B	4	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,1-Dichloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	2-Butanone (MEK), Solid*	ND	U		0.9	15	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Chloroform, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Carbon tetrachloride, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Benzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,2-Dichloroethane, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Trichloroethene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.6	15	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Toluene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Tetrachloroethene, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,3-Dichloropropane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Dibromochloromethane, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Chlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Ethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Isopropylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.9	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	n-Propylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam

017 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	tert-Butylbenzene, Solid*	ND	U		0.8	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	Xylenes (total), Solid*	ND	U		2	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	sec-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	p-Isopropyltoluene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	n-Butylbenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.6	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam
018 REV	1,2,4-Trichlorobenzene, Solid*	ND	U		0.5	8	1.00000	ug/Kg	30887	RA	04/06/04 1415	pam

* In Description = Dry Wgt.

Job Number: 206216

LABORATORY TEST RESULTS

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
8270C	Semivolatile Organics											
	Aniline, Solid*	ND		U	120	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Phenol, Solid*	ND		U	70	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2-Methylphenol, Solid*	ND		U	47	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	4-Methylphenol, Solid*	ND		U	53	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2-Chlorophenol, Solid*	ND		U	70	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Nitrobenzene, Solid*	ND		U	73	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Benzoic acid, Solid*	ND		U	1900	4700	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Isophorone, Solid*	ND		U	67	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Naphthalene, Solid*	ND		U	94	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2,4-Dichlorophenol, Solid*	ND		U	88	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	4-Chloroaniline, Solid*	ND		U	73	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2,4,5-Trichlorophenol, Solid*	ND		U	29	4700	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2-Methylnaphthalene, Solid*	ND		U	82	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2-Nitroaniline, Solid*	ND		U	64	4700	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	4-Chloro-3-methylphenol, Solid*	ND		U	91	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2,6-Dinitrotoluene, Solid*	ND		U	41	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2-Nitrophenol, Solid*	ND		U	82	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	3-Nitroaniline, Solid*	ND		U	53	4700	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Dimethyl phthalate, Solid*	ND		U	44	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	2,4-Dinitrophenol, Solid*	ND		U	150	4700	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Acenaphthylene, Solid*	140		J	32	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Acenaphthene, Solid*	ND		U	44	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Dibenzofuran, Solid*	ND		U	44	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	4-Nitrophenol, Solid*	ND		U	250	4700	1.00000	ug/Kg	30954		04/02/04 2323	jdw

18A

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Fluorene, Solid*	60	J		59	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Hexachlorobenzene, Solid*	ND	U		56	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Diethyl phthalate, Solid*	ND	U		50	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Pentachlorophenol, Solid*	ND	U		130	4700	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Phenanthrene, Solid*	560	J		70	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Anthracene, Solid*	260	J		35	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	41	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
1981	Fluoranthene, Solid*	1100			64	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Pyrene, Solid*	950	J		56	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Butyl benzyl phthalate, Solid*	ND	U		38	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Benzo(a)anthracene, Solid*	610	J		44	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Chrysene, Solid*	620	J		50	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		100	1900	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	810	J		110	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Di-n-octyl phthalate, Solid*	ND	U		35	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Benzo(b)fluoranthene, Solid*	620	J		110	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Benzo(k)fluoranthene, Solid*	620	J		110	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Benzo(a)pyrene, Solid*	640	J		47	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	240	J		53	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Dibenzo(a,h)anthracene, Solid*	100	J		53	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw
	Benzo(ghi)perylene, Solid*	230	J		50	970	1.00000	ug/Kg	30954		04/02/04 2323	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	72.4			0.10	0.10	1	%	30706		04/05/04 1635	epm
	% Moisture, Solid	27.6			0.10	0.10	1	%	30706		04/05/04 1635	epm
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		110	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Phenol, Solid*	ND	U		63	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2-Methylphenol, Solid*	ND	U		42	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	4-Methylphenol, Solid*	ND	U		48	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2-Chlorophenol, Solid*	ND	U		63	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Nitrobenzene, Solid*	ND	U		66	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Benzoic acid, Solid*	ND	U		1700	4200	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Isophorone, Solid*	ND	U		61	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Naphthalene, Solid*	ND	U		84	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2,4-Dichlorophenol, Solid*	ND	U		79	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	4-Chloroaniline, Solid*	ND	U		66	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		26	4200	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2-Methylnaphthalene, Solid*	ND	U		74	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2-Nitroaniline, Solid*	ND	U		58	4200	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		82	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		37	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2-Nitrophenol, Solid*	ND	U		74	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	3-Nitroaniline, Solid*	ND	U		48	4200	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Dimethyl phthalate, Solid*	ND	U		40	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	2,4-Dinitrophenol, Solid*	ND	U		130	4200	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Acenaphthylene, Solid*	340	J		29	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Acenaphthene, Solid*	63	J		40	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Dibenzofuran, Solid*	40	J		40	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	4-Nitrophenol, Solid*	ND	U		220	4200	1.00000	ug/Kg	30954		04/02/04 2351	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270	Fluorene, Solid*	83	J		53	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Hexachlorobenzene, Solid*	ND	U		50	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Diethyl phthalate, Solid*	91	J		45	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Pentachlorophenol, Solid*	ND	U		110	4200	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Phenanthrene, Solid*	720	J		63	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Anthracene, Solid*	420	J		32	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	37	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Fluoranthene, Solid*	1600			58	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Pyrene, Solid*	1400			50	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Butyl benzyl phthalate, Solid*	ND	U		34	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Benzo(a)anthracene, Solid*	960			40	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Chrysene, Solid*	970		M	45	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		90	1700	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		95	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Di-n-octyl phthalate, Solid*	ND	U		32	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Benzo(b)fluoranthene, Solid*	860	J		100	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Benzo(k)fluoranthene, Solid*	1200			100	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Benzo(a)pyrene, Solid*	1100			42	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	360	J		48	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Dibenzo(a,h)anthracene, Solid*	140	J		48	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw
	Benzo(ghi)perylene, Solid*	340	J		45	870	1.00000	ug/Kg	30954		04/02/04 2351	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	73.6			0.10	0.10	1	%	30706		04/05/04 1646	epm
	% Moisture, Solid	26.4			0.10	0.10	1	%	30706		04/05/04 1646	epm
8270C	Semivolatile Organics											
	Aniline, Solid*	500	J		110	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Phenol, Solid*	87	J		62	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2-Methylphenol, Solid*	ND	U		42	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	4-Methylphenol, Solid*	ND	U		47	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2-Chlorophenol, Solid*	ND	U		62	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Nitrobenzene, Solid*	ND	U		65	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Benzoic acid, Solid*	ND	U		1700	4200	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Isophorone, Solid*	ND	U		60	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Naphthalene, Solid*	ND	U		83	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2,4-Dichlorophenol, Solid*	ND	U		78	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	4-Chloroaniline, Solid*	ND	U		65	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		26	4200	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2-Methylnaphthalene, Solid*	ND	U		73	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2-Nitroaniline, Solid*	ND	U		57	4200	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		80	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		36	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2-Nitrophenol, Solid*	ND	U		73	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	3-Nitroaniline, Solid*	ND	U		47	4200	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Dimethyl phthalate, Solid*	ND	U		39	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	2,4-Dinitrophenol, Solid*	ND	U		130	4200	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Acenaphthylene, Solid*	100	J		29	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Acenaphthene, Solid*	58	J		39	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Dibenzofuran, Solid*	ND	U		39	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	4-Nitrophenol, Solid*	ND	U		220	4200	1.00000	ug/Kg	30954		04/03/04 0019	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Fluorene, Solid*	53	J	M	52	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Hexachlorobenzene, Solid*	ND	U		49	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Diethyl phthalate, Solid*	ND	U		44	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Pentachlorophenol, Solid*	ND	U		110	4200	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Phenanthrene, Solid*	530	J		62	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Anthracene, Solid*	220	J		31	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	36	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Fluoranthene, Solid*	860			57	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Pyrene, Solid*	890			49	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Butyl benzyl phthalate, Solid*	ND	U		34	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Benzo(a)anthracene, Solid*	530	J		39	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Chrysene, Solid*	600	J		44	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		88	1700	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	180	J		93	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Di-n-octyl phthalate, Solid*	ND	U		31	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Benzo(b)fluoranthene, Solid*	540	J		99	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Benzo(k)fluoranthene, Solid*	540	J		100	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Benzo(a)pyrene, Solid*	570	J		42	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	210	J		47	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Dibenzo(a,h)anthracene, Solid*	81	J		47	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw
	Benzo(ghi)perylene, Solid*	210	J		44	860	1.00000	ug/Kg	30954		04/03/04 0019	jdw

* In Description = Dry Wgt.

Job Number: 206216

L A B O R A T O R Y T E S T R E S U L T S

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	75.3			0.10	0.10	1	%	30706		04/05/04 1656	epm
	% Moisture, Solid	24.7			0.10	0.10	1	%	30706		04/05/04 1656	epm
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		210	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Phenol, Solid*	ND	U		120	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2-Methylphenol, Solid*	ND	U		82	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	4-Methylphenol, Solid*	ND	U		92	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2-Chlorophenol, Solid*	ND	U		120	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Nitrobenzene, Solid*	ND	U		130	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Benzoic acid, Solid*	ND	U		3400	8200	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Isophorone, Solid*	ND	U		120	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Naphthalene, Solid*	ND	U		160	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2,4-Dichlorophenol, Solid*	ND	U		150	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	4-Chloroaniline, Solid*	ND	U		130	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		51	8200	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2-Methylnaphthalene, Solid*	ND	U		140	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2-Nitroaniline, Solid*	ND	U		110	8200	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		160	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		72	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2-Nitrophenol, Solid*	ND	U		140	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	3-Nitroaniline, Solid*	ND	U		92	8200	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Dimethyl phthalate, Solid*	ND	U		77	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	2,4-Dinitrophenol, Solid*	ND	U		260	8200	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Acenaphthylene, Solid*	1400	J		56	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Acenaphthene, Solid*	ND	U		77	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Dibenzofuran, Solid*	160	J		77	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	4-Nitrophenol, Solid*	ND	U		430	8200	2.00000	ug/Kg	30954		04/05/04 1714	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Fluorene, Solid*	230	J		100	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Hexachlorobenzene, Solid*	ND	U		97	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Diethyl phthalate, Solid*	ND	U		87	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Pentachlorophenol, Solid*	ND	U		220	8200	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Phenanthrene, Solid*	4200			120	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Anthracene, Solid*	1000	J		61	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	72	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Fluoranthene, Solid*	6600			110	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Pyrene, Solid*	6400			97	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Butyl benzyl phthalate, Solid*	ND	U		66	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Benzo(a)anthracene, Solid*	3600			77	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Chrysene, Solid*	4100			87	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		170	3400	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		180	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Di-n-octyl phthalate, Solid*	ND	U		61	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Benzo(b)fluoranthene, Solid*	3500			190	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Benzo(k)fluoranthene, Solid*	3100			200	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Benzo(a)pyrene, Solid*	3500			82	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	2300			92	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Dibenzo(a,h)anthracene, Solid*	830	J		92	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw
	Benzo(ghi)perylene, Solid*	2500			87	1700	2.00000	ug/Kg	30954		04/05/04 1714	jdw

1981

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216 Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		490	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Phenol, Solid*	ND	U		280	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2-Methylphenol, Solid*	ND	U		190	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	4-Methylphenol, Solid*	ND	U		210	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2-Chlorophenol, Solid*	ND	U		280	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Nitrobenzene, Solid*	ND	U		290	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Benzoic acid, Solid*	ND	U		7700	19000	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Isophorone, Solid*	ND	U		270	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Naphthalene, Solid*	470	J		370	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2,4-Dichlorophenol, Solid*	ND	U		350	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	4-Chloroaniline, Solid*	ND	U		290	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		120	19000	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2-Methylnaphthalene, Solid*	ND	U		320	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2-Nitroaniline, Solid*	ND	U		250	19000	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		360	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		160	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2-Nitrophenol, Solid*	ND	U		320	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	3-Nitroaniline, Solid*	ND	U		210	19000	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Dimethyl phthalate, Solid*	ND	U		170	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	2,4-Dinitrophenol, Solid*	ND	U		590	19000	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Acenaphthylene, Solid*	1600	J		130	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Acenaphthene, Solid*	920	J		170	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Dibenzofuran, Solid*	920	J		170	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	4-Nitrophenol, Solid*	ND	U		980	19000	4.00000	ug/Kg	30954		04/05/04 1838	jdw

I 81

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216 Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Fluorene, Solid*	940	J	M	230	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Hexachlorobenzene, Solid*	ND	U		220	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Diethyl phthalate, Solid*	ND	U		200	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Pentachlorophenol, Solid*	ND	U		500	19000	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Phenanthrene, Solid*	15000			280	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Anthracene, Solid*	3100	J		140	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	160	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Fluoranthene, Solid*	16000			250	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Pyrene, Solid*	19000			220	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Butyl benzyl phthalate, Solid*	1100	J		150	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Benzo(a)anthracene, Solid*	7700			170	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Chrysene, Solid*	8000			200	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		390	7600	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		420	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Di-n-octyl phthalate, Solid*	ND	U		140	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Benzo(b)fluoranthene, Solid*	5700			440	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Benzo(k)fluoranthene, Solid*	6300			450	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Benzo(a)pyrene, Solid*	6500			190	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	4700			210	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Dibenzo(a,h)anthracene, Solid*	1700	J		210	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw
	Benzo(ghi)perylene, Solid*	5700			200	3800	4.00000	ug/Kg	30954		04/05/04 1838	jdw

185

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	65.9			0.10	0.10	1	%	30706		04/05/04 1718	epm
	% Moisture, Solid	34.1			0.10	0.10	1	%	30706		04/05/04 1718	epm
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		130	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Phenol, Solid*	76	J		72	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2-Methylphenol, Solid*	ND	U		48	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	4-Methylphenol, Solid*	ND	U		54	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2-Chlorophenol, Solid*	ND	U		72	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Nitrobenzene, Solid*	ND	U		75	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Benzoic acid, Solid*	ND	U		2000	4800	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Isophorone, Solid*	ND	U		69	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Naphthalene, Solid*	330	J		96	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2,4-Dichlorophenol, Solid*	ND	U		90	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	4-Chloroaniline, Solid*	ND	U		75	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		30	4800	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2-Methylnaphthalene, Solid*	120	J		84	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2-Nitroaniline, Solid*	ND	U		66	4800	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		93	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		42	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2-Nitrophenol, Solid*	ND	U		84	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	3-Nitroaniline, Solid*	ND	U		54	4800	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Dimethyl phthalate, Solid*	ND	U		45	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	2,4-Dinitrophenol, Solid*	ND	U		150	4800	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Acenaphthylene, Solid*	1100			33	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Acenaphthene, Solid*	130	J		45	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Dibenzofuran, Solid*	95	J		45	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	4-Nitrophenol, Solid*	ND	U		260	4800	1.00000	ug/Kg	30954		04/03/04 0144	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216 Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Fluorene, Solid*	180	J		60	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Hexachlorobenzene, Solid*	ND	U		57	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Diethyl phthalate, Solid*	ND	U		51	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Pentachlorophenol, Solid*	ND	U		130	4800	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Phenanthrene, Solid*	1800			72	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Anthracene, Solid*	1200			36	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	42	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Fluoranthene, Solid*	4100			66	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Pyrene, Solid*	3700			57	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Butyl benzyl phthalate, Solid*	ND	U		39	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Benzo(a)anthracene, Solid*	2300			45	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Chrysene, Solid*	2600			51	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		100	2000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		110	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Di-n-octyl phthalate, Solid*	ND	U		36	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Benzo(b)fluoranthene, Solid*	2800			110	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Benzo(k)fluoranthene, Solid*	3300			120	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Benzo(a)pyrene, Solid*	3600			48	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	1300			54	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Dibenzo(a,h)anthracene, Solid*	360	J		54	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw
	Benzo(ghi)perylene, Solid*	1200			51	1000	1.00000	ug/Kg	30954		04/03/04 0144	jdw

1881

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/10/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.41	2.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	beta-BHC, Solid*	ND	U		0.40	2.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	delta-BHC, Solid*	ND	U		0.15	2.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.23	2.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Heptachlor, Solid*	ND	U		0.22	2.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Aldrin, Solid*	1.3	J		0.53	3.0	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Heptachlor epoxide, Solid*	1.5	J		0.17	2.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Endosulfan I, Solid*	ND	U		0.22	2.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Dieldrin, Solid*	ND	U		0.48	4.9	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	4,4'-DDE, Solid*	40			0.65	4.9	1.00000	ug/Kg	30853		04/07/04 1629	dmm
	Endrin, Solid*	ND	U		1.3	7.5	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Endosulfan II, Solid*	ND	U		0.25	4.9	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	4,4'-DDD, Solid*	18			0.57	4.9	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Endosulfan sulfate, Solid*	ND	U		0.26	4.9	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	4,4'-DDT, Solid*	69			0.46	4.9	1.00000	ug/Kg	30853		04/07/04 1629	dmm
	Methoxychlor, Solid*	20	J		3.2	25	1.00000	ug/Kg	30853		04/07/04 1629	dmm
	gamma-Chlordane, Solid*	3.7			0.14	2.5	1.00000	ug/Kg	30853		04/07/04 1629	dmm
	Endrin ketone, Solid*	ND	U		0.22	4.9	1.00000	ug/Kg	30851		04/07/04 1629	dmm
	Chlordane, Solid*	34		M	1.1	25	1.00000	ug/Kg	30851		04/07/04 1629	dmm

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/10/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	72.4			0.10	0.10	1	%	30706		04/05/04 1635	epm
	% Moisture, Solid	27.6			0.10	0.10	1	%	30706		04/05/04 1635	epm
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.38	2.3	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	beta-BHC, Solid*	0.43	J		0.37	2.3	1.00000	ug/Kg	30853		04/07/04 1706	dmm
	delta-BHC, Solid*	ND	U		0.14	2.3	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.21	2.3	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Heptachlor, Solid*	ND	U		0.21	2.3	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Aldrin, Solid*	ND	U		0.49	2.7	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Heptachlor epoxide, Solid*	0.88	J		0.16	2.3	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Endosulfan I, Solid*	ND	U		0.20	2.3	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Dieldrin, Solid*	ND	U		0.44	4.5	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	4,4'-DDE, Solid*	4.6			0.60	4.5	1.00000	ug/Kg	30853		04/07/04 1706	dmm
	Endrin, Solid*	ND	U		1.2	6.9	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Endosulfan II, Solid*	ND	U		0.23	4.5	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	4,4'-DDD, Solid*	2.0	J		0.52	4.5	1.00000	ug/Kg	30853		04/07/04 1706	dmm
	Endosulfan sulfate, Solid*	ND	U		0.24	4.5	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	4,4'-DDT, Solid*	7.8			0.42	4.5	1.00000	ug/Kg	30853		04/07/04 1706	dmm
	Methoxychlor, Solid*	ND	U		2.9	23	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	gamma-Chlordane, Solid*	ND	U		0.12	2.3	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Endrin ketone, Solid*	ND	U		0.20	4.5	1.00000	ug/Kg	30851		04/07/04 1706	dmm
	Chlordane, Solid*	ND	U		0.96	23	1.00000	ug/Kg	30851		04/07/04 1706	dmm

N81

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/10/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	73.6			0.10	0.10	1	%	30706		04/05/04 1646	epm
	% Moisture, Solid	26.4			0.10	0.10	1	%	30706		04/05/04 1646	epm
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.37	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	beta-BHC, Solid*	ND	U		0.36	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	delta-BHC, Solid*	ND	U		0.14	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.20	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Heptachlor, Solid*	ND	U		0.20	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Aldrin, Solid*	ND	U		0.47	2.7	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Heptachlor epoxide, Solid*	0.58	J		0.15	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Endosulfan I, Solid*	ND	U		0.20	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Dieldrin, Solid*	ND	U		0.43	4.4	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	4,4'-DDE, Solid*	3.1	J		0.58	4.4	1.00000	ug/Kg	30853		04/07/04 1743	dmm
	Endrin, Solid*	ND	U		1.2	6.6	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Endosulfan II, Solid*	ND	U		0.23	4.4	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	4,4'-DDD, Solid*	2.9	J		0.51	4.4	1.00000	ug/Kg	30853		04/07/04 1743	dmm
	Endosulfan sulfate, Solid*	ND	U		0.23	4.4	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	4,4'-DDT, Solid*	5.3			0.41	4.4	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Methoxychlor, Solid*	3.0	J		2.8	23	1.00000	ug/Kg	30853		04/07/04 1743	dmm
	gamma-Chlordane, Solid*	1.7	J		0.12	2.3	1.00000	ug/Kg	30851		04/07/04 1743	dmm
	Endrin ketone, Solid*	2.4	J		0.19	4.4	1.00000	ug/Kg	30853		04/07/04 1743	dmm
	Chlordane, Solid*	14	J	M	0.93	23	1.00000	ug/Kg	30851		04/07/04 1743	dmm

081

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/10/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	75.3			0.10	0.10	1	%	30706		04/05/04 1656	epm
	% Moisture, Solid	24.7			0.10	0.10	1	%	30706		04/05/04 1656	epm
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.36	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	beta-BHC, Solid*	ND	U		0.35	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	delta-BHC, Solid*	ND	U		0.14	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.20	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Heptachlor, Solid*	ND	U		0.20	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Aldrin, Solid*	0.62	J		0.47	2.6	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Heptachlor epoxide, Solid*	0.99	J		0.15	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Endosulfan I, Solid*	ND	U		0.19	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Dieldrin, Solid*	ND	U		0.42	4.3	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	4,4'-DDE, Solid*	10			0.57	4.3	1.00000	ug/Kg	30853		04/07/04 1819	dmm
	Endrin, Solid*	ND	U		1.2	6.6	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Endosulfan II, Solid*	ND	U		0.22	4.3	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	4,4'-DDD, Solid*	9.0			0.50	4.3	1.00000	ug/Kg	30853		04/07/04 1819	dmm
	Endosulfan sulfate, Solid*	ND	U		0.23	4.3	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	4,4'-DDT, Solid*	20			0.41	4.3	1.00000	ug/Kg	30853		04/07/04 1819	dmm
	Methoxychlor, Solid*	21	J		2.8	22	1.00000	ug/Kg	30853		04/07/04 1819	dmm
	gamma-Chlordane, Solid*	1.9	J		0.12	2.2	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Endrin ketone, Solid*	9.1			0.19	4.3	1.00000	ug/Kg	30851		04/07/04 1819	dmm
	Chlordane, Solid*	14	J		0.92	22	1.00000	ug/Kg	30853		04/07/04 1819	dmm

187

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/10/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.40	2.5	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	beta-BHC, Solid*	0.89	J		0.39	2.5	1.00000	ug/Kg	30853		04/07/04 1933	dmm
	delta-BHC, Solid*	ND	U		0.15	2.5	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.22	2.5	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Heptachlor, Solid*	1.2	J		0.22	2.5	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Aldrin, Solid*	ND	U		0.52	2.9	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Heptachlor epoxide, Solid*	2.5	J		0.17	2.5	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Endosulfan I, Solid*	ND	U		0.21	2.5	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Dieldrin, Solid*	5.2			0.47	4.8	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	4,4'-DDE, Solid*	45			0.63	4.8	1.00000	ug/Kg	30853		04/07/04 1933	dmm
	Endrin, Solid*	ND	U		1.3	7.3	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Endosulfan II, Solid*	ND	U		0.25	4.8	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	4,4'-DDD, Solid*	54		M	0.56	4.8	1.00000	ug/Kg	30853		04/07/04 1933	dmm
	Endosulfan sulfate, Solid*	ND	U		0.25	4.8	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	4,4'-DDT, Solid*	73			0.45	4.8	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Methoxychlor, Solid*	12	J	M	3.1	25	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	gamma-Chlordane, Solid*	3.3			0.13	2.5	1.00000	ug/Kg	30853		04/07/04 1933	dmm
	Endrin ketone, Solid*	ND	U		0.21	4.8	1.00000	ug/Kg	30851		04/07/04 1933	dmm
	Chlordane, Solid*	32		M	1.0	25	1.00000	ug/Kg	30851		04/07/04 1933	dmm

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/10/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	65.9			0.10	0.10	1	%	30706		04/05/04 1718	epm
	% Moisture, Solid	34.1			0.10	0.10	1	%	30706		04/05/04 1718	epm
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.41	2.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	beta-BHC, Solid*	1.8	J		0.40	2.5	1.00000	ug/Kg	30853		04/07/04 2046	dmm
	delta-BHC, Solid*	ND	U		0.15	2.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.23	2.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Heptachlor, Solid*	ND	U		0.22	2.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Aldrin, Solid*	5.0			0.53	3.0	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Heptachlor epoxide, Solid*	3.9			0.17	2.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Endosulfan I, Solid*	ND	U		0.22	2.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Dieldrin, Solid*	ND	U		0.48	4.9	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	4,4'-DDE, Solid*	50			0.65	4.9	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Endrin, Solid*	22			1.3	7.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Endosulfan II, Solid*	ND	U		0.25	4.9	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	4,4'-DDD, Solid*	17			0.57	4.9	1.00000	ug/Kg	30853		04/07/04 2046	dmm
	Endosulfan sulfate, Solid*	ND	U		0.26	4.9	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	4,4'-DDT, Solid*	34		M	0.46	4.9	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Methoxychlor, Solid*	15	J	M	3.2	25	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	gamma-Chlordane, Solid*	ND	U		0.14	2.5	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Endrin ketone, Solid*	19			0.22	4.9	1.00000	ug/Kg	30851		04/07/04 2046	dmm
	Chlordane, Solid*	ND	U		1.0	25	1.00000	ug/Kg	30851		04/07/04 2046	dmm

18R

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/08/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
8082	PCB Analysis											
	Aroclor 1016, Solid*	ND		U		4.2	25	1.00000	ug/Kg	30766		04/03/04 0116	pam
	Aroclor 1221, Solid*	ND		U		2.3	49	1.00000	ug/Kg	30766		04/03/04 0116	pam
	Aroclor 1232, Solid*	ND		U		2.8	25	1.00000	ug/Kg	30766		04/03/04 0116	pam
	Aroclor 1242, Solid*	ND		U		4.5	25	1.00000	ug/Kg	30766		04/03/04 0116	pam
	Aroclor 1248, Solid*	ND		U		4.0	25	1.00000	ug/Kg	30766		04/03/04 0116	pam
	Aroclor 1254, Solid*	34			M	1.8	25	1.00000	ug/Kg	30766		04/03/04 0116	pam
	Aroclor 1260, Solid*	26				6.0	25	1.00000	ug/Kg	30766		04/03/04 0116	pam

SS-1

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/08/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	72.4			0.10	0.10	1	%	30706		04/05/04 1635	epm
	% Moisture, Solid	27.6			0.10	0.10	1	%	30706		04/05/04 1635	epm
8082	PCB Analysis											
	Aroclor 1016, Solid*	ND	U		3.9	23	1.00000	ug/Kg	30767		04/03/04 0133	pam
	Aroclor 1221, Solid*	ND	U		2.1	45	1.00000	ug/Kg	30767		04/03/04 0133	pam
	Aroclor 1232, Solid*	ND	U		2.6	23	1.00000	ug/Kg	30767		04/03/04 0133	pam
	Aroclor 1242, Solid*	ND	U		4.1	23	1.00000	ug/Kg	30767		04/03/04 0133	pam
	Aroclor 1248, Solid*	ND	U		3.7	23	1.00000	ug/Kg	30767		04/03/04 0133	pam
	Aroclor 1254, Solid*	ND	U		1.7	23	1.00000	ug/Kg	30767		04/03/04 0133	pam
	Aroclor 1260, Solid*	ND	U		5.5	23	1.00000	ug/Kg	30767		04/03/04 0133	pam

18T

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/08/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	73.6			0.10	0.10	1	%	30706		04/05/04 1646	epm
	% Moisture, Solid	26.4			0.10	0.10	1	%	30706		04/05/04 1646	epm
8082	PCB Analysis											
	Aroclor 1016, Solid*	ND		U		3.7	23	1.00000	ug/Kg	30767		04/03/04 0151	pam
	Aroclor 1221, Solid*	ND		U		2.0	44	1.00000	ug/Kg	30767		04/03/04 0151	pam
	Aroclor 1232, Solid*	ND		U		2.5	23	1.00000	ug/Kg	30767		04/03/04 0151	pam
	Aroclor 1242, Solid*	ND		U		4.0	23	1.00000	ug/Kg	30767		04/03/04 0151	pam
	Aroclor 1248, Solid*	ND		U		3.6	23	1.00000	ug/Kg	30767		04/03/04 0151	pam
	Aroclor 1254, Solid*	ND		U		1.6	23	1.00000	ug/Kg	30767		04/03/04 0151	pam
	Aroclor 1260, Solid*	7.5		J		5.3	23	1.00000	ug/Kg	30767		04/03/04 0151	pam

N81

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/08/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	75.3			0.10	0.10	1	%	30706		04/05/04 1656	epm
	% Moisture, Solid	24.7			0.10	0.10	1	%	30706		04/05/04 1656	epm
8082	PCB Analysis											
	Aroclor 1016, Solid*	ND		U	3.7	22	1.00000	ug/Kg	30767		04/03/04 0208	pam
	Aroclor 1221, Solid*	ND		U	2.0	43	1.00000	ug/Kg	30767		04/03/04 0208	pam
	Aroclor 1232, Solid*	ND		U	2.4	22	1.00000	ug/Kg	30767		04/03/04 0208	pam
	Aroclor 1242, Solid*	ND		U	3.9	22	1.00000	ug/Kg	30767		04/03/04 0208	pam
	Aroclor 1248, Solid*	ND		U	3.5	22	1.00000	ug/Kg	30767		04/03/04 0208	pam
	Aroclor 1254, Solid*	26		M	1.6	22	1.00000	ug/Kg	30766		04/03/04 0208	pam
	Aroclor 1260, Solid*	ND		U	5.2	22	1.00000	ug/Kg	30767		04/03/04 0208	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/08/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
8082	PCB Analysis											
	Aroclor 1016, Solid*	ND		U		4.1	25	1.00000	ug/Kg	30767		04/03/04 0225	pam
	Aroclor 1221, Solid*	ND		U		2.2	48	1.00000	ug/Kg	30767		04/03/04 0225	pam
	Aroclor 1232, Solid*	ND		U		2.7	25	1.00000	ug/Kg	30767		04/03/04 0225	pam
	Aroclor 1242, Solid*	ND		U		4.4	25	1.00000	ug/Kg	30767		04/03/04 0225	pam
	Aroclor 1248, Solid*	25		J		3.9	25	1.00000	ug/Kg	30766		04/03/04 0225	pam
	Aroclor 1254, Solid*	30			M	1.8	25	1.00000	ug/Kg	30767		04/03/04 0225	pam
	Aroclor 1260, Solid*	14		J	M	5.8	25	1.00000	ug/Kg	30767		04/03/04 0225	pam

M81

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/08/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	65.9			0.10	0.10	1	%	30706		04/05/04 1718	epm
	% Moisture, Solid	34.1			0.10	0.10	1	%	30706		04/05/04 1718	epm
8082	PCB Analysis											
	Aroclor 1016, Solid*	ND		U		4.2	25	1.00000	ug/Kg	30767		04/03/04 0243	pam
	Aroclor 1221, Solid*	ND		U		2.3	49	1.00000	ug/Kg	30767		04/03/04 0243	pam
	Aroclor 1232, Solid*	ND		U		2.8	25	1.00000	ug/Kg	30767		04/03/04 0243	pam
	Aroclor 1242, Solid*	ND		U		4.5	25	1.00000	ug/Kg	30767		04/03/04 0243	pam
	Aroclor 1248, Solid*	39				4.0	25	1.00000	ug/Kg	30767		04/03/04 0243	pam
	Aroclor 1254, Solid*	58				1.8	25	1.00000	ug/Kg	30766		04/03/04 0243	pam
	Aroclor 1260, Solid*	17		J	M	6.0	25	1.00000	ug/Kg	30767		04/03/04 0243	pam

X 81

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.13	B		0.020	2.6	1.0000	mg/Kg	30707		04/02/04 1353	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	6390			36.1	466	1	mg/Kg	30756		04/05/04 1622	nnp
	Antimony, Solid*	ND	U	N	2.1	21.1	1	mg/Kg	30756		04/05/04 1622	nnp
	Arsenic, Solid*	5.2	B		2.2	14.5	1	mg/Kg	30756		04/05/04 1622	nnp
	Barium, Solid*	127			0.33	3.6	1	mg/Kg	30756		04/05/04 1622	nnp
	Beryllium, Solid*	ND	U		0.90	3.6	1	mg/Kg	30756		04/05/04 1622	nnp
	Cadmium, Solid*	ND	U		1.8	5.4	1	mg/Kg	30756		04/05/04 1622	nnp
	Calcium, Solid*	22300		*	21.0	154	1	mg/Kg	30756		04/05/04 1622	nnp
	Chromium, Solid*	18.9		*	0.61	5.4	1	mg/Kg	30756		04/05/04 1622	nnp
	Cobalt, Solid*	5.9			0.76	3.6	1	mg/Kg	30756		04/05/04 1622	nnp
	Copper, Solid*	33.5			1.4	9.0	1	mg/Kg	30756		04/05/04 1622	nnp
	Iron, Solid*	15500			18.4	262	1	mg/Kg	30756		04/05/04 1622	nnp
	Lead, Solid*	124		*	1.4	16.3	1	mg/Kg	30756		04/05/04 1622	nnp
	Magnesium, Solid*	6220			16.6	63.3	1	mg/Kg	30756		04/05/04 1622	nnp
	Manganese, Solid*	308			1.2	4.5	1	mg/Kg	30756		04/05/04 1622	nnp
	Nickel, Solid*	16.7			0.80	9.0	1	mg/Kg	30756		04/05/04 1622	nnp
	Potassium, Solid*	1190			72.3	361	1	mg/Kg	30756		04/05/04 1622	nnp
	Selenium, Solid*	ND	U		2.9	28.9	1	mg/Kg	30756		04/05/04 1622	nnp
	Silver, Solid*	ND	U		0.58	5.4	1	mg/Kg	30756		04/05/04 1622	nnp
	Sodium, Solid*	370		N	36.1	170	1	mg/Kg	30756		04/05/04 1622	nnp
	Thallium, Solid*	ND	U		3.6	39.8	1	mg/Kg	30756		04/05/04 1622	nnp
	Vanadium, Solid*	26.0			0.65	7.2	1	mg/Kg	30756		04/05/04 1622	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Zinc, Solid*	188			6.9	36.1	1	mg/Kg	30756		04/05/04 1622	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	72.4			0.10	0.10	1	%	30706		04/05/04 1635	epm
	% Moisture, Solid	27.6			0.10	0.10	1	%	30706		04/05/04 1635	epm
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.27	B		0.020	2.7	1.0000	mg/Kg	30707		04/02/04 1354	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	10200			32.3	416	1	mg/Kg	30756		04/05/04 1647	nnp
	Antimony, Solid*	ND	U	N	1.8	18.9	1	mg/Kg	30756		04/05/04 1647	nnp
	Arsenic, Solid*	4.9	B		2.0	12.9	1	mg/Kg	30756		04/05/04 1647	nnp
	Barium, Solid*	121			0.30	3.2	1	mg/Kg	30756		04/05/04 1647	nnp
	Beryllium, Solid*	ND	U		0.81	3.2	1	mg/Kg	30756		04/05/04 1647	nnp
	Cadmium, Solid*	ND	U		1.6	4.8	1	mg/Kg	30756		04/05/04 1647	nnp
	Calcium, Solid*	16500		*	18.7	137	1	mg/Kg	30756		04/05/04 1647	nnp
	Chromium, Solid*	22.9		*	0.55	4.8	1	mg/Kg	30756		04/05/04 1647	nnp
	Cobalt, Solid*	8.6			0.68	3.2	1	mg/Kg	30756		04/05/04 1647	nnp
	Copper, Solid*	35.1			1.3	8.1	1	mg/Kg	30756		04/05/04 1647	nnp
	Iron, Solid*	20000			16.5	234	1	mg/Kg	30756		04/05/04 1647	nnp
	Lead, Solid*	181		*	1.2	14.5	1	mg/Kg	30756		04/05/04 1647	nnp
	Magnesium, Solid*	6220			14.8	56.5	1	mg/Kg	30756		04/05/04 1647	nnp
	Manganese, Solid*	350			1.0	4.0	1	mg/Kg	30756		04/05/04 1647	nnp
	Nickel, Solid*	22.9			0.71	8.1	1	mg/Kg	30756		04/05/04 1647	nnp
	Potassium, Solid*	2180			64.5	323	1	mg/Kg	30756		04/05/04 1647	nnp
	Selenium, Solid*	ND	U		2.6	25.8	1	mg/Kg	30756		04/05/04 1647	nnp
	Silver, Solid*	ND	U		0.52	4.8	1	mg/Kg	30756		04/05/04 1647	nnp
	Sodium, Solid*	185		N	32.3	152	1	mg/Kg	30756		04/05/04 1647	nnp
	Thallium, Solid*	ND	U		3.2	35.5	1	mg/Kg	30756		04/05/04 1647	nnp
	Vanadium, Solid*	34.4			0.58	6.5	1	mg/Kg	30756		04/05/04 1647	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Zinc, Solid*	116			6.1	32.3	1	mg/Kg	30756		04/05/04 1647	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	73.6			0.10	0.10	1	%	30706		04/05/04 1646	epm
	% Moisture, Solid	26.4			0.10	0.10	1	%	30706		04/05/04 1646	epm
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.21	B		0.019	2.5	1.0000	mg/Kg	30707		04/02/04 1356	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	6960			29.3	378	1	mg/Kg	30756		04/05/04 1705	nnp
	Antimony, Solid*	ND	U	N	1.7	17.1	1	mg/Kg	30756		04/05/04 1705	nnp
	Arsenic, Solid*	4.1	B		1.8	11.7	1	mg/Kg	30756		04/05/04 1705	nnp
	Barium, Solid*	101			0.27	2.9	1	mg/Kg	30756		04/05/04 1705	nnp
	Beryllium, Solid*	ND	U		0.73	2.9	1	mg/Kg	30756		04/05/04 1705	nnp
	Cadmium, Solid*	ND	U		1.5	4.4	1	mg/Kg	30756		04/05/04 1705	nnp
	Calcium, Solid*	45500		*	17.0	124	1	mg/Kg	30756		04/05/04 1705	nnp
	Chromium, Solid*	22.4		*	0.50	4.4	1	mg/Kg	30756		04/05/04 1705	nnp
	Cobalt, Solid*	6.5			0.61	2.9	1	mg/Kg	30756		04/05/04 1705	nnp
	Copper, Solid*	586			1.2	7.3	1	mg/Kg	30756		04/05/04 1705	nnp
	Iron, Solid*	14700			14.9	212	1	mg/Kg	30756		04/05/04 1705	nnp
	Lead, Solid*	121		*	1.1	13.2	1	mg/Kg	30756		04/05/04 1705	nnp
	Magnesium, Solid*	21900			13.5	51.2	1	mg/Kg	30756		04/05/04 1705	nnp
	Manganese, Solid*	284			0.94	3.7	1	mg/Kg	30756		04/05/04 1705	nnp
	Nickel, Solid*	19.1			0.64	7.3	1	mg/Kg	30756		04/05/04 1705	nnp
	Potassium, Solid*	1790			58.6	293	1	mg/Kg	30756		04/05/04 1705	nnp
	Selenium, Solid*	ND	U		2.3	23.4	1	mg/Kg	30756		04/05/04 1705	nnp
	Silver, Solid*	ND	U		0.47	4.4	1	mg/Kg	30756		04/05/04 1705	nnp
	Sodium, Solid*	166		N	29.3	138	1	mg/Kg	30756		04/05/04 1705	nnp
	Thallium, Solid*	ND	U		2.9	32.2	1	mg/Kg	30756		04/05/04 1705	nnp
	Vanadium, Solid*	25.4			0.53	5.9	1	mg/Kg	30756		04/05/04 1705	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Zinc, Solid*	118			5.6	29.3	1	mg/Kg	30756		04/05/04 1705	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	75.3			0.10	0.10	1	%	30706		04/05/04 1656	epm
	% Moisture, Solid	24.7			0.10	0.10	1	%	30706		04/05/04 1656	epm
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.31	B		0.018	2.4	1.0000	mg/Kg	30707		04/02/04 1359	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	8710			30.7	397	1	mg/Kg	30756		04/05/04 1711	nnp
	Antimony, Solid*	ND	U	N	1.8	18.0	1	mg/Kg	30756		04/05/04 1711	nnp
	Arsenic, Solid*	3.4	B		1.9	12.3	1	mg/Kg	30756		04/05/04 1711	nnp
	Barium, Solid*	106			0.28	3.1	1	mg/Kg	30756		04/05/04 1711	nnp
	Beryllium, Solid*	ND	U		0.77	3.1	1	mg/Kg	30756		04/05/04 1711	nnp
	Cadmium, Solid*	ND	U		1.5	4.6	1	mg/Kg	30756		04/05/04 1711	nnp
	Calcium, Solid*	27900		*	17.8	131	1	mg/Kg	30756		04/05/04 1711	nnp
	Chromium, Solid*	23.3		*	0.52	4.6	1	mg/Kg	30756		04/05/04 1711	nnp
	Cobalt, Solid*	7.6			0.65	3.1	1	mg/Kg	30756		04/05/04 1711	nnp
	Copper, Solid*	31.1			1.2	7.7	1	mg/Kg	30756		04/05/04 1711	nnp
	Iron, Solid*	16600			15.7	223	1	mg/Kg	30756		04/05/04 1711	nnp
	Lead, Solid*	114		*	1.2	13.8	1	mg/Kg	30756		04/05/04 1711	nnp
	Magnesium, Solid*	14100			14.1	53.8	1	mg/Kg	30756		04/05/04 1711	nnp
	Manganese, Solid*	309			0.98	3.8	1	mg/Kg	30756		04/05/04 1711	nnp
	Nickel, Solid*	25.0			0.68	7.7	1	mg/Kg	30756		04/05/04 1711	nnp
	Potassium, Solid*	1740			61.5	307	1	mg/Kg	30756		04/05/04 1711	nnp
	Selenium, Solid*	ND	U		2.5	24.6	1	mg/Kg	30756		04/05/04 1711	nnp
	Silver, Solid*	ND	U		0.49	4.6	1	mg/Kg	30756		04/05/04 1711	nnp
	Sodium, Solid*	156		N	30.7	144	1	mg/Kg	30756		04/05/04 1711	nnp
	Thallium, Solid*	ND	U		3.0	33.8	1	mg/Kg	30756		04/05/04 1711	nnp
	Vanadium, Solid*	30.4			0.55	6.1	1	mg/Kg	30756		04/05/04 1711	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Zinc, Solid*	95.6			5.8	30.7	1	mg/Kg	30756		04/05/04 1711	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	1.2	B		0.022	3.0	1.0000	mg/Kg	30707		04/02/04 1401	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	7810			34.5	445	1	mg/Kg	30756		04/05/04 1717	nnp
	Antimony, Solid*	ND	U	N	2.0	20.2	1	mg/Kg	30756		04/05/04 1717	nnp
	Arsenic, Solid*	5.2	B		2.1	13.8	1	mg/Kg	30756		04/05/04 1717	nnp
	Barium, Solid*	783			0.32	3.4	1	mg/Kg	30756		04/05/04 1717	nnp
	Beryllium, Solid*	ND	U		0.86	3.4	1	mg/Kg	30756		04/05/04 1717	nnp
	Cadmium, Solid*	ND	U		1.7	5.2	1	mg/Kg	30756		04/05/04 1717	nnp
	Calcium, Solid*	27200		*	20.0	147	1	mg/Kg	30756		04/05/04 1717	nnp
	Chromium, Solid*	25.6		*	0.59	5.2	1	mg/Kg	30756		04/05/04 1717	nnp
	Cobalt, Solid*	7.8			0.72	3.4	1	mg/Kg	30756		04/05/04 1717	nnp
	Copper, Solid*	42.1			1.4	8.6	1	mg/Kg	30756		04/05/04 1717	nnp
	Iron, Solid*	20800			17.6	250	1	mg/Kg	30756		04/05/04 1717	nnp
	Lead, Solid*	1730		*	1.3	15.5	1	mg/Kg	30756		04/05/04 1717	nnp
	Magnesium, Solid*	4720			15.9	60.4	1	mg/Kg	30756		04/05/04 1717	nnp
	Manganese, Solid*	392			1.1	4.3	1	mg/Kg	30756		04/05/04 1717	nnp
	Nickel, Solid*	21.9			0.76	8.6	1	mg/Kg	30756		04/05/04 1717	nnp
	Potassium, Solid*	1460			69.0	345	1	mg/Kg	30756		04/05/04 1717	nnp
	Selenium, Solid*	ND	U		2.8	27.6	1	mg/Kg	30756		04/05/04 1717	nnp
	Silver, Solid*	ND	U		0.55	5.2	1	mg/Kg	30756		04/05/04 1717	nnp
	Sodium, Solid*	235		N	34.5	162	1	mg/Kg	30756		04/05/04 1717	nnp
	Thallium, Solid*	ND	U		3.4	37.9	1	mg/Kg	30756		04/05/04 1717	nnp
	Vanadium, Solid*	34.8			0.62	6.9	1	mg/Kg	30756		04/05/04 1717	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Zinc, Solid*	493			6.6	34.5	1	mg/Kg	30756		04/05/04 1717	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	65.9			0.10	0.10	1	%	30706		04/05/04 1718	epm
	% Moisture, Solid	34.1			0.10	0.10	1	%	30706		04/05/04 1718	epm
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.20	B		0.023	3.0	1.0000	mg/Kg	30707		04/02/04 1402	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	9240			32.7	422	1	mg/Kg	30756		04/05/04 1723	nnp
	Antimony, Solid*	ND	U	N	1.9	19.1	1	mg/Kg	30756		04/05/04 1723	nnp
	Arsenic, Solid*	5.6	B		2.0	13.1	1	mg/Kg	30756		04/05/04 1723	nnp
	Barium, Solid*	125			0.30	3.3	1	mg/Kg	30756		04/05/04 1723	nnp
	Beryllium, Solid*	ND	U		0.82	3.3	1	mg/Kg	30756		04/05/04 1723	nnp
	Cadmium, Solid*	ND	U		1.6	4.9	1	mg/Kg	30756		04/05/04 1723	nnp
	Calcium, Solid*	13500		*	19.0	139	1	mg/Kg	30756		04/05/04 1723	nnp
	Chromium, Solid*	21.6		*	0.56	4.9	1	mg/Kg	30756		04/05/04 1723	nnp
	Cobalt, Solid*	8.7			0.69	3.3	1	mg/Kg	30756		04/05/04 1723	nnp
	Copper, Solid*	37.0			1.3	8.2	1	mg/Kg	30756		04/05/04 1723	nnp
	Iron, Solid*	18600			16.7	237	1	mg/Kg	30756		04/05/04 1723	nnp
	Lead, Solid*	219		*	1.2	14.7	1	mg/Kg	30756		04/05/04 1723	nnp
	Magnesium, Solid*	6680			15.0	57.2	1	mg/Kg	30756		04/05/04 1723	nnp
	Manganese, Solid*	360			1.0	4.1	1	mg/Kg	30756		04/05/04 1723	nnp
	Nickel, Solid*	21.6			0.72	8.2	1	mg/Kg	30756		04/05/04 1723	nnp
	Potassium, Solid*	1980			65.4	327	1	mg/Kg	30756		04/05/04 1723	nnp
	Selenium, Solid*	ND	U		2.6	26.2	1	mg/Kg	30756		04/05/04 1723	nnp
	Silver, Solid*	ND	U		0.52	4.9	1	mg/Kg	30756		04/05/04 1723	nnp
	Sodium, Solid*	137	B	N	32.7	154	1	mg/Kg	30756		04/05/04 1723	nnp
	Thallium, Solid*	ND	U		3.2	36.0	1	mg/Kg	30756		04/05/04 1723	nnp
	Vanadium, Solid*	34.7			0.59	6.5	1	mg/Kg	30756		04/05/04 1723	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Zinc, Solid*	119			6.2	32.7	1	mg/Kg	30756		04/05/04 1723	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: SS-1
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-1
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1625	epm
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		38.9	723	1.0	ug/Kg	30790		04/06/04 1204	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	81000			36	150	1	mg/Kg	30805		04/07/04 1300	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-2
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-2
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	72.4			0.10	0.10	1	%	30706		04/05/04 1635	epm
	% Moisture, Solid	27.6			0.10	0.10	1	%	30706		04/05/04 1635	epm
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		36.8	684	1.0	ug/Kg	30790		04/06/04 1205	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	41000			33	140	1	mg/Kg	30805		04/07/04 1500	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-3
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-3
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	73.6			0.10	0.10	1	%	30706		04/05/04 1646	epm
	% Moisture, Solid	26.4			0.10	0.10	1	%	30706		04/05/04 1646	epm
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		36.5	679	1.0	ug/Kg	30790		04/06/04 1209	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	50000			33	140	1	mg/Kg	30805		04/07/04 1530	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-4
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:40
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-4
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	75.3			0.10	0.10	1	%	30706		04/05/04 1656	epm
	% Moisture, Solid	24.7			0.10	0.10	1	%	30706		04/05/04 1656	epm
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		34.7	645	1.0	ug/Kg	30790		04/06/04 1210	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	29000			32	130	1	mg/Kg	30805		04/07/04 1600	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-5
Date Sampled.....: 03/29/2004
Time Sampled.....: 12:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-5
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	66.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
	% Moisture, Solid	33.5			0.10	0.10	1	%	30706		04/05/04 1707	epm
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		40.5	752	1.0	ug/Kg	30790		04/06/04 1211	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	48000			36	150	1	mg/Kg	30805		04/07/04 1730	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206216

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: SS-6
Date Sampled.....: 03/29/2004
Time Sampled.....: 13:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206216-6
Date Received.....: 03/30/2004
Time Received.....: 09:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	65.9			0.10	0.10	1	%	30706		04/05/04 1718	epm
	% Moisture, Solid	34.1			0.10	0.10	1	%	30706		04/05/04 1718	epm
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		40.8	759	1.0	ug/Kg	30790		04/06/04 1213	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	40000			36	150	1	mg/Kg	30805		04/07/04 1800	msh

* In Description = Dry Wgt.

LABORATORY CHRONICLE

Job Number: 206216

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Lab ID: 206216-1 Client ID: SS-1

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30706		04/05/2004	1625	
5030A	5030 Soil(5g)Prep	1	30753				
7470/7471	7470 Digestion (Hg)	1	30630		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30651		04/02/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1204	1.0
3541	Extraction Soxhlet (SVOC)	1	30631		04/01/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30594		03/31/2004	0000	
7471A	Mercury (CVAA) Solids	1	30707	30630	04/02/2004	1353	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30756	30651	04/05/2004	1622	
9060	Organic Carbon	1	30805		04/07/2004	1300	
8081A	Organochlorine Pesticide Analysis	1	30851	30594	04/07/2004	1629	1.00000
8081A	Organochlorine Pesticide Analysis	1	30853	30594	04/07/2004	1629	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30851	30594	04/07/2004	1629	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30853	30594	04/07/2004	1629	1.00000
8082	PCB Analysis	1	30766	30594	04/03/2004	0116	1.00000
8082	PCB Analysis, Confirmation	1	30767	30594	04/03/2004	0116	1.00000
8270C	Semivolatile Organics	1	30954	30631	04/02/2004	2323	1.00000
8260B	Volatile Organics	1	30763	30753	04/05/2004	1506	1.00000

Lab ID: 206216-2 Client ID: SS-2

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30706		04/05/2004	1635	
5030A	5030 Soil(5g)Prep	1	30753				
7470/7471	7470 Digestion (Hg)	1	30630		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30651		04/02/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1205	1.0
3541	Extraction Soxhlet (SVOC)	1	30631		04/01/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30594		03/31/2004	0000	
7471A	Mercury (CVAA) Solids	1	30707	30630	04/02/2004	1354	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30756	30651	04/05/2004	1647	
9060	Organic Carbon	1	30805		04/07/2004	1500	
8081A	Organochlorine Pesticide Analysis	1	30851	30594	04/07/2004	1706	1.00000
8081A	Organochlorine Pesticide Analysis	1	30853	30594	04/07/2004	1706	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30851	30594	04/07/2004	1706	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30853	30594	04/07/2004	1706	1.00000
8082	PCB Analysis	1	30767	30594	04/03/2004	0133	1.00000
8082	PCB Analysis, Confirmation	1	30766	30594	04/03/2004	0133	1.00000
8270C	Semivolatile Organics	1	30954	30631	04/02/2004	2351	1.00000
8260B	Volatile Organics	1	30763	30753	04/05/2004	1540	1.00000

Lab ID: 206216-3 Client ID: SS-3

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30706		04/05/2004	1646	
5030A	5030 Soil(5g)Prep	1	30812				
7470/7471	7470 Digestion (Hg)	1	30630		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30651		04/02/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1209	1.0
3541	Extraction Soxhlet (SVOC)	1	30631		04/01/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30594		03/31/2004	0000	
7471A	Mercury (CVAA) Solids	1	30707	30630	04/02/2004	1356	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30756	30651	04/05/2004	1705	
9060	Organic Carbon	1	30805		04/07/2004	1530	
8081A	Organochlorine Pesticide Analysis	1	30851	30594	04/07/2004	1743	1.00000
8081A	Organochlorine Pesticide Analysis	1	30853	30594	04/07/2004	1743	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30851	30594	04/07/2004	1743	1.00000

LABORATORY CHRONICLE

Job Number: 206216

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Lab ID: 206216-3 Client ID: SS-3

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
8081A	Organochlorine Pesticide Confirmation	1	30853	30594	04/07/2004	1743	1.00000
8082	PCB Analysis	1	30767	30594	04/03/2004	0151	1.00000
8082	PCB Analysis, Confirmation	1	30766	30594	04/03/2004	0151	1.00000
8270C	Semivolatile Organics	1	30954	30631	04/03/2004	0019	1.00000
8260B	Volatile Organics	1	30887	30812	04/06/2004	1340	1.00000

Lab ID: 206216-4 Client ID: SS-4

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30706		04/05/2004	1656	
5030A	5030 Soil(5g)Prep	1	30734				
7470/7471	7470 Digestion (Hg)	1	30630		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30651		04/02/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1210	1.0
3541	Extraction Soxhlet (SVOC)	1	30631		04/01/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30594		03/31/2004	0000	
7471A	Mercury (CVAA) Solids	1	30707	30630	04/02/2004	1359	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30756	30651	04/05/2004	1711	
9060	Organic Carbon	1	30805		04/07/2004	1600	
8081A	Organochlorine Pesticide Analysis	1	30851	30594	04/07/2004	1819	1.00000
8081A	Organochlorine Pesticide Analysis	1	30853	30594	04/07/2004	1819	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30851	30594	04/07/2004	1819	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30853	30594	04/07/2004	1819	1.00000
8082	PCB Analysis	1	30766	30594	04/03/2004	0208	1.00000
8082	PCB Analysis	1	30767	30594	04/03/2004	0208	1.00000
8082	PCB Analysis, Confirmation	1	30766	30594	04/03/2004	0208	1.00000
8082	PCB Analysis, Confirmation	1	30767	30594	04/03/2004	0208	1.00000
8270C	Semivolatile Organics	1	30954	30631	04/05/2004	1714	2.00000
8260B	Volatile Organics	1	30736	30734	04/02/2004	2033	1.00000

Lab ID: 206216-5 Client ID: SS-5

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30706		04/05/2004	1707	
5030A	5030 Soil(5g)Prep	1	30753				
7470/7471	7470 Digestion (Hg)	1	30630		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30651		04/02/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1211	1.0
3541	Extraction Soxhlet (SVOC)	1	30631		04/01/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30594		03/31/2004	0000	
7471A	Mercury (CVAA) Solids	1	30707	30630	04/02/2004	1401	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30756	30651	04/05/2004	1717	
9060	Organic Carbon	1	30805		04/07/2004	1730	
8081A	Organochlorine Pesticide Analysis	1	30851	30594	04/07/2004	1933	1.00000
8081A	Organochlorine Pesticide Analysis	1	30853	30594	04/07/2004	1933	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30851	30594	04/07/2004	1933	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30853	30594	04/07/2004	1933	1.00000
8082	PCB Analysis	1	30766	30594	04/03/2004	0225	1.00000
8082	PCB Analysis	1	30767	30594	04/03/2004	0225	1.00000
8082	PCB Analysis, Confirmation	1	30766	30594	04/03/2004	0225	1.00000
8082	PCB Analysis, Confirmation	1	30767	30594	04/03/2004	0225	1.00000
8270C	Semivolatile Organics	1	30954	30631	04/05/2004	1838	4.00000
8260B	Volatile Organics	1	30763	30753	04/05/2004	1650	1.00000

Lab ID: 206216-6 Client ID: SS-6

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30706		04/05/2004	1718	

LABORATORY CHRONICLE

Job Number: 206216

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Lab ID: 206216-6 Client ID: SS-6

Date Recvd: 03/30/2004 Sample Date: 03/29/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
5030A	5030 Soil(5g)Prep	1	30753				
7470/7471	7470 Digestion (Hg)	1	30630		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30651		04/02/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1213	1.0
3541	Extraction Soxhlet (SVOC)	1	30631		04/01/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30594		03/31/2004	0000	
7471A	Mercury (CVAA) Solids	1	30707	30630	04/02/2004	1402	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30756	30651	04/05/2004	1723	
9060	Organic Carbon	1	30805		04/07/2004	1800	
8081A	Organochlorine Pesticide Analysis	1	30851	30594	04/07/2004	2046	1.00000
8081A	Organochlorine Pesticide Analysis	1	30853	30594	04/07/2004	2046	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30851	30594	04/07/2004	2046	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30853	30594	04/07/2004	2046	1.00000
8082	PCB Analysis	1	30766	30594	04/03/2004	0243	1.00000
8082	PCB Analysis	1	30767	30594	04/03/2004	0243	1.00000
8082	PCB Analysis, Confirmation	1	30766	30594	04/03/2004	0243	1.00000
8082	PCB Analysis, Confirmation	1	30767	30594	04/03/2004	0243	1.00000
8270C	Semivolatile Organics	1	30954	30631	04/03/2004	0144	1.00000
8260B	Volatile Organics	1	30763	30753	04/05/2004	1431	1.00000
8260B	Volatile Organics	2	30887	30812	04/06/2004	1415	1.00000

0000038

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/13/2004

REPORT COMMENTS

1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

2) Soil, sediment and sludge sample results are reported on a "dry weight" basis except when analyzed for landfill disposal or incineration parameters. All other solid matrix samples are reported on an "as received" basis unless noted differently.

3) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

4) The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert. ID# 10604
5) According to 40CFR Part 136.3, pH, Chlorine Residual and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.

Glossary of flags, qualifiers and abbreviation

Inorganic Qualifiers (Q-Column)

U	Analyte was not detected at or above the reporting limit.
<	Not detected at or above the reporting limit.
J	Result is less than the RL, but greater than or equal to the method detection limit.
B	Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
S	Result was determined by the Method of Standard Additions.

Inorganic Flags (Flag Column)

'	ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,MRL: Instrument related QC exceed th upper or lower control limits.
*	LCS, LCD, MD: Batch QC exceeds the upper or lower control limits.
+	MSA correlation coefficient is less than 0.995.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
E	SD: Serial dilution exceeds the control limits.
H	MB, EB: Batch QC is greater than reporting limit or had a negative instrument reading lower than the absolute value of the reporting limit.
N	MS, MSD: Spike recovery exceeds the upper or lower control limits.
W	PS: Post-digestion spike was outside 85-115% control limits.

Organic Qualifiers (Q - Column)

U	Analyte was not detected at or above the reporting limit.
ND	Compound not detected.
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC).
Q	Result was qualitatively confirmed, but not quantified.
C	Pesticide identification was confirmed by GC/MS.
Y	The chromatographic response resembles a typical fuel pattern.
Z	The chromatographic response does not resemble a typical fuel pattern.
E	Result exceeded calibration range, secondary dilution required.

Organic Flags (Flags Column)

'	MB,EB, MLE: Batch QC is greater than reporting limit.
*	LCS, LCD, CCV, MS, MSD, Surrogate, RS:Batch QC exceeds the upper or lower control limits.
A	Concentration exceeds the instrument calibration range or below the reporting limit.
B	Compound was found in the blank and sample.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
H	Alternate peak selection upon analytical review
I	Indicates the presence of an interfence, recovery is not calculated.
M	Manually integrated compound.
P	The lower of the two values is reported when the % difference between the results of two GC columns is greater than 25%.

Abbreviations

Batch	Designation given to identify a specific extraction, digestion, preparation set, or analysis set
CAP	Capillary Column
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Confirmation Analysis
CRA	Low Level Standard Check - GFAA; Mercury
CRI	Low Level Standard Check - ICP
Dil Fac	Dilution Factor
DL	Secondary dilution and analysis
DLFac	Detection Limit Factor
DSH	Distilled Standard - High Level
DSL	Distilled Standard - Low Level
DSM	Distilled Standard - Medium Level
EB	Extraction Blank
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit
ISA	Interference Check Sample A
ISB	Interference Check Sample B
Job No.	The first six digits of the sample ID which refers to a specific client, project and sample group
Lab ID	An 8 number unique laboratory identification
LCD	Laboratory Control Standard Duplicate
LCS	Laboratory Control Standard with reagent grade water or a matrix free from the analyte of interest
MB	Method Blank or (PB) Preparation Blank
MD	Method Duplicate
MDL	Method Detection Limit
MLE	Medium Level Extraction Blank
MRL	Method Reporting Limit Standard
MSA	Method of Standard Additions
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Not Detected
PACK	Packed Column
PREPF	Preparation factor used by the Laboratory's Information Management System (LIMS)
PS	Post Spike
PSD	Post Spike Duplicate
RA	Re-analysis
RE	Re-extraction and analysis
RL	Reporting Limit
RPD	Relative Percent Difference of duplicate (unrounded) analyses
RRF	Relative Response Factor
RS	Reference Standard
RT	Retention Time
RTW	Retention Time Window
SampleID	A 9 digit number unique for each sample, the first six digits are referred as the job number
SCB	Seeded Control Blank
SD	Serial Dilution
UCB	Unseeded Control Blank

One or a combination of these data qualifiers and abbreviations may appear in the analytical report.

STL-Connecticut
Certification Summary (as of January 2004)

The laboratory identification numbers for the STL-Connecticut laboratory are provided in the following table. Many states certify laboratories for specific parameters or tests within a category (i.e. method 325.2 for wastewater). The information in the following table indicates the lab is certified in a general category of testing such as drinking water or wastewater analysis. The laboratory should be contacted directly if parameter-specific certification information is required.

State	Responsible Agency	Certification	Expiration Date	Lab Number
Connecticut	Department of Health Services	Drinking Water, Wastewater	12/31/04	PH-0497
Maine	Department of Health and Environmental Services	Drinking Water, Wastewater/Solid, Hazardous Waste	04/18/04	CT023
Massachusetts	Department of Environmental Protection	Potable/Non-Potable Water	06/30/04	CT023
New Hampshire	Department of Environmental Services	Drinking Water, Wastewater	08/29/04	2528
New Jersey	Department of Environmental Protection	Drinking Water, Wastewater	06/30/04	46410
New York	Department of Health	CLP, Drinking Water, Wastewater, Solid/ Hazardous Waste **NELAC**	04/01/04	10602
Rhode Island	Department of Health	Chemistry...Non- Potable Water and Wastewater	12/30/04	A43
Utah	Department of Health	RCRA	05/31/04	2032614458

2/20000

SEVERN TRENT **STL**

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

Tel: (203) 929-8140
Fax: (203) 929-8142

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 | NO.

STL JOB #:

CLIENT: LKB, Inc.

PROJECT ID: TAGM PROJ. (2328-01)

STL PROJECT MGR:

RUSH ☐ YES ☑ NO | DUE DATE 10 business days

BOTTLE SET #	CLIENT SAMPLE ID	DATE/TIME SAMPLED	MATRIX	LAB ID	QC Y/N	TESTS: VOCs by 8260B	SVOCs by 8270C	Pest. by 8081A	Heavy Metals by 6010B	TOC by TAGM 4046	PCBs by Method 8082			GENERAL REMARKS
						BOTTLE TYPE AND PRESERVATION: 1 4 oz Glass	2 8oz 8/1SU ←	1	1	1	1			Analytes & MDLs per NYSDEC TAGM 4046
						FIELD FILTERED – CIRCLE Y or N: Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	SAMPLE REMARKS
	SS-1	3/29, 1200	S	01		X	X	X	X	X	X			
0	SS-2	3/29, 1215	S	02		X	X	X	X	X	X			
0	SS-3	3/29, 1230	S	03		X	X	X	X	X	X			
0	SS-4	3/29, 1240	S	04		X	X	X	X	X	X			
3	SS-5	3/29, 1250	S	05		X	X	X	X	X	X			
	SS-6	3/29, 1300	S	06		X	X	X	X	X	X			
											"PACKED RAD SCREEN"			
														3.7°C

206216 04/11/2004

LOCKWOOD, KESSLER BARTLETT, INC.
JOHN GERLACH
TAGM PROJECT

MATRIX CODES

A - AIR
AQ - AQUEOUS
C - COMPLEX
D - DRUM WASTE
OI - OIL
S - SOIL
SL - SLUDGE
W - WIPE
O - OTHER
FB - FIELD BLANK
TB - TRIP BLANK

BOTTLES PREPARED BY	DATE/TIME	BOTTLES REC'D BY	DATE/TIME
		John Gerlach	3/29 5pm
SIGNATURE		SIGNATURE	
		John Gerlach	3/25 5pm
SAMPLES COLLECTED BY	DATE/TIME	RECEIVED IN LAB BY	DATE/TIME
John Gerlach	3/29, 5pm	Kristina Bockper	5/30/04
SIGNATURE		SIGNATURE	
John Gerlach		K. Bockper	09:20

REMARKS ON SAMPLE RECEIPT

☐ BOTTLES INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

STL-8122

rpjsckl | Job Sample Receipt Checklist Report | V2

Job Number.: 206216 Location.: 57207 Check List Number.: 1 Description.:
Customer Job ID.....: Job Check List Date.:
Project Number.: 20001037 Project Description.: TAGM PROJECT
Customer.....: Lockwood, Kessler & Bartlett,Inc. Contact.: John Gerlach

Date of the Report..: 03/30/2004
Project Manager.....: jld

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
...If "yes", completed properly?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?	N	
...If "yes", custody seal intact?		
Samples iced?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).	Y	3.7C
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)		
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?		
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Radioactivity at or below background levels?	Y	
A Sample Discrepancy Report (SDR) was needed?	N	
Comments		
If samples were shipped was there an air bill #?	Y	FE 8464 6549 7554
Sample Custodian Signature/Date	Y	03/30/04

000044

STL - Connecticut
Internal Chain-of-Custody

206216

04/11/2004

LOCKWOOD, KESSLER BARTLETT,INC.
JOHN GERLACH
TAGM PROJECT

Trip Blank: —

QC: — Air: —

FB: —

Soil: 01-06 Water: —

Date Received: 03/30/04

Sample #s: 01-06

Locations: R37, 12 W

Laboratory Sample #	Relinquished by	Accepted by	Date	Time	Reason	Relinquished by	Accepted by	Date	Time
1-6	CC	LAW	3/31	9:05	EXT	LAW	CC	3/31	11:55
1-6	CC	MM	4/1	900	ENT	EZ	CC	4/2	8:00
1-6	CC	JD	4-2-04	16:05	VOA	Archived			→
01-06	CC	EDT	04/02	830	metals	EDT	CC	04/04	940
1-6	CC	MM	4/4/04	1000	Cyan	MM	CC	4/4/04	2000
01-06	CC	EDT	04/05	1205	~~me~~ bsolids	EDT	CC	04/05	1500

STL Form# SMF00507.CT

G4000050

STL GC-GC/MS Extract Chain of Custody

Fraction: BNA / (Pesticide-PCB) / Herbicide / O/P Pesticide / DRO / Other CLIENT: LKB
(Circle one)

JOB NO: 20621C

SAMPLE IN (Extractions)					SAMPLE IN (Extractions)				
Sample(s)	Date	Time	Sign.	Location	Sample(s)	Date	Time	Sign.	Location
01-06, 06DL	03/31	1640	MM	SC					

SAMPLE OUT					SAMPLE IN			
Sample(s)	Date	Time	Code	Sign.	Date	Time	Location	Sign.
1-6	4/2	14:00	AN	CS	4/2/04	14:30	SC	CS
1-6	4/3/04	—	AN		4/3/04	—	SC	

Codes: SC = Screening AN = Analysis

Verified By: _____ Date: 4/11/04

Lab Form: SMF01201.CT

STL GC-GC/MS Extract Chain of Custody

Fraction: BNA / Pesticide-PCB / Herbicide / O/P Pesticide / DRO / Other (Circle one) CLIENT: LJSB

JOB NO: 206216

SAMPLE IN (Extractions)					SAMPLE IN (Extractions)				
Sample(s)	Date	Time	Sign.	Location	Sample(s)	Date	Time	Sign.	Location
01-06	04/01	1630	[illegible]	36					

SAMPLE OUT					SAMPLE IN			
Sample(s)	Date	Time	Code	Sign.	Date	Time	Location	Sign.
1-6	4/2	16:00	AN	KW	4/2	17:30	36	KW
4,5	4/5	16:00	AN	KW	4/5	17:00	36	KW

Codes: SC = Screening AN = Analysis

Verified By: [signature] Date: 4-12-04

Lab Form: SMF01201.CT

SEVERN TRENT STL

CHAIN OF CUSTODY
ATOMIC SPECTROSCOPY DEPARTMENT

Job Number: 206216 Sample Numbers: 01-06

WATER (SOIL) - SLUDGE - TCLP/SPLP

I confirm that I have performed the preparation below following SOP guidelines and authorize the release of the preparation:

Sample Prep:

E Martin	04/04/04	ICP
E Martin	04/01/04	Mercury
Chemist	Date(s)	

I confirm that I have performed the analysis below following SOP guidelines and authorize the release of all associated data:

Analysis:

[signature]	4/6/04	ICP
[signature]	4/6/04	Mercury
Chemist	Date(s)	

I have reviewed and authorized the release of the job:

Complete: [signature] 4/7/04
Supervisor Date

QAF02600.CT

Severn Trent Laboratories, Inc.
STL Connecticut • 128 Long Hill Cross Road, Shelton, CT 06484
Tel 203 929 8140 Fax 203 929 8142 • www.stlinc.com

A part of Severn Trent plc

ANALYTICAL REPORT

JOB NUMBER: 206205

Prepared For:

Lockwood, Kessler & Bartlett, Inc.
One Aerial Way
Syosset, NY 11791

Project: TAGM PROJECT

Attention: John Gerlach

Date: 04/13/2004

Johanna Dubauskas
Signature

4.14.04
Date

Name: Johanna L. Dubauskas

Title: Project Manager

E-Mail: jdubauskas@stl-inc.com

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

This Report Contains (51) Pages

SEVERN TRENT STL

STL Report : 206205
LOCKWOOD, KESSLER & BARTLETT, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Organic Extraction - Samples were extracted according to method 3510/3541/3550B. The following samples went to elevated final volumes for Semi-Volatile analysis:

TP-1	5mL
TP-2	2mL
TP-3	2mL
TP-4	2mL

No other problems were encountered.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

All samples were analyzed without any apparent problems.

Pesticides - Pesticide samples were analyzed by GC/ECD using guidance provided in Method 8081A. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

The end standards for most samples failed to meet QC criteria on both columns. Sample matrix was the cause.

The following samples were analyzed at dilutions for target compounds.

TP-1	1:10
TP-3	1:10

Manual integrations were performed if required, and any affected peaks were designated with an "M" on the quantitation report. Manual integrations were initialed by the analyst that performed the integration.

Metals – ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Perkin Elmer mercury analyzer; following guidance provided in SW846 according to methods: ICAP – 3010A, 3050B/6010B; mercury-7471A.

SPLP samples were prepared following guidance provided in SW846 according to method 1312.

SEVERN TRENT STL

No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Classical Chemistry - Listed below are the wet chemistry analyte methods and references for the samples analyzed in this SDG. No analytical problems were encountered and all holding times were met.

Analyte	Method	Reference
Cyanide, Total	9012	1
TOC	9012	1

References:

1. Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986.

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 1ul injection was used for all samples and standards. The instrument was calibrated at 10ng/ul (20 ng), 25 ng/ul(50 ng), 40ng/ul(80ng), 60ng/ul(120ng) and 80ng/ul(160ng). Internal standards were added to all samples and standards were at 20ng/ul(40ng).

Sample TP-3 was analyzed at a 1:2 dilution due to the presence of high levels of target compounds. The leachate for TP-3 was analyzed straight.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Daniel Helfrich
Technical Director

4/10/24
Date

SAMPLE INFORMATION
Date: 04/13/2004

Job Number.: 206205
Customer...: Lockwood, Kessler & Bartlett,Inc.
Attn.....: John Gerlach

Project Number.....: 20001037
Customer Project ID....: TAGM PROJECT
Project Description....: TAGM PROJECT

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
206205-1	TP-1	Soil	03/26/2004	08:10	03/27/2004	10:30
206205-2	TP-2	Soil	03/26/2004	11:50	03/27/2004	10:30
206205-3	TP-3	Soil	03/26/2004	11:30	03/27/2004	10:30
206205-4	TP-4	Soil	03/26/2004	11:10	03/27/2004	10:30

000003

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	86.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	13.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,1-Dichloroethene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Acetone, Solid*	3	J	B	2	12	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Methylene chloride, Solid*	ND	U		3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,1-Dichloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	2-Butanone (MEK), Solid*	ND	U		0.7	12	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Chloroform, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Trichloroethene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.5	12	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Toluene, Solid*	0.6	J		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Dibromochloromethane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Chlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Ethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam

OOHREV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
005 REV	Isopropylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	n-Propylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1345	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1345	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	88.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	11.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
82608	Volatile Organics											
	Vinyl chloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Chloroethane, Solid*	ND		U		2	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	1,1-Dichloroethene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Trichlorotrifluoroethane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Carbon disulfide, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Acetone, Solid*	ND		U	B	2	11	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Methylene chloride, Solid*	3		J		3	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	trans-1,2-Dichloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND		U		0.3	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	1,1-Dichloroethane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	2-Butanone (MEK), Solid*	ND		U		0.7	11	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Chloroform, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	1,1,1-Trichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Carbon tetrachloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Benzene, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	1,2-Dichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Trichloroethene, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND		U		0.4	11	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Toluene, Solid*	0.8		J		0.4	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Tetrachloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	1,3-Dichloropropane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Dibromochloromethane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Chlorobenzene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30672	03/31/04 1807	pam
	Ethylbenzene, Solid*	1		J		0.4	6	1.00000	ug/Kg	30672	03/31/04 1807	pam

1284900

* In Description = Dry Wgt.

Job Number: 206205

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Isopropylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	n-Propylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	Xylenes (total), Solid*	4	J		1	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30672		03/31/04 1807	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30672		03/31/04 1807	pam

00478EV

* In Description = Dry Wgt.

Job Number: 206205

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Chloroethane, Solid*	ND		U		2	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,1-Dichloroethene, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Trichlorotrifluoroethane, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Carbon disulfide, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Acetone, Solid*	3		J	B	2	11	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Methylene chloride, Solid*	ND		U		3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	trans-1,2-Dichloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND		U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,1-Dichloroethane, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	2-Butanone (MEK), Solid*	ND		U		0.7	11	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Chloroform, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,1,1-Trichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Carbon tetrachloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Benzene, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,2-Dichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Trichloroethene, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND		U		0.5	11	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Toluene, Solid*	0.6		J		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Tetrachloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,3-Dichloropropane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Dibromochloromethane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Chlorobenzene, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Ethylbenzene, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam

008 REV

* In Description = Dry Wgt.

Job Number: 206205

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
009 REV	Isopropylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	n-Propylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1420	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1420	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,1-Dichloroethene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Acetone, Solid*	5	J	B	2	11	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Methylene chloride, Solid*	ND	U		3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,1-Dichloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	2-Butanone (MEK), Solid*	ND	U		0.7	11	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Chloroform, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Trichloroethene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.5	11	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Toluene, Solid*	0.8	J		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Dibromochloromethane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Chlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Ethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam

010REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8011 REV	Isopropylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	n-Propylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30695		04/01/04 1456	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30695		04/01/04 1456	pam

* In Description = Dry Wgt.

Job Number: 206205

LABORATORY TEST RESULTS

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Anthracene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Chrysene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2121	pam
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2121	pam
ASTM D-2216												
	% Solids, Solid	86.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	13.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		480	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Phenol, Solid*	ND	U		280	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2-Methylphenol, Solid*	ND	U		180	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	4-Methylphenol, Solid*	ND	U		210	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2-Chlorophenol, Solid*	ND	U		280	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw

* In Description = Dry Wgt.

Job Number: 206205

LABORATORY TEST RESULTS

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		290	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Benzoic acid, Solid*	ND	U		7600	18000	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Isophorone, Solid*	ND	U		270	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Naphthalene, Solid*	ND	U		370	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2,4-Dichlorophenol, Solid*	ND	U		350	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	4-Chloroaniline, Solid*	ND	U		290	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		120	18000	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2-Methylnaphthalene, Solid*	ND	U		320	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2-Nitroaniline, Solid*	ND	U		250	18000	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		360	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		160	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2-Nitrophenol, Solid*	ND	U		320	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	3-Nitroaniline, Solid*	ND	U		210	18000	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Dimethyl phthalate, Solid*	ND	U		170	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	2,4-Dinitrophenol, Solid*	ND	U		590	18000	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Acenaphthylene, Solid*	ND	U		130	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Acenaphthene, Solid*	ND	U		170	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Dibenzofuran, Solid*	ND	U		170	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	4-Nitrophenol, Solid*	ND	U		980	18000	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Fluorene, Solid*	ND	U		230	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Hexachlorobenzene, Solid*	ND	U		220	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Diethyl phthalate, Solid*	ND	U		200	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Pentachlorophenol, Solid*	ND	U		500	18000	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Phenanthrene, Solid*	1100	J		280	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Anthracene, Solid*	510	J		140	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	160	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Fluoranthene, Solid*	2100	J		250	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Pyrene, Solid*	2100	J		220	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Butyl benzyl phthalate, Solid*	ND	U		150	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw

* In Description = Dry Wgt.

Job Number: 206205

LABORATORY TEST RESULTS

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	1500	J		170	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Chrysene, Solid*	1600	J		200	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		390	7600	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		420	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Di-n-octyl phthalate, Solid*	ND	U		140	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Benzo(b)fluoranthene, Solid*	1400	J		440	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Benzo(k)fluoranthene, Solid*	1200	J	M	450	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Benzo(a)pyrene, Solid*	1500	J		180	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	460	J		210	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Dibenzo(a,h)anthracene, Solid*	280	J		210	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw
	Benzo(ghi)perylene, Solid*	510	J		200	3800	1.00000	ug/Kg	30694		04/02/04 2131	jdw

* In Description = Dry Wgt.

Job Number: 206205

LABORATORY TEST RESULTS

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Anthracene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Chrysene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/10/04 2148	pam
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30991		04/10/04 2148	pam
ASTM D-2216												
	% Solids, Solid	88.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	11.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		190	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Phenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2-Methylphenol, Solid*	ND	U		72	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	4-Methylphenol, Solid*	ND	U		80	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2-Chlorophenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Benzoic acid, Solid*	ND	U		3000	7200	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Isophorone, Solid*	ND	U		100	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Naphthalene, Solid*	380	J		140	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	4-Chloroaniline, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		45	7200	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2-Methylnaphthalene, Solid*	270	J		130	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2-Nitroaniline, Solid*	ND	U		98	7200	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		140	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		63	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2-Nitrophenol, Solid*	ND	U		130	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	3-Nitroaniline, Solid*	ND	U		80	7200	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Dimethyl phthalate, Solid*	ND	U		67	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	2,4-Dinitrophenol, Solid*	ND	U		230	7200	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Acenaphthylene, Solid*	1200	J		49	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Acenaphthene, Solid*	280	J		67	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Dibenzofuran, Solid*	290	J		67	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	4-Nitrophenol, Solid*	ND	U		380	7200	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Fluorene, Solid*	680	J		89	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Hexachlorobenzene, Solid*	ND	U		85	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Diethyl phthalate, Solid*	ND	U		76	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Pentachlorophenol, Solid*	ND	U		190	7200	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Phenanthrene, Solid*	5000			110	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Anthracene, Solid*	2100			54	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	63	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Fluoranthene, Solid*	5900			98	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Pyrene, Solid*	5800			85	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Butyl benzyl phthalate, Solid*	ND	U		58	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Benzo(a)anthracene, Solid*	3300			67	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Chrysene, Solid*	3400			76	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		150	3000	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		160	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Di-n-octyl phthalate, Solid*	ND	U		54	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Benzo(b)fluoranthene, Solid*	2500			170	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Benzo(k)fluoranthene, Solid*	3100			170	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Benzo(a)pyrene, Solid*	3300			72	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	1100	J		80	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Dibenzo(a,h)anthracene, Solid*	460	J		80	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw
	Benzo(ghi)perylene, Solid*	1100	J		76	1500	1.00000	ug/Kg	30694		04/02/04 2159	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Anthracene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Chrysene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1342	pam
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1342	pam
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		380	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Phenol, Solid*	ND	U		210	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2-Methylphenol, Solid*	ND	U		140	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	4-Methylphenol, Solid*	ND	U		160	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2-Chlorophenol, Solid*	ND	U		210	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		220	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Benzoic acid, Solid*	ND	U		5900	14000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Isophorone, Solid*	ND	U		210	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Naphthalene, Solid*	710	J		290	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2,4-Dichlorophenol, Solid*	ND	U		270	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	4-Chloroaniline, Solid*	ND	U		220	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		89	14000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2-Methylnaphthalene, Solid*	410	J		250	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2-Nitroaniline, Solid*	ND	U		200	14000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		280	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		130	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2-Nitrophenol, Solid*	ND	U		250	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	3-Nitroaniline, Solid*	ND	U		160	14000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Dimethyl phthalate, Solid*	ND	U		130	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	2,4-Dinitrophenol, Solid*	ND	U		460	14000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Acenaphthylene, Solid*	1300	J		98	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Acenaphthene, Solid*	850	J		130	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Dibenzofuran, Solid*	610	J		130	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	4-Nitrophenol, Solid*	ND	U		760	14000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Fluorene, Solid*	1100	J	M	180	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Hexachlorobenzene, Solid*	ND	U		170	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Diethyl phthalate, Solid*	ND	U		150	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Pentachlorophenol, Solid*	ND	U		380	14000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Phenanthrene, Solid*	12000			210	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Anthracene, Solid*	3300			110	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	130	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Fluoranthene, Solid*	15000			200	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Pyrene, Solid*	15000			170	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Butyl benzyl phthalate, Solid*	270	J		120	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
0630000	Benzo(a)anthracene, Solid*	8700			130	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Chrysene, Solid*	9000			150	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		300	5900	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		320	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Di-n-octyl phthalate, Solid*	ND	U		110	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Benzo(b)fluoranthene, Solid*	6500			340	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Benzo(k)fluoranthene, Solid*	7400			350	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Benzo(a)pyrene, Solid*	8500			140	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	3500			160	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Dibenzo(a,h)anthracene, Solid*	1200	J		160	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw
	Benzo(ghi)perylene, Solid*	3300			150	3000	2.00000	ug/Kg	30694		04/02/04 0202	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Anthracene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Chrysene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30991		04/12/04 1409	pam
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30991		04/12/04 1409	pam
ASTM D-2216												
	% Solids, Solid	87.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		190	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Phenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2-Methylphenol, Solid*	ND	U		71	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	4-Methylphenol, Solid*	ND	U		80	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2-Chlorophenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205 Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Benzoic acid, Solid*	ND	U		2900	7100	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Isophorone, Solid*	ND	U		100	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Naphthalene, Solid*	170	J		140	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	4-Chloroaniline, Solid*	ND	U		110	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		44	7100	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2-Methylnaphthalene, Solid*	ND	U		120	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2-Nitroaniline, Solid*	ND	U		98	7100	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		140	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		62	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2-Nitrophenol, Solid*	ND	U		120	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	3-Nitroaniline, Solid*	ND	U		80	7100	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Dimethyl phthalate, Solid*	ND	U		67	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	2,4-Dinitrophenol, Solid*	ND	U		230	7100	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Acenaphthylene, Solid*	650	J		49	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Acenaphthene, Solid*	100	J		67	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Dibenzofuran, Solid*	100	J		67	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	4-Nitrophenol, Solid*	ND	U		380	7100	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Fluorene, Solid*	200	J		89	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Hexachlorobenzene, Solid*	ND	U		85	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Diethyl phthalate, Solid*	ND	U		76	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Pentachlorophenol, Solid*	ND	U		190	7100	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Phenanthrene, Solid*	1600			110	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Anthracene, Solid*	790	J		53	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	62	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Fluoranthene, Solid*	2300			98	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Pyrene, Solid*	2100			85	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Butyl benzyl phthalate, Solid*	ND	U		58	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205 Date:04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	1400	J		67	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Chrysene, Solid*	1400	J		76	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		150	2900	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		160	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Di-n-octyl phthalate, Solid*	ND	U		53	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Benzo(b)fluoranthene, Solid*	1100	J		170	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Benzo(k)fluoranthene, Solid*	1700			170	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Benzo(a)pyrene, Solid*	1500			71	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	510	J		80	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Dibenzo(a,h)anthracene, Solid*	220	J		80	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw
	Benzo(ghi)perylene, Solid*	510	J		76	1500	1.00000	ug/Kg	30694		04/02/04 2227	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	86.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	13.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		3.2	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	beta-BHC, Solid*	ND	U		3.1	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	delta-BHC, Solid*	ND	U		1.2	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	gamma-BHC (Lindane), Solid*	ND	U		1.7	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Heptachlor, Solid*	ND	U		1.7	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Aldrin, Solid*	ND	U		4.1	23	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Heptachlor epoxide, Solid*	2.1	J		1.3	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Endosulfan I, Solid*	ND	U		1.7	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Dieldrin, Solid*	ND	U		3.7	38	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	4,4'-DDE, Solid*	39			5.0	38	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Endrin, Solid*	ND	U		10	57	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Endosulfan II, Solid*	ND	U		2.0	38	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	4,4'-DDD, Solid*	68			4.4	38	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Endosulfan sulfate, Solid*	ND	U		2.0	38	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	4,4'-DDT, Solid*	80			3.6	38	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Methoxychlor, Solid*	ND	U		24	200	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	gamma-Chlordane, Solid*	6.4	J		1.0	20	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Endrin ketone, Solid*	24	J		1.7	38	10.0000	ug/Kg	30809		04/01/04 0255	dmm
	Chlordane, Solid*	67	J	M	8.1	200	10.0000	ug/Kg	30809		04/01/04 0255	dmm

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	88.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	11.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.31	1.9	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	beta-BHC, Solid*	0.76	J		0.30	1.9	1.00000	ug/Kg	30811		04/02/04 2009	dmm
	delta-BHC, Solid*	ND	U		0.12	1.9	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Heptachlor, Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Aldrin, Solid*	ND	U		0.40	2.2	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Heptachlor epoxide, Solid*	1.8	J		0.13	1.9	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Endosulfan I, Solid*	ND	U		0.16	1.9	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Dieldrin, Solid*	3.6	J		0.36	3.7	1.00000	ug/Kg	30811		04/02/04 2009	dmm
	4,4'-DDE, Solid*	11			0.48	3.7	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Endrin, Solid*	ND	U		0.99	5.6	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Endosulfan II, Solid*	ND	U		0.19	3.7	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	4,4'-DDD, Solid*	4.3			0.43	3.7	1.00000	ug/Kg	30811		04/02/04 2009	dmm
	Endosulfan sulfate, Solid*	ND	U		0.19	3.7	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	4,4'-DDT, Solid*	2.8	J		0.35	3.7	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Methoxychlor, Solid*	13	J		2.4	19	1.00000	ug/Kg	30811		04/02/04 2009	dmm
	gamma-Chlordane, Solid*	1.6	J		0.10	1.9	1.00000	ug/Kg	30811		04/02/04 2009	dmm
	Endrin ketone, Solid*	ND	U		0.16	3.7	1.00000	ug/Kg	30809		04/02/04 2009	dmm
	Chlordane, Solid*	ND	U		0.78	19	1.00000	ug/Kg	30809		04/02/04 2009	dmm

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND		U	3.1	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	beta-BHC, Solid*	ND		U	3.0	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	delta-BHC, Solid*	ND		U	1.2	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	gamma-BHC (Lindane), Solid*	ND		U	1.7	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Heptachlor, Solid*	ND		U	1.7	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Aldrin, Solid*	ND		U	4.0	23	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Heptachlor epoxide, Solid*	5.1		J	1.3	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Endosulfan I, Solid*	ND		U	1.7	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Dieldrin, Solid*	ND		U	3.6	37	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	4,4'-DDE, Solid*	75			4.9	37	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Endrin, Solid*	ND		U	10	57	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Endosulfan II, Solid*	ND		U	1.9	37	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	4,4'-DDD, Solid*	100			4.3	37	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Endosulfan sulfate, Solid*	ND		U	2.0	37	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	4,4'-DDT, Solid*	79			3.5	37	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Methoxychlor, Solid*	55		J	24	190	10.0000	ug/Kg	30811		04/01/04 0408	dmm
	gamma-Chlordane, Solid*	12		J	1.0	19	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Endrin ketone, Solid*	18		J	1.6	37	10.0000	ug/Kg	30809		04/01/04 0408	dmm
	Chlordane, Solid*	360		M	7.9	190	10.0000	ug/Kg	30809		04/01/04 0408	dmm

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.31	1.9	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	beta-BHC, Solid*	0.39	J		0.31	1.9	1.00000	ug/Kg	30811		04/02/04 2122	dmm
	delta-BHC, Solid*	0.30	J		0.12	1.9	1.00000	ug/Kg	30811		04/02/04 2122	dmm
	gamma-BHC (Lindane), Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Heptachlor, Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Aldrin, Solid*	ND	U		0.41	2.3	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Heptachlor epoxide, Solid*	1.1	J		0.13	1.9	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Endosulfan I, Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Dieldrin, Solid*	ND	U		0.37	3.8	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	4,4'-DDE, Solid*	11			0.50	3.8	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Endrin, Solid*	ND	U		1.0	5.7	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Endosulfan II, Solid*	ND	U		0.19	3.8	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	4,4'-DDD, Solid*	8.5			0.43	3.8	1.00000	ug/Kg	30811		04/02/04 2122	dmm
	Endosulfan sulfate, Solid*	ND	U		0.20	3.8	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	4,4'-DDT, Solid*	4.3			0.35	3.8	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Methoxychlor, Solid*	23			2.4	19	1.00000	ug/Kg	30811		04/02/04 2122	dmm
	gamma-Chlordane, Solid*	1.8	J		0.10	1.9	1.00000	ug/Kg	30811		04/02/04 2122	dmm
	Endrin ketone, Solid*	6.8			0.16	3.8	1.00000	ug/Kg	30809		04/02/04 2122	dmm
	Chlordane, Solid*	27		M	0.80	19	1.00000	ug/Kg	30809		04/02/04 2122	dmm

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	4.3	B		3.0	10.0	1	ug/L	30727		04/02/04 1516	nnp
ASTM D-2216												
	% Solids, Solid	86.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	13.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.21	B	N	0.053	2.1	1.0000	mg/Kg	30571		03/31/04 1300	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	8300			27.1	350	1	mg/Kg	30600		03/31/04 1532	nnp
	Antimony, Solid*	ND	U	N	1.5	15.9	1	mg/Kg	30600		03/31/04 1532	nnp
	Arsenic, Solid*	5.6	B		1.7	10.9	1	mg/Kg	30600		03/31/04 1532	nnp
	Barium, Solid*	200			0.25	2.7	1	mg/Kg	30600		03/31/04 1532	nnp
	Beryllium, Solid*	ND	U		0.68	2.7	1	mg/Kg	30600		03/31/04 1532	nnp
	Cadmium, Solid*	ND	U		1.4	4.1	1	mg/Kg	30600		03/31/04 1532	nnp
	Calcium, Solid*	38300			15.7	115	1	mg/Kg	30600		03/31/04 1532	nnp
	Chromium, Solid*	14.5			0.46	4.1	1	mg/Kg	30600		03/31/04 1532	nnp
	Cobalt, Solid*	6.6		*N	0.57	2.7	1	mg/Kg	30600		03/31/04 1532	nnp
	Copper, Solid*	49.4		*N	1.1	6.8	1	mg/Kg	30600		03/31/04 1532	nnp
	Iron, Solid*	14000			13.8	197	1	mg/Kg	30600		03/31/04 1532	nnp
	Lead, Solid*	144			1.0	12.2	1	mg/Kg	30600		03/31/04 1532	nnp
	Magnesium, Solid*	14500		*	12.5	47.5	1	mg/Kg	30600		03/31/04 1532	nnp
	Manganese, Solid*	320			0.87	3.4	1	mg/Kg	30600		03/31/04 1532	nnp
	Nickel, Solid*	16.2			0.60	6.8	1	mg/Kg	30600		03/31/04 1532	nnp
	Potassium, Solid*	1620			54.3	271	1	mg/Kg	30600		03/31/04 1532	nnp
	Selenium, Solid*	ND	U		2.2	21.7	1	mg/Kg	30600		03/31/04 1532	nnp
	Silver, Solid*	ND	U		0.43	4.1	1	mg/Kg	30600		03/31/04 1532	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	482		N	27.1	128	1	mg/Kg	30600		03/31/04 1532	nnp
	Thallium, Solid*	ND	U		2.7	29.8	1	mg/Kg	30600		03/31/04 1532	nnp
	Vanadium, Solid*	23.1			0.49	5.4	1	mg/Kg	30600		03/31/04 1532	nnp
	Zinc, Solid*	232		*N	5.2	27.1	1	mg/Kg	30600		03/31/04 1532	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1522	nnp
ASTM D-2216												
	% Solids, Solid	88.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	11.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.19	B	N	0.048	1.9	1.0000	mg/Kg	30571		03/31/04 1301	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	7710			25.3	327	1	mg/Kg	30600		03/31/04 1551	nnp
	Antimony, Solid*	ND	U	N	1.4	14.8	1	mg/Kg	30600		03/31/04 1551	nnp
	Arsenic, Solid*	5.2	B		1.5	10.1	1	mg/Kg	30600		03/31/04 1551	nnp
	Barium, Solid*	119			0.23	2.5	1	mg/Kg	30600		03/31/04 1551	nnp
	Beryllium, Solid*	ND	U		0.63	2.5	1	mg/Kg	30600		03/31/04 1551	nnp
	Cadmium, Solid*	ND	U		1.3	3.8	1	mg/Kg	30600		03/31/04 1551	nnp
	Calcium, Solid*	15500			14.7	108	1	mg/Kg	30600		03/31/04 1551	nnp
	Chromium, Solid*	18.1			0.43	3.8	1	mg/Kg	30600		03/31/04 1551	nnp
	Cobalt, Solid*	6.5		*N	0.53	2.5	1	mg/Kg	30600		03/31/04 1551	nnp
	Copper, Solid*	29.9		*N	1.0	6.3	1	mg/Kg	30600		03/31/04 1551	nnp
	Iron, Solid*	16300			12.9	184	1	mg/Kg	30600		03/31/04 1551	nnp
	Lead, Solid*	85.2			0.96	11.4	1	mg/Kg	30600		03/31/04 1551	nnp
	Magnesium, Solid*	7410		*	11.7	44.3	1	mg/Kg	30600		03/31/04 1551	nnp
	Manganese, Solid*	324			0.81	3.2	1	mg/Kg	30600		03/31/04 1551	nnp
	Nickel, Solid*	19.1			0.56	6.3	1	mg/Kg	30600		03/31/04 1551	nnp
	Potassium, Solid*	1580			50.7	253	1	mg/Kg	30600		03/31/04 1551	nnp
	Selenium, Solid*	ND	U		2.0	20.3	1	mg/Kg	30600		03/31/04 1551	nnp
	Silver, Solid*	ND	U		0.41	3.8	1	mg/Kg	30600		03/31/04 1551	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	143		N	25.3	119	1	mg/Kg	30600		03/31/04 1551	nnp
	Thallium, Solid*	ND	U		2.5	27.9	1	mg/Kg	30600		03/31/04 1551	nnp
	Vanadium, Solid*	33.2			0.46	5.1	1	mg/Kg	30600		03/31/04 1551	nnp
	Zinc, Solid*	107		*N	4.8	25.3	1	mg/Kg	30600		03/31/04 1551	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1528	nnp
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.43	B	N	0.054	2.2	1.0000	mg/Kg	30571		03/31/04 1305	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	8970			27.3	353	1	mg/Kg	30600		03/31/04 1557	nnp
	Antimony, Solid*	ND	U	N	1.6	16.0	1	mg/Kg	30600		03/31/04 1557	nnp
	Arsenic, Solid*	6.7	B		1.7	10.9	1	mg/Kg	30600		03/31/04 1557	nnp
	Barium, Solid*	332			0.25	2.7	1	mg/Kg	30600		03/31/04 1557	nnp
	Beryllium, Solid*	ND	U		0.68	2.7	1	mg/Kg	30600		03/31/04 1557	nnp
	Cadmium, Solid*	ND	U		1.4	4.1	1	mg/Kg	30600		03/31/04 1557	nnp
	Calcium, Solid*	39500			15.9	116	1	mg/Kg	30600		03/31/04 1557	nnp
	Chromium, Solid*	17.9			0.46	4.1	1	mg/Kg	30600		03/31/04 1557	nnp
	Cobalt, Solid*	6.5		*N	0.57	2.7	1	mg/Kg	30600		03/31/04 1557	nnp
	Copper, Solid*	26.8		*N	1.1	6.8	1	mg/Kg	30600		03/31/04 1557	nnp
	Iron, Solid*	15600			13.9	198	1	mg/Kg	30600		03/31/04 1557	nnp
	Lead, Solid*	269			1.0	12.3	1	mg/Kg	30600		03/31/04 1557	nnp
	Magnesium, Solid*	15100		*	12.6	47.8	1	mg/Kg	30600		03/31/04 1557	nnp
	Manganese, Solid*	286			0.87	3.4	1	mg/Kg	30600		03/31/04 1557	nnp
	Nickel, Solid*	16.9			0.60	6.8	1	mg/Kg	30600		03/31/04 1557	nnp
	Potassium, Solid*	1610			54.7	273	1	mg/Kg	30600		03/31/04 1557	nnp
	Selenium, Solid*	ND	U		2.2	21.9	1	mg/Kg	30600		03/31/04 1557	nnp
	Silver, Solid*	ND	U		0.44	4.1	1	mg/Kg	30600		03/31/04 1557	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	476		N	27.3	128	1	mg/Kg	30600		03/31/04 1557	nnp
	Thallium, Solid*	ND	U		2.7	30.1	1	mg/Kg	30600		03/31/04 1557	nnp
	Vanadium, Solid*	29.2			0.49	5.5	1	mg/Kg	30600		03/31/04 1557	nnp
	Zinc, Solid*	230		*N	5.2	27.3	1	mg/Kg	30600		03/31/04 1557	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1534	nnp
ASTM D-2216												
	% Solids, Solid	87.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.21	B	N	0.054	2.2	1.0000	mg/Kg	30571		03/31/04 1306	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	8560			26.4	341	1	mg/Kg	30600		03/31/04 1603	nnp
	Antimony, Solid*	ND	U	N	1.5	15.5	1	mg/Kg	30600		03/31/04 1603	nnp
	Arsenic, Solid*	8.0	B		1.6	10.6	1	mg/Kg	30600		03/31/04 1603	nnp
	Barium, Solid*	154			0.24	2.6	1	mg/Kg	30600		03/31/04 1603	nnp
	Beryllium, Solid*	ND	U		0.66	2.6	1	mg/Kg	30600		03/31/04 1603	nnp
	Cadmium, Solid*	ND	U		1.3	4.0	1	mg/Kg	30600		03/31/04 1603	nnp
	Calcium, Solid*	21100			15.3	112	1	mg/Kg	30600		03/31/04 1603	nnp
	Chromium, Solid*	20.7			0.45	4.0	1	mg/Kg	30600		03/31/04 1603	nnp
	Cobalt, Solid*	7.1		*N	0.55	2.6	1	mg/Kg	30600		03/31/04 1603	nnp
	Copper, Solid*	27.1		*N	1.1	6.6	1	mg/Kg	30600		03/31/04 1603	nnp
	Iron, Solid*	16700			13.5	192	1	mg/Kg	30600		03/31/04 1603	nnp
	Lead, Solid*	73.8			1.0	11.9	1	mg/Kg	30600		03/31/04 1603	nnp
	Magnesium, Solid*	11900		*	12.2	46.2	1	mg/Kg	30600		03/31/04 1603	nnp
	Manganese, Solid*	246			0.85	3.3	1	mg/Kg	30600		03/31/04 1603	nnp
	Nickel, Solid*	21.7			0.58	6.6	1	mg/Kg	30600		03/31/04 1603	nnp
	Potassium, Solid*	2070			52.8	264	1	mg/Kg	30600		03/31/04 1603	nnp
	Selenium, Solid*	ND	U		2.1	21.1	1	mg/Kg	30600		03/31/04 1603	nnp
	Silver, Solid*	ND	U		0.42	4.0	1	mg/Kg	30600		03/31/04 1603	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	168		N	26.4	124	1	mg/Kg	30600		03/31/04 1603	nnp
	Thallium, Solid*	ND	U		2.6	29.1	1	mg/Kg	30600		03/31/04 1603	nnp
	Vanadium, Solid*	29.3			0.48	5.3	1	mg/Kg	30600		03/31/04 1603	nnp
	Zinc, Solid*	106		*N	5.0	26.4	1	mg/Kg	30600		03/31/04 1603	nnp

* In Desc[illegible] Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-1
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216	% Solids, Solid	86.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	13.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric) Cyanide, Total, Solid*	ND	U		30.3	564	1.0	ug/Kg	30790		04/06/04 1156	dtn
9060	Organic Carbon TOC Average Duplicates, Solid*	26000			28	120	1	mg/Kg	30805		04/06/04 1111	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-2
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216	% Solids, Solid	88.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	11.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric) Cyanide, Total, Solid*	ND	U		29.4	546	1.0	ug/Kg	30790		04/06/04 1157	dtn
9060	Organic Carbon TOC Average Duplicates, Solid*	18000			27	110	1	mg/Kg	30805		04/06/04 1123	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-3
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		30.3	563	1.0	ug/Kg	30790		04/06/04 1158	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	18000			28	110	1	mg/Kg	30805		04/06/04 1135	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206205

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-4
Date Sampled.....: 03/26/2004
Time Sampled.....: 11:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206205-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND		U	29.5	549	1.0	ug/Kg	30790		04/06/04 1202	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	16000			27	110	1	mg/Kg	30805		04/07/04 1200	msh

* In Description = Dry Wgt.

SEVERN TRENT STL

LABORATORY CHRONICLE

Job Number: 206205

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Lab ID: 206205-1 Client ID: TP-1

METHOD	DESCRIPTION
ASTM D-2216	
1312	1312 SPLP
5030A	5030 Soil(5g)Prep
7470/7471	7470 Digestion (Hg)
3010A	Acid Digestion (ICAP)
3050B	Acid Digestion: Solids (ICAP)
9012	Cyanide (Colorimetric)
3510C	Extraction Sep. Funnel (SVOC)
3510C	Extraction Sep. Funnel (SVOC)
3541	Extraction Soxhlet (SVOC)
3550B	Extraction Ultrasonic (Chlor.Pest.)
7471A	Mercury (CVAA) Solids
6010B	Metals Analysis (ICAP Trace)
6010B	Metals Analysis (ICAP Trace)
D3987	Neutral Leachate Extraction
9060	Organic Carbon
8081A	Organochlorine Pesticide Analysis
8081A	Organochlorine Pesticide Confirmation
8270C	Semivolatile Organics
8270C	Semivolatile Organics
8260B	Volatile Organics

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
1	30560		03/30/2004	0000	
1	30535		03/30/2004	0000	
1	30690				
1	30502		03/29/2004	0000	
1	30635		04/01/2004	0000	
1	30498		03/29/2004	0000	
1	30790	30758	04/06/2004	1156	1.0
1	30776		04/05/2004	0000	
1	30849	30725	04/07/2004	0000	
1	30528		03/29/2004	0000	
1	30497		03/29/2004	0000	
1	30571	30502	03/31/2004	1300	1.0000
1	30600	30498	03/31/2004	1532	
1	30727	30635	04/02/2004	1516	
1	30725		04/05/2004	0000	
1	30805		04/06/2004	1111	
1	30809	30497	04/01/2004	0255	10.0000
1	30811	30497	04/01/2004	0255	10.0000
1	30694	30528	04/02/2004	2131	1.00000
1	30991	30849 -30725	04/10/2004	2121	1.00000
1	30695	30690	04/01/2004	1345	1.00000

Lab ID: 206205-2 Client ID: TP-2

METHOD	DESCRIPTION
ASTM D-2216	
1312	1312 SPLP
5030A	5030 Soil(5g)Prep
7470/7471	7470 Digestion (Hg)
3010A	Acid Digestion (ICAP)
3050B	Acid Digestion: Solids (ICAP)
9012	Cyanide (Colorimetric)
3510C	Extraction Sep. Funnel (SVOC)
3510C	Extraction Sep. Funnel (SVOC)
3541	Extraction Soxhlet (SVOC)
3550B	Extraction Ultrasonic (Chlor.Pest.)
7471A	Mercury (CVAA) Solids
6010B	Metals Analysis (ICAP Trace)
6010B	Metals Analysis (ICAP Trace)
D3987	Neutral Leachate Extraction
9060	Organic Carbon
8081A	Organochlorine Pesticide Analysis
8081A	Organochlorine Pesticide Analysis
8081A	Organochlorine Pesticide Confirmation
8081A	Organochlorine Pesticide Confirmation
8270C	Semivolatile Organics
8270C	Semivolatile Organics
8260B	Volatile Organics

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
1	30560		03/30/2004	0000	
1	30535		03/30/2004	0000	
1	30668				
1	30502		03/29/2004	0000	
1	30635		04/01/2004	0000	
1	30498		03/29/2004	0000	
1	30790	30758	04/06/2004	1157	1.0
1	30776		04/05/2004	0000	
1	30849	30725	04/07/2004	0000	
1	30528		03/29/2004	0000	
1	30497		03/29/2004	0000	
1	30571	30502	03/31/2004	1301	1.0000
1	30600	30498	03/31/2004	1551	
1	30727	30635	04/02/2004	1522	
1	30725		04/05/2004	0000	
1	30805		04/06/2004	1123	
1	30809	30497	04/02/2004	2009	1.00000
1	30811	30497	04/02/2004	2009	1.00000
1	30809	30497	04/02/2004	2009	1.00000
1	30811	30497	04/02/2004	2009	1.00000
1	30694	30528	04/02/2004	2159	1.00000
1	30991	30849 -30725	04/10/2004	2148	1.00000
1	30672	30668	03/31/2004	1807	1.00000

Lab ID: 206205-3 Client ID: TP-3

METHOD	DESCRIPTION
ASTM D-2216	
1312	1312 SPLP
5030A	5030 Soil(5g)Prep
7470/7471	7470 Digestion (Hg)
3010A	Acid Digestion (ICAP)

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
1	30560		03/30/2004	0000	
1	30535		03/30/2004	0000	
1	30690				
1	30502		03/29/2004	0000	
1	30635		04/01/2004	0000	

0000040

SEVERN TRENT STL

LABORATORY CHRONICLE

Job Number: 206205

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Lab ID: 206205-3 Client ID: TP-3

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1158	1.0
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30849	30725	04/07/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1305	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1557	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1528	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/06/2004	1135	
8081A	Organochlorine Pesticide Analysis	1	30809	30497	04/01/2004	0408	10.0000
8081A	Organochlorine Pesticide Analysis	1	30811	30497	04/01/2004	0408	10.0000
8081A	Organochlorine Pesticide Confirmation	1	30809	30497	04/01/2004	0408	10.0000
8081A	Organochlorine Pesticide Confirmation	1	30811	30497	04/01/2004	0408	10.0000
8270C	Semivolatile Organics	1	30694	30528	04/02/2004	0202	2.00000
8270C	Semivolatile Organics	1	30991	30849 -30725	04/12/2004	1342	1.00000
8260B	Volatile Organics	1	30695	30690	04/01/2004	1420	1.00000

Lab ID: 206205-4 Client ID: TP-4

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30560		03/30/2004	0000	
1312	1312 SPLP	1	30535		03/30/2004	0000	
5030A	5030 Soil(5g)Prep	1	30690				
7470/7471	7470 Digestion (Hg)	1	30502		03/29/2004	0000	
3010A	Acid Digestion (ICAP)	1	30635		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1202	1.0
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30849	30725	04/07/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1306	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1603	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1534	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/07/2004	1200	
8081A	Organochlorine Pesticide Analysis	1	30809	30497	04/02/2004	2122	1.00000
8081A	Organochlorine Pesticide Analysis	1	30811	30497	04/02/2004	2122	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30809	30497	04/02/2004	2122	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30811	30497	04/02/2004	2122	1.00000
8270C	Semivolatile Organics	1	30694	30528	04/02/2004	2227	1.00000
8270C	Semivolatile Organics	1	30991	30849 -30725	04/12/2004	1409	1.00000
8260B	Volatile Organics	1	30695	30690	04/01/2004	1456	1.00000

0000041

SEVERN TRENT STL

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/13/2004

REPORT COMMENTS

1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

2) Soil, sediment and sludge sample results are reported on a "dry weight" basis except when analyzed for landfill disposal or incineration parameters. All other solid matrix samples are reported on an "as received" basis unless noted differently.

3) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

4) The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert. ID# 10604
5) According to 40CFR Part 136.3, pH, Chlorine Residual and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.

Glossary of flags, qualifiers and abbreviation

Inorganic Qualifiers (Q-Column)

U	Analyte was not detected at or above the reporting limit.
<	Not detected at or above the reporting limit.
J	Result is less than the RL, but greater than or equal to the method detection limit.
B	Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
S	Result was determined by the Method of Standard Additions.

Inorganic Flags (Flag Column)

^	ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,MRL: Instrument related QC exceed th upper or lower control limits.
*	LCS, LCD, MD: Batch QC exceeds the upper or lower control limits.
+	MSA correlation coefficient is less than 0.995.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
E	SD: Serial dilution exceeds the control limits.
H	MB, EB: Batch QC is greater than reporting limit or had a negative instrument reading lower than the absolute value of the reporting limit.
N	MS, MSD: Spike recovery exceeds the upper or lower control limits.
W	PS: Post-digestion spike was outside 85-115% control limits.

Organic Qualifiers (Q - Column)

U	Analyte was not detected at or above the reporting limit.
ND	Compound not detected.
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC).
Q	Result was qualitatively confirmed, but not quantified.
C	Pesticide identification was confirmed by GC/MS.
Y	The chromatographic response resembles a typical fuel pattern.
Z	The chromatographic response does not resemble a typical fuel pattern.
E	Result exceeded calibration range, secondary dilution required.

Organic Flags (Flags Column)

^	MB,EB, MLE: Batch QC is greater than reporting limit.
*	LCS, LCD, CCV, MS, MSD, Surrogate, RS:Batch QC exceeds the upper or lower control limits.
A	Concentration exceeds the instrument calibration range or below the reporting limit.
B	Compound was found in the blank and sample.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
H	Alternate peak selection upon analytical review
I	Indicates the presence of an interfence, recovery is not calculated.
M	Manually integrated compound.
P	The lower of the two values is reported when the % difference between the results of two GC columns is greater than 25%.

0000042

SEVERN TRENT STL

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/13/2004

Abbreviations

Batch	Designation given to identify a specific extraction, digestion, preparation set, or analysis set
CAP	Capillary Column
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Confirmation Analysis
CRA	Low Level Standard Check - GFAA; Mercury
CRI	Low Level Standard Check - ICP
Dil Fac	Dilution Factor
DL	Secondary dilution and analysis
DLFac	Detection Limit Factor
DSH	Distilled Standard - High Level
DSL	Distilled Standard - Low Level
DSM	Distilled Standard - Medium Level
EB	Extraction Blank
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit
ISA	Interference Check Sample A
ISB	Interference Check Sample B
Job No.	The first six digits of the sample ID which refers to a specific client, project and sample group
Lab ID	An 8 number unique laboratory identification
LCD	Laboratory Control Standard Duplicate
LCS	Laboratory Control Standard with reagent grade water or a matrix free from the analyte of interest
MB	Method Blank or (PB) Preparation Blank
MD	Method Duplicate
MDL	Method Detection Limit
MLE	Medium Level Extraction Blank
MRL	Method Reporting Limit Standard
MSA	Method of Standard Additions
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Not Detected
PACK	Packed Column
PREPF	Preparation factor used by the Laboratory's Information Management System (LIMS)
PS	Post Spike
PSD	Post Spike Duplicate
RA	Re-analysis
RE	Re-extraction and analysis
RL	Reporting Limit
RPD	Relative Percent Difference of duplicate (unrounded) analyses
RRF	Relative Response Factor
RS	Reference Standard
RT	Retention Time
RTW	Retention Time Window
SampleID	A 9 digit number unique for each sample, the first six digits are referred as the job number
SCB	Seeded Control Blank
SD	Serial Dilution
UCB	Unseeded Control Blank

One or a combination of these data qualifiers and abbreviations may appear in the analytical report.

0000043

STL-Connecticut
Certification Summary (as of January 2004)

The laboratory identification numbers for the STL-Connecticut laboratory are provided in the following table. Many states certify laboratories for specific parameters or tests within a category (i.e. method 325.2 for wastewater). The information in the following table indicates the lab is certified in a general category of testing such as drinking water or wastewater analysis. The laboratory should be contacted directly if parameter-specific certification information is required.

State	Responsible Agency	Certification	Expiration Date	Lab Number
Connecticut	Department of Health Services	Drinking Water, Wastewater	12/31/04	PH-0497
Maine	Department of Health and Environmental Services	Drinking Water, Wastewater/Solid, Hazardous Waste	04/18/04	CT023
Massachusetts	Department of Environmental Protection	Potable/Non-Potable Water	06/30/04	CT023
New Hampshire	Department of Environmental Services	Drinking Water, Wastewater	08/29/04	2528
New Jersey	Department of Environmental Protection	Drinking Water, Wastewater	06/30/04	46410
New York	Department of Health	CLP, Drinking Water, Wastewater, Solid/ Hazardous Waste NELAC	04/01/04	10602
Rhode Island	Department of Health	Chemistry...Non- Potable Water and Wastewater	12/30/04	A43
Utah	Department of Health	RCRA	05/31/04	2032614458

000004

SEVERN TRENT **STL**

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

Tel: (203) 929-8140
Fax: (203) 929-8142

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 | NO.

STL JOB #:

CLIENT: LKB, Inc.

PROJECT ID: TAGM Proj. (2328-01)

STL PROJECT MGR:

RUSH ☐ YES ☒ NO | DUE DATE 10 bus. days

BOTTLE SET #	CLIENT SAMPLE ID	DATE/TIME SAMPLED	MATRIX	LAB ID	QC Y/N	VOCs by 8260B	SVOCs by 8270C	Pest. by 8081A	Metals by 6010B,	TOC by TAGM App. B	SPLP PAHs & lead	* w/ shake test, save extract for possible Additional metals Analysis.	GENERAL REMARKS
						BOTTLE TYPE AND PRESERVATION							List of Analytes and MDLs should be per NYSDEC TAGM 4046
						4 oz 8/ass	8 oz 8/ass	8 oz 8/ass	8 oz 8/ass	↵	↵		
						FIELD FILTERED – CIRCLE Y or N							SAMPLE REMARKS
						Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	
	TP-1	0810 3/26/04	S	(01)		x	x	x	x	x	x			
	TP-2	1150		(02)		x	x	x	x	x	x			
	TP-3	1130		(03)		x	x	x	x	x	x			
206205	TP-4	1110		(04)		x	x	x	x	x	x			
														PASSED RAD SCREEN
														3.7°C

206205 04/08/2004
LOCKWOOD, KESSLER BARTLETT, INC.
JOHN GERLACH
TAGM PROJECT

MATRIX CODES

A - AIR
AQ - AQUEOUS
C - COMPLEX
D - DRUM WASTE
OI - OIL
S - SOIL
SL - SLUDGE
W - WIPE
O - OTHER
FB - FIELD BLANK
TB - TRIP BLANK

BOTTLES PREPARED BY	DATE/TIME	BOTTLES REC'D BY	DATE/TIME
		John Gerlach	
SIGNATURE		SIGNATURE	
		John Gerlach	
SAMPLES COLLECTED BY	DATE/TIME	RECEIVED IN LAB BY	DATE/TIME
John Gerlach	3/26/04	Kristina Blacker	3/27/04
SIGNATURE		SIGNATURE	10:30
John Gerlach			

REMARKS ON SAMPLE RECEIPT

☐ BOTTLES INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

STL-8122

rpjsckl | Job Sample Receipt Checklist Report | V2

Job Number.: 206205 Location.: 57207 Check List Number.: 1 Description.:
Customer Job ID.....: Job Check List Date.: Date of the Report..: 03/27/2004
Project Number.: 20001037 Project Description.: TAGM PROJECT Project Manager.....: jld
Customer.....: Lockwood, Kessler & Bartlett,Inc. Contact.: John Gerlach

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
...If "yes", completed properly?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?	N	
...If "yes", custody seal intact?		
Samples iced?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).	Y	3.7C
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)		
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?		
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Radioactivity at or below background levels?	Y	
A Sample Discrepancy Report (SDR) was needed?	N	
Comments		
If samples were shipped was there an air bill #?	Y	FE 846465497197
Sample Custodian Signature/Date	Y	K. Blackman 3/27/04

STL - Connecticut
Internal Chain-of-Custody

206205

04/08/2004

LOCKWOOD, KESSLER BARTLETT,INC.
JOHN GERLACH
TAGM PROJECT

Trip Blank: —

QC: —

Air: —

FB: —

Soil: #01-04

Water: —

Date Received: 03/27/04

Sample #s: 01-04

Locations: 95C, 121T

Laboratory Sample #	Relinquished by	Accepted by	Date	Time	Reason	Relinquished by	Accepted by	Date	Time
1-4	CC	EZ	3/29	9200	CXT	EZ	CC	3/29	12:05
01-04	CC	EPM	03/29	1015	metals	EPM	CC	03/29	2045
1-4	CC	NS	3/30	1600	%solids	NS	CC	3/30	180C
1-4	CC	LAW	3/31	10:45	TOC	LAW	CC	3/31	11:55
1-4	CC	[illegible]	3/31/04	1412	VPH	Archive	→		
1-4	CC	[illegible]	4/1	800	MTL	EPM	CC	04/01	840
1-4	CC	SBM	4/4/04	1000	Cyan	SBM	CC	4/4/04	20m
1-4	CC	[illegible]	4/5/04	1528	Metals				

STL Form# SMF00507.CT

STL GC-GC/MS Extract Chain of Custody

Fraction: (BNA) / Pesticide-PCB / Herbicide / O/P Pesticide / DRO / Other (Circle one) CLIENT: LKB

JOB NO: 6205

SAMPLE IN (Extractions)					SAMPLE IN (Extractions)				
Sample(s)	Date	Time	Sign.	Location	Sample(s)	Date	Time	Sign.	Location
1-4	3/30	9:49	LAW	36					
1-4	4/1	17:20	[illegible]	36					

SAMPLE OUT					SAMPLE IN			
Sample(s)	Date	Time	Code	Sign.	Date	Time	Location	Sign.
1-4	4/1	15:30	AN	KW	4/1	17:30	36	KW
1,2,4	4/2	16:50	AN	KW	4/2	17:30	36	KW
1	4/9	12:00	AN	KW	4/9	15:40	36	KW
1-4	4/10				4/10	21:45	36	KW
8,4	4/12	8:00	AN	KW	4/12	13:30	36	KW

Codes: SC = Screening AN = Analysis

Verified By: PMercure Date: 4/13/01

Lab Form: SMF01201.CT

STL GC-GC/MS Extract Chain of Custody

Fraction: BNA / (Pesticide-PCB) / Herbicide / O/P Pesticide / DRO / Other CLIENT: LKB
(Circle one)

JOB NO: 206205

SAMPLE IN (Extractions)					SAMPLE IN (Extractions)				
Sample(s)	Date	Time	Sign.	Location	Sample(s)	Date	Time	Sign.	Location
1-4	3/29	1530	mo	50					

SAMPLE OUT					SAMPLE IN			
Sample(s)	Date	Time	Code	Sign.	Date	Time	Location	Sign.
1-4	3/31/04	Noon	AN		3/31/04	12:30	52	

Codes: SC = Screening AN = Analysis

Verified By: Date: 4/7/04

Lab Form: SMF01201.CT

SEVERN TRENT STL

CHAIN OF CUSTODY
ATOMIC SPECTROSCOPY DEPARTMENT

Job Number: 200205 Sample Numbers: 01-04

WATER - (SOIL) - SLUDGE - TCLP/SPLP

I confirm that I have performed the preparation below following SOP guidelines and authorize the release of the preparation:

Sample Prep:

E Martin	03/29/04	ICP
E Martin	03/29/04	Mercury
Chemist	Date(s)	

I confirm that I have performed the analysis below following SOP guidelines and authorize the release of all associated data:

Analysis:

[signature]	4/1/04	ICP
[signature]	4/1/04	Mercury
Chemist	Date(s)	

I have reviewed and authorized the release of the job:

Complete: [signature] 4/7/04
Supervisor Date

QAF02600.CT

Severn Trent Laboratories, Inc.
STL Connecticut • 128 Long Hill Cross Road, Shelton, CT 06484
Tel 203 929 8140 Fax 203 929 8142 • www.stlinc.com

A part of Severn Trent plc

SEVERN TRENT STL

CHAIN OF CUSTODY
ATOMIC SPECTROSCOPY DEPARTMENT

Job Number: 206205 Sample Numbers: 01-04

WATER - SOIL - SLUDGE - TCLP/~~SPLP~~

I confirm that I have performed the preparation below following SOP guidelines and authorize the release of the preparation:

Sample Prep:

E Martin	04/01/04	ICP
		Mercury
Chemist	Date(s)	

I confirm that I have performed the analysis below following SOP guidelines and authorize the release of all associated data:

Analysis:

Victor Ruiz	4/6/04	ICP
		Mercury
Chemist	Date(s)	

I have reviewed and authorized the release of the job:

Complete: _____ 4/7/04
Supervisor Date

QAF02600.CT

Severn Trent Laboratories, Inc.
STL Connecticut • 128 Long Hill Cross Road, Shelton, CT 06484
Tel 203 929 8140 Fax 203 929 8142 • www.stlinc.com

A part of Severn Trent plc

ANALYTICAL REPORT

JOB NUMBER: 206204

Prepared For:

Lockwood, Kessler & Bartlett, Inc.
One Aerial Way
Syosset, NY 11791

Project: TAGM PROJECT

Attention: John Gerlach

Date: 04/13/2004

Johanna L. Dubauskas
Signature

4/13/04
Date

Name: Johanna L. Dubauskas

Title: Project Manager

E-Mail: jdubauskas@stl-inc.com

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

This Report Contains (94) Pages

SEVERN TRENT STL

STL Report : 206204
LOCKWOOD, KESSLER, & BARTLETT, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Organic Extraction - Samples were extracted according to method 3541/3550B/3510C. Samples for 3541 Semi-volatile extraction went to the following elevated final volumes, due to matrix viscosity:

TP-5	2mL
TP-6	2mL
TP-7	2mL
TP-8	2mL
TP-9	2mL
TP-10	5mL
TP-11	2mL
TP-12	2mL

No other problems were encountered.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

Sample TP-10 and TP-12 were analyzed twice due to results exhibiting internal standard suppression and/or a surrogate recovery out of criteria. Both analyses were reported since matrix interference was proven.

Pesticides - Pesticide samples were analyzed by GC/ECD using guidance provided in Method 8081A. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

The end standards for most samples failed to meet QC criteria on both columns. Sample matrix was the cause.

The following samples were analyzed at dilutions for target compounds.

TP-8	1:2
TP-10	1:10
TP-12	1:10

Manual integrations were performed if required, and any affected peaks were designated with an "M" on the quantitation report. Manual integrations were initialed by the analyst that performed the integration.

Metals – ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Perkin Elmer mercury analyzer; following guidance provided in SW846 according to methods: ICAP – 3010A, 3050B/6010B; mercury-7471A.

SPLP samples were prepared following guidance provided in SW846 according to method 1312.

No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Classical Chemistry - Listed below are the wet chemistry analyte methods and references for the samples analyzed in this SDG. No analytical problems were encountered and all holding times were met.

Analyte	Method	Reference
Cyanide, Total	9012	1
TOC	9012	1

References:

1. Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986.

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 1ul or 2ul injection was used for all samples and standards. The instrument was calibrated at 10ng/ul (20 ng), 25 ng/ul(50 ng), 40ng/ul(80ng), 60ng/ul(120ng) and 80ng/ul(160ng). Internal standards were added to all samples and standards were at 20ng/ul(40ng).

Sample TP-9 was analyzed at a 1:2 dilution due to the presence of high levels of target compounds. The leachate for TP-9 was analyzed straight.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

SEVERN TRENT STL

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Daniel Helfrich
Technical Director

4/12/05
Date

SAMPLE INFORMATION
Date: 04/13/2004

Job Number.: 206204
Customer...: Lockwood, Kessler & Bartlett,Inc.
Attn.....: John Gerlach

Project Number.....: 20001037
Customer Project ID....: TAGM PROJECT
Project Description....: TAGM PROJECT

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
206204-1	TP-5	Soil	03/26/2004	10:30	03/27/2004	10:30
206204-2	TP-6	Soil	03/26/2004	10:50	03/27/2004	10:30
206204-3	TP-7	Soil	03/26/2004	10:10	03/27/2004	10:30
206204-4	TP-8	Soil	03/26/2004	09:50	03/27/2004	10:30
206204-5	TP-9	Soil	03/26/2004	09:30	03/27/2004	10:30
206204-6	TP-10	Soil	03/26/2004	09:10	03/27/2004	10:30
206204-7	TP-11	Soil	03/26/2004	08:50	03/27/2004	10:30
206204-8	TP-12	Soil	03/26/2004	08:30	03/27/2004	10:30

0000004

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	85.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	15.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Chloroethane, Solid*	ND		U		2	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	1,1-Dichloroethene, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Trichlorotrifluoroethane, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Carbon disulfide, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Acetone, Solid*	7		J	B	2	12	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Methylene chloride, Solid*	ND		U		3	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	trans-1,2-Dichloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	1,1-Dichloroethane, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	2-Butanone (MEK), Solid*	ND		U		0.7	12	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Chloroform, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	1,1,1-Trichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Carbon tetrachloride, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Benzene, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	1,2-Dichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Trichloroethene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND		U		0.5	12	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Toluene, Solid*	0.8		J		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Tetrachloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	1,3-Dichloropropane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Dibromochloromethane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Chlorobenzene, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555 pam
	Ethylbenzene, Solid*	ND		U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555 pam

005 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260REV	Isopropylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	n-Propylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	sec-Butylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	p-Isopropyltoluene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	n-Butylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735		04/02/04 1555	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1555	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Chloroethane, Solid*	ND		U		2	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	1,1-Dichloroethene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Trichlorotrifluoroethane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Carbon disulfide, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Acetone, Solid*	7		J	B	2	11	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Methylene chloride, Solid*	ND		U		3	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	trans-1,2-Dichloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	1,1-Dichloroethane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	2-Butanone (MEK), Solid*	ND		U		0.7	11	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Chloroform, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	1,1,1-Trichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Carbon tetrachloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Benzene, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	1,2-Dichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Trichloroethene, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND		U		0.4	11	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Toluene, Solid*	0.9		J		0.4	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Tetrachloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	1,3-Dichloropropane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Dibromochloromethane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Chlorobenzene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1629	pam
	Ethylbenzene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1629	pam

007 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Isopropylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	n-Propylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1629	pam
008 REV	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1629	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204 Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.7			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.3			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,1-Dichloroethene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Acetone, Solid*	ND	U	B	2	11	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Methylene chloride, Solid*	ND	U		3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,1-Dichloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	2-Butanone (MEK), Solid*	ND	U		0.7	11	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Chloroform, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Trichloroethene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.4	11	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Toluene, Solid*	0.6	J		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Dibromochloromethane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Chlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Ethylbenzene, Solid*	0.6	J		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam

009 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8010 REV	Isopropylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	n-Propylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	Xylenes (total), Solid*	2	J		1	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1717	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1717	pam

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Chloroethane, Solid*	ND		U		2	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	1,1-Dichloroethene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Trichlorotrifluoroethane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Carbon disulfide, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Acetone, Solid*	2		J	B	2	11	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Methylene chloride, Solid*	ND		U		3	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	trans-1,2-Dichloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	1,1-Dichloroethane, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	2-Butanone (MEK), Solid*	ND		U		0.7	11	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Chloroform, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	1,1,1-Trichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Carbon tetrachloride, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Benzene, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	1,2-Dichloroethane, Solid*	ND		U		0.6	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Trichloroethene, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND		U		0.4	11	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Toluene, Solid*	0.6		J		0.4	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Tetrachloroethene, Solid*	ND		U		0.7	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	1,3-Dichloropropane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Dibromochloromethane, Solid*	ND		U		0.3	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Chlorobenzene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1705	pam
	Ethylbenzene, Solid*	ND		U		0.4	6	1.00000	ug/Kg	30735	04/02/04 1705	pam

01REV

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260B REV	Isopropylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	n-Propylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30735		04/02/04 1705	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735		04/02/04 1705	pam

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,1-Dichloroethene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Acetone, Solid*	ND	U	B	2	11	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Methylene chloride, Solid*	ND	U		3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,1-Dichloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	2-Butanone (MEK), Solid*	ND	U		0.7	11	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Chloroform, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Trichloroethene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.4	11	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Toluene, Solid*	0.6	J		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Dibromochloromethane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Chlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Ethylbenzene, Solid*	0.8	J		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam

013REV

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Isopropylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	n-Propylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	Xylenes (total), Solid*	3	J		1	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1828	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1828	pam

OIHREV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,1-Dichloroethene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Acetone, Solid*	ND	U	B	2	11	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Methylene chloride, Solid*	4	J		3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,1-Dichloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	2-Butanone (MEK), Solid*	ND	U		0.7	11	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Chloroform, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Trichloroethene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.5	11	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Toluene, Solid*	1	J		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Dibromochloromethane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Chlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Ethylbenzene, Solid*	2	J		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam

015 REV

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Isopropylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	n-Propylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	Xylenes (total), Solid*	5	J		1	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1903	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30696		04/01/04 1903	pam

016 REV

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,1-Dichloroethene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Acetone, Solid*	ND	U	B	2	11	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Methylene chloride, Solid*	3	J		3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,1-Dichloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	2-Butanone (MEK), Solid*	ND	U		0.7	11	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Chloroform, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Trichloroethene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.5	11	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Toluene, Solid*	0.7	J		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Dibromochloromethane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Chlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Ethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Isopropylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	n-Propylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam

017AEV

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	30735	RA	04/02/04 1739	pam

018 REV

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

Date:04/22/2004

ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216	% Solids, Solid	85.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	14.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,1-Dichloroethene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Acetone, Solid*	ND	U	B	2	12	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Methylene chloride, Solid*	ND	U		3	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,1-Dichloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	2-Butanone (MEK), Solid*	ND	U		0.7	12	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Chloroform, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Carbon tetrachloride, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Trichloroethene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.5	12	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Toluene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,3-Dichloropropane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Dibromochloromethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Chlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Ethylbenzene, Solid*	0.5	J		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam

019 REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

020REV

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Isopropylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	n-Propylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	Xylenes (total), Solid*	2	J		1	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	sec-Butylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	p-Isopropyltoluene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	n-Butylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.5	6	1.00000	ug/Kg	30696		04/01/04 1938	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	30696		04/01/04 1938	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204 Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	94.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	5.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Chloroethane, Solid*	ND	U		2	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,1-Dichloroethene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Carbon disulfide, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Acetone, Solid*	ND	U	B	2	11	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Methylene chloride, Solid*	4	J		3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,1-Dichloroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	2-Butanone (MEK), Solid*	ND	U		0.6	11	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Chloroform, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Benzene, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,2-Dichloroethane, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Trichloroethene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.4	11	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Toluene, Solid*	1	J		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Tetrachloroethene, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Dibromochloromethane, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Chlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Ethylbenzene, Solid*	0.8	J		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam

021 REV

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date: 04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett, Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260B REV	Isopropylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	n-Propylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	tert-Butylbenzene, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	Xylenes (total), Solid*	2	J		1	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	n-Butylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30696		04/01/04 2014	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30696		04/01/04 2014	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Chloroethane, Solid*	ND	U		2	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,1-Dichloroethene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Trichlorotrifluoroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Carbon disulfide, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Acetone, Solid*	ND	U	B	2	11	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Methylene chloride, Solid*	4	J		3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	trans-1,2-Dichloroethene, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,1-Dichloroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	2-Butanone (MEK), Solid*	ND	U		0.6	11	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Chloroform, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,1,1-Trichloroethane, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Carbon tetrachloride, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Benzene, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,2-Dichloroethane, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Trichloroethene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.4	11	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Toluene, Solid*	0.6	J		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Tetrachloroethene, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,3-Dichloropropane, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Dibromochloromethane, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Chlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Ethylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Isopropylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,2,3-Trichloropropane, Solid*	ND	U		0.6	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	n-Propylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam

023REV

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/22/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
024 REV	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	tert-Butylbenzene, Solid*	ND	U		0.5	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	Xylenes (total), Solid*	ND	U		1	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	sec-Butylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	p-Isopropyltoluene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	n-Butylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	30735	RA	04/02/04 1814	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1656	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1656	jdw
ASTM D-2216												
	% Solids, Solid	85.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	15.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		200	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Phenol, Solid*	ND	U		110	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2-Methylphenol, Solid*	ND	U		75	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	4-Methylphenol, Solid*	ND	U		85	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2-Chlorophenol, Solid*	ND	U		110	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		120	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Benzoic acid, Solid*	ND	U		3100	7500	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Isophorone, Solid*	ND	U		110	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Naphthalene, Solid*	ND	U		150	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2,4-Dichlorophenol, Solid*	ND	U		140	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	4-Chloroaniline, Solid*	ND	U		120	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		47	7500	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2-Methylnaphthalene, Solid*	ND	U		130	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2-Nitroaniline, Solid*	ND	U		100	7500	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		150	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		66	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2-Nitrophenol, Solid*	ND	U		130	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	3-Nitroaniline, Solid*	ND	U		85	7500	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Dimethyl phthalate, Solid*	ND	U		71	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	2,4-Dinitrophenol, Solid*	ND	U		240	7500	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Acenaphthylene, Solid*	ND	U		52	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Acenaphthene, Solid*	ND	U		71	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Dibenzofuran, Solid*	ND	U		71	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	4-Nitrophenol, Solid*	ND	U		400	7500	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Fluorene, Solid*	ND	U		94	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Hexachlorobenzene, Solid*	ND	U		89	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Diethyl phthalate, Solid*	ND	U		80	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Pentachlorophenol, Solid*	ND	U		200	7500	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Phenanthrene, Solid*	ND	U		110	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Anthracene, Solid*	ND	U		56	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	66	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Fluoranthene, Solid*	240	J		100	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Pyrene, Solid*	310	J		89	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Butyl benzyl phthalate, Solid*	ND	U		61	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	170	J		71	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Chrysene, Solid*	230	J		80	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		160	3100	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		170	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Di-n-octyl phthalate, Solid*	ND	U		56	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Benzo(b)fluoranthene, Solid*	ND	U	M	180	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Benzo(k)fluoranthene, Solid*	ND	U	M	180	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Benzo(a)pyrene, Solid*	200	J		75	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	110	J		85	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Dibenzo(a,h)anthracene, Solid*	ND	U		85	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw
	Benzo(ghi)perylene, Solid*	140	J		80	1600	1.00000	ug/Kg	30689		04/01/04 2118	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1813	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1813	jdw
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		190	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Phenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2-Methylphenol, Solid*	ND	U		72	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	4-Methylphenol, Solid*	ND	U		81	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2-Chlorophenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Benzoic acid, Solid*	ND	U		3000	7200	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Isophorone, Solid*	ND	U		100	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Naphthalene, Solid*	170	J		140	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	4-Chloroaniline, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		45	7200	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2-Methylnaphthalene, Solid*	ND	U		130	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2-Nitroaniline, Solid*	ND	U		99	7200	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		140	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		63	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2-Nitrophenol, Solid*	ND	U		130	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	3-Nitroaniline, Solid*	ND	U		81	7200	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Dimethyl phthalate, Solid*	ND	U		67	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	2,4-Dinitrophenol, Solid*	ND	U		230	7200	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Acenaphthylene, Solid*	360	J		49	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Acenaphthene, Solid*	180	J		67	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Dibenzofuran, Solid*	120	J		67	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	4-Nitrophenol, Solid*	ND	U		380	7200	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Fluorene, Solid*	210	J		90	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Hexachlorobenzene, Solid*	ND	U		85	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Diethyl phthalate, Solid*	ND	U		76	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Pentachlorophenol, Solid*	ND	U		190	7200	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Phenanthrene, Solid*	1600			110	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Anthracene, Solid*	560	J		54	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	63	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Fluoranthene, Solid*	2300			99	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Pyrene, Solid*	2200			85	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Butyl benzyl phthalate, Solid*	ND	U		58	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	1300	J		67	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Chrysene, Solid*	1400	J		76	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		150	3000	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		160	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Di-n-octyl phthalate, Solid*	ND	U		54	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Benzo(b)fluoranthene, Solid*	950	J		170	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Benzo(k)fluoranthene, Solid*	1300	J		180	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Benzo(a)pyrene, Solid*	1400	J		72	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	830	J		81	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Dibenzo(a,h)anthracene, Solid*	420	J	M	81	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw
	Benzo(ghi)perylene, Solid*	930	J		76	1500	1.00000	ug/Kg	30689		04/02/04 2007	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30955		04/10/04 1839	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30955		04/10/04 1839	jdw
ASTM D-2216												
	% Solids, Solid	89.7			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.3			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		190	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Phenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2-Methylphenol, Solid*	ND	U		71	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	4-Methylphenol, Solid*	ND	U		80	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2-Chlorophenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204 Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Benzoic acid, Solid*	ND	U		3000	7100	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Isophorone, Solid*	ND	U		100	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Naphthalene, Solid*	150	J		140	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	4-Chloroaniline, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		45	7100	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2-Methylnaphthalene, Solid*	ND	U		120	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2-Nitroaniline, Solid*	ND	U		98	7100	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		140	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		62	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2-Nitrophenol, Solid*	ND	U		120	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	3-Nitroaniline, Solid*	ND	U		80	7100	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Dimethyl phthalate, Solid*	ND	U		67	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	2,4-Dinitrophenol, Solid*	ND	U		230	7100	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Acenaphthylene, Solid*	270	J		49	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Acenaphthene, Solid*	110	J		67	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Dibenzofuran, Solid*	88	J		67	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	4-Nitrophenol, Solid*	ND	U		380	7100	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Fluorene, Solid*	160	J	M	89	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Hexachlorobenzene, Solid*	ND	U		85	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Diethyl phthalate, Solid*	ND	U		76	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Pentachlorophenol, Solid*	ND	U		190	7100	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Phenanthrene, Solid*	1200	J		110	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Anthracene, Solid*	510	J		54	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	62	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Fluoranthene, Solid*	1700			98	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Pyrene, Solid*	1800			85	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Butyl benzyl phthalate, Solid*	ND	U		58	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	1100	J		67	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Chrysene, Solid*	1100	J		76	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		150	2900	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		160	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Di-n-octyl phthalate, Solid*	ND	U		54	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Benzo(b)fluoranthene, Solid*	700	J	M	170	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Benzo(k)fluoranthene, Solid*	1100	J	M	170	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Benzo(a)pyrene, Solid*	1100	J		71	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	630	J		80	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Dibenzo(a,h)anthracene, Solid*	220	J		80	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw
	Benzo(ghi)perylene, Solid*	640	J		76	1500	1.00000	ug/Kg	30689		04/02/04 2035	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1907	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1907	jdw
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		180	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Phenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2-Methylphenol, Solid*	ND	U		70	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	4-Methylphenol, Solid*	ND	U		79	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2-Chlorophenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		110	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Benzoic acid, Solid*	ND	U		2900	7000	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Isophorone, Solid*	ND	U		100	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Naphthalene, Solid*	150	J		140	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	4-Chloroaniline, Solid*	ND	U		110	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		44	7000	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2-Methylnaphthalene, Solid*	ND	U		120	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2-Nitroaniline, Solid*	ND	U		96	7000	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		140	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		61	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2-Nitrophenol, Solid*	ND	U		120	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	3-Nitroaniline, Solid*	ND	U		79	7000	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Dimethyl phthalate, Solid*	ND	U		66	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	2,4-Dinitrophenol, Solid*	ND	U		220	7000	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Acenaphthylene, Solid*	330	J		48	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Acenaphthene, Solid*	90	J		66	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Dibenzofuran, Solid*	81	J		66	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	4-Nitrophenol, Solid*	ND	U		370	7000	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Fluorene, Solid*	140	J		87	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Hexachlorobenzene, Solid*	ND	U		83	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Diethyl phthalate, Solid*	ND	U		74	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Pentachlorophenol, Solid*	ND	U		190	7000	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Phenanthrene, Solid*	1300	J		100	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Anthracene, Solid*	710	J		52	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	61	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Fluoranthene, Solid*	2700			96	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Pyrene, Solid*	3000			83	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Butyl benzyl phthalate, Solid*	ND	U		57	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	1800			66	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Chrysene, Solid*	1900			74	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		150	2900	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	320	J		160	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Di-n-octyl phthalate, Solid*	ND	U		52	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Benzo(b)fluoranthene, Solid*	1300	J		170	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Benzo(k)fluoranthene, Solid*	1500			170	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Benzo(a)pyrene, Solid*	1800			70	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	930	J		79	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Dibenzo(a,h)anthracene, Solid*	410	J		79	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw
	Benzo(ghi)perylene, Solid*	880	J		74	1400	1.00000	ug/Kg	30689		04/02/04 2103	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 1934	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 1934	jdw
ASTM D-2216												
	% Solids, Solid	89.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		370	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Phenol, Solid*	ND	U		210	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2-Methylphenol, Solid*	ND	U		140	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	4-Methylphenol, Solid*	ND	U		160	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2-Chlorophenol, Solid*	ND	U		210	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		220	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Benzoic acid, Solid*	ND	U		5800	14000	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Isophorone, Solid*	ND	U		200	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Naphthalene, Solid*	580	J		280	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2,4-Dichlorophenol, Solid*	ND	U		260	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	4-Chloroaniline, Solid*	ND	U		220	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		88	14000	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2-Methylnaphthalene, Solid*	510	J		250	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2-Nitroaniline, Solid*	ND	U		190	14000	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		270	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		120	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2-Nitrophenol, Solid*	ND	U		250	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	3-Nitroaniline, Solid*	ND	U		160	14000	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Dimethyl phthalate, Solid*	ND	U		130	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	2,4-Dinitrophenol, Solid*	ND	U		450	14000	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Acenaphthylene, Solid*	1400	J		97	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Acenaphthene, Solid*	770	J		130	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Dibenzofuran, Solid*	750	J		130	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	4-Nitrophenol, Solid*	ND	U		750	14000	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Fluorene, Solid*	1400	J		180	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Hexachlorobenzene, Solid*	ND	U		170	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Diethyl phthalate, Solid*	ND	U		150	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Pentachlorophenol, Solid*	ND	U		380	14000	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Phenanthrene, Solid*	7400			210	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Anthracene, Solid*	3500			110	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	120	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Fluoranthene, Solid*	9200			190	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Pyrene, Solid*	11000			170	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Butyl benzyl phthalate, Solid*	ND	U		110	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	6000			130	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Chrysene, Solid*	6200		M	150	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		300	5800	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		320	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Di-n-octyl phthalate, Solid*	ND	U		110	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Benzo(b)fluoranthene, Solid*	4200			340	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Benzo(k)fluoranthene, Solid*	6800			340	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Benzo(a)pyrene, Solid*	7000			140	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	4200			160	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Dibenzo(a,h)anthracene, Solid*	1600	J		160	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw
	Benzo(ghi)perylene, Solid*	4300			150	2900	2.00000	ug/Kg	30689		04/01/04 2312	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204 Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2001	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2001	jdw
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		480	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Phenol, Solid*	ND	U		270	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2-Methylphenol, Solid*	ND	U		180	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	4-Methylphenol, Solid*	ND	U		200	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2-Chlorophenol, Solid*	ND	U		270	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		280	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Benzoic acid, Solid*	ND	U		7500	18000	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Isophorone, Solid*	ND	U		260	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Naphthalene, Solid*	ND	U		360	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2,4-Dichlorophenol, Solid*	ND	U		340	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	4-Chloroaniline, Solid*	ND	U		280	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		110	18000	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2-Methylnaphthalene, Solid*	ND	U		320	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2-Nitroaniline, Solid*	ND	U		250	18000	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		350	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		160	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2-Nitrophenol, Solid*	ND	U		320	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	3-Nitroaniline, Solid*	ND	U		200	18000	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Dimethyl phthalate, Solid*	ND	U		170	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	2,4-Dinitrophenol, Solid*	ND	U		580	18000	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Acenaphthylene, Solid*	600	J		120	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Acenaphthene, Solid*	ND	U		170	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Dibenzofuran, Solid*	ND	U		170	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	4-Nitrophenol, Solid*	ND	U		960	18000	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Fluorene, Solid*	ND	U		230	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Hexachlorobenzene, Solid*	ND	U		220	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Diethyl phthalate, Solid*	ND	U		190	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Pentachlorophenol, Solid*	ND	U		490	18000	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Phenanthrene, Solid*	1800	J		270	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Anthracene, Solid*	1000	J		140	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	160	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Fluoranthene, Solid*	3600	J		250	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Pyrene, Solid*	4700			220	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Butyl benzyl phthalate, Solid*	ND	U		150	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	2700	J		170	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Chrysene, Solid*	2600	J		190	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		390	7500	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		410	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Di-n-octyl phthalate, Solid*	ND	U		140	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Benzo(b)fluoranthene, Solid*	2300	J		430	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Benzo(k)fluoranthene, Solid*	2200	J		440	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Benzo(a)pyrene, Solid*	2700	J		180	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	1700	J		200	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Dibenzo(a,h)anthracene, Solid*	880	J	M	200	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw
	Benzo(ghi)perylene, Solid*	1600	J		190	3700	1.00000	ug/Kg	30689		04/01/04 2340	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Phenanthrene	2	J		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2028	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2028	jdw
ASTM D-2216												
	% Solids, Solid	85.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	14.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		190	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Phenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2-Methylphenol, Solid*	ND	U		73	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	4-Methylphenol, Solid*	ND	U		82	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2-Chlorophenol, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Benzoic acid, Solid*	ND	U		3000	7300	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Isophorone, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Naphthalene, Solid*	ND	U		150	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2,4-Dichlorophenol, Solid*	ND	U		140	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	4-Chloroaniline, Solid*	ND	U		110	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		46	7300	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2-Methylnaphthalene, Solid*	ND	U		130	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2-Nitroaniline, Solid*	ND	U		100	7300	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		140	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		64	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2-Nitrophenol, Solid*	ND	U		130	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	3-Nitroaniline, Solid*	ND	U		82	7300	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Dimethyl phthalate, Solid*	ND	U		69	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	2,4-Dinitrophenol, Solid*	ND	U		230	7300	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Acenaphthylene, Solid*	540	J		50	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Acenaphthene, Solid*	100	J		69	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Dibenzofuran, Solid*	ND	U		69	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	4-Nitrophenol, Solid*	ND	U		390	7300	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Fluorene, Solid*	160	J		92	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Hexachlorobenzene, Solid*	ND	U		87	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Diethyl phthalate, Solid*	ND	U		78	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Pentachlorophenol, Solid*	ND	U		200	7300	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Phenanthrene, Solid*	1500			110	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Anthracene, Solid*	810	J		55	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	64	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Fluoranthene, Solid*	2900			100	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Pyrene, Solid*	3400			87	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Butyl benzyl phthalate, Solid*	ND	U		60	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	1900			69	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Chrysene, Solid*	2000			78	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		160	3000	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	1200	J		160	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Di-n-octyl phthalate, Solid*	ND	U		55	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Benzo(b)fluoranthene, Solid*	1300	J		170	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Benzo(k)fluoranthene, Solid*	1900			180	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Benzo(a)pyrene, Solid*	1900			73	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	1100	J		82	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Dibenzo(a,h)anthracene, Solid*	590	J	M	82	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw
	Benzo(ghi)perylene, Solid*	1100	J		78	1500	1.00000	ug/Kg	30689		04/02/04 0009	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	30956		04/10/04 2054	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	30956		04/10/04 2054	jdw
ASTM D-2216												
	% Solids, Solid	94.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	5.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		180	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Phenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2-Methylphenol, Solid*	ND	U		67	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	4-Methylphenol, Solid*	ND	U		76	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2-Chlorophenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Nitrobenzene, Solid*	ND	U		110	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Benzoic acid, Solid*	ND	U		2800	6700	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Isophorone, Solid*	ND	U		97	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Naphthalene, Solid*	910	J		130	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	4-Chloroaniline, Solid*	ND	U		110	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		42	6700	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2-Methylnaphthalene, Solid*	410	J		120	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2-Nitroaniline, Solid*	ND	U		93	6700	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		130	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		59	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2-Nitrophenol, Solid*	ND	U		120	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	3-Nitroaniline, Solid*	ND	U		76	6700	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Dimethyl phthalate, Solid*	ND	U		63	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	2,4-Dinitrophenol, Solid*	ND	U		210	6700	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Acenaphthylene, Solid*	1100	J		46	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Acenaphthene, Solid*	380	J		63	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Dibenzofuran, Solid*	430	J		63	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	4-Nitrophenol, Solid*	ND	U		360	6700	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Fluorene, Solid*	650	J		84	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Hexachlorobenzene, Solid*	ND	U		80	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Diethyl phthalate, Solid*	ND	U		71	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Pentachlorophenol, Solid*	ND	U		180	6700	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Phenanthrene, Solid*	4600			100	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Anthracene, Solid*	2100			50	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Di-n-butyl phthalate, Solid*	ND	U	B	59	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Fluoranthene, Solid*	7200			93	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Pyrene, Solid*	8100			80	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Butyl benzyl phthalate, Solid*	ND	U		55	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Benzo(a)anthracene, Solid*	4600			63	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Chrysene, Solid*	4600			71	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		140	2800	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	520	J		150	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Di-n-octyl phthalate, Solid*	ND	U		50	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Benzo(b)fluoranthene, Solid*	3500			160	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Benzo(k)fluoranthene, Solid*	4800			160	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Benzo(a)pyrene, Solid*	5000			67	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	2600			76	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Dibenzo(a,h)anthracene, Solid*	1300	J	M	76	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw
	Benzo(ghi)perylene, Solid*	2500			71	1400	1.00000	ug/Kg	30689		04/02/04 0037	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	85.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	15.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.32	2.0	1.00000	ug/Kg	30768		04/02/04 1326	pam
	beta-BHC, Solid*	ND	U		0.31	2.0	1.00000	ug/Kg	30768		04/02/04 1326	pam
	delta-BHC, Solid*	ND	U		0.12	2.0	1.00000	ug/Kg	30768		04/02/04 1326	pam
	gamma-BHC (Lindane), Solid*	ND	U		0.18	2.0	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Heptachlor, Solid*	ND	U		0.18	2.0	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Aldrin, Solid*	ND	U		0.42	2.3	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Heptachlor epoxide, Solid*	0.48	J		0.13	2.0	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Endosulfan I, Solid*	ND	U		0.17	2.0	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Dieldrin, Solid*	ND	U		0.38	3.9	1.00000	ug/Kg	30768		04/02/04 1326	pam
	4,4'-DDE, Solid*	14			0.51	3.9	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Endrin, Solid*	ND	U		1.0	5.8	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Endosulfan II, Solid*	ND	U		0.20	3.9	1.00000	ug/Kg	30768		04/02/04 1326	pam
	4,4'-DDD, Solid*	5.4			0.45	3.9	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Endosulfan sulfate, Solid*	ND	U		0.20	3.9	1.00000	ug/Kg	30768		04/02/04 1326	pam
	4,4'-DDT, Solid*	9.4			0.36	3.9	1.00000	ug/Kg	30769		04/02/04 1326	pam
	Methoxychlor, Solid*	ND	U		2.5	20	1.00000	ug/Kg	30768		04/02/04 1326	pam
	gamma-Chlordane, Solid*	0.50	J	M	0.11	2.0	1.00000	ug/Kg	30769		04/02/04 1326	pam
	Endrin ketone, Solid*	ND	U		0.17	3.9	1.00000	ug/Kg	30768		04/02/04 1326	pam
	Chlordane, Solid*	ND	U		0.82	20	1.00000	ug/Kg	30768		04/02/04 1326	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	0.51	J		0.31	1.9	1.00000	ug/Kg	30769		04/02/04 1402	pam
	beta-BHC, Solid*	0.33	J		0.30	1.9	1.00000	ug/Kg	30769		04/02/04 1402	pam
	delta-BHC, Solid*	ND	U		0.11	1.9	1.00000	ug/Kg	30768		04/02/04 1402	pam
	gamma-BHC (Lindane), Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Heptachlor, Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Aldrin, Solid*	0.77	J		0.40	2.2	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Heptachlor epoxide, Solid*	1.3	J		0.13	1.9	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Endosulfan I, Solid*	ND	U		0.16	1.9	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Dieldrin, Solid*	ND	U		0.36	3.7	1.00000	ug/Kg	30768		04/02/04 1402	pam
	4,4'-DDE, Solid*	12			0.48	3.7	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Endrin, Solid*	ND	U		0.99	5.6	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Endosulfan II, Solid*	ND	U		0.19	3.7	1.00000	ug/Kg	30768		04/02/04 1402	pam
	4,4'-DDD, Solid*	5.0			0.42	3.7	1.00000	ug/Kg	30769		04/02/04 1402	pam
	Endosulfan sulfate, Solid*	ND	U		0.19	3.7	1.00000	ug/Kg	30768		04/02/04 1402	pam
	4,4'-DDT, Solid*	4.6			0.34	3.7	1.00000	ug/Kg	30769		04/02/04 1402	pam
	Methoxychlor, Solid*	17	J		2.4	19	1.00000	ug/Kg	30769		04/02/04 1402	pam
	gamma-Chlordane, Solid*	8.5			0.10	1.9	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Endrin ketone, Solid*	ND	U		0.16	3.7	1.00000	ug/Kg	30768		04/02/04 1402	pam
	Chlordane, Solid*	54		M	0.78	19	1.00000	ug/Kg	30768		04/02/04 1402	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.7			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.3			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.30	1.9	1.00000	ug/Kg	30768		04/02/04 1515	pam
	beta-BHC, Solid*	ND	U		0.30	1.9	1.00000	ug/Kg	30768		04/02/04 1515	pam
	delta-BHC, Solid*	ND	U		0.11	1.9	1.00000	ug/Kg	30768		04/02/04 1515	pam
	gamma-BHC (Lindane), Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Heptachlor, Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Aldrin, Solid*	1.0	J		0.39	2.2	1.00000	ug/Kg	30769		04/02/04 1515	pam
	Heptachlor epoxide, Solid*	0.84	J		0.13	1.9	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Endosulfan I, Solid*	ND	U		0.16	1.9	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Dieldrin, Solid*	ND	U		0.35	3.6	1.00000	ug/Kg	30768		04/02/04 1515	pam
	4,4'-DDE, Solid*	12			0.48	3.6	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Endrin, Solid*	ND	U		0.98	5.5	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Endosulfan II, Solid*	ND	U		0.19	3.6	1.00000	ug/Kg	30768		04/02/04 1515	pam
	4,4'-DDD, Solid*	22			0.42	3.6	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Endosulfan sulfate, Solid*	ND	U		0.19	3.6	1.00000	ug/Kg	30768		04/02/04 1515	pam
	4,4'-DDT, Solid*	20			0.34	3.6	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Methoxychlor, Solid*	11	J		2.3	19	1.00000	ug/Kg	30769		04/02/04 1515	pam
	gamma-Chlordane, Solid*	2.7			0.10	1.9	1.00000	ug/Kg	30769		04/02/04 1515	pam
	Endrin ketone, Solid*	ND	U		0.16	3.6	1.00000	ug/Kg	30768		04/02/04 1515	pam
	Chlordane, Solid*	24		M	0.77	19	1.00000	ug/Kg	30768		04/02/04 1515	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.61	3.8	2.00000	ug/Kg	30768		04/02/04 1629	pam
	beta-BHC, Solid*	ND	U		0.60	3.8	2.00000	ug/Kg	30768		04/02/04 1629	pam
	delta-BHC, Solid*	ND	U		0.23	3.8	2.00000	ug/Kg	30768		04/02/04 1629	pam
	gamma-BHC (Lindane), Solid*	ND	U		0.34	3.8	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Heptachlor, Solid*	ND	U		0.33	3.8	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Aldrin, Solid*	ND	U		0.79	4.4	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Heptachlor epoxide, Solid*	1.0	J		0.25	3.8	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Endosulfan I, Solid*	ND	U		0.33	3.8	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Dieldrin, Solid*	ND	U		0.71	7.3	2.00000	ug/Kg	30768		04/02/04 1629	pam
	4,4'-DDE, Solid*	15			0.96	7.3	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Endrin, Solid*	ND	U		2.0	11	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Endosulfan II, Solid*	ND	U		0.38	7.3	2.00000	ug/Kg	30768		04/02/04 1629	pam
	4,4'-DDD, Solid*	17			0.84	7.3	2.00000	ug/Kg	30769		04/02/04 1629	pam
	Endosulfan sulfate, Solid*	ND	U		0.38	7.3	2.00000	ug/Kg	30768		04/02/04 1629	pam
	4,4'-DDT, Solid*	36			0.68	7.3	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Methoxychlor, Solid*	11	J		4.7	38	2.00000	ug/Kg	30769		04/02/04 1629	pam
	gamma-Chlordane, Solid*	1.9	J		0.20	3.8	2.00000	ug/Kg	30769		04/02/04 1629	pam
	Endrin ketone, Solid*	2.4	J		0.32	7.3	2.00000	ug/Kg	30768		04/02/04 1629	pam
	Chlordane, Solid*	26	J	M	1.6	38	2.00000	ug/Kg	30768		04/02/04 1629	pam

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.31	1.9	1.00000	ug/Kg	30768		04/02/04 1742	pam
	beta-BHC, Solid*	0.70	J		0.30	1.9	1.00000	ug/Kg	30769		04/02/04 1742	pam
	delta-BHC, Solid*	0.40	J		0.12	1.9	1.00000	ug/Kg	30769		04/02/04 1742	pam
	gamma-BHC (Lindane), Solid*	ND	U		0.17	1.9	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Heptachlor, Solid*	0.41	J		0.17	1.9	1.00000	ug/Kg	30769		04/02/04 1742	pam
	Aldrin, Solid*	ND	U		0.40	2.2	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Heptachlor epoxide, Solid*	4.8			0.13	1.9	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Endosulfan I, Solid*	ND	U		0.16	1.9	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Dieldrin, Solid*	ND	U		0.36	3.7	1.00000	ug/Kg	30768		04/02/04 1742	pam
	4,4'-DDE, Solid*	26			0.49	3.7	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Endrin, Solid*	ND	U		1.0	5.6	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Endosulfan II, Solid*	ND	U		0.19	3.7	1.00000	ug/Kg	30768		04/02/04 1742	pam
	4,4'-DDD, Solid*	2.6	J		0.43	3.7	1.00000	ug/Kg	30769		04/02/04 1742	pam
	Endosulfan sulfate, Solid*	ND	U		0.19	3.7	1.00000	ug/Kg	30768		04/02/04 1742	pam
	4,4'-DDT, Solid*	ND	U		0.35	3.7	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Methoxychlor, Solid*	39			2.4	19	1.00000	ug/Kg	30769		04/02/04 1742	pam
	gamma-Chlordane, Solid*	ND	U		0.10	1.9	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Endrin ketone, Solid*	ND	U		0.16	3.7	1.00000	ug/Kg	30768		04/02/04 1742	pam
	Chlordane, Solid*	ND	U		0.78	19	1.00000	ug/Kg	30768		04/02/04 1742	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204 Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		3.1	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	beta-BHC, Solid*	ND	U		3.1	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	delta-BHC, Solid*	ND	U		1.2	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	gamma-BHC (Lindane), Solid*	ND	U		1.7	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Heptachlor, Solid*	ND	U		1.7	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Aldrin, Solid*	ND	U		4.1	23	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Heptachlor epoxide, Solid*	2.0	J		1.3	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Endosulfan I, Solid*	ND	U		1.7	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Dieldrin, Solid*	ND	U		3.7	38	10.0000	ug/Kg	30768		03/31/04 2352	pam
	4,4'-DDE, Solid*	18	J		5.0	38	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Endrin, Solid*	ND	U		10	57	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Endosulfan II, Solid*	ND	U		1.9	38	10.0000	ug/Kg	30768		03/31/04 2352	pam
	4,4'-DDD, Solid*	19	J		4.4	38	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Endosulfan sulfate, Solid*	ND	U		2.0	38	10.0000	ug/Kg	30768		03/31/04 2352	pam
	4,4'-DDT, Solid*	57			3.5	38	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Methoxychlor, Solid*	ND	U		24	190	10.0000	ug/Kg	30768		03/31/04 2352	pam
	gamma-Chlordane, Solid*	5.1	J		1.0	19	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Endrin ketone, Solid*	23	J		1.6	38	10.0000	ug/Kg	30768		03/31/04 2352	pam
	Chlordane, Solid*	41	J	M	8.0	190	10.0000	ug/Kg	30768		03/31/04 2352	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	85.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	14.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		0.32	2.0	1.00000	ug/Kg	30768		04/02/04 1856	pam
	beta-BHC, Solid*	ND	U		0.32	2.0	1.00000	ug/Kg	30768		04/02/04 1856	pam
	delta-BHC, Solid*	ND	U		0.12	2.0	1.00000	ug/Kg	30768		04/02/04 1856	pam
	gamma-BHC (Lindane), Solid*	ND	U		0.18	2.0	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Heptachlor, Solid*	ND	U		0.18	2.0	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Aldrin, Solid*	1.1	J		0.42	2.3	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Heptachlor epoxide, Solid*	1.8	J		0.13	2.0	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Endosulfan I, Solid*	ND	U		0.17	2.0	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Dieldrin, Solid*	ND	U		0.38	3.9	1.00000	ug/Kg	30768		04/02/04 1856	pam
	4,4'-DDE, Solid*	9.4			0.51	3.9	1.00000	ug/Kg	30769		04/02/04 1856	pam
	Endrin, Solid*	ND	U		1.0	5.9	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Endosulfan II, Solid*	ND	U		0.20	3.9	1.00000	ug/Kg	30768		04/02/04 1856	pam
	4,4'-DDD, Solid*	6.3			0.45	3.9	1.00000	ug/Kg	30769		04/02/04 1856	pam
	Endosulfan sulfate, Solid*	ND	U		0.20	3.9	1.00000	ug/Kg	30768		04/02/04 1856	pam
	4,4'-DDT, Solid*	14			0.36	3.9	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Methoxychlor, Solid*	19	J		2.5	20	1.00000	ug/Kg	30769		04/02/04 1856	pam
	gamma-Chlordane, Solid*	1.7	J		0.11	2.0	1.00000	ug/Kg	30769		04/02/04 1856	pam
	Endrin ketone, Solid*	ND	U		0.17	3.9	1.00000	ug/Kg	30768		04/02/04 1856	pam
	Chlordane, Solid*	17	J	M	0.82	20	1.00000	ug/Kg	30768		04/02/04 1856	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/07/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	94.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	5.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
8081A	Organochlorine Pesticide Analysis											
	alpha-BHC, Solid*	ND	U		2.9	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	beta-BHC, Solid*	ND	U		2.8	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	delta-BHC, Solid*	ND	U		1.1	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	gamma-BHC (Lindane), Solid*	ND	U		1.6	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Heptachlor, Solid*	ND	U		1.6	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Aldrin, Solid*	ND	U		3.7	21	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Heptachlor epoxide, Solid*	1.6	J		1.2	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Endosulfan I, Solid*	ND	U		1.5	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Dieldrin, Solid*	ND	U		3.4	35	10.0000	ug/Kg	30768		04/01/04 0105	pam
	4,4'-DDE, Solid*	15	J		4.5	35	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Endrin, Solid*	ND	U		9.3	52	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Endosulfan II, Solid*	ND	U		1.8	35	10.0000	ug/Kg	30768		04/01/04 0105	pam
	4,4'-DDD, Solid*	17	J		4.0	35	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Endosulfan sulfate, Solid*	ND	U		1.8	35	10.0000	ug/Kg	30768		04/01/04 0105	pam
	4,4'-DDT, Solid*	85			3.2	35	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Methoxychlor, Solid*	ND	U		22	180	10.0000	ug/Kg	30768		04/01/04 0105	pam
	gamma-Chlordane, Solid*	3.7	J		0.95	18	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Endrin ketone, Solid*	6.3	J		1.5	35	10.0000	ug/Kg	30768		04/01/04 0105	pam
	Chlordane, Solid*	30	J	M	7.3	180	10.0000	ug/Kg	30768		04/01/04 0105	pam

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1410	nnp
ASTM D-2216												
	% Solids, Solid	85.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	15.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.17	B	N	0.058	2.3	1.0000	mg/Kg	30571		03/31/04 1244	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	11100			28.3	365	1	mg/Kg	30600		03/31/04 1420	nnp
	Antimony, Solid*	ND	U	N	1.6	16.5	1	mg/Kg	30600		03/31/04 1420	nnp
	Arsenic, Solid*	6.2	B		1.7	11.3	1	mg/Kg	30600		03/31/04 1420	nnp
	Barium, Solid*	159			0.26	2.8	1	mg/Kg	30600		03/31/04 1420	nnp
	Beryllium, Solid*	ND	U		0.71	2.8	1	mg/Kg	30600		03/31/04 1420	nnp
	Cadmium, Solid*	ND	U		1.4	4.2	1	mg/Kg	30600		03/31/04 1420	nnp
	Calcium, Solid*	11200			16.4	120	1	mg/Kg	30600		03/31/04 1420	nnp
	Chromium, Solid*	16.0			0.48	4.2	1	mg/Kg	30600		03/31/04 1420	nnp
	Cobalt, Solid*	12.0		*N	0.59	2.8	1	mg/Kg	30600		03/31/04 1420	nnp
	Copper, Solid*	24.3		*N	1.1	7.1	1	mg/Kg	30600		03/31/04 1420	nnp
	Iron, Solid*	16300			14.4	205	1	mg/Kg	30600		03/31/04 1420	nnp
	Lead, Solid*	64.2			1.1	12.7	1	mg/Kg	30600		03/31/04 1420	nnp
	Magnesium, Solid*	3820		*	13.0	49.5	1	mg/Kg	30600		03/31/04 1420	nnp
	Manganese, Solid*	423			0.90	3.5	1	mg/Kg	30600		03/31/04 1420	nnp
	Nickel, Solid*	12.9			0.62	7.1	1	mg/Kg	30600		03/31/04 1420	nnp
	Potassium, Solid*	845			56.6	283	1	mg/Kg	30600		03/31/04 1420	nnp
	Selenium, Solid*	ND	U		2.3	22.6	1	mg/Kg	30600		03/31/04 1420	nnp
	Silver, Solid*	ND	U		0.45	4.2	1	mg/Kg	30600		03/31/04 1420	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	96.7	B	N	28.3	133	1	mg/Kg	30600		03/31/04 1420	nnp
	Thallium, Solid*	ND	U		2.8	31.1	1	mg/Kg	30600		03/31/04 1420	nnp
	Vanadium, Solid*	24.1			0.51	5.7	1	mg/Kg	30600		03/31/04 1420	nnp
	Zinc, Solid*	101		*N	5.4	28.3	1	mg/Kg	30600		03/31/04 1420	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1416	nnp
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.15	B	N	0.051	2.0	1.0000	mg/Kg	30571		03/31/04 1250	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	9150			25.3	326	1	mg/Kg	30600		03/31/04 1450	nnp
	Antimony, Solid*	ND	U	N	1.4	14.8	1	mg/Kg	30600		03/31/04 1450	nnp
	Arsenic, Solid*	4.5	B		1.5	10.1	1	mg/Kg	30600		03/31/04 1450	nnp
	Barium, Solid*	216			0.23	2.5	1	mg/Kg	30600		03/31/04 1450	nnp
	Beryllium, Solid*	ND	U		0.63	2.5	1	mg/Kg	30600		03/31/04 1450	nnp
	Cadmium, Solid*	ND	U		1.3	3.8	1	mg/Kg	30600		03/31/04 1450	nnp
	Calcium, Solid*	28600			14.7	107	1	mg/Kg	30600		03/31/04 1450	nnp
	Chromium, Solid*	18.4			0.43	3.8	1	mg/Kg	30600		03/31/04 1450	nnp
	Cobalt, Solid*	7.2		*N	0.53	2.5	1	mg/Kg	30600		03/31/04 1450	nnp
	Copper, Solid*	34.9		*N	1.0	6.3	1	mg/Kg	30600		03/31/04 1450	nnp
	Iron, Solid*	16100			12.9	183	1	mg/Kg	30600		03/31/04 1450	nnp
	Lead, Solid*	93.2			0.96	11.4	1	mg/Kg	30600		03/31/04 1450	nnp
	Magnesium, Solid*	14000		*	11.6	44.2	1	mg/Kg	30600		03/31/04 1450	nnp
	Manganese, Solid*	278			0.81	3.2	1	mg/Kg	30600		03/31/04 1450	nnp
	Nickel, Solid*	19.6			0.56	6.3	1	mg/Kg	30600		03/31/04 1450	nnp
	Potassium, Solid*	2180			50.6	253	1	mg/Kg	30600		03/31/04 1450	nnp
	Selenium, Solid*	ND	U		2.0	20.2	1	mg/Kg	30600		03/31/04 1450	nnp
	Silver, Solid*	ND	U		0.40	3.8	1	mg/Kg	30600		03/31/04 1450	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	213		N	25.3	119	1	mg/Kg	30600		03/31/04 1450	nnp
	Thallium, Solid*	ND	U		2.5	27.8	1	mg/Kg	30600		03/31/04 1450	nnp
	Vanadium, Solid*	25.2			0.45	5.1	1	mg/Kg	30600		03/31/04 1450	nnp
	Zinc, Solid*	203		*N	4.8	25.3	1	mg/Kg	30600		03/31/04 1450	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1422	nnp
ASTM D-2216												
	% Solids, Solid	89.7			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.3			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.20	B	N	0.047	1.9	1.0000	mg/Kg	30571		03/31/04 1252	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	8220			27.9	360	1	mg/Kg	30600		03/31/04 1456	nnp
	Antimony, Solid*	ND	U	N	1.6	16.3	1	mg/Kg	30600		03/31/04 1456	nnp
	Arsenic, Solid*	5.1	B		1.7	11.1	1	mg/Kg	30600		03/31/04 1456	nnp
	Barium, Solid*	107			0.26	2.8	1	mg/Kg	30600		03/31/04 1456	nnp
	Beryllium, Solid*	ND	U		0.70	2.8	1	mg/Kg	30600		03/31/04 1456	nnp
	Cadmium, Solid*	ND	U		1.4	4.2	1	mg/Kg	30600		03/31/04 1456	nnp
	Calcium, Solid*	16300			16.2	118	1	mg/Kg	30600		03/31/04 1456	nnp
	Chromium, Solid*	17.3			0.47	4.2	1	mg/Kg	30600		03/31/04 1456	nnp
	Cobalt, Solid*	6.6		*N	0.59	2.8	1	mg/Kg	30600		03/31/04 1456	nnp
	Copper, Solid*	30.7		*N	1.1	7.0	1	mg/Kg	30600		03/31/04 1456	nnp
	Iron, Solid*	17700			14.2	202	1	mg/Kg	30600		03/31/04 1456	nnp
	Lead, Solid*	99.9			1.1	12.5	1	mg/Kg	30600		03/31/04 1456	nnp
	Magnesium, Solid*	6290		*	12.8	48.8	1	mg/Kg	30600		03/31/04 1456	nnp
	Manganese, Solid*	320			0.89	3.5	1	mg/Kg	30600		03/31/04 1456	nnp
	Nickel, Solid*	17.4			0.61	7.0	1	mg/Kg	30600		03/31/04 1456	nnp
	Potassium, Solid*	1470			55.7	279	1	mg/Kg	30600		03/31/04 1456	nnp
	Selenium, Solid*	ND	U		2.2	22.3	1	mg/Kg	30600		03/31/04 1456	nnp
	Silver, Solid*	ND	U		0.45	4.2	1	mg/Kg	30600		03/31/04 1456	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	163		N	27.9	131	1	mg/Kg	30600		03/31/04 1456	nnp
	Thallium, Solid*	ND	U		2.8	30.7	1	mg/Kg	30600		03/31/04 1456	nnp
	Vanadium, Solid*	28.2			0.50	5.6	1	mg/Kg	30600		03/31/04 1456	nnp
	Zinc, Solid*	95.6		*N	5.3	27.9	1	mg/Kg	30600		03/31/04 1456	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1428	nnp
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.55	B	N	0.054	2.2	1.0000	mg/Kg	30571		03/31/04 1253	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	10400			24.8	320	1	mg/Kg	30600		03/31/04 1502	nnp
	Antimony, Solid*	ND	U	N	1.4	14.5	1	mg/Kg	30600		03/31/04 1502	nnp
	Arsenic, Solid*	6.2	B		1.5	9.9	1	mg/Kg	30600		03/31/04 1502	nnp
	Barium, Solid*	163			0.23	2.5	1	mg/Kg	30600		03/31/04 1502	nnp
	Beryllium, Solid*	ND	U		0.62	2.5	1	mg/Kg	30600		03/31/04 1502	nnp
	Cadmium, Solid*	ND	U		1.2	3.7	1	mg/Kg	30600		03/31/04 1502	nnp
	Calcium, Solid*	26700			14.4	106	1	mg/Kg	30600		03/31/04 1502	nnp
	Chromium, Solid*	18.6			0.42	3.7	1	mg/Kg	30600		03/31/04 1502	nnp
	Cobalt, Solid*	6.7		*N	0.52	2.5	1	mg/Kg	30600		03/31/04 1502	nnp
	Copper, Solid*	52.2		*N	0.99	6.2	1	mg/Kg	30600		03/31/04 1502	nnp
	Iron, Solid*	15500			12.7	180	1	mg/Kg	30600		03/31/04 1502	nnp
	Lead, Solid*	205			0.94	11.2	1	mg/Kg	30600		03/31/04 1502	nnp
	Magnesium, Solid*	9510		*	11.4	43.5	1	mg/Kg	30600		03/31/04 1502	nnp
	Manganese, Solid*	297			0.79	3.1	1	mg/Kg	30600		03/31/04 1502	nnp
	Nickel, Solid*	17.0			0.55	6.2	1	mg/Kg	30600		03/31/04 1502	nnp
	Potassium, Solid*	1440			49.7	248	1	mg/Kg	30600		03/31/04 1502	nnp
	Selenium, Solid*	ND	U		2.0	19.9	1	mg/Kg	30600		03/31/04 1502	nnp
	Silver, Solid*	ND	U		0.40	3.7	1	mg/Kg	30600		03/31/04 1502	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	181		N	24.8	117	1	mg/Kg	30600		03/31/04 1502	nnp
	Thallium, Solid*	ND	U		2.5	27.3	1	mg/Kg	30600		03/31/04 1502	nnp
	Vanadium, Solid*	28.5			0.45	5.0	1	mg/Kg	30600		03/31/04 1502	nnp
	Zinc, Solid*	162		*N	4.7	24.8	1	mg/Kg	30600		03/31/04 1502	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1434	nnp
ASTM D-2216												
	% Solids, Solid	89.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.16	B	N	0.048	1.9	1.0000	mg/Kg	30571		03/31/04 1254	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	7160			25.9	334	1	mg/Kg	30600		03/31/04 1508	nnp
	Antimony, Solid*	ND	U	N	1.5	15.1	1	mg/Kg	30600		03/31/04 1508	nnp
	Arsenic, Solid*	3.3	B		1.6	10.4	1	mg/Kg	30600		03/31/04 1508	nnp
	Barium, Solid*	87.3			0.24	2.6	1	mg/Kg	30600		03/31/04 1508	nnp
	Beryllium, Solid*	ND	U		0.65	2.6	1	mg/Kg	30600		03/31/04 1508	nnp
	Cadmium, Solid*	ND	U		1.3	3.9	1	mg/Kg	30600		03/31/04 1508	nnp
	Calcium, Solid*	19600			15.0	110	1	mg/Kg	30600		03/31/04 1508	nnp
	Chromium, Solid*	15.4			0.44	3.9	1	mg/Kg	30600		03/31/04 1508	nnp
	Cobalt, Solid*	5.9		*N	0.54	2.6	1	mg/Kg	30600		03/31/04 1508	nnp
	Copper, Solid*	42.5		*N	1.0	6.5	1	mg/Kg	30600		03/31/04 1508	nnp
	Iron, Solid*	13600			13.2	188	1	mg/Kg	30600		03/31/04 1508	nnp
	Lead, Solid*	88.5			0.98	11.7	1	mg/Kg	30600		03/31/04 1508	nnp
	Magnesium, Solid*	6310		*	11.9	45.3	1	mg/Kg	30600		03/31/04 1508	nnp
	Manganese, Solid*	228			0.83	3.2	1	mg/Kg	30600		03/31/04 1508	nnp
	Nickel, Solid*	14.6			0.57	6.5	1	mg/Kg	30600		03/31/04 1508	nnp
	Potassium, Solid*	1680			51.8	259	1	mg/Kg	30600		03/31/04 1508	nnp
	Selenium, Solid*	ND	U		2.1	20.7	1	mg/Kg	30600		03/31/04 1508	nnp
	Silver, Solid*	ND	U		0.41	3.9	1	mg/Kg	30600		03/31/04 1508	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	206		N	25.9	122	1	mg/Kg	30600		03/31/04 1508	nnp
	Thallium, Solid*	ND	U		2.6	28.5	1	mg/Kg	30600		03/31/04 1508	nnp
	Vanadium, Solid*	21.6			0.47	5.2	1	mg/Kg	30600		03/31/04 1508	nnp
	Zinc, Solid*	73.2		*N	4.9	25.9	1	mg/Kg	30600		03/31/04 1508	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	4.0	B		3.0	10.0	1	ug/L	30727		04/02/04 1440	nnp
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.17	B	N	0.050	2.0	1.0000	mg/Kg	30571		03/31/04 1256	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	11500			27.3	353	1	mg/Kg	30600		03/31/04 1514	nnp
	Antimony, Solid*	ND	U	N	1.6	16.0	1	mg/Kg	30600		03/31/04 1514	nnp
	Arsenic, Solid*	5.5	B		1.7	10.9	1	mg/Kg	30600		03/31/04 1514	nnp
	Barium, Solid*	156			0.25	2.7	1	mg/Kg	30600		03/31/04 1514	nnp
	Beryllium, Solid*	ND	U		0.68	2.7	1	mg/Kg	30600		03/31/04 1514	nnp
	Cadmium, Solid*	ND	U		1.4	4.1	1	mg/Kg	30600		03/31/04 1514	nnp
	Calcium, Solid*	21400			15.9	116	1	mg/Kg	30600		03/31/04 1514	nnp
	Chromium, Solid*	22.4			0.46	4.1	1	mg/Kg	30600		03/31/04 1514	nnp
	Cobalt, Solid*	8.0		*N	0.57	2.7	1	mg/Kg	30600		03/31/04 1514	nnp
	Copper, Solid*	35.6		*N	1.1	6.8	1	mg/Kg	30600		03/31/04 1514	nnp
	Iron, Solid*	19200			13.9	198	1	mg/Kg	30600		03/31/04 1514	nnp
	Lead, Solid*	197			1.0	12.3	1	mg/Kg	30600		03/31/04 1514	nnp
	Magnesium, Solid*	10800		*	12.6	47.8	1	mg/Kg	30600		03/31/04 1514	nnp
	Manganese, Solid*	356			0.87	3.4	1	mg/Kg	30600		03/31/04 1514	nnp
	Nickel, Solid*	18.5			0.60	6.8	1	mg/Kg	30600		03/31/04 1514	nnp
	Potassium, Solid*	2190			54.7	273	1	mg/Kg	30600		03/31/04 1514	nnp
	Selenium, Solid*	ND	U		2.2	21.9	1	mg/Kg	30600		03/31/04 1514	nnp
	Silver, Solid*	ND	U		0.44	4.1	1	mg/Kg	30600		03/31/04 1514	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	211		N	27.3	128	1	mg/Kg	30600		03/31/04 1514	nnp
	Thallium, Solid*	ND	U		2.7	30.1	1	mg/Kg	30600		03/31/04 1514	nnp
	Vanadium, Solid*	34.5			0.49	5.5	1	mg/Kg	30600		03/31/04 1514	nnp
	Zinc, Solid*	119		*N	5.2	27.3	1	mg/Kg	30600		03/31/04 1514	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1446	nnp
ASTM D-2216												
	% Solids, Solid	85.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	14.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.12	B	N	0.048	1.9	1.0000	mg/Kg	30571		03/31/04 1257	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	7900			28.5	368	1	mg/Kg	30600		03/31/04 1520	nnp
	Antimony, Solid*	ND	U	N	1.6	16.7	1	mg/Kg	30600		03/31/04 1520	nnp
	Arsenic, Solid*	2.9	B		1.7	11.4	1	mg/Kg	30600		03/31/04 1520	nnp
	Barium, Solid*	110			0.26	2.9	1	mg/Kg	30600		03/31/04 1520	nnp
	Beryllium, Solid*	ND	U		0.71	2.9	1	mg/Kg	30600		03/31/04 1520	nnp
	Cadmium, Solid*	ND	U		1.4	4.3	1	mg/Kg	30600		03/31/04 1520	nnp
	Calcium, Solid*	14900			16.5	121	1	mg/Kg	30600		03/31/04 1520	nnp
	Chromium, Solid*	17.6			0.48	4.3	1	mg/Kg	30600		03/31/04 1520	nnp
	Cobalt, Solid*	6.3		*N	0.60	2.9	1	mg/Kg	30600		03/31/04 1520	nnp
	Copper, Solid*	25.5		*N	1.1	7.1	1	mg/Kg	30600		03/31/04 1520	nnp
	Iron, Solid*	13400			14.5	207	1	mg/Kg	30600		03/31/04 1520	nnp
	Lead, Solid*	76.6			1.1	12.8	1	mg/Kg	30600		03/31/04 1520	nnp
	Magnesium, Solid*	4340		*	13.1	49.9	1	mg/Kg	30600		03/31/04 1520	nnp
	Manganese, Solid*	265			0.91	3.6	1	mg/Kg	30600		03/31/04 1520	nnp
	Nickel, Solid*	20.4			0.63	7.1	1	mg/Kg	30600		03/31/04 1520	nnp
	Potassium, Solid*	1180			57.0	285	1	mg/Kg	30600		03/31/04 1520	nnp
	Selenium, Solid*	ND	U		2.3	22.8	1	mg/Kg	30600		03/31/04 1520	nnp
	Silver, Solid*	ND	U		0.46	4.3	1	mg/Kg	30600		03/31/04 1520	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	206		N	28.5	134	1	mg/Kg	30600		03/31/04 1520	nnp
	Thallium, Solid*	ND	U		2.8	31.4	1	mg/Kg	30600		03/31/04 1520	nnp
	Vanadium, Solid*	21.1			0.51	5.7	1	mg/Kg	30600		03/31/04 1520	nnp
	Zinc, Solid*	98.3		*N	5.4	28.5	1	mg/Kg	30600		03/31/04 1520	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	30727		04/02/04 1510	nnp
ASTM D-2216												
	% Solids, Solid	94.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	5.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.050	B	N	0.045	1.8	1.0000	mg/Kg	30571		03/31/04 1259	nnp
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	3690			25.7	331	1	mg/Kg	30600		03/31/04 1526	nnp
	Antimony, Solid*	2.0	B	N	1.5	15.0	1	mg/Kg	30600		03/31/04 1526	nnp
	Arsenic, Solid*	3.1	B		1.6	10.3	1	mg/Kg	30600		03/31/04 1526	nnp
	Barium, Solid*	32.0			0.24	2.6	1	mg/Kg	30600		03/31/04 1526	nnp
	Beryllium, Solid*	ND	U		0.64	2.6	1	mg/Kg	30600		03/31/04 1526	nnp
	Cadmium, Solid*	ND	U		1.3	3.9	1	mg/Kg	30600		03/31/04 1526	nnp
	Calcium, Solid*	34000			14.9	109	1	mg/Kg	30600		03/31/04 1526	nnp
	Chromium, Solid*	6.7			0.44	3.9	1	mg/Kg	30600		03/31/04 1526	nnp
	Cobalt, Solid*	4.3		*N	0.54	2.6	1	mg/Kg	30600		03/31/04 1526	nnp
	Copper, Solid*	32.9		*N	1.0	6.4	1	mg/Kg	30600		03/31/04 1526	nnp
	Iron, Solid*	8730			13.1	186	1	mg/Kg	30600		03/31/04 1526	nnp
	Lead, Solid*	43.9			0.98	11.6	1	mg/Kg	30600		03/31/04 1526	nnp
	Magnesium, Solid*	17000		*	11.8	44.9	1	mg/Kg	30600		03/31/04 1526	nnp
	Manganese, Solid*	129			0.82	3.2	1	mg/Kg	30600		03/31/04 1526	nnp
	Nickel, Solid*	11.3			0.57	6.4	1	mg/Kg	30600		03/31/04 1526	nnp
	Potassium, Solid*	677			51.4	257	1	mg/Kg	30600		03/31/04 1526	nnp
	Selenium, Solid*	ND	U		2.1	20.5	1	mg/Kg	30600		03/31/04 1526	nnp
	Silver, Solid*	ND	U		0.41	3.9	1	mg/Kg	30600		03/31/04 1526	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/06/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Sodium, Solid*	265		N	25.7	121	1	mg/Kg	30600		03/31/04 1526	nnp
	Thallium, Solid*	ND	U		2.5	28.3	1	mg/Kg	30600		03/31/04 1526	nnp
	Vanadium, Solid*	34.7			0.46	5.1	1	mg/Kg	30600		03/31/04 1526	nnp
	Zinc, Solid*	47.5		*N	4.9	25.7	1	mg/Kg	30600		03/31/04 1526	nnp

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-5
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-1
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	85.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	15.0			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		31.6	588	1.0	ug/Kg	30790		04/06/04 1143	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	17000			28	120	1	mg/Kg	30805		04/01/04 0936	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-6
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-2
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND		U	29.3	545	1.0	ug/Kg	30790		04/06/04 1144	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	24000			27	110	1	mg/Kg	30805		04/01/04 1000	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-7
Date Sampled.....: 03/26/2004
Time Sampled.....: 10:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-3
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.7			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.3			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	195	B		29.7	552	1.0	ug/Kg	30790		04/06/04 1145	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	24000			27	110	1	mg/Kg	30805		04/01/04 1024	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-8
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-4
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		30.2	561	1.0	ug/Kg	30790		04/06/04 1146	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	45000			27	110	1	mg/Kg	30805		04/01/04 1048	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-9
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-5
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	89.4			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	10.6			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		30.1	559	1.0	ug/Kg	30790		04/06/04 1148	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	6600			27	110	1	mg/Kg	30805		04/03/04 0900	msh

* In Description = Dry Wgt.

Job Number: 206204

LABORATORY TEST RESULTS

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-10
Date Sampled.....: 03/26/2004
Time Sampled.....: 09:10
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-6
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	87.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	12.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		30.9	574	1.0	ug/Kg	30790		04/06/04 1149	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	18000			28	110	1	mg/Kg	30805		04/06/04 1034	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-11
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:50
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-7
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	85.1			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	14.9			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		31.0	576	1.0	ug/Kg	30790		04/06/04 1153	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	12000			28	120	1	mg/Kg	30805		04/06/04 1046	msh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206204

Date:04/12/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-12
Date Sampled.....: 03/26/2004
Time Sampled.....: 08:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206204-8
Date Received.....: 03/27/2004
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
ASTM D-2216												
	% Solids, Solid	94.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
	% Moisture, Solid	5.5			0.10	0.10	1	%	30560		03/30/04 0000	dwh
9012	Cyanide (Colorimetric)											
	Cyanide, Total, Solid*	ND	U		27.9	519	1.0	ug/Kg	30790		04/06/04 1154	dtn
9060	Organic Carbon											
	TOC Average Duplicates, Solid*	40000			25	110	1	mg/Kg	30805		04/06/04 1059	msh

* In Description = Dry Wgt.

LABORATORY CHRONICLE

Job Number: 206204

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Lab ID: 206204-1 Client ID: TP-5

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30560		03/30/2004	0000	
1312	1312 SPLP	1	30535		03/30/2004	0000	
5030A	5030 Soil(5g)Prep	1	30734				
7470/7471	7470 Digestion (Hg)	1	30502		03/29/2004	0000	
3010A	Acid Digestion (ICAP)	1	30635		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1143	1.0
CN Prep Method	Cyanide sample Preparation	1	30758		04/04/2004	1202	
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30859		04/06/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1244	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1420	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1410	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/01/2004	0936	
8081A	Organochlorine Pesticide Analysis	1	30768	30497	04/02/2004	1326	1.00000
8081A	Organochlorine Pesticide Analysis	1	30769	30497	04/02/2004	1326	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30768	30497	04/02/2004	1326	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30769	30497	04/02/2004	1326	1.00000
8270C	Semivolatile Organics	1	30689	30528	04/01/2004	2118	1.00000
8270C	Semivolatile Organics	1	30955	30859 -30725	04/10/2004	1656	1.00000
8260B	Volatile Organics	1	30735	30734	04/02/2004	1555	1.00000

Lab ID: 206204-2 Client ID: TP-6

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30560		03/30/2004	0000	
1312	1312 SPLP	1	30535		03/30/2004	0000	
5030A	5030 Soil(5g)Prep	1	30734				
7470/7471	7470 Digestion (Hg)	1	30502		03/29/2004	0000	
3010A	Acid Digestion (ICAP)	1	30635		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1144	1.0
CN Prep Method	Cyanide sample Preparation	1	30758		04/04/2004	1212	
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30859		04/06/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1250	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1450	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1416	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/01/2004	1000	
8081A	Organochlorine Pesticide Analysis	1	30768	30497	04/02/2004	1402	1.00000
8081A	Organochlorine Pesticide Analysis	1	30769	30497	04/02/2004	1402	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30768	30497	04/02/2004	1402	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30769	30497	04/02/2004	1402	1.00000
8270C	Semivolatile Organics	1	30689	30528	04/02/2004	2007	1.00000
8270C	Semivolatile Organics	1	30955	30859 -30725	04/10/2004	1813	1.00000
8260B	Volatile Organics	1	30735	30734	04/02/2004	1629	1.00000

Lab ID: 206204-3 Client ID: TP-7

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30560		03/30/2004	0000	

000091

LABORATORY CHRONICLE

Job Number: 206204

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Lab ID: 206204-3 Client ID: TP-7

METHOD	DESCRIPTION
1312	1312 SPLP
5030A	5030 Soil(5g)Prep
7470/7471	7470 Digestion (Hg)
3010A	Acid Digestion (ICAP)
3050B	Acid Digestion: Solids (ICAP)
9012	Cyanide (Colorimetric)
CN Prep Method	Cyanide sample Preparation
3510C	Extraction Sep. Funnel (SVOC)
3510C	Extraction Sep. Funnel (SVOC)
3541	Extraction Soxhlet (SVOC)
3550B	Extraction Ultrasonic (Chlor.Pest.)
7471A	Mercury (CVAA) Solids
6010B	Metals Analysis (ICAP Trace)
6010B	Metals Analysis (ICAP Trace)
D3987	Neutral Leachate Extraction
9060	Organic Carbon
8081A	Organochlorine Pesticide Analysis
8081A	Organochlorine Pesticide Analysis
8081A	Organochlorine Pesticide Confirmation
8081A	Organochlorine Pesticide Confirmation
8270C	Semivolatile Organics
8270C	Semivolatile Organics
8260B	Volatile Organics

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
1	30535		03/30/2004	0000	
1	30690				
1	30502		03/29/2004	0000	
1	30635		04/01/2004	0000	
1	30498		03/29/2004	0000	
1	30790	30758	04/06/2004	1145	1.0
1	30758		04/04/2004	1221	
1	30776		04/05/2004	0000	
1	30859		04/06/2004	0000	
1	30528		03/29/2004	0000	
1	30497		03/29/2004	0000	
1	30571	30502	03/31/2004	1252	1.0000
1	30600	30498	03/31/2004	1456	
1	30727	30635	04/02/2004	1422	
1	30725		04/05/2004	0000	
1	30805		04/01/2004	1024	
1	30768	30497	04/02/2004	1515	1.00000
1	30769	30497	04/02/2004	1515	1.00000
1	30768	30497	04/02/2004	1515	1.00000
1	30769	30497	04/02/2004	1515	1.00000
1	30689	30528	04/02/2004	2035	1.00000
1	30955	30859 -30725	04/10/2004	1839	1.00000
1	30696	30690	04/01/2004	1717	1.00000

Lab ID: 206204-4 Client ID: TP-8

METHOD	DESCRIPTION
ASTM D-2216	
1312	1312 SPLP
5030A	5030 Soil(5g)Prep
7470/7471	7470 Digestion (Hg)
3010A	Acid Digestion (ICAP)
3050B	Acid Digestion: Solids (ICAP)
9012	Cyanide (Colorimetric)
CN Prep Method	Cyanide sample Preparation
3510C	Extraction Sep. Funnel (SVOC)
3510C	Extraction Sep. Funnel (SVOC)
3541	Extraction Soxhlet (SVOC)
3550B	Extraction Ultrasonic (Chlor.Pest.)
7471A	Mercury (CVAA) Solids
6010B	Metals Analysis (ICAP Trace)
6010B	Metals Analysis (ICAP Trace)
D3987	Neutral Leachate Extraction
9060	Organic Carbon
8081A	Organochlorine Pesticide Analysis
8081A	Organochlorine Pesticide Analysis
8081A	Organochlorine Pesticide Confirmation
8081A	Organochlorine Pesticide Confirmation
8270C	Semivolatile Organics
8270C	Semivolatile Organics
8260B	Volatile Organics

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
1	30560		03/30/2004	0000	
1	30535		03/30/2004	0000	
1	30734				
1	30502		03/29/2004	0000	
1	30635		04/01/2004	0000	
1	30498		03/29/2004	0000	
1	30790	30758	04/06/2004	1146	1.0
1	30758		04/04/2004	1230	
1	30776		04/05/2004	0000	
1	30849	30725	04/07/2004	0000	
1	30528		03/29/2004	0000	
1	30497		03/29/2004	0000	
1	30571	30502	03/31/2004	1253	1.0000
1	30600	30498	03/31/2004	1502	
1	30727	30635	04/02/2004	1428	
1	30725		04/05/2004	0000	
1	30805		04/01/2004	1048	
1	30768	30497	04/02/2004	1629	2.00000
1	30769	30497	04/02/2004	1629	2.00000
1	30768	30497	04/02/2004	1629	2.00000
1	30769	30497	04/02/2004	1629	2.00000
1	30689	30528	04/02/2004	2103	1.00000
1	30956	30849 -30725	04/10/2004	1907	1.00000
1	30735	30734	04/02/2004	1705	1.00000

Lab ID: 206204-5 Client ID: TP-9

METHOD	DESCRIPTION
ASTM D-2216	
1312	1312 SPLP

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
1	30560		03/30/2004	0000	
1	30535		03/30/2004	0000	

000082

LABORATORY CHRONICLE

Job Number: 206204

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: IAGM PROJECT ATTN: John Gerlach

Lab ID: 206204-5 Client ID: TP-9

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
5030A	5030 Soil(5g)Prep	1	30690				
7470/7471	7470 Digestion (Hg)	1	30502		03/29/2004	0000	
3010A	Acid Digestion (ICAP)	1	30635		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1148	1.0
CN Prep Method	Cyanide sample Preparation	1	30758		04/04/2004	1239	
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30849	30725	04/07/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1254	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1508	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1434	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/03/2004	0900	
8081A	Organochlorine Pesticide Analysis	1	30768	30497	04/02/2004	1742	1.00000
8081A	Organochlorine Pesticide Analysis	1	30769	30497	04/02/2004	1742	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30768	30497	04/02/2004	1742	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30769	30497	04/02/2004	1742	1.00000
8270C	Semivolatile Organics	1	30689	30528	04/01/2004	2312	2.00000
8270C	Semivolatile Organics	1	30956	30849 -30725	04/10/2004	1934	1.00000
8260B	Volatile Organics	1	30696	30690	04/01/2004	1828	1.00000

Lab ID: 206204-6 Client ID: TP-10

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30560		03/30/2004	0000	
1312	1312 SPLP	1	30535		03/30/2004	0000	
5030A	5030 Soil(5g)Prep	1	30690				
7470/7471	7470 Digestion (Hg)	1	30502		03/29/2004	0000	
3010A	Acid Digestion (ICAP)	1	30635		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1149	1.0
CN Prep Method	Cyanide sample Preparation	1	30758		04/04/2004	1248	
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30849	30725	04/07/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1256	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1514	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1440	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/06/2004	1034	
8081A	Organochlorine Pesticide Analysis	1	30768	30497	03/31/2004	2352	10.0000
8081A	Organochlorine Pesticide Confirmation	1	30769	30497	03/31/2004	2352	10.0000
8270C	Semivolatile Organics	1	30689	30528	04/01/2004	2340	1.00000
8270C	Semivolatile Organics	1	30956	30849 -30725	04/10/2004	2001	1.00000
8260B	Volatile Organics	1	30696	30690	04/01/2004	1903	1.00000
8260B	Volatile Organics	2	30735	30734	04/02/2004	1739	1.00000

Lab ID: 206204-7 Client ID: TP-11

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30560		03/30/2004	0000	
1312	1312 SPLP	1	30535		03/30/2004	0000	
5030A	5030 Soil(5g)Prep	1	30690				
7470/7471	7470 Digestion (Hg)	1	30502		03/29/2004	0000	

0000083

LABORATORY CHRONICLE

Job Number: 206204

Date: 04/13/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Lab ID: 206204-7 Client ID: TP-11

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
3010A	Acid Digestion (ICAP)	1	30635		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1153	1.0
CN Prep Method	Cyanide sample Preparation	1	30758		04/04/2004	1257	
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30849	30725	04/07/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1257	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1520	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1446	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/06/2004	1046	
8081A	Organochlorine Pesticide Analysis	1	30768	30497	04/02/2004	1856	1.00000
8081A	Organochlorine Pesticide Analysis	1	30769	30497	04/02/2004	1856	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30768	30497	04/02/2004	1856	1.00000
8081A	Organochlorine Pesticide Confirmation	1	30769	30497	04/02/2004	1856	1.00000
8270C	Semivolatile Organics	1	30689	30528	04/02/2004	0009	1.00000
8270C	Semivolatile Organics	1	30956	30849 -30725	04/10/2004	2028	1.00000
8260B	Volatile Organics	1	30696	30690	04/01/2004	1938	1.00000

Lab ID: 206204-8 Client ID: TP-12

Date Recvd: 03/27/2004 Sample Date: 03/26/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
ASTM D-2216		1	30560		03/30/2004	0000	
1312	1312 SPLP	1	30535		03/30/2004	0000	
5030A	5030 Soil(5g)Prep	1	30690				
7470/7471	7470 Digestion (Hg)	1	30502		03/29/2004	0000	
3010A	Acid Digestion (ICAP)	1	30635		04/01/2004	0000	
3050B	Acid Digestion: Solids (ICAP)	1	30498		03/29/2004	0000	
9012	Cyanide (Colorimetric)	1	30790	30758	04/06/2004	1154	1.0
CN Prep Method	Cyanide sample Preparation	1	30758		04/04/2004	1306	
3510C	Extraction Sep. Funnel (SVOC)	1	30776		04/05/2004	0000	
3510C	Extraction Sep. Funnel (SVOC)	1	30849	30725	04/07/2004	0000	
3541	Extraction Soxhlet (SVOC)	1	30528		03/29/2004	0000	
3550B	Extraction Ultrasonic (Chlor.Pest.)	1	30497		03/29/2004	0000	
7471A	Mercury (CVAA) Solids	1	30571	30502	03/31/2004	1259	1.0000
6010B	Metals Analysis (ICAP Trace)	1	30600	30498	03/31/2004	1526	
6010B	Metals Analysis (ICAP Trace)	1	30727	30635	04/02/2004	1510	
D3987	Neutral Leachate Extraction	1	30725		04/05/2004	0000	
9060	Organic Carbon	1	30805		04/06/2004	1059	
8081A	Organochlorine Pesticide Analysis	1	30768	30497	04/01/2004	0105	10.0000
8081A	Organochlorine Pesticide Confirmation	1	30769	30497	04/01/2004	0105	10.0000
8270C	Semivolatile Organics	1	30689	30528	04/02/2004	0037	1.00000
8270C	Semivolatile Organics	1	30956	30849 -30725	04/10/2004	2054	1.00000
8260B	Volatile Organics	1	30696	30690	04/01/2004	2014	1.00000
8260B	Volatile Organics	2	30735	30734	04/02/2004	1814	1.00000

0000084

REPORT COMMENTS

1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

2) Soil, sediment and sludge sample results are reported on a "dry weight" basis except when analyzed for landfill disposal or incineration parameters. All other solid matrix samples are reported on an "as received" basis unless noted differently.

3) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

4) The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert. ID# 10604
5) According to 40CFR Part 136.3, pH, Chlorine Residual and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.

Glossary of flags, qualifiers and abbreviation

Inorganic Qualifiers (Q-Column)

U	Analyte was not detected at or above the reporting limit.
<	Not detected at or above the reporting limit.
J	Result is less than the RL, but greater than or equal to the method detection limit.
B	Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
S	Result was determined by the Method of Standard Additions.

Inorganic Flags (Flag Column)

'	ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,MRL: Instrument related QC exceed th upper or lower control limits.
*	LCS, LCD, MD: Batch QC exceeds the upper or lower control limits.
+	MSA correlation coefficient is less than 0.995.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
E	SD: Serial dilution exceeds the control limits.
H	MB, EB: Batch QC is greater than reporting limit or had a negative instrument reading lower than the absolute value of the reporting limit.
N	MS, MSD: Spike recovery exceeds the upper or lower control limits.
W	PS: Post-digestion spike was outside 85-115% control limits.

Organic Qualifiers (Q - Column)

U	Analyte was not detected at or above the reporting limit.
ND	Compound not detected.
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC).
Q	Result was qualitatively confirmed, but not quantified.
C	Pesticide identification was confirmed by GC/MS.
Y	The chromatographic response resembles a typical fuel pattern.
Z	The chromatographic response does not resemble a typical fuel pattern.
E	Result exceeded calibration range, secondary dilution required.

Organic Flags (Flags Column)

'	MB,EB, MLE: Batch QC is greater than reporting limit.
*	LCS, LCD, CCV, MS, MSD, Surrogate, RS:Batch QC exceeds the upper or lower control limits.
A	Concentration exceeds the instrument calibration range or below the reporting limit.
B	Compound was found in the blank and sample.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
H	Alternate peak selection upon analytical review
I	Indicates the presence of an interfence, recovery is not calculated.
M	Manually integrated compound.
P	The lower of the two values is reported when the % difference between the results of two GC columns is greater than 25%.

0000085

Abbreviations

Batch	Designation given to identify a specific extraction, digestion, preparation set, or analysis set
CAP	Capillary Column
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Confirmation Analysis
CRA	Low Level Standard Check - GFAA; Mercury
CRI	Low Level Standard Check - ICP
Dil Fac	Dilution Factor
DL	Secondary dilution and analysis
DLFac	Detection Limit Factor
DSH	Distilled Standard - High Level
DSL	Distilled Standard - Low Level
DSM	Distilled Standard - Medium Level
EB	Extraction Blank
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit
ISA	Interference Check Sample A
ISB	Interference Check Sample B
Job No.	The first six digits of the sample ID which refers to a specific client, project and sample group
Lab ID	An 8 number unique laboratory identification
LCD	Laboratory Control Standard Duplicate
LCS	Laboratory Control Standard with reagent grade water or a matrix free from the analyte of interest
MB	Method Blank or (PB) Preparation Blank
MD	Method Duplicate
MDL	Method Detection Limit
MLE	Medium Level Extraction Blank
MRL	Method Reporting Limit Standard
MSA	Method of Standard Additions
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Not Detected
PACK	Packed Column
PREPF	Preparation factor used by the Laboratory's Information Management System (LIMS)
PS	Post Spike
PSD	Post Spike Duplicate
RA	Re-analysis
RE	Re-extraction and analysis
RL	Reporting Limit
RPD	Relative Percent Difference of duplicate (unrounded) analyses
RRF	Relative Response Factor
RS	Reference Standard
RT	Retention Time
RTW	Retention Time Window
SampleID	A 9 digit number unique for each sample, the first six digits are referred as the job number
SCB	Seeded Control Blank
SD	Serial Dilution
UCB	Unseeded Control Blank

One or a combination of these data qualifiers and abbreviations may appear in the analytical report.

0000086

STL-Connecticut
Certification Summary (as of January 2004)

The laboratory identification numbers for the STL-Connecticut laboratory are provided in the following table. Many states certify laboratories for specific parameters or tests within a category (i.e. method 325.2 for wastewater). The information in the following table indicates the lab is certified in a general category of testing such as drinking water or wastewater analysis. The laboratory should be contacted directly if parameter-specific certification information is required.

State	Responsible Agency	Certification	Expiration Date	Lab Number
Connecticut	Department of Health Services	Drinking Water, Wastewater	12/31/04	PH-0497
Maine	Department of Health and Environmental Services	Drinking Water, Wastewater/Solid, Hazardous Waste	04/18/04	CT023
Massachusetts	Department of Environmental Protection	Potable/Non-Potable Water	06/30/04	CT023
New Hampshire	Department of Environmental Services	Drinking Water, Wastewater	08/29/04	2528
New Jersey	Department of Environmental Protection	Drinking Water, Wastewater	06/30/04	46410
New York	Department of Health	CLP, Drinking Water, Wastewater, Solid/ Hazardous Waste **NELAC**	04/01/04	10602
Rhode Island	Department of Health	Chemistry...Non- Potable Water and Wastewater	12/30/04	A43
Utah	Department of Health	RCRA	05/31/04	2032614458

160060

SEVERN TRENT **STL**

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484

Tel: (203) 929-8140
Fax: (203) 929-8142

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 | NO. 1037

STL JOB #:

CLIENT: LKB, Inc

PROJECT ID: TAGM Proj. (2328-01)

STL PROJECT MGR:

RUSH ☐ YES ☒ NO | DUE DATE 10 bus. days

BOTTLE SET #	CLIENT SAMPLE ID	DATE/TIME SAMPLED	MATRIX	LAB ID	QC Y/N	TESTS: VOCs by 8260B	SVOCs by 8270C	Pest. by 8081A	Metals by 6010B	TIC by TAGM App. B	SPLP PAHs & Lead	w/ shake test. Save extract for possible additional Metals analyses	GENERAL REMARKS
						BOTTLE TYPE AND PRESERVATION: 4oz glass	8oz glass	8oz glass	8oz glass	↓	↓		List of Analytes and MDLs should be per NYSDEC TAGM 4046
	TP-5	3/26/04, 1030	S	(01)		X	X	X	X	X	X		
00	TP-6	, 1050		(04)		X	X	X	X	X	X		
00	TP-7	, 1010		(03)		X	X	X	X	X	X		PASSED RAD SCREEN
00	TP-8	, 0950		(A)		X	X	X	X	X	X		4.9oc
00	TP-9	, 0930		(05)		X	X	X	X	X	X		
	TP-10	, 0910		(06)		X	X	X	X	X	X		
	TP-11	, 0850		(07)		X	X	X	X	X	X		
	TP-12	, 0830		(08)		X	X	X	X	X	X		

FIELD FILTERED - CIRCLE Y or N: Y / N

206204 04/08/2004

LOCKWOOD, KESSLER BARTLETT, INC.
JOHN GERLACH
TAGM PROJECT

MATRIX CODES

A - AIR
AQ - AQUEOUS
C - COMPLEX
D - DRUM WASTE
OI - OIL
S - SOIL
SL - SLUDGE
W - WIPE
O - OTHER
FB - FIELD BLANK
TB - TRIP BLANK

SIGNATURE

SAMPLES COLLECTED BY John Gerlach DATE/TIME 3/26/04

SIGNATURE John Gerlach

BOTTLES REC'D BY John Gerlach DATE/TIME

SIGNATURE John Gerlach

RECEIVED IN LAB BY Kristina Blocker DATE/TIME 3/27/04

SIGNATURE 10:30

REMARKS ON SAMPLE RECEIPT

☐ BOTTLES INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

STL-8122

rpjsckl | Job Sample Receipt Checklist Report | V2

Job Number.: 206204 Location.: 57207 Check List Number.: 1 Description.:
Customer Job ID.....: Job Check List Date.: Date of the Report..: 03/27/2004
Project Number.: 20001037 Project Description.: TAGM PROJECT Project Manager.....: jld
Customer.....: Lockwood, Kessler & Bartlett,Inc. Contact.: John Gerlach

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
...If "yes", completed properly?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?	N	
...If "yes", custody seal intact?		
Samples iced?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).	Y	4.9C
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)		
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?		
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Radioactivity at or below background levels?	Y	
A Sample Discrepancy Report (SDR) was needed?	N	
Comments		
If samples were shipped was there an air bill #?.	Y	FE 846465497201
Sample Custodian Signature/Date	Y	K. Blackburn 3/27/04

STL - Connecticut
Internal Chain-of-Custody

206204

04/08/2004

LOCKWOOD, KESSLER BARTLETT,INC.
JOHN GERLACH
TAGM PROJECT

Trip Blank: —

QC: — Air: —

FB: —

Soil: #01-08 Water: —

Date Received: 03/27/04

Sample #s: 01-08

Locations: 95C, R12T

Laboratory Sample #	Relinquished by	Accepted by	Date	Time	Reason	Relinquished by	Accepted by	Date	Time
1-8	CL	EZ	3/29	9:00	EXT	EZ	CL	3/29	REJD
01-08	CL	EDT	03/29	1015	metals	EDT	CL	03/29	2045
1-8	CL	NS	3/30	1600	%solids	NS	CL	3/30	1800
1-8	CL	UAW	3/31	10:45	EX TOC	UAW	CL	3/31	11:58
1-8	CL	[illegible]	4/1	8:00	MTL;	EDT	CL	04/04	840
1-8	CL	[illegible]	4/1/04	13:25	VOA	Received			
1-8	CL	BSM	4/4/04	1000	Cyan	BSM	CL	4/4/04	2000
1-8	CL	[illegible]	4/5/04	1525	Metals				

STL Form# SMF00507.CT

STL GC-GC/MS Extract Chain of Custody

Fraction: BNA / Pesticide-PCB / Herbicide / O/P Pesticide / DRO / Other CLIENT: _____
(Circle one)

JOB NO: 204

SAMPLE IN (Extractions)					SAMPLE IN (Extractions)				
Sample(s)	Date	Time	Sign.	Location	Sample(s)	Date	Time	Sign.	Location
1-8	3/30	9:49	[illegible]	36					
1-3	4/2	10:00	EZ	36					
4-8	4/7	17:20	MA	36					

SAMPLE OUT					SAMPLE IN			
Sample(s)	Date	Time	Code	Sign.	Date	Time	Location	Sign.
1-8	4/1	15:30	AN	KW	4/1	17:30	36	KW
2-4	4/2	16:00	AN	KW	4/2	17:30	36	KW
1-5	4/9	12:00	AN	KW	4/9	15:20	36	KW
1-8	4/10	12:00	AN	[illegible]	4/10	21:45	36	KW

Codes: SC = Screening AN = Analysis

Verified By: [signature] Date: 4-12-04

Lab Form: SMF01201.CT

STL GC-GC/MS Extract Chain of Custody

Fraction: BNA / Pesticide-PCB / Herbicide / O/P Pesticide / DRO / Other (Circle one) CLIENT: LKG LKB

JOB NO: 206204

SAMPLE IN (Extractions)					SAMPLE IN (Extractions)				
Sample(s)	Date	Time	Sign.	Location	Sample(s)	Date	Time	Sign.	Location
1–8	3/29	1530	[signature]	50					

SAMPLE OUT					SAMPLE IN			
Sample(s)	Date	Time	Code	Sign.	Date	Time	Location	Sign.
1-8	3/31/04	Noon	AN	[signature]	3/31/04	12:30	50	[signature]

Codes: SC = Screening AN = Analysis

Verified By: [signature] Date: 4/7/04

Lab Form: SMF01201.CT

0000092

SEVERN TRENT STL

CHAIN OF CUSTODY
ATOMIC SPECTROSCOPY DEPARTMENT

Job Number: 206204 Sample Numbers: 01-08

WATER (SOIL) SLUDGE - TCLP/SPLP

I confirm that I have performed the preparation below following SOP guidelines and authorize the release of the preparation:

Sample Prep:

E Mahan	03/29/04	ICP
E Mahan	03/29/04	Mercury
Chemist	Date(s)	

I confirm that I have performed the analysis below following SOP guidelines and authorize the release of all associated data:

Analysis:

Nesta Ast	4/1/04	ICP
Nesta Ast	4/1/04	Mercury
Chemist	Date(s)	

I have reviewed and authorized the release of the job:

Complete: _____ 4/2/04
Supervisor Date

QAF02600.CT

Severn Trent Laboratories, Inc.
STL Connecticut • 128 Long Hill Cross Road, Shelton, CT 06484
Tel 203 929 8140 Fax 203 929 8142 • www.stlinc.com

A part of Severn Trent plc

SEVERN TRENT STL

CHAIN OF CUSTODY
ATOMIC SPECTROSCOPY DEPARTMENT

Job Number: 700204 Sample Numbers: 01-08

WATER - SOIL - SLUDGE - TCLP/SPLP

I confirm that I have performed the preparation below following SOP guidelines and authorize the release of the preparation:

Sample Prep:

E Kafka	04/01/04	ICP
Chemist	Date(s)	Mercury

I confirm that I have performed the analysis below following SOP guidelines and authorize the release of all associated data:

Analysis:

[signature]	4/6/04	ICP
Chemist	Date(s)	Mercury

I have reviewed and authorized the release of the job:

Complete: [signature] 4/7/04
Supervisor Date

QAF02600.CT

Severn Trent Laboratories, Inc.
STL Connecticut • 128 Long Hill Cross Road, Shelton, CT 06484
Tel 203 929 8140 Fax 203 929 8142 • www.stlinc.com

A part of Severn Trent plc

S A M P L E I N F O R M A T I O N

Date: 06/25/2004

Job Number.: 206896
Customer...: Lockwood, Kessler & Bartlett,Inc.
Attn.....: John Gerlach

Project Number.....: 20001037
Customer Project ID....: TAGM PROJECT
Project Description....: TAGM PROJECT

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
206896-1	TP-15	Soil	06/17/2004	02:30	06/18/2004	09:30
206896-2	TP-16	Soil	06/17/2004	03:00	06/18/2004	09:30

Job Number: 206896

LABORATORY TEST RESULTS

Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-15
Date Sampled.....: 06/17/2004
Time Sampled.....: 02:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-1
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2021	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2021	jdw
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	34282		06/23/04 1758	dwh
ASTM D-2216												
	% Solids, Solid	91.5			0.10	0.10	1	%	34078		06/18/04 0000	dwh
	% Moisture, Solid	8.5			0.10	0.10	1	%	34078		06/18/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.20	B		0.011	1.5	1.0000	mg/Kg	34258		06/22/04 1531	dwh

* In Description = Dry Wgt.

Job Number: 206896

LABORATORY TEST RESULTS

Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-15
Date Sampled.....: 06/17/2004
Time Sampled.....: 02:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-1
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	PL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	8370			24.4	315	1	mg/Kg	34250		06/22/04 1349	dwh
	Antimony, Solid*	ND	U		1.4	14.3	1	mg/Kg	34250		06/22/04 1349	dwh
	Arsenic, Solid*	2.8	B		1.5	9.8	1	mg/Kg	34250		06/22/04 1349	dwh
	Barium, Solid*	137			0.22	2.4	1	mg/Kg	34250		06/22/04 1349	dwh
	Beryllium, Solid*	ND	U		0.61	2.4	1	mg/Kg	34250		06/22/04 1349	dwh
	Cadmium, Solid*	ND	U		1.2	3.7	1	mg/Kg	34250		06/22/04 1349	dwh
	Calcium, Solid*	25200			14.1	104	1	mg/Kg	34250		06/22/04 1349	dwh
	Chromium, Solid*	20.5			0.41	3.7	1	mg/Kg	34250		06/22/04 1349	dwh
	Cobalt, Solid*	6.4			0.51	2.4	1	mg/Kg	34250		06/22/04 1349	dwh
	Copper, Solid*	37.6			0.98	6.1	1	mg/Kg	34250		06/22/04 1349	dwh
	Iron, Solid*	14700			12.4	177	1	mg/Kg	34250		06/22/04 1349	dwh
	Lead, Solid*	125			0.93	11.0	1	mg/Kg	34250		06/22/04 1349	dwh
	Magnesium, Solid*	11500			11.2	42.7	1	mg/Kg	34250		06/22/04 1349	dwh
	Manganese, Solid*	266			0.78	3.0	1	mg/Kg	34250		06/22/04 1349	dwh
	Nickel, Solid*	17.1			0.54	6.1	1	mg/Kg	34250		06/22/04 1349	dwh
	Potassium, Solid*	2100			48.8	244	1	mg/Kg	34250		06/22/04 1349	dwh
	Selenium, Solid*	ND	U		2.0	19.5	1	mg/Kg	34250		06/22/04 1349	dwh
	Silver, Solid*	ND	U		0.39	3.7	1	mg/Kg	34250		06/22/04 1349	dwh
	Sodium, Solid*	148			24.4	115	1	mg/Kg	34250		06/22/04 1349	dwh
	Thallium, Solid*	ND	U		2.4	26.8	1	mg/Kg	34250		06/22/04 1349	dwh
	Vanadium, Solid*	28.7			0.44	4.9	1	mg/Kg	34250		06/22/04 1349	dwh
	Zinc, Solid*	131			4.6	24.4	1	mg/Kg	34250		06/22/04 1349	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		180	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Phenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2-Methylphenol, Solid*	ND	U		69	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	4-Methylphenol, Solid*	ND	U		78	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896 Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-15
Date Sampled.....: 06/17/2004
Time Sampled.....: 02:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-1
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	2-Chlorophenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Nitrobenzene, Solid*	ND	U		110	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Benzoic acid, Solid*	ND	U		2900	6900	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Isophorone, Solid*	ND	U		99	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Naphthalene, Solid*	410	J		140	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	4-Chloroaniline, Solid*	120	J		110	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		43	6900	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2-Methylnaphthalene, Solid*	240	J		120	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2-Nitroaniline, Solid*	ND	U		95	6900	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		130	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		60	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2-Nitrophenol, Solid*	ND	U		120	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	3-Nitroaniline, Solid*	ND	U		78	6900	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Dimethyl phthalate, Solid*	ND	U		65	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	2,4-Dinitrophenol, Solid*	ND	U		220	6900	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Acenaphthylene, Solid*	790	J		47	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Acenaphthene, Solid*	660	J		65	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Dibenzofuran, Solid*	350	J		65	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	4-Nitrophenol, Solid*	ND	U		370	6900	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Fluorene, Solid*	950	J		86	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Hexachlorobenzene, Solid*	ND	U		82	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Diethyl phthalate, Solid*	ND	U		73	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Pentachlorophenol, Solid*	ND	U		190	6900	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Phenanthrene, Solid*	8300			100	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Anthracene, Solid*	3300			52	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Di-n-butyl phthalate, Solid*	140	J		60	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Fluoranthene, Solid*	15000		A	95	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Pyrene, Solid*	11000			82	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896

Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-15
Date Sampled.....: 06/17/2004
Time Sampled.....: 02:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-1
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Butyl benzyl phthalate, Solid*	ND	U		56	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Benzo(a)anthracene, Solid*	8300			65	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Chrysene, Solid*	7800			73	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		150	2800	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		160	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Di-n-octyl phthalate, Solid*	ND	U		52	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Benzo(b)fluoranthene, Solid*	6200			160	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Benzo(k)fluoranthene, Solid*	7200			170	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Benzo(a)pyrene, Solid*	7800			69	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	1600			78	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Dibenzo(a,h)anthracene, Solid*	710	J		78	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
	Benzo(ghi)perylene, Solid*	1100	J		73	1400	1.00000	ug/Kg	34347		06/22/04 1914	jdw
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Chloroethane, Solid*	ND	U		2	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,1-Dichloroethene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Trichlorotrifluoroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Carbon disulfide, Solid*	ND	U		0.5	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Acetone, Solid*	ND	U		2	11	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Methylene chloride, Solid*	ND	U		3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,1-Dichloroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	2-Butanone (MEK), Solid*	ND	U		0.7	11	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Chloroform, Solid*	ND	U	B	0.7	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,1,1-Trichloroethane, Solid*	ND	U		0.5	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Carbon tetrachloride, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Benzene, Solid*	ND	U		0.5	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896

Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-15
Date Sampled.....: 06/17/2004
Time Sampled.....: 02:30
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-1
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	1,2-Dichloroethane, Solid*	ND	U		0.5	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Trichloroethene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.4	11	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Toluene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Tetrachloroethene, Solid*	ND	U		0.7	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,3-Dichloropropane, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Dibromochloromethane, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Chlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Ethylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Isopropylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	n-Propylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	tert-Butylbenzene, Solid*	ND	U		0.5	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	Xylenes (total), Solid*	ND	U		1	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	sec-Butylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	p-Isopropyltoluene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	n-Butylbenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	5	1.00000	ug/Kg	34297		06/18/04 1828	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896

Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-16
Date Sampled.....: 06/17/2004
Time Sampled.....: 03:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-2
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
8270C	Semivolatile Organics											
	Naphthalene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	2-Methylnaphthalene	ND	U		0.6	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Acenaphthylene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Acenaphthene	ND	U		0.6	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Fluorene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Phenanthrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Anthracene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Fluoranthene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Pyrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Benzo(a)anthracene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Chrysene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Benzo(b)fluoranthene	ND	U		2	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Benzo(k)fluoranthene	ND	U		0.6	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Benzo(a)pyrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Indeno(1,2,3-cd)pyrene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Dibenzo(a,h)anthracene	ND	U		1	20	1.00000	ug/L	34350		06/24/04 2048	jdw
	Benzo(ghi)perylene	ND	U		0.8	20	1.00000	ug/L	34350		06/24/04 2048	jdw
6010B	Metals Analysis (ICAP Trace)											
	Lead, SPLP	ND	U		3.0	10.0	1	ug/L	34282		06/23/04 1810	dwh
ASTM D-2216												
	% Solids, Solid	90.0			0.10	0.10	1	%	34078		06/18/04 0000	dwh
	% Moisture, Solid	10.0			0.10	0.10	1	%	34078		06/18/04 0000	dwh
7471A	Mercury (CVAA) Solids											
	Mercury, Solid*	0.21	B		0.014	1.9	1.0000	mg/Kg	34258		06/22/04 1533	dwh

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896

Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc.

PROJECT: TAGM PROJECT

ATTN: John Gerlach

Customer Sample ID: TP-16
Date Sampled.....: 06/17/2004
Time Sampled.....: 03:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-2
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace)											
	Aluminum, Solid*	6060			21.4	276	1	mg/Kg	34250		06/22/04 1355	dwh
	Antimony, Solid*	ND	U		1.2	12.5	1	mg/Kg	34250		06/22/04 1355	dwh
	Arsenic, Solid*	2.6	B		1.3	8.5	1	mg/Kg	34250		06/22/04 1355	dwh
	Barium, Solid*	91.6			0.20	2.1	1	mg/Kg	34250		06/22/04 1355	dwh
	Beryllium, Solid*	ND	U		0.53	2.1	1	mg/Kg	34250		06/22/04 1355	dwh
	Cadmium, Solid*	ND	U		1.1	3.2	1	mg/Kg	34250		06/22/04 1355	dwh
	Calcium, Solid*	14200			12.4	90.8	1	mg/Kg	34250		06/22/04 1355	dwh
	Chromium, Solid*	13.0			0.36	3.2	1	mg/Kg	34250		06/22/04 1355	dwh
	Cobalt, Solid*	5.6			0.45	2.1	1	mg/Kg	34250		06/22/04 1355	dwh
	Copper, Solid*	48.4			0.85	5.3	1	mg/Kg	34250		06/22/04 1355	dwh
	Iron, Solid*	12900			10.9	155	1	mg/Kg	34250		06/22/04 1355	dwh
	Lead, Solid*	90.2			0.81	9.6	1	mg/Kg	34250		06/22/04 1355	dwh
	Magnesium, Solid*	4720			9.8	37.4	1	mg/Kg	34250		06/22/04 1355	dwh
	Manganese, Solid*	207			0.68	2.7	1	mg/Kg	34250		06/22/04 1355	dwh
	Nickel, Solid*	12.2			0.47	5.3	1	mg/Kg	34250		06/22/04 1355	dwh
	Potassium, Solid*	1370			42.7	214	1	mg/Kg	34250		06/22/04 1355	dwh
	Selenium, Solid*	ND	U		1.7	17.1	1	mg/Kg	34250		06/22/04 1355	dwh
	Silver, Solid*	ND	U		0.34	3.2	1	mg/Kg	34250		06/22/04 1355	dwh
	Sodium, Solid*	150			21.4	100	1	mg/Kg	34250		06/22/04 1355	dwh
	Thallium, Solid*	ND	U		2.1	23.5	1	mg/Kg	34250		06/22/04 1355	dwh
	Vanadium, Solid*	22.2			0.38	4.3	1	mg/Kg	34250		06/22/04 1355	dwh
	Zinc, Solid*	99.8			4.1	21.4	1	mg/Kg	34250		06/22/04 1355	dwh
8270C	Semivolatile Organics											
	Aniline, Solid*	ND	U		180	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Phenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2-Methylphenol, Solid*	ND	U		70	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	4-Methylphenol, Solid*	ND	U		78	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896 Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-16
Date Sampled.....: 06/17/2004
Time Sampled.....: 03:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-2
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	2-Chlorophenol, Solid*	ND	U		100	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Nitrobenzene, Solid*	ND	U		110	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Benzoic acid, Solid*	ND	U		2900	7000	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Isophorone, Solid*	ND	U		100	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Naphthalene, Solid*	700	J		140	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2,4-Dichlorophenol, Solid*	ND	U		130	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	4-Chloroaniline, Solid*	220	J		110	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2,4,5-Trichlorophenol, Solid*	ND	U		44	7000	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2-Methylnaphthalene, Solid*	380	J		120	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2-Nitroaniline, Solid*	ND	U		96	7000	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	4-Chloro-3-methylphenol, Solid*	ND	U		140	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2,6-Dinitrotoluene, Solid*	ND	U		61	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2-Nitrophenol, Solid*	ND	U		120	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	3-Nitroaniline, Solid*	ND	U		78	7000	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Dimethyl phthalate, Solid*	ND	U		65	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	2,4-Dinitrophenol, Solid*	ND	U		220	7000	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Acenaphthylene, Solid*	580	J		48	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Acenaphthene, Solid*	780	J		65	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Dibenzofuran, Solid*	660	J		65	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	4-Nitrophenol, Solid*	ND	U		370	7000	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Fluorene, Solid*	940	J		87	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Hexachlorobenzene, Solid*	ND	U		83	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Diethyl phthalate, Solid*	ND	U		74	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Pentachlorophenol, Solid*	ND	U		190	7000	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Phenanthrene, Solid*	7400			100	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Anthracene, Solid*	2400			52	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Di-n-butyl phthalate, Solid*	ND	U		61	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Fluoranthene, Solid*	8800			96	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Pyrene, Solid*	6700			83	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896 Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-16
Date Sampled.....: 06/17/2004
Time Sampled.....: 03:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-2
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	Butyl benzyl phthalate, Solid*	ND	U		57	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Benzo(a)anthracene, Solid*	4200			65	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Chrysene, Solid*	4200			74	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	3,3-Dichlorobenzidine, Solid*	ND	U		150	2900	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Bis(2-ethylhexyl)phthalate, Solid*	ND	U		160	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Di-n-octyl phthalate, Solid*	ND	U		52	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Benzo(b)fluoranthene, Solid*	3400			170	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Benzo(k)fluoranthene, Solid*	3600			170	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Benzo(a)pyrene, Solid*	4000			70	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Indeno(1,2,3-cd)pyrene, Solid*	1000	J		78	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Dibenzo(a,h)anthracene, Solid*	440	J		78	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
	Benzo(ghi)perylene, Solid*	790	J		74	1400	1.00000	ug/Kg	34347		06/22/04 1941	jdw
8260B	Volatile Organics											
	Vinyl chloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Chloroethane, Solid*	ND	U		2	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,1-Dichloroethene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Trichlorotrifluoroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Carbon disulfide, Solid*	ND	U		0.6	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Acetone, Solid*	ND	U		2	11	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Methylene chloride, Solid*	ND	U		3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	trans-1,2-Dichloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Methyl-tert-butyl-ether (MTBE), Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,1-Dichloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	2-Butanone (MEK), Solid*	ND	U		0.7	11	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Chloroform, Solid*	ND	U	B	0.7	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,1,1-Trichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Carbon tetrachloride, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Benzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 206896 Date:06/25/2004

CUSTOMER: Lockwood, Kessler & Bartlett,Inc. PROJECT: TAGM PROJECT ATTN: John Gerlach

Customer Sample ID: TP-16
Date Sampled.....: 06/17/2004
Time Sampled.....: 03:00
Sample Matrix.....: Soil

Laboratory Sample ID: 206896-2
Date Received.....: 06/18/2004
Time Received.....: 09:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
	1,2-Dichloroethane, Solid*	ND	U		0.6	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Trichloroethene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	4-Methyl-2-pentanone (MIBK), Solid*	ND	U		0.4	11	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Toluene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Tetrachloroethene, Solid*	ND	U		0.7	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,3-Dichloropropane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Dibromochloromethane, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Chlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Ethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Isopropylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,1,2,2-Tetrachloroethane, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,2,3-Trichloropropane, Solid*	ND	U		0.7	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	n-Propylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,3,5-Trimethylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	tert-Butylbenzene, Solid*	ND	U		0.6	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	Xylenes (total), Solid*	ND	U		1	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,2,4-Trimethylbenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	sec-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,3-Dichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	p-Isopropyltoluene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,4-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	n-Butylbenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,2-Dichlorobenzene, Solid*	ND	U		0.4	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw
	1,2,4-Trichlorobenzene, Solid*	ND	U		0.3	6	1.00000	ug/Kg	34297		06/18/04 1902	jdw

* In Description = Dry Wgt.

Date: 06/25/2004
Time: 12:31:12

STL Connecticut
TAGM Pesticides - 8081 (Level 3)
METHOD 8081 - TAGM PESTICIDES

Rept: AN0326

Client ID		TP-15		TP-16					
Job No	Lab ID	A04-5887	A4588701	A04-5887	A4588702				
Sample Date		06/17/2004		06/17/2004					
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Aldrin	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
alpha-BHC	MG/KG	0.044	0.0088	0.042	0.0089	NA		NA	
beta-BHC	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
gamma-BHC (Lindane)	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
gamma-Chlordane	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
delta-BHC	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Chlordane	MG/KG	ND	0.088	ND	0.089	NA		NA	
4,4'-DDD	MG/KG	0.099	0.0088	0.038	0.0089	NA		NA	
4,4'-DDE	MG/KG	0.012	0.0088	ND	0.0089	NA		NA	
4,4'-DDT	MG/KG	0.18	0.0088	0.058	0.0089	NA		NA	
Dieldrin	MG/KG	0.010	0.0088	0.011	0.0089	NA		NA	
Endosulfan I	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Endosulfan II	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Endosulfan Sulfate	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Endrin	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Endrin aldehyde	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Heptachlor	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Heptachlor epoxide	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
Methoxychlor	MG/KG	ND	0.0088	ND	0.0089	NA		NA	
SURROGATE(S)									
Tetrachloro-m-xylene	%	60	38-132	58	38-132	NA		NA	
Decachlorobiphenyl	%	618 *	46-151	560 *	46-151	NA		NA	

NA = Not Applicable ND = Not Detected

STL Buffalo

APPENDIX I

Documents Containing Information on Background Concentrations of Metals and/or Polycyclic Aromatic Hydrocarbons

New York State Department of Environmental Conservation
Region 3 Office/Solid Waste Program

Background Levels of Heavy Metals in Soils of the Lower Hudson Valley

Preliminary Summary of Results
July 1, 2003

In March of 2003, a study was carried out by Solid Waste Program staff in the Region 3 Office of the New York State Department of Environmental Conservation (DEC) to characterize background concentrations of heavy metals in soils of the lower Hudson Valley. This preliminary report provides a summary of the methods and results. A full report is in preparation and will be issued after evaluation of the data has been completed.

This study area is the lower Hudson Valley region of southeastern New York State, an area of 4,552 square miles which includes the counties of Westchester, Rockland, Putnam, Orange, Sullivan, Dutchess and Ulster. Twenty sites were selected for collection of soil samples and three replicate samples were collected at each sampling location to provide a total of sixty samples. The locations selected for sampling were undeveloped sites exhibiting mature natural vegetation with no apparent signs of fill placement, waste disposal or other types of recent anthropogenic disturbance. Care was taken to select sites where the only likely source of anthropogenic contamination would be atmospheric deposition. The sites selected were on publically owned properties managed by the DEC, the State Department of Parks or the Westchester County Department of Parks. The geographic coordinates of each sampling location were determined in the field using a global positioning satellite (GPS) receiver and these data were imported into a geographic information system (GIS) file which was used to create a map of the sampling locations (Figure 1). Names and geographic coordinates of each sampling location are provided in Table 1.

At each sampling location, the three replicate samples were collected within a 10-foot radius. The samples were collected from the upper six inches of the mineral soil (excluding the O horizon, where present) using a core sampler incorporating a 2-inch diameter stainless steel core barrel, a removable stainless steel cutting head, a 2-inch diameter removable butyrate plastic liner and a sliding-weight drive hammer. A new liner was used for each sample and sealed with plastic end-caps to serve as a sample container for shipment of the sample to the laboratory. Based on the design of the sampler, samples come in contact with the inside surface of the cutting head and the inside surface of the core liner only. To prevent cross-contamination, the cutting head was removed and cleaned with de-ionized water after collection of each sample.

Samples were stored at less that 4 degrees centigrade prior to and during shipment to the contract laboratory for analysis. All samples arrived at the laboratory within acceptable holding times, properly preserved and with appropriate chain of custody seals and documentation.

At the contract laboratory, all samples were analyzed for eleven heavy metals using methods consistent with EPA's SW-846 protocols and the DEC Analytical Services Protocol (ASP). The metals analyzed included arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc. In accordance with SW-846 protocols, prior to analysis for all metals, one gram of sample was digested using nitric acid, hydrogen peroxide and hydrochloric acid. All metals determinations, with the exception of mercury, were carried out using inductively coupled plasma atomic emission spectrometry (ICP-AES). Mercury was determined using the cold vapor atomic absorption method.

Table 2 provides summary statistics for each of the metals analyzed along with comparisons of the results to DEC guidance values and results from other studies. The full data set is provided in Table 3. It is anticipated that the results of this study will be useful to DEC/Region 3 staff in evaluating environmental impacts at sites which are filled using imported soils or soil-like wastes.

Questions regarding this preliminary report should be directed to Steven Parisio at 845-256-3139.

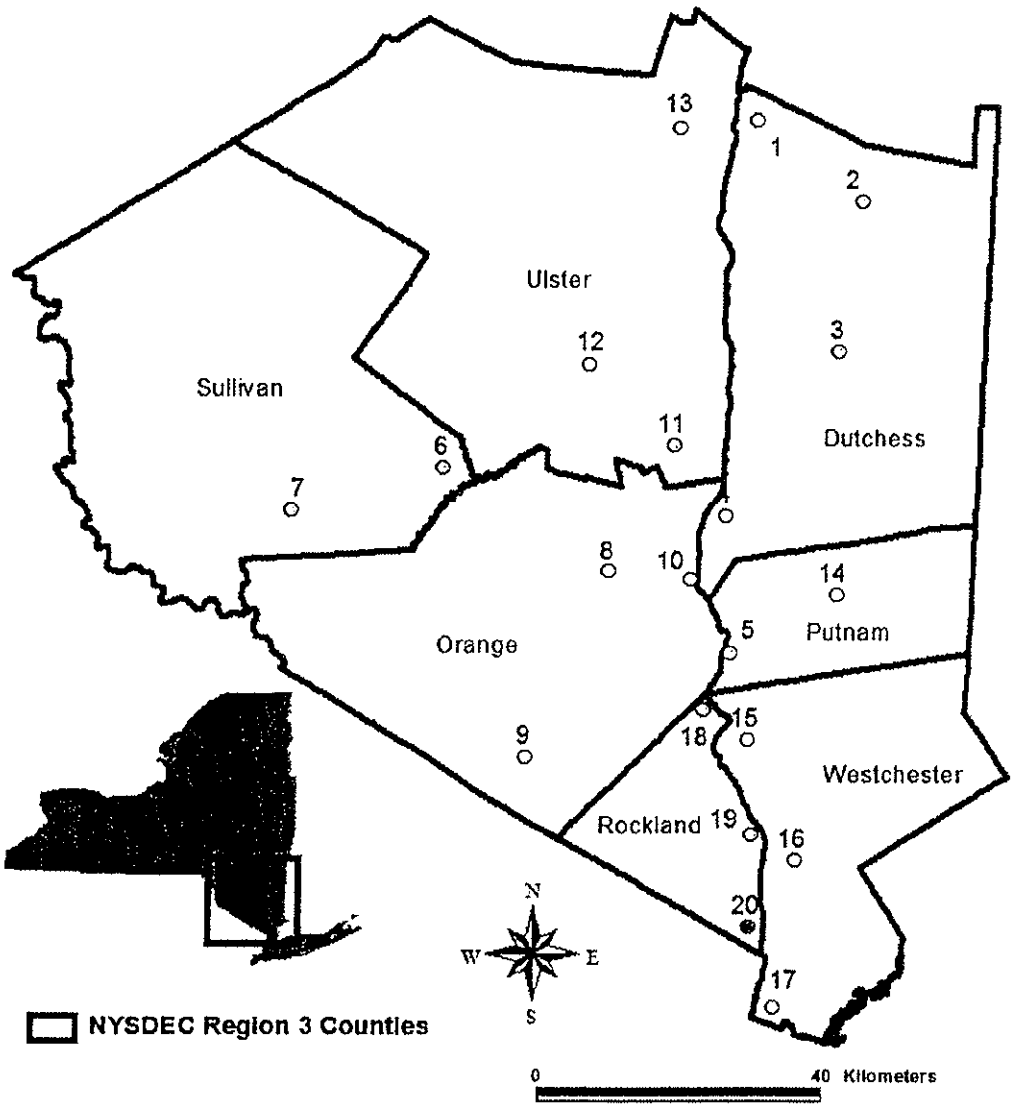


FIGURE 1. Sampling Locations for Background Soil Metals Concentrations, New York

Refer to Table 1 for names of sampling locations

Table 1. Soil Sampling Locations					
Site No.	County	Park/Property Name	Managed By	Date Sampled	Geographic Coordinates
1	Dutchess	Tivoli Bay	DEC	3/10/03	N:42.03632, W:73.89645
2	Dutchess	Stissing Mtn	DEC	3/10/03	N:41.93383, W:73.7179
3	Dutchess	Taconic/Hereford	DEC	3/10/03	N:41.74659, W:73.76030
4	Dutchess	Stony Kill Farm	DEC	3/10/03	N:41.54293, W:73.95121
5	Putnam	Castle Rock	DEC	3/10/03	N:41.37013, W:73.94498
6	Sullivan	Wurtsboro Ridge	DEC	3/11/03	N:41.60621, W:74.42667
7	Sullivan	Neversink River	DEC	3/11/03	N:41.55457, W:74.68181
8	Orange	Stewart State Forest	DEC	3/11/03	N:41.47451, W:74.14892
9	Orange	Mt. Peter Hawk Watch Trailway	DEC	3/11/03	N:41.24484, W:74.28831
10	Orange	Kowawese	DEC	3/11/03	N:41.46286, W:74.01263
11	Ulster	Hemlock Ridge	DEC	3/12/03	N:41.63142, W:74.03738
12	Ulster	Shawangunk	DEC	3/12/03	N:41.73427, W:74.18067
13	Ulster	Highwoods	DEC	3/12/03	N:42.02909, W:74.02744
14	Putnam	California Hill	DEC	3/24/03	N:41.44169, W:73.76609
15	Westchester	Blue Mountain Reservation	Westchester Co. Parks	3/24/03	N:41.26223, W:73.91644
16	Westchester	Rockefeller Preserve	State Parks	3/24/03	N:41.11065, W:73.83748
17	Westchester	Tibbetts Brook Park	Westchetser Co. Parks	3/24/03	N:40.92714, W:73.87445
18	Rockland	Bear Mountain	State Parks	3/35/03	N:41.30057, W:73.99174
19	Rockland	Hook Mountain	State Parks	3/35/03	N:41.14383, W:73.91217
20	Rockland	Tallman Mountain	State Parks	3/25/03	N:41.02887, W:73.91627

Table 2. Region 3 Background Soils Heavy Metals Concentrations - Summary Statistics and Comparisons

	As	Ba	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Zn
Minimum	2.2	38.5	0.24	0.04U	11.2	5.8	6.9	0.04	8.7	0.20	35.7
Maximum	23.1	187	2.2	1.2	51.2	64.8	303	0.92	54.5	2.9	225
Median	5.5	61.9	0.58	0.12	17.9	17.6	33.1	0.13	16.7	0.73	75.4
Mean	6.6	74.2	0.67	0.18	19.4	20.9	57.8	0.20	19.2	0.88	80.2
Standard Deviation	3.8	31.8	0.34	0.20	7.1	11.4	67.5	0.18	8.1	0.60	31.7
Coefficient of Variation	0.58	0.43	0.51	1.1	0.37	0.55	1.2	0.9	0.42	0.68	0.40
90 % UCL	7.4	81.1	0.75	0.22	20.9	23.4	72.5	0.24	21.0	1.0	87.1
TAGM 4046	7.5	300	0.16	1	10	25	-	0.1	13	2	20
% Values Exceeding TAGM 4046	24	0	100	2	100	22	-	66	80	5	100
Mean for NJ Soils	4.46	-	0.93	0.37	12.3	17.2	58.4	0.46	10.3	0.07	73.4
Mean for Eastern US Soils (USGS)	7.4	-	0.85	-	22	22	17	0.12	18	0.45	50

NOTES:

1. All concentrations are given in mg/kg.
2. In order to perform statistical calculations, non-detect values were assigned a value of one half of the detection limit.
3. "TAGM 4046" refers to DEC's Technical & Administrative Guidance Memorandum (TAGM) #4046, entitled "Determination of soil cleanup objectives and cleanup levels".
4. Mean metals concentrations for NJ soils were taken from the 1993 study by the New Jersey Department of Environmental Protection.
5. Mean metals concentrations for Eastern US soils were taken from Shacklette and Boerngen (1984) Element concentrations in soils and other surficial materials of the coterminous United States. USGS Professional Paper 1270.

Table 3. Background Heavy Metals Concentrations in Undisturbed Natural Soils of the Lower Hudson Valley (Page 1 of 3)

Site No./County/Name	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc
01/Dutchess/Tivoli Bay	5.8	74.7	0.58	0.11	14.4	16.1	26.4	0.06	16.4	0.81	57.9
	4.7	58.7	0.47	0.06	11.8	12.6	22.2	0.04	13.3	0.48	45.2
	5.2	59.2	0.49	0.06U	12.8	13.1	19.9	0.05	14.3	0.54	48.2
02/Dutchess/Stissing Mountain	4.4	47.7	0.57	0.11	24.5	17.6	23.8	0.07	29.4	0.48	91.6
	5.1	46.1	0.59	0.06	25	17.9	43.2	0.06	30.4	1.2	96.9
	4.8	46.6	0.62	0.05U	22.3	16.5	17.4	0.06	28.5	0.73	89.6
03/Dutchess/Taconic-Hereford	7.0	55.6	0.78	0.04U	17.3	17.6	16.6	0.05	22.7	0.71	79.3
	8.5	55.7	0.79	0.06	17.9	18.6	43	0.12	26.6	0.73	91.9
	7.5	48.8	0.70	0.10	15.5	16.6	19.3	0.09	22.4	0.62	78.6
04/Dutchess/Stony Kill Farm	6.9	53.7	0.57	0.09	12.6	13.5	74.7	0.18	15.8	1.1	68.1
	7.6	53.0	0.56	0.11	14.4	15.2	42.2	0.14	16.6	1.4	72.7
	6.5	56.0	0.53	0.07	13.6	14.4	33.1	0.14	16.7	0.82	70.3
05/Putnam/Castle Rock	14.3	99.7	1.4	0.19	29.4	32.4	59.1	0.34	31.0	0.83U	135
	23.1	187	2.2	0.42	51.2	64.8	82.6	0.36	54.5	2.9	225
	11.2	82.6	1.2	0.21	24.3	30.0	49.6	0.29	26.3	1.2	124
06/Sullivan/Wurtsboro Ridge	8.8	99.9	1.0	0.18	26.8	29	33.8	0.10	26.6	1.3	99.4
	15.5	136	1.6	0.12	39.1	44.2	24.9	0.06	41.5	0.96	132
	8.9	96.6	0.91	0.31	21.5	25.6	102	0.14	23.7	1.4	89.9
07/Sullivan/Neversink River	6.6	66.2	0.29	0.17	13.8	25.5	215	0.24	8.7	1.1	97.8
	5.5	42.0	0.24	0.06	11.3	49.4	59.9	0.23	9.3	0.49	52.8
	7.3	50.7	0.32	0.11	13.2	12.1	50.5	0.15	10.8	0.84	59.2

Notes:
1. All concentrations are given in mg/kg.
2. Concentrations below the method detection limit (MDL) are designated by the MDL followed by the "U" data qualifier.

Table 3. Background Heavy Metals Concentrations in Undisturbed Natural Soils of the Lower Hudson Valley (Page 2 of 3)

Site No./County/Name	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc
08/Orange/Stewart State Forest	17.7	90.9	0.34	0.42	11.2	16.6	95.1	0.10	14.9	0.62	88.1
	4.7	92.2	0.57	0.17	13.5	18.1	209	0.69	15.8	0.60	91.5
	5.4	141	0.63	0.30	14.9	19.5	303	0.92	18	0.69	125
09/Orange/Mt Peter Hawk Watch Trailway	6.0	61.9	0.98	0.25	15.4	14.3	51.3	0.18	16.0	0.51	84.2
	3.8	61.1	1.4	0.19	15.7	11.1	20	0.1	17.4	0.38	80.8
	6.5	60.9	1.4	0.18	18.7	18.1	36.1	0.11	20.5	0.45U	91.4
10/Orange/Kowawese	4.7	38.5	0.45	0.11	14.1	20.4	12.7	0.08	22.4	0.37U	59.7
	5.3	48	0.58	0.14	19.3	24.9	17.1	0.05	28	0.49U	76.6
	4.4	42.4	0.54	0.17	14.6	20	13.1	0.09	24.1	0.37U	57.4
11/Ulster/Hemlock Ridge	6.4	77.8	0.40	0.27	13.5	11	89.9	0.14	13	1.3	74
	2.2	72.8	0.56	0.05U	17.4	5.8	6.9	0.12	12.8	0.48U	67.2
	4.1	56.5	0.62	0.04U	22.6	14.8	12.6	0.09	22	0.04U	72
12/Ulster/Shawangunk	5.2	83.2	0.83	0.11	17.3	10.8	15.9	0.10	19.5	0.47U	71.9
	5.6	82.4	0.64	0.20	13.9	14	53.8	0.11	15.6	0.53	75.1
	5.7	92.1	0.72	0.27	14.7	11.5	43.3	0.11	16.6	0.55	84.9
13/Ulster/Highwoods	6.0	85.3	0.52	0.32	16.8	12.2	29.6	0.12	14.2	0.76	72.3
	4.8	58.8	0.49	0.10	16.3	11.7	19.3	0.09	15.2	0.61	54.9
	7.6	67.4	0.59	0.08	20.3	12.7	26.8	0.13	17.9	0.57U	60.4
14/Putnam/California Hill	2.9	141	0.38	0.41	14.8	23.2	60.4	0.15	10.5	1.9	93.8
	2.9	107	0.67	0.19	22	33	24.8	0.13	10.9	0.63	77
	2.2	90.7	0.65	0.11	22.2	24.5	13.9	0.15	11.6	0.53	66.4

Notes:
1. All concentrations are given in mg/kg.
2. Concentrations below the method detection limit (MDL) are designated by the MDL followed by the "U" data qualifier.

Table 3. Background Heavy Metals Concentrations in Undisturbed Natural Soils of the Lower Hudson Valley (Page 3 of 3)

Site No./County/Name	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Zinc
15/Westchester/Blue Mountain Reservation	5.5	68.7	0.57	0.19	21.5	15.9	26.5	0.38	18.2	0.83	67.1
	4.5	94.5	0.69	0.15	31.3	20.3	13.2	0.48	27.5	1.1	75.4
	3.3	80	0.54	0.06	21.9	15.1	7.4	0.42	18.3	0.66	53.8
16/Westchester/ Rockefeller Preserve	3.5	50	0.60	0.06	18.5	8.5	10.5	0.05	11.3	0.39U	35.7
	3.3	58.6	0.66	0.08	19.7	9.6	15.2	0.20	12.7	0.45U	41
	4.9	49.4	0.61	0.11	18.7	10.9	24.3	0.26	12.5	0.78	41.7
17/Westchester/Tibbetts Brook Park	7.8	126	0.51	0.94	23.8	31.3	208	0.41	20.8	1.5	126
	15.0	57.1	0.43	0.28	29.7	48.6	190	0.52	18.9	2.6	89.9
	9.6	165	0.45	1.2	30.9	42.8	301	0.65	28.3	2.5	161
18/Rockland/Bear Mountain State Park	4.6	39.9	0.72	0.05	13.7	14.5	15.5	0.05	13.5	0.88	42.5
	3.1	57.7	0.44	0.15	17.9	13.9	33.0	0.22	14.0	1.8	51.6
	3.9	44.6	0.80	0.05U	14.7	17.1	9.5	0.36	14.0	0.89	43.3
19/Rockland/Hook Mountain State Park	4.0	89.8	0.53	0.20	18.5	23.2	47.7	0.30	20.4	1.4	76.4
	5.3	64.2	0.52	0.12	17.8	27.7	113	0.29	19.5	0.92	79.3
	9.6*	1060*	0.40*	9.2*	15.9*	29.2*	1380*	0.20*	17.6*	1.5*	1750*
20/Rockland/Tallman Mountain State Park	6.4	46.5	0.31	0.06U	22.9	19.4	48.2	0.11	12.5	1.6	68.2
	6.8	79.0	0.55	0.36	22.0	21.9	69.7	0.17	14.0	1.3	89.2
	7.6	39.5	0.46	0.09	20.7	20.6	64.6	0.13	12.0	1.1	59.1

Notes:

1. All concentrations are given in mg/kg.
2. Concentrations below the method detection limit (MDL) are designated by the MDL followed by the "U" data qualifier.
3. Values marked with an asterisk are considered to be outlier values or are values associated with a sample which is being omitted from statistical calculations because it exhibits values for one or more metals which are considered to be outlier values.



Division of Environmental Remediation



DER Home
Project Manager Tools
Technology Home
Soil Cleanup Information
Comments on Draft Technology Guidance
Quality Assurance
Technology Seminars
Treatment Technologies Screening Matrix

Carcinogenic PAHs

This list of 7 carcinogenic PAHs are those that the DEC and DOH have agreed should comprise total cPAHs, when total cPAHs are used for cleanup limits. These are compounds for which there is sufficient evidence for carcinogenicity in animals as categorized by the U.S. Environmental Protection Agency (US EPA, 1993) and/or the International Agency for Research on Cancer (IARC, 1987).

NOTE: *Check with Jim Harrington before setting cPAH cleanup requirements. Also, see July 21, 1997 memo from Jim on soil cleanup requirements for cPAHs.*

Compound:	CAS Number	Synonyms:
Indeno(1,2,3-cd)pyrene	193-39-5	-
Benzo(a)anthracene	56-55-3	1,2 benzanthracene
Benzo(a)pyrene	50-32-8	BaP : 3,4 benzopyrene : many others
Benzo(b)fluoranthene	205-99-2	3,4 benzofluoranthene : benz(e)acephenanthrylene
Benzo(k)fluoranthene	207-08-9	11,12 benzofluoranthene
Chrysene	218-01-9	1,2 benzphenanthracene
Dibenzo(a,h)anthracene	53-70-3	1,2,5,6 dibenzanthracene

Benzo(a)pyrene Toxicity Equivalence

A new screening tool is now being applied to PAH concentrations at sites under the review of the NYSDEC and NYSDOH. The benzo(a)pyrene toxicity equivalent will be used for screening surface soil results, establishing site specific background levels for surface soils, and to define the degree of restrictions (e.g. commercial vs. residential use, engineering controls) that may be necessary due to remaining subsurface contamination.

The benzo(a)pyrene toxicity equivalent is calculated by multiplying the concentration of the individual carcinogenic PAHs by the following factors

PAH	Multiplier
Benzo(a)pyrene	1.00
Dibenzo(a,h)anthracene	1.00
Benzo(a)anthracene	0.10
Benzo(b)fluoranthene	0.10
Indeno(1,2,3-cd)pyrene	0.10
Benzo(k)fluoranthene	0.01
Chrysene	0.01

References:

U.S. EPA. 1993. Integrated Risk Information System (IRIS) Data base.

Urban Area Polycyclic Aromatic Hydrocarbons Study
Tiered Approach to Corrective Action Objectives

Two background studies were recently completed investigating certain polycyclic aromatic hydrocarbon (PAHs) concentration levels in urban areas. One study was conducted within the limits of the City of Chicago and the other in urbanized areas across Illinois outside of Chicago. The City of Chicago study was conducted in consultation with the Illinois EPA. The Electric Power Research Institute (EPRI), in consultation with Illinois EPA, conducted the other study. The purpose of these studies was to determine background concentrations for some common PAHs in urban areas.

Where do PAHs come from?
PAHs come from a variety of sources; the majority of these sources are from the combustion or burning of fuels. Generally, any burning of an organic material such as coal, oil or wood will generate PAHs, and the existence of these chemicals is common throughout our society. Planes, automobiles, coal heating, forest fires, and power generation have all greatly contributed to the existence of these chemicals.

Why are PAHs a concern?
PAHs are a concern because they have been shown to have both a toxic and carcinogenic response in humans. Exposure to large amounts of PAHs can be harmful to human health.

What are background concentrations?
Background concentrations are generally considered to be the level or amount of a chemical found in common areas not associated with a particular contaminant release. Parks, roadways, residential yards, non-industrialized properties, etc., are typical background areas.

The definition from Tiered Approach to Corrective Action Objectives (TACO) is:

> "Area Background" means concentrations of regulated substances that are consistently present in the environment in the vicinity of a site that are the result of natural conditions or human activities, and not the result solely of releases at the site. [415 ILCS 5/58.2]

How is this background concentration utilized?

Illinois EPA has published regulations establishing a methodology for setting remediation objectives for a number of chemicals. These risk-based objectives establish safe concentrations for chemicals for various exposure pathways. These regulations are referred to as TACO.

Illinois EPA has reviewed the reports of background concentrations of PAHs submitted by the City of Chicago Department of the Environment titled (*"Polynuclear Aromatic Hydrocarbon Background Study, City of Chicago"*) and for the Electric Power Research

Institute (EPRI; *Final Report on Background PAHs in Surface Soil in Illinois*). Illinois EPA finds these reports to be appropriately conducted studies yielding scientifically valid data regarding the background levels of PAHs in Illinois urban surface soils. Illinois EPA believes the data for the carcinogenic PAHs could form the basis for amending the current risk-based TACO soil remediation objectives to account for background occurrence. Until such amendments are adopted, remedial applicants for sites where PAHs are a concern may utilize the data from the two reports in developing site-specific remediation objectives under TACO.

Such use must occur in an appropriately conservative manner until final amended TACO values are determined through the rulemaking process. Illinois EPA recommends that since the data sets for nearly all the individual PAHs in both studies were found to be lognormally distributed, the lognormal 95th percentiles of the data sets should be the values used for comparison purposes. The 95th percentiles calculated from the Chicago background study are to be used inside the Chicago city limits. The EPRI study determined background PAH concentrations for locations both within and outside of Metropolitan Statistical Areas (MSAs). The 95th percentiles calculated for the EPRI study are the comparison values used outside the Chicago city limits. Since all samples in both data sets were collected within urban areas having population densities of at least 1,000 people per square mile and a minimum population of at least 10,000, these comparison values should only be used for sites in areas with similar characteristics. (i.e., the background PAH data should not be used for rural communities, farm land, etc.). These comparison values could be used to support a Tier III impractical remediation determination (35 Illinois Administration Code 742.920) in accordance with the TACO regulations. These values are included in the following table:

Background Carcinogenic PAH 95th Percentile Concentrations (mg/kg)

PAH Name	Chicago	Within MSA	Outside of MSA
Benzo(a)anthracene	1.1	1.8	0.72
Benzo(b)fluoranthene	1.5	2.0	0.70
Benzo(k)fluoranthene	1.0	1.7	0.63
Benzo(a)pyrene	1.3	2.1	0.98
Chrysene	1.1	2.7	1.1
Dibenzo(a,h)anthracene	0.20	0.42	0.15
Indeno(1,2,3-c,d)pyrene	0.86	1.6	0.51

Metropolitan Statistical Area (MSA)--A Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000. The Metropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

This definition of MSA is available at http://www.census.gov/population/www/estimates/aboutmetro.html.

MSAs for Illinois are identified in 35 Illinois Administration Code 742.Appendix A Table G of TACO

Procedure: This background information can be used with TACO rules. Until such time as the Illinois Pollution Control Board incorporates this study as a rule, a site undergoing remediation and seeking a No Further Remediation letter in such programs as the Site Remediation Program or the Leaking Underground Storage Tank Program may use these data to establish site-specific remediation objectives (see Section 742.920). Persons wishing to use these background data in the application of TACO will need to reference the applicable report and need not resubmit the applicable report in its entirety. This reference will reduce the amount of paperwork in requesting the use of the data. Of course, all other information requirements from the individual programs are still necessary.

In addition, for sites outside of Chicago, it must be determined whether the remediation site is located in a urban area similar to the sampled areas (population densities of at least 1,000 people per square mile and a minimum population of at least 10,000) to justify the establishment of background concentrations in accordance with 35 Illinois Administration Code 742.415. This is required for both MSA and non-MSA areas.

Massachusetts Department of ENVIRONMENTAL PROTECTION

technical update

Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil

Updates: Section 2.3 *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan* (1992)

Discussion

Polycyclic Aromatic Hydrocarbons ("PAHs") are ubiquitous and consistently present in the environment and are typically formed during the incomplete burning of organic material including wood, coal, oil, gasoline and garbage. PAHs are also found in crude oil, coal tar, creosote and asphalt. Historically, PAHs have been associated with human activities such as cooking, heating homes and industries and fuel for operating automobiles, although low levels of PAHs are also present in the environment from natural sources, such as forest fires. Their presence in the environment at higher concentrations is an artifact of habitation and is due to the widespread practice of emptying fireplaces, stoves, boilers, garbage, etc. in rural and urban areas over the past several hundred years. As a result, it is very common to detect "background" levels of PAHs in soils. Metals are both naturally occurring and found in man-made materials (such as paint, fuel, fertilizers and pesticides) widely distributed in the environment. Naturally occurring metals present in wood and coal are often found concentrated in ash residue.

DEP has obtained background data from various sources documenting the concentrations of PAHs and metals in soil affected by human activities, particularly soil associated with wood ash and coal ash. These levels are representative of typical concentrations found in areas with fill material, *not* pristine conditions. DEP has also compiled background soil data for metals that are representative of undisturbed, natural conditions.

The identification of generic values for PAHs and metals in soil is intended to streamline the risk characterization process (310 CMR 40.0900) and determination of applicable Response Action Outcome Category (310 CMR 40.1000). Nothing in this Technical Update obviates the need to establish location-specific background conditions for other purposes, such as compliance with the anti-degradation provisions of the Massachusetts Contingency Plan ("MCP") described at 310 CMR 40.0032(3).

Definition of Background (310 CMR 40.0006)

Background means those levels of oil and hazardous material that would exist in the absence of the disposal site of concern which are either:

(a) ubiquitous and consistently present in the environment at and in the vicinity of the disposal site of concern; and attributable to geologic or ecological conditions, or atmospheric deposition of industrial process or engine emissions;
(b) attributable to coal ash or wood ash associated with fill material;
(c) releases to groundwater from a public water supply system; or
(d) petroleum residues that are incidental to the normal operation of motor vehicles.

Basis of the Background Levels for Soil

The background levels were selected following an analysis of several datasets, including:

- Data (30-140 samples) collected to represent background at c.21E sites located in non-urban areas, gathered from a review of DEP files,
- Site-specific background samples generated for locations in Worcester (68 samples) and Watertown (17 samples),
- Data (750-1,000 samples) collected by Mass Highway Department as part of the Central Artery/Tunnel (CA/T) project and presented in a draft document *Background Soil Contaminant Assessment* (CDM, April 1996),
- Data (590 natural soil samples from depths of 10 to 70 feet) collected by Haley & Aldrich, Inc. in the Boston Area
- Preliminary data compiled by the Massachusetts Licensed Site professional Association from background data submitted by its members,
- Published data (62 samples) from ENSR, Inc. from 3 New England locations, and
- Generic background data published by the Agency for Toxic Substances and Disease Registry (ATSDR).

There is not one concentration of a chemical, of course, which can correctly be labeled ***the*** background level. Hundreds of years of human activities have only broadened the naturally occurring range of concentrations reported as "background", and this range is best thought of as a statistical distribution. In the evaluation of environmental contamination, we often select point values from the range of background levels, and consider these to be representative of background. The use of such point-value "background" levels is essentially a short-cut method that allows consideration of background in the absence of site-specific information. The intent of DEP policy is to protect public health while minimizing the routine site-specific determinations at sites in the statewide cleanup program.

"Natural" Soil

- Generally, the 90th percentile value from the MA DEP 1995 dataset was the point-value identified as background.
- In the absence of data in the MA DEP 1995 dataset, a lower percentile value from the CDM 1996 dataset was chosen as background.

Soil Containing Fill Material

- Generally, the 90th percentile value from the CDM 1996 dataset was point-value identified as background.
- In the absence of data in the CDM 1996 dataset, the 90th percentile value from the "natural" soil (MA DEP, 1995) dataset was chosen as background.

Applicability of the Values Listed in Table 1

Table 1 presents two lists of background concentrations: one for use with natural soils, and the second for use with soils containing either coal ash or wood ash associated with fill material, or other material consistent with the regulatory definition of background. The list for use with natural soils may be compared to site soil concentrations with no site-specific justification. The use of the list for soil containing fill material must be accompanied by documentation that the soil at the site does, in fact, contain coal ash or wood ash associated with fill material (or other material consistent with the regulatory definition of background). Such documentation may include information about the site history, soil strata, physical evidence or visual observations (including microscopic).

Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of
Massachusetts
Jane Swift, Governor

Executive Office of
Environmental Affairs
Bob Durand, Secretary

Department of
Environmental Protection
Lauren A. Liss, Commissioner

Produced by the
Office of Research & Standards,
May 2002.
Printed on recycled paper.

This information is available in
alternate format by calling our
ADA Coordinator at
(617) 574-6872.



Elevated chemical concentrations and/or and urban setting are not, *per se*, sufficient evidence to justify use of the higher background levels.

Comparison of Site Concentrations to the Background Levels for Soil

Section 2.3 of the DEP's *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan* (1995) describes the use of DEP-published generic background values. If the site investigation indicates the presence of fill material in the soil, and *all* reported concentrations of an oil or hazardous material ("OHM") fall below the applicable value published in Table 1, then it may concluded that the OHM is present at background concentrations. In other words, the values published in Table 1 are to be compared to the maximum reported concentration at the site. This Technical Update does not modify or change this comparison.

Table 1 lists background levels for "natural" soil and for soil containing coal ash and wood ash associated with fill material. A detailed summary of the data is attached in Appendix A. The applicability of these background concentrations to a site should be determined based upon the presence or absence of fill material containing coal ash or wood ash. If all contaminant concentrations are found to be equal to or less than the applicable background concentrations, a Class A-1 Response Action Outcome may be an option at the site, and no Activity and Use Limitation is required.

Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of
Massachusetts
Jane Swift, Governor

Executive Office of
Environmental Affairs
Bob Durand, Secretary

Department of
Environmental Protection
Lauren A. Liss, Commissioner

Produced by the
Office of Research & Standards,
May 2002.
Printed on recycled paper.

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

Background Concentrations Different Than The MADEP-Published Values

Appendix A describes the wide ranges seen in the distributions of background concentrations. MADEP's choice of point values within these ranges balances the need to eliminate background chemicals from the risk assessment with the need to retain for evaluation those chemicals whose presence is related to the disposal practices at the site.

It is inevitable that at some sites the use of the values listed in Table 1 will incorrectly require the assessment of some "true" background concentrations of OHM at the high end of the background range. Conversely, some chemicals that *are* related to the disposal practices at a site (and are not background) will be screened out of the risk assessment by the use of the Table 1 concentrations. The goal is to minimize **both** kinds of error.

In many cases, additional information about the location of the site, the nature of the soils or the known or suspected disposal practices may be used to justify the application of different literature values or site-specific background information. DEP's adoption of the generic, statewide values presented in this Technical Update does not negate the validity of site-specific background information, when such information is available and of appropriate data quality. The level of effort necessary for such a justification will depend on the specific circumstances. For example, such a justification would be straightforward for elevated arsenic concentrations in soil at a gasoline-release site in an area of the state known to have geological formations rich in arsenic. The level of effort would be significantly higher at a tannery site in the same area due to the facility's historic use of arsenic. Similarly, the presence of elevated chromium or barium concentrations in marine clay deposits could generally be attributable to natural background absent known or suspected sources of the chemical at the site.

Minimizing Exposure to Soils Containing Elevated Background Material and/or Material Exempt from M.G.L. c.21E

As discussed in this Technical Update, M.G.L. Chapter 21E and the Massachusetts Contingency Plan (the statute and regulations) do not require remediation of chemicals present at levels consistent with background, even if such concentrations would otherwise pose a significant risk of harm to health, safety, public welfare or the environment. The statute also exempts several other environmental conditions (such as lead from lead paint or gasoline and pesticides applied according to their label) that could pose a Significant Risk.

While such conditions are not subject to regulation by DEP, the Department encourages parties to mitigate potential exposures whenever possible. Such mitigation measures could include:

- providing clean soil (down to a depth of 3 feet) in residential settings, and
- providing clean corridors for utility lines.

For Further Information

For further information about this Technical Update, please contact Paul W. Locke, Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108, telephone: (617) 556-1052, email: Paul.Locke@state.ma.us.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Polycyclic Aromatic Hydrocarbons (PAHs) (Update) August, 1995.

Bradley, L.J.N., Magee, B.H., and Allen, S.L. 1994. Background Levels of Polycyclic Aromatic Hydrocarbons (PAH) and Selected Metals in New England Urban Soils. Journal of Soil Contamination, 3(4):349-361

Camp Dresser & McKee (CDM). 1995. CA/T ROW Background Soil Contaminant Assessment. Prepared for the Massachusetts Highway Department, Central Artery/Tunnel Project.

Haley & Aldrich, Inc. 2001. Boston Background Soil Quality Data, May 22, 2001. Memorandum to Brian Moran, MA DEP Bureau of Waste Site Cleanup.

Licensed Site Professional Association (LSPA) 2001. Summary of Selected Results, LSPA Anthropogenic Fill Soils Project, April 2001. Personal Communication.

Massachusetts Department of Environmental Protection (MA DEP). 1995. Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan. BWSC/ORS-95-141.

Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of Massachusetts
Jane Swift, Governor

Executive Office of Environmental Affairs
Bob Durand, Secretary

Department of Environmental Protection
Lauren A. Liss, Commissioner

Produced by the Office of Research & Standards, May 2002.
Printed on recycled paper.

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

Table 1.

MADEP Identified Background Levels in Soil

OIL OR HAZARDOUS MATERIAL	Concentration in "Natural" Soil mg/kg	Concentration in Soil Containing Coal Ash or Wood Ash Associated With Fill Material mg/kg
ACENAPHTHENE[2]	0.5	2
ACENAPHTHYLENE[2]	0.5	1
ANTHRACENE[2]	1	4
ALUMINUM[1]	10,000	10,000
ANTIMONY	1	7
ARSENIC	20	20
BARIUM[1]	50	50
BENZO(a)ANTHRACENE[2]	2	9
BENZO(a)PYRENE[2]	2	7
BENZO(b)FLUORANTHENE[2]	2	8
BENZO(g,h,i)PERYLENE[2]	1	3
BENZO(k)FLUORANTHENE[2]	1	4
BERYLLIUM	0.4	0.9
CADMIUM	2	3
CHROMIUM (TOTAL)	30	40
CHROMIUM(III)	30	40
CHROMIUM(VI)	30	40
CHRYSENE[2]	2	7
COBALT[1]	4	4
COPPER	40	200
DIBENZO(a,h)ANTHRACENE[2]	0.5	1
FLUORANTHENE[2]	4	10
FLUORENE[2]	1	2
INDENO(1,2,3-cd)PYRENE[2]	1	3
IRON[1]	20,000	20,000
LEAD	100	600
MAGNESIUM[1]	5,000	5,000
MANGANESE[1]	300	300
MERCURY	0.3	1
METHYLNAPHTHALENE, 2-[2]	0.5	1
NAPHTHALENE[2]	0.5	1
NICKEL	20	30
PHENANTHRENE[2]	3	20
PYRENE[2]	4	20
SELENIUM	0.5	1
SILVER	0.6	5
THALLIUM	0.6	5
VANADIUM[1]	30	30
ZINC	100	300

(Values rounded to one significant figure.)

[1] In the absence of fill-specific data, the "natural" soil value has been adopted.

[2] In the absence of data specific to "natural" soil, a lower percentile value from the fill data set has been adopted.

Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108-4746

Commonwealth of
Massachusetts
Jane Swift, Governor

Executive Office of
Environmental Affairs
Bob Durand, Secretary

Department of
Environmental Protection
Lauren A. Liss, Commissioner

Produced by the
Office of Research & Standards,
May 2002.
Printed on recycled paper.

This information is available in
alternate format by calling our
ADA Coordinator at
(617) 574-6872.

Levels of PAHs and Metals in Soil from Various Datasets

Appendix A - Detailed Data Summary

	Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
			<---------- PERCENTILES ---------->				
Total PAHs							
CA/T Project	873	2.7	0.08	2.6	92	230	3000
ENSR - Urban Soils	62	10.97	2.292				167
Total Carcingenic PAHs							
CA/T Project	873	1.5	0.022	1.1	42	95	1200
ENSR - Urban Soils	62	4.86	0.68				78
Total Noncarcinogenic PAHs							
CA/T Project	873	1.9	0.08	1.6	54	140	1900
ENSR - Urban Soils	62	6.11	1.612				89
Acenaphthene							
CA/T Project	868	0.18	0.024	0.18	1.9	4.1	42
Med City/Mill Brook	67	NC	ND (64)	NC	NC	NC	1.7
ENSR - Urban Soils	62	0.128	ND (32)				3.4
Acenaphthylene							
CA/T Project	869	0.17	0.037	0.17	1	1.9	10
Med City/Mill Brook	67	NC	ND (65)	NC	NC	NC	0.76
ENSR - Urban Soils	62	0.133	ND (38)				1.1
Anthracene							
CA/T Project	872	0.2	0.033	0.2	3.8	10	130
Med City/Mill Brook	68	NC	ND (52)	NC	0.592	1.2	3.4
ENSR - Urban Soils	62	0.184	ND (8)				5.7
Benzo[a]pyrene							
CA/T Project	873	0.3	0.031	0.3	7.4	17	230
LSPA Project	489	0.44	ND (220)	0.44	15.3	NC	222
Watertown	17	0.95	0.6	NC	3.39	4.77	6.08
Med City/Mill Brook	67	NC	ND (43)	NC	2.02	3.3	9.7
ENSR - Urban Soils	62	0.686	ND (5)				13
ATSDR Range:			0.165				0.22
Benzo[a]anthracene							
CA/T Project	872	0.33	0.045	0.33	8.5	19	250
LSPA Project	490	0.563	ND (206)	0.563	17.6	NC	796
Watertown	17	0.411	0.021	0.48	2.52	6.04	6.05
Med City/Mill Brook	68	NC	ND (38)	NC	2.39	3.8	15
ENSR - Urban Soils	62	0.672	ND (4)				15
ATSDR Range:			0.169				59
Benzo[b]fluoranthene							
CA/T Project	873	0.68	0.045	0.4	8.4	18	270
LSPA Project	486	NC	ND (258)	NC	11	NC	250
Watertown	17	1.4	0.6	0.6	6.78	6.79	7.08
ENSR - Urban Soil	62	0.722	ND (7)				12
ATSDR Range:			15				62

Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

	Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
			<---------- PERCENTILES ---------->				
Benzo[g,h,i]perylene							
CA/T Project	871	0.2	0.045	0.2	3.1	7.7	77
Med City/Mill Brook	67	NC	ND (52)	NC	1.2	1.41	5.2
ENSR - Urban Soil	62	0.461	ND (26)				5.9
ATSDR Range:			0.9				47
Benzo[k]fluoranthene							
CA/T Project	869	0.21	0.045	0.21	4	9.7	150
LSPA Project	475	NC	ND (289)	NC	11.4	NC	110
Watertown	17	0.502	0.065	0.406	3.35	4.47	5.13
ENSR - Urban Soil	62	0.834	ND (3)				25
ATSDR Range:			0.3				26
Chrysene							
CA/T Project	873	0.35	0.022	0.35	7.3	18	240
LSPA Project	490	0.59	ND (204)	0.59	20.3	NC	420
Watertown	17	0.32	0.016	0.404	4.55	5.06	6.6
Med City/Mill Brook	68	NC	ND (42)	NC	2.1	3.6	14
ENSR - Urban Soil	62	0.844	ND (2)				21
ATSDR Range:			0.251				0.64
Dibenzo[a,h]anthracene							
CA/T Project	866	0.17	0.045	0.17	1.1	2.1	39
Watertown	17	0.195	0.155	NC	0.494	0.604	0.64
Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	1.6
ENSR - Urban Soils	62	0.245	ND (30)				2.9
Fluoranthene							
CA/T Project	873	0.89	0.035	0.61	14	33	490
Med City/Mill Brook	68	NC	ND (32)	0.376	4.2	11	40
ENSR - Urban Soils	62	1.38	ND (2)				39
ATSDR Range:			0.2				166
Fluorene							
CA/T Project	873	0.18	0.028	0.18	2.3	5.5	79
Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	2
ENSR - Urban Soils	62	0.141	ND (27)				3.3
Indeno[1,2,3-cd]pyrene							
CA/T Project	871	0.2	0.022	0.2	2.8	7	100
LSPA Project	475	NC	ND (304)	NC	6.3	NC	130
Watertown	17	1.752	1.2	NC	5.64	6.2	7.2
Med City/Mill Brook	68	NC	ND (50)	NC	1.5	2	6
ENSR - Urban Soil	62	0.532	ND (19)				6
ATSDR Range:			8				61
2-Methylnaphthalene							
CA/T Project	789	0.15	0.03	0.15	0.96	2.2	13
Med City/Mill Brook	68		ND (67)	NC	NC	NC	0.77
ENSR - Urban Soil	62	0.121	ND (43)				0.64

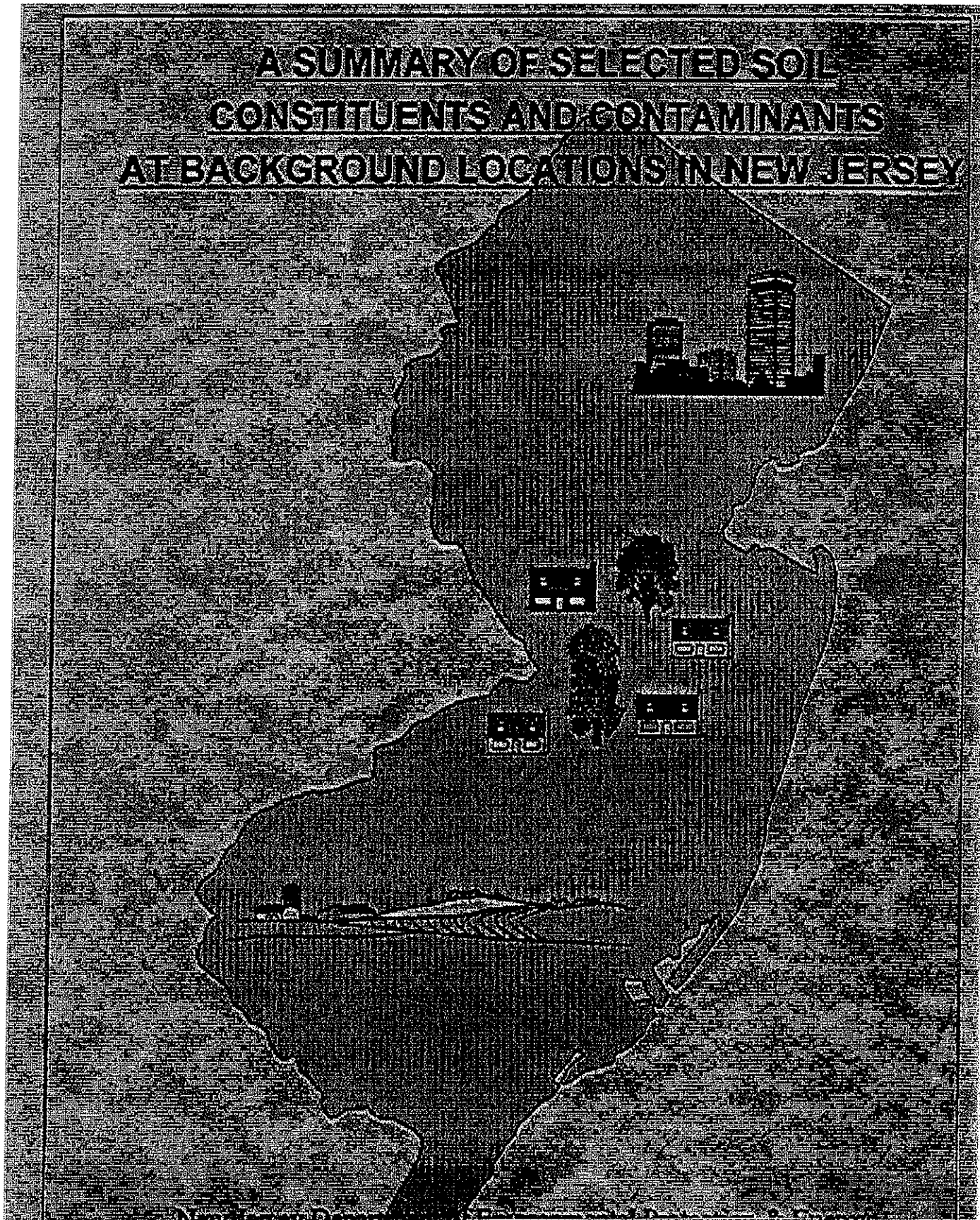
Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

		Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
				<---------- PERCENTILES ---------->				
Naphthalene								
	CA/T Project	867	0.17	0.016	0.17	1.4	3	28
	Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	1.9
	ENSR - Urban Soils	62	0.0917	ND (27)				0.66
Phenanthrene								
	CA/T Project	873	0.8	0.029	0.47	15	38	480
	Med City/Mill Brook	68	NC	ND (38)	NC	2.7	5.6	16
	ENSR - Urban Soils	62	0.788	ND (1)				36
Pyrene								
	CA/T Project	873	0.89	0.034	0.61	16	35	440
	Med City/Mill Brook	68	NC	ND (32)	0.343	4.29	9	30
	ENSR - Urban Soil	62	1.54	ND (1)				11
	ATSDR Range:			0.145				147
Aluminum								
	DEP 1995	30	5536	387	7800	13000	16000	24000
Antimony								
	DEP 1995	90	0.2	ND (0.002)	0.34	1.4	4.8	22
	CA/T Project	746	NC	0.25	1	7	12	160
Arsenic								
	DEP 1995	139	4.7	ND (0.1)	4.8	16.7	24.5	99
	CA/T Project	754	5.3	0.25	5.4	14	21	99
	H&A 2001	589	5.5	ND	5.57	11	12.9	23
Barium								
	DEP 1995	64	15	0.42	15.7	45.2	52.8	104
	H&A 2001	490	35	ND	35.7	80.9	89.3	680
Beryllium								
	DEP 1995	103	0.21	0.03	0.23	0.39	0.53	1.6
	CA/T Project	746	0.5	0.03	0.5	0.88	2	7.5
	H&A 2001	22	0.5	ND	0.63	1.15	1.2	1.3
Cadmium								
	DEP 1995	127	0.43	ND (0.01)	0.29	2.06	3.4	5.9
	CA/T Project	756	0.5	0.1	0.5	3	5	25
	H&A 2001	572	1.8	ND	1.26	1.63	1.63	3
Chromium								
	DEP 1995	147	10.3	0.02	10.6	28.6	38.8	105
	CA/T Project	756	13	1	15	39	50	530
	H&A 2001	589	22	ND	22	43.9	49.6	94
Cobalt								
	DEP 1995	10	0.8	ND (0.5)	NC	4.4	4.5	4.7
Copper								
	DEP 1995	103	7.7	ND (0.5)	7.3	37.7	56.1	160
	CA/T Project	742	34	1	30	170	320	5300
	H&A 2001	22	26	6	27	47.5	64.5	130

Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

		Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
				<---------- PERCENTILES ---------->				
Iron								
	DEP 1995	30	6031	444	7200	17000	22500	50000
Lead								
	DEP 1995	141	19.5	1	19.1	98.7	158	326
	CA/T Project	850	51	0.05	53	570	1100	11000
	LSPA Project	457	83	ND (5)	83	640	NC	10600
	H&A 2001	583	15	ND	24.4	78.9	112	300
Magnesium								
	DEP 1995	30	1028	ND (250)	1300	4900	6700	11000
Manganese								
	DEP 1995	30	81.5	ND (3)	110	300	365	460
Mercury								
	DEP 1995	107	0.043	ND (0.0002)	0.066	0.28	0.43	1.4
	CA/T Project	785	0.15	0.001	0.15	1.4	2.6	23
	H&A 2001	583	0.2	ND	0.19	0.74	1.1	2.5
Nickel								
	DEP 1995	103	4.6	ND (0.5)	5.1	16.6	22.7	48
	CA/T Project	740	14	1	14	31	41	220
	H&A 2001	22	34.5	5	35	67.5	70	101
Selenium								
	DEP 1995	93	0.1	ND (0.0005)	0.17	0.5	1	4.6
	CA/T Project	756	0.5	0.1	0.5	1	2.1	57
	H&A 2001	426	0.84	ND	0.74	1.36	1.58	2.8
Silver								
	DEP 1995	117	0.09	ND (0.003)	0.07	0.58	0.91	82
	CA/T Project	756	1	0.19	1	5	7.3	81
	H&A 2001	335	0.64	ND	NC	NC	NC	0.64
Thallium								
	DEP 1995	71	0.1	ND (0.005)	NC	0.6	1.65	5
	CA/T Project	734	NC	0.035	1	5	5	50
Vanadium								
	DEP 1995	30	7.6	ND (1)	10.3	28.5	38.5	46.6
Zinc								
	DEP 1995	112	29.3	3.52	27.7	116.4	131.2	190
	CA/T Project	746	84	5.8	73	340	590	5000
	H&A 2001	22	67	15	58.5	103	106	120

A SUMMARY OF SELECTED SOIL CONSTITUENTS AND CONTAMINANTS AT BACKGROUND LOCATIONS IN NEW JERSEY



New Jersey Department of Environmental Protection & Energy
Site Remediation Program and Division of Science & Research

September, 1993

A SUMMARY OF SELECTED SOIL CONSTITUENTS AND CONTAMINANTS AT BACKGROUND LOCATIONS IN NEW JERSEY

Tessie W. Fields, M.S.[1]
Thomas F. McNevin, Ph.D.
Ronald A. Harkov, Ph.D. 1,2

Site Remediation Program

New Jersey Department of
Environmental Protection and Energy
Trenton, New Jersey

Joseph V. Hunter, Ph.D.
Department of Environmental Sciences
Rutgers University
New Brunswick, New Jersey

September, 1993

Jim Florio
Governor

Jeanne M. Fox
Acting Commissioner
NJ Department of Environmental
Protection & Energy

Lance R. Miller
Assistant Commissioner
Site Remediation Program

Robert K. Tucker, Ph.D.
Director
Division of Science & Research

1. Project conducted while employed with:
Science & Research
NJ Department of Environmental Protection & Energy

2. Currently: TRC Environmental Corp. Division of
18 World's Fair Drive
Somerset, NJ 08073

Acknowledgments

The authors would like to acknowledge the considerable efforts of the many people who made the completion of this study possible, such as Kenneth Kisselbach (currently with W.R. Grace Corp. in Woburn, MA) who aided in the collection of the samples, data entry and helped with the first draft of this report; Chris Smith and Seymour Goodman from the USDA Soil Conservation Service who classified the soils in the field; Dr. Wen Lin Yuan, William Gorduek, and Tom Sabatino from Rutgers University, who did an excellent job conducting the chemical analyses; Dr. Harry Motto, also from Rutgers, for his experience and expertise in the review of this paper and for conducting the sand, silt and clay analyses; Karen Schaffer a Division of Science & Research (DSR) technician, who helped with data entry and proof reading the data and statistics and Leo Korn, DSR's statistician who helped with the statistical evaluation of this data. Thanks are also extended to Greg Toffoli of the Division of Publicly Funded Site Remediation, Bureau of Environmental Measurements and Quality Assurance for his critique of the QA section; Leslie McGeorge of DSR for her overall review of this report and Kathy DiGregorio, Bureau of Planning and Systems, Division of Publicly Funded Site Remediation, for her invaluable assistance in preparing the final type set manuscript. Funding of this study was provided by the Spill Research Fund, which is administered by the Division of Science and Research.

This paper is an Interim Final of a draft which was originally released in March 1992.

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY....1

INTRODUCTION....3

METHODS....5

A. Sample Collection Procedures....5
B. General Soil Parameters....9
C. Chemical Analysis....9
1. Metals....9
2. PCBs and Chlorinated Pesticides....9
3. PAHs....9
4. Organophosphate Pesticides....9
5. Chlorinated Herbicides....10

D. Quality Assurance....10

RESULTS AND DISCUSSION....15

A. Definition of Background....15
B. General Soil Analyses....15
C. Metals....17
1. Potential Sources of Metals in Soils....17
2. Elements Included in Survey....17
3. Concentrations of Inorganics Observed by Land Use Category....18
4. Samples Containing Fill Material....18
5. Comparison of Survey Data with other Data Sets....19
D. Chlorinated Pesticides....25
E. Polycyclic Aromatic Hydrocarbons....26
F. PCBs, Chlorinated Herbicides, and Organophosphate Pesticides....27

CONCLUSIONS....29

REFERENCES....31

APPENDIX I....33

APPENDIX II....35

APPENDIX III....37

APPENDIX IV....41

LIST OF FIGURES AND TABLES

Page

Figure 1 Soil Sample Locations 6

Table 1 General Soil Sample Information 7

Table 2 Quality Assurance Results for Metals..... 11

Table 3 Quality Assurance Results for Polychlorinated Biphenyls..... 11

Table 4 Quality Assurance Results for Chlorinated Pesticides 12

Table 5 Quality Assurance Results for Polycyclic Aromatic Hydrocarbons 13

Table 6 Quality Assurance Results for Organophosphate Pesticides and Chlorinated Herbicides 14

Table 7 Summary of General Soil Analysis Data 16

Table 8 Spearman Rank Correlation of Metals with Sand Content..... 16

Table 9 Summary Statistics for Metals by Land Use Category 20

Table 10 Arithmetic Mean of Inorganic Soil Constituents from Various Data Sets 23

Table 11 Summary Statistics for Chlorinated Pesticides 26

Table 12 Summary of PAH Data for All Land Use Categories 27

Table 13 Organophopsphate Pesticides 28

EXECUTIVE SUMMARY

A study of background soil concentrations of constituents and contaminants was carried out to support hazardous site cleanup efforts in New Jersey. The results presented here, from a representative survey of soil types in New Jersey, compare well with other previously developed data, and provide a reasonable indication of statewide background conditions.

A total of eighty soil samples were collected throughout the state. The soil types selected for sampling included forty-six of the most common soil types in New Jersey. USDA Soil Conservation Service (SCS) personnel aided in the selection of sampling sites and the identification of soil type and texture. The majority of the samples were collected from parklands throughout the state, and represent soils with no direct source of pollution other than atmospheric deposition. Thirty-five of the samples were collected from rural, undisturbed areas of the state. Thirty-seven samples were collected from urban (19) and suburban (18) parks in areas representing a broad range of population densities. Several additional samples were collected from golf course greens (5) and agricultural land (3). Many of the nonrural soils did not display natural soil profiles due to historical regrading of top soils when many of the parks were built. The sampled areas were, in general, not impacted directly by industry or other point sources of pollution.

Samples were characterized according to land use, soil series and soil (surface horizon) textural type. In addition, general soil characteristics such as pH, loss on ignition, and percent sand, silt, and clay, were determined. Target chemical parameters include: priority pollutant and other selected metals, polychlorinated biphenyls (PCB), chlorinated pesticides, polycyclic aromatic hydrocarbons (PAH), organophosphate pesticides, and chlorinated herbicides. The data are grouped by land use category comprising rural (35 samples), suburban (18), urban (19), golf course (5), and agricultural land (3).

The results, presented on a land use basis, indicated a general trend of increasing contamination with increasing human activity. All of the metals included in the survey, with the exceptions of beryllium, chromium and selenium, displayed significantly higher concentrations in the urban soils than in the rural soils sampled. Several metals also showed significantly higher concentrations in suburban versus rural soils, as determined by nonparametric statistical analysis. Similar trends were also seen for certain chlorinated pesticides which have had wide historical use. A limited number of samples were collected from amended soils on golf greens. These data indicated that levels of certain inorganics and pesticides were as high or higher on the golf greens as in the urban soils.

In general, the arithmetic means of the inorganic data in the present study agreed reasonably well with other available data sets. The ranges of the different inorganic parameters are reasonably representative of statewide background conditions, which are seen to include both natural background, and background modified by diffuse anthropogenic pollution.

No PCBs, organophosphate pesticides or chlorinated herbicides were detected in this study, while polycyclic aromatic hydrocarbons (PAH) were detected at or below the low part per million level. Laboratory quality assurance problems, however, limit the utility of the PCB and PAH data.

INTRODUCTION

A major responsibility of the New Jersey Department of Environmental Protection and Energy is the mitigation of uncontrolled hazardous waste sites and contaminated industrial sites under its jurisdiction. Central to any cleanup strategy is the issue of "How clean is clean?". Health-based soil cleanup objectives must be compared to both background soil concentrations and available analytical detection limits to determine practical enforceable cleanup standards. When the health-based objective is less than background, the standard must be set at a different value, either a background value or the detection limit, whichever is higher. Utilizing a distribution of soil values throughout the state allows the selection of a threshold value, such that a concentration in excess of this is likely to be of human rather than natural origin.

Cleanup standards which are protective of human health consider various potential routes of exposure. Common routes of human exposure associated with contaminated soils involve direct contact with soil pollutants via incidental soil ingestion and inhalation of soil and dust particles, as well as, inhalation of substances volatilized to the atmosphere. Soil contaminants can also be transported to potable water aquifers, which can result in the ingestion of contaminated groundwater.

Since significant potential exposure pathways are associated with surface soils, the soils sampled for this project were collected to a depth of twelve inches (30.5 cm). Soil contaminants that result from atmospheric deposition can produce relatively elevated concentrations in the upper few centimeters of the soil profile. Therefore, the level of contaminants measured in the homogenized twelve-inch core samples for this study may represent a lower average concentration in comparison to surface contamination resulting from atmospheric deposition. Similarly, a larger homogenized core segment (e.g., 0-24") may represent an even greater degree of dilution relative to the immediate surface. The widespread distribution, via atmospheric deposition, of several pollutants such as trace elements (Friedland, et al., 1984), PCBs (Creaser and Fernandes, 1986), and polycyclic aromatic hydrocarbons (PAH) (Prahl, et al., 1984, Blumer, et al., 1977) in urban soils has been documented.

METHODS

The soil samples, which were collected during the period 1985-1987, were distributed throughout the state with two to six samples collected per county (Figure 1). Rural samples were collected in undisturbed forests, woodlots and meadows; the majority of sampled sites were located on public lands including state parks and forests. One muck sample, collected from a Pine Barrens bog, has been included in the rural sample set. Suburban sampling sites included areas with a moderate amount of human activity, such as parks and playgrounds in small towns. The urban samples were collected in parks, in densely populated, developed areas of the state. Areas obviously impacted directly by a nearby industry or other point source were avoided. Two soil samples (samples # 26 and 66) did contain fill material (i.e., disturbed soils containing cinders and debris) of uncertain origin; these samples were included in the database under the urban land use category and will be discussed separately in the results section.

A. Sample Collection Procedures

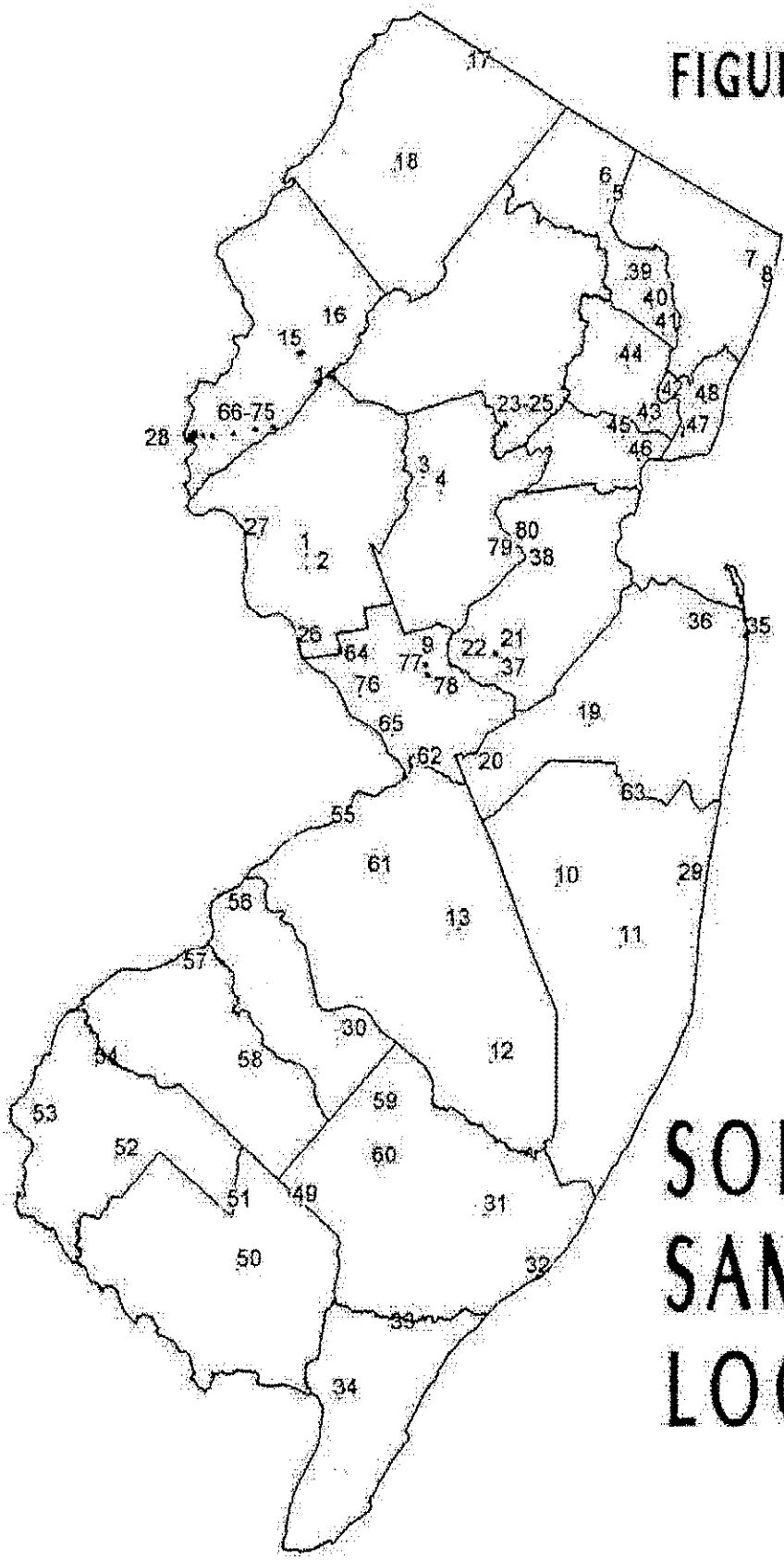
Sampling was concentrated in areas which were non-locally impacted (i.e., sites did not have any known or direct sources of pollution as determined by DEPE and SCS sampling personnel). Many of the sites sampled are utilized for recreational purposes. A total of eighty samples were collected during this study. The majority of the samples were collected from forests and parks located in areas that ranged from land which has never been developed, to densely populated areas. In addition, a few samples were collected from golf courses and farms as examples of soils likely to be amended with fertilizers and pesticides.

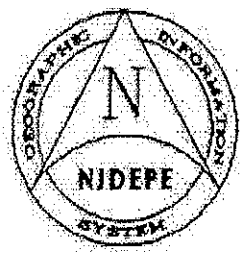
Information on soil types and acreage in the state was provided by the USDA Soil Conservation Service. From these data, 46 major soil types were selected, which account for over 70 percent of the land area in New Jersey. This was done to measure soil constituents and contaminants in a variety of soil types even though concentrations of many of these elements and compounds are known to vary widely within any given soil classification.

Final sampling locations were determined by SCS soil scientists. Typical examples of the major soil types were selected. SCS personnel also provided soil taxonomy, texture and color information for each sample. Table 1 includes sampling locations, soil types, land use categories, and soil texture information for the samples included in this study. In addition, a description of each sampling site, state plane coordinates, SCS soil survey sheet number and soil color were recorded for each sampling locale (Data on file at DEPE.)

The majority of the soil samples were collected utilizing a stainless steel soil coring device (1 in. diameter x 12 in. depth). Between samples the corer was thoroughly cleaned with acetone and distilled water. A composite of ten soil cores was usually required to obtain an adequate amount of sample (approximately 500 grams). The number of samples per composite varied as a function of the depth to bedrock and the ease of coring in various areas of the state. For impervious and very rocky soils, a four-inch bucket auger was utilized for sample collection. All samples were placed in acid-rinsed, solvent-cleaned and baked, teflon-lined, screw-top glass jars. All samples were taken in the presence of a Rutgers University Environmental Science Department staff member, who accompanied them back to the laboratory. Samples were stored at 4° C until analyses were conducted. Extractions and digestions were performed within one week of receipt. Analyses were then performed within five days.

FIGURE 1





SOIL SAMPLE LOCATIONS

Table 1 *General Soil Sample Information*

Sample #	County	Township	Land Use[1]	Soil Series	Texture[2]
001	Hunterdon	Franklin	R	Chalfont	SiL
002	Hunterdon	Delaware	R	Rowland	SiL
003	Somerset	Branchburg	R	Penn	SiL
004	Somerset	Branchburg	R	Klinesville	SiL
005	Bergen	Oakland	R	Rockaway	Gr-L
006	Passaic	Ringwood	R	Hibernia	Gr-L
007	Bergen	Alpine	S	Haledon	SiL
008	Bergen	Alpine	S	Boonton	SiL
009	Mercer	Princeton	R	Bucks	SiL
010	Ocean	Manchester	R	Manahawkin	M
011	Ocean	Lacey	R	Downer	LS
012	Burlington	Washington	R	Woodmansie	S
013	Burlington	Pemberton	R	Atsion	S
014	Warren	Mansfield	R	Washington	L
015	Warren	Mansfield	R	Califon	Gr-SiL
016	Warren	Mansfield	R	Parker	Gr-L
017	Sussex	Wantage	R	Bath	Gr-SiL
018	Sussex	Frankford	R	Hazen	L
019	Monmouth	Manalapan	R	Freehold	LS
020	Monmouth	Upper Freehold	R	Keyport	SiL
021	Middlesex	Cranbury	R	Woodstown	SL
022	Middlesex	Cranbury	R	Fallsington	SiL
023	Morris	Harding	R	Biddeford	SiL
024	Morris	Harding	R	Whippany	SiL
025	Morris	Harding	R	Parsippany	SiL
026[3]	Hunterdon	Lambertville	U	Dist. Soil[4]	L
027	Hunterdon	Frenchtown	S	Pope	SiL
028	Warren	Phillipsburg	U	Washington	L
029	Ocean	Dover	S	Dist. Soil	LS
030	Camden	Waterford	R	Lakewood	S
031	Atlantic	Galloway	R	Berryland	S
032	Atlantic	Atlantic City	U	Dist. Soil	LS
033	Cape May	Upper	R	Pocomoke	SL
034	Cape May	Dennis	R	Sassafras	LS
035	Monmouth	Rumson	S	Holmdel	SL
036	Monmouth	Middletown	S	Adelphia	L
037	Middlesex	Cranbury	S	Sassafras	Gr-L
038	Middlesex	New Brunswick	U	Klinesville	L
039	Passaic	West Paterson	S	Dist. Soil	L
040	Passaic	Clifton	S	Dist. Soil	L
041	Passaic	Passaic	U	Boonton	SiL
042	Hudson	Kearny	U	Dist. Soil	SiL
043	Essex	Newark	U	Dist. Soil	SiL
044	Essex	West Orange	U	Dist. Soil	L

Table 1 (continued) *General Soil Sample Information*

Sample #	County	Township	Land Use[1]	Soil Series	Texture[2]
045	Union	Union	U	Dist. Soil	L
046	Union	Elizabeth	U	Dist. Soil	L
047	Hudson	Bayonne	U	Dist. Soil	SiL
048	Hudson	Jersey City	U	Ellington	SL
049	Cumberland	Vineland	S	Hammonton	SL
050	Cumberland	Millville	S	Dist. Soil	LS
051	Salem	Pittsgrove	R	Evesboro	S
052	Salem	Alloway	R	Matapeake	SiL
053	Salem	Pennsville	R	Mattapex	SiL
054	Salem	Pilesgrove	R	Fort Mott	S
055	Burlington	Burlington	S	Dist. Soil	LS
056	Camden	Camden	U	Galestown	LS
057	Gloucester	West Deptford	S	Klej	S
058	Gloucester	Franklin	R	Aura	SL
059	Atlantic	Hammontown	S	Dist. Soil	SL
060	Atlantic	Hamilton	R	Lakehurst	S
061	Burlington	Lumberton	S	Tinton	S
062	Burlington	Bordentown	S	Tinton	S
063	Ocean	Lakewood	S	Dist. Soil	LS
064	Mercer	Hopewell	R	Neshaminy	SiL
065	Mercer	Trenton	U	Matapeake	L
066[3,4]	Warren	Phillipsburg	U	Dist. Soil	SL
067	Warren	Phillipsburg	U	Dist. Soil	SiL
068	Warren	Phillipsburg	U	Dist. Soil	SiL
069	Warren	Phillipsburg	U	Washington	SiL
070	Warren	Phillipsburg	U	Washington	Gr-SL
071	Warren	Lopatcong	S	Washington	SiL
072	Warren	Greenwich	A	Washington	SiL
073	Warren	Franklin	A	Washington	SiL
074	Warren	Franklin	R	Annandale	L
075	Warren	Franklin	A	Wassaic	SiL
076	Mercer	West Trenton	GG	Dist. Soil	LS
077	Mercer	Princeton	GG	Dist. Soil	SL
078	Mercer	Princeton	GG	Dist. Soil	SL
079	Middlesex	Piscataway	GG	Dist. Soil	SL
080	Middlesex	Piscataway	GG	Dist. Soil.	SL

[1]Land Use R = Rural, S Suburban, U = Urban, GG Golf Green, A = Agricultural Land
[2]Texture S = Sand, L = Loam, M = Muck, SiL = Silt Loam, LS = Loamy Sand, Gr-L = Gravelly Loam, Gr-SiL = Gravelly Silt Loam, SL = Sandy Loam
[3]Samples # 26 and 66 contained fill material of unknown origin, as determined by the presence of cinders and debris.
[4]Dist.Soil = Disturbed Soil- Indicates that the native soil profile was not present. This does not imply that contamination has occurred or that soils are not native to the site.

B. General Soil Parameters

The soil profiles sampled were classified to the series level. Color and texture were determined in the field by SCS soil scientists. All samples were thoroughly homogenized prior to analyses. General soil characteristics that were determined in the laboratory (APHA, 1985) included loss on ignition, pH and sand, silt and clay content. Loss on ignition, reflects loss of moisture and organic matter, as well as alterations in soil minerals that result in weight losses. Therefore, although loss on ignition roughly estimates organic content, it will be somewhat higher than the actual exclusive organic content. These basic soil parameters were measured to determine if loss on ignition, or sand, silt and clay content had relevant statistical correlation with observed constituent or contaminant concentrations.

C. Chemical Analysis

1. Metals

Analysis for trace elements utilized a 5 gram dry weight equivalent (dwe) aliquot, i.e., the weight of the sample after correction for loss on ignition was 5 grams. Analysis was conducted by either direct aspiration or graphite furnace atomic absorption spectroscopy (EPA, 1979) following HNO3 digestion. Arsenic was analyzed by gaseous hydride atomic adsorption (EPA, 1979), following digestion with a H2S04 and HNO3 mixture. Analyses were performed using a Perkin-Elmer 503 Atomic Adsorption Spectrophotometer.

2. PCBs and Chlorinated Pesticides

A 2 gram (dwe) aliquot was utilized for this analysis which included a microscale exhaustive steam distillation extraction procedure with isooctane (Rutgers University, 1985a). Analyses were performed on a Varian 3700 GC equipped with either a 1.5% SP-2250 100/120 mesh column (primary) or a 3% SP-2100 100/120 mesh column (secondary) and an electron capture detector (ECD).

3. Polycyclic Aromatic Hydrocarbons

A 2 gram (dwe) aliquot was employed for this analysis, which used a microscale steam distillation/isooctane extraction procedure. Analyses were performed on a Hewlett Packard 5840A gas chromatograph equipped with a 30 m, 0.25 mm (id) capillary column with a SE-54 stationary phase, employing a flame ionization detector. Calibration was achieved utilizing external standards (Rutgers University, 1985b).

4. Organophosphate Pesticides

A 1.5 gram (dwe) aliquot was extracted with hexane and isopropanol in a sealed container placed in an ultrasonic bath. The solvent was partitioned with water, the hexane layer, then purified by column chromatography using a Florisil column, concentrated in a KD apparatus and quantitated using a Varian 3700 gas chromatograph employing a 6' x 2 mm (id) glass column packed with 1.5% SP-2250 and 1.95% SP-2401 on 100/120 mesh Supelcoport, and a ThermionicN/P detector (Rutgers University, 1985c).

5. Chlorinated Herbicides

A 15 gram soil (dwe) aliquot was first hydrolyzed with NaOH in a sealed container at 55°C, then cooled and extracted with toluene. The sodium hydroxide hydrolysate was then acidified and the free chlorinated herbicide acids extracted into toluene, and esterfied with BF3/methanol. The toluene solution was extracted with a sodium sulfate solution, and injected into a Hewlett-Packard 5840 GC employing a 6' x 2 mm (id) column packed with 1.5% SP-2250 + 1.95% SP-2401 or 100/200 mesh Supelcoport employing an electron capture detector (Rutgers University, 1985d).

D. Quality Assurance

Data quality assurance procedures included the analysis of every tenth sample in duplicate. Spiked samples were analyzed at the rate of every tenth sample to determine percent recoveries. Method **detection limits** (MDL) studies were also conducted. Sensitivity, as used throughout this section, is defined as the instrument response equal to 5 times the baseline noise level, expressed in units of concentration. These values are a function of analytical sample size, and final extract volume, as well as instrument response. MDLs are a function of sensitivity, as given below. Quality assurance results are summarized in Tables 2 through 6.

Spike recoveries for inorganics, as shown in Table 2, are typically acceptable when the recoveries fall within a range of 75- 125%. Additionally, percent relative deviation of duplicates is considered acceptable when values do not exceed 20%. Antimony, chromium, mercury, and silver results would be qualified due to low average percent recoveries and may have a possible low bias. Silver results would be qualified due to a high percent average deviation.

Minimum detection limits were not calculated for the PCB Aroclors. The values reported were sensitivities, which are presented in Table 3. Spike recoveries were not reported.

In Table 4, the average percent recovery was low and the coefficient of variation of percent recovery was high for methoxyclor. Results for methoxyclor would thus be qualified.

PAH spike recoveries, displayed in Table 5, were very good for compounds with low boiling points. Recoveries decreased with increasing analyte molecular weight. For five PAHs, benzo(k)fluoranthene benzo(a)pyrene, indeno (1,2,3-cd)pyrene, dibenzo(a,h)anthracene and benzo(g,h,i)perylene, recoveries were negligible. Generally, MDLs closely approximate sensitivities. In the present case, the MDLs are significantly greater than the sensitivities. This is indicative of either poor precision in the MDL determinations, or the use of fortification solutions with concentrations substantially greater than the sensitivities. Nonetheless, sensitivities represent a lower bound of what can be seen by an instrument. In such situations in which reported concentrations fall between the MDL and sensitivity, the resulting values need not be ignored, but should be interpreted cautiously. Therefore, in order to maximize the utility of the data, reported values less than the MDLs have been presented. It should be noted that the steam distillation based method used in this analysis is different from the extraction techniques which are currently used in environmental analyses that are cited in the EPA Contract Laboratory Program and EPA SW-846.

All recoveries for organophosphate pesticides and chlorinated herbicides were acceptable. The MDLs are provided in Table 6.

Table2 *Quality Assurance Results for Metals*

	Average % Recovery[1]	% Relative Average Deviation of Replicates	MDL[2] mg/kg
Antimony	14	5.44	0.02
Arsenic	99.5	6.42	0.003
Beryllium	94	8.38	0.03
Cadmium	83	5.24	0.006
Chromium	68	7.02	0.7
Copper	76	5.47	0.6
Lead	92	3.04	1.2
Manganese	114.5	3.52	0.6
Mercury	65	9.48	0.01
Nickel	98.5	3.62	1.2
Selenium	83	33.57	0.01
Silver	43	16.09	0.01
Thallium	96	17.16	0.06
Vanadium	81	9.84	0.3
Zinc	89.5	7.49	0.24

[1] Rates of recovery for metals will vary with the metal, its source, and the nature of the analytical matrix. Recoveries of metals would likely be greater from spiked matrices than from metals present in the mineral matrix.

[2] MDL = Minimum Detection Limit

= $S(t_{0.99})$, where S = standard deviation in concentration units; to $_{0.99}$ = Student's one-tailed t value for the 99% confidence level and a standard deviation estimate with n- I degrees of freedom.

Table 3 *Quality Assurance Results for Polychlorinated Biphenyls*

PCB Aroclor	Sensitivity (mg/kg)
Aroclor 1016	0.054
Aroclor 1242	0.043
Aroclor 1248	0.042
Aroclor 1254	0.030
Aroclor 1260	0.021

Table 4 *Quality Assurance Results for Chlorinated Pesticides*

	Average % Recovery	Coefficient of Variation of % Recovery	MDL ug/kg
alpha-BHC	98.9	11.3	3.19
gamma-BHC	99.8	17.1	0.66
beta-BHC	87.6	20.1	1.10
Heptachlor	80.0	15.7	0.54
Aldrin	98.4	9.9	0.58
Heptachor Epoxide	107.7	12.3	0.67
alpha-Endosulfan	91.6	24.5	0.61
beta-Endosulfan'	-	-	2.35
o,p'-DDE	87.9	19.7	1.30
Dieldrin.	96.8	14.1	1.37
Endrin	95.8	13.3	2.31
o,p'-DDT	90.3	13.1	3.54
p,p'-DDD	93.1	24.7	3.39
p,p'-DDT	92.1	38.6	4.45
Endosulfan Sulfate	-	-	32.8
Chlordane	-	-	1.93
Mirex	95.0	17.7	1.76
Methoxychlor	37.6	69.1	6.03
Toxaphene	-	-	-

' Recoveries were not provided by the laboratory for beta-endosulfan, endosulfan sulfate, chlordane and toxaphene.

Table 5 *Quality Assurance Results for Polycyclic Aromatic Hydrocarbons*

	Average % Recovery	CV of % Recovery	NML mg/kg	Sensitivity mg/kg
Napthalene	90.5	10.6	9.2	0.20
Acenaphthylene	93.6	10.5	9.4	0.17
Acenaphthene	97.9	8.2	10.1	0.16
Fluorene	101.6	4.9	9.2	0.17
Phenanthrene	98.7	6.6	9.7	0.18
Anthracene	90.7	12.7	9.0	0.18
Fluoranthene	75.6	16.8	11.9	0.20
Pyrene	64.8	33.3	12.6	0.20
Chrysene	45.2	56.4	14.6	0.30
Benzo(a)anthracene	32.9	64.4	14.5	0.38
Benzo(b)fluoranthene	20.9	62.6	10.9	1.14
Benzo(k)fluoranthene	-	-	7.5	0.95
Benzo(a)pyrene	-	-	6.6	2.07
Indeno(1,2,3-cd)pyrene[1]	-	-	-	-
Dibenzo(a,h)anthacene[1]	-	-	-	-
Benzo(ghi)perylene[1]	-	-	-	-

[1] Indeno (1,2,3-cd) pyrene, dibenzo (a,h)anthracene and benzo(g,h,i)perylene had recoveries too low to be detectable by this procedure.
Benzo(a)pyrene and benzo(k)fluoranthrene were only marginally detectable.

Table 6 *Quality Assurance Results for Organophosphate Pesticides and Chlorinated Herbicides*

	Average % Recovery	Coefficient of Variation of Recovery %	MDL mg/kg
Organophosphate Pesticides			
Phosdrin + Thimet	106.6	13.2	0.11
Diazinon	117.3	17.4	0.04
Disulfoton	119.8	24.0	0.05
Merphos	102.2	24.9	0.06
Dimethoate	73.0	39.5	0.04
Malathion + DEF	97.8	32.3	0.08
Parathion	110.3	15.4	0.02
Trithion	81.4	44.7	0.03
Ethion	108.3	12.0	0.02
Chlorinated Herbicides			
2,4-Dichlorophenoxy acetic acid (2,4-D)	85.3	14.0	0.0099
2-(2,4,5-Trichlorophenoxy) propanoic acid (silvex)	84.6	20.0	0.0013
2,4,5-Trichlorophenoxy propanoic acid (2,4,5-T)	84.1	15.7	0.0024

RESULTS and DISCUSSION

A. Definition of Background

The term "background", which is used frequently throughout this report, often means different things to different people. Therefore, a definition and discussion of the term "background" as used in this report is necessary. There are three potential sources of the chemical parameters that were analyzed in this survey: natural soil constituents, non-point sources, and local point sources.

Soil "background" may be viewed as a continuum of values in which a concentration gradient of anthropogenic pollution is superimposed onto the preexisting distribution of concentrations found in nature. This concentration gradient ranges from diffuse anthropogenic pollution (DAP), to local, identifiable point sources. DAP is here defined as broadly distributed contaminants, often arising from multiple sources, which were generated by human activities. It generally arises from atmospheric deposition, but may also contain some contribution from random, non-attributable, non-point sources. As measured concentrations increase, the DAP contribution will tend to yield to sources which are less diffuse, more concentrated, and more localized. At some point along the continuum, the resulting "background" may then be seen as a "regional" or even "local" measurement which is strongly indicative of neighboring land use, e.g. industrial areas, transportation corridors.

In the context of this report, background soils are those which display a range of constituents and contaminants likely to be found in New Jersey soils, that have not been impacted by a local-point source, but may contain some contribution from DAP.

Measurements of inorganic elements, as well as polycyclic aromatic hydrocarbons, may thus reflect natural and/or anthropogenic concentrations, which may arise from atmospheric deposition (DAP) and/or local point sources. Synthetic organic compounds, which are fundamentally anthropogenic, would be present in soils only as the result of DAP or current or historical local application. The results for the different chemical classes are discussed in further detail below.

B. General Soil Analyses

A broad range of soil types were included in this study as indicated by the general soil characteristics data. The data for the general soil analyses, including range, mean, and median, are found in Appendix I and are summarized in Table 7.

One sample (# 010) was a very fine-grained black muck collected from a cedar bog in the Pine Barrens. As expected, the analysis of this sample produced the maximum measurement for loss on ignition (81.4%), and the lowest pH value (3.6) of all the samples analyzed. Even though the muck sample had very different soil characteristics from the other soils collected during this survey, it was included with the rural sample tabulations because it was collected from an undisturbed rural setting. A number of metals have been shown to complex with soil organic matter to varying degrees (Friedland et.al., 1984). A Spearman Rank correlation was conducted to determine if a significant correlation existed between metal concentrations and loss on ignition of the soils collected during this study. No definitive statistical correlation was observed.

Table 7 Summary of General Soil Analysis Data

	Range	Mean	Median
Loss on Ignition %	0.50-81.4	5.7	4.1
pH	3.6-8.3	5.6	5.3
Sand Content %	14-98	57	56
Silt Content %	1-68	30	30
Clay Content %	0-34	14	12

A Spearman Rank correlation was also conducted to determine the correlation between the sand, silt and clay content of the samples and metal concentrations. A significant negative correlation was determined for most metals and sand content (Table 8).

Table 8 *Spearman Rank Correlation of Metals with Sand Content*

Metal	Rank Correlation	P-Value (2 sided)
Antimony	NSCI	-
Arsenic	-0.31	0.006
Beryllium	-0.79	0.000
Cadmium	-0.32	0.005
Chromium	-0.46	0.000
Copper	-0.51	0.000
Lead	-0.35	0.002
Manganese	-0.63	0.000
Mercury	NSC	-
Nickel	-0.70	0.000
Selenium	-0.40	0.001
Silver	-0.42	0.000
Thallium	-0.36	0.002
Vanadium	-0.67	0.000
Zinc	-0.56	0.000

[1]NSC = No Significant Correlation

This correlation would be expected for the following reasons. In uncontaminated soils, most metals are present as trace constituents in minerals inherited from the parent material. These native metals, which are found primarily in the silt and clay ranges, are rather insoluble. In addition, sand is made up largely of quartz or silicon dioxide, containing relatively small amounts of trace metals. Therefore, sand will serve as a diluent of the higher metal content silt and clay. While contaminated soils will more likely contain metals in a more soluble form, these will tend to bind to silt and clay particles due to the greater available surface area of these particles. Both of these factors will generally result in lower metal concentrations in soils with higher sand content.

Significant negative correlation's were not demonstrated for antimony and mercury. This is possibly due to the relatively low frequency of detection of these metals in the samples (Appendix III). This explanation cannot account for the demonstrated correlation of thallium, which displays an even lower frequency of detection. This anomalous behavior, with respect to detection frequency can potentially be accounted for by differences in geochemical characteristics of these elements.

C. Metals

1. Potential Sources of Metals in Soils

Metal concentrations in soils under natural conditions result from in situ weathering of parent geological material. There are, however, a wide variety of sources both direct and indirect, of anthropogenic metal additions to soils. The major sources include atmospheric deposition from industrial emissions such as smelting and refining, and automotive emissions. Direct sources of metals include the intentional application of wastes, fertilizers, pesticides, etc. (Thornton, 1985). The metal concentrations measured in the urban, suburban and rural land use categories collected during this study reflect natural conditions, plus amounts resulting from atmospheric deposition and, therefore, are functionally indicative of contemporary background conditions. Even though the sample size is small, golf green samples present higher concentrations of certain metals and other compounds that directly relate to soil and turf amendment. They are representative of natural conditions amended by the direct application of fertilizers, herbicides and pesticides (Sax, 1984). Raw data for the metal analyses are in Appendix II.

2. Elements Included in Survey

Soil samples were analyzed for the EPA Priority Pollutant metals plus manganese and vanadium. All of these elements are on the EPA Target Analyte List (TAL), which is used in the EPA Contract Laboratory Program (CLP) for the evaluation of Superfund sites. The Priority Pollutant metals are among the most commonly measured inorganic pollutants and are often detected in elevated concentrations at hazardous waste and industrial sites. Manganese is a highly variable minor soil constituent. Though not generally considered hazardous, under certain environmental conditions manganese could constitute a problem. Vanadium was included because it is sometimes used as a tracer for oil combustion in air pollution studies and has been detected in elevated concentrations at a number of hazardous waste sites in New Jersey.

3. Concentrations of Inorganics Observed by Land Use Category

Statistical summaries for the metals by land use category are provided in Table 9. This summary table includes the geometric and arithmetic means, the minimum, median, 90th percentile, and the maximum concentrations by land use category. One half the minimum detection limit (MDL) was used to determine the geometric and arithmetic mean concentrations for the metals reported to contain less than the MDL in any sample. One half of the MDL was used because these inorganic elements are naturally occurring constituents, and theoretically would be measured if the detection limit were low enough. Most of the metals were routinely detected in most soils. Only 5 of the 15 metals analyzed were detected at a frequency less than 95%. Nondetectable concentrations, as represented by reduced detection frequencies, occurred more frequently for antimony (33%), mercury (58%), nickel (85%), selenium (60%) and thallium (32%), out of 80 samples.

To determine the relationship of metal concentrations in the urban, suburban, and rural land use categories, the data were evaluated utilizing the Kruskal-Wallis nonparametric statistical test. Median metal concentrations were significantly higher (P c0.05) in the urban samples for cadmium, copper, lead, mercury, nickel, zinc and thallium, than both the suburban and rural land use categories. Five metals, arsenic, manganese, silver, vanadium and antimony, showed significant differences between the urban and rural data sets, but not between the urban and suburban samples. Beryllium, chromium and selenium did not show significant differences between land use categories as indicated by the nonparametric multiple comparison procedure.

Due to the small sample number of samples in each category, farm and golf course samples were not formally evaluated. However, cursory inspection of the data revealed elevated concentrations of certain inorganic constituents in the golf course soils, which are known to be impacted by human activities. For example, elevated levels of inorganics detected in soils collected on the greens, were consistent with the application of fungicides (cadmium and mercury salts), commonly utilized on turf grass (Sax, 1984). No statistical analysis was conducted utilizing the farm or golf course samples due to the small sample size.

This trend of maximum concentrations in the urban data is likely to have been due to atmospheric deposition. This interpretation is consistent with a 1987 Division of Science and Researchsponsored study of inhalable particulate matter conducted in New Jersey, in which higher levels of lead, vanadium, zinc and arsenic were consistently found in outdoor ambient air at urban sites (Newark, Camden, and Elizabeth) than the rural "background" site (Ringwood) (Lioy and Daisey, 1987.) Correspondingly, in the present study all four of these were significantly elevated in urban, relative to rural soils.

Additional statistical evaluations of the metals data set are presented in Appendix III. This Appendix includes: geometric standard deviation, the 95% confidence interval, and the proportion detected above the minimum detection limit.

4. Samples Containing Fill Material

Samples #26 and #66 were disturbed soils and contained fill material of unknown origin. These disturbed soil samples were designated as fill due to the presence of cinders and debris. Data from

these samples were included in the urban land use category data set. The majority of the metal concentrations measured in these samples were close to the geometric mean and median metal concentrations of the soils in the urban category, with the exception of the lead and zinc values (Table 9). Sample #26 was collected in a residential area that had been owned by a utility company and was previously used as a substation. Sample #66 was collected in an open field by abandoned railroad tracks near the Delaware River in Phillipsburg, Warren County. The measured lead concentrations for samples #26 and #66 were 285 mg/kg and 428 mg/kg respectively. These concentrations are somewhat greater than the geometric mean and median concentrations (123 and 97 mg/kg3 for lead in the urban land use category. The concentrations of zinc in samples #26 (789 mg/kg) and #66 (163 mg/kg) are greater than the geometric mean and median concentrations (104 and 85.9 mg/kg) for that element in the urban samples. These samples also contained quantities of chlorinated pesticides and PAHs.

5. Comparison of Survey Data with Other Data Sets

Comparison of the present data set with other existing soils data for New Jersey, the rest of the country, and samples collected from various locations around the world, provides useful insights. Only inorganics are compared here because similar data for the other parameters that were analyzed during this survey were not readily available. These comparative data are summarized in Table 10. Arithmetic means of the various data sets are presented for comparative purposes because this form of statistical summary for soils data has been most commonly, if not exclusively, used.

The DEPE data set is provided as both inclusive (n = 80), and with the samples of potentially amended soils (farms and golf courses) removed (n = 72). The data from Rutgers University were accumulated over many years by Professor H.L. Motto, Department of Environmental Sciences. The Rutgers data set represents a wide assortment of New Jersey surface soil data culled from various studies and theses. The USGS data were compiled over a number of years by Shacklette and Boerngen (1984); it is presented for both the conterminous United States (USGS-C) (i.e., the lower 48 states) and the eastern US (USGS-E). Sampling for this study was generally conducted at sites that were altered very little from their natural condition, at distances greater than 100 meters from roads. World data is from Vinogradov (1959), as cited in Shacklette and Boerngen (1984).

Within the DEPE data, only cadmium and mercury display any substantial differences in their means with the farms and golf greens removed. Inspection of Table 9 reveals this effect to emanate chiefly from the golf green samples. While cadmium concentrations in the farm samples appear to be slightly elevated, the small sample size precludes distinguishing between natural soil variation and soil amendment.

The DEPE data is most directly comparable to the Rutgers data, which is also exclusively made up of New Jersey soils. The two data sets in general display an acceptable degree of correspondance. Cadmium, copper, and zinc are nearly identical in the two sets. Manganese, nickel, vanadium, and to a lesser extent chromium, appear to be lower in the DEPE than in the Rutgers data. A potential contributing factor to this apparent tendency is a possible variation in the distributions of the samples throughout the state in the two data bases. The DEPE samples, as indicated previously, were selected to provide coverage of every county in the state. The

Table 9 *Summary Statistics for Metals by Land Use Category (mg1kg)*

Metal Land Use[1]	Geo Mean	Arith Mean	Min	Med	90th Percentile	Max
Antimony[2]						
Urban	0.03	0.07	<0.02	0.03	0.10	0.69
Suburban	0.02	0.02	<0.02	<0.02	0.05	0.07
Rural	<0.02	0.02	<0.02	<0.02	0.03	0.10
Golf	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Farm	<0.02	<0.02	<0.02	<0.02	0.02	0.02
Arsenic						
Urban	5.49	8.26	0.34	5.65	10.90	48.90
Suburban	2.06	4.72	0.02	3.72	10.70	22.70
Rural	1.21	2.40	0.04	2.21	3.83	17.10
Golf	2.85	3.23	1.06	3.37	5.00	5.00
Farm	4.73	4.78	3.97	4.79	5.57	5.57
Beryllium						
Urban	0.86	1.07	0.16	0.88	2.55	4.09
Suburban	0.35	0.59	0.02	0.65	1.16	2.00
Rural	0.44	1.04	0.02	0.84	1.63	10.30
Golf	0.68	0.68	0.54	0.71	0.79	0.79
Farm	1.29	1.31	1.10	1.17	1.66	1.66
Cadmium						
Urban	0.50	0.65	0.16	0.47	1.61	2.36
Suburban	0.08	0.16	<0.01	0.14	0.32	0.59
Rural	0.04	0.07	<0.01	0.07	0.15	0.24
Golf	1.87	2.26	0.90	1.64	5.16	5.16
Farm	0.23	0.24	0.18	0.23	0.30	0.30
Chromium						
Urban	11.2	12.1	4.9	10.8	18.7	24.6
Suburban	8.1	10.1	2.2	9.1	18.7	21.4
Rural	6.8	10.9	0.7	7.5	16.5	101.0
Golf	28.0	32.4	16.3	24.9	72.7	72.7
Farm	9.7	9.7	9.6	9.7	9.9	9.9
Copper						
Urban	32.8	42.2	8.8	31.5	102.0	143.0
Suburban	6.3	11.3	0.8	6.7	28.4	41.7
Rural	4.8	8.0	0.3	5.8	12.8	55.9
Golf	9.8	10.9	4.6	9.9	19.7	19.7
Farm	11.3	11.4	9.4	11.7	13.0	13.0

Table 9 - (continued) *Summary Statistics for Metals by Land Use Category (mg/kg)*

Metal Land Use[1]	Geo Mean	Arith Mean	Min	Med	90th Percentile	Max
Lead[3]						
Urban	112.9	177.7	25.8	97.8	446.0	617.0
Suburban	19.0	36.0	<1.2	22.3	100.0	150.0
Rural	11.1	15.1	<1.2	17.2	22.0	46.0
Golf	8.0	12.3	<1.2	13.9	16.8	16.8
Farm	19.6	20.0	16.4	18.4	24.8	24.8
Manganese						
Urban	283	335	30	333	515	952
Suburban	75	201	3	79	846	959
Rural	45	186	1	40	561	1313
Golf	384	392	307	348	495	495
Farm	752	817	414	913	1125	1125
Mercury						
Urban	0.20	0.50	<0.01	0.31	1.58	2.71
Suburban	0.02	0.07	<0.01	0.06	0.14	0.19
Rural	0.02	0.06	<0.01	<0.01	0.16	0.26
Golf	3.88	4.74	1.40	5.00	7.70	7.70
Farm	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel						
Urban	14.1	16.6	5.5	13.3	28.7	53.8
Suburban	3.2	6.3	<1.2	4.4	14.9	19.2
Rural	4.6	8.8	<1.2	6.4	18.7	42.2
Golf	10.1	10.3	8.3	9.4	13.1	13.1
Farm	12.1	12.2	10.2	11.8	14.6	14.6
Selenium						
Urban	0.04	0.06	<0.01	0.05	0.13	0.15
Suburban	0.02	0.07	<0.01	0.05	0.17	0.34
Rural	0.04	0.08	<0.01	0.06	0.15	0.80
Golf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Farm	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver						
Urban	0.16	0.24	0.04	0.19	0.34	1.53
Suburban	0.07	0.12	0.01	0.10	0.26	0.42
Rural	0.06	0.09	<0.01	0.08	0.19	0.30
Golf	0.08	0.09	0.03	0.09	0.15	0.15
Farm	0.10	0.10	0.08	0.09	0.13	0.13

Table 9 - (continued) *Summary Statistics for Metals by Land Use Category (mg/kg)*

Metal Land Use[1]	Geo Mean	Arith Mean	Min	Med	90th Percentile	Max
Thallium						
Urban	0.07	0.10	<0.06	0.06	0.24	0.46
Suburban	0.04	0.05	<0.06	<0.06	0.19	0.23
Rural	0.04	0.06	<0.06	<0.06	0.13	0.28
Golf	0.04	0.04	<0.06	<0.06	0.10	0.10
Farm	0.10	0.13	<0.06	0.14	0.23	0.23
Vanadium						
Urban	18.5	22.6	1.0	21.1	39.9	46.1
Suburban	8.1	14.1	0.5	14.0	34.4	41.4
Rural	6.5	17.3	<0.3	7.6	34.8	165.0
Golf	8.3	11.4	1.3	10.6	20.1	20.1
Farm	20.7	20.7	20.3	20.3	21.5	21.5
Zinc[1]						
Urban	116.1	162.3	40.4	88.9	317.0	789.0
Suburban	25.0	38.5	2.1	31.5	82.6	121.0
Rural	19.5	34.0	<0.2	32.8	65.9	95.8
Golf	75.8	142.6	37.6	48.1	524.0	524.0
Farm	64.0	64.8	51.5	67.1	75.7	75.7

1. Sample Size
   - Urban = 19
   - Suburban = 18
   - Rural = 35
   - Golf Green =5
   - Farm = 3

2 The samples were reanalyzed for antimony due to problems with the initial sample extraction procedure. Only seventy-three of the 80 samples were reanalyzed due to insufficient amount of soil in the archived samples.

3 Lead and zinc values for samples #26 and #66 were removed from the database before the summary statistics were calculated to avoid skewing the data. Samples #26 and #66 contained fill material of unknown origin (see text), and thus are not representative of background as defined in this report.

Table 10 *Arithmetic Means of Inorganic Soil Constituents from Various Data Sets (mg/kg)*

	DEPE[1]		RUTGERS[2]	USGS-C[3]	USGS-E[4]	WORLD[5]
	N=80	N=72				
Sb[6]	0.03	0.03	--[7]	--	--	--
As	4.46	4.53	--	7.2	7.4	5
Be	0.93	0.94	--	0.92	0.85	6
Cd	0.37	0.25	0.24	--	--	--
Cu	17.2	17.9	15.6	54	22	20
Cr	12.3	11.0	19.9	25	22	200
Pb[8]	58.4	63.2	28.6	19	17	--
Mn	261	229	553	550	640	850
Hg	0.46	0.18	--	0.089	0.12	--
Ni	10.3	10.2	20.9	19	18	40
Se	0.07	0.07	--	0.39	0.45	0.001
Ag	0.14	0.14	--	--	--	--
Tl	0.07	0.07	--	--	--	-
V	17.6	17.9	48.7	80	66	100
Zn[8]	73.4	69.0	71.3	60	52	50

1 NJDEPE data collected during this survey; 80 samples constitute the complete data set, and 72 samples represent the data with the potentially amended soils, golf course (5) and farm (3) samples removed.

2 Rutgers data represent a compilation of research and thesis data compiled over many years by Dr. H.L. Motto, Department of Environmental Sciences. Sample size unknown.

3 USGS-C data includes soils collected from the conterminous United States. N ranges from 1248 to 1319 with the exception of Sb, where N = 354.

4 USGSE data are from soils collected from the eastern portion of the United States. Values of N are approximately 50% of these given in 3 above.

5 World data was compiled from various locations around the world by Vinogradov (1959). Sample size unknown.

6 73 samples were reanalyzed for antimony due to poor recoveries during first analysis. Seven samples were not reanalyzed due to insufficient sample size.

7 Dashed lines (--) indicate that no data were available for the element in the data set indicated.

8 NJDEPE Pb and Zn data were calculated for N=78 and N=70, two samples containing fill material were deleted.

Rutgers data however tends to be based on samples from New Jersey agricultural soils. This sampling bias would tend to exclude the soil series of the state which included higher concentrations of sand. As previously noted, sand content corellates inversely with these metal concentrations.

Taken together, the two New Jersey data sets (DEPE and RU) show beryllium, chromium, manganese, and nickel to be comparable to both the eastern and conterminous US data sets. Copper appears to be lower in New Jersey than the US as a whole, but approximates the values of the eastern US. Vanadium appears to be somewhat lower in New Jersey than in the USGS data, while selenium appears to be substantially lower in New Jersey. Arsenic appears to be somewhat lower in the present study than in the USGS data. This is possibly due to the relatively high sand content of the soils in the present study. Analytical method bias might also contribute to this apparent discrepancy.

An additional potential contributing factor to discrepancies between data sets arises from variations in the methods of analysis. The nitric acid digestion used in the present method was designed for digestion of waste materials. While it also suffices for soil digestion, it is not as vigorous as other digestion methods for the total metals such as the perchloric acid digestion predominately used in the Rutgers data set. It might also be expected to display a downward bias relative to the X-ray fluorescence method used in the USGS data set for selenium. Use of the nitric acid digestion in the present data is desirable in that it affords a direct comparability to environmental data routinely gathered in hazardous waste site investigations, which is predominantly derived from the nitric acid digestion methodology outlined in USEPA SW-846 (EPA, 1986).

Of the remaining elements for which comparisons are possible, lead and mercury, the trend is toward higher values in New Jersey. Zinc also exhibits a slight elevation in the New Jersey data over the USGS data. Of these elements the most distinct is lead, which, counter to the predominant trend observed above, is notably elevated in New Jersey relative to the USGS samples.

The higher New Jersey mean lead value (58.4 mg/kg) reflects the bias in the sampling of this survey when the land use categories are combined into the whole data set. The sampling design intentionally included samples from urban and suburban locations which were expected to contain higher surficial lead values than the rural soils. The increase of lead concentration with increasing population density and human activity has previously been discussed and can be observed in Table 9. Removal of the amended (farm and golf green) samples from the data base has no substantive effect on the mean lead values (63.2 mg/kg).

Relative to the worldwide data, New Jersey values of arsenic and copper are comparable, beryllium, chromium, manganese, nickel and vanadium tend to be lower, and selenium and zinc somewhat higher. These differences may be due in part to inconsistencies in the analytical techniques and methodologies employed over the many years that these samples were collected and analyzed. This may be particularly true for chromium, and selenium.

D. Chlorinated Pesticides

The samples were analyzed for 19 chlorinated pesticides. These compounds are listed with summary statistics in Table 11. The pesticides data have been summarized in two ways, both the arithmetic and geometric means for each compound are provided for the entire sample set (n = 80). This data set contains a large number of values that are below the minimum limit of laboratory detection. The arithmetic means were calculated using zero for samples below the MDLs. The use of zeros in the MDL calculation is consistent with the fact that these compounds are synthetic and, unlike inorganics, their natural background concentration should be zero. The geometric mean values were calculated using one-half the minimum detection limit because zeros cannot be used in the calculation. The detectable concentrations for all the samples collected ranged from 2 to 10,560 ug/kg. The raw pesticide data are provided in Appendix IV.

Toxaphene, beta-endosulfan and methoxychlor were not detected in any of the samples. As noted in the QA section, recoveries were not determined fortoxaphene and beta-endosulfan. No confidence may therefore be assigned to this apparently negative conclusion. Recoveries were also not reported for endosulfan sulfate and chlordane. However, these compounds were detected in one and seven of the samples, respectively. While these compounds were apparently present, without recovery data, quantitative estimates are potentially suspect.

Indicative of a number of relatively high pesticide concentrations that were observed in some of the samples, only three of the pesticides (alpha-BHC, gamma-BHC and heptachlor) had arithmetic mean values less than the MDL. While detectable concentrations are generally in the parts per billion range, a number of pesticides (dieldrin, DDT-related compounds, endosulfan sulfate and chlordane) were detected in the parts per million range. The highest concentration, 10.6 mg/kg chlordane, was detected in one fill sample. The second fill sample, however, contained only ug/kg concentrations of beta-BHC (298 ug/kg), alpha-endosulfan (18 ug/kg), p,p'-DDE (47 ug/kg), and dieldrin (2 ug/kg). Overall, the calculated means are quite low due to the high incidence of non-detectable levels. As with certain inorganics, golf green concentrations tend to be substantially elevated. No overall trend of increasing concentrations from rural to urban land is seen, however, certain compounds do display an apparent variation with land use.

Due to the low detection frequency, possible associations between occurrence and land use categories were not formally tested. However, certain trends in occurrence were observed. Fifty-one percent of the samples contained detectable levels of the chlorinated pesticides. Frequency of pesticide detection apparently varies by land use category. An average of 3.9 pesticides were observed in the urban land use category, which was higher than 2.7 in the suburban or 2.1 in the rural land use categories. Not surprisingly, the occurrence of pesticides in the samples increases substantially on lands where applications of pesticides would be anticipated. The five golf course soil samples had a total of 41 pesticide occurrences resulting in an average of 8.2 pesticides per sample.

Table 11 *Summary Statistics for Chlorinated Pesticides*

Pesticides	MDL Ug/kg	Number Detected	Range of Detected Values ug/kg	Geometric Mean ug/kg	Arithmetic Mean ug/kg
alpha-BHC	4	2	4-9	2.1	0.16
gamma-BHC	1	3	2-4	0.5	0.13
beta-BHC	1	29	3-713	3.0	27.8
Heptachlor	1	4	5-15	0.6	0.4
Aldrin	1	1	17	0.5	-
Heptachlor Epoxide	1	11	2-780	0.9	16.1
alpha-Endosulfan	1	9	2-80	0.7	1.7
beta-Endosulfan	3	0	--	--	--
p,p'-DDE	2	28	2-1770	4.2	65.8
Dieldrin	2	13	2-1237	1.9	33.3
Endrin	3	2	229-260	1.7	6.1
o,p'-DDT	4	13	10-2632	3.8	63.2
p,p'-DDD	4	14	4-490	3.6	22.7
p,p'-DDT	5	18	5-4610	5.4	78.9
Endosulfan Sulfate	33	1	2108	17.5	-
Chlordane	2	7	13-10560	1.6	223
Mirex	2	1	8	1.0	--
Methoxychlor	6	0	--	--	--
Toxaphene	nd	0	--	--	--

MDL = Minimum Detection Limit
nd = MDL was not determined by laboratory for this compound
[1]Sample total = 80

Beta-BHC and p,p'-DDE were detected in the largest number of samples, 36% and 35%, respectively. Alpha and beta BHC, heptachlor, p,p'-DDE, o,p'-DDT, p,p'-DDD and p,p'-DDT tended to occur more frequently in the urban and golf green land use categories than the suburban, rural or agricultural land use categories. Dieldrin and chlordane occurred more frequently in the golf course samples than the other land use data sets.

E. Polycyclic Aromatic Hydrocarbons

Analyses were performed for sixteen polycyclic aromatic hydrocarbons (PAH) listed in Table 5. Ten of the eighty samples (13%) contained detectable levels of fluoranthrene, chrysene, phenanthrene, and pyrene. Fluoranthrene was detected more frequently than chrysene and phenanthrene, and pyrene was detected in only one sample. These data are summarized below in Table 12. Of the ten samples containing PAHs, six were collected in urban areas, two in suburban areas and two in rural areas. Nearly 1 in 3 (32%) of the urban samples contained detectable PAHs, though two of these samples were from fill material of unknown origin. PAHs were also detected in 11% of suburban

and 6% of rural samples. This increased incidence of detection parallels the previously noted trend of increased impact in urban areas.

As noted in the Quality Assurance section, recoveries were negligible for the heavier PAHs (benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene). Therefore, no conclusion can be drawn in this study regarding the environmental concentration of these compounds.

Table 12 *Summary of PAH Data For All Land Use Categories*

	No. of Detects	Max. Conc. ug/g	Min. Conc. Ug/g
Fluoranthrene	5	4.27	0.22
Chrysene	4	3.93	1.21
Phenanthrene	4	3.63	0.49
Pyrene	1	1.43	1.43

E. PCBs. Chlorinated Herbicides. and Organophosphate Pesticides

There were no detectable quantities of any compounds of the remaining chemical groups in the soils analyzed during this study. These groups include PCBs, chlorinated herbicides and organophosphate pesticides.

The PCB analyses included the Aroclors 1016, 1242, 1248, 1254 and 1260. Sensitivities for the various PCB mixtures varied from 0.021 to 0.054 mg/kg. As noted in the QA section, recoveries were not determined. The apparent conclusion resulting from this study must thus be qualified.

In a similar study conducted in Great Britain, total PCB (including Aroclors 1242, 1254 and 1260) concentrations were measured in soils from 100 background sites (Creaser and Fernandes, 1986). The British study reported PCB background concentrations at a mean value of 0.022 mg/kg with a median of 0.007 mg/kg. These values are less than the sensitivities determined for the present study (Table 3).

The soil samples were also analyzed for three chlorophenoxy herbicides,2,4-D,2,4,5-T and Silvex. None were detected at any sites during this study. The MDLs for these compounds were calculated to be 10 ug/kg for 2,4-D, 2 ug/kg for 2,4,5-T and 1 ug/kg for Silvex. Since only 2,4-D can be considered reasonably degradable this would seem to indicate that contamination with these herbicides had probably not occurred.

In addition, eleven organophosphate pesticides were analyzed. These pesticides are listed below in Table 13.

No organophosphate pesticides were detected in any sample, nor were unknown peaks recorded by the Thermionic Nitrogen/Phosphorus detector. This is not unreasonable since these compounds tend

to photooxidize and hydrolyze and thus, in contrast to the organochlorine pesticides, have relatively short environmental half-lives and are not considered to be persistent in the environment.

Table 13 *Organophosphate Pesticides*

MDL = 0.02 ug/kg

Phosorin	Merphos
Thimet	Dimethoate
Diazinon	Malathion
Disulfonton	DEF
Parathion	Ethion
Trithion	

CONCLUSIONS

1. Elevated levels of anthropogenic pollutants, primarily metals, result from increased human activity in New Jersey. Urban park soils contained elevated levels of most metals relative to suburban and/ or rural soils as determined by nonparametic statistics. The exceptions to this were beryllium, chromium, and selenium which showed no significant variation with land use category. It is assumed that the higher levels observed in the urban areas are due primarily to the diffuse regional deposition of air pollutants originating from both mobile (vehicular) and stationary emission sources.

2. Golf course soils (greens) have been the obvious recipients of compounds containing cadmium, chromium, and mercury, as well as organic pesticides. No firm conclusions may be offered regarding agricultural land due to the small sample size.

3. For the most part, the data collected during this survey were consistent with other background studies in the literature for the state, the country and worldwide data.

4. The data contained in this report can be used to establish a statewide range for inorganics such that a threshold value may be determined, which indicates human impact to the soil. Measured values in excess of such a number would thus have a high probability of being of local anthropogenic origin rather than natural origin. Environmental concentrations that were less than this threshold value would, therefore, likely be of either natural or diffuse anthropogenic origin.

5. While background PCB levels appear to be low, less than 0.054 mg/kg, this conclusion should be interpreted with caution as no matrix spike recovery data was reported by the laboratory.

1. Chlorinated pesticides were detected at low concentrations in a majority (51 %) of samples, with BHC and DDT-related compounds generally being the most common. The large number of non-detectable samples precluded formal statistical evaluation, thus no significant overall relationships were demonstrated between concentration and land use categories. Chlorinated pesticides appear to be detected more frequently in urban than suburban or rural soils. Golf greens also tended to show elevated frequencies and concentrations of certain compounds.

7. Background concentrations of polycyclic aromatic hydrocarbons (PAH) were only measured below the MDL, at or below the low part per million level. No data was reported for the heavier members of this group due to negligible matrix spike recoveries. PAHs continue the general trend of increasing prevalence in urban relative to suburban and rural land.

8. No organophosphate pesticides were detected in this study. This is consistent with the relative degradability of this class of compounds.

9. No chlorinated herbicides were detected in this study. As these compounds are relatively persistent in the environment, the data indicates that this class of compounds is not a significant component of diffuse anthropogenic pollution.

REFERENCES

APHA, 1985. Standard Methods for Examination of Water and Wastewater. 16th Edition.

Blumer, M., W. Blumer and T. Reich, 1977. Polycyclic Aromatic Hydrocarbons in Soils in a Mountain Valley: Correlation With Highway Traffic and Cancer Incidence. Env. Sci.Tech. 11: 1082-1084.

Creaser, C.S. and A.B. Fernandes, 1986. Background Levels of Polychlorinated Biphenyls in British Soils. Chemosphere 15:499-508.

EPA 1979. 200 Series Methods for Chemical Analysis of Water and Wastes, Modified for Soil and Sediment, EPA-600/4-79-020, March.

EPA 1986. Test Methods for Evaluating Solid Waste. Physical Chemical Methods, EPA SW-846, 3rd Edition.

Friedland, A.J., Johnson, A.H., and Siccama, T.G., 1984. Trace Metal Content of the Forest Floor in the Green Mountains of Vermont: Spatial and Temporal Patterns. Water, Air and Soil Poll. 21: 161-170.

Lioy, P.J. and J.M. Daisey, 1987. Toxic Air Pollution: A Comprehensive Study of Non-Criteria Air Pollutants. Lewis Publishers, Inc. Chelsea, Michigan.

Prahl, F.G., E. Crecellus, and R. Carpenter, 1984. Polycyclic Aromatic Hydrocarbons in Washington Coastal Sediments: An Evaluation of Atmospheric and Riverine Routes of Introduction. Env. Sci. Tech. 18:687-693.

Rutgers University 1985a. Rutgers Dept. of Env. Sci. Method-500.2: Organochlorine Pesticides and Polychlorinated Biphenyls in Soils and Sediments.

Rutgers University 1985b. Rutgers Dept. of Env. Sci. Method-300.1: Polynuclear Aromatics in Soils and Sediments.

Rutgers University 1985c. Rutgers Dept. of Env. Sci. Organophosphate Pesticides in Soils and Sediments.

Rutgers University 1985d. Rutgers Dept. of Env. Sci. Method-1400.1: Phenoxy Alkanoic Acid Herbicides in Soils and Sediments.

Sax, N.I., 1984. Dangerous Properties of Industrial Materials, Sixth Edition, Van Nostrand Reinhold Company, New York.

Shacklette, H.T., and J.G. Boerngen, 1984. Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States. U.S. Geological Survey Professional Paper 1270.

Thornton, I., E. Culbard, S. Moorcroft, J. Watt, M. Wheatley and M. Thompson, 1985. Metals in Urban Dusts and Soils. Environmental Technology Letters, Vol. 6, pp. 137-144.

Vinogradov, A.P., 1959. The Geochemistry of Rare and Dispersed Chemical Elements in Soils 2nd Edition, Consultants Bureau Enterprises, New York.

APPENDIX I General Soil Parameters

Sample Number	Percent[1] Loss of Ignition	Soil pH	Sand %	Silt %	Clay %
001	3.9	4.8	14	60	26
002	4.1	5.2	14	62	24
003	4.3	5.2	42	34	24
004	4.3	4.6	46	36	18
005	5.5	4.7	42	34	24
006	5.6	5.0	42	40	18
007	8.8	5.1	38	44	18
008	4.0	5.1	44	44	12
009	5.0	5.4	34	48	18
010[2]	80.1	3.6	NS[3]	NS[3]	NS[3]
011	2.9	4.5	80	14	6
012	2.1	4.3	98	1	1
013	2.7	3.8	90	4	6
014	7.9	5.8	36	44	20
015	5.4	5.3	47	36	17
016	4.5	4.7	58	29	13
017	5.3	4.9	42	38	20
018	6.5	5.3	43	39	18
019	2.8	5.5	77	16	7
020[2]	4.3	4.6	24	52	24
021	4.8	4.5	54	34	12
022	7.1	4.3	65	21	14
023	6.3	5.0	NS	NS	NS
024	6.3	5.0	24	52	24
025	4.0	4.9	22	46	32
026	4.9	8.3	63	20	17
027	4.0	6.5	40	42	18
028	5.5	6.9	30	38	32
029	0.5	5.9	90	4	6
030[2]	1.0	4.5	92	4	4
031	15.6	4.1	84	10	6
032	4.0	6.4	82	12	6
033	5.8	4.6	73	19	8
034	3.2	4.0	74	18	8
035	2.8	5.9	82	12	6
036	4.5	5.7	62	26	12
037	3.8	6.6	54	32	14
038	7.7	5.1	44	36	24
039	5.1	6.4	58	30	12
040[2]	3.7	6.3	54	36	10
041	4.4	5.4	44	44	12
042	3.4	6.9	56	30	14
043	9.3	5.3	62	30	8

APPENDIX I - (continued) General Soil Parameters

Sample Number	Percent[1] Loss of Ignition	Soil pH	Sand %	Silt %	Clay %
044	4.3	5.8	50	40	10
045	4.6	7.5	64	26	10
046	4.7	6.7	42	40	18
047	6.0	7.5	56	34	10
048	3.9	5.5	82	12	6
049	6.3	5.0	60	26	14
050[2]	2.9	6.3	90	8	2
051	2.2	4.8	90	6	4
052	2.9	4.7	56	34	10
053	3.5	4.6	26	58	16
054	2.9	5.2	82	16	2
055	1.8	5.8	82	8	10
056	6.3	5.5	76	16	8
057	1.3	5.6	90	4	6
058	3.6	4.6	60	30	10
059	1.9	4.5	90	6	4
060[2]	1.1	4.5	96	4	0
061	1.9	4.7	88	6	6
062	2.4	6.3	84	8	8
063	1.4	5.4	86	6	8
064	8.8	6.1	34	40	26
065	3.9	5.3	34	48	18
066	7.6	7.3	72	18	10
067	16.6	6.1	NS	NS	NS
068	11.4	7.3	60	30	10
069	4.6	6.3	36	34	30
070[2]	5.4	7.2	32	50	18
071	3.1	6.6	26	68	6
072	5.0	6.0	24	42	34
073	4.6	7.0	16	60	24
074	2.9	6.5	62	24	14
075	4.0	5.2	28	64	8
076	4.0	6.6	42	40	18
077	4.5	6.7	70	22	8
078	3.4	6.9	70	20	10
079	5.3	6.8	52	32	16
080[2]	4.6	6.4	60	24	16

[1] "Total, Fixed and Volatile Solid and Semisolid Samples." Standard Methods for the examination of Wastewater, 16th Ed.; APHA, WPCF, 1985.

[2] Average values were reported for duplicate analyses. Duplicate analyses were conducted on every tenth sample.

[3] NS = Not Enough Sample

APPENDIX II Metal Analysis (mg/kg)

Sample	Sb	As	Be	Cd	Cr	Cu	Pb	Mn	Hg	Ni	Se	Ag	Tl	V	Zn
1[1]	ND	3.62	0.80	0.073	11.1	9.47	16.0	344	0.13	9.8	0.06	0.05	0.27	41.1	47.7
2	ND	2.55	1.48	0.14	16.5	10.0	17.3	270	0.18	15.0	0.15	0.06	0.28	34.8	53.1
3	ND	1.00	1.33	0.089	12.5	9.61	17.4	423	0.11	25.0	0.04	0.08	ND	20.4	57.8
4	ND	0.61	1.50	0.085	13.5	12.8	21.5	692	0.12	34.0	0:06	0.15	0.12	14.6	95.8
5	ND	2.70	0.96	0.081	11.5	11.4	17.6	133	ND	17.3	0.16	0.19	ND	1.4	69.1
6	ND	1.79	1.05	0.077	11.8	6.21	18.4	52	ND	8.7	0.19	0.12	ND	29.7	32.8
7	ND	4.53	0.91	0.201	17.4	28.4	62.4	959	0.13	11.5	0.34	0.15	0.19	41.4	66.3
8	0.05	2.13	0.61	0.193	17.1	24.9	34.4	226	0.14	12.9	0.16	0.10	ND	34.4	58.5
9	0.10	2.38	10.3	0.182	7.5	7.47	21.9	100	ND	9.0	0.09	0.08	ND	17.9	55.3
10	ND	4.78	1.63	0.146	9.7	10.4	46.0	7	0.11	6.6	0.80	0.03	ND	5.3	27.0
11[1]	ND	0.14	0.08	0.014	2.5	1.34	6.1	4	ND	ND	ND	0.02	0.13	3.2	4.9
12	ND	0.04	0.11	0.007	0.8	0.63	4.4	1	ND	ND	ND	0.01	ND	0.8	2.7
13	ND	0.23	0.02	0.011	3.7	1.31	7.4	3	ND	ND	ND	0.01	ND	0.9	5.5
14	ND	3.74	1.74	0.244	9.8	14.7	22.0	561	0.1	9.2	0.15	0.06	0.11	23.2	65.9
15	NA	3.52	1.83	0.135	8.3	11.1	14.8	660	0.15	10.8	0.10	0.06	ND	19.8	54.2
16	0.03	3.83	1.08	0.146	5.7	11.0	19.7	273	0.1	6.2	0.12	0.14	ND	1.4	38.8
17	ND	3.07	1.14	0.098	10.0	12.5	17.2	375	ND	17.4	0.05	0.13	ND	15.4	69.0
18	ND	2.31	1.28	0.138	10.2	11.9	19.5	537	0.1	18.7	0.06	0.12	ND	18.3	63.5
19	NA	17.1	0.76	0.079	20.7	5.57	44.3	28	0.17	7.6	0.10	0.11	ND	23.5	25.5
20	NA	2.85	1.07	0.03	18.9	5.25	18.5	27	ND	6.4	0.11	0.10	ND	23.6	35.1
21[1]	ND	2.21	0.46	0.069	5.4	5.64	15.3	13	ND	3.2	0.07	0.14	ND	1.3	19.1
22	ND	1.69	0.19	0.08	5.8	4.38	17.9	6	ND	2.2	0.09	0.04	ND	1.0	27.9
23	ND	1.32	1.07	0.159	14.4	5.84	17.9	40	0.11	9.1	0.13	0.05	0.08	27.1	53.0
24	ND	2.42	1.16	0.045	14.0	13.9	22.6	73	0.14	12.0	0.05	0.20	ND	29.6	41.6
25	NA	2.38	0.91	0.073	15.4	10.1	21.6	31	0.16	11.1	0.08	0.19	ND	38.0	52.0
26	NA	10.3	1.15	0.471	15.0	31.5	285	252	1.06	19.2	0.07	0.04	0.07	36.8	789
27	ND	4.00	1.16	0.314	12.8	20.5	59.3	459	0.19	19.2	0.09	0.24	0.07	25.3	121
28	ND	9.68	4.09	0.303	10.6	27.6	39.9	515	0.18	28.2	0.15	0.20	0.46	39.9	132
29	ND	0.02	ND	0.011	2.2	0.82	2.2	4	ND	ND	ND	0.01	ND	3.1	2.1
30	0.04	0.14	ND	0.007	1.0	0.78	5.0	4	ND	ND	ND	0.01	ND	1.0	3.4
31[1]	0.08	0.54	0.06	0.026	4.3	1.48	3.7	6	ND	ND	ND	ND	ND	0.8	4.0
32	ND	2.27	0.16	0.256	12.0	13.7	97.8	30	0.13	5.5	0.10	0.04	ND	18.5	40.4
33	NA	0.55	0.03	0.01	4.5	1.74	11.6	40	ND	1.4	0.06	0.30	0.10	1.2	4.9
34	ND	0.06	0.22	0.016	4.2	1.77	8.0	17	0.1	2.1	0.05	0.19	ND	0.7	9.5
35	ND	4.56	0.09	0.116	10.4	6.05	25.9	59	ND	3.2	0.11	0.21	ND	1.3	44.6
36	ND	10.7	0.88	0.135	14.0	7.27	15.1	120	ND	8.3	0.17	0.26	ND	14.0	28.1
37	0.02	8.41	0.70	0.164	14.3	41.7	58.9	86	0.14	8.5	0.05	0.42	ND	19.4	40.6
38	0.04	6.60	2.55	0.632	15.3	17.0	65.7	333	ND	28.7	0.12	0.22	0.10	26.3	88.9
39	ND	2.72	0.70	0.586	21.3	21.1	150	289	0.11	11.1	0.06	0.18	ND	21.8	82.6
40	0.07	22.7	0.55	0.32	8.2	10.7	100	240	0.13	9.9	0.08	0.12	ND	14.2	35.3

APPENDIX II -(continued) Metal Analysis (mg/kg)

Sample	Sb	As	Be	Cd	Cr	Cu	Pb	Mn	Hg	Ni	Se	Ag	Tl	V	Zn
41[1]	0.02	4.16	0.88	0.160	11.1	15.2	67.8	251	0.15	13.3	0.10	0.19	ND	23.0	56.1
42	0.04	8.22	0.89	0.873	18.7	102	271	371	0.33	21.1	0.05	0.34	ND	29.2	246
43	0.69	48.9	0.45	2.36	18.3	143	617	240	1.58	53.8	0.05	1.53	0.04	46.1	210
44	0.05	3.68	0.69	0.347	15.9	21.2	83.4	260	2.71	10.9	0.07	0.16	0.07	21.1	76.6
45	0.04	8.03	0.90	0.444	9.6	31.3	53.6	354	0.14	15.4	ND	0.32	ND	14.4	73.0
46	0.05	4.62	0.78	0.601	10.8	48.3	446	388	0.46	15.1	0.05	0.24	0.06	19.5	129
47	0.10	10.9	0.83	0.517	24.6	47.9	189	239	0.48	16.9	0.09	0.30	0.11	32.5	112
48	0.03	0.34	0.67	0.223	4.9	18.4	48.5	121	0.39	6.0	ND	0.09	0.07	1.0	63.1
49	0.03	2.62	0.71	0.10	9.3	9.89	16.1	48	0.12	5.6	0.06	0.10	ND	25.0	29.8
50	0.03	0.02	0.07	0.22	2.5	1.73	12.2	71	ND	1.4	ND	0.02	ND	1.0	18.1
51[1]	ND	0.19	0.06	0.026	1.6	1.40	5.2	15	ND	ND	ND	0.06	ND	4.9	0.9
52	ND	0.31	0.56	0.011	3.7	2.62	8.7	31	ND	4.0	ND	0.05	ND	9.1	16.8
53	ND	0.19	0.84	0.024	5.7	3.89	7.8	5	ND	5.8	ND	0.04	ND	4.8	23.3
54	ND	0.99	0.47	0.011	5.5	3.04	10.0	94	0.11	2.5	ND	0.15	ND	4.3	16.0
55	ND	0.29	0.47	0.028	6.8	1.22	4.7	28	ND	ND	ND	0.02	ND	0.5	11.2
56	0.03	10.9	0.65	0.914	13.8	64.3	165	210	0.31	7.8	0.13	0.07	0.24	18.6	81.8
57	0.03	3.63	0.21	0.014	2.9	3.62	18.6	25	ND	ND	ND	0.02	ND	6.3	8.9
58	ND	3.52	0.43	0.006	4.8	2.59	4.2	23	ND	2.3	ND	0.04	ND	6.0	13.0
59	0.03	3.81	0.04	ND	3.6	2.35	44.2	3	ND	ND	ND	0.02	ND	4.9	4.6
60	ND	2.08	ND	0.008	0.7	ND	ND	2	ND	ND	ND	ND	ND	0.2	ND
61[1]	ND	3.10	0.68	0.059	8.9	1.79	4.9	47	ND	0.6	ND	0.01	ND	4.7	15.8
62	ND	4.42	0.73	0.132	18.7	5.40	11.6	104	0.14	2.6	ND	0.09	ND	10.8	33.2
63	ND	1.35	0.12	0.007	3.2	1.95	ND	11	0.11	ND	ND	0.10	ND	4.5	9.6
64	ND	6.02	0.81	0.04	101	55.9	17.2	1313	0.26	42.2	0.11	0.19	ND	165	56.0
65	ND	4.35	0.96	0.185	8.1	8.84	25.8	285	0.15	8.8	0.05	0.07	0.06	15.7	42.5
66	ND	5.65	0.85	0.505	8.7	36.0	428	385	0.47	12.8	0.04	0.07	0.06	13.0	162
67	NA	6.41	0.91	1.04	9.3	35.9	109	354	0.68	10.5	0.05	0.16	ND	16.8	317
68	0.03	5.12	1.50	1.61	7.0	39.4	27.0	358	0.28	11.9	0.09	0.26	0.14	26.5	316
69	ND	4.40	0.36	0.421	8.2	22.3	39.1	458	ND	18.7	ND	0.09	0.19	24.9	74.6
70	ND	2.32	1.11	0.437	7.2	77.9	318	952	ND	10.1	ND-	0.26	ND	7.0	73.6
71[1]	0.03	6.15	2.00	0.27	8.8	14.3	27.0	846	ND	14.9	0.05	0.15	0.23	20.5	82.2
72	ND	5.57	1.10	0.308	9.9	13.0	18.4	913	ND	11.8	ND	0.13	0.23	20.3	67.1
73	0.02	4.79	1.66	0.176	9.6	11.7	24.8	1125	ND	14.6	ND	0.09	0.14	21.5	75.7
74	ND	3.23	0.86	0.169	5.5	11.3	ND	315	ND	5.3	ND	0.08	0.18	16.9	43.8
75	ND	3.97	1.17	0.234	9.7	9.37	16.4	414	ND	10.2	ND	0.08	ND	20.3	51.5
76	ND	4.23	0.71	2.28	72.7	19.7	13.9	495	7.4	12.3	ND	0.12	0.10	20.1	524
77	ND	5.00	0.79	1.64	16.3	9.11	13.7	330	7.7	8.3	ND	0.09	ND	9.8	37.6
78	ND	1.06	0.56	5.16	22.6	4.58	ND	307	5.0	8.5	ND	0.03	ND	1.3	47.0
79	ND	2.49	0.79	0.90	24.9	11.3	16.8	480	1.4	13.1	ND	0.15	ND	15.0	56.3
80	ND	3.37	0.54	1.32	25.6	9.86	16.5	348	2.2	9.4	ND	0.05	ND	10.6	48.1

[1] Average values were reported for duplicate analyses which were ran on every tenth sample.

APPENDIX III Additional Summary Statistics for Metals (mg1kg)

Metal Land Use	N	Proportion >MDL	Geo Std Deviation	95% Confidence Interval'
Sb MDL = 0.02				
Urban	17	0.65	3.0	0.02- 0.05
Suburban	18	0.44	1.9	0-01- 0.02
Rural	30	0.13	1.8	0.01- 0.02
Golf Greens	5	0.00	—	———
Farm	3	0.33	—	———
As MDL = 0.003				
Urban	19	1.00	2.60	3.46- 8.71
Suburban	18	1.00	6.74	0.80- 5.33
Rural	35	1.00	4.08	0.74- 1.96
Golf Greens	5	1.00	—	———
Farm	3	1.00	—	———
Be MDL = 0.03				
Urban	19	1.00	1.97	0.62- 1.18
Suburban	18	0.94	3.75	0.18- 0.67
Rural	35	0.94	4.68	0.26- 0.77
Golf Greens	5	1.00	—	———
Farm	3	1.00	—	———
Cd MDL = 0.006				
Urban	19	1.00	2.0	0.36- 0.71
Suburban	18	0.94	4.4	0.04- 0.17
Rural	35	1.00	3.1	0.03- 0.07
Golf Greens	5	1.00	—	———
Farm	3	1.00	—	———
Cr MDL = 0.7				
Urban	19	1.00	1.5	9.2 - 13.6
Suburban	18	1.00	2.1	5.6 - 11.8
Rural	35	1.00	2.7	4.8 - 9.5
Golf Greens	5	1.00	—	———
Farm	3	1.00	—	———

APPENDIX III -(continued) *Additional Summary Statistics for Metals (marks)*

Metal Land Use	N	Proportion >MDL	Geo Std Deviation	95% Confidence Interval'
Cu MDL = 0.6				
Urban	19	1.00	2.0	23.2 - 46.3
Suburban	18	1.00	3.3	3.5 - 11.4
Rural	35	0.97	3.0	3.3 - 7.0
Golf Greens	5	1.00	—	—
Farm	3	1.00	—	—
Pb MDL = 1.2				
Urban	19	1.00	2.7	69.7 -182.9
Suburban	18	0.94	4.0	9.3 - 37.2
Rural	35	0.94	2.6	8.0 - 15.5
Golf Greens	5	0.80	—	—
Farm	3	1.00	—	—
Mn MDL = 0.6				
Urban	19	1.00	2.0	203-393
Suburban	18	1.00	5.2	33-169
Rural	35	1.00	7.3	23- 89
Golf Greens	5	1.00	—	—
Farm	3	1.00	—	—
Hg MDL = 0.01				
Urban	19	0.84	6.2	0.08- 0.47
Suburban	18	0.50	5.4	0.01- 0.06
Rural	35	0.46	5.2	0.01- 0.04
Golf Greens	5	1.00	—	—
Farm	3	0.00	—	—
Ni MDL = 1.2				
Urban	19	1.00	1.8	10.8- 18.5
Suburban	18	0.72	3.9	1.6 - 6.2
Rural	35	0.80	3.6	3.0 - 7.2
Golf Greens	5	1.00	—	—
Farm	3	1.00	—	—

APPENDIX III- (continued) *Additional Summary Statistics for Metals (mglkg)*

Metal Land Use	N	Proportion >MDL	Geo Std Deviation	95% Confidence Interval'
Se MDL = 0.0 1				
Urban	19	0.79	0.06	0.23- 0.07
Suburban	18	0.55	0.06	0.01- 0.05
Rural	35	0.66	0.08	0.02- 0.06
Golf Greens	5	0.00	0.01	_____
Farm	3	0.00	0.01	_____
Ag MDL = 0.01				
Urban	19	1.00	0.24	0.11- 0.24
Suburban	18	1.00	0.12	0.04- 0.13
Rural	35	0.94	0.09	0.04- 0.09
Golf Greens	5	1.00	0.09	_____
Farm	3	1.00	0.10	_____
TI MDL = 0.06				
Urban	19	0.68	0.01	0.05- 0.10
Suburban	18	0.16	0.06	0.03- 0.06
Rural	35	0.23	0.06	0.03- 0.05
Golf Greens	5	0.20	0.04	_____
Farm	3	0.67	0.13	_____
V MDL = 0.3				
Urban	19	1.00	22.67	12.43 - 27.68
Suburban	18	1.00	14.19	4.59- 15.37
Rural	35	1.00	17.36	3.62- 11.11
Golf Greens	5	1.00	11.36	_____
Farm	3	1.00	20.70	_____
Zn MDL = 0.24				
Urban	19	1.00	127.5	76.2 -143.0
Suburban	18	1.00	38.8	15.5 - 42.8
Rural	35	0.97	33.7	11.9 - 31.6
Golf Greens	5	1.00	142.6	
Farm	3	1.00	64.8	

The 95% Confidence Interval about the geometric mean was based on geometric standard errors. It was not calculated for the farm and golf course samples due to the small sample size.

APPENDIX *IV Chlorinated Pesticides Results' (uglkg)*

	Sample Number							
Pesticide	19	26	31	32	34	35	36	38
alpha-BHC								
gamma-BHC								
beta-BHC								
Heptachlor								
Aldrin								
Heptachlor Epoxide								
alpha-Endosulfan				8	7	4		
p,p' - DDE	1770			39			2	5
Dieldrin								
Endrin								
o,p' - DDT	757			15				
p,p' - DDD	309							
p,p'- DDT	4610		19	51	19	5		34
Endosulfan Sulfate								
Chlordane		10560						
Mirex								

	Sample Number						
Pesticide	39	41	42	43	44	45	46
alpha-BHC						4	
gamma-BHC							
beta-BHC		5	132	37	39	26	21
Heptachlor							
Aldrin							
Heptachlor Epoxide	13		3	2	2		
alpha-Endosulfan						7	3
p,p'- DDE		55	537	177	154	27	
Dieldrin	39						
Endrin							
o,p'- DDT			73	30	27		
p,p'- DDD,	17		195	13	10		
p,p' - DDT			312	243	219		
Endosulfan Sulfate							
Chlordane	30						
Mirex	8						

APPENDIX IV - (continued) *Chlorinated Pesticides Results' (uglkg)*

	Sample Number							
Pesticide	47	48	49	50[2]	51	52	54	57
alpha-BHC								
gamma-BHC								
beta-BHC	21	15		3	5	3		3
Heptachlor								
Aldrin								
Heptachlor Epoxide								
alpha-Endosulfan								
p,p'- DDE		174	151	12	128	51	10	44
Dieldrin		720		251				
Endrin								
o,p'- DDT			13		10			
p,p'- DDD		12	4					49
p,p'- DDT		51	40		26			118
Endosulfan Sulfate								
Chlordane								
Mirex								

	Sample Number					
Pesticide	59	62	64	65	66	67
alpha-BHC						
gamma-BHC						
beta-BHC		3	4	7	298	69
Heptachlor						
Aldrin						
Heptachlor Epoxide						
alpha-Endosulfan				2	18	9
p,p' - DDE	3	21		41	47	16
Dieldrin		19			2	4
Endrin						
o,p - DDT						
p,p _ DDD						
p,p' - DDT				21		
Endosulfan Sulfate						
Chlordane						
Mirex						

APPENDIX IV - (continued) *Chlorinated Pesticides Results' (uglkg)*

Pesticide	Sample Number 68	69	70[2]	71	72	73	75	76
alpha-BHC	9							
gamma-BHC	2	4			4			
beta-BHC	210	10	17	11	3	8	16	713
Heptachlor		6			5			
Aldrin					17			
Heptachlor Epoxide	27					25		780
alpha-Endosulfan	80							
p,p'- DDE	260	6						511
Dieldrin	71	3			117	66		1237
Endrin								
o,p'- DDT	152							2632
p,p' - DDD	212							490
p,p'- DDT								
Endosulfan Sulfate	2108							
Chlordane								6434
Mirex								

Pesticide	Sample Number 77	78	79	80[2]
alpha-BHC				
gamma-BHC				
beta-BHC	258	240	22	22
Heptachlor			10	15
Aldrin				
Heptachlor Epoxide	140	224	25	47
alpha-Endosulfan				
p,p' - DDE	376	334	108	200
Dieldrin	41	97		
Endrin	229	260		
o,p' - DDT	239	802	87	217
p,p'- DDD	162	262	19	65
p,p'- DDT	142	178	28	192
Endosulfan Sulfate				
Chlordane	420	355	13	26
Mirex				

[1] While all samples were analyzed for pesticides, only samples with results greater than the NIDLs have been included in this table.

[2] Average values were reported for duplicate analyses which were performed on every tenth sample.

APPENDIX J

Remedial Action Selection Report

REMEDIAL ACTION SELECTION REPORT

for

Fill In The Parking Lot At The South End Of
Iona College's Elizabeth Seton Campus
1061 North Broadway, Yonkers, NY 10701
(Site #V-00687-3, Index #W3-0981-12)

1.0 INTRODUCTION

This Remedial Action Selection Report (RASR) was prepared pursuant to New York State Department of Environmental of Environmental Conservation (NYSDEC) requirements. It pertains to the fill material located in the vicinity of the parking lot at the south end of Iona College's Elizabeth Seton Campus (Site). The location of the Site is shown in Figure 1.

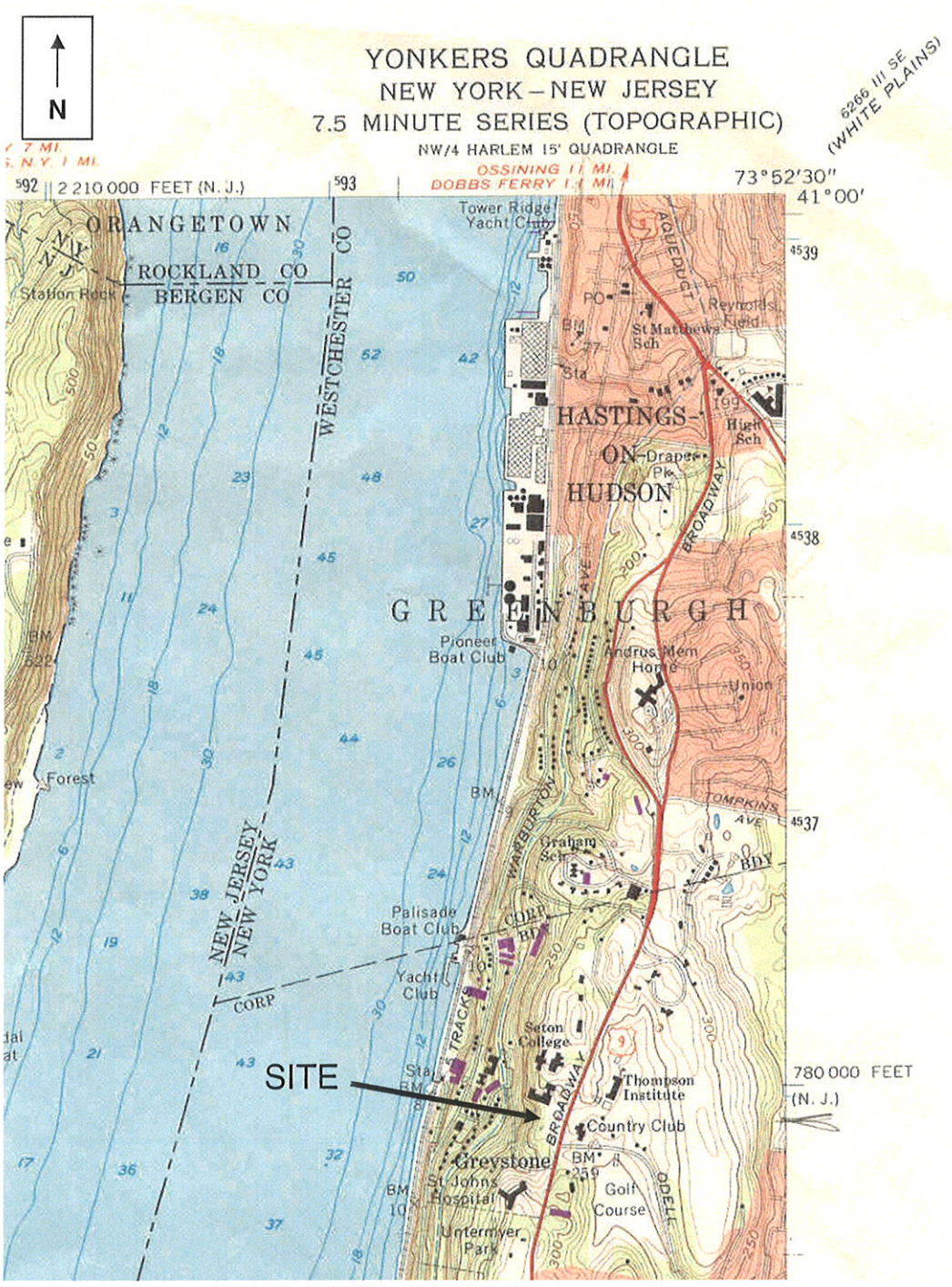
This RASR was performed as part of the remedy selection process for the Site. It complies with Section 375-1.10 (Remedy Selection) of the New York Code of Rules and Regulations, and meets the requirements of Section 7.4 (Remedial Action Selection (RAS) Report) of the NYSDEC Draft Voluntary Cleanup Guide, dated May 2002.

The following remedial remedies were considered for the Site:

- Alternative 1: No Action;
- Alternative 2: Installation of Clean Soil Cover and Institutional Controls; and
- Alternative 3: Complete Removal.

This RASR provides an analysis of the above remedial alternatives with respect to the following requirements:

- Standards, Criteria and Guidance;
- Overall Protectiveness of Human Health and the Environment;
- Short-term Effectiveness and Impacts;
- Long-term Effectiveness and Permanence;
- Reduction of Toxicity, Mobility and Volume; and



SCALE: 1 INCH = 2,000 FEET

FIGURE 1

SITE LOCATION MAP

LKB

- Feasibility.

Each of these requirements is discussed below in Sections 2.0 through 7.0, respectively. The scopes of the discussions are in keeping with the Site's size, setting and relatively benign nature. The conclusion of this analysis is presented in Section 8.0.

2.0 STANDARDS, CRITERIA AND GUIDANCE

The analysis of remedial alternatives was based on complying with the most stringent of the standards, criteria and guidance utilized by the United States Environmental Protection Agency, the NYSDEC, and the New York State Department of Health. The most stringent are those utilized by the NYSDEC. Specifically, they are the Recommended Soil Cleanup Objectives published in the Division of Environmental Remediation's Technical and Administrative Guidance Memorandum (TAGM) 4046, and the Ambient Water Quality Standards and Guidance Values published in the Division of Water's Technical and Operational Guidance Series (TOGS) 1.1.1. Site-specific conditions were also considered in determining compliance with these documents.

3.0 OVERALL PROTECTIVENESS OF HUMAN HEALTH AND ENVIRONMENT

The results of the site investigation determined that the Site currently is not a significant threat to human health or the environment. Specifically, there are no off-site impacts, and the only potential on-site impact is associated with above-background levels polycyclic aromatic hydrocarbons (PAHs) in soil. Due to their presence, direct contact with the soil may pose a slightly higher risk relative to other nearby areas that do no contain the fill. However, it should be noted that the Site is well vegetated and that the PAHs in the soil will continue to break down over time.

3.1 Alternative 1: No Action

Although the results of the site investigation determined that the Site currently is not a significant risk to public health or the environment, there is potential for future risks associated with the no action alternative due to direct contact with above-background levels of PAHs in soil.

3.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

The key elements of this alternative are as follows:

1. Remove and recycle an above-grade fill pile that is comprised primarily of asphalt, as it is a localized source of PAHs.

2. Remove and dispose of the miscellaneous debris (tires, etc.) located near the southwest corner of the parking lot.

3. Remove the several large dead trees that were killed as a result of fill being placed around their bases, as they are a potential hazard due to falling limbs.

4. Re-grade the Site as necessary to maintain proper drainage.

5. Perform a topographic survey of the Site to establish grade elevations.

6. Cover the fill in accessible (i.e., relatively flat) areas of the Site with a minimum of one foot of clean soil and establish vegetative cover (e.g., turf grass or a grass and wildflower mix, as appropriate).

7. Perform another topographic survey of the Site to verify the thickness of the clean soil cover.

8. Prevent public access to the steep western slope using fencing and signage, screen with landscaping as appropriate. (Note: as this slope is stable and well vegetated, no further action is required.

9. Register an appropriate property deed restriction for the Site.

This alternative will prevent direct contact with the fill while maintaining the proposed end use of the Site, which is open space.

3.3 Alternative 3: Complete Removal

While complete removal would virtually eliminate potential future risks to human health and the environment, the work will result in short-term releases to the environment and there is potential to re-mobilize contaminants.

4.0 SHORT-TERM EFFECTIVENESS AND IMPACTS

4.1 Alternative 1: No Action

Although the Site is well vegetated and the PAHs in the fill will continue to break down over time, the short-term effectiveness of this alternative is limited by the fact that in the meantime the potential risk associated with the PAHs will remain.

4.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

This alternative is effective in the short-term because it will eliminate the potential risk associated with the PAHs and will maintain the intended end use of the Site as open space.

4.3 Alternative 3: Complete Removal

This alternative would be effective in the long-term, but will have significant impacts on the adjacent community associated, for example, with noise, dust, runoff and potential re-mobilization of contaminants. Moreover, this alternative is not consistent with the proposed end use of the Site as open space.

5.0 LONG-TERM EFFECTIVENESS AND PERMANENCE

5.1 Alternative 1: No Action

This alternative is effective in the long term because the PAHs in the fill will continue to break down over time. However, in the meantime, there would remain a potential risk associated with the PAHs.

5.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

This alternative is effective in the long term because it prevents direct contact with the fill while maintaining the proposed end use of the Site as open space.

5.3 Alternative 3: Complete Removal

This alternative is effective in the long term in that it entails permanent removal of the fill. However, has the Site is situated on a steep hillside, removal of the fill would eliminate the ability to use the Site as public open space.

6.0 REDUCTION OF TOXICITY, MOBILITY AND VOLUME

6.1 Alternative 1: No Action

This alternative does not provide for reduction of toxicity mobility and volume of the fill other than the gradual breakdown of the PAHs associated with natural processes.

6.2 Alternative 2: Installation of Clean Soil Cover and Institutional Controls

This alternative provides reduction in the toxicity, and accessibility of the waste by preventing direct contact with the soil while the PAHs break down over time.

6.3 Alternative 3: Complete Removal

This alternative ensures reduction in toxicity and volume, but may potentially increase mobility by exposing contaminants to the environment.

7.0 FEASIBILITY

7.1 Alternative 1: No Action

This alternative, while obviously feasible, does not meet the remedial objectives for the Site.

7.2 Alternative 2:Installation of Clean Soil Cover and Institutional Controls

This alternative is feasible because it is well suited to site conditions, is capable of being carried out with available technology, and is cost-effective. It also meets the remedial objectives for the Site.

7.3 Alternative 3: Complete Removal

This alternative is technically feasible but is not cost-effective and there is potential for re-mobilizing contaminants. Moreover, this alternative is not consistent with the proposed end use of the Site as open space.

8.0 CONCLUSION

The conclusion of this analysis is that Alternative 2: Installation of Clean Soil Cover and Institutional Controls is the preferred alternative for the Site. The specific reasons for this determination are as follows:

- Overall, it is protective of human health and the environment;
- It is effective both short-term and long-term;
- It provides for reduction in toxicity and accessibility; and
- It is feasible in that it is well suited to site conditions, technologically feasible and cost-effective.

APPENDIX K

APPENDIX K

Qualitative Exposure Assessment

QUALITATIVE EXPOSURE ASSESSMENT

for

Fill In The Parking Lot At The South End Of
Iona College's Elizabeth Seton Campus
1061 North Broadway, Yonkers, NY 10701
(Site #V-00687-3, Index #W3-0981-12)

1.0 INTRODUCTION

This qualitative exposure assessment (Assessment) was performed to support the Remedial Closure Work Plan (Plan). It is based on the information provided in the Site Investigation Report (SIR) and the Plan. Since this information is readily available, it is not reproduced verbatim in this assessment. Instead, a summary of the key information is provided and specific information in these documents is referenced by page number, as appropriate.

The overall finding of this assessment is that the Site does not currently pose a significant risk to public health and the environment, and will not do so in the future. This determination is based on the results of the environmental monitoring performed and the remedial plan for the Site, as described in the SIR and the Plan. The specific findings are detailed below in the form of assessments of current and future exposures associated with the various environmental pathways.

2.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE AIR PATHWAY

Based on the air monitoring performed during the site investigation, the air pathway is not currently a significant exposure pathway. This determination is based in the fact that no volatile organic compounds (VOCs) or combustible gas, and only background levels of hydrogen sulfide were detected during health and safety monitoring during the test pit excavation and sampling work (SIR, p. 3). These findings are consistent with available information regarding the composition and age of the Site. Moreover, based on visual observation, the Site is not currently a significant source of fugitive dust emissions as it is well-vegetated (SIR, p. 2).

Based on the scope of work specified in the Plan, the air pathway will not be a significant exposure pathway in the future either. Specifically, once closure is complete, conditions at the Site will be similar to current conditions except that a clean soil cover will be installed and seeded (SIR p. 16). There is potential for fugitive dust emissions during closure in conjunction with re-grading and installation of the soil cover. If necessary, the Owner will take appropriate steps, such as the use of tarps and/or water spraying, to minimize fugitive dust emissions and workers may wear dust masks during these activities. There is also potential for fugitive dust emissions from the soil cover until the new vegetation becomes well established. However, since this dust will be from clean soil, the only environmental concern associated with it is silica. If necessary, the Owner will take appropriate steps, such as installing erosion control blankets on the land surface, to minimize dust emissions until the new vegetation becomes established.

3.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE SOIL PATHWAY

Based on the soil-quality data collected during the site investigation, the soil pathway is not currently a significant exposure pathway. This determination is based on the fact that the Site is well vegetated (SIR, p. 2). As such, the potential for direct dermal contact by humans or animals with soil is low. This determination is also based on the results of the test pit soil sampling results, which showed that except for polycyclic aromatic carbons, the chemical quality of the soil is not a risk with respect to dermal exposure (SIR, p.15).

Based on the scope of work specified in the Plan, the soil pathway will not present a significant risk of exposure in the future. Specifically, the Site will then be covered by a minimum of one foot of clean soil and re-vegetated. In addition, a deed restriction will be placed on future excavation, and periodic inspections will be performed.

4.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE SURFACE WATER PATHWAY

There are no surface-water bodies in the vicinity of the Site which could potentially be impacted by the Site. Therefore, there is no potential current or future exposure associated with the surface-water pathway.

5.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE SEDIMENT PATHWAY

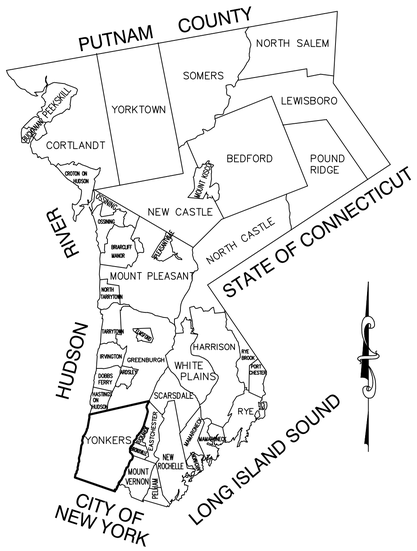
There are no surface-water bodies in the vicinity of the Site which could potentially be impacted by the Site. Therefore, there is no potential current or future exposure associated with the sediment pathway.

6.0 ASSESSMENT OF EXPOSURES ASSOCIATED WITH THE GROUND WATER PATHWAY

Based on the information contained in the SIR, the ground water pathway is not a viable exposure pathway. Specifically, based on field observations, the occurrence of groundwater is limited to a thin, discontinuous seasonal zone overlying bedrock. Moreover, the fill does not leach significant concentrations of PAHs or lead, and is not a significant source of VOCs, the non-PAH semivolatile organic compounds, pesticides, polychlorinated biphenyls (PCBs) or metals. Consequently, there is minimal potential for the Site to impact ground water.

Appendix H

Yonkers Landfill Modifications Plans



WESTCHESTER COUNTY

THIS PROJECT IS LOCATED AS A PORTION OF BLOCK 3515, LOT 115 ON THE CITY OF YONKERS TAX MAP SECTION 3, BOUNDED BY THE FOXFIRE SCHOOL TO THE NORTH, ODELL AVENUE TO THE SOUTH AND WEST, AND NORTH BROADWAY TO THE EAST. THE PROJECT INCLUDES, BUT NOT LIMITED TO INSTALLATION OF NEW SYNTHETIC TURF MULTISPORT FIELD AND RECONFIGURATION OF EXISTING PARKING LOT.

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

PLANS FOR

CONSTRUCTION OF ATHLETIC FIELD

1061 NORTH BROADWAY

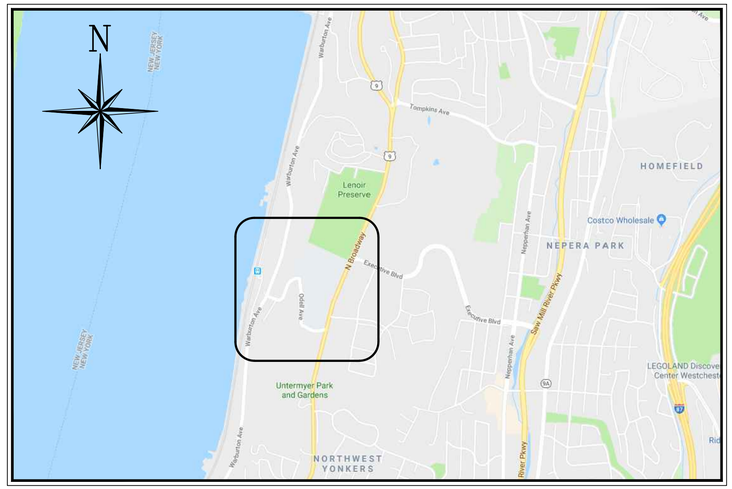
SECTION 3, BLOCK 3515, LOT 115

(NYSDEC SITE NAME AT SOUTH END OF ELIZABETH SEATON CAMPUS

NYSDEC SITE ID NO. V00687-3)

CITY OF YONKERS
WESTCHESTER COUNTY, NEW YORK

AREA OF CONTRACT: 3.73± ACRES



LOCATION MAP
N.T.S.

PREPARED BY:

LKB A VERTEX COMPANY ENGINEERING EXCELLENCE SINCE 1889

BRIAN F. EDNIE, P.E. No. 085627 LICENSED PROFESSIONAL ENGINEER STATE OF NEW YORK

DATE: 9/20/22

BRIAN EDNIE, P.E.

WARNING – IT IS A VIOLATION OF THE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

LEGEND

	EXISTING	PROPOSED
SPOT ELEVATION	× 81.7	+ 81.70
SOIL BORING		
DRAINAGE INLET		
DRAINAGE MANHOLE		
DIFFUSION WELL WITH OPEN GRATE		
DIFFUSION WELL WITH SOLID COVER		
DIFFUSION WELL WITH BURIED COVER		
DECIDUOUS TREE		
CONIFEROUS TREE		
EXISTING TREE TO BE REMOVED		
DECORATIVE LIGHT POLE		
FIELD LIGHT POLE		
WOOD POLE		
SIGN		
FLAG POLE		
ELECTRICAL BOX	EB	EB
ELECTRICAL MANHOLE	E	E
TELEPHONE MANHOLE	T	
SANITARY MANHOLE	S	
WATER MANHOLE	W	W
WATER METER	W	W
WATER VALVE	W	W
HYDRANT		
OUTDOOR SCOREBOARD		
TRASH RECEPTACLES		T
FOUL POLE		
SPRINKLER HEAD		
DRINKING FOUNTAIN	DF	DF
ALUMINUM PLAYERS BENCH		
CURB LINE		
CONTOUR	80	80
CHAIN LINK FENCE		
STORM DRAINAGE LINE	ST ST	ST ST
WATER LINE	W W	W W
CORRUGATED UNDERDRAIN SYSTEM		
REINFORCED CONCRETE PIPE, CLASS V		D D D
CONCRETE PAVEMENT		
ASPHALT PAVEMENT		
SYNTHETIC TURF		
LAWN		
SILT FENCE		
CONTRACT LIMIT LINE		CLL CLL

ABBREVIATIONS:

ABBR.	DESCRIPTION
ABUT	ABUTMENT
AOBE	AS ORDERED BY ENGINEER
ASPH	ASPHALT
BC	BOTTOM OF CURB
BDY	BOUNDARY
BLDG	BUILDING
BM	BENCH MARK
CB	CATCH BASIN
CC	CENTER TO CENTER
CONC	CONCRETE
℄	CENTERLINE
CIP	CAST IRON PIPE
CULV	CULVERT
DIA	DIAMETER
DMH	DRAINAGE MANHOLE
DS	DRAINAGE STRUCTURE PIPE
DWY	DRIVEWAY
E	ELECTRIC
e	SUPERELEVATION RATE (CROSS SLOPE)
EL	ELEVATION
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EQ	EQUALITY
ES	END SECTION
G	GAS
GV	GAS VALVE (MAIN LINE)
HCL	HORIZONTAL CONTROL LINE
HYD	HYDRANT
HW	HEADWALL
INV	INVERT
L	LENGTH OF CIRCULAR CURVE
LS	LENGTH OF SPIRAL
LVC	LENGTH OF VERTICAL CURVE
MB	MAILBOX
MH	MANHOLE
MHW	MEAN HIGH WATER
MLW	MEAN LOW WATER
MON	MONUMENT
PAV'T	PAVEMENT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENT
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
R	RADIUS
ROW	RIGHT OF WAY
RR	RAILROAD
RW	RETAINING WALL
RCP	REINFORCED CONCRETE PIPE
SHLDR	SHOULDER
ST	STREET
STA	STATION
STY	STORY
T	TELEPHONE
TCB	TRAFFIC CONTROL BOX
TELBOX	TELEPHONE BOX
TGL	THEORETICAL GRADE LINE
TMH	TELEPHONE MANHOLE
TP	TEST PIT
U/G	UNDERGROUND
VC	VERTICAL CURVE
VMH	VERIZON MANHOLE
W	WATER
WSB	WATER SERVICE BOX (HOUSE LINE)
WV	WATER VALVE (MAIN LINE)

INDEX OF DRAWINGS

SHEET NO.	DWG. NO.	DWG. TITLE
1	--	COVER SHEET
2	G-1	LEGEND, ABBREVIATIONS, AND INDEX
3	G-2	GENERAL NOTES
4	C-1	REMOVALS PLAN
5	C-2	LAYOUT PLAN
6	C-3	GRADING AND DRAINAGE PLAN
7	C-4	SECTIONS
8	C-5	FIELD DRAINAGE PLAN
9	C-6	SOIL AND EROSION CONTROL PLAN
10	C-7	SOIL AND EROSION CONTROL NOTES AND DETAILS
11	C-8	SOIL AND EROSION CONTROL DETAILS
12	C-9	ATHLETIC FIELD LAYOUT PLANS
13	C-10	MISCELLANEOUS SITE DETAILS - 1
14	C-11	MISCELLANEOUS SITE DETAILS - 2
15	C-12	MISCELLANEOUS SITE DETAILS - 3
16	C-13	MISCELLANEOUS SITE DETAILS - 4
17	C-14	MISCELLANEOUS SITE DETAILS - 5
18	C-15	RETAINING WALL PLAN
19	C-16	PARAPET WALL PLAN
20	B-1	SOIL BORING PLAN
21	B-2	SOIL BORING SHEETS
22	E-1	ELECTRICAL GENERAL NOTES
23	E-2	ELECTRICAL ONE LINE DIAGRAM
24	E-3	ELECTRICAL LIGHTING PLAN
25	E-4	ELECTRICAL LIGHTING PART PLAN
26	E-5	ELECTRICAL MUSCO DWG. - SPORTS FIELD PHOTOMETRIC PLAN
27	E-6	ELECTRICAL MUSCO DWG. - SPORTS FIELD POLE DETAIL
28	E-7	ELECTRICAL MUSCO DWG. - SPORTS FIELD POLE FOUNDATION DETAILS
29	E-8	ELECTRICAL SOL DWG. - PHOTOMETRICS PLAN
30	E-9	ELECTRICAL SOL DWG. - LIGHTING MOUNTING DETAILS
31	E-10	ELECTRICAL PANEL SCHEDULE AND BILL OF MATERIALS
32	E-11	ELECTRICAL HANDHOLE DETAILS
33	E-12	ELECTRICAL FENCE GROUNDING AND CABLE DETAILS

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 legend, abbreviations, and index.dwg
Plot Date: 9/28/2022 2:32 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
LEGEND, ABBREVIATIONS, AND INDEX

PROJECT NUMBER 5438-01
CONTRACT NUMBER
SHEET NO. 2 OF 33
SCALE: N.T.S.
DATE: SEPT. 2022
DRAWING NO. G-1
REV. NO. -

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 legend, abbreviations, and index.dwg

A. GENERAL NOTES:

1A. A PRE–CONSTRUCTION MEETING WITH ALL UTILITY COMPANIES AND CITY OF YONKERS ENGINEERING DEPARTMENT IS REQUIRED.

2A. THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCE BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN ON THE CONTRACT PLANS. THE CONTRACTOR WILL BE PAID AT THE UNIT PRICE BID FOR THE ACTUAL QUANTITIES OF MATERIALS USED OR FOR WORK PERFORMED AS INDICATED BY THE VARIOUS ITEMS IN THE CONTRACT.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER AVAILABLE INFORMATION.

ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS TO THE APPROVAL OF THE ENGINEER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING MEASUREMENTS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IN CASE OF DISCREPANCY.

3A. ANY CHANGES OF PROPOSED WORK DURING CONSTRUCTION DUE TO FIELD CONDITIONS ARE A.O.B.E.

4A. NO PAYMENT WILL BE MADE FOR WORK CALLED FOR BY NOTES IN THE CONTRACT PLANS AND SPECIFICATIONS OR IN THE PROPOSAL UNLESS PAYMENT IS SPECIFICALLY INDICATED BY ITEM NUMBER. THE COST OF WORK FOR WHICH NO PAYMENT IS INDICATED SHALL BE INCLUDED IN THE UNIT PRICE BID FOR VARIOUS RELATED ITEMS IN THIS CONTRACT.

5A. ALL PROPOSED WORK SHALL MATCH THE ELEVATIONS SHOWN ON GRADING PLAN, DWG. C–3, UNLESS OTHERWISE NOTED ON PLANS OR A.O.B.E.

B. SPECIFICATIONS AND STANDARDS:

ALL WORK PERFORMED UNDER THIS CONTRACT SHALL CONFORM WITH THE FOLLOWING STANDARD SPECIFICATIONS AND DRAWINGS:

1B. CITY OF YONKERS DEPARTMENT OF ENGINEERING STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, CURRENT EDITION.

2B. STANDARD SPECIFICATIONS, CONSTRUCTION AND MATERIALS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, OFFICE OF ENGINEERING, JANUARY 1, 2020 WITH CURRENT ADDITIONS AND MODIFICATIONS.

C. UTILITY:

1C. THE UTILITY INFORMATION SHOWN ON THE DRAWINGS IS NOT GUARANTEED. THE LOCATION OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND OTHER UNDERGROUND UTILITIES NOT SHOWN MAY EXIST. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT TYPES, LOCATIONS, SIZES AND MATERIALS OF UNDERGROUND UTILITIES PRIOR TO WORKING IN THE AREA, AND TO AVOID INTERFERENCE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

2C. UTILITIES ARE SHOWN FROM AVAILABLE SOURCES FOR INFORMATION PURPOSES ONLY AND AS REQUIRED SHALL BE MARKED OUT AND RELOCATED BY THE UTILITY OWNER. THE CONTRACTOR SHALL COORDINATE THE WORK ACTIVITIES WITH THE OWNING UTILITY OR AUTHORITY AT NO ADDITIONAL COST TO THE OWNER, AUTHORITY, OR THE CITY.

3C. THE "ONE CALL CENTER" PHONE NUMBER IS 1–800–272–4480.

4C. THE CONTRACTOR SHALL BECOME AWARE OF ALL ELECTRIC VOLTAGES CARRIED IN OVERHEAD OR UNDERGROUND UTILITIES, AND PRESSURES IN GAS AND WATER PIPES.

5C. THE CONTRACTOR SHALL INDEPENDENTLY DETERMINE WHETHER OR NOT CONFLICTS EXIST WITH THE PROPOSED INSTALLATIONS.

6C. AS REQUIRED, ALL GAS, ELECTRIC, TELEPHONE, AND CABLE TELEVISION OWNED UTILITIES SHALL BE ADJUSTED BY THEIR RESPECTIVE COMPANIES, IN ORDER TO AVOID CONFLICTS. THE CONTRACTOR SHALL COORDINATE HIS WORK EFFORTS WITH THE OWNING UTILITY AT NO ADDITIONAL COST TO THE OWNER OR THE CITY.

7C. THE CONTRACTOR IS TO MAINTAIN ACCESS TO UTILITY BOXES, MANHOLES, VALVES AND SWITCHES AT ALL TIMES.

8C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS WORK WITH THE WORK OF THE UTILITY COMPANIES, AND TO PROVIDE SUFFICIENT ADVANCE NOTICE TO THE UTILITY COMPANIES FOR THEM TO PROVIDE MARKOUTS OF, AND ADJUSTMENTS TO THERE FACILITIES.

9C. EXCAVATION BY MECHANICAL MEANS IS NOT TO BE USED WITHIN TWO (2) FEET ON EITHER SIDE OF ANY UTILITY OR HOUSE SERVICE. HAND DIGGING WILL BE REQUIRED TO EXPOSE THE UTILITY.

10C. PRIOR TO BACKFILLING UNDERGROUND FACILITIES, A REPRESENTATIVE OF THE RESPECTIVE UTILITY COMPANY SHALL BE PRESENT TO INSPECT THE FACILITY.

11C. PRIOR TO PERFORMING ANY WORK, THE CONTRACTOR IS TO ARRANGE FOR A UTILITY TONE OUT.

12C. WATER VALVES AND GAS VALVES TO BE REPLACED IF NEEDED. CONTRACTOR TO COORDINATE WITH UTILITY COMPANIES.

13C. THE CONTRACTOR SHALL COORDINATE PROPOSED WORK WITH CON EDISON AND OTHER AGENCIES INVOLVED. IN PARTICULAR, THE CONTRACTOR SHALL CONTACT CON EDISON PRIOR TO ANY WORK CONCERNING ADJUSTMENTS TO MANHOLES, UTILITY POLES, OVERHEAD WIRES AND TRANSFORMERS.

14C. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL VOLTAGES CARRIED IN OVERHEAD OR UNDERGROUND UTILITY SERVICES. CON EDISON WILL FURNISH APPROXIMATE LOCATION AND DEPTH OF THE GAS MAINS UPON REQUEST. THIS INFORMATION IS NOT GUARANTEED. THE CONTRACTOR SHALL INDEPENDENTLY DETERMINE WHETHER INTERFERENCE EXISTS IN ALL CRITICAL AREAS.

D. MAINTENANCE OF TRAFFIC:

1D. DURING THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL MAKE ALL NECESSARY PROVISIONS TO ALLOW FOR SAFE VEHICULAR AND PEDESTRIAN ACCESS AROUND THE PROJECT SITE AT ALL TIMES.

2D. BEFORE ANY CONSTRUCTION WORK BEGINS, THE CONTRACTOR SHALL SUBMIT PROPOSED MPT PLANS FOR APPROVAL BY THE ENGINEER.

E. LANDSCAPE:

1E. THE CONTRACTOR SHALL PROTECT ALL EXISTING PLANT MATERIAL WITHIN OR ADJACENT TO THE PROJECT AREA DURING ALL WORK OPERATIONS. THE CONTRACTOR WILL REPLACE AT HIS OWN EXPENSE ANY PLANT MATERIAL DAMAGED OR DESTROYED THROUGH CARELESSNESS TO THE SATISFACTION OF THE ENGINEER.

F. SITE FURNITURE:

1G. NEW LITTER RECEPTACLES AND BENCHES SHALL BE AS SPECIFIED AND FINAL LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

G. CLEAN–UP:

1H. PRIOR TO FINAL ACCEPTANCE OF THE WORK UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE ALL SOIL EROSION CONTROL MEASURES, CLEAN THE NEW PIPE, MANHOLES, CATCH BASINS AND STREET WHERE CONSTRUCTION WAS UNDERTAKEN, OF ANY ADDITIONAL ACCUMULATED SOILS OR OTHER MATERIALS WHICH MAY HAVE WASHED ONTO THEM. NO DIRECT PAYMENT SHALL BE MADE FOR THE AFOREMENTIONED WORK, BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS OF THE CONTRACT.

2H. THE CONTRACTOR WILL BE REQUIRED TO BACKFILL AND REGRADE ALL AREAS THAT ARE DISTURBED BY HIM DURING THE LIFE OF THIS CONTRACT. IN ALL CASES, DISTURBED AREAS SHALL BE CLEANED UP AND RESTORED TO THE CONDITION THAT EXISTED PRIOR TO THE COMMENCEMENT OF THE WORK, OR BETTER.

3H. NO SEPARATE PAYMENT WILL BE MADE FOR ANY OF THIS CLEAN–UP AND RESTORATION WORK, BUT THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS.

I. STORM DRAINAGE:

1I. EXISTING DRAINAGE STRUCTURES ARE SHOWN AT APPROXIMATE LOCATIONS. CONTRACTOR IS TO FIELD LOCATE AND CONNECT TO STRUCTURES ACCORDINGLY.

2I. ANY DRAINAGE PIPES OR STRUCTURES TO REMAIN IN PLACE AND DAMAGED BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED NEW AT THE CONTRACTOR'S EXPENSE.

J. ELECTRIC SERVICE AND LIGHTING:

1J. SEE ELECTRICAL DRAWINGS FOR ELECTRIC SERVICE AND LIGHTING NOTES.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 general notes.dwg
Plot Date: 9/28/2022 2:33 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

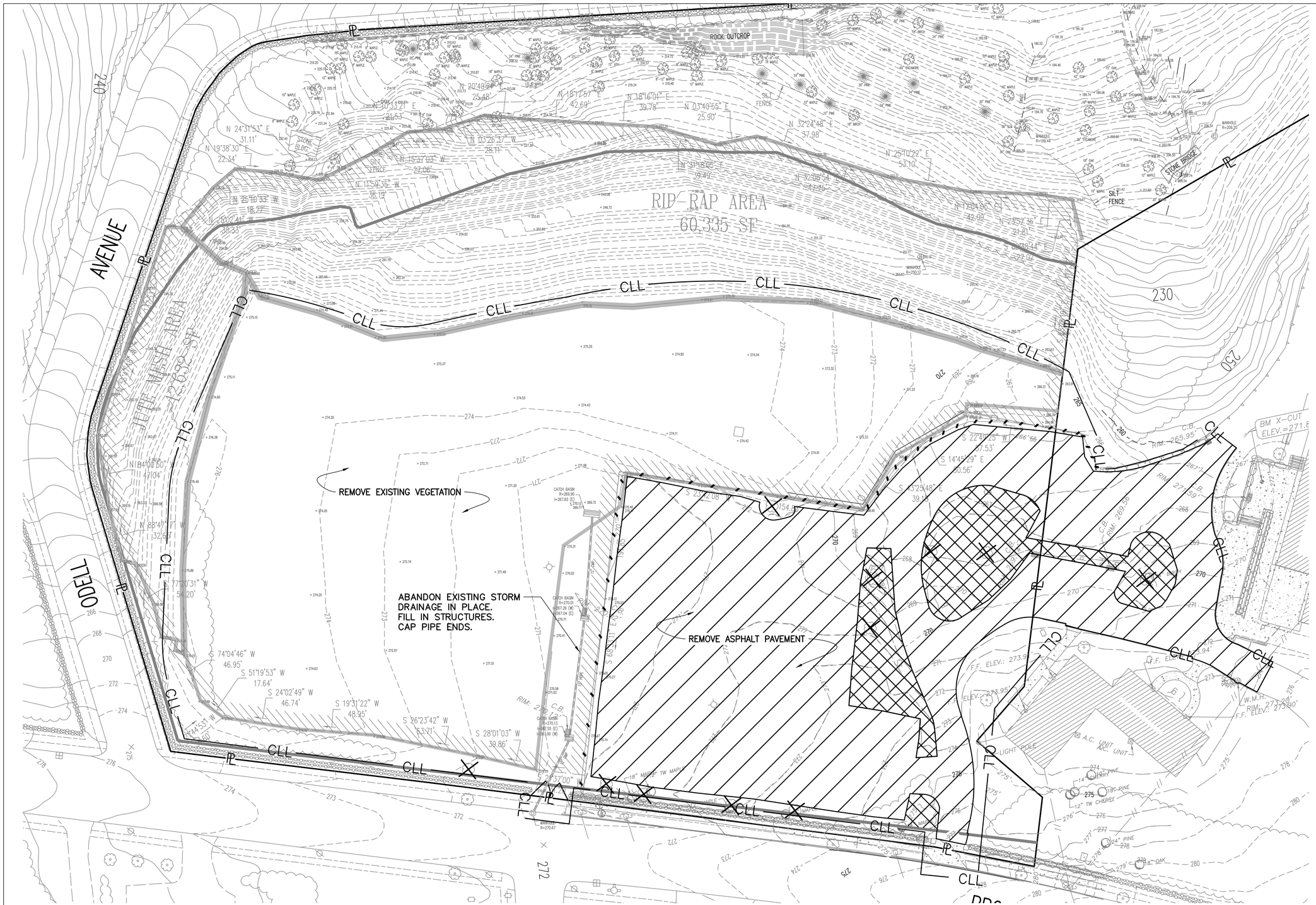
PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
GENERAL NOTES

PROJECT NUMBER	CONTRACT NUMBER
5438–01	
SHEET NO. 3 OF 33	
SCALE: NONE DATE: SEPT. 2022	
DRAWING NO. G–2	REV. NO. –

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 general notes.dwg



LEGEND:

- REMOVE EXISTING CHAIN LINK FENCE
- REMOVAL & REPLACEMENT OF EXISTING DOUBLE CHAIN LINK GATE
- REMOVE TREE
- UNCLASSIFIED EXCAVATION
- REMOVAL & REPLACEMENT OF ASPHALT PAVEMENT
- TEMPORARY WOODEN TREE GUARDS
- CLL — CONTRACT LIMIT LINE

NOTE:

CONTRACTOR SHALL PHASE WORK TO ALLOW FOR SCHOOL PARKING.

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT—CHANGES AS NOTED
☐ AS BUILT—NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

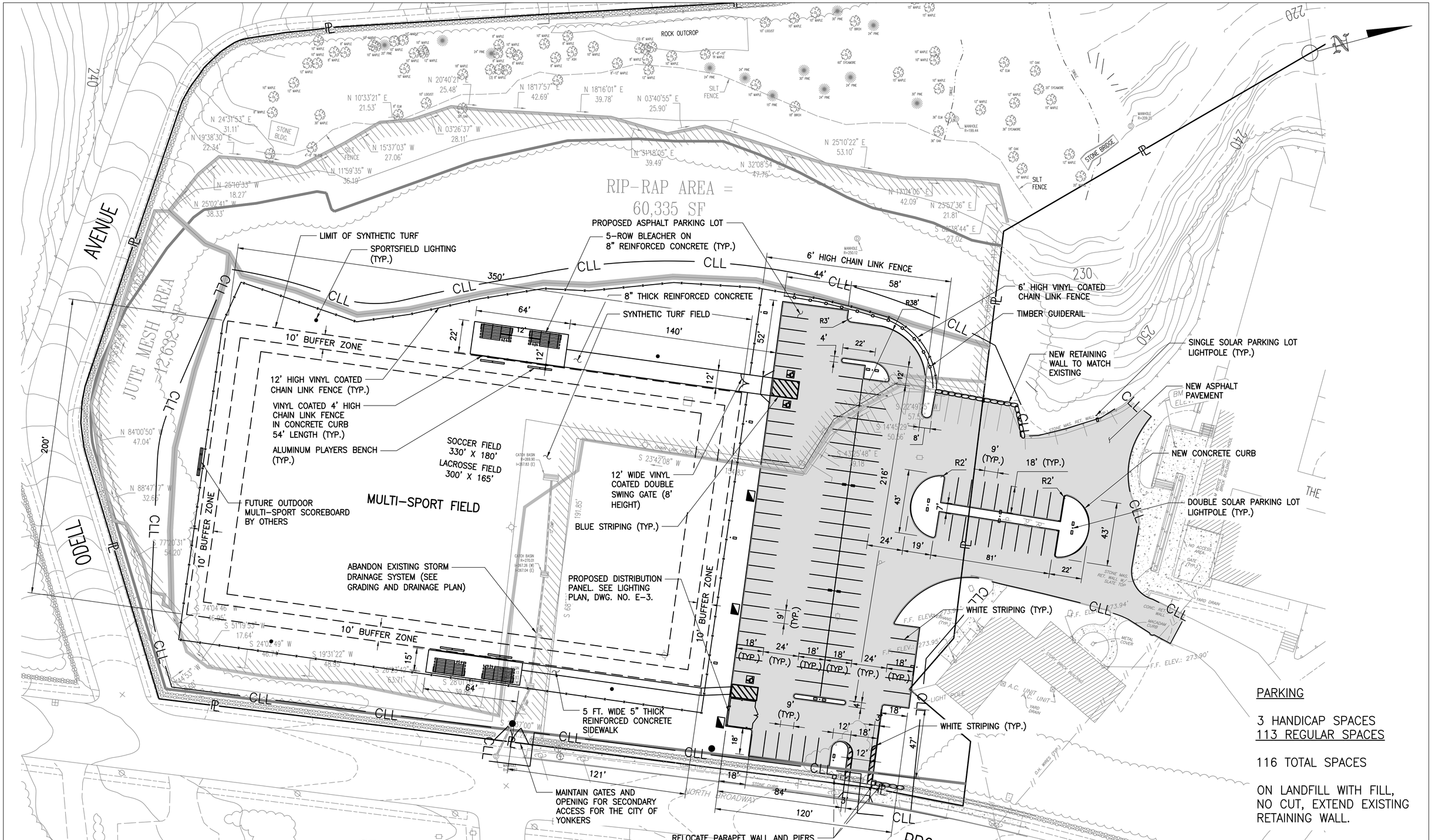
MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
REMOVALS PLAN

PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 4 OF 33
SCALE: 1"=30'-0"
DATE: SEPT. 2022
DRAWING NO. C-1
REV. NO. —

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 removals plan.dwg
Plot Date: 9/28/2022 2:34 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 removals plan.dwg



PARKING

3 HANDICAP SPACES
113 REGULAR SPACES

116 TOTAL SPACES

ON LANDFILL WITH FILL, NO CUT, EXTEND EXISTING RETAINING WALL.

NOTE:

CONTRACTOR SHALL PHASE WORK TO ALLOW FOR SCHOOL PARKING.

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

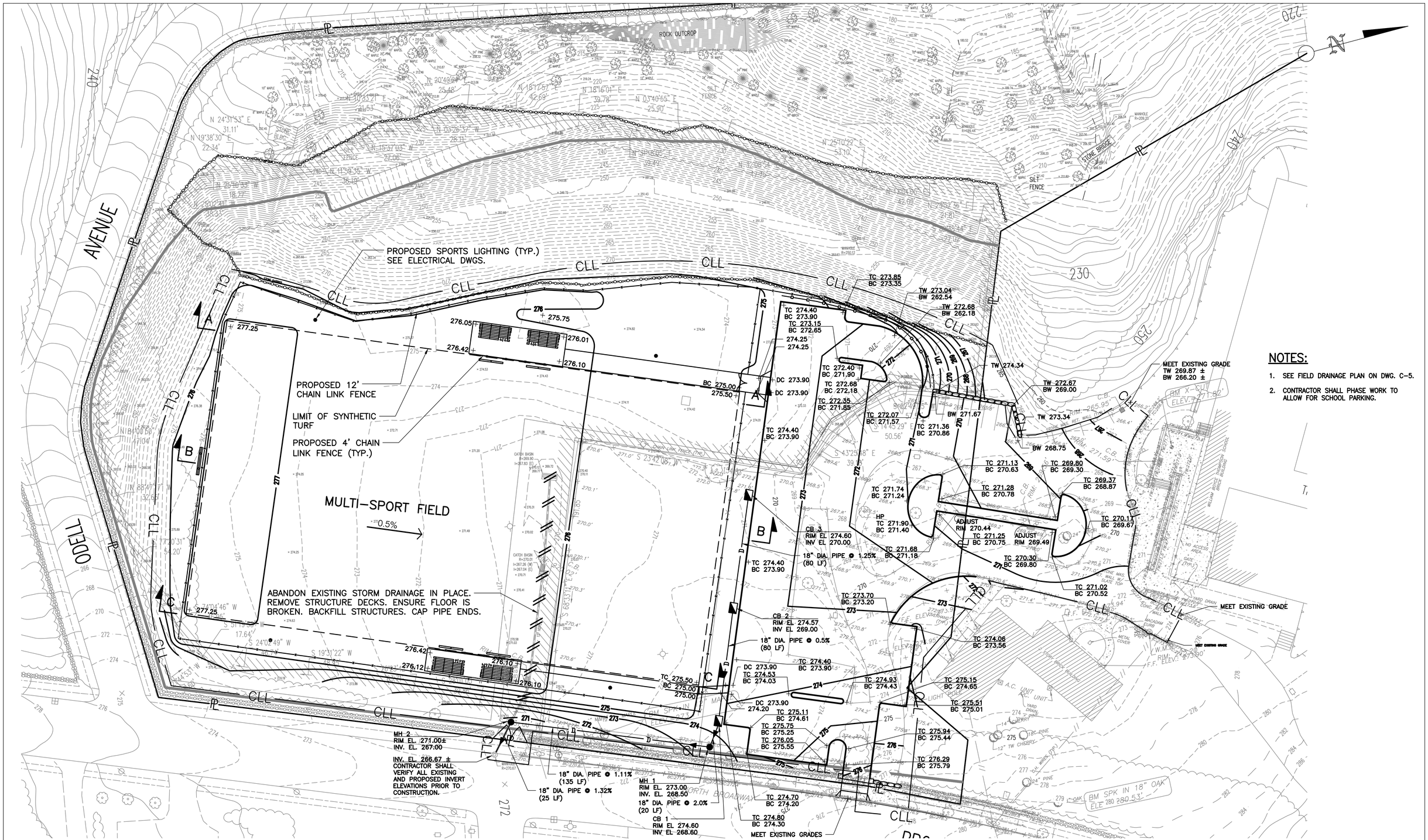
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
LAYOUT PLAN

PROJECT NUMBER	CONTRACT NUMBER
5438-01	
SHEET NO. 5 OF 33	
SCALE: 1" = 30'-0"	
DATE: SEPT. 2022	
DRAWING NO. C-2	REV. NO. -

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 layout plan.dwg
Plot Date: 10/7/2022 8:25 AM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 layout plan.dwg



NOTES:

1. SEE FIELD DRAINAGE PLAN ON DWG. C-5.
2. CONTRACTOR SHALL PHASE WORK TO ALLOW FOR SCHOOL PARKING.

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

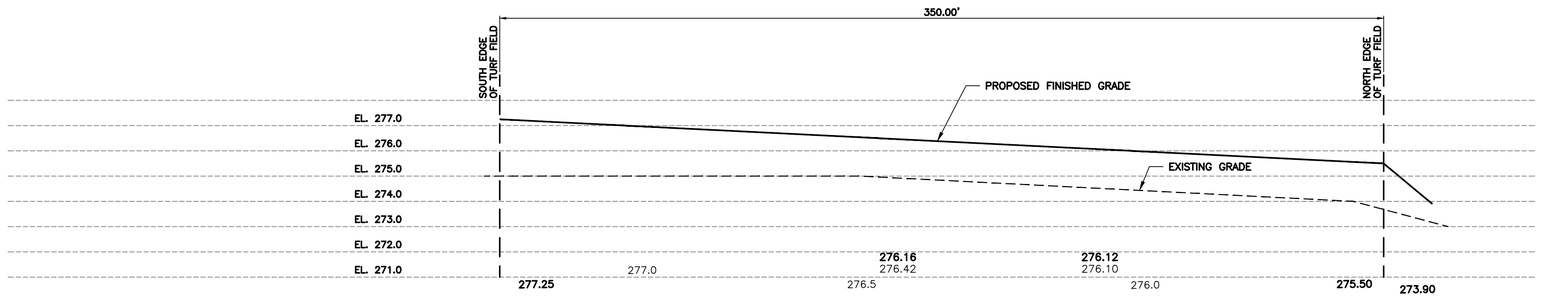
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
GRADING AND DRAINAGE PLAN

PROJECT NUMBER	CONTRACT NUMBER
5438-01	
SHEET NO. 6 OF 33	
SCALE: 1" = 30'	
DATE: SEPT. 2022	
DRAWING NO. C-3	REV. NO. –

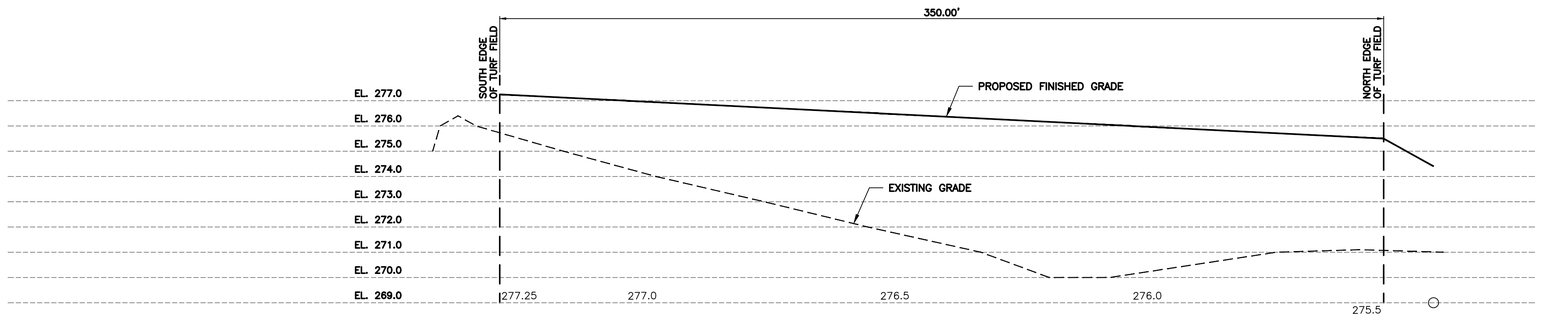
File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 grading and drainage plan.dwg
Plot Date: 10/7/2022 8:27 AM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 grading and drainage plan.dwg



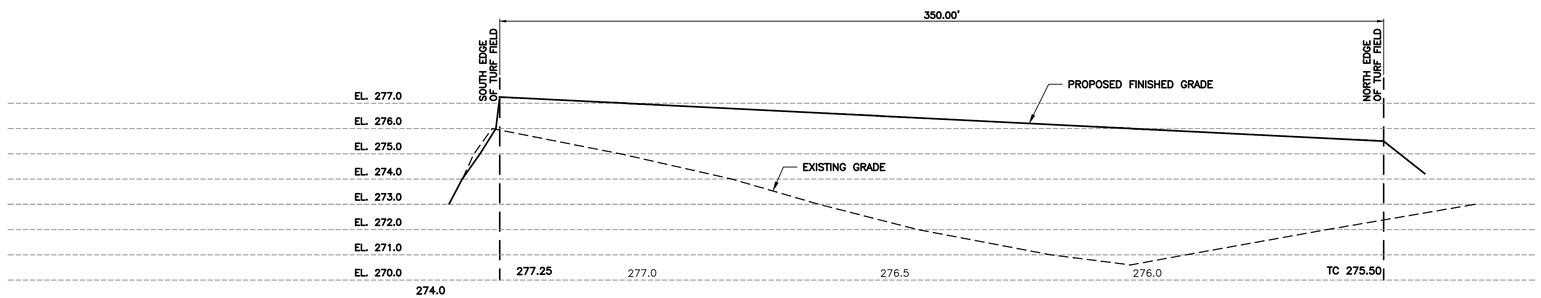
SECTION A–A
NEW TURF FIELD WEST SIDE PROFILE

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'



SECTION B–B
NEW TURF FIELD CENTER LINE PROFILE

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'



SECTION C–C
NEW TURF FIELD EAST SIDE PROFILE

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 grading and drainage plan.dwg
Plot Date: 10/7/2022 8:28 AM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

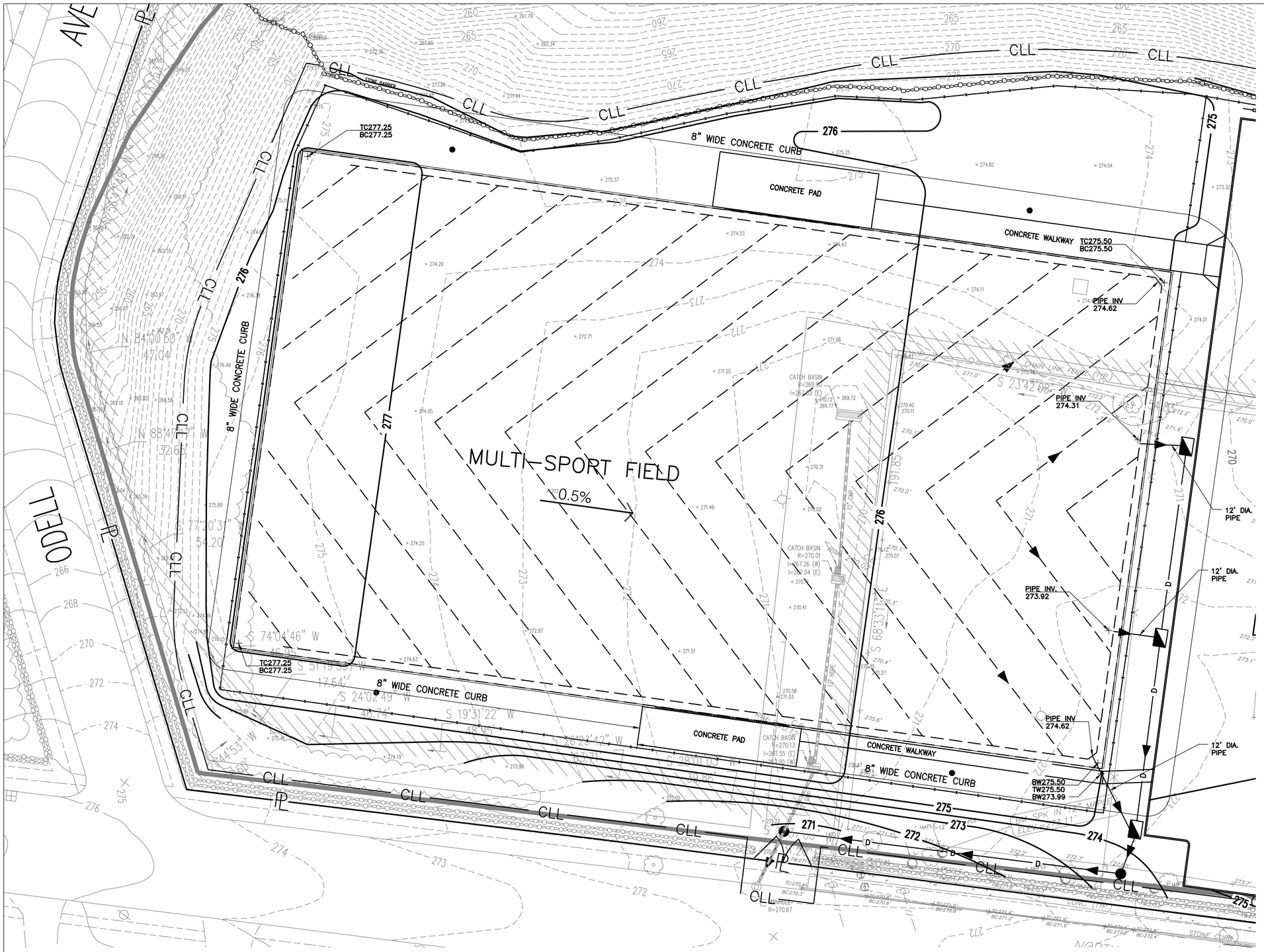
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

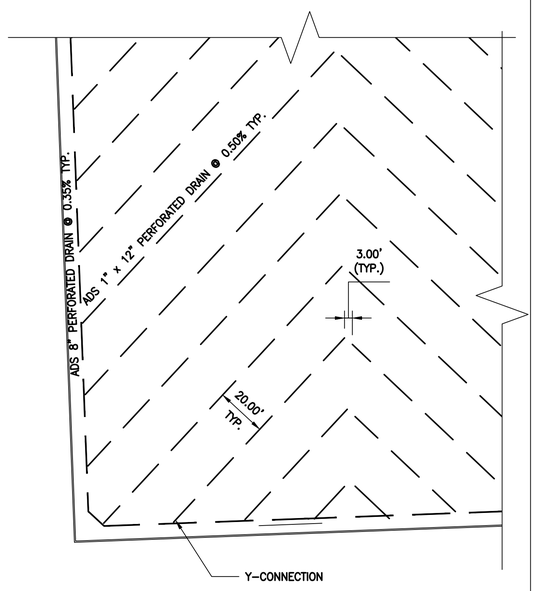
MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
SECTIONS

PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 7 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. C-4
REV. NO. ---

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 grading and drainage plan.dwg





NOTES:

1. CONTRACTOR SHALL VERIFY SUBDRAIN SYSTEM PATTERNS & LAYOUT IN THE FIELD PRIOR TO INSTALLATION.
2. SYSTEM SHALL NOT BE INSTALLED PRIOR TO APPROVAL BY THE ENGINEER.

PARTIAL DRAINAGE PLAN (TYP)

N.T.S.

NOTE:

SEE GRADING AND DRAINAGE PLAN ON DWG. C-3.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 field drainage plan.dwg
Plot Date: 10/7/2022 8:30 AM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

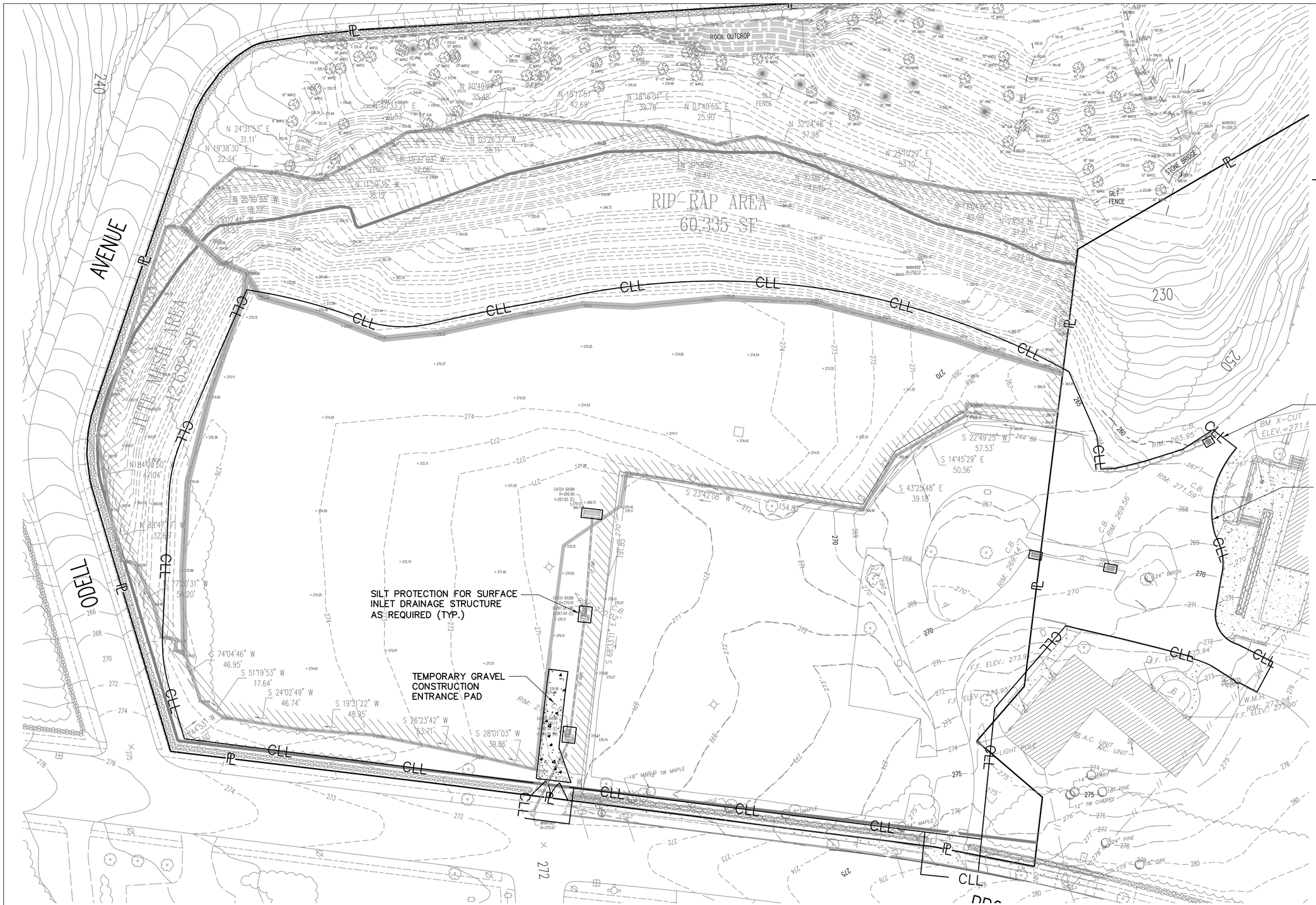
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
FIELD DRAINAGE PLAN

PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 8 OF 33
SCALE: 1" = 20'-0"
DATE: SEPT. 2022
DRAWING NO. C-5
REV. NO. ----

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 field drainage plan.dwg



PROPOSED

SILT FENCE/HAYBALE BARRIER

SILT PROTECTION FOR SURFACE INLET DRAINAGE STRUCTURE

NOTE:

CONTRACTOR SHALL PHASE WORK TO ALLOW FOR SCHOOL PARKING.

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
SOIL AND EROSION CONTROL PLAN

PROJECT NUMBER	CONTRACT NUMBER
5438–01	

SHEET NO. 9 OF 33
SCALE: 1"=30'
DATE: SEPT. 2022
DRAWING NO. C–6
REV. NO. –

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 soil and erosion control plan.dwg
Plot Date: 9/28/2022 2:40 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 soil and erosion control plan.dwg

TEMPORARY SOIL & EROSION CONTROL NOTES:

1. IF CONSTRUCTION ACTIVITIES ARE DISCONTINUED IN AREAS OF SOIL DISTURBANCE BEFORE FINAL GRADING IS COMPLETE, TEMPORARY GRADING SHALL BE SEEDED AND MULCHED, A.O.B.E. THE AREAS SHALL BE SEEDED WITH AN APPROPRIATE PERENNIAL GRASS SEED MIX AND SHALL BE MULCHED WITH HAY OR STRAW WITHIN 21 DAYS OF THE TIME IT WAS TEMPORARILY DISCONTINUED. MULCH SHALL BE MAINTAINED UNTIL A SUITABLE VEGETATIVE COVER IS ESTABLISHED.

2. WHEN FINAL GRADING IS COMPLETE, THE CONTRACTOR SHALL COMPLETE THE WORK OF TURF ESTABLISHMENT WITHIN FOUR DAYS OR OTHERWISE STABILIZE THE AREA IF THE SEASON IS NOT APPROPRIATE FOR TURF ESTABLISHMENT. IN THIS CASE THE CONTRACTOR SHALL STABILIZE WITHIN 21 DAYS OF COMPLETING THE FINAL GRADING, WITH HAY OR STRAW MULCH, OR OTHER APPROVED OR SPECIFIED MEANS UNTIL TURF ESTABLISHMENT CAN BE COMPLETED.

3. PERIODIC CLEANING OF TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES MAY BE NECESSARY.

4. ALL SOIL AND EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO STARTING ANY CONSTRUCTION WORK AND SHALL REMAIN IN PLACE UNTIL SLOPES ARE STABILIZED WITH SEEDING AND/OR OTHER SLOPE PROTECTION A.O.B.E.

5. STRAW BALES HAVE A LIMITED LIFE EXPECTANCY AND SHALL BE INSPECTED AND REPLACED AS NECESSARY.

6. ALL ERODED SOIL SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERCOURSES BY THE USE OF EROSION CONTROL MEASURES.

7. SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE USED FOR ALL EXISTING AND PROPOSED DRAINAGE INLETS. CONTROLS SHALL REMAIN IN PLACE UNTIL THE SLOPES DRAINING TO THE INLET HAVE BEEN STABILIZED BY EITHER PAVING, SEEDING, OR SLOPE PROTECTION.

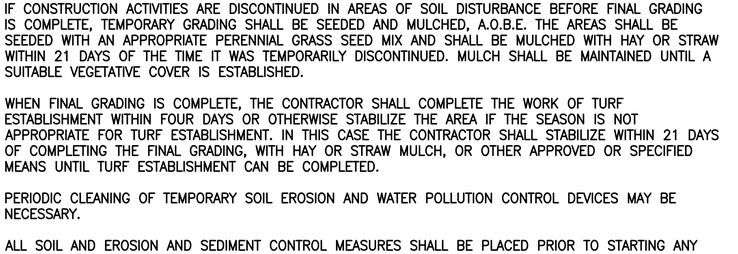
8. IN THE EVENT DEWATERING OPERATIONS BECOME NECESSARY, FILTRATION OF THE DISCHARGE WILL BE REQUIRED UNLESS THE PUMP DISCHARGE IS CLEAR AND FREE OF SEDIMENT. THE LOCATION AND DESIGN OF THIS FILTRATION METHOD SHALL BE APPROVED BY THE ENGINEER.

9. TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL MEASURES DETAILED IN THE PLANS SHALL BE CONSIDERED AS THE MINIMUM REQUIRED.

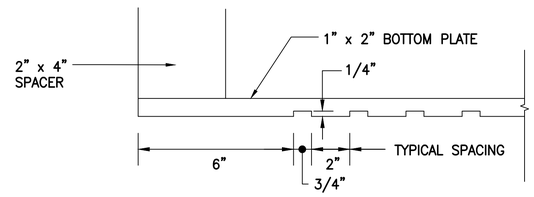
10. PRIOR TO AND/OR DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL COMPLY WITH ALL ADDITIONAL MEASURES DEEMED NECESSARY BY THE ENGINEER AND SHALL BE RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT DEVICES.

11. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE STREAMS BY SILT, SEDIMENT, FUELS, SOLVENTS, LUBRICANTS, EPOXY COATINGS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH THE PROPOSED CONSTRUCTION.

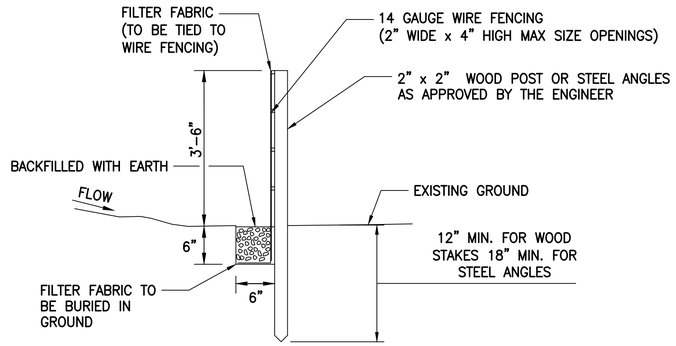
12. DURING CONSTRUCTION, NO WET OR FRESH CONCRETE, LEACHATE OR WASHINGS FROM CONCRETE TRUCKS, MIXERS, OR OTHER DEVICES SHALL BE ALLOWED TO ESCAPE INTO THE DRAINAGE SYSTEM, WETLANDS OR NEARBY WATERS.



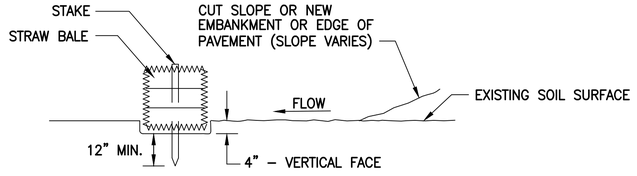
1 SILT PROTECTION FOR SURFACE INLET DRAINAGE STRUCTURES
N.T.S.



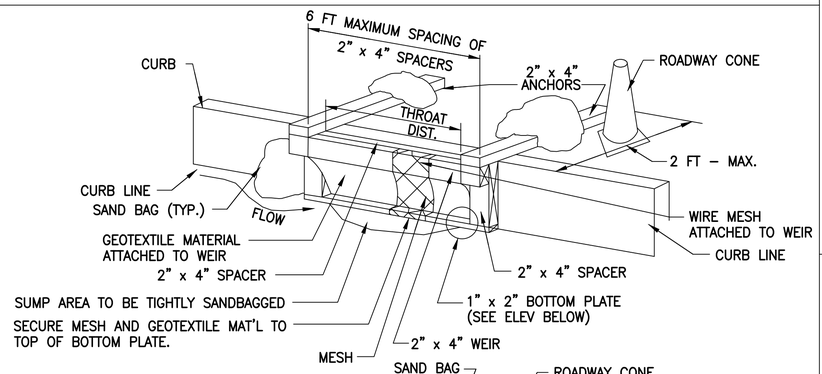
2 ELEVATION BOTTOM PLATE DRAIN OPENINGS
N.T.S.



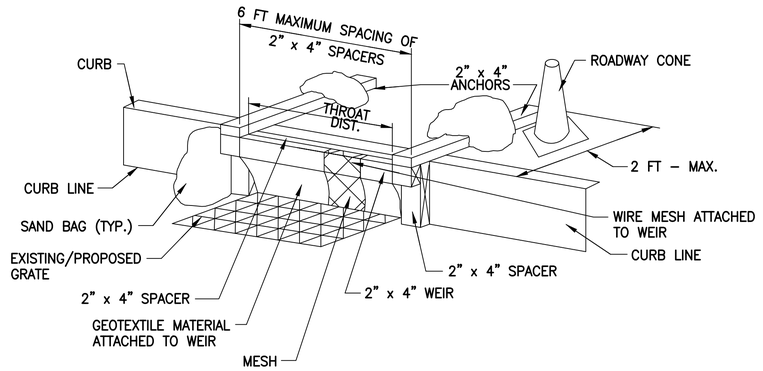
3A SILT FENCE DETAIL (OPTION A)
N.T.S.

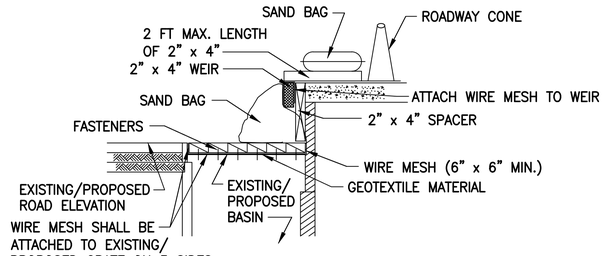


3B STRAWBALE DETAIL (OPTION B)
N.T.S.



4 SILT PROTECTION FOR CURB INLET DRAINAGE STRUCTURES
N.T.S.





5 SILT PROTECTION FOR SURFACE INLET DRAINAGE STRUCTURES
N.T.S.

SILT PROTECTION FOR DRAINAGE STRUCTURES:

1. THE CONTRACTOR SHALL PLACE THE "GEOTEXTILE MATERIAL" AS SHOWN IN THE DETAIL.

2. THE "GEOTEXTILE MATERIAL" SHALL BE TIED TO THE 6" x 6" MESH WIRE WITH THE APPROPRIATE FASTENERS. THE WIRE MESH SHALL BE FASTENED BY NAILING, STAPLING, OR OTHER SATISFACTORY MEANS TO THE WOOD FRAME THAT WILL SUPPORT THE FABRIC AND WIRE. BOTH SHALL BE PLACED BETWEEN THE FRAME AND GRATE, ON THE STREET SIDE OF THE STRUCTURE A.O.B.E.

3. THE WOODEN FRAME SHALL BE CONSTRUCTED WITH THE INTENT THAT IT WILL SUPPORT THE MATERIAL THAT WILL ACCUMULATE DURING THE LIFE OF THE CONTRACT OR A.O.B.E..

4. THE WIRE MESH SHALL BE CONTINUOUS 4 FT MINIMUM WIDTH AND A LENGTH SUFFICIENT TO BE CONSTRUCTED AS SHOWN IN THE DETAIL. IT SHALL BE SECURED AND ATTACHED TO THE WOOD WEIR AS NOTED OR A.O.B.E..

5. THE PROTECTION DEVICE SHALL BE PLACED AGAINST THE INLET AND SECURED BY 2" x 4" ANCHORS 2 FT IN LENGTH, EXTENDING ACROSS THE TOP OF THE INLET, AND HELD IN PLACE BY THE SANDBAGS. ADDITIONAL SANDBAGS, AS SHOWN IN THE DETAIL, SHALL BE PLACED ON BOTH SIDES OF THE BASIN AND SHALL BE PLACED UP AGAINST THE CURB LINE ON EITHER EDGE OF THE SURFACE INLET.

6. THE INSTALLATION OF THIS FILTERING SYSTEM SHALL BE DONE PRIOR TO ANY EXCAVATION ON THE JOB THAT HAS THE POTENTIAL TO PRODUCE SEDIMENT RUNOFF, OR A.O.B.E..

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

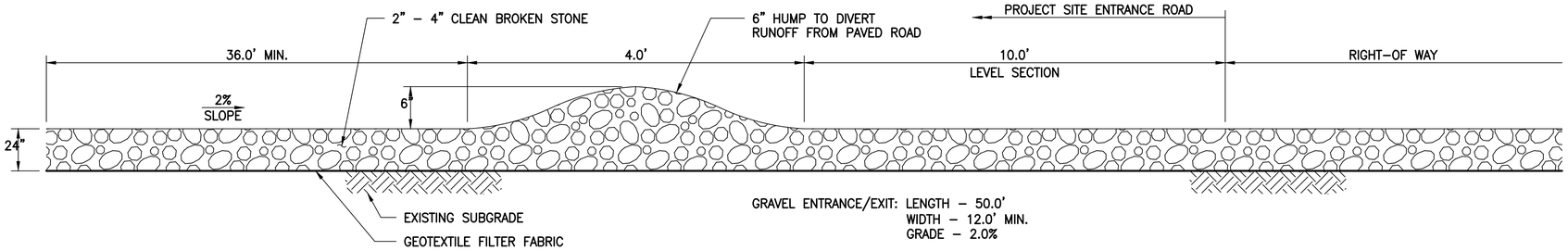
MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
SOIL AND EROSION CONTROL NOTES AND DETAILS

PROJECT NUMBER	CONTRACT NUMBER
5438–01	

SHEET NO. 10 OF 33
SCALE: N.T.S.
DATE: SEPT. 2022
DRAWING NO. C–7
REV. NO. –

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 soil and erosion control notes and details.dwg
Plot Date: 9/28/2022 2:41 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 soil and erosion control notes and details.dwg



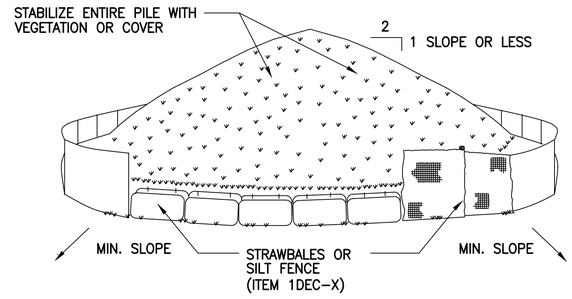
ANTI–TRACKING PAD/STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S.

CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE ENTRANCE/EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.
2. GRADE THE ROAD FOUNDATION SO THAT THE ENTRANCE/EXIT WILL HAVE A CROSS SLOPE TO THE SOUTH AND ALL RUNOFF WILL DRAIN TO THE BLOCK AND GRAVEL DROP INLET PROTECTION STRUCTURE.
3. PLACE STONE TO THE DIMENSIONS, GRADE AND ELEVATION SHOWN.
4. USE WASHED BROKEN STONE 2" TO 4" IN SIZE.

NOTE:
MAINTAIN THE STONE PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. SHOULD MUD BE TRACKED OR WASHED ONTO NORTH BROADWAY, IT MUST BE REMOVED IMMEDIATELY.



INSTALLATION NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAWBALES, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE DETAIL (THIS SHEET) FOR INSTALLATION OF SILT FENCE.

SOIL STOCKPILING

ITEM 1DEC–X
NTS

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 soil and erosion control notes and details.dwg
Plot Date: 10/7/2022 8:31 AM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

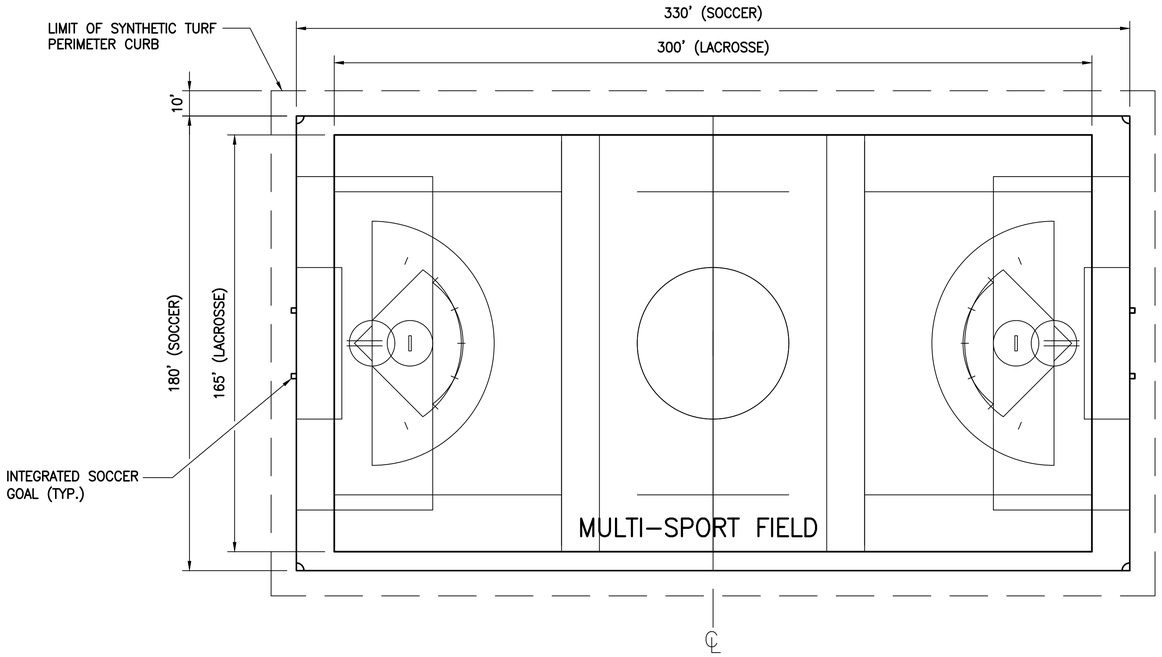
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
SOIL AND EROSION CONTROL DETAILS

PROJECT NUMBER	CONTRACT NUMBER
5438–01	

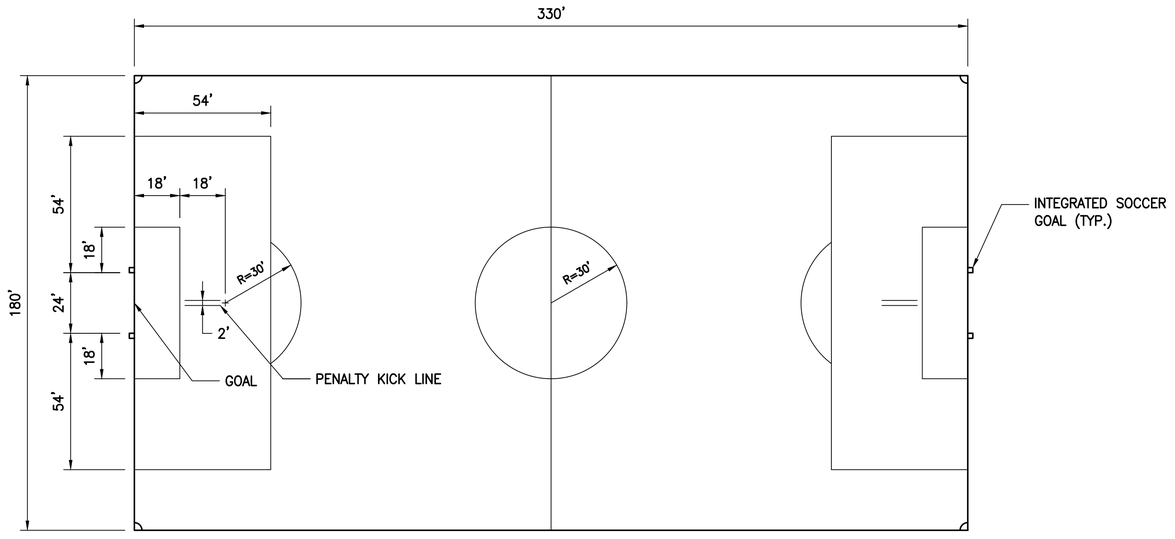
SHEET NO. 9 OF 33
SCALE: N.T.S.
DATE: SEPT. 2022
DRAWING NO. C–8
REV. NO. –

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 soil and erosion control notes and details.dwg



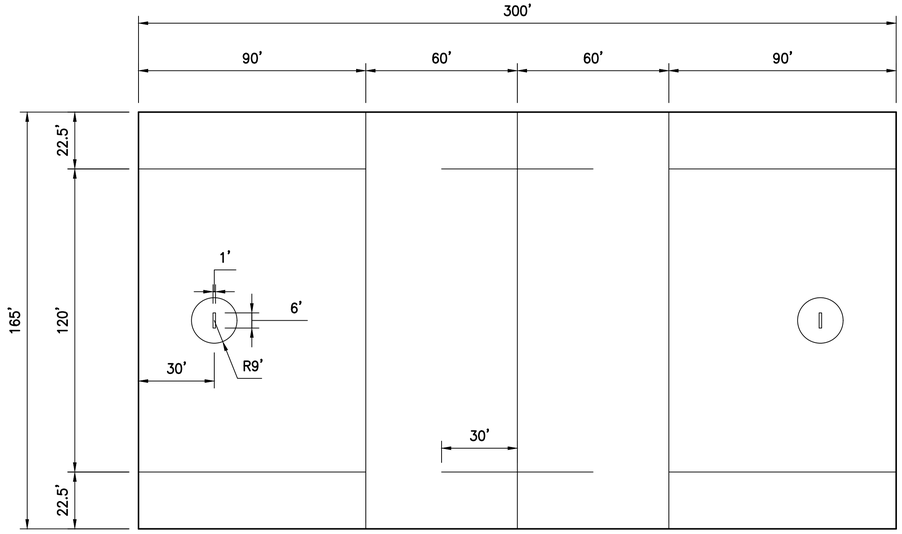
MULTI-SPORT SOCCER/LACROSSE FIELD LAYOUT

SCALE: 1"=30'



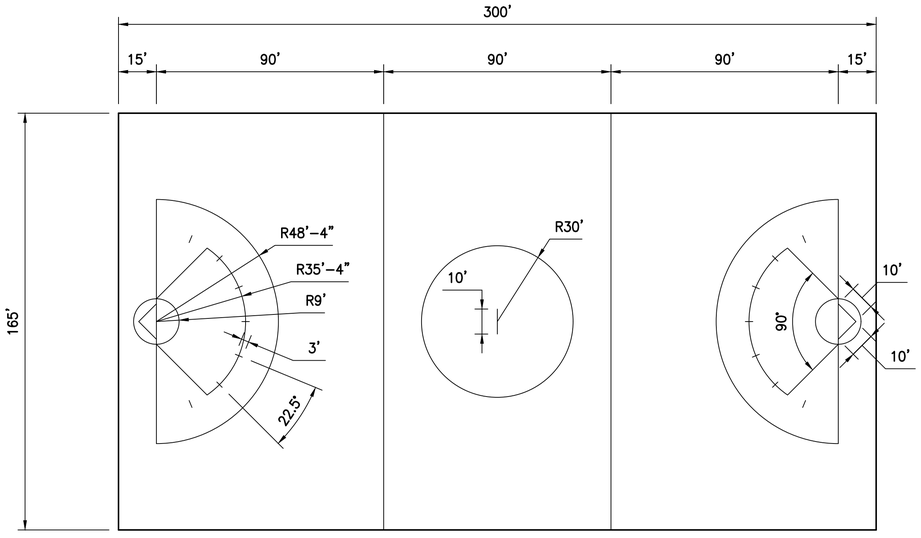
SOCCER FIELD LAYOUT

SCALE: 1"=30'



MEN'S LACROSSE FIELD LAYOUT

SCALE: 1"=30'



WOMEN'S LACROSSE FIELD LAYOUT

SCALE: 1"=30'

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 miscellaneous site details.dwg
Plot Date: 9/28/2022 2:42 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

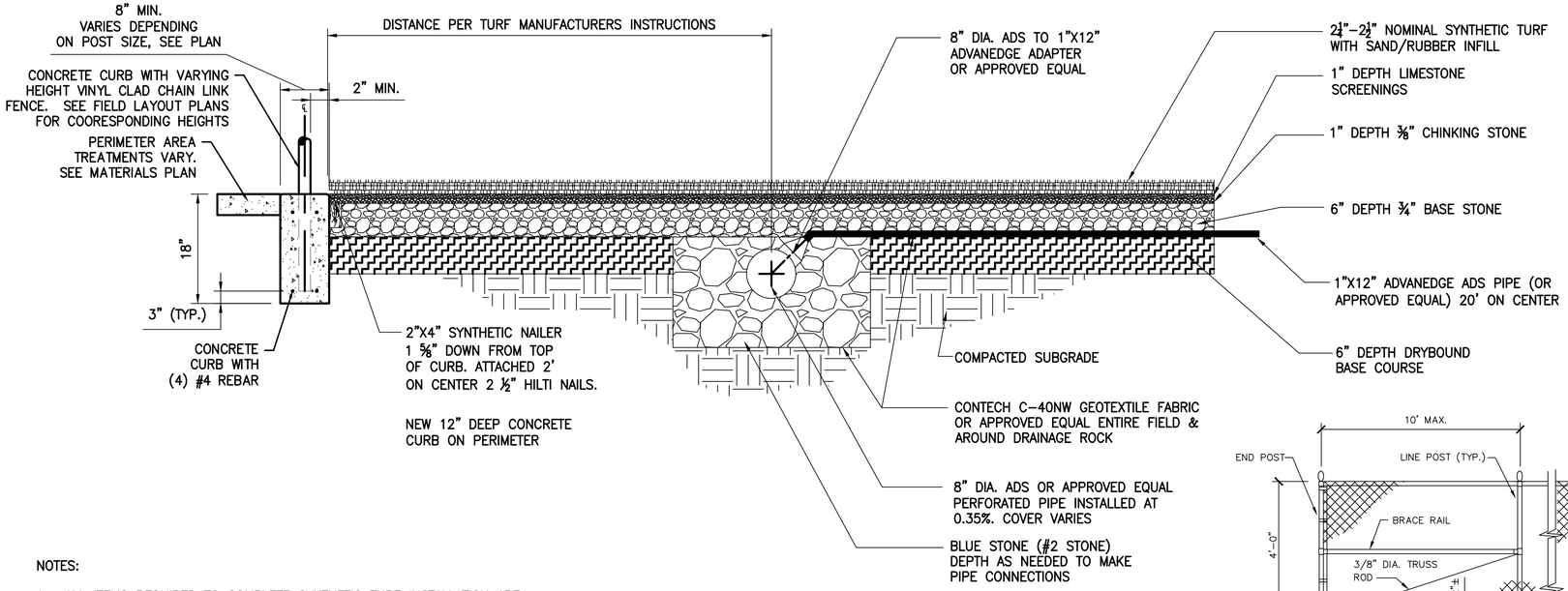
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ATHLETIC FIELD LAYOUT PLANS

PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 12 OF 33
SCALE: 1" = 30'
DATE: SEPT. 2022
DRAWING NO. C-9
REV. NO. –

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 miscellaneous site details.dwg

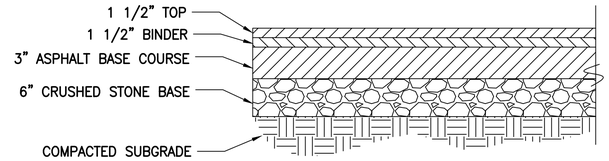


NOTES:

1. ALL ITEMS REQUIRED TO COMPLETE SYNTHETIC TURF INSTALLATION ARE TO BE PAID FOR UNDER ITEM 37 AS SPECIFIED.

FIELD & SUBSURFACE DRAINAGE DETAIL

NOT TO SCALE

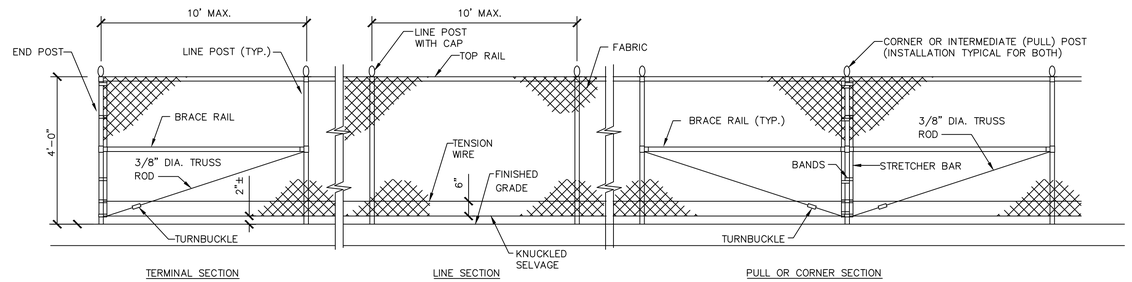


NOTE:

1. ASPHALT AND BASE COURSE SHALL BE AS SPECIFIED.

7 TYPICAL ASPHALT PAVING – MAIN PARKING LOT

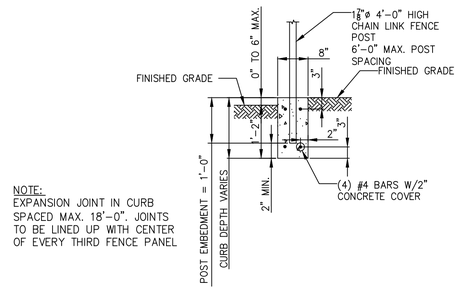
N.T.S.



NOTES:

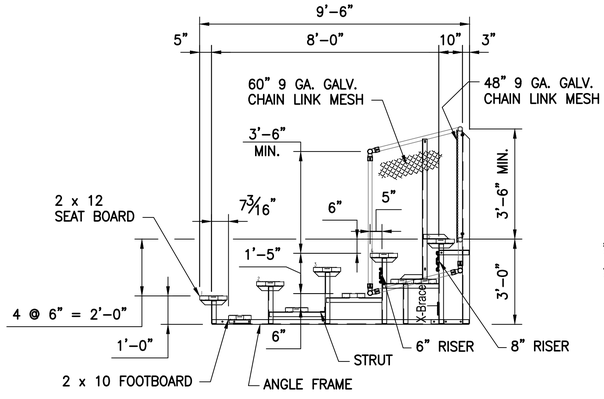
1. FABRIC: ASTM A392, 2" MESH, 9 GAUGE STEEL CORE CHAIN LINK FENCE FABRIC. ASTM A641 GALVANIZED STEEL CORE WIRE, ZINC COATED TO 0.3 OZ/SF WITH 7–12 MIL PVC COATING IN ACCORDANCE WITH ASTM F688 CLASS 2B.
2. TOP AND BRACE RAILS: ASTM F1043 1.66" O.D. (1.84 LBS./FT.) SS40 STEEL PIPE. HOT DIPPED GALVANIZED TO 1.8 OZ/SF IN ACCORDANCE WITH ASTM A123. SUPPLEMENTAL 10–15 MIL PVC POWDER COATING IN ACCORDANCE WITH ASTM F1043.
3. LINE POSTS: ASTM F1043 1.9" O.D. (2.28 LBS/FT.) SS40 STEEL PIPE. HOT DIPPED GALVANIZED TO 1.8 OZ/SF IN ACCORDANCE WITH ASTM A123. SUPPLEMENTAL 10–15 MIL PVC POWDER COATING IN ACCORDANCE WITH ASTM F1043.
4. END, CORNER & PULL POSTS: ASTM F1043 2.375" O.D. (3.12 LBS./FT.) SS40 STEEL PIPE. HOT DIPPED GALVANIZED TO 1.8 OZ/SF IN ACCORDANCE WITH ASTM A123. SUPPLEMENTAL 10–15 MIL PVC POWDER COATING IN ACCORDANCE WITH ASTM F1043.
5. FITTINGS AND ACCESSORIES: ASTM F626 MALLEABLE OR PRESSED STEEL. HOT DIPPED GALVANIZED TO 1.2 OZ/SF. SUPPLEMENTAL 10–15 MIL PVC POWDER COATING IN ACCORDANCE WITH ASTM F1043.
6. BOTTOM TENSION WIRE: ASTM A824 NO. 7 GUAGE STEEL–MARCELLED WIRE, ZINC COATED TO 0.4 OZ/SF WITH 7–12 MIL PVC POWDER COATING IN ACCORDANCE WITH ASTM F1664.
7. VINYL COATING COLOR: BLACK.
8. CONCRETE TO ACHIEVE 4000 PSI STRENGTH AT 28 DAYS.

CHAIN LINK FENCE–VINYL COATED–4' HEIGHT



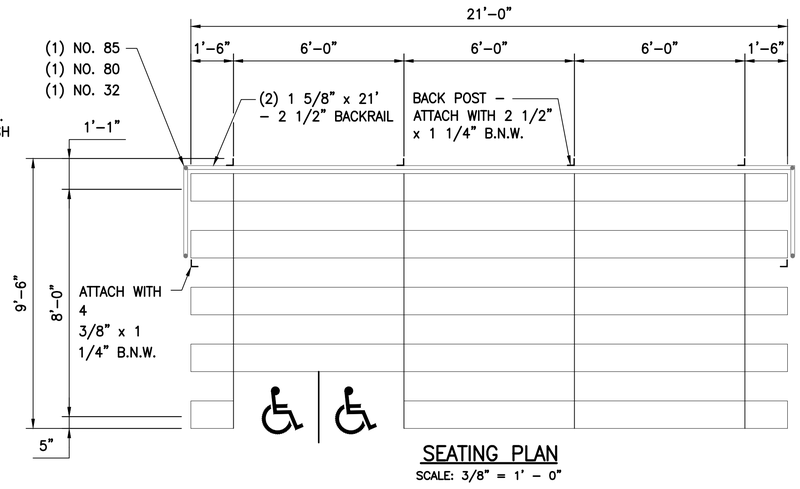
NOTE:
EXPANSION JOINT IN CURB SPACED MAX. 18'–0". JOINTS TO BE LINED UP WITH CENTER OF EVERY THIRD FENCE PANEL

CONCRETE CURB FOR 4'–0" HIGH CHAIN LINK FENCE DETAIL



TYPICAL SECTION

SCALE: 3/8" = 1' – 0"



SEATING PLAN

SCALE: 3/8" = 1' – 0"

NOTE:

5 ROW ANGLE FRAME BLEACHER MODEL NO. 6A5S21C, MANUFACTURED BY ALL STAR BLEACHERS, INC. OR APPROVED EQUAL.

5 ROW BLEACHERS

SCALE: 3/8"=1'–0"

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 miscellaneous site details.dwg
Plot Date: 10/7/2022 10:17 AM
Plotted By: Sylvia Cordero Skidmore

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

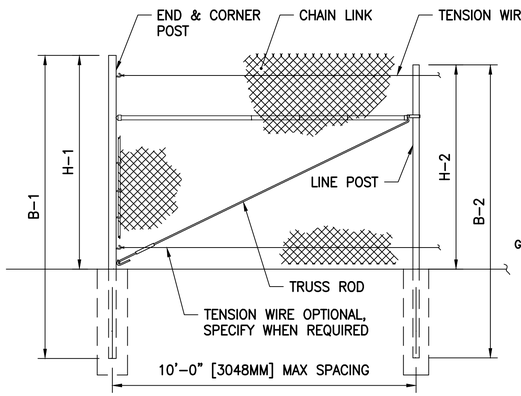
PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATION TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
MISCELLANEOUS SITE DETAILS – 1

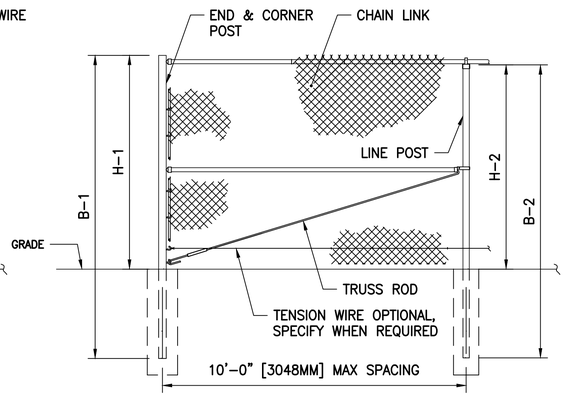
PROJECT NUMBER	CONTRACT NUMBER
5438–01	
SHEET NO. 13 OF 33	
SCALE: AS SHOWN DATE: SEPT. 2022	
DRAWING NO. C–10	REV. NO. –

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 miscellaneous site details.dwg



FENCE SECTION ELEVATION

WITHOUT TOP RAIL & WITHOUT BARBED WIRE



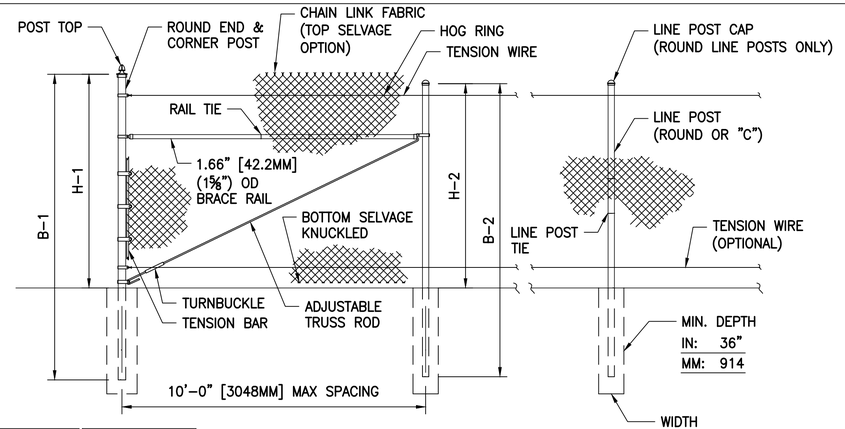
FENCE SECTION ELEVATION

WITH TOP RAIL & WITHOUT BARBED WIRE

FENCE HEIGHT	END & CORNER POSTS		LINE POSTS	
NOMINAL HEIGHT	B-1 BAR LENGTH	H-1 HEIGHT ABOVE GRADE	B-2 BAR LENGTH	H-2 HEIGHT ABOVE GRADE
7'-0" [2134MM]	10'-0" [3048MM]	7'-0 5/8" [2150MM]	9'-8" [2946MM]	6'-8 7/8" [2054MM]
8'-0" [2438MM]	11'-0" [3353MM]	8'-0 5/8" [2454MM]	10'-8" [3251MM]	7'-8 7/8" [2359MM]
9'-0" [2743MM]	12'-0" [3658MM]	9'-0 5/8" [2759MM]	11'-8" [3556MM]	8'-8 7/8" [2664MM]
10'-0" [3048MM]	13'-0" [3962MM]	10'-0 5/8" [3064MM]	12'-8" [3861MM]	9'-8 7/8" [2969MM]
11'-0" [3353MM]	14'-0" [4267MM]	11'-0 5/8" [3369MM]	13'-8" [4166MM]	10'-8 7/8" [3273MM]
12'-0" [3658MM]	15'-0" [4572MM]	12'-0 5/8" [3674MM]	14'-8" [4470MM]	11'-8 7/8" [3578MM]

CHAIN LINK FENCE–VINYL COATED–12' HEIGHT

DIMENSIONS & SPECIFICATIONS



FENCE SECTION ELEVATION – ROUND END POSTS

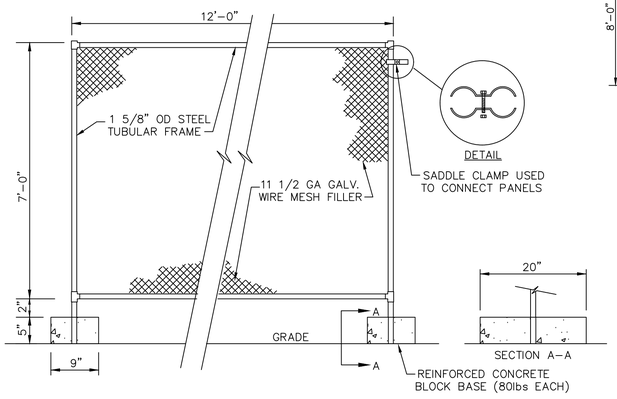
SEE DWGS 1–1000 & 1–1006 FOR DIMS & DETAILS

END & CORNER POST TOP OPTIONS		TOP & BOTTOM FABRIC OPTIONS	
STANDARD	DOME	TWIST	KNUCKLE

NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
2. FOOTING WIDTH TO BE (4)X POST WIDTH.

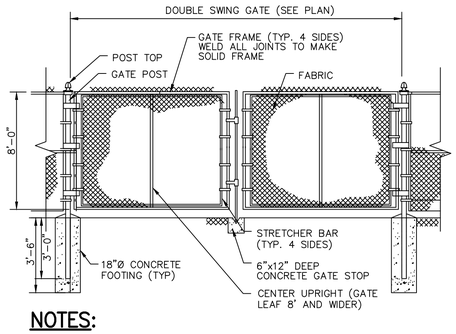
TYPICAL HIGH FENCE

ROUND END POSTS,
WITHOUT TOP RAIL & WITHOUT BARBED WIRE



TEMPORARY CONSTRUCTION FENCE

N.T.S.



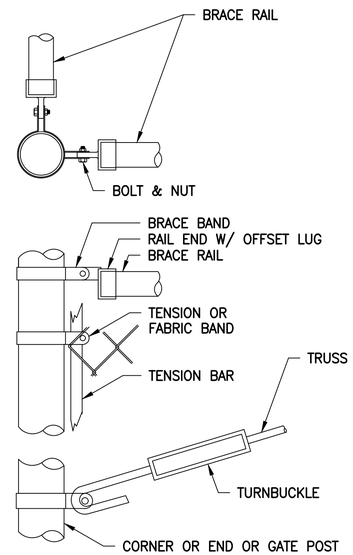
SINGLE GATE LEAF WIDTH	GATE POST OUTSIDE DIA. (INCHES)	MINIMUM WEIGHT (LB/FT)
UP TO 4'	2.375	3.12
5' TO 10'	2.875	4.64
11' TO 18'	4.000	6.56

NOTES:

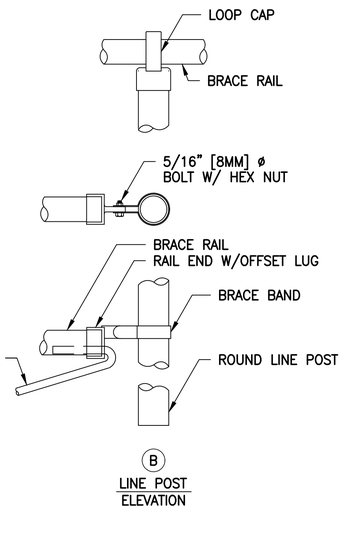
1. FABRIC: ASTM A392, 2" MESH, 9 GAUGE STEEEL CHAIN LINK FENCE FABRIC. ASTM A641 GALVANIZED STEEL CORE WIRE, ZINC COATED TO 0.3 OZ/SF WITH 7–12 MIL PVC COATING IN ACCORDANCE WITH ASTM F668, CLASS 2B.
2. FRAME: ASTM F900, 1.66" O.D. (1.83 LBS./FT.) STEEL PIPE. HOT DIPPED GALVANIZED TO 1.8 OZ/SF IN ACCORDANCE WITH ASTM A123 (SEE TABLE FOR SIZE AND WEIGHT). SUPPLEMENTAL 10–15 MIL PVC POWDER COATING IN ACCORDANCE WITH ASTM F1043.
3. GATE POST: ASTM F1043, SS40 STEEL PIPE. HOT DIPPED GALVANIZED TO 1.8 OZ/SF IN ACCORDANCE WITH ASTM A123 (SEE TABLE FOR SIZE AND WEIGHT).
4. HINGES: ASTM F900, NON–LIFT–OFF TYPE.
5. LATCH: ASTM F900 FORKED TYPE GRAVITY DROP WITH PROVISION FOR PADLOCK.
6. FITTINGS AND ACCESSORIES: ASTM F626, MALLEABLE OR PRESSED STEEL, HOT DIPPED GALVANIZED TP 1.2 OZ/SF. SUPPLEMENTAL 10–15 MIL PVC POWDER COATING IN ACCORDANCE WITH ASTM F1043.
7. GATE KEEPER: ASTM F900.
8. PROVIDE GATE KEEPER FOR EACH SWING GATE.
9. VINYL COATING COLOR TO BE SELECTED BY OWNER.
10. CONCRETE TO ACHIEVE 4000 PSI STRENGTH AT 28 DAYS.

CHAIN LINK DOUBLE SWING GATE–VINYL COATED

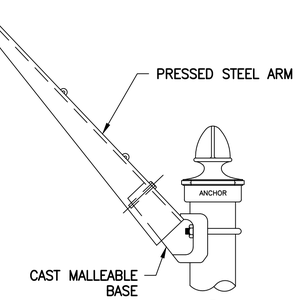
ROUND TERMINAL POSTS



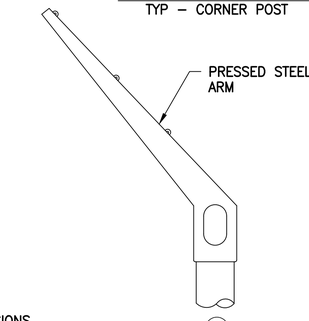
(A)
END, CORNER, OR GATE POST
ELEVATION



(B)
LINE POST
ELEVATION



(D)
BARBED WIRE CORNER ARM
TYP – CORNER POST



(C)
BARBED WIRE 45° ARM
TYP – LINE POST

NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
2. ALL MATERIAL TO CONFORM TO FEDERAL SPEC RR–F–191G (1–25–74).
3. ALL GALVANIZED FITTINGS TO CONFORM TO ASTM–A153.

TYPICAL HIGH FENCE

ROUND POST DETAILS

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

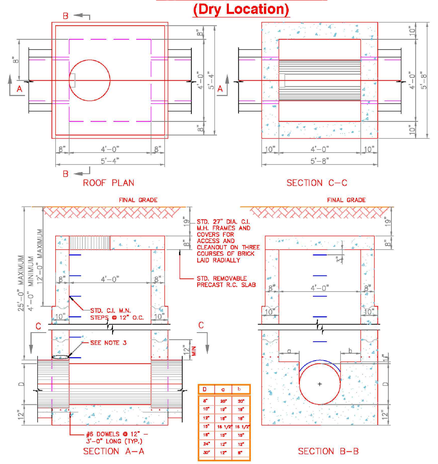
MODIFICATION TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
MISCELLANEOUS SITE DETAILS – 2

PROJECT NUMBER	CONTRACT NUMBER
5438–01	
SHEET NO. 14 OF 33	
SCALE: N.T.S. DATE: SEPT. 2022	
DRAWING NO. C–11	REV. NO. –

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 miscellaneous site details.dwg
Plot Date: 9/28/2022 2:43 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 miscellaneous site details.dwg

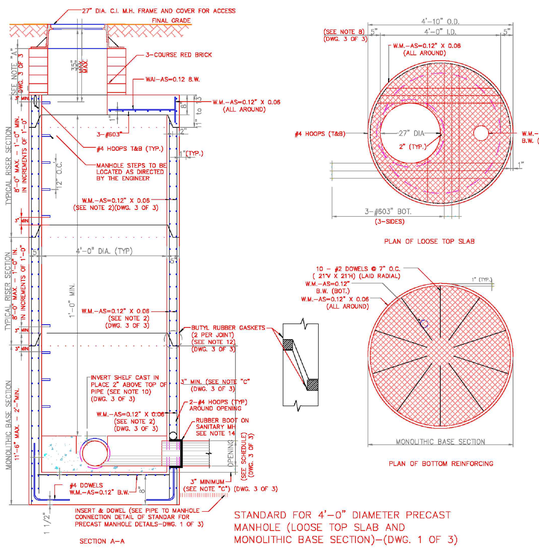
Poured-In-Place Manhole Standard
Type A-1 (12' Depth Max)
Type A-2 (25' Depth Max)
(Dry Location)



STANDARD FOR MANHOLE ON 8" DIA. TO 30" DIA. PIPE SEWER IN DRY LOCATION TYPE A–1 (12' MAX. COVER) AND TYPE A–2 (25' MAX. COVER)

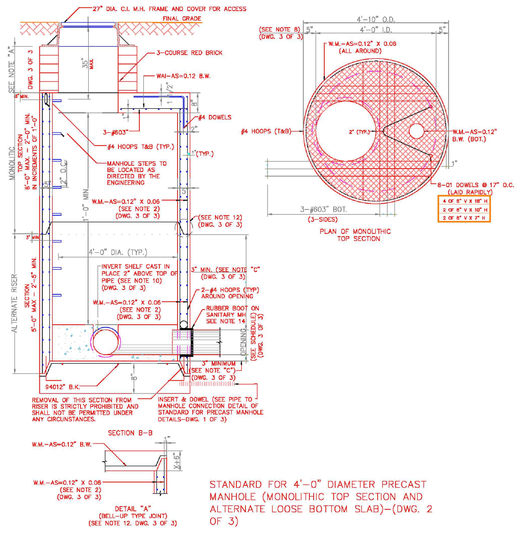
NOTES:
1– KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POURS.
2– CONCRETE IS TO BE 4,000 PSI REBARS GRADE 60.
3– FOR ALL PIPES SEWERS EIGHTEEN (18) INCHES AND GREATER IN DIAMETER, 3–#6 BARS @ 3" ABOVE AND BELOW THE PIPE.

PRECAST MANHOLE-DWG 1/3-



STANDARD FOR 4'–0" DIAMETER PRECAST MANHOLE (LOOSE TOP SLAB AND MONOLITHIC BASE SECTION)–(DWG. 1 OF 3)

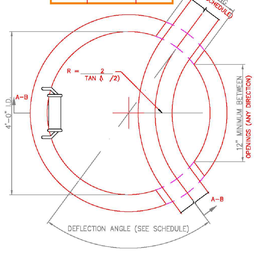
PRECAST MANHOLE-DWG 2/3-



STANDARD FOR 4'–0" DIAMETER PRECAST MANHOLE (MONOLITHIC TOP SECTION AND ALTERNATE LOOSE BOTTOM SLAB)–(DWG. 2 OF 3)

PRECAST MANHOLE-DWG 3/3

SCHEDULE		
PIPE Ø	OPENING Ø	A MAX.
8"	14"	112"
10"	16"	112"
12"	19"	104"
15"	22"	63"
18"	28"	83"
24"	34"	80"

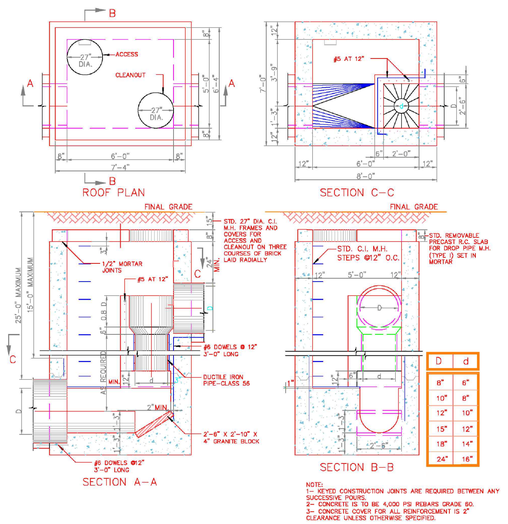


STANDARD FOR 4'–0" DIAMETER PRECAST MANHOLE (MISCELLANEOUS DETAIL NOTES AND SHEDULE)–(DWG. 3 OF 3)

NOTES:
A–S" MIN. TO 25" MAX.: 9" RED CLAY BRICK LAID RADIALLY. (4" BRICK 14N, ONLY FOR SHALLOW MANHOLE CONSTRUCTION.)
B–ALTERNATE LOOSE BOTTOM SLAB TO BE USED ONLY IN SHALLOW MANHOLE CONSTRUCTION. A SHALLOW MANHOLE IS A MANHOLE ON A SEWER WHICH HAS A COVER FROM FINAL GRADE TO THE OUTER TOP OF THE PIPE LESS THAN 4'–0"
C–PIPE OPENINGS WILL BE PERMITTED THOUGH JOINTS. DISTANCE FROM TOP OR BOTTOM OF ANY SECTION SHALL BE A MINIMUM OF 3" PLUS THE JOINT DEPTH FOR CAST PIPE OPENINGS AND A MINIMUM OF 12" PLUS THE JOINT DEPTH FOR CORED OPENINGS FOR BASIN CONNECTIONS.
D–THE MANUFACTURER SHALL ENSURE THAT ALL PRECAST MANHOLE SECTIONS ARE ADDITIONALLY REINFORCED WHERE REQUIRED TO RESIST DAMAGE FROM HANDLING, SHIPPING AND INSTALLATION STRESSES.

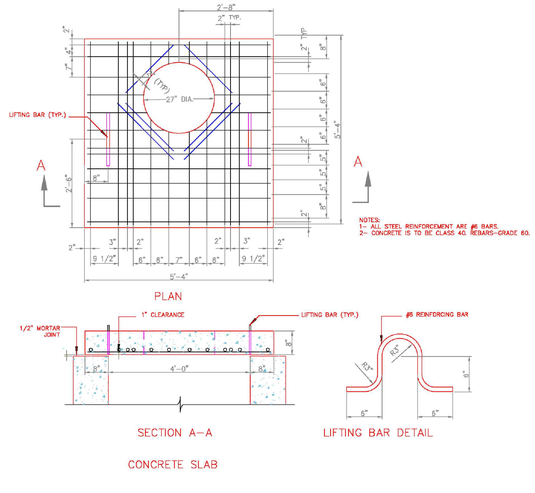
GENERAL NOTES:
(1) THIS 4'–0" DIAMETER PRECAST MANHOLE MAY BE SUBSTITUTED FOR STANDARD MANHOLE TYPES A–1, A–2, B–1 AND B–2 ON SEWERS 24" IN DIAMETER AND LESS ONLY.
(2) MANHOLE RISER REINFORCING COMPLIES WITH AREA REQUIREMENTS OF ASTM C478, EXCEPT THAT ALL WALL SECTIONS SHALL BE REINFORCED WITH WALL AS 0.12 CM. X 0.06 LONG. – E.F. WITH 2–#4 HOOPS AROUND ALL CAST PIPE OPENINGS (1 – E.F.). (THE 2 – 14 HOOPS WILL NOT BE REQUIRED AT CORED OPENINGS FOR BASIN CONNECTIONS.) (ALL VALUES OF AREA OF STEEL (AS) ARE IN SQUARE INCHES ARE A MINIMUM.)
(3) CORED OPENINGS WILL BE PERMITTED FOR 12" DIAMETER BASIN CONNECTIONS ONLY. THE MAXIMUM CORED OPENING SHALL BE 16" FOR THESE BASIN CONNECTIONS.
(4) FOR DETAILS OF STEPS, JOINTS, GASKETS, PRECAST COLLARS, PIPE TO MANHOLE CONNECTIONS, PILE CAP AND POURED IN PLACE ALTERNATE MONOLITHIC BASE SECTION SEE STANDARD FOR PRECAST MANHOLE DETAILS. STANDARD FOR MANHOLE STEPS AND STANDARD FOR ALTERNATE MONOLITHIC BASE SECTIONS FOR PRECAST MANHOLES (POURED IN PLACE).
(5) THE MAXIMUM DEPTH OF COVER OF THE 4'–0" DIAMETER PRECAST MANHOLE FROM FINAL GRADE TO THE OUTER TOP OF THE PIPE, SHALL BE TWENTY FIVE (25) FEET.
(6) ALL OTHER DISTANCES SHOWN FOR REINFORCEMENT ARE CLEAR DISTANCES.
(7) LIFTING HOLES SHALL BE LOCATED IN THE SECTIONS AS PER MANUFACTURER'S RECOMMENDATIONS PRIOR TO BACKFILL.
(8) THE VALUES OF THE WALL AND SLAB THICKNESSES ARE A MINIMUM
(9) CONCRETE DESIGN MAX. 5,000 PSI (MIN. 28 DAY STRENGTH = 4,000 PSI, MAX. W/C = 0.47). REBARS – FS = 50,000 PSI, MAX – FS = 85,000 PSI.
(10) INVERT SHELVES SHALL HAVE A 1/2" PER LINEAR FOOT PITCH TOWARDS THE SEWER.
(11) THE OPENING DIAMETERS SHOWN IN THE SCHEDULE ARE MAXIMUM VALUES. THE MINIMUM OPENINGS DIAMETERS SHALL BE AS FOLLOWS: 8" TO 24" DIAMETER PIPES = 0.0 + 3.
(12) BELL–UP TYPE JOINTS SHALL BE ALLOWED FOR 4'–0" DIAMETER PRECAST MANHOLE WITH THE FOLLOWING MODIFICATION TO THE LOOSE TOP SLAB, (A) THE MINIMUM SLAB THICKNESS SHALL BE X +6" (WHERE "X" IS JOINT DEPTH AND (B) THE EMBEDMENT LENGTH SHALL BE 1–1" (WHERE 1 IS THE THICKNESS OF RISER WALL). SEE DETAIL "A" ON DWG. 2 OF 3
(13) PROTECTIVE COATING PAINT APPLIED SSPC– PAINT 16, COALTAR–EPOXY–POLYAMIDE 15 MIL MINIMUM THICKNESS APPLIED TO ALL EXTERIOR SURFACES OF SANITARY SEWER MANHOLES.
(14) RESILIENT PIPE CONNECTORS ASTM C923 (ASTM C923M) CAST – OR FITTED INTO SANITARY SEWER MANHOLE WALLS FOR ALL PIPE CONNECTIONS.

STANDARD FOR DROP PIPE MANHOLE (TYPE 1) ON 10" DIA. TO 24" DIA. PIPE SEWERS, (25'-0" MAXIMUM COVER)



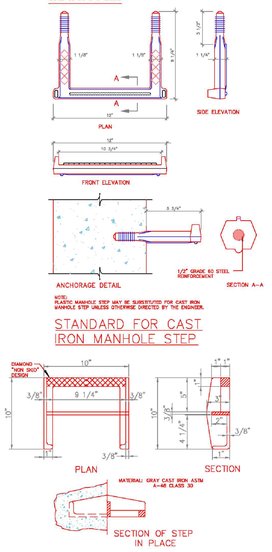
NOTE:
1– KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POURS.
2– CONCRETE IS TO BE 4,000 PSI REBARS GRADE 60.
3– CONCRETE COVER FOR ALL REINFORCEMENT IS 2" CLEARANCE UNLESS OTHERWISE SPECIFIED.

STANDARD FOR REMOVABLE PRECAST REINFORCED CONCRETE SLAB



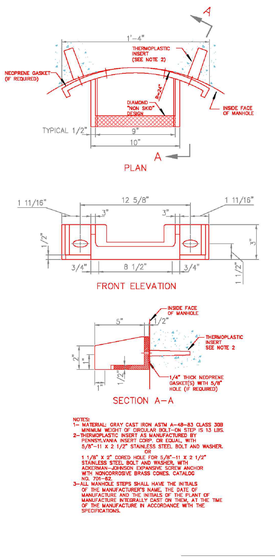
NOTES:
1– ALL STEEL REINFORCEMENT ARE #6 BARS.
2– CONCRETE IS TO BE CLASS 4Q. REBARS–GRADE 60.

STANDARD FOR PLASTIC MANHOLE STEP (COPOLYMER POLYPROPYLENE PLASTIC) FABRICATED IN SHOP WITH MANHOLE



STANDARD FOR CAST IRON MANHOLE STEP

STANDARD FOR CIRCULAR CAST IRON MANHOLE STEP (BOLT ON TYPE)

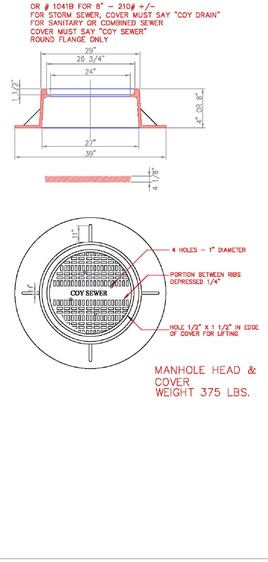


NOTES:
1– MATERIAL: GRAY CAST IRON ASTM A–48–83 CLASS 30B
MINIMUM WEIGHT OF CIRCULAR BOLT–ON STEP IS 13 LBS.
2– THERMOPLASTIC INSERT AS MANUFACTURED BY PENNSYLVANIA INSERT CORP. OR EQUAL, WITH 5/8"–11 X 2 1/2" STAINLESS STEEL BOLT AND WASHER, OR
1 1/8" X 3" CORED HOLE FOR 5/8"–11 X 2 1/2" STAINLESS STEEL BOLT AND WASHER, WITH ADKINSON–JOHNSON EXPANSIVE SCREW ANCHOR OR EQUIVALENT EXPOSIVE BRASS CONES. CATALOG NO. 750–62
3–ALL MANHOLE STEPS SHALL HAVE THE INITIALS OF THE MANUFACTURER'S NAME, THE DATE OF MANUFACTURE AND THE NUMBER OF THE MOLD OF MANUFACTURE INTERRALLY CAST ON THEM, AT THE TIME OF THE MANUFACTURE IN ACCORDANCE WITH THE SPECIFICATIONS.

STANDARD FOR MANHOLE HEAD AND COVER

AS MANUFACTURED BY THE CAMPBELL FOUNDRY CO. PATTERN # 1041A – 195# +/–

OR # 1041B FOR 8" – 210# +/–
FOR STORM SEWER, COVER MUST SAY "COY DRAIN"
FOR SANITARY OR COMBINED SEWER COVER MUST SAY "COY SEWER"
ROUND FLANGE ONLY



1 CITY OF YONKERS STANDARD DETAILS FOR CONSTRUCTION
N.T.S.

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATION TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
MISCELLANEOUS SITE DETAILS – 3

PROJECT NUMBER	CONTRACT NUMBER
5438–01	

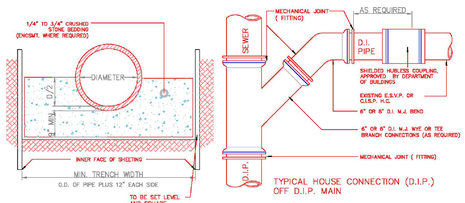
SHEET NO. 15 OF 33
SCALE: N.T.S.
DATE: SEPT. 2022
DRAWING NO. C–12
REV. NO. –

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 miscellaneous site details.dwg
Plot Date: 9/28/2022 2:44 PM
Plotted By: Wing Sun Tang

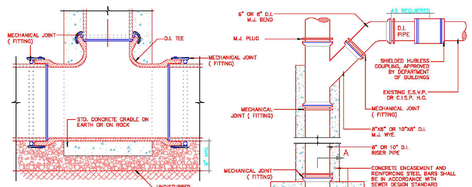
i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438–01 miscellaneous site details.dwg

DUCTILE IRON PIPE

STANDARD FOR DUCTILE IRON PIPE ALTERNATE



TYPICAL HOUSE CONNECTION (D.I.P.) OFF D.I.P. MAIN



SECTION A–A

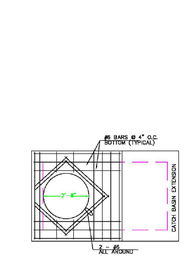
TYPICAL D.I.P. RISER FOR HOUSE CONN. OFF D.I.P. SEWER

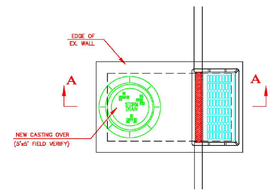
NOTES:
1- THIS ALTERNATE WILL BE PERMITTED ONLY WHEN SO STATED IN THE SPECIFICATIONS.
2- MATERIALS: THE DUCTILE IRON PIPE SHALL BE AC-42-10 AND CLASS 56 UNLESS OTHERWISE SPECIFIED.
3- JOINTS:
A- ALL JOINTS FOR DUCTILE IRON PIPE SEWER SHALL BE "PUSH-ON" JOINT TYPE, EXCEPT AS NOTED ABOVE FOR SPUR AND RISER.
B- ALL JOINTS SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS FOR ASSEMBLING THE TYPE OF JOINT FURNISHED.
C- FITTINGS SHALL BE DUCTILE IRON OR GRAY IRON (250 PSI) MECHANICAL JOINTS IN ACCORDANCE WITH THE LATEST REVISIONS OF ANSI/AWWA C 110/A21.10 AND ANSI/AWWA C111/A21.11.
4- LEVELING BLOCKS ARE NOT PERMITTED.

PIPE DIA.	
FOR C.I.S.P.	USE D.I.
15"	16"

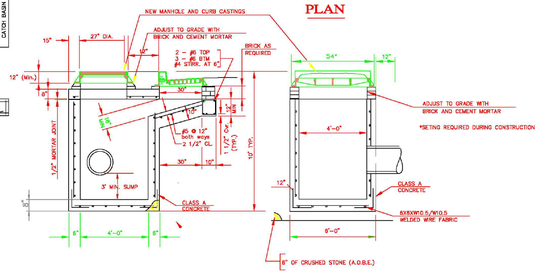
SUBSTITUTION CHART

STANDARD PRECAST CONCRETE CATCH BASIN WITH CURB PIECE (TYPE 3)





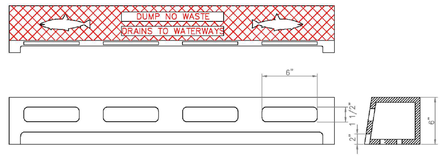
PLAN



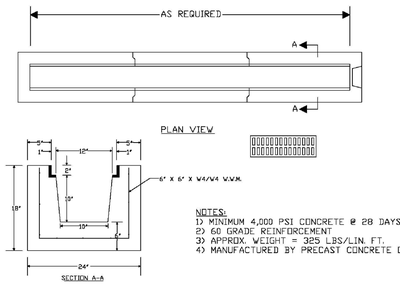
SECTION A-A

SECTION B-B

STANDARD FOR NON MOUNTABLE CURB TYPES TYPE "N"

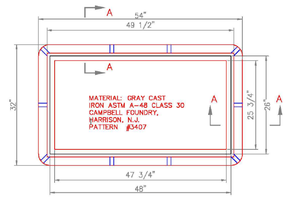


STANDARD FOR PRECAST CONCRETE TRENCH DRAINS



NOTES:
1) MINIMUM 4,000 PSI CONCRETE @ 28 DAYS
2) 60 GRADE REINFORCEMENT
3) APPROX. WEIGHT = 325 LBS/LIN. FT.
4) MANUFACTURED BY PRECAST CONCRETE OR EQUAL

STANDARD CAST IRON FRAME FOR CATCH BASINS AND INLETS WITHOUT CURB PIECE

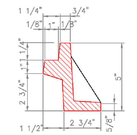


PLAN OF FRAME

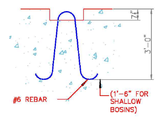


SECTION OF FRAME

STANDARD CATCH BASIN LIFTING HOOK DETAIL

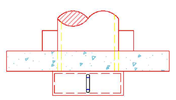


SECTION A–A



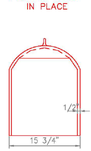
(N.T.S.) PROVIDE 4 LIFTING HOOKS PER BASIN AT MIDPOINT OF EACH WALL.

STANDARD CAST IRON HOOD AND STAINLESS STEEL HOOKS FOR CATCH BASINS

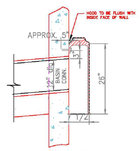


PLAN OF HOOD IN PLACE

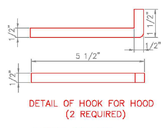
MATERIAL FOR HOOD:
GRAY CAST IRON
ASTM A-48 CLASS 30
AS MANUFACTURED BY CAMPBELL FOUNDRY,
HARRISON, NJ
PATTERN #2563



FRONT ELEVATION OF HOOD



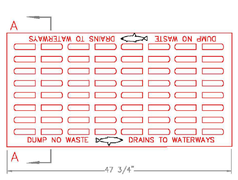
SECTION OF HOOD IN PLACE



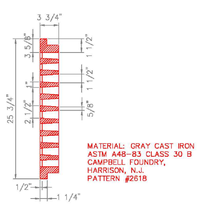
DETAIL OF HOOK FOR HOOD (2 REQUIRED)

MATERIAL FOR HOOK:
STAINLESS STEEL
1/2 IN. SQUARE BAR STOCK. 18-8 STAINLESS STEEL TYPE 303 ASTM A-582

STANDARD FOR CAST IRON GRATING



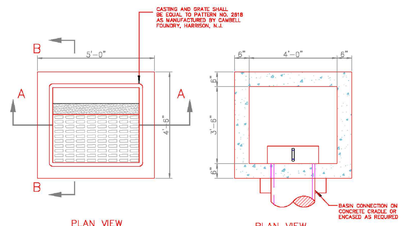
PLAN OF GRATING



SECTION A–A

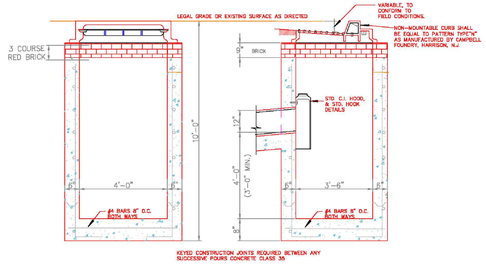
MATERIAL: GRAY CAST IRON ASTM A48-83 CLASS 30 B CAMPBELL FOUNDRY, HARRISON, N.J. PATTERN #2618

STANDARD PRECAST CONCRETE CATCH BASIN WITH CURB PIECE (TYPE 1)



PLAN VIEW (WITH CASTING)

PLAN VIEW (WITHOUT CASTING)

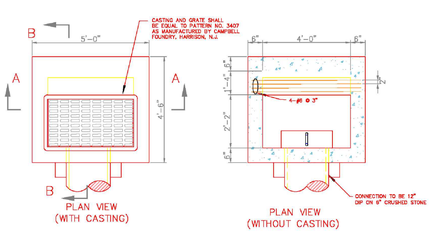


SECTION A–A

SECTION B–B

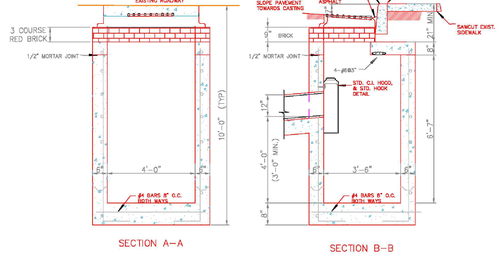
NOTE:
1. LOCATION OF CURB SHALL BE SHOWN AS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. LOCATION AND ANGLE OF BASIN CONNECTION MAY BE VARIED TO SUIT FIELD CONDITIONS.
3. KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POURS.
4. THE MINIMUM DROP FROM BASIN TO SEWER SHALL BE 8".
5. SOLID RED BRICK ONLY USED FOR THE RISER OVER THE PRECAST SLAB

STANDARD PRECAST CONCRETE CATCH BASIN WITHOUT CURB PIECE (TYPE 2)



PLAN VIEW (WITH CASTING)

PLAN VIEW (WITHOUT CASTING)

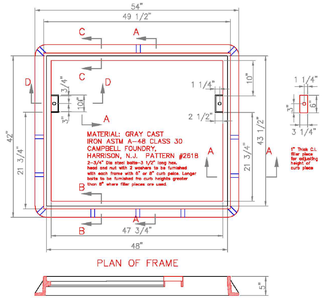


SECTION A–A

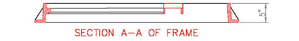
SECTION B–B

NOTE:
1. LOCATION OF CURB SHALL BE AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. LOCATION AND ANGLE OF BASIN CONNECTION MAY BE VARIED TO SUIT FIELD CONDITIONS.
3. KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POURS.
4. THE MINIMUM DROP FROM BASIN TO SEWER SHALL BE 8".
5. SOLID RED BRICK ONLY USED FOR THE RISER OVER THE PRECAST SLAB

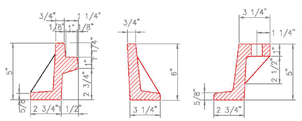
STANDARD CAST IRON FRAME FOR CATCH BASINS AND INLETS WITH TYPE "N" CURB PIECE



PLAN OF FRAME



SECTION A–A OF FRAME



SECTION B–B

SECTION C–C

SECTION D–D

1 CITY OF YONKERS STANDARD DETAILS FOR CONSTRUCTION

N.T.S.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATION TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
MISCELLANEOUS SITE DETAILS – 4

PROJECT NUMBER	CONTRACT NUMBER
5438–01	

SHEET NO. 16 OF 33

SCALE: N.T.S.
DATE: SEPT. 2022

DRAWING NO.	REV. NO.
C–13	–

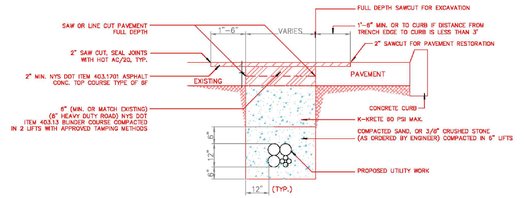
IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

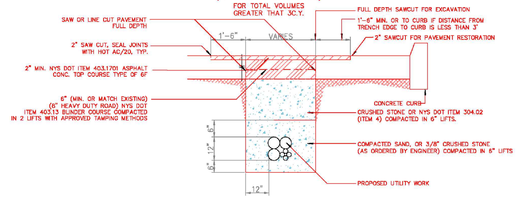
File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 miscellaneous site details.dwg
Plot Date: 9/28/2022 2:45 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 miscellaneous site details.dwg

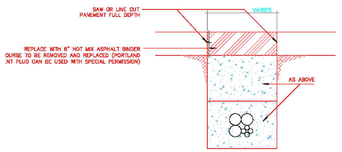
TYPICAL TRENCH SECTIONS AND PAVEMENT REPLACEMENT DETAILS FOR UTILITY INSTALLATIONS



PERMANENT RESTORATION
(K-KRETE BACKFILL)
FOR TOTAL VOLUMES GREATER THAT 3C.Y.

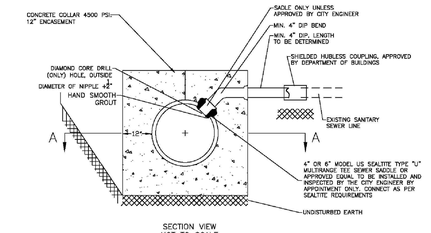


PERMANENT RESTORATION
(GRANULAR FILL BACKFILL)
FOR TOTAL VOLUMES LESS THAN 3C.Y.

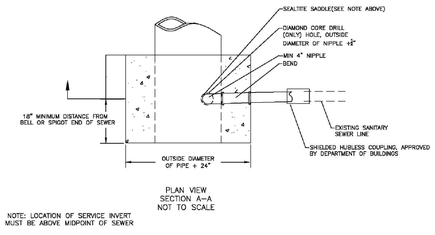


TEMPORARY PAVEMENT PLUG
(WINTER USE ONLY)

TYPICAL SANITARY SEWER HOUSE CONNECTION DETAILS



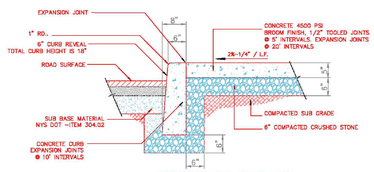
SECTION VIEW
NOT TO SCALE



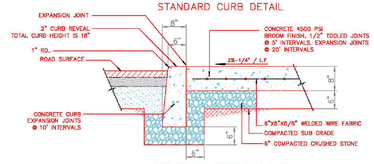
PLAN VIEW
SECTION A-A
NOT TO SCALE

NOTE: LOCATION OF SERVICE INVERT MUST BE ABOVE MIDPOINT OF SEWER

CONCRETE SIDEWALK AND CURB RESTORATION DETAIL



CONCRETE SIDEWALK AND
STANDARD CURB DETAIL



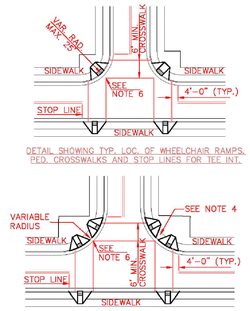
CONCRETE DRIVEWAY AND
DROP CURB DETAIL

GENERAL NOTES:

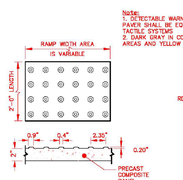
1. CONTRACTOR MUST HAVE INSPECTION PRIOR TO PLACING GRAVEL OR POURING CONCRETE.
2. NO WORK TO BE DONE ON WEEKENDS OR HOLIDAYS UNLESS INSPECTOR IS NOTIFIED 48 HOURS IN ADVANCE AND ONLY WHERE AN INSPECTOR CAN BE PRESENT AT THE CONTRACTOR'S EXPENSE.
3. ENTIRE WORK AREA TO BE KEPT CLEAN AND PROPERLY BARRICADED. A MINIMUM FOUR FEET OF PEDESTRIAN RIGHT OF WAY IS TO BE PROVIDED AND MAINTAINED AROUND THE CONSTRUCTION AREA. ALL DWELLINGS, UNITS AND BUSINESSES SHALL HAVE ACCESS.
4. NO ASH IS ALLOWED IN PLACE OF GRAVEL.
5. ALL UTILITY CASTINGS MUST BE FLUSH WITH SIDEWALK SURFACE.
6. NO TRIPPING HAZARDS OR ENCROACHMENTS ARE PERMITTED.
7. NO TREE ROOTS ARE TO BE DAMAGED, CUT OR REMOVED WITHOUT CITY ARBORIST APPROVAL.

NOTES:

1. DETECTABLE WARNING DOMES SHALL COVER 2'-0" IN LENGTH AND FULL WIDTH OF THE RAMP FLOOR.
2. CROSSWALK WIDTHS AND CONFIGURATION VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE (MUTCD) MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
3. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING UTILITIES MAY INTERFERE. WHERE TWO RAMPS ARE INSTALLED AT A CORNER, PLACE ONE RAMP ON EACH STRAIGHT CURB RETURN OF THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
4. DO NOT EXCEED 0.08 (1:12) SLOPE ON THE WHEELCHAIR RAMP.
5. CONSTRUCT WHEELCHAIR RAMPS 48" WIDE X 48" LONG FOR DUAL RAMPS AND 60" X 60" LONG WIDE FOR DIAGONAL RAMPS.
6. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STANDARD DETAIL.
7. COORDINATE THE CURB CUT AND THE WHEELCHAIR RAMP SLOPE SO THAT THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24"OF FULL HEIGHT CURBS FALLS WITHIN THEPERPENDICULAR MARKINGS ON EACH SIDE OF THE FLARES.
8. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
9. THE DETECTABLE WARNING PAD MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. USE DARK GRAY IN RESIDENTIAL AREAS AND YELLOW IN COMMERCIAL/INDUSTRIAL

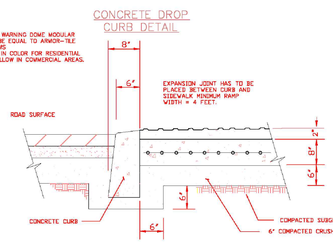


DETAIL SHOWING TYP. LOC. OF WHEELCHAIR RAMPS, PED. CROSSWALKS AND STOP LINES FOR TEE INT.



DETECTABLE
WARNING DOMES

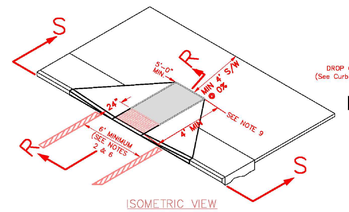
Note:
1. DETECTABLE WARNING DOME MODULAR PAVER SHALL BE EQUAL TO ARMOR-TILE TACTILE SYSTEMS.
2. DARK GRAY IN COLOR FOR RESIDENTIAL AREAS AND YELLOW IN COMMERCIAL AREAS.



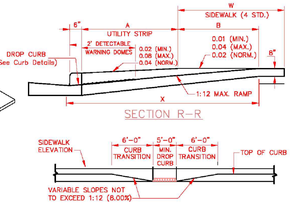
CONCRETE DROP
CURB DETAIL

CONCRETE 4500 PSI WITH BROOM FINISH 1/8" TOOLED JOINTS AT 4' INTERVALS. EXPANSION JOINTS AT 20' INTERVALS. 6"X6"X6/6 WELDED WIRE FABRIC.

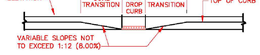
HANDICAP RAMP DETAIL



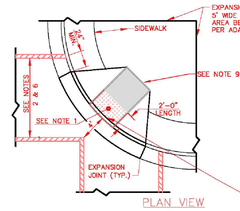
ISOMETRIC VIEW



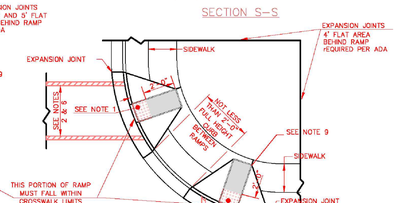
SECTION R-R



SECTION S-S

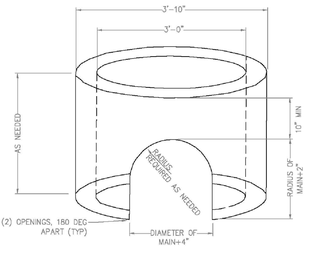


PLAN VIEW
DIAGONAL RAMP
MAXIMUM 25' RADI
(60' MINIMUM RAMP WIDTH)

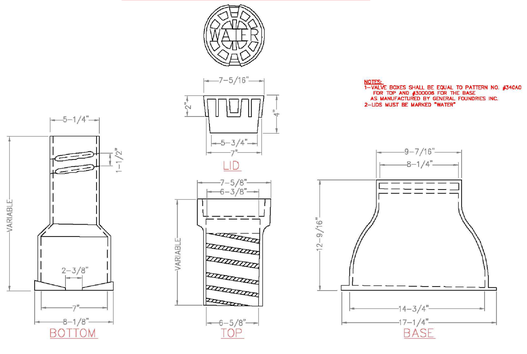


PLAN VIEW
DUAL RAMPS
RADII VARIES
(60' MINIMUM FLOOR WIDTH)

TYPICAL DETAILS 36" DIA. EXTENSION TO BE USED OVER WATER MAIN VALVES, CAST IRON "SKIRT" AND FRAME AND COVER TO GRADE

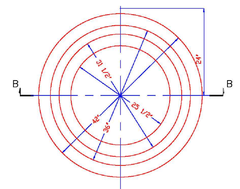


TYPICAL BUFFALO BOX DETAILS



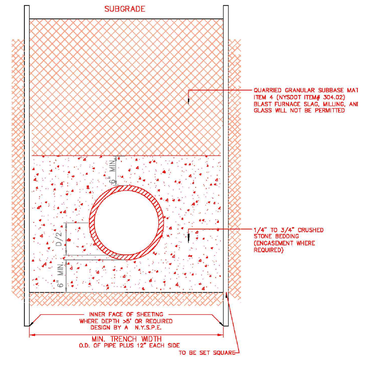
NOTES:
1) INSIDE DIMS SHALL BE EQUAL TO PATTERN NO. #3404D FOR TOP AND #3000B FOR THE BASE AS MANUFACTURED BY GENERAL FOUNDRIES INC.
2) LIDS MUST BE MARKED "WATER"

TYPICAL DETAILS FOR VALVE SKIRT BOX



NOTE:
1) CONCRETE STRENGTH, f'c=5,000 PSI
2) REINFORCEMENT SHALL CONFORM TO ASTM A185 SPECIFICATIONS
3) H-20 LIVE LOAD DESIGN

TYPICAL TRENCH SECTIONS AND BACKFILL DETAILS FOR COY UTILITY EXTENSIONS



NOTE: BACKFILL MATERIAL SHALL BE DEPOSITED IN LAYERS NOT TO EXCEED 8" IN DEPTH. MECHANICAL TAMPING SHOULD BE UTILIZED TO ACHIEVE A MINIMUM 80% MODIFIED PROCTOR MAXIMUM DENSITY.

1 CITY OF YONKERS STANDARD DETAILS FOR CONSTRUCTION

N.T.S.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 miscellaneous site details.dwg
Plot Date: 10/7/2022 8:33 AM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

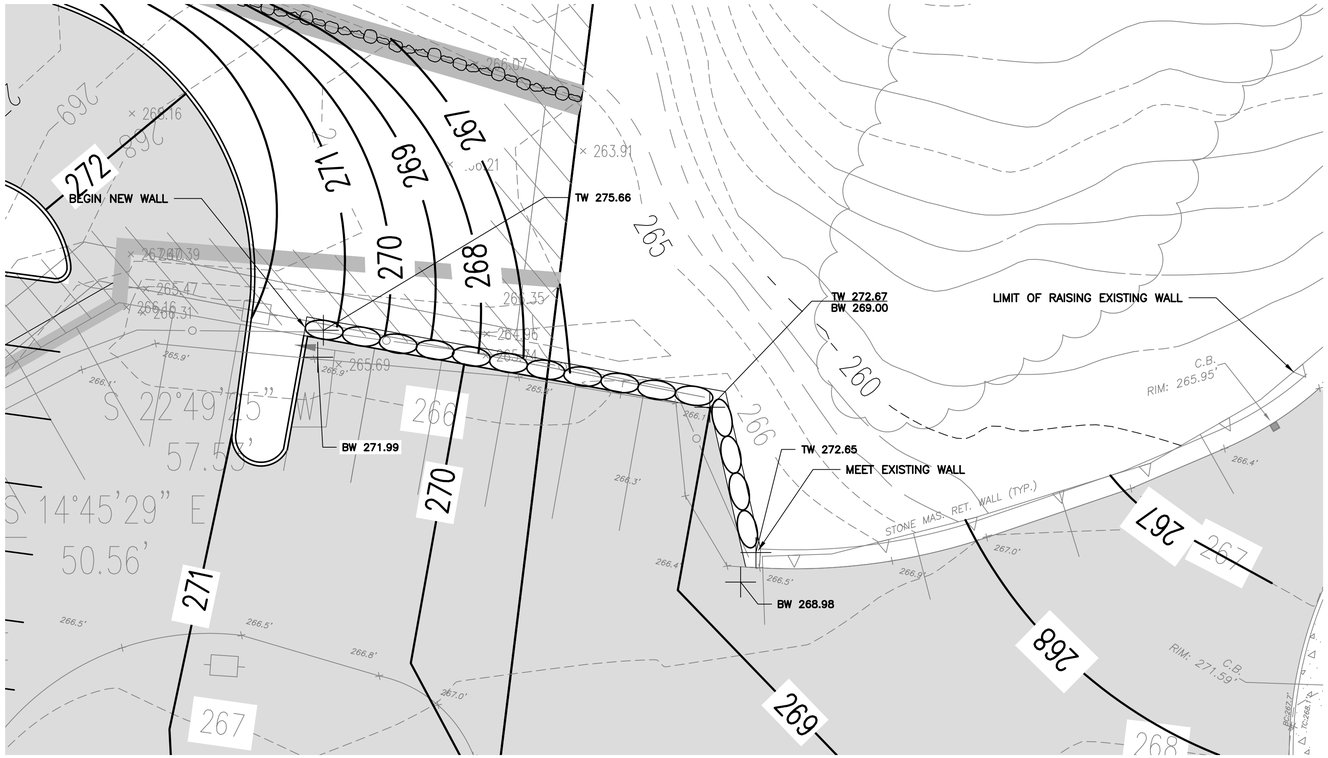
PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATION TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
MISCELLANEOUS SITE DETAILS - 5

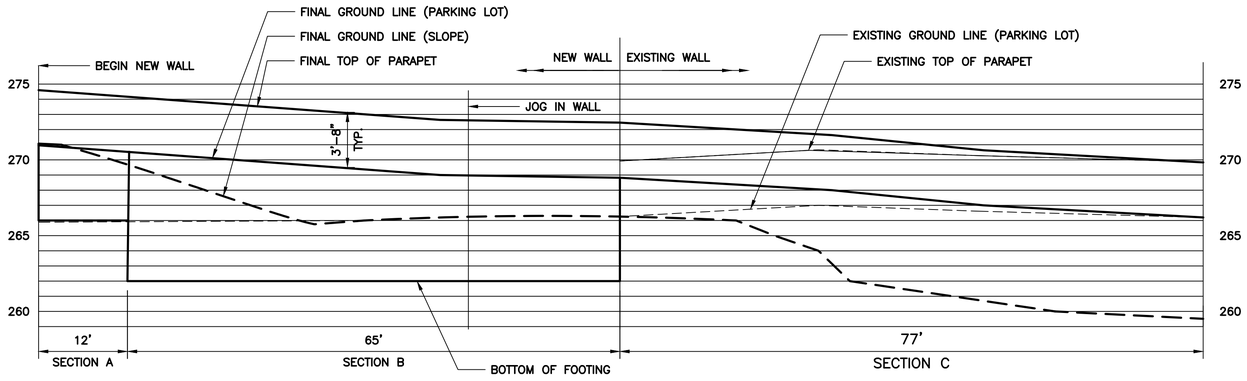
PROJECT NUMBER 5438-01
CONTRACT NUMBER
SHEET NO. 17 OF 33
SCALE: N.T.S.
DATE: SEPT. 2022
DRAWING NO. C-14
REV. NO. -

I:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 miscellaneous site details.dwg



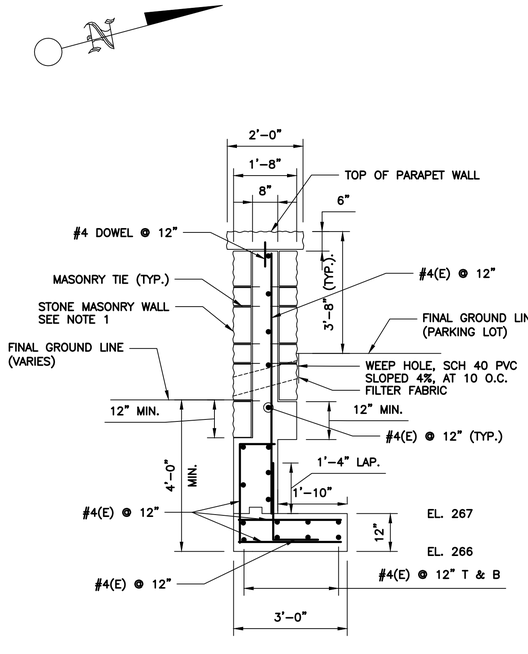
PARTIAL PLAN VIEW

SCALE: 1" = 10'



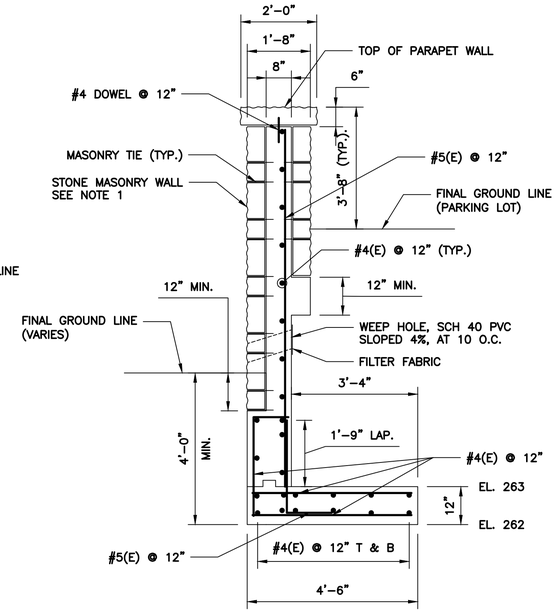
PROJECTED ELEVATION VIEW

HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 5'



SECTION A–A (NEW WALL)

SCALE: 1/2" = 1'-0"

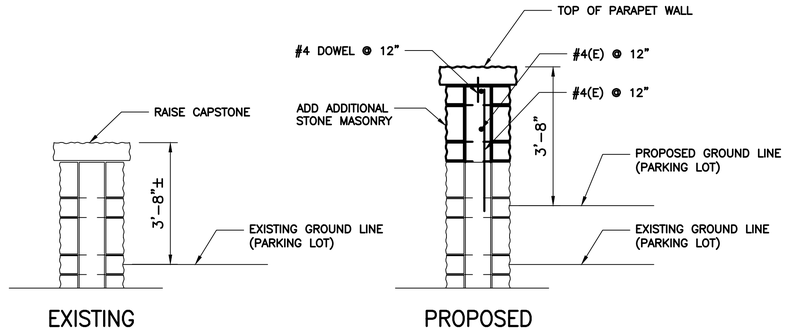


SECTION B–B (NEW WALL)

SCALE: 1/2" = 1'-0"

NOTES:

1. STONE MASONRY WALL SHALL MATCH THE EXISTING WALL IN DIMENSION, APPEARANCE, COLOR, TEXTURE, AND ANY OTHER PHYSICAL ATTRIBUTES TO THE SATISFACTION OF THE ENGINEER.



SECTION C–C (EXISTING WALL)

SCALE: 1/2" = 1'-0"

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 retaining wall plan.dwg
Plot Date: 9/28/2022 2:48 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

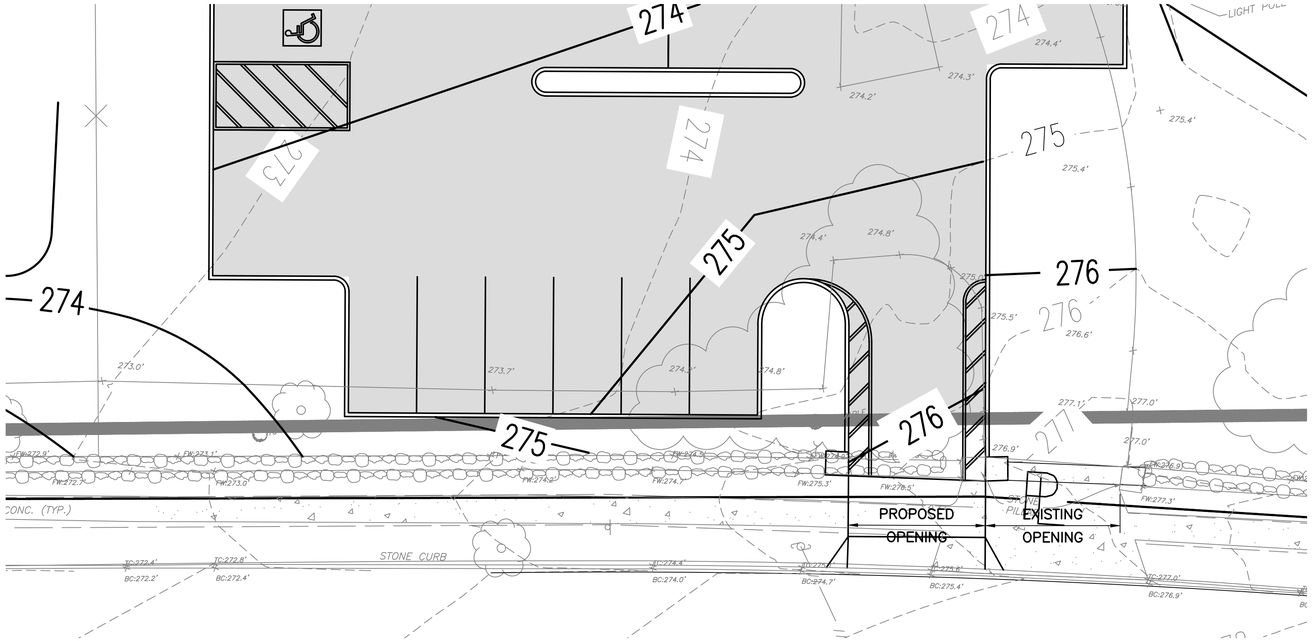
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
RETAINING WALL PLAN

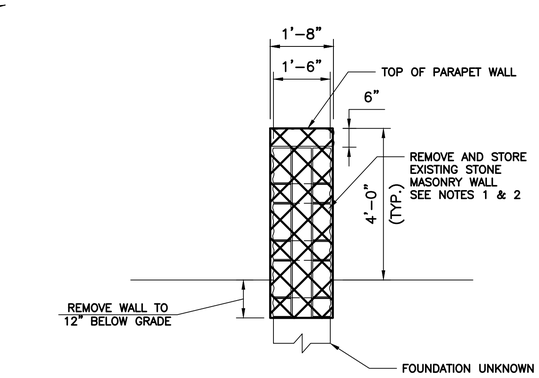
PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 18 OF 33
SCALE: AS SHOWN
DATE: SEPT. 2022
DRAWING NO. C-15
REV. NO. –

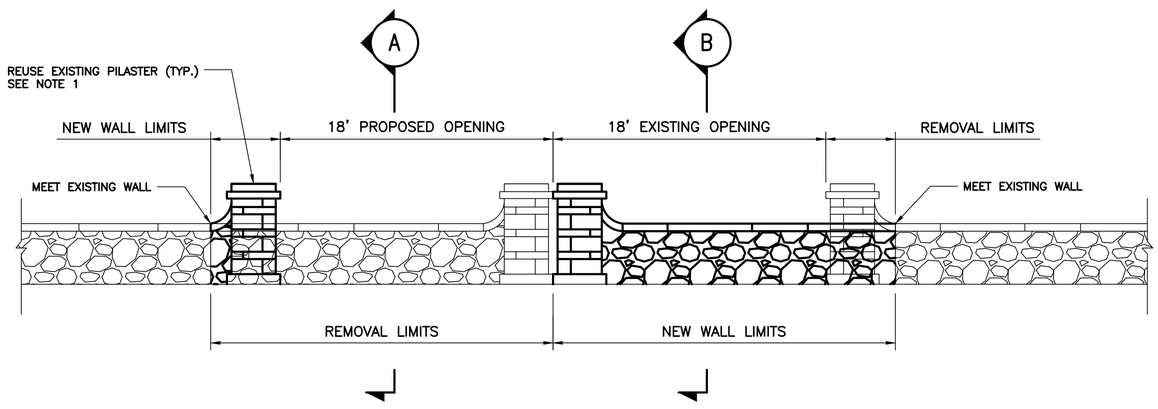
i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 retaining wall plan.dwg



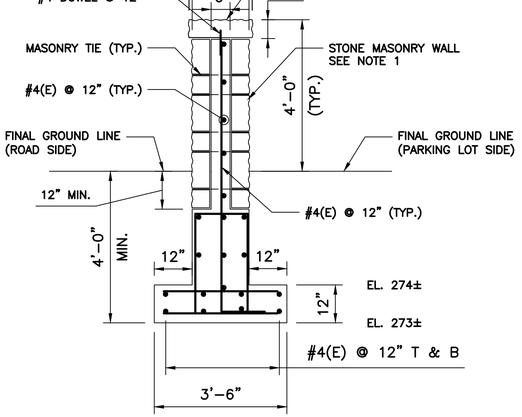
PARTIAL PLAN VIEW
SCALE: 1" = 10'



SECTION A–A (EXISTING WALL)
SCALE: 1/2" = 1'–0"



ELEVATION VIEW
SCALE: 1" = 5'



SECTION B–B (NEW WALL)
SCALE: 1/2" = 1'–0"

NOTES:

1. CONTRACTOR MAY, AND IS ENCOURAGED TO, REUSE ANY AND ALL STONE THAT IS NOT DAMAGED DURING REMOVAL OF EXISTING WALL. NEW STONE MASONRY WALL AND PILASTERS SHALL MATCH THE EXISTING WALL AND PILASTERS IN DIMENSION, APPEARANCE, COLOR, TEXTURE, AND ANY OTHER PHYSICAL ATTRIBUTES TO THE SATISFACTION OF THE ENGINEER.
2. STRUCTURAL MAKEUP AND FOUNDATION OF EXISTING PARAPET WALL IS UNKNOWN.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 retaining wall plan.dwg
Plot Date: 9/28/2022 2:50 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

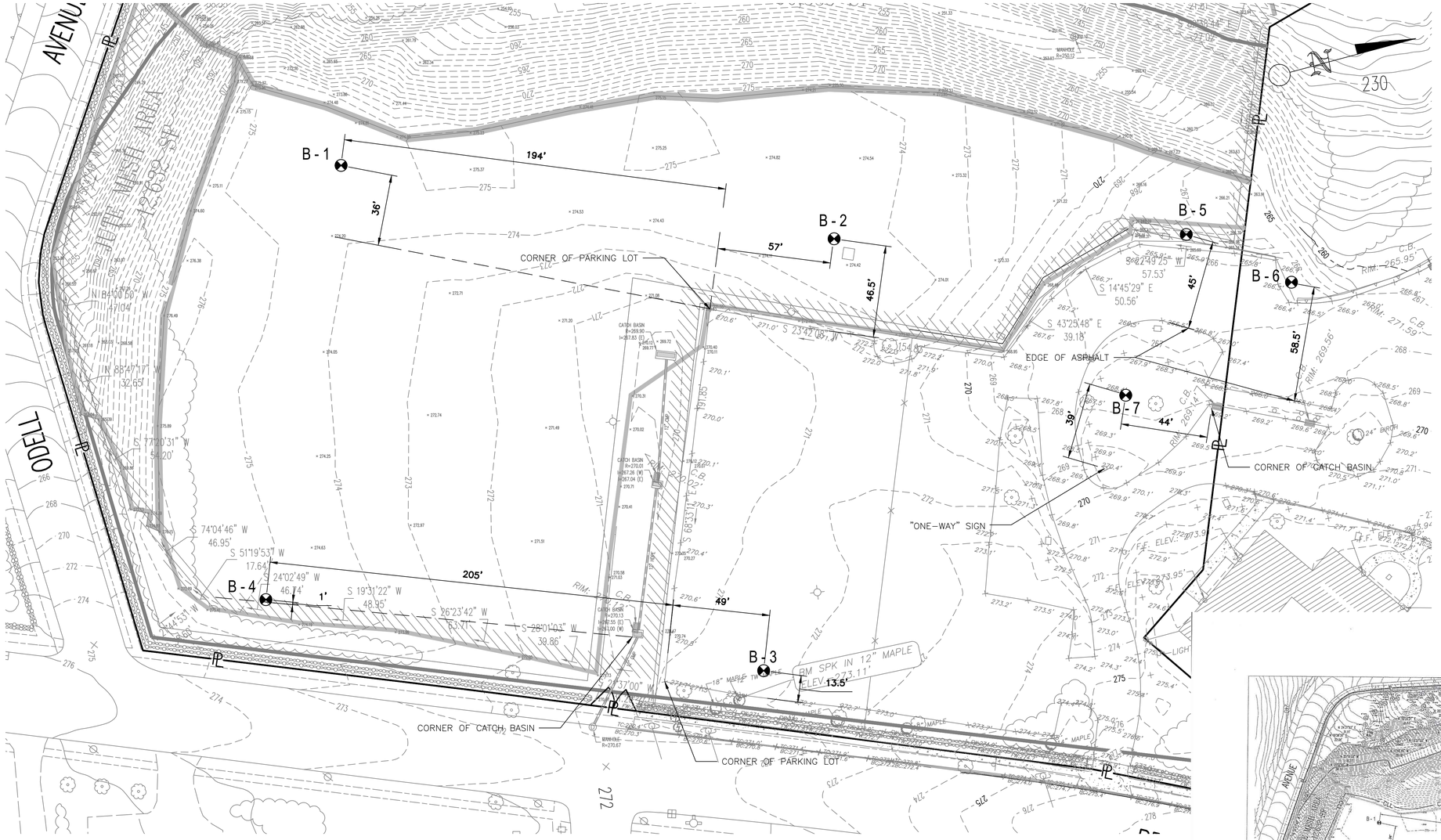
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
PARAPET WALL PLAN

PROJECT NUMBER	CONTRACT NUMBER
5438–01	

SHEET NO. 19 OF 33
SCALE: AS SHOWN
DATE: SEPT. 2022
DRAWING NO. C–16
REV. NO. –

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 retaining wall plan.dwg



File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 boring plan.dwg
Plot Date: 9/28/2022 2:51 PM
Plotted By: Wing Sun Tang

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-2A

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/16/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/16/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
10	S-1	10-12	100/0	-	-	-	0				Weathered ROCK In Tip Of Split Spoon	
	R-1	10-15						60	32	53	Tan Weathered GRANITE 20 Pieces RQD = 32 = 17% 60	
											E.O.B. @ 15'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-2A SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-2A

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/16/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/16/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
10	S-1	10-12	100/0	-	-	-	0				Weathered ROCK In Tip Of Split Spoon	
	R-1	10-15						60	32	53	Tan Weathered GRANITE 20 Pieces RQD = 32 = 17% 60	
											E.O.B. @ 15'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-2A SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-3

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/01/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/01/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
	S-1	0-2	27	16	32	24	2				3" Asphalt	
	S-2	2-4	12	13	10	16	18				Ash Fragments	
	S-3	4-6	17	31	41	24	5				Completely Weathered ROCK	
5	S-4	6-8	13	12	14	12	14				Ditto	
	S-5	8-10	15	100/0	-	-	2				Ditto	
											Ditto	
											Roller Bit	
10											Obstruction To Refusal To 10' Depth	
											E.O.B. @ 10'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-3 SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-3A

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/01/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/01/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
											3" Asphalt	
5											Completely Weathered ROCK	
10	S-1	10-12	3	3	27	59	20					
	S-2	15-17	100/0	-	-	-	0				No Recovery Roller Bit Weathered ROCK From 15' To 17'	
	R-1	17-22						60	36	60	Light Grey GRANITE 15 Pieces RQD = 22 = 37% 60	
20											E.O.B. @ 22'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-3A SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-4

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/10/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/11/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
	S-1	0-2	6	8	14	21	14				Brown Silty and SAND	
	S-2	2-4	26	26	28	42	16				Brown Silty SAND Mixed With Cinders & Ash	
	S-3	4-6	34	38	62	65	18				Ditto	
5	S-4	6-8	90	75	39	40	18				Ditto	
	S-5	8-10	30	38	40	39	12				Ditto	
10	S-6	10-12	15	17	19	28	6				Ditto	
	S-7	15-17	7	5	7	10	7				Ditto	
20	S-8	20-22	85	100/3	-	-	5				Completely Weathered ROCK Roller Bit Weathered Rock To 23'	
	R-1	23-28						60	38	63	Grey GRANITE 8 Pieces RQD = 22 = 37% 60	
											E.O.B. @ 28'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-4 SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-5

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/02/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/02/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
	S-1	0-2	12	8	33	16	16				3" Asphalt Brown Silty SAND Mixed With Cinders & Ash	
	S-2	2-4	13	8	16	16	18				Ditto	
	S-3	4-6	14	17	14	29	14				Ditto	
5	S-4	6-8	21	21	9	9	12				Brown Silty SAND Mixed With Rock Fragments	
	S-5	8-10	11	100/5	-	-	8				Ditto	
10	S-6	10-12	100/0	-	-	-	0				Split Spoon Refusal At 10' Roller Bit Weathered Rock To 12'	
	R-1	12-17						60	33	55	Light Gray GRANITE 5 Pieces RQD = 33 = 55% 60	
											E.O.B. @ 17'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-5 SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-6

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/03/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/03/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
	S-1	0-2	10	4	4	36	8				3" Asphalt Brown Silty SAND & ASH	
	S-2	2-4	22	11	11	15	12				Brown Silty SAND	
	S-3	4-6	15	10	16	23	10				Ditto	
5	S-4	6-8	36	14	7	100/1	6				Completely Weathered ROCK	
	S-5	8-10	100/0	-	-	-	0				Refusal On Obstruction W/Roller Bit	
10											E.O.B. @ 10'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-6 SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-6A

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/08/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/08/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
											3" Asphalt	
10	S-1	10-12	13	16	22	73	12				Brown Silty SAND Mixed With Rock Fragments	
	S-2	15-17	16	20	33	100/2	6				Completely Weathered ROCK	
	R-1	17-22						60	35	60	Light Gray GRANITE 6 Pieces RQD = 27 = 45% 60	
20											E.O.B. @ 22'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-6A SHEET 1 OF 1

D. K. Drilling of NY, Inc.

214-41 42nd Avenue
Suite 4A
Bayside, NY 11361

BORING NO. B-7

SHEET 1 of 1

BORING LOG

PROJECT: 1061 North Broadway – Section 3, Block 3515, Lot 115 — PROJECT #: 2018-0058
LOCATION: 1061 North Broadway, Yonkers, NY 10701 — START DATE: 07/09/19
CLIENT: Lockwood, Kessler & Bartlett, Inc. — FINISH DATE: 07/09/19
INSPECTOR: L. Moretti — DRILLER H. Molzahn — HELPER J. Gizzi — RIG CME-75

DEPTH (FEET)	SAMPLE NO.	BDTH (FRMTG)	SOIL BLOWS / 6" 0"-6"	6"-12"	12"-18"	18"-24"	RECOVERY (INCHES)	ROCK CORE RUN (IN.)	ROCK CORE REC. (IN.)	REC %	SOIL/ROCK DESCRIPTION & REMARKS	CASING BLOWS
	S-1	0-2	1	2	2	2	16				Brown TOP SOIL Silty m-f SAND	
	S-2	2-4	10	100/5	-	-	5				RUST Silty f-SAND Weathered ROCK In Spoon Tip	
	R-1	4-9						60	30	50	Light Gray GRANITE 5 Pieces RQD = 26 = 43% 60	
											E.O.B. @ 5'	

TOOLS & EQUIPMENT USED

CASING SIZE	4"	SPOON SIZE	2"
CASING HAMMER	300 #	SPOON HAMMER	140 #
HAMMER FALL - CASING	24"	HAMMER FALL - SPOON	30"
CORE BARREL USED	NX	DRILLING MUD USED	--
CORE BIT USED	Diamond	UNDISTURBED SAMPLER	--
AUGER SIZE	--	STANDBY TIME	--
MISCELLANEOUS ITEMS:	--		

GROUND WATER DATA

DATE	TIME	DEPTH (FT.)
	Drilling Mud Used	N/A

OBSERVATION WELL

DEPTH (FT.)	N/A	SCREEN LENGTH (FT)

BORING NO. B-7 SHEET 1 OF 1

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 boring plan.dwg
Plot Date: 9/28/2022 2:52 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: PL
MADE BY: DMM
CHECKED BY: PL

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
SOIL BORING SHEETS

PROJECT NUMBER 5438-01 | CONTRACT NUMBER
SHEET NO. 21 OF 33
SCALE: ----
DATE: SEPT. 2022
DRAWING NO. B-2 | REV. NO.: --

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\landscape\5438-01 boring plan.dwg

NOTES:

A. GENERAL DESCRIPTION OF WORK:

1. THE SCOPE OF WORK CONSISTS OF LIGHTING DESIGN FOR THE ATHLETIC FIELD AND THE ADJACENT PARKING LOT LOCATED AT 1061 NORTH BROADWAY YONKERS, NY. THE ATHLETIC FIELD IS A LANDFILL AREA CURRENTLY WITH NO LIGHTS. THE PARKING LOT HAS FEW EXISTING LIGHTS. THESE EXISTING LIGHTS WILL BE REMOVED AND REPLACED WITH NEW LIGHTS.
2. THE LIGHTING DESIGN IS BASED ON THE ASSUMPTION THAT A NEW PAD MOUNTED TRANSFORMER SIZED FOR 200 AMPS SERVICE, 120/208 VOLTS, 3 PHASE WILL BE PROVIDED BY CON EDISON AT THIS LOCATION. THE ACTUAL LOCATION OF THE UTILITY TRANSFORMER, THE PRIMARY FEED, AND THE SECONDARY FEED REMAINS TO BE DETERMINED BY THE CITY OF YONKERS AND IT IS NOT WITHIN THE SCOPE OF THIS WORK.
3. THE CONTRACTOR IS TO INSTALL NEW CONCRETE PAD FOR THE SERVICE TRANSFORMER.
4. THE CONTRACTOR IS TO INSTALL PER MANUFACTURERS RECOMMENDATIONS, THE PRE WIRED MUSCO LIGHTING SYSTEM IN THE ATHLETIC FIELD AS SHOWN ON THE LIGHTING PLAN DRAWING E-3. THE MUSCO PRE WIRED LIGHTING SYSTEM INCLUDES LIGHT POLES, LED FIXTURES, CONTROL CABINET AND MONITORING CABINET.
5. THE CONTRACTOR IS TO INSTALL PER MANUFACTURERS RECOMMENDATIONS, THE PRE WIRED STAND ALONE SOLAR LIGHTING SYSTEM MANUFACTURED BY SOL (CAMARAH) OR EQUIVALENT IN THE PARKING LOT AREA SHOWN ON DRAWING E-3. THE STAND ALONE SYSTEM INCLUDES LED LIGHT FIXTURES, BATTERY BACKUP, SOLAR PV PANEL, LIGHT POLE, MOUNTING HARDWARE AND ELECTRONICS (CHARGE CONTROLLER, LED DRIVER).
6. THE CONTRACTOR SHALL INSTALL NEW DISTRIBUTION PANEL MDP TO FEED MUSCO LIGHTING IN THE ATHLETIC FIELD.

B. GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, CITY OF YONKERS CODE, NATIONAL ELECTRICAL SAFETY CODE, NFPA, OSHA REGULATIONS, AND ALL OTHER EXISTING CODES AND REGULATIONS OF NEW YORK STATE. THE CONTRACTOR IS ADVISED TO VISIT THE PROJECT SITE BEFORE BIDDING TO BECOME FAMILIAR WITH PRESENT CONDITIONS AND TO JUDGE THE EXTENT AND NATURE OF WORK TO BE DONE UNDER THIS CONTRACT. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR BECAUSE OF THE FAILURE TO INCLUDE ALL ITEMS AND MATERIALS REQUIRED TO PERFORM THE WORK.
2. ALL CONDUIT RUNS ARE DIAGRAMMATIC AND ANY NEW CONDUIT AND MANHOLE INSTALLATION SHOULD BE RUN TO SUIT FIELD CONDITIONS.
3. CONTRACTOR SHALL PROVIDE ALL SUPPORT CHANNELS IN STAINLESS STEEL, AS SHOWN ON DRAWINGS. NUTS, BOLTS, WASHERS AND U-BOLTS TO BE PROVIDED IN STAINLESS STEEL. CONDUIT TO BE PROVIDED IN HOT DIPPED GALVANIZED STEEL. CONDUIT CLAMPS AND STRAPS ARE TO BE STAINLESS STEEL.
4. CONTRACTOR TO LOCATE ALL UNDERGROUND UTILITIES BEFORE ANY DIGGING. CONTRACTOR TO NOTIFY THE ONE CALL CENTER (1-800-752-6633). CONTRACTOR TO HAND DIG NEAR UTILITIES TO DETERMINE EXCAVATION LOCATION OF UTILITIES IN GROUND.
5. CONTRACTOR TO PICK UP NEW EQUIPMENT AND RETURN UNUSED OR REMOVED EQUIPMENT TO A DESIGNATED AREA. DESIGNATED AREA TO BE DETERMINED BY THE CITY OF YONKERS.
6. CONTRACTOR TO NOTIFY THE CITY OF YONKERS REPRESENTATIVE THREE DAYS IN ADVANCE AS TO NEED FOR ANY ELECTRICAL OUTAGE. ALL WORK TO BE DONE DURING NORMAL WORKING HOURS. NO OUTAGE TO BE TAKEN WITHOUT WRITTEN APPROVAL OF CITY OF YONKERS.
7. CONTRACTOR TO RESTORE AREA TO AS FOUND CONDITION AFTER TRENCHING.
8. CONTRACTOR'S CONCRETE STRENGTH TO MEET PRESENT STANDARD SPECIFICATIONS OF YONKERS, OR 3000 LBS AFTER 7 DAYS.
9. CONTRACTOR TO SUPPLY PERMITS FOR ALL WORK IF REQUIRED BY CITY OF YONKERS.
10. CONTRACTOR TO INSTALL/REMOVE HIS OWN GROUNDS, MEGGER CABLE, LABEL AND TERMINATE CABLES.
11. CONTRACTOR TO INSTALL SAFETY GROUNDS ON EITHER SIDE OF HIS WORKING AREA.
12. CONTRACTOR SHALL PROVIDE ALL SUPPORT CHANNELS IN STAINLESS STEEL, AS SHOWN ON DRAWINGS. NUTS, BOLTS, WASHERS AND U-BOLTS TO BE PROVIDED IN STAINLESS STEEL. CONDUIT TO BE PROVIDED IN HOT DIPPED GALVANIZED STEEL. CONDUIT CLAMPS AND STRAPS ARE TO BE STAINLESS STEEL.
13. IN ADDITION, ALL CONDUIT ORIGINATING FROM AN ENCLOSURE AND GOING INTO OR OUT OF THE GROUND, MUST BE HOT DIPPED GALVANIZED STEEL.
14. WHEN ATTACHING DEVICES OR OTHER CHANNELS AND FITTINGS TO CHANNEL SUPPORTS, ALL BOLTED CONNECTIONS ARE TO HAVE LOCK WASHERS UNLESS THEY ARE BOLTED TOGETHER BY A SELF-HOLDING NUT IN A CHANNEL; THIS WILL STOP ROTATION AND LOOSING OF CONNECTIONS.
15. ALL BOLT HOLES DRILLED THROUGH STEEL MEMBERS ARE TO BE CLEANED AND RECOATED WITH NOXYDE.
16. SPLICES SHALL BE AVOIDED WHEREVER POSSIBLE AND WHERE NECESSARY, ARE ONLY TO BE MADE IN ACCESSIBLE PULL BOXES AND MANHOLES; AND MUST BE MADE WATERTIGHT.
17. ALL LARGE SIZE SPLICES MADE ON 600VAC CLASS CABLE IN MANHOLES ARE TO BE MADE WATERTIGHT BY THE USE OF 3M TYPE 8420 SERIES COLD SHRINK KITS. A CONNECTOR MUST BE BOUGHT FOR THIS PURPOSE SEPARATELY.
18. TAPS AND SPLICES FOR OTHER THAN 600 VAC CLASS, THE INSTALLATION ARE TO BE MADE INSIDE PULL BOXES OR INSIDE THE MANHOLES; ALL SPLICES AND TAPS ARE TO BE WATERTIGHT BY USE OF 3M OR RAYCHEM PRODUCTS. FOR SMALL SIZE CABLES, SPLICES CAN BE MADE BY USING RAYCHEM GEL TAPS.
19. ALL WIRE USED FOR GENERAL LIGHT AND POWER SHALL BE COPPER 600V, 90°C TYPE XHHW-2. WIRE SHALL BE COPPER 600V, 90°C TYPE XHHW-2.
20. ALL EQUIPMENT SHOP DRAWINGS SHALL BE SENT TO THE ENGINEER FOR APPROVAL PRIOR TO PURCHASE OR FABRICATION OF EQUIPMENT.
21. THE CONTRACTOR IS EXPECTED TO COMPLETE ALL WORK IN A MANNER SUCH THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF CITY OF YONKERS, WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF CITY OF YONKERS; THE DAMAGED MATERIAL SHALL BE REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
22. THE CONTRACTOR SHALL PROVIDE FOR HIMSELF, ALL STORAGE AREAS OFF-SITE, AS CITY OF YONKERS DOES NOT HAVE ANY SECURED AREAS AT THIS SITE.
23. THE CONTRACTOR IS ADVISED THAT, DUE TO THE FACT THAT THIS IS A LANDFILL AREA, THE EXACT EXTENT OF THE WORK CANNOT BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK TO MEET FIELD CONDITIONS. THE CONTRACTOR SHALL PERFORM ALL WORK AS SHOWN ON THE PLANS, IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
24. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN TEMPORARY LIGHTING AT A LUMINATION LEVEL APPROVED BY THE CITY OF YONKERS BY INSTALLING TEMPORARY WIRING OR THE USE OF A PORTABLE GENERATOR SET.
25. ALL ELECTRICAL EQUIPMENT, CONDUIT, OUTLET BOXES, BUILDING STEEL, ETC., SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED PER NEC CODE ARTICLE 250.
26. ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL TRADES SO THAT NEW EQUIPMENT SHALL BE IN PROPER LOCATIONS AND WILL NOT BE OBSTRUCTED BY ANY EQUIPMENT OF OTHER TRADES.
27. THE CONTRACTOR SHALL PROCURE AND BECOME FAMILIAR WITH ALL REQUIRED MANUFACTURER'S WIRING DIAGRAMS PRIOR TO INSTALLATION OF ANY CONDUIT AND WIRING.
28. PROVIDE ALL REQUIRED PULL BOXES AND MISCELLANEOUS HARDWARE FOR CONDUIT RUNS. ALL CONDUIT RUNS SHALL BE PROPERLY SUPPORTED.
29. ALL EQUIPMENT IS TO BE NEW.
30. UNLESS OTHERWISE NOTED, ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A NEMA 3R STEEL RATING.
31. ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH PHENOLIC NAMEPLATES INDICATING ONE LINE DRAWING IDENTIFICATIONS.
32. ALL EQUIPMENT MOUNTED ON WALLS OR STRUCTURES, SUCH AS DISCONNECT SWITCHES AND PULL BOXES, ARE TO HAVE A STAINLESS STEEL CHANNEL FRAME LAYOUT FOR MOUNTING.
33. CONTRACTOR TO INSTALL REQUIRED CABLE, AS NOTED ON THE ONE LINE DIAGRAM. TAPS AND SPLICES FOR THIS INSTALLATION ARE TO BE MADE INSIDE PULL BOXES OR INSIDE THE MANHOLES; ALL SPLICES AND TAPS ARE TO BE WATERTIGHT BY USE OF 3M OR RAYCHEM PRODUCTS.

WORK ZONE TRAFFIC CONTROL:

1. ALL WORK ZONE TRAFFIC CONTROL DEVICES MUST CONFORM TO THE LATEST REVISION OF THE NATIONAL MUTCD-2009 EDITION AND THE NYS SUPPLEMENT TO THE NATIONAL MUTCD.

PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES AND IMPROVEMENTS:

1. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL STRUCTURES, EQUIPMENT, LANDSCAPING (TREES, SHRUBS, GRASS, ETC.) ON OR ADJACENT TO THE WORK SITE, WHICH ARE NOT TO BE REMOVED AND WHICH DO NOT UNREASONABLY INTERFERE WITH THE WORK REQUIRED UNDER THIS CONTRACT. THE CONTRACTOR SHALL ONLY TRIM OR REMOVE TREES WHEN SPECIFICALLY AUTHORIZED TO DO SO, AND SHALL AVOID DAMAGING VEGETATION THAT WILL REMAIN IN PLACE. IF ANY LIMBS OR BRANCHES OF TREES ARE BROKEN DURING CONTRACT PERFORMANCE OR BY CARELESS OPERATION OF EQUIPMENT, OR WORKMEN, THE CONTRACTOR SHALL TRIM THOSE LIMBS OR BRANCHES WITH A CLEAN CUT AND PAINT THE CUT WITH A TREE PRUNING COMPOUND AS DIRECTED BY THE ENGINEER.
2. LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE BASED ON INFORMATION AVAILABLE WHEN THESE PLANS WERE PREPARED AND SHOULD BE CONSIDERED APPROXIMATE. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD AND ARE THE RESPONSIBILITY OF THE CONTRACTOR. WATER, GAS AND SEWER SERVICES MAY NOT BE SHOWN ON THE PLANS.
3. THE CONTRACTOR IS ALERTED TO THE RULES AND REGULATIONS OF INDUSTRIAL CODE RULE 53 AND IS DIRECTED TO COMPLY WITH IT. THE CONTRACTOR, FOR THE PURPOSE OF SAFETY, SHALL NOTIFY THE UTILITY COMPANIES INVOLVED IF ANY OF THEIR UTILITIES ARE EXPOSED AND/OR UNDERMINED DURING THE COURSE OF CONSTRUCTION. THE CITY OF YONKERS PARKS AND RECREATION DEPARTMENT SHALL NOT BE LIABLE FOR COSTS INCURRED BY THE CONTRACTOR AS A RESULT OF THE COMPLIANCE, NON-COMPLIANCE, OR IMPROPER COMPLIANCE BY THE FRANCHISED OPERATOR OF UNDERGROUND FACILITIES, WITH SUB PART 53.3 OF RULE 53 OF THE INDUSTRIAL CODE.
4. IN THE EVENT OF DAMAGE TO EXISTING CABLES AND UTILITIES, THE ENGINEER AND THE UTILITIES ARE TO BE NOTIFIED IMMEDIATELY AND THE CONTRACTOR SHALL IMMEDIATELY REPAIR THE DAMAGE AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR IS CAUTIONED THAT THE LOCATIONS OF UNDERGROUND UTILITIES NOT SHOWN MAY EXIST. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION AND VOLTAGES OF OVERHEAD AND UNDERGROUND UTILITIES PRIOR TO WORKING IN THE AREA AND TO AVOID INTERFERENCE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO AVOID DAMAGE TO NATURAL GROWTH WITHIN THE PROJECT AREA. THE CONTRACTOR WILL BE REQUIRED TO REPLACE AT HIS OWN EXPENSE, TREE, SHRUBBERY AND OTHER NATURAL FEATURES DESTROYED OR DAMAGED THROUGH CARELESSNESS.

EROSION & SEDIMENT CONTROL:

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE NYS DEPARTMENT OF ENVIRONMENTAL PROTECTION GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.
2. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF NATURAL WATER BODIES BY SILT, SEDIMENT, FUELS, SOLVENTS, LUBRICANTS, EPOXY COATINGS, CONCRETE, LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH CONSTRUCTION AND CONSTRUCTION PROCEDURES.
3. ALL AREAS OF SOIL DISTURBANCE RESULTING FROM THIS PROJECT SHALL BE SEEDED WITH GRASS SEED MIX AND PROTECTED WITH A SPECIFIED SOIL EROSION CONTROL BLANKET WITHIN ONE WEEK OF FINAL GRADING. IF CONSTRUCTION ACTIVITIES ARE DISCONTINUED IN AREAS OF SOIL DISTURBANCE BEFORE FINAL GRADING IS COMPLETE, TEMPORARY GRADING SHALL BE SEEDED AND MULCHED, A.O.B.E. MULCH SHALL BE MAINTAINED UNTIL A SUITABLE VEGETATIVE COVER IS ESTABLISHED.
4. PERIODIC CLEANING OF TEMPORARY SOIL EROSION CONTROL DEVICES MAY BE NECESSARY, A.O.B.E.
5. ALL CONTROL MEASURES SHALL BE PLACED PRIOR TO STARTING EARTHWORK OPERATIONS AND SHALL REMAIN IN PLACE UNTIL THE NEW SLOPES ARE STABILIZED AND SEEDED.
6. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING DITCHES OR WATERCOURSES.
7. IN ADDITION TO ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHOWN, THE CONTRACTOR SHALL COMPLY WITH ALL ADDITIONAL MEASURES DEEMED NECESSARY BY THE ENGINEER PRIOR TO AND/OR DURING THE COURSE OF CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SEDIMENTATION AND EROSION CONTROL DEVICES.
9. THE CONTRACTOR IS RESPONSIBLE TO SUBMIT A CATALOG REFERENCE PAGE OF SEDIMENT CONTROL PRIOR TO ALL SEDIMENT CONTROL INSTALLATIONS.

LEGEND

S-1 ●	POLE MOUNTED ATHLETIC FIELDS LED LIGHTING FIXTURE NO. 1 INDICATES POLE NO.
HH1-I ■	HANDHOLE THE NO. 1 INDICATES HANDHOLE NO. THE ROMAN NO. I, II OR III INDICATES HANDHOLE TYPE. REFER TO DETAILS FOR ADDITIONAL INFORMATION
———	PVC CONDUIT BELOW GRADE
o	CONDUIT TURNING UP TOWARD VIEWER
●	CONDUIT TURNING DOWN AWAY FROM VIEWER
A / 31	ELEVATION OR SECTION LOCATION "A" INDICATES ELEVATION OR SECTION DESIGNATION "31" INDICATES DWG. NO. WHERE ELEVATION OR SECTION IS DRAWN
A / 31	"A" INDICATES ELEVATION OR SECTION DESIGNATION "31" INDICATES DWG. NO. WHERE ELEVATION OR SECTION IS TAKEN FROM
———x———	FENCE
WR GFI	120 VOLT, 20 AMP, 2 POLE, 3 WIRE GROUNDING RECEPTACLE, NEMA 5-20R, WEATHER RESISTANT, GROUND FAULT INTERUPTER TYPE WITH ALUMINUM IN-USE COVER, RED DOT CODE KEEPER NO. CKLSVY OR APPROVED EQUAL MOUNTED TO FENCE POST 18" ABOVE GRADE.
(M)	ELECTRICAL METER
	CURRENT TRANSFORMER
	FUSED DISCONNECT SWITCH

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 general notes.dwg
Plot Date: 9/28/2022 2:52 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

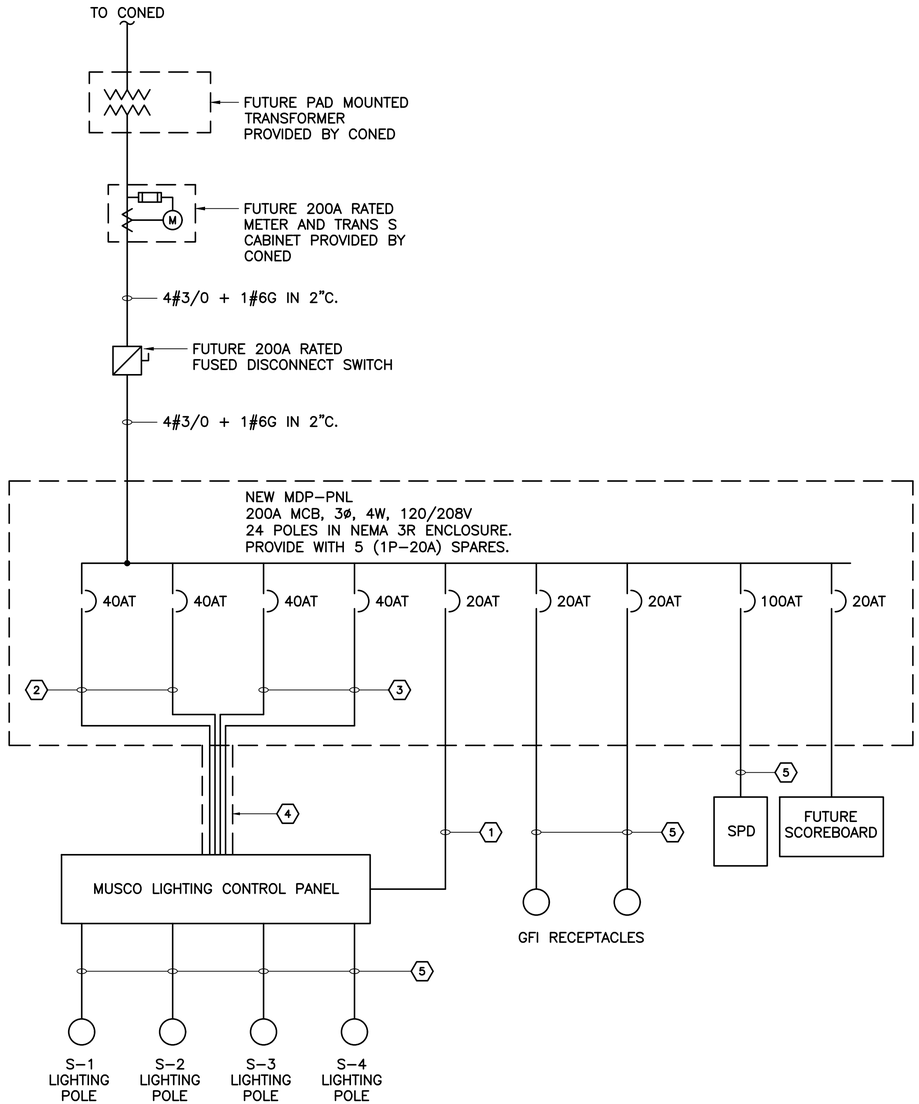
MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL GENERAL NOTES

PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 22 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022

DRAWING NO.	REV. NO.
E-1	---

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 general notes.dwg



ONE LINE DIAGRAM
N.T.S.

CONTRACTOR NOTES:

1. REFER TO PANEL SCHEDULE FOR ALL CIRCUIT BREAKER POLES AND ADDITIONAL INFORMATION.
2. PANEL BOARD ENCLOSURE MAY HAVE AN OPTIONAL 36" WIDTH IF ELECTRICAL CONTRACTOR CHOOSES TO PURCHASE WIDER PANEL FOR EASE OF WIRE INSTALLATION.
3. PANEL BOARD AND ITS BREAKERS ARE TO HAVE FULL COPPER INTERIOR BUS AS WELL AS TERMINATION LUGS.
4. FOR MUSCO LIGHTING SYSTEM, ELECTRICAL CONTRACTOR TO PROVIDE:
   a. CONTROL POWER WIRING AND LIGHTING SYSTEM POWER WIRING.
   b. ELECTRICAL DISTRIBUTION PANEL WITH OVER CURRENT PROTECTION –HID RATED OR D CURVE CIRCUIT BREAKER SIZED PER FULL LOAD AMPS
   c. CIRCUIT BREAKER SHALL BE EQUIPPED WITH LOCKING CLIP.
   d. MOUNTING HARDWARE FOR MUSCO PROVIDED CONTROL PANEL.
   e. ANTI–CORROSION COMPOUND TO APPLY TO ENDS OF WIRE , IF NECESSARY.
   f. ELECTRICAL CONDUIT WIREWAY SYSTEM – ALL ENTRANCE HUBS SHALL BE NEMA 4, DIE–CAST ZINC, PVC OR COPPER–FREE DIE –CAST ALUMINUM.

ELECTRICAL SERVICE NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL THE TRANSFORMER PAD IN ACCORDANCE WITH CONED CONSTRUCTION STANDARDS.
2. FINAL LOCATION OF THE TRANSFORMER PAD SHALL BE VERIFIED WITH CONED REPRESENTATIVE PRIOR TO INSTALLATION.
3. CONTRACTOR SHALL PROVIDE GROUNDING AT TRANSFORMER IN ACCORDANCE WITH CONED STANDARDS.
4. PROPERTY LINE BOX PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH CONED STANDARDS.
5. CONED WILL FURNISH AND INSTALL METER AND CURRENT TRANSFORMERS.

WIRING LEGEND:

(1) 2#12 + 1#12G IN 3/4" C.
(2) 3#2 + 1#2G
(3) 3#4 + 1#4G
(4) 2–1/2" CONDUIT
(5) REFER TO LIGHTING PLAN FOR WIRING AND CONDUIT SIZES.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438–01 one line diagram.dwg
Plot Date: 9/28/2022 2:54 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

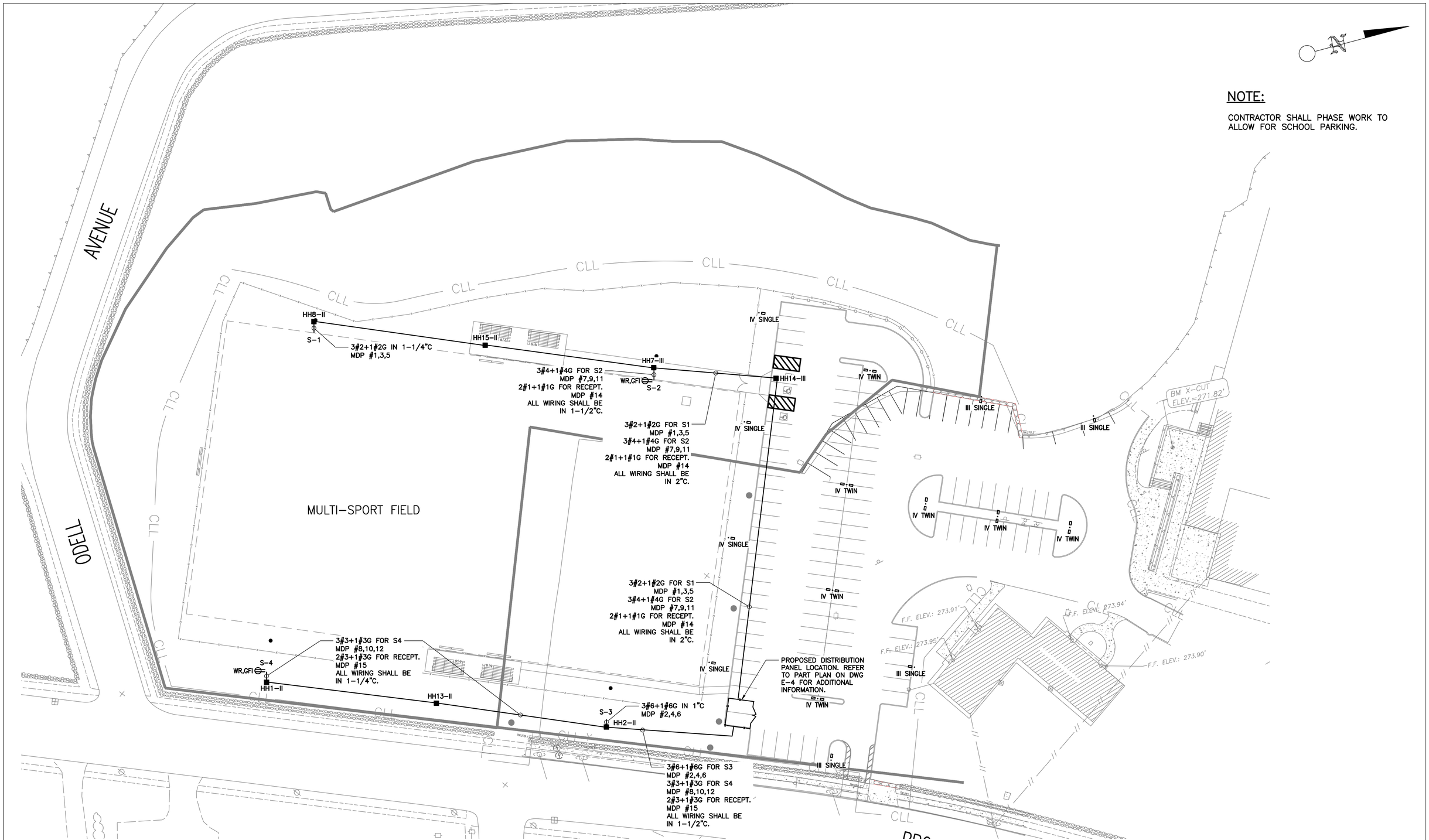
PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL ONE LINE DIAGRAM

PROJECT NUMBER 5438–01
CONTRACT NUMBER
SHEET NO. 23 OF 33
SCALE: 1" = 30'–0"
DATE: SEPT. 2022
DRAWING NO. E–2
REV. NO.

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438–01 one line diagram.dwg



NOTE:

CONTRACTOR SHALL PHASE WORK TO ALLOW FOR SCHOOL PARKING.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL LIGHTING PLAN

PROJECT NUMBER	CONTRACT NUMBER
5438-01	

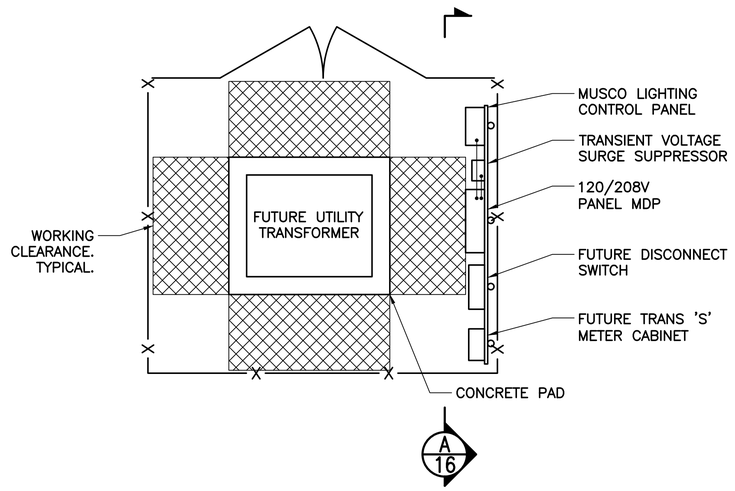
SHEET NO. 24 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-3
REV. NO. ---

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

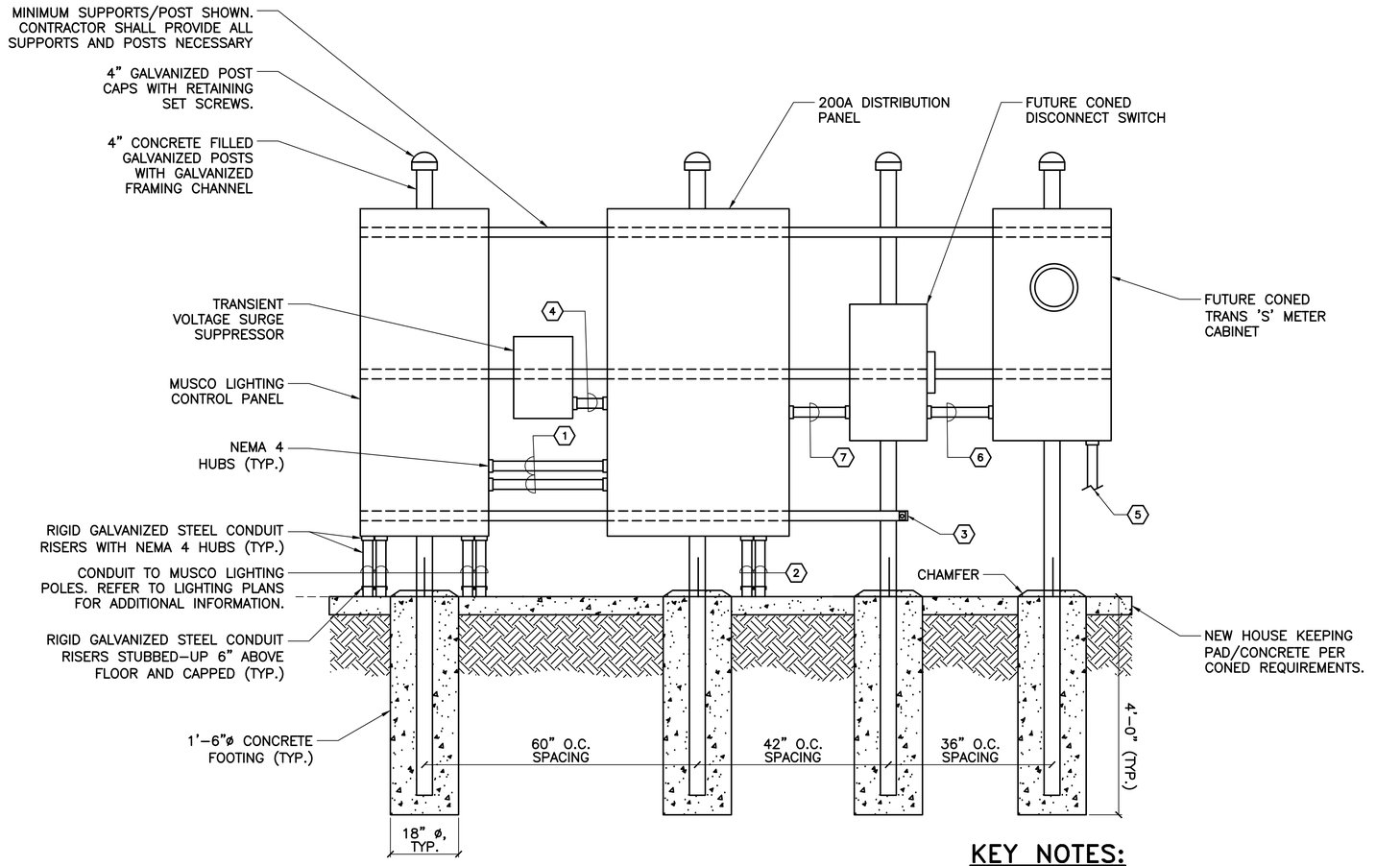
File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting plan.dwg
Plot Date: 9/28/2022 2:55 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting plan.dwg



EQUIPMENT LAYOUT PLAN

SCALE: 1/4" = 1'-0"



EXTERIOR EQUIPMENT RACK ELEVATION

A/16

SCALE: 3/4" = 1'-0"

KEY NOTES:

1. 6#8 & 1#8 GRD-1" RGS CONDUIT EACH TO LINE SIDE OF CONTACTORS
2. CONDUIT TO PARKING LOT LIGHTING. REFER TO LIGHTING PLANS FOR ADDITIONAL INFORMATION.
3. 12 GA. 1-1/2" X 1-7/8" GALVANIZED STEEL CHANNEL (TYP.)
4. 3#2+1#8G IN 1-1/2"C RGS CONDUIT.
5. FUTURE CONNECTION FROM UTILITY TRANSFORMER SECONDARY TO BE DETERMINED.
6. FUTURE CONNECTION. WIRE AND CONDUIT SIZE TO BE DETERMINED.
7. 4#3/0 + 1#3/0G IN 2" RGS CONDUIT.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 equipment layout plan and elevation.dwg
Plot Date: 9/28/2022 2:55 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
EQUIPMENT LAYOUT PLAN AND ELEVATION

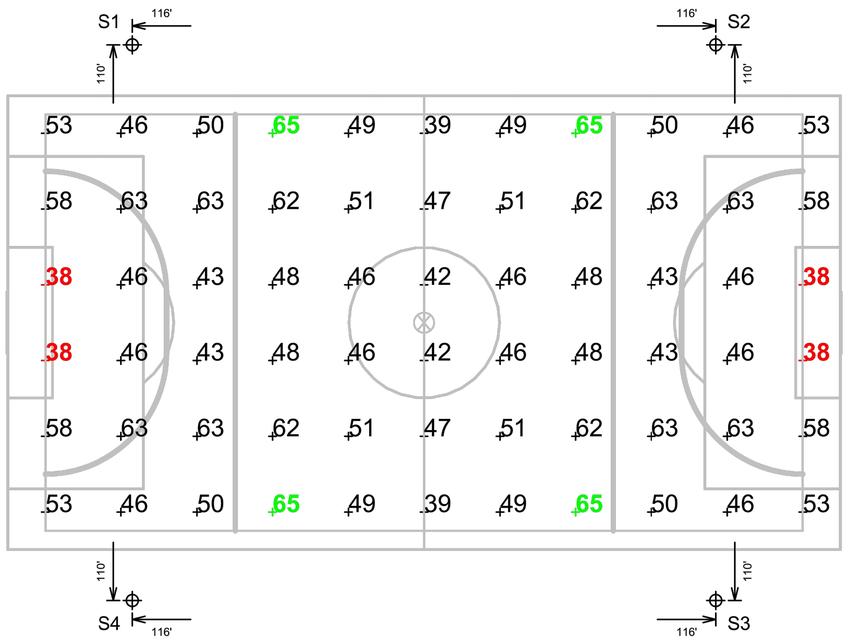
PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 25 OF 33
SCALE: AS SHOWN
DATE: SEPT. 2022
DRAWING NO. E-4
REV. NO. ---

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 equipment layout plan and elevation.dwg

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S4	60'	-	60'	TLC-LED-1500	6	6	0
4	TOTALS					24	24	0



SCALE IN FEET 1 : 60

0' 60' 120'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Addison Ardolino • File #196836A • 07-Oct-19

North Broadway Landfill Park

Yonkers,NY

GRID SUMMARY

Name:	**Soccer**
Size:	330' x 180'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**50**
Scan Average:	51.35
Maximum:	65
Minimum:	38
Avg / Min:	1.36
Guaranteed Max / Min:	**2**
Max / Min:	1.73
UG (adjacent pts):	1.54
CU:	0.81
No. of Points:	66

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 lumens
No. of Luminaires:	**24**
Total Load:	34.32 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

We Make It Happen®

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC. ©1981, 2019 Musco Sports Lighting, LLC.

ILLUMINATION SUMMARY

FOR REFERENCE ONLY

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR: NAME ____ SIGNATURE ____ TITLE ____ DATE ____

PROJECT COORDINATOR: NAME ____ SIGNATURE ____ TITLE ____ DATE ____

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL MUSCO DWG.
SPORTS FIELD PHOTOMETRIC PLAN

PROJECT NUMBER 5438-01 | CONTRACT NUMBER
SHEET NO. 26 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-5 | REV. NO. ----

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations_musco.dwg
Plot Date: 9/28/2022 2:56 PM
Plotted By: Wing Sun Tang
i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations_musco.dwg

POLE IDENTIFICATION AND RESULTANT FORCES

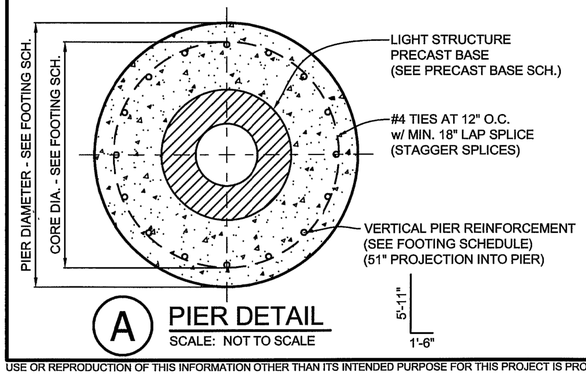
POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	FIXTURE CONFIGURATION (FIX. PER XARM)	FIXTURE AND ACCESSORIES EPA (FT^2)	FORCES (1.)		
					MOMENT (M) FT-LBS	SHEAR (V) LBS	VERTICAL (P) LBS
S1 - S4	LSS60B	3B	6 (6)	17.4	51,906	1,217	1,746

1. ASD LOAD COMBINATION D + 0.6W.
   VERTICAL FORCE IS WEIGHT OF DRESSED POLE.

PRECAST BASE ID FOR SPREAD FOOTING

PRECAST BASE TYPE	PRECAST BASE WEIGHT (1.)	PRECAST BASE LENGTH (1.)	PROJECTION ABOVE TOP OF PIER	STANDARD EMBEDMENT (1.)	OUTSIDE DIAMETER	CUT LENGTH OFF BOTTOM (2.)	EMBEDMENT INTO PIER & FOOTING (3.)
3B	2,470 LBS	20'-0"	8'-0"	12'-0"	13.38"	6'-0"	6'-0"

1. PRECAST BASE WEIGHT, LENGTH AND STANDARD EMBEDMENT ARE PRECUT PROPERTIES
2. EPOXY COAT NEW BOTTOM SURFACE OF PRECAST BASE AFTER CUTTING
3. EMBEDMENT EQUALS 4'-6" PIER HEIGHT PLUS 1'-6" DEPTH INTO FOOTING



A PIER DETAIL
SCALE: NOT TO SCALE

CONCRETE/REINFORCEMENT NOTES

CONCRETE SHALL COMPLY WITH THE FOLLOWING ASTM STANDARDS: MIXTURE WITH ASTM C-94, PORTLAND CEMENT WITH ASTM C-150 TYPE 1-A, AGGREGATES (MAX 0.75") WITH ASTM C-33 AND BE IN CONFORMANCE WITH ACI 318. CONCRETE SHALL BE AIR-ENTRAINED (COMPLY WITH ASTM C-260), HAVE A MAXIMUM WATER-CEMENT RATIO, w/cm = 0.45 AND HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,500 PSI.

DESIGN SLUMP LIMITS ARE 4" MINIMUM AND 6" MAXIMUM. THE JOB SITE SLUMP MAY BE INCREASED BY THE USE OF A WATER REDUCING AGENT MEETING ASTM C494-92.

CONCRETE REINFORCEMENT SHALL COMPLY WITH ASTM A615 GRADE 60 AND BE IN CONFORMANCE WITH ACI 315 & 318.

CONCRETE MUST ATTAIN DESIGN STRENGTH PRIOR TO POLE INSTALLATION AND FIXTURE MOUNTING.

DESIGN NOTES

DESIGN PARAMETERS:
WIND: V_{ult} = 115 MPH, V_{asd} = 89 MPH (EXPOSURE C, RISK CATEGORY II) PER INTERNATIONAL BUILDING CODE, 2015 EDITION (ASCE 7-10). DESIGN WIND PARAMETERS ARE AS NOTED, ACTUAL EXPOSURE MUST BE VERIFIED FOR THE SITE BY THE PROPER GOVERNING OFFICIAL.

GEOTECHNICAL PARAMETERS:
ALLOWABLE END BEARING SOIL PRESSURE: 2,000 PSF
IN ACCORDANCE WITH THE 2015 EDITION OF THE INTERNATIONAL BUILDING CODE, CHAPTER 18.

DESIGN SOIL PARAMETERS ARE AS NOTED. ACTUAL ALLOWABLE SOIL PARAMETERS MUST BE VERIFIED ON SITE. REFERENCE SOILS AND FOUNDATION REPORT, NO. 2440, PREPARED BY THE GEOTECHNICAL DEPARTMENT, LLC; DEMAREST, NJ.

A GEOTECHNICAL ENGINEER OR REPRESENTATIVE OF IS RECOMMENDED (NOT REQUIRED) TO BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY PROBLEMS ARISE IN FOUNDATION INSTALLATION.

ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR EXCAVATION PROCEDURES MAY OCCUR. POLE FOUNDATIONS WILL NEED TO BE ANALYZED ACCORDING TO THE SOIL CONDITIONS THAT EXIST. IF ANY DISCREPANCIES OR INCONSISTENCIES ARISE, NOTIFY THE ENGINEER OF SUCH DISCREPANCIES. FOUNDATIONS WILL THEN BE REVISED ACCORDINGLY. REVISIONS WILL BE ANALYZED PER RECOMMENDATIONS DIRECTED BY A REGISTERED ENGINEER.

ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION AND CONCRETE BACKFILL PLACEMENT.

CONTRACTOR MUST BE FAMILIAR WITH THE COMPLETE SOIL INVESTIGATION REPORT AND BORINGS, AND CONTACT THE GEOTECHNICAL FIRM (IF NECESSARY) TO UNDERSTAND THE SOIL CONDITIONS AND THE POSSIBILITY OF GROUND WATER PUMPING AND EXCAVATION STABILIZATION OR BRACING DURING PRECAST BASE INSTALLATION AND PLACEMENT OF CONCRETE BACKFILL.

GENERAL NOTES:
FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION. ENGINEER MUST BE NOTIFIED IF FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN / NEAR ANY SLOPES STEEPER THAN 3H : 1V. POLES, FIXTURES, PRECAST BASES, ELECTRICAL ITEMS AND INSTALLATION PER MUSCO LIGHTING.

STATE OF NEW YORK
KYLE G. LACINA
082745
LICENSED PROFESSIONAL ENGINEER
10/15/2019

IT IS VIOLATION OF ARTICLE 145, SECTION 7209 FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER AN ITEM IN ANY WAY.

NORTH BROADWAY
LANDFILL PARK
FIELD LIGHTING
YONKERS, NY

musco Lighting
CORPORATE: 100 1ST AVE WEST
OSKALOOSA, IA 52577
(800) 825-6020

STRUCTURAL ENGINEERS, P.C.
114 NICHOLAS DRIVE
MARSHALLTOWN, IOWA 50158
PHONE NUMBER: 641-752-6334
EMAIL: MSL.INFO@SEPC.BIZ

DRAWING TITLE: POLE AND FOUNDATION
SCALE: SEE PLAN
NOTES: SCAN #196836A

PROJECT NUMBER 196836

DATE 15 OCTOBER 2019

DRAWING NUMBER C1
OF TWO

USE OR REPRODUCTION OF THIS INFORMATION OTHER THAN ITS INTENDED PURPOSE FOR THIS PROJECT IS PROHIBITED WITHOUT WRITTEN CONSENT FROM MUSCO SPORTS LIGHTING, LLC.

FOR REFERENCE ONLY

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL MUSCO DWG.
SPORTS FIELD POLE DETAIL

PROJECT NUMBER 5438-01
CONTRACT NUMBER
SHEET NO. 27 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-6
REV. NO. ---

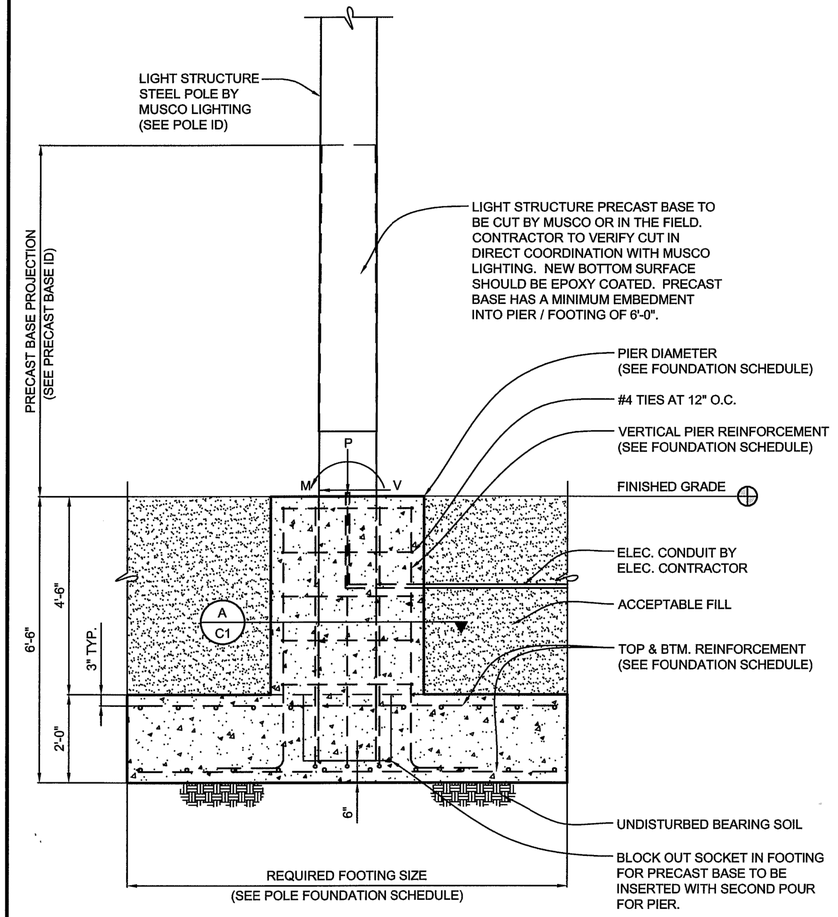
File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations_musco.dwg
Plot Date: 9/28/2022 2:57 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations_musco.dwg

POLE FOUNDATION SCHEDULE

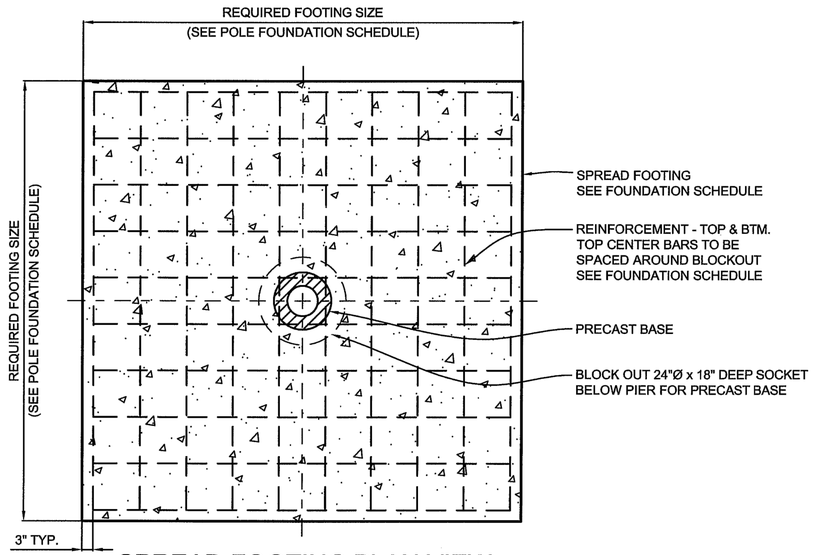
POLE DESIGNATION	FOOTING			PIER			
	SIZE	THICKNESS	REINFORCEMENT TOP & BOTTOM (TOTAL) QUANTITY - SIZE	DIAMETER INCHES	CORE DIA. INCHES (1.)	VERTICAL REINFORCING	HORIZONTAL TIES
S1 - S4	8'-0" x 8'-0"	2'-0"	(40) 10 - #6's EACH WAY	42	35	16 - #6	#4 @ 12"

1. CORE DIAMETER EQUAL TO INSIDE DIAMETER OF TIES.



POLE FOUNDATION ELEVATION

SCALE: NOT TO SCALE



SPREAD FOOTING PLAN VIEW

SCALE: NOT TO SCALE

STATE OF NEW YORK
KYLE G. LACINA
082745
LICENSED PROFESSIONAL ENGINEER
15-OCT-2019

IT IS VIOLATION OF ARTICLE 145, SECTION 7209 FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER AN ITEM IN ANY WAY.

USE OR REPRODUCTION OF THIS INFORMATION OTHER THAN ITS INTENDED PURPOSE FOR THIS PROJECT IS PROHIBITED WITHOUT WRITTEN CONSENT FROM MUSCO SPORTS LIGHTING, LLC.

NORTH BROADWAY
LANDFILL PARK
FIELD LIGHTING
YONKERS, NY

musco Lighting
CORPORATE: 100 1ST AVE WEST
OSKALOOSA, IA 52577
(800) 825-6020

STRUCTURAL ENGINEERS, P.C.
114 NICHOLAS DRIVE
MARSHALLTOWN, IOWA 50158
PHONE NUMBER: 641-752-6334
EMAIL: MSL.INFO@SEPC.BIZ

DRAWING TITLE: POLE AND FOUNDATION
SCALE: SEE PLAN
NOTES: SCAN #196836A

PROJECT NUMBER 196836

DATE 15 OCTOBER 2019

DRAWING NUMBER C2

OF TWO

FOR REFERENCE ONLY

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL MUSCO DWG.
SPORTS FIELD POLE FOUNDATION DETAILS

PROJECT NUMBER 5438-01
CONTRACT NUMBER
SHEET NO. 28 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-7
REV. NO. ---

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations_musco.dwg
Plot Date: 9/28/2022 2:58 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations_musco.dwg



NOTES:

- 20FT POLE HEIGHT
- 4FT ARMS
- LIGHT LOSS FACTOR 0.90
- 3000K LED
- FULL CUT-OFF LUMINAIRES
- CALCULATION POINTS AT GRADE
- CALCULATION POINTS 10FT ON CENTER
- EACH PARKING SPACE IN 9FT X 18FT

SCHEDULE

SYMBOL	LABEL	QUANTITY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LAMP	WATTAGE
	III SINGLE	4	SOL LIGHTING OR APPROVED EQUAL	EVERGEN 2-14442-1	SINGLE SOLAR LUMINAIRE WITH 4FT ARM AND ON A 20FT ROUND TAPERED ALUMINUM POLE, TYPE III DISTRIBUTION, BLACK PAINTED FINISH	3000K LED	46
	IV SINGLE	4	SOL LIGHTING OR APPROVED EQUAL	EVERGEN 2-14442-2	SINGLE SOLAR LUMINAIRE WITH 4FT ARM AND ON A 20FT ROUND TAPERED ALUMINUM POLE, TYPE IV DISTRIBUTION, BLACK PAINTED FINISH	3000K LED	46
	IV TWIN	7	SOL LIGHTING OR APPROVED EQUAL	EVERGEN 2-14442-3	TWIN SOLAR LUMINAIRE WITH 4FT ARMS AND ON A 20FT ROUND TAPERED ALUMINUM POLE, TYPE IV DISTRIBUTION, BLACK PAINTED FINISH	3000K LED	46

STATISTICS

DESCRIPTION	SYMBOL	AVG	MAX	MIN	MAX/MIN	AVG/MIN
PARKING LOT AREA		1.5 FC	4.6 FC	0.3 FC	15.3:1	5.0:1

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations.dwg
Plot Date: 9/28/2022 2:58 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

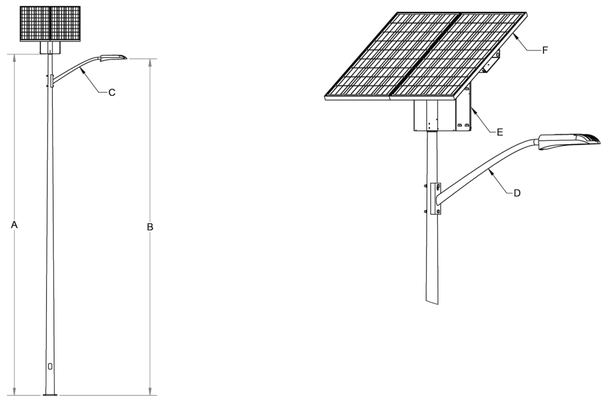
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL SOL DWG.
PHOTOMETRIC PLAN

PROJECT NUMBER 5438-01
CONTRACT NUMBER
SHEET NO. 29 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-8
REV. NO. ---

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting calculations.dwg

MODEL	A [Pole Length Above Grade]	B [Fixture Mount Height]	C/D [Arm Type]	E [Battery Mount]	F [System EPA]	[System Weight]	POLE Type	POLE Info 1	POLE Info 2
EverGen™ M Series OR APPROVED EQUAL	20FT	Based on Photometric Design**	4FT	HIGH	17.7 Ft² (1.64 m²)	245.5LB	Aluminum Bolt Down	Bolt Length 36 inch	Bolt Circle 11.5 inch

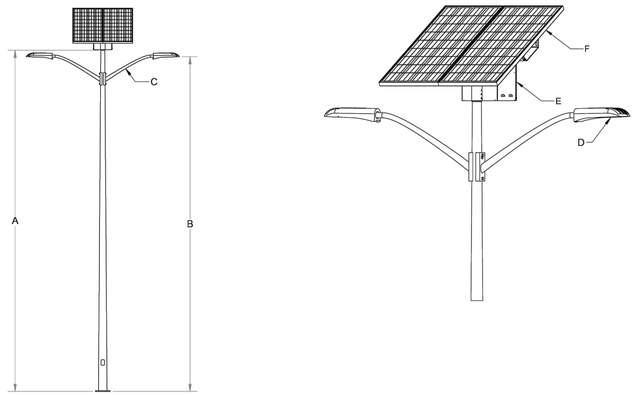


**DISCLAIMER: Arm(s) will be drilled and installed on site as per customer or photometric requirements.

SINGLE ARM SOLAR LIGHT SYSTEM DETAIL

N.T.S.

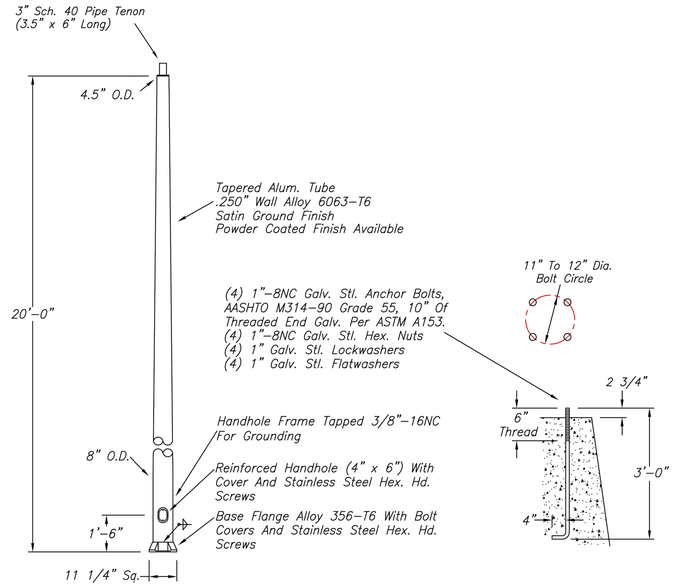
MODEL	A [Pole Length Above Grade]	B [Fixture Mount Height]	C/D [Arm Type]	E [Battery Mount]	F [System EPA]	[System Weight]	POLE Type	POLE Info 1	POLE Info 2
EverGen™ M Series OR APPROVED EQUAL	20FT	Based on Photometric Design**	4FT	HIGH	21.2 Ft² (1.97 m²)	275.4LB	Aluminum Bolt Down	Bolt Length 48 inch	Bolt Circle 14.5 inch



**DISCLAIMER: Arm(s) will be drilled and installed on site as per customer or photometric requirements.

DOUBLE ARM SOLAR LIGHT SYSTEM DETAIL

N.T.S.

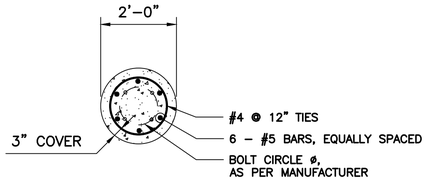


SINGLE ARM ALUMINUM LIGHT POLE DETAIL

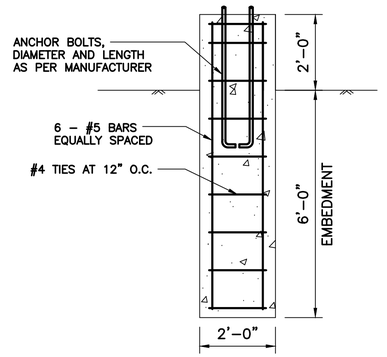
N.T.S.

DOUBLE ARM ALUMINUM LIGHT POLE DETAIL

N.T.S.



SECTION



ELEVATION

LIGHT POLE FOUNDATION

SCALE: 1/2" = 1'-0"

NOTES:

1. ANCHOR BOLT DIAMETER, BOLT CIRCLE DIAMETER, ANCHOR BOLT LENGTH, ETC. SHALL BE AS PRESCRIBED BY THE MANUFACTURER.
2. FOR THE CONCRETE SHAFT, MIN f'c = 3000 PSI, AND MIN fy = 60 KSI.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting mounting details.dwg
Plot Date: 9/28/2022 3:00 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL SOL DWG.
LIGHTING MOUNTING DETAILS

PROJECT NUMBER	CONTRACT NUMBER
5438-01	

SHEET NO. 30 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-9
REV. NO. ----

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 lighting mounting details.dwg

MAIN CIRCUIT BREAKER: 200A
INTERRUPTING RATING: 35KA SYM.

RATING: 208/120V, 3PH, 4W, 225A

MDP-PNL

(NEW)

PANEL TYPE: NEMA 1
MOUNTING: SURFACE

CKT. NO.	CIRCUIT DESCRIPTION	BREAKER SIZE	BREAKER TRIP	BREAKER POLE	LOAD KVA	A	B	C	LOAD KVA	BREAKER POLE	BREAKER TRIP	BREAKER SIZE	CIRCUIT DESCRIPTION	CKT. NO.
1					3.5	7.1			3.5					2
3	S-1 LIGHTING POLE	100	40	3	3.5		7.1		3.5	3	40	100	S-3 LIGHTING POLE	4
5					3.5			7.1	3.5					6
7					3.5	7.1			3.5					8
9	S-2 LIGHTING POLE	100	40	3	3.5		7.1		3.5	3	40	100	S-4 LIGHTING POLE	10
11					3.5			7.1	3.5					12
13	MUSCO CONTROL PANEL	100	20	1	1.0	1.2			0.2	1	20	100	GFI RECEPTACLE	14
15	GFI RECEPTACLE	100	20	1	0.2		0.2			1	20	100	SPARE	16
17					0.5			0.5		1	20	100	SPARE	18
19	SURGE PROTECTION DEVICE	100	100	3	0.5	0.5				1	20	100	SPARE	20
21					0.5		0.5			1	20	100	SPARE	22
23								0.0		1	20	100	SPARE	24
25	FUTURE SCOREBOARD	100	20	3		0.0				1	20	100	SPARE	26
27							0.0			1	20	100	SPARE	28
29	SPARE	100	20	1				0.0		1	20	100	SPARE	30
				TOTAL (PHASE):		15.8	14.8	14.7						

TOTAL CONNECTED:	45.3 KVA
DEMAND:	45.3 KVA
TOT. DEMAND + SPARE:	54.4 KVA
TOT. DEMAND + SPARE:	151.2 AMPS

SPARE CAPACITY 20 %

NOTES:

1. ALL CONNECTIONS TO MAIN LUG PANELS SHALL BE PROVIDED WITH HIGH PRESSED LUGS, BURNDY CO. OR APPROVED EQUAL.

NOTE: CONTRACTOR TO DETERMINE MATERIALS REQUIRED: THE BILL OF MATERIALS IS ONLY A GUIDE TO REFLECT THE GRADE AND TYPE OF MATERIAL NEEDED. IT IS THE RESPONSIBILITY OF CONTRACTOR TO DETERMINE THE AMOUNT AND TYPE OF MATERIALS NEEDED FOR THE JOB. CONTRACTOR TO VERIFY EXISTING PART NUMBERS PRIOR TO ORDERING NEW EQUIPMENT. ACCURATE QUANTITY ESTIMATE IS LEFT TO THE CONTRACTOR.

NOTE: ENGINEERING, APPROVED, DIFFERENT, MANUFACTURED, EQUIVALENT EQUIPMENT CAN BE SUPPLIED.

BILL OF MATERIALS

ITEM	QUANTITY	MANUFACTURER	PART NO./MODEL NO.	DESCRIPTION
1	1	EATON OR APPROVED EQUAL	30 SPACE, 200A, 3P-4W, 208/120V PANEL HAVING A COPPER BUS, COPPER GROUND BAR, COPPER NEUTRAL BAR, M.L.O. TO BE HOUSED IN NEMA 3R, PANEL BOARD TO BE A PX OR PX TYPE	DIST PANEL – 200A NEMA 3R. MDP
2	1	LEVITON OR APPROVED EQUAL	LEVITON 51120-3 , 208/120V , 3 PHASE	SURGE PROTECTOR DEVICE ENCLOSURE 3R SPD
3	4	EATON OR APPROVED EQUAL		40A CIRCUIT BREAKER – EQUIPPED WITH LOCKING CLIP
4	4	EATON OR APPROVED EQUAL		20A CIRCUIT BREAKER – EQUIPPED WITH LOCKING CLIP
5	2	LEVITON OR APPROVED EQUAL		GFI BREAKER – 20A
6	1	EATON OR APPROVED EQUAL	CHH3100H2	100A CIRCUIT BREAKER
7	200FT	STEEL CITY	2" HDRGS-PVC	HOT DIPPED RIGID GALVANIZED STEEL CONDUIT
8		STEEL CITY	3/4" HDRGS-PVC	HOT DIPPED RIGID GALVANIZED STEEL CONDUIT
9		STEEL CITY	1¼" HDRGS-PVC	HOT DIPPED RIGID GALVANIZED STEEL CONDUIT
10		STEEL CITY	11/2" HDRGS-PVC	HOT DIPPED RIGID GALVANIZED STEEL CONDUIT
			1" HDRGS-PVC	1/C – # COPPER, 600V INSULATION TYPE XHHW-2
11				GFI RECEPTACLE
12				CHAIN LINKED FENCE
13		BURNDY	KS22	GROUND WIRE
14		BURNDY	GAR144C	GROUND ROD
15		SOUTHWIRE	600V CLASS	WIRE # 1 AWG 600V CLASS
16		SOUTHWIRE	600V CLASS	WIRE # 2 AWG 600V CLASS
17		SOUTHWIRE	600V CLASS	WIRE # 3 AWG 600V CLASS
18		SOUTHWIRE	600V CLASS	WIRE # 4 AWG 600V CLASS
19		SOUTHWIRE	600V CLASS	WIRE # 6 AWG 600V CLASS
20		SOUTHWIRE	600V CLASS	WIRE # 10 AWG 600V CLASS
21		SOUTHWIRE	600V CLASS	WIRE # 12 AWG 600V CLASS
22		QUAZITE	PC0608DA06	HANDHOLE TYPE I
23		QUAZITE	PC0608HA00	HANDHOLE TYPE I – COVER
24		QUAZITE	PC1212DA12	HANDHOLE TYPE II
25		QUAZITE	PC1212HA00	HANDHOLE TYPE II – COVER
26		QUAZITE	PG1324DA241	HANDHOLE TYPE III
27		QUAZITE	PG1324HA00	HANDHOLE TYPE III – COVER
28		JOSLYN	J8350	HANDHOLE GROUNDING ¾"x10' COPPER WELD GROUND ROD

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 panel schedules.dwg
Plot Date: 9/28/2022 3:00 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

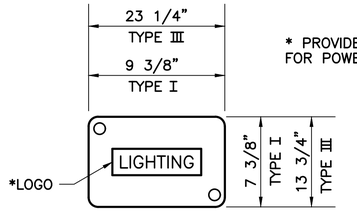
PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL PANEL SCHEDULE
AND BILL OF MATERIALS

PROJECT NUMBER 5438-01
CONTRACT NUMBER
SHEET NO. 31 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-10
REV. NO.:

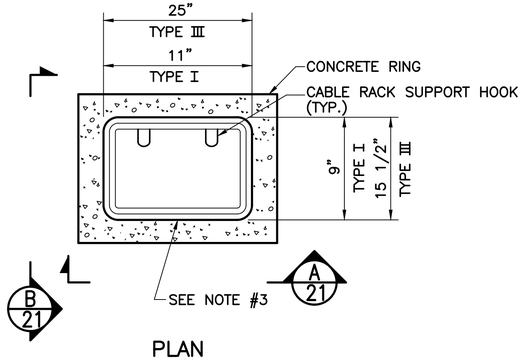
i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 panel schedules.dwg



* PROVIDE "ELECTRIC" LOGO FOR POWER FEEDER.

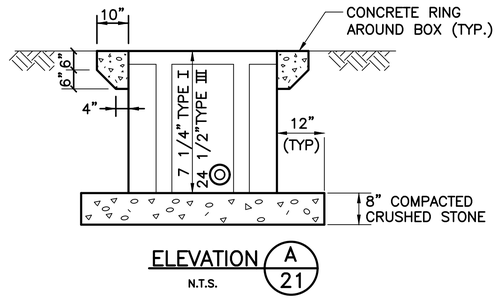
PRECAST POLYMER CONCRETE HANDHOLD COVER

N.T.S.



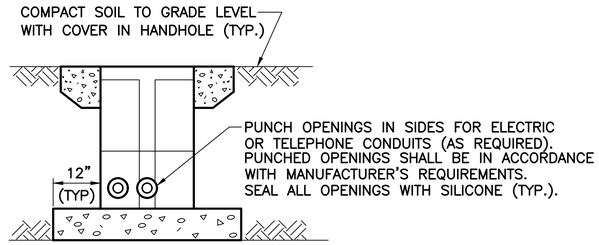
PLAN

N.T.S.



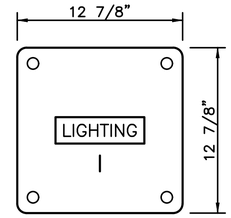
ELEVATION A 21

N.T.S.



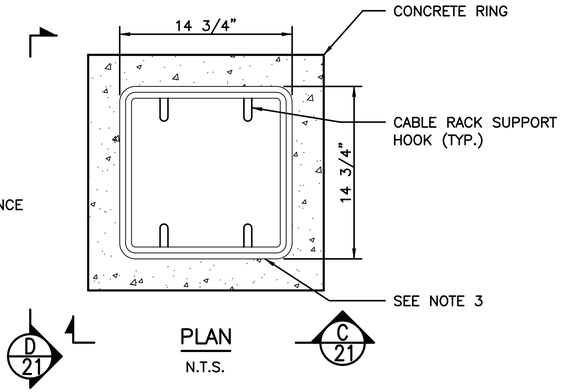
ELEVATION B 21

N.T.S.



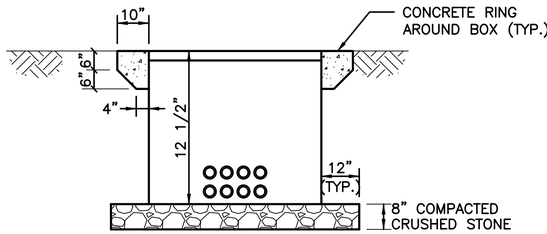
PRECAST POLYMER CONCRETE HANDHOLD COVER

N.T.S.



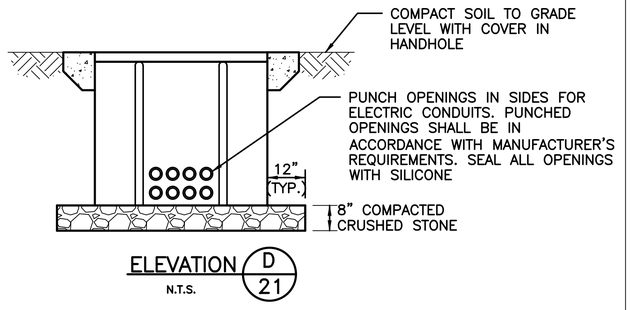
PLAN

N.T.S.



ELEVATION C 21

N.T.S.

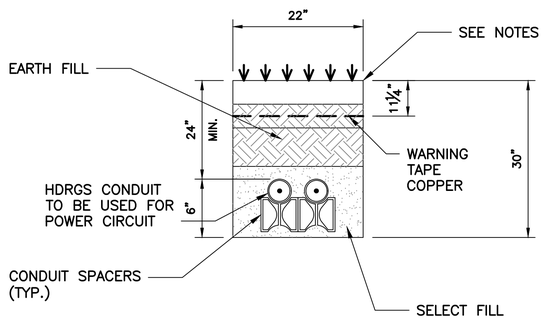


ELEVATION D 21

N.T.S.

TYPICAL DETAIL HANDHOLE TYPE I AND III ELECTRIC PRECAST POLYMER CONCRETE

N.T.S.



TYPICAL TWO OR MORE CONDUITS

ELECTRICAL TRENCH DETAILS

N.T.S.

NOTES:

1. IN LANDSCAPED AREAS, PROVIDE 4" TOPSOIL AND TURF RESTORATION.
2. IN CONCRETE OR PAVED AREAS, MATCH EXISTING CONCRETE OR PAVEMENT DEPTH.
3. SEE LIGHTING PLAN FOR CONDUIT AND CABLE SIZE.

TYPICAL DETAIL HANDHOLE TYPE II ELECTRIC PRECAST POLYMER CONCRETE

N.T.S.

NOTES:

1. ALL CONDUITS SHALL SLOPE BACK TO MANHOLES AND HANDHOLES.
2. PROVIDE TEMPORARY PUMPS FOR DEWATERING DURING THE EXCAVATION FOR THE INSTALLATION OF THE HANDHOLES AS REQUIRED. PROVIDE TEMPORARY PUMPS AT THE HANDHOLES AFTER INSTALLATION, TO KEEP THEM REASONABLY DRY FOR AS LONG AS WORK IS REQUIRED WITHIN THESE AREAS. WHERE CABLES HAVE BEEN PULLED INTO THE HANDHOLES, THE CONTRACTOR IS ESPECIALLY CAUTIONED TO KEEP THESE AREAS DRY UNTIL ALL CABLES ARE INSTALLED AND ALL TAPS TO LIGHTING FIXTURES HAVE BEEN SEALED AND WATERPROOFED.
3. HANDHOLES SHALL BE PRECAST POLYMER CONCRETE CONSISTING OF AN AGGREGATE MATRIX BOUND TOGETHER WITH A POLYMER RESIN, WHERE SHOWN. ELECTRIC HANDHOLES SHALL BE PROVIDED WITH OPEN BOTTOM, HEAVY DUTY COVERS, 2–4 CABLE RACKS AND 2–4 CABLE RACK HOOKS IN EACH ELECTRIC HANDHOLE FOR CABLE SUPPORT. DRILL HANDHOLE SIDE WALL FOR CABLE SUPPORT RACK MOUNTING. PROVIDE STAINLESS STEEL BOLTS, WASHERS AND NUTS. SEAL AROUND ALL BOLTS WITH SILICONE SEALANT. TYPE I HANDHOLES AND HEAVY DUTY COVERS SHALL BE QUAZITE COMPOSOLITE CAT. #PG3048DA36. TYPE II HANDHOLES AND HEAVY DUTY COVERS SHALL BE QUAZITE COMPOSOLITE CAT. #PG4848BA48. TYPE III HANDHOLES AND HEAVY DUTY COVERS SHALL BE QUAZITE COMPOSOLITE CAT. #PG1118BA18 OR APPROVED EQUAL. TYPE IV HANDHOLES AND HEAVY DUTY COVERS SHALL BE QUAZITE COMPOSOLITE CAT# PG2436BA30 OR APPROVED EQUAL. ALL HEAVY DUTY COVERS SHALL BE GASKETED TYPE WITH 2 BOLTS.

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT-CHANGES AS NOTED
☐ AS BUILT-NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

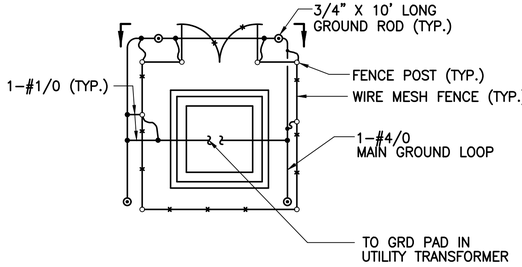
CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL HANDHOLE DETAILS

PROJECT NUMBER 5438-01
CONTRACT NUMBER
SHEET NO. 32 OF 33
SCALE: 1" = 30'-0"
DATE: SEPT. 2022
DRAWING NO. E-11
REV. NO. ---

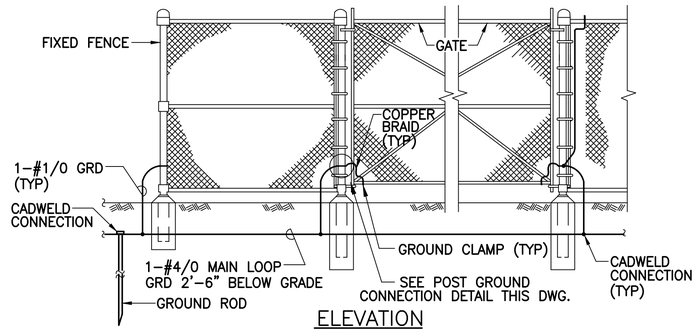
File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 handhole details.dwg
Plot Date: 9/28/2022 3:01 PM
Plotted By: Wing Sun Tang

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438-01 handhole details.dwg



UTILITY TRANSFORMER FENCE GROUNDING PLAN

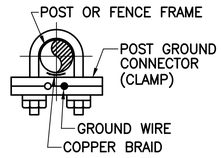
N.T.S.



ELEVATION

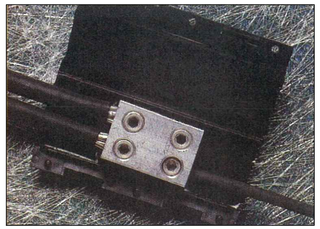
TYPICAL FENCE POST AND GATE GROUNDING DETAIL

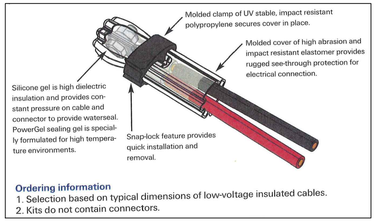
N.T.S.



POST GROUND CONNECTION DETAIL

N.T.S.

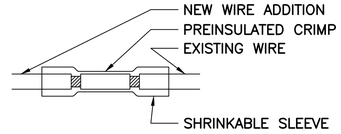




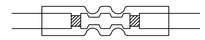
SILICONE GELCAP FOR 600V CLASS WIRE

N.T.S.

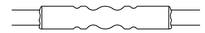
GELCAP 1 . . . . #16 – #10 AWG
GELCAP 2 . . . . #8 – #2 AWG



1. SELECT SPLICE OF APPROPRIATE SIZE. STRIP WIRES 0.3". INSERT INTO CRIMP BARREL. SHRINK SLEEVE AND PLACE SPLICE TUBE OVER CRIMP AND WIRES.



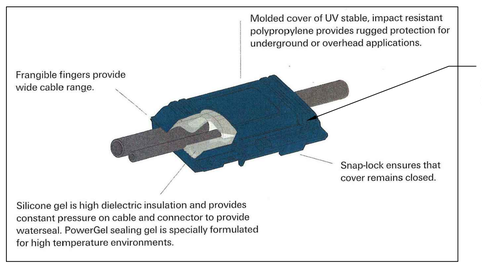
2. CRIMP USING CRIMP TOOL FOR PREINSULATED CRIMPS.



3. HEAT SPLICE WITH HEAT GUN UNTIL TUBING RECOVERS AND ADHESIVE FLOWS.

DETAIL TO EXTEND WIRE

N.T.S.



GEL TAP SPLICE (1000V MAX.)
CAT.# GTAP–1 (#14 – #2 CABLE)
CAT.# GTAP–2 (#14 – #2/0 CABLE)

WATERPROOF GTAP TYPICAL CABLE TAP IN MANHOLE FOR 600V CLASS WIRE

N.T.S.

File Name: i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438–01 fence grounding details.dwg
Plot Date: 9/28/2022 3:02 PM
Plotted By: Wing Sun Tang

IN CHARGE OF: ####
MADE BY: ####
CHECKED BY: ####

LKB CONSULTING ENGINEERS
LOCKWOOD KESSLER & BARTLETT, INC.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION
☐ AS BUILT–CHANGES AS NOTED
☐ AS BUILT–NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

CITY OF YONKERS
DEPARTMENT OF ENGINEERING

MODIFICATIONS TO 1061 NORTH BROADWAY
SECTION 3, BLOCK 3515, LOT 115
ELECTRICAL FENCE GROUNDING
AND CABLE DETAILS

PROJECT NUMBER 5438–01
CONTRACT NUMBER
SHEET NO. 33 OF 33
SCALE: 1" = 30'–0"
DATE: SEPT. 2022
DRAWING NO. E–12
REV. NO. ----

i:\projects\5438 01 yonkers landfill modification\cadd\sheets\electrical\5438–01 fence grounding details.dwg

Appendix I

Copy of Manufacturer's Field Maintenance Procedures



Field Maintenance Procedures

Toll Free: 888-777-6910
www.aturf.com

Table of Contents

1. Congratulations on your Investment
2. Contact Information for A-Turf, Inc.
3. Explanation of A-Turf Warranty Coverage
4. A-Turf's Responsibility
5. Client's Responsibility
6. Hot Spots: Areas That Require Special Attention
7. Proper Grooming Procedures & Techniques
8. Minor Repair Procedures
9. Maintenance Chart
10. Warranty Procedures
11. Warranty Work Form

1. Congratulations on Your Investment

Dear A-Turf Client,

The investment in a new synthetic field is a special time for the community. Congratulations on a job well done!

A primary reason for having a synthetic field is the awesome “utility” that it brings to the athletes and students that use it.

The virtually unlimited amount of use your A-Turf field will provide is sharply contrasted with the minimal amount of maintenance that’s recommended.

But, there is some maintenance that’s vitally important to ensuring you get the most out of your A-Turf field.

Take a few minutes to review this document and let us know what you might need clarified.

Thanks for partnering with A-Turf, Inc.

Respectfully,

Jim Dobmeier
President & Founder

2. Contact Information for A-Turf, Inc.

Corporate Headquarters Mailing Address:

A-Turf, Inc.
P.O. Box 157
Williamsville, NY 14231
888.777.6910
716.204.0189 (fax)
www.aturf.com

Corporate Headquarters Physical Address:

A-Turf, Inc.
45 Earhart Dr. Suite 102
Williamsville, NY 14221

Warranty & Maintenance Inquires:

A-Turf, Inc.
Attn: Matt Dobmeier (matt@aturf.com)
Operations Department
888.777.6910
716.204.0189 (fax)
716.597.6420 (cell)

3. Explanation of A-Turf's Warranty Coverage

What is Covered by A-Turf's 8-Year Warranty:

- The warranty shall cover any and all defects for failures relating to synthetic grass seam ruptures, synthetic yarn UV stability, and excess wear and tensile strength.
- G-Max readings per specifications and contract.

What is **NOT** Covered by A-Turf's 8-Year Warranty:

- Abuse or deliberate acts of vandalism.
- Accidents or acts of God.
- Issues due to lack of regular maintenance.
- Static or dynamic loads exceeding A-Turf's recommendations.
- Use of improper cleaning or maintenance methods or equipment.
- Infill materials to keep infill at appropriate levels.
- Damage by footwear having metal cleats, spikes or similar projections other than the conventional football, soccer or baseball shoes having cleats of not more than ½" in length, and other conventional running track shoes having spikes of not more that ¼" in length.
- A-Turf disclaims all warranties related to the base, and does **not** warrant the percolation rate, long-term planarity or compaction of the base on which the Surface is installed, except in those cases where the construction of the base is in the scope of work for which A-Turf is contracted to perform. A-Turf's acceptance of the base is limited to visual inspection.

NOTE: ALL FIELD MAINTENANCE OR REPAIR WORK MUST BE PERFORMED BY ONE OF THE FOLLOWING AUTHORIZED PARTIES: PROPERLY TRAINED BY A-TURF SCHOOL PERSONNEL , PROPERLY TRAINED BY A-TURF OWNER'S REPRESENTATIVE PERSONNEL (IF THE FIELD IS NOT AT A SCHOOL), AN A-TURF CERTIFIED OR APPROVED FIELD MAINTENANCE COMPANY, INSTALLATION CREW OR TURF TECHNICIAN. ANY FIELD MAINTENANCE OR REPAIR WORK PERFORMED BY A PARTY OUTSIDE THIS AUTHORIZED LIST WILL CAUSE THE WARRANTY TO BECOME VOID.

Examples of Normal Wear

- Fibers lying down.
- Occasional loose fibers.
- Migration / Loss of infill.

4. A-Turf's Responsibility

Major Seam Repairs:

- We will perform all seam repairs within a reasonable time after receiving written notice and photographs from the client.

G-Max Rating:

- We warrant that the G-Max of the surface will fall within the values established in the specifications and the contract. Please see executed warranty for details.

Procedures to Report & Schedule Warranty Work:

- Call the A-Turf Operations Department to schedule (see Section 2 above.)

- Follow up with field drawing / rendering of areas/photographs that require seam repair (See Section 11 for Warranty Work Forms).

- Provide the schedule for field availability.

Customer Support:

- A-Turf commits to outstanding client service. Please call us at 888.777.6910 if you have any questions or concerns with your A-Turf field.

5. Client's Responsibility

Infill Maintenance:

- A-Turf's warranty does not cover the maintenance of infill levels. Infill maintenance requires that the owner perform periodic inspections of the infill level so it is approximately equal to the levels at installation completion. The owner must maintain an infill level within 1" of the fiber tip on all parts of the field.

- Evaluation of infill decomposition by an independent provider is recommended at some point in year 5 and the end of the warranty period. The hiring of such a service provider is the owner's responsibility.

- The owner shall maintain documented records showing infill maintenance is being done on a regular basis.

Protection from Vandalism:

- A-Turf's warranty does not cover damage of any kind from acts of vandalism. It is the owner's responsibility to protect the A-Turf field from vandalism and to cover the loss of damage due to vandalism.

- Mistreatment or vandalism might cause damage requiring major repairs including localized turf replacement. Smaller burns will cause a fusion of the pile fibers at the tips. In this instance, clean the area, brush up the fiber and remove charred areas by carefully scraping them with a knife or brushing with a stiff metal or fiber brush.

Regular Field Inspections of "Hot Spots":

- Regular inspection of "hot spot" areas (as defined in Section 6). **Add infill and / or redistribute infill regularly in these areas.**
    - *This is one of the most important ongoing tasks of keeping the entire field playing well and realizing its maximum potential life expectancy.*

Seams:

- Minor seam and game line repair (see Section 8 for directions).

- Do not cut, seam, sew, remove or in any way attempt to repair major turf damage. If extensive damage occurs, contact A-Turf.

Regular Grooming:

- Groom the field every 4 to 6 weeks during active use.

General Maintenance Procedures:

- **Initial Requirements:** After installation, your new A-Turf field will go through a "settlement" process. During this period, which can range from a few weeks to an entire season, the infill will slightly compact and settle into the synthetic fiber matrix. Regular daily use of the field and rainfall will help to accelerate this process. During this period, there is no need to brush the field more than once or twice, as excessive brushing will slow proper settlement.

- **Dirt & Grime:** Rain is a very good cleanser. Rainfall will wash the turf fibers of dust, pollen and airborne chemicals. If necessary, you can also spray the field with a portable irrigation system to clean the surface; this will enable the flow of any contaminants through the turf. Do not use any type of rotary brush with steel bristles to clean any area of the field as this will damage the fiber and dislodge the infill.

- **Litter Removal:** It is very important to remove trash, debris, leaves and other materials from the field in a timely manner, thus preventing any of these materials from working into the fiber/infill matrix. Good, common sense housekeeping practices minimize the accumulation of litter. Place trash containers on site; set up drink stations for players off the playing field; and vigorously enforce a non-smoking and non-tobacco chewing ban on the field. Paper, peanut shells, sunflower seeds, athletic tape, paper, etc., should be removed immediately after any event.

The best procedure to remove trash or debris from the field is a backpack type or pull behind blower. The blower will move the trash and debris off the field without disturbing the infill. It is recommended that the trash and debris be blown off the field to a hard surface (track or asphalt) where it can be swept up and disposed of. This is a process that can also be performed during the fall to remove leaves and branches.

While a sweeper can also be used to remove debris off the field, extreme care should be taken so that the brushes of the sweeper do not disturb the infill. The brushes on the sweeper should be set so that they only touch the tips of the fibers while removing the trash. The bristles on the sweeper brush should be plastic. **NEVER USE BRUSHES WITH STEEL OR METAL BRISTLES**.

- **Vehicle Exhaust:** In order to prevent the possibility of melting the turf due to exhaust or overheating, never leave an idling vehicle parked on the turf surface.

- **Oils & Fuel Spills:** Oil and fluid spills can discolor and permanently damage the turf. Proper vehicle maintenance should be observed. Battery acid and most other fluids should not be allowed on the turf. Never change or add fluids to equipment while the equipment is parked on the turf surface.

- **Stains:** Polyethylene fibers are among the most stain resistant because most potential stains are moisture borne and polyethylene, a "hydrophobic" yarn, absorbs little moisture. Spills are best removed while still moist and prior to drying before they have dried on the fibers.

  These residues can generally be removed with water or soap & water. Again, it is much easier to clean a fresh spill before it has time to dry and harden. Remove any deposit promptly using a putty knife or similar tool, then soak up excess liquids with paper towels, cloth towels or rags.

- **Animal Waste:** Remove as necessary. Neutralize residue with white distilled vinegar in an equal amount of water. Flush thoroughly with water after application.

- **Chewing Gum:** Remove by using hot water and soap and/or ice. Work affected area with a putty knife.

- **Fungus, Mold & Mildew:** Use a solution with 1% hydrogen peroxide and 99% water. Apply with a sponge, and allow time to soak in. Flush thoroughly with water after application.

- **Blood:** Mix 50/50 blend of bleach & water. Spray on area. Let stand 10-15 minutes. Flush thoroughly with plenty of water.

  Note: Do not use high-pressure water spray with stream force in excess of 250 psi as this can damage the turf and displace the infill.

- **Field Markings (Paints, Etc.):** Paint should be applied lightly and evenly to reduce the likelihood of paint buildup. An airless field marking paint unit is best suited for field painting.

- **Paints:** Paint should be applied when the surface is dry and clean. It is recommended that field paint be applied when temperatures are above 50 degrees.

  - ✓ Two coats of field paint can be expected to last through a sport season.

  - ✓ Recommended paints include the following: Pioneer Titan-R and World Class Classic Field Marking Paint.

- **Load Limits:** A-Turf recommends that neither long-term static load of more than 3 psi, nor dynamic loads of more than 35 psi be allowed on the surface. *Note: The loading of a pneumatic-tired vehicle is approximately equal to the air pressure in its tires.*

  Sheets of 3/4" thick exterior grade plywood are ideal to spread loads. Cover the turf with plastic or standard geotextile prior to placing wood on the surface as this keeps the turf clean.

Ceremonies and other events that require chairs can be held on the surface as long as the chair legs are not sharp. Flat rubber caps on the leg bottoms are ideal. Always consider Turf protection systems.

- **Snow & Ice Removal:** Snow and ice can be allowed to melt on the surface. If it is necessary to remove snow or ice for an event or use, the following procedures should be observed:

  - ✓ Remove snow in layers as near to game time as possible.

  - ✓ Because ice removal is more difficult, the prevention of ice buildup is important.

  - ✓ A-Turf recommends the Pro-Tech Turf Pusher for the removal of snow from the field.

- **Sweepers/Snow Blowers:** If the snow is dry and powdery it can be swept from the field using a rotary brush and/or snow blower.

  If a snow blower is to be utilized:

  - ✓ Remove in layers if deep snow.

  - ✓ The first pass of the blower should be made down the center of the field, from goal to goal.

  - ✓ The second pass should be made at the edge of either side of the first pass and the blower should now deposit the snow in a trailer or truck.

  - ✓ The blower can move on down one side of the field and up the other followed by the truck.

  - ✓ Brush off the remaining snow with a broom.

- **Removing Snow by Means of a Rubber-Tipped Snow Plow:** The blade may be mounted on a light tractor. **Extreme care must be exercised.** The blade must be configured above the surface. This results in rolling the snow ahead of the blade. Remove the snow in layers only. Push the

snow gently into piles. Carefully scoop the snow into trucks or trailers using frontend loaders (Bobcats). Avoid contact between the equipment and the turf. Finally, employ a rotary broom or snow blower to clean off the remaining snow (see procedure above for removal with a snow blower).

Note: Chains and studs will damage the surface and should never be used on the field. Only use pneumatic tires. Do not park equipment on the field for extended periods of time. If the tuft begins to stretch or move during the snow removal this process, discontinue the procedure and call A-Turf.

- **Ice Removal:** It may be necessary to route a weighted lawn roller over the field to break up ice. The broken ice can then be swept off the field. Ice melts rapidly with sunshine.

  If there is excessive ice buildup prior to a scheduled event, an alternative is the use of chemicals to melt the ice. If used, remember to thoroughly flush the chemical residue off the field as soon as weather permits.

  If the surface is heavily iced over, broadcast "Urea" (fertilizer-grade in pill or granule form) at a rate of approximately 100 lbs. per 3,000 sq. ft. The amount required will vary according to the thickness of the ice and the temperature.

  After spreading, the Urea should be allowed to remain on the ice for at least ½ hour to promote melting, and then removed from the field with a water removal machine, squeegee, sweeper or other suitable apparatus. Urea will not melt ice at O°F and has limited effectiveness at very low temperatures.

  Urea residue must be thoroughly washed off the field as soon as possible.

  Do not use salt, rock salt, calcium chloride, ammonium nitrate or other corrosive or toxic chemicals to melt ice on turf surfaces. Their presence can damage the turf, and be harmful to players and equipment.

- **Event Preparation (Concerts, Circuses, Tractor Pulls, Etc.):**

  - ✓ Tuff covers should be used and with some events must be used.

  - ✓ These events can create loads on the turf that exceed the surface load limit set forth in the warranty and in the load limits outlined in this manual. Spread the load.

  - ✓ Large crowds on the turf generally fall outside the "designated uses" for the system and damage of the turf can occur unless it is fully protected.

  - ✓ We recommend that concert promoters carry special insurance and that the owner be named on the policy.

  - ✓ **Ban Open Flames!** Never allow fireworks on or near the field without covering the field with a tarp or other covering.

  - ✓ **Clean Up Immediately!**

  - ✓ **Ban Smoking!**

- **Prohibited Activities:**

  - ✓ Storage for materials such as drums, lumber, etc.

  - ✓ Use of the turf as a construction work area or general parking area.

  - ✓ Golfing, shot putting, javelin (steel tipped) or discus throwing, and the use of spike track shoes.

  - ✓ Open flames, fireworks, welding, etc.

  - ✓ Use of wire brushes.

- ✓ Heavy loads exceeding 3 psi (static) or 35 psi (dynamic).
- ✓ Use of cleaning equipment, methods or materials not authorized by A-Turf.
- ✓ High-pressure water sprays exceeding 250 psi.
- ✓ Excessive vehicle traffic and vehicles equipped with non-pneumatic tires.
- ✓ Use of the field as a parking lot.
- ✓ Use of the field to land helicopters.

6. Hot Spots: They Require Special Attention!

Football:

- Two kickoff marker areas.
- Two extra point mark areas.
- Center of the field, between the hash marks.

Soccer:

- Four corner kick areas.
- Two penalty kick areas.
- Four goal kick corner areas.
- Goalkeeper's prime areas.

Girls' and / or Women's Lacrosse:

- Two goal crease areas.

Boys' and / or Men's Lacrosse:

- Two goal crease areas.

Field Hockey:

- Two penalty shot areas.

Baseball and / or Softball:

- Batter's box area.
- Catcher's area.
- Pitcher's mound.
- First base areas.
- Second base area.
- Infielders' prime areas.

7. Proper Grooming Procedures & Techniques

Field Grooming:

- Fields should be groomed once every 4-6 weeks during periods of heavy use.

- Several different grooming devices are acceptable for use in grooming the field. A-Turf recommends the GreensGroomer synthetic turf conditioning unit as manufactured by WorldWide, Inc., 888.298.8852. Please call the A-Turf office for additional information.

8. Minor Repair Procedures

Directions for Minor Repairs:

1. Use a wet/dry vacuum or shop vac.

2. Make sure container of shop vac is thoroughly clean, as infill vacuumed from seam area will be reused.

3. Thoroughly vacuum all infill from seam, along length of seam and several inches to either side.

4. Peel open seam carefully – thoroughly vacuum all infill from seam- tape underneath seam.

5. Purchase ***PL Premium Polyurethane Construction Adhesive** in a yellow caulking gun tube or ***LEXEL Adhesive** in a clear caulking gun tube from any home improvement retailer. Do not use alternative adhesives.

NOTE: See Section 11 for the directions on the usage of the PL® PREMIUM POLYURETHANE CONSTRUCTION ADHESIVE* or *LEXEL ADHESIVE.

6. Thoroughly apply adhesive to length and width of exposed seam tape.

7. Carefully fold turf back together on top of adhesive – clean off any excess adhesive that may rise to the surface of the turf when folded back together – use either mineral spirits or methyl ethyl ketone (MEK) on a dampened rag to clean – do not pour solvent directly onto turf.

8. Place a sand bag, cinder block, pail, etc. on top of repaired seam to hold down turf while adhesive cures – make sure weight is placed along length of repair – use a 2' x 4' along length to apply pressure as needed.

9. Allow approximately 3 hours for adhesive to setup and cure.

10. Distribute vacuumed infill along length of seam repair area.

11. Using a strong bristle broom or brush, brush infill into turf, applying just enough pressure to broom the infill into the fibers.

12. Seam repair is complete and field is now ready for use.

13. An “average” seam repair, 6” to 12” in length, should only take about 15 minutes to repair (must allow 3 hour adhesive setup time).

PL® Premium Polyurethane Construction Adhesive:

PL® Premium is a polyurethane adhesive that provides superior results and is safe to use. PL® Premium generates three times the power of traditional construction adhesives. It may be used inside or outside and will last as long as the surfaces it joins together.



How to Use:
To ensure positive adhesion, make sure the surfaces to be joined are clean and free of dirt and foreign material. Cut the smallest opening possible in spout (just large enough so adhesive can flow easily when gunned). Because of PL® Premium’s unusual strength, much less adhesive is needed compared to traditional construction adhesives. Place cartridge in caulking gun and puncture seal inside spout with nail. Apply by forcing adhesive onto surfaces. When working on rough surfaces, use enough adhesive to fill gaps. PL® Premium will bridge up to 3/8”. Use mechanical fasteners to hold the surface in place until the adhesive fully cures. Drying time might vary, depending on the humidity and porosity of the materials bonded together. PL Premium's reactive nature allows the formation of high strength bonds quickly. Many applications will develop full strength in less than 24 hours. Material may be repositioned up to 30 minutes without losing adhesive strength.



9. Maintenance Chart

Date	Groomed Field	Sweep Field	Inspect "Hot Spots"	Miscellaneous

10. Miscellaneous

Warranty Work Procedures and Form:

Indicate approximate areas needing repair by marking with an “x” or similar on the attached form. Indicate the type of repair if you can (seam loose, low spot, wrinkle, etc.) and the person our serviceman should contact when he arrives at the field. Also, please indicate “North” or identifying marker so serviceman can readily identify which end of field.

Please copy and fax the attached form to A-Turf Operations Office at 716-204-0189.

Send photos with chart.

After reviewing what needs to be done, the A-Turf Operations Department will be able to determine a schedule for our serviceman to make these warranty repairs. We will then contact you with a schedule to see if it fits your needs. If there are any definite scheduled dates where our serviceman cannot have all day, unlimited access to any of the fields, please include that information on the form.

Please be aware that any repairs that appear to be vandalism or neglect will be repaired, but may require a charge from A-Turf for this work. These areas will be discussed with you before any repairs are made.

11. Warranty Work Form

Synthetic Turf for Maximum Performance

REPAIR(S) / WARRANTY WORK FORM

Project Name: _____

Contact Name: _____ Date: _____

Project Name & Location: _____

Phone Number: _____ Field Availability Dates: _____

Description of Repair(s) / Warranty Work: _____

_____

Sketch Location of Areas Needing Repairs (use separate sheet if necessary):

Severe Maintenance – 250 or more games a year

	First - 3rd Week of installation	Weekly	Monthly	Quarterly	6 Months	Yearly	Every 2 Years	Year 5	Year 8	Notes
Remove Dirt/Litter	●	●	●	●	●	●	●	□●	●	□
Grooming			●							
Inspect Base			●							
Check for Loose Seams						●				

Recommended Paints: Pioneer Titan R, World Class Classic Field Marking Paint