

CONSTRUCTION QUALITY ASSURANCE CERTIFICATION REPORT



CELL 4 BOTTOM LINER SYSTEM CONSTRUCTION

**SALINE COUNTY RSWMD
CLASS 1 LANDFILL
PERMIT NO. 0261-S1-R2
AFIN: 63-00155**

PREPARED FOR:
SALINE COUNTY REGIONAL SOLID WASTE MANAGEMENT DISTRICT
18511 WEST SARDIS ROAD
BAUXITE, ARKANSAS 72011
(501) 602-2667

PREPARED BY:
TERRACON CONSULTANTS, INC.
25809 INTERSTATE 30 SOUTH
BRYANT, ARKANSAS 72022
(501) 847-9292

FEBRUARY 2009

Terracon

PROFESSIONAL ENGINEER'S CERTIFICATION

"I certify to the best of my professional judgment that the bottom liner system and leachate collection system for Cell 4 of the Saline County Regional Solid Waste Management District (Saline County) Class 1 Landfill (Permit No. 0261-S1-R2) was constructed in accordance with the project specifications, plans, and applicable Arkansas Department of Environmental Quality regulations. This certification is contingent on the fact that all information supplied to the signatory authority, at the time of this certification is unquestionably accurate and was provided in good faith."



Ken Bown

Ken Bown, P.E.
Arkansas Professional Engineer Registration No. 7139

3/5/09

Certification Date

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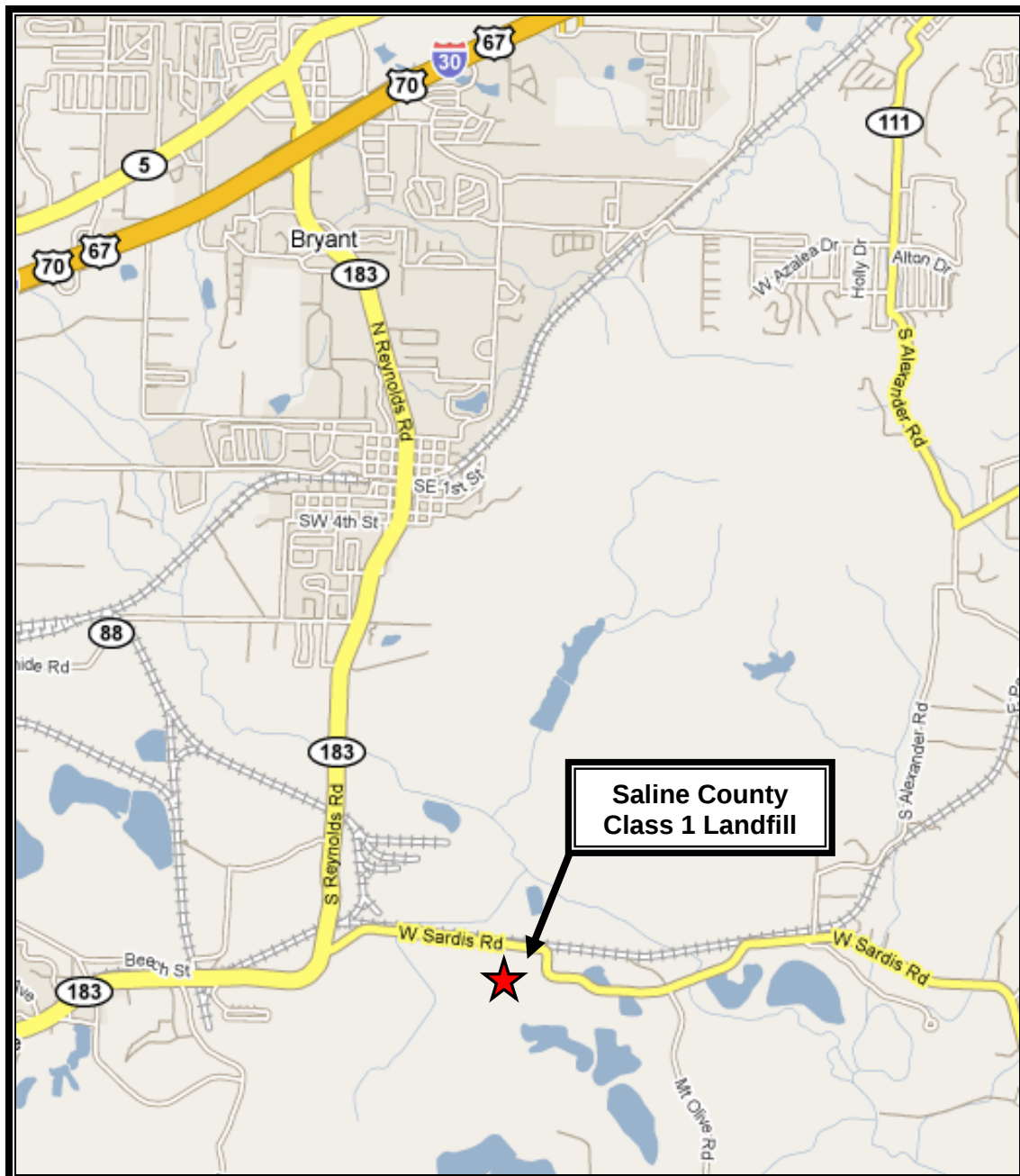
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1.0 INTRODUCTION

This construction quality assurance (CQA) report summarizes activities performed by Terracon Consultants, Inc. (Terracon) during the construction of the bottom composite liner system, leachate collection system, and related work associated with Cell 4 at the Saline County Regional Solid Waste Management District (Saline County) Class 1 Landfill located near Bauxite, Arkansas. **FIGURE 1** illustrates the geographic location of the facility.

FIGURE 1. SITE LOCATION MAP



The following document summarizes the earthwork, construction of the subgrade, engineered prepared subgrade, bottom composite liner system, geosynthetics, leachate collection system, and the protective cover system. Correspondence, details, quality control test results, and certification associated with the construction are also provided. This document in conjunction with the project as-built drawing is intended to satisfy the requirements of Arkansas Regulation 22, Section 22.428 and Permit No. 0261-S1-R2.

1.1 GENERAL

The construction of Cell 4 was conducted in accordance with the following documents:

- *“Construction Bid and Contract Documents – Cell 4 Bottom Liner System Construction”*, Terracon Consultants, Inc., July 2008.
- *“Construction Quality Assurance Plan”*, Saline County Regional Solid Waste Management District Landfill, Terracon Consultants, Inc., April 2007.
- *“Regulation Number 22, Solid Waste Management Rules”*, Arkansas Department of Pollution Control and Ecology, Solid Waste Management Division.
- *“Permit for the Construction and Operation of a Solid Waste Disposal Facility”*, Permit No. 0261-S1-R2, AFIN: 63-00155, State of Arkansas Department of Environmental Quality Solid Waste Management Division, Effective Date: May 8, 1992.

1.2 SITE DESCRIPTION

Saline County owns and operates a Class 1 Solid Waste Landfill (Landfill) located near Bauxite, Arkansas. The Landfill is located at 18511 West Sardis Road, Bauxite, Arkansas. The Landfill has been in operation since 1992 and has been designed, constructed, and is permitted (Permit No. 0261-S1-R2) by the Arkansas Department of Environmental Quality (ADEQ) to accept all types of Class 1 materials as defined in *Arkansas Regulation 22 (Solid Waste Management)*.

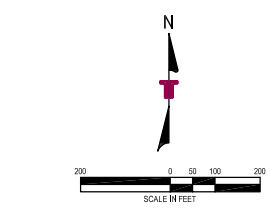
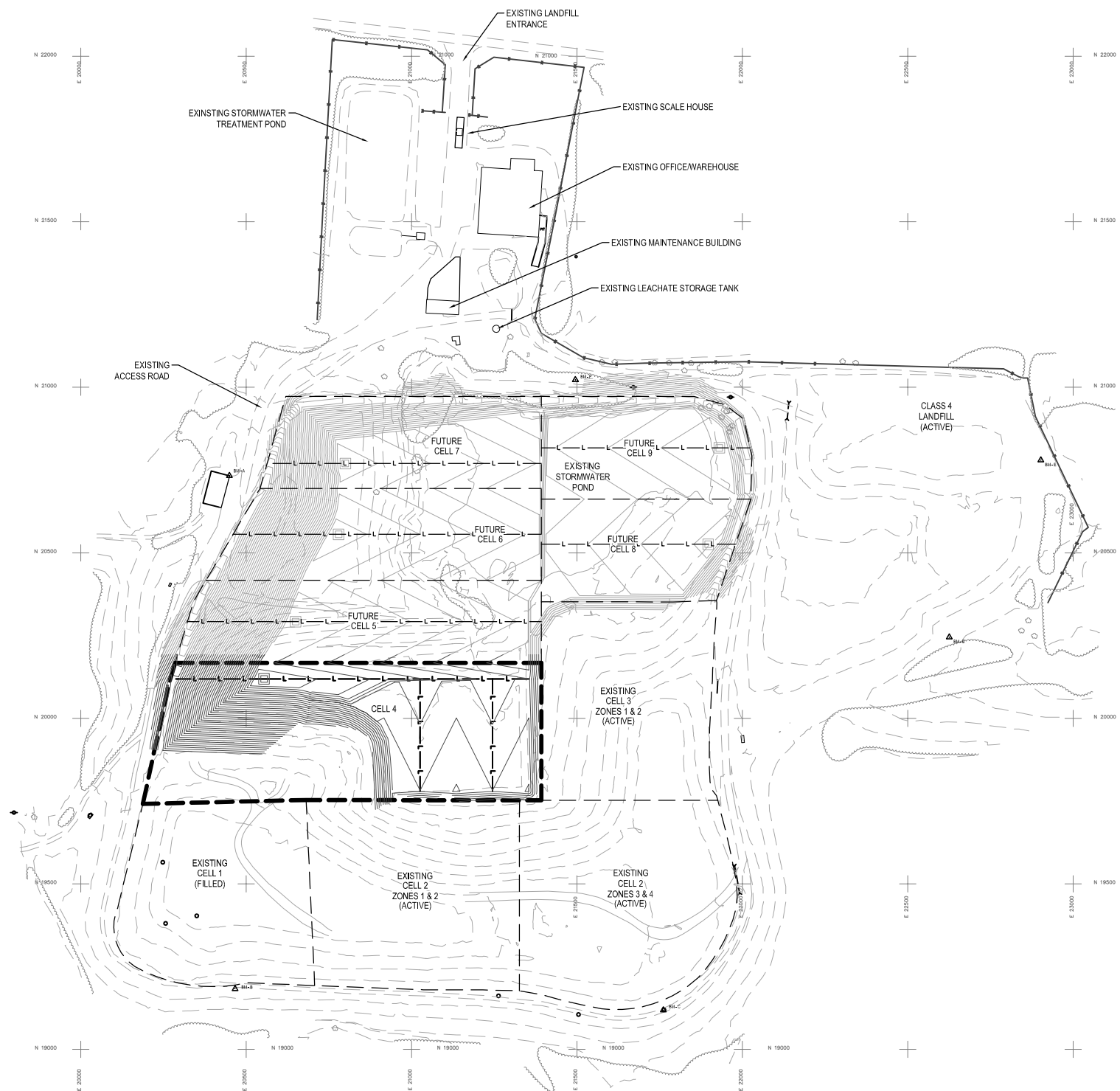
FIGURE 2 illustrates the location and orientation of Cell 4 in relation to the rest of the site.

1.3 PROJECT DESCRIPTION

This project involved the construction of approximately 8.3 acres of composite liner system and a leachate collection system. The following information summarizes the construction sequence associated with the construction of Cell 4.

- Site preparation, excavation to subgrade, and grading of cell area;
- Installation of underdrain system;
- Installation and quality assurance testing of subgrade, placed at 95% of the Standard Proctor density;
- Installation and quality assurance testing of a 24-inch thick prepared subgrade layer, placed at 95% of the Standard Proctor density;
- Installation and quality assurance testing of a geosynthetic clay liner;

- Installation and quality assurance testing of a 60-mil HDPE textured geomembrane liner;
- Installation of a leachate collection system consisting of geocomposite and a center collection pipe embedded in gravel and geotextile;
- Installation of a protective cover layer; and
- Installation of a leachate pump system and control panel.



PERMANENT SITE MONUMENTS			
NUMBER	NORTHING	EASTING	ELEVATION
BM - A	20732.96	20449.54	362.74
BM - B	19182.98	20466.42	367.75
BM - C	19118.87	21761.19	364.14
BM - D	20244.92	22625.38	337.11
BM - E	20780.19	22902.07	337.14
BM - F	21022.08	21495.31	336.80

NOTE:
MONITORING WELLS SHOWN WERE DERIVED
FROM A POTENTIOMETRIC SURFACE MAP BY
AFFILIATED ENGINEERS, DATED: 11/2005.

REV.	DATE	BY	DESCRIPTION

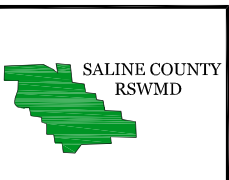




Terracon
Consulting Engineers and Scientists

25809 I-30
PH. (501) 847-9292

BRYANT, AR 72022
FAX. (501) 847-9210



SITE LOCATION MAP

CELL 4 CONSTRUCTION QUALITY ASSURANCE

SALINE COUNTY REGIONAL SOLID WASTE MANAGEMENT DISTRICT

CLASS 1 LANDFILL

BAUXITE

ARKANSAS

FIGURE 2	
DESIGNED BY:	KEB
DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	AS SHOWN
DATE:	2/27/09
JOB NO.	055-001-35087125
ACAD NO.	005
SHEET NO.:	OF

Other improvements at the site include the following:

- Installed new leachate force main system on the west side of the Class 1 Landfill to existing leachate storage tank; and
- Capped four existing 36-inch diameter HDPE manholes.

The CQA Report is organized using tables, figures, and appendices to provide documentation of the observations and material testing during the construction of Cell 4. General project correspondence is presented in **APPENDIX B**. Daily project field records are presented in **APPENDIX C**. A photographic log depicting the various stages of construction is provided in **APPENDIX Y**.

As required by Reg.22.428(i) the CQA Report includes record drawings of Cell 4 and the appendices and figures identify the following:

Reg.22.428(i)(1) - The limits of liner or final cover barrier construction;

FIGURE 2 and as-built drawings in **APPENDIX A** depicts the limits of the constructed bottom liner system for Cell 4.

Reg.22.428(i)(2) - The top and bottom liner or final cover barrier elevations at 50' intervals referenced to the site grid coordinate system;

APPENDIX A provides the top and bottom elevations of the constructed bottom liner system at 50' intervals referenced to the site grid coordinate system.

Reg.22.428(i)(3)- If a granular drainage blanket is utilized in the design, top of blanket elevation should be identified at 50' elevations;

APPENDIX A provides the top and bottom elevations of the constructed drainage layer system. A double-sided geocomposite was utilized in place of a granular drainage layer. However, a 12-inch thick protective cover layer was placed on top of the geocomposite layer and was surveyed at 50-foot intervals.

Reg.22.428(i)(4) The location and elevation of slope breaks, leachate piping, leachate sumps and trenches, berms, and any other features which are material to the disposal area construction;

APPENDIX A (As-built Record Drawing) provides the location and elevation information and other features of Cell 4 construction.

Reg.22.428(i)(5) A key map showing the location of the construction in relation to the permitted design, along with an identification of areas previously constructed and areas yet to be constructed;

FIGURE 2 and drawings in **APPENDIX A** depict the limits of the constructed bottom liner system for Cell 4 in relation to the permitted design, along with an identification of areas previously constructed and areas yet to be constructed.

Reg.22.428(i)(6) Compaction and permeability testing locations;

Field logs and Drawings in **APPENDIX F and FIGURES 3 through 6** provide compaction test locations for the bottom liner system of Cell 4. Permeability testing was not required because a geosynthetic clay liner (GCL) was utilized in lieu of a compacted clay liner.

Reg.22.428(i)(7) If necessary to document leachate head level compliance (subsections (a)(2) and (g)(6) of this section), the report should also indicate the lowest point of the liner constructed not including leachate trenches and sumps.

APPENDIX A provides the lowest point of the liner constructed not including leachate trenches and sumps.

Reg.22.428(i)(8) In addition, the certifying professional shall make a statement that the cell was constructed in accordance with the permit drawings and narrative. The report should also include a list of any deviations from the permitted drawings, if they exist, and reasons for the deviations.

Cell 4 was constructed as close as possible and in accordance with the permit drawings and narrative and the plans and specifications. However, several deviations were made to the design to help improve the function of the facility.

- A mid-cell stormwater diversion berm was not constructed as shown on the plans because Saline County has elected to manage stormwater with an alternative method;
- The 3-inch by 6-inch diameter leachate force main was installed in a different location than indicated on the construction drawings. The installation was performed by the contractor at the direction of the Director of Operations for Saline County;
- The leachate interceptor trenches from Cell 1 were constructed differently than indicated on the construction drawings. 60-mil geomembrane was added to the bottom of the trench to assist in containing leachate. The proposed method of installation was approved by the certifying engineer.

1.4 KEY PERSONNEL

Pickett Industries was contracted to perform the earthwork for the project including excavation and fill to subgrade, placement of the prepared subgrade in lifts, installation of the leachate collection system, placement of protective cover, and the other improvements at the site. Installation of the geosynthetic clay liner, 60 mil HDPE textured liner and the geocomposite was contracted to Environmental Specialties International. The key personnel for each participating firm and suppliers in the project are as follows:

➤ **Owner:**

Saline County Regional Solid Waste Management District

- Dennis Wills, Executive Director

- **CQA Consultant:**
Terracon Consultants, Inc.
 - Certifying Engineer: Ken Bown, P.E.
 - Project Manager: Brad Fureigh, E.I.
 - CQA Monitors: Stephen Billingsley, Clayton Haynes, Joe Smith, Donnie Walls, and Earl Pilgrim

- **Survey Control:**
Harmon Surveying, Inc.
 - Project Manager: Dodd Harmon, RLS

- **Soil Testing Laboratory:**
Terracon
 - Laboratory Manager: Tim Goodall

- Golder Associates
 - Project Manager: Patricia Mayfield

- **Geosynthetic Testing Laboratory:**
Precision Geosynthetics Laboratory (PGL)
 - Project Manager: Cora Queja

- **Soils Contractor:**
Pickett Industries
 - Site Superintendents: Huey Johnson and Larry Manley

- **Geosynthetics Contractor:**
Environmental Specialties International (ESI)
 - Project Manager: Kevin Simms

- **Electric and Leachate Pump System:**
Advanced Fluid Technologies (AFT)
 - Project Manager: Matt Rankins

2.0 SUBGRADE PREPARATION

This section summarizes the excavation and establishment of the subgrade surface corresponding to the permitted design for Cell 4. The bottom grading plan conforms to the approved permit plans.

2.1 PROJECT SPECIFICATIONS

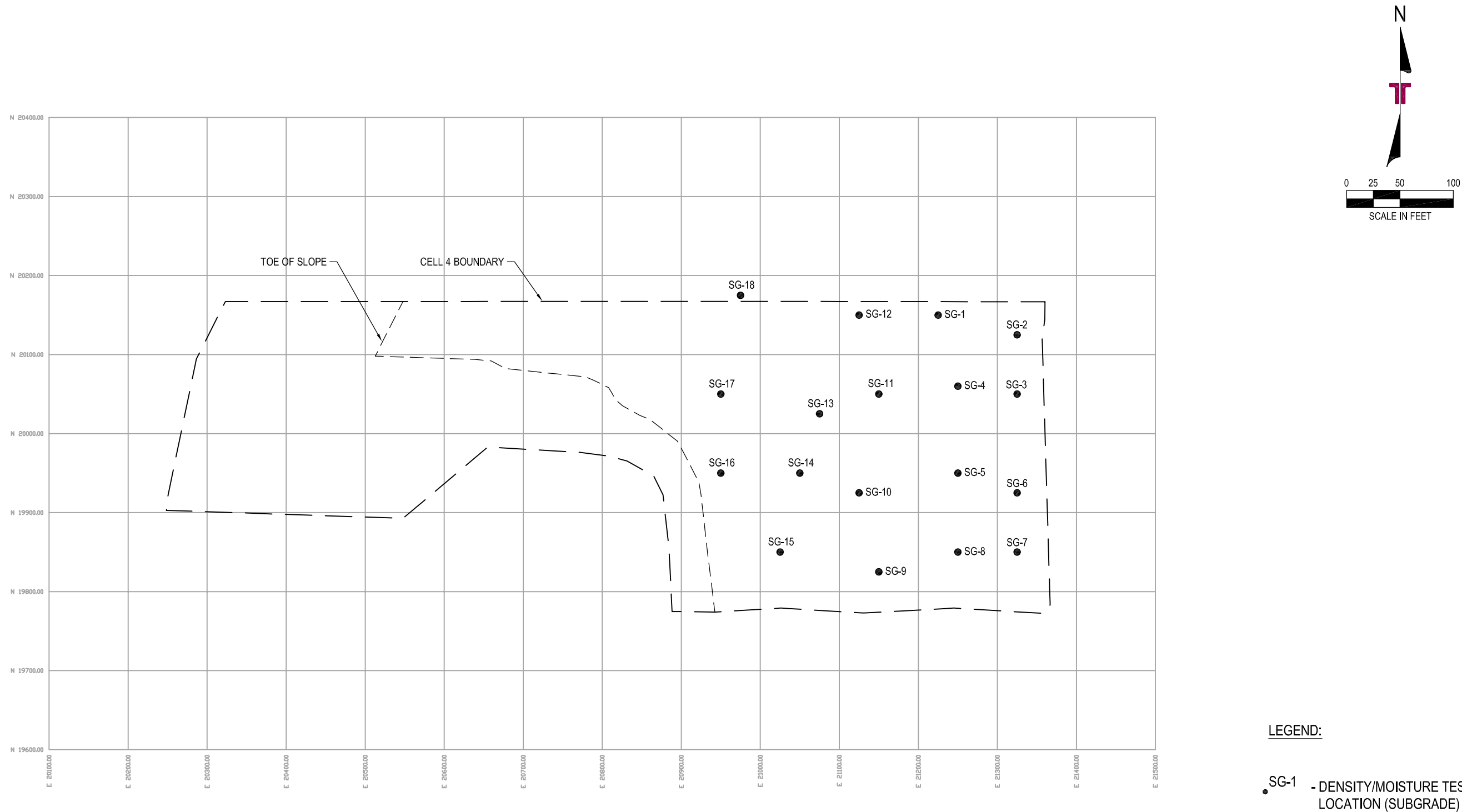
The project specifications called for the subgrade to be established to the lines and grades shown on the project construction plans. Following excavation, the subgrade surface was smooth graded, rolled, and tested to ensure that a suitable foundation was established.

2.2 CONSTRUCTION PROCEDURES

The subgrade excavation and preparation for placement of the GCL associated with the bottom liner system occurred during December 2008 and January 2009. During this period the construction consisted of excavation of the native soil and placement of structural fill to the new sub-grade. Then a 24-inch thick prepared subgrade layer was installed to ensure a suitable base for the installation of GCL. The elevations associated with the prepared subgrade surface established are provided in **APPENDIX A**.

2.3 SUBGRADE TESTING

The subgrade and prepared subgrade were compacted to 95% of the Standard Proctor maximum dry density as verified by a Terracon soils technician. **FIGURES 3, 4, 5 and 6** illustrate the locations of the field moisture and density tests for the subgrade and prepared subgrade. Preconstruction and construction test results for the subgrade material are provided in **APPENDICES D and E** respectively. **APPENDIX F** includes the field logs for the moisture/density testing performed in association with the Cell 4 subgrade construction.



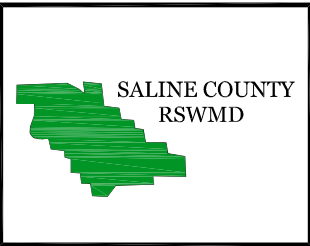
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25809 I-30 SOUTH
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FIELD DENSITY TEST LOCATIONS - CELL 4 - SUBGRADE (LIFT 1)

CONSTRUCTION QUALITY ASSURANCE

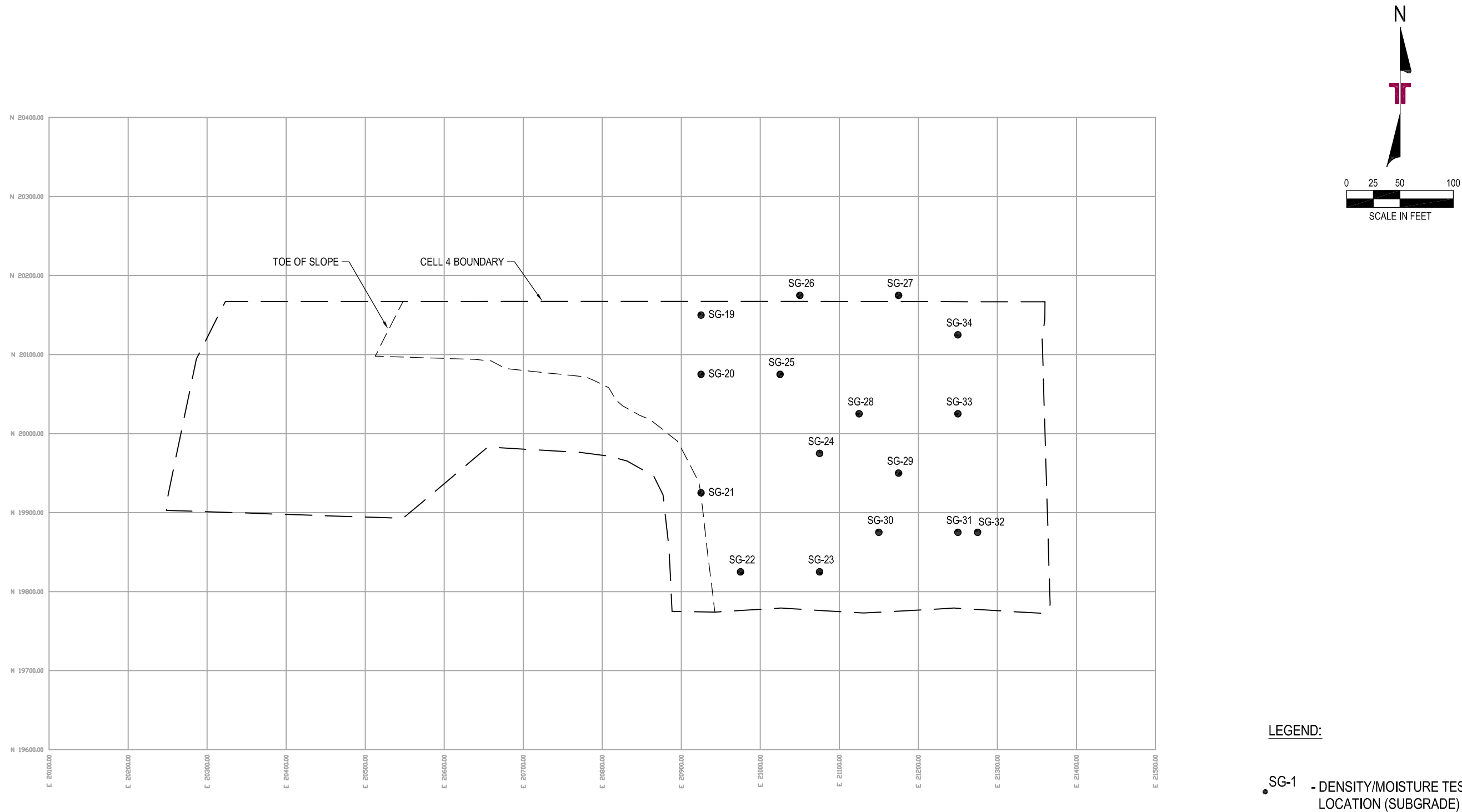
SALINE COUNTY REGIONAL SOLID WASTE MANAGEMENT DISTRICT

CLASS 1 LANDFILL

BAUXITE

ARKANSAS

FIGURE 3	
DESIGNED BY:	BNF
DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 100'
DATE:	2/3/09
JOB NO.	055-001-35087125
ACAD NO.	001
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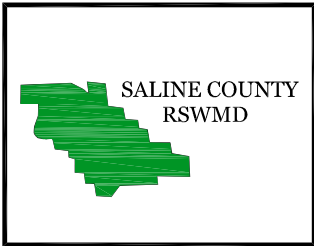
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FIELD DENSITY TEST LOCATIONS - CELL 4 - SUBGRADE (LIFT 2)

CONSTRUCTION QUALITY ASSURANCE

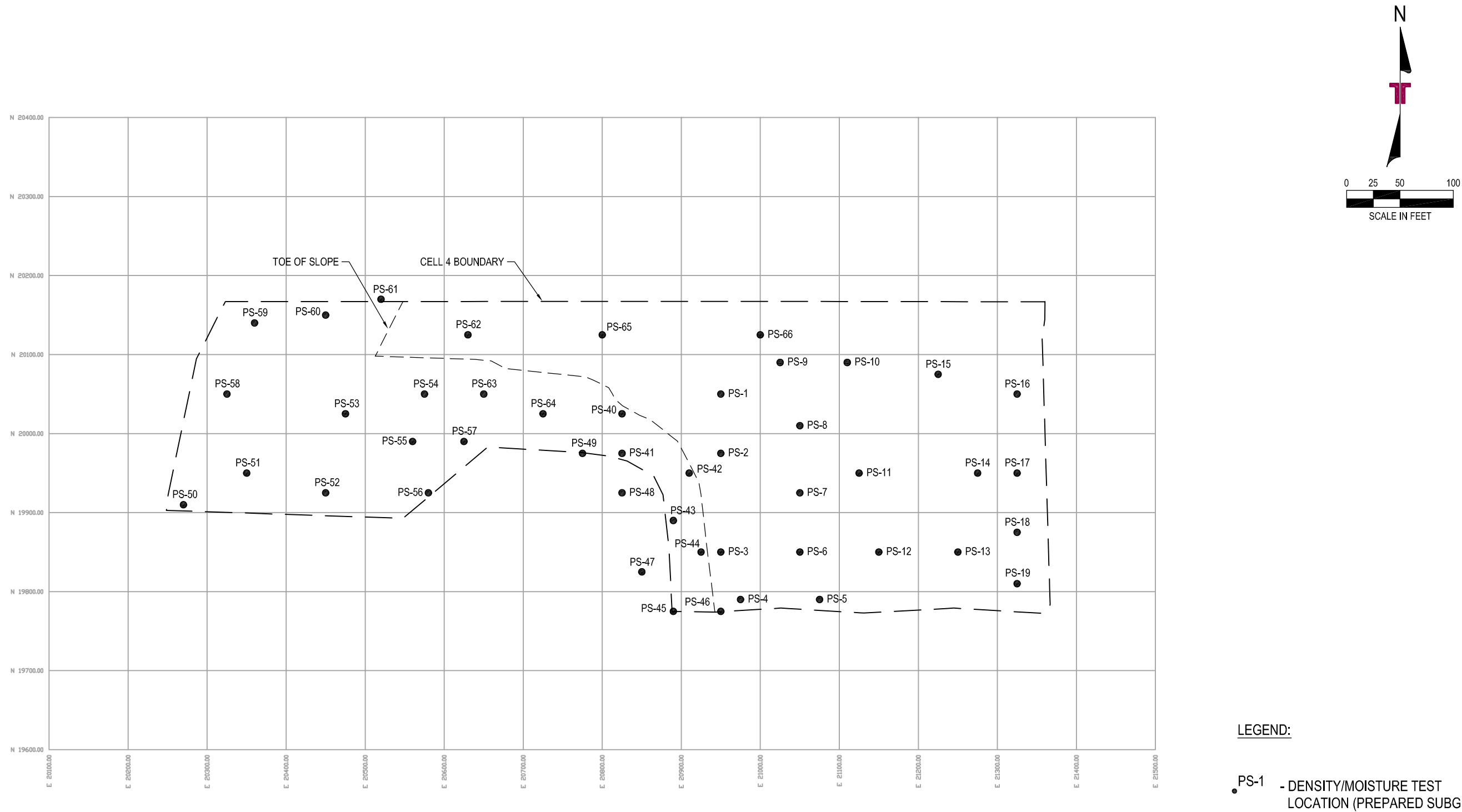
SALINE COUNTY REGIONAL SOLID WASTE MANAGEMENT DISTRICT

CLASS 1 LANDFILL

BAUXITE

ARKANSAS

FIGURE 4	
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DRAWN BY:	PTG
APPVD. BY:	KEB
SCALE:	1" = 100'
DATE:	2/3/09
JOB NO.	055-001-35087125
ACAD NO.	002
SHEET NO.:	OF



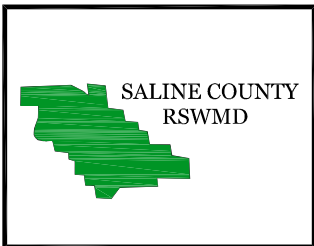
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FIELD DENSITY TEST LOCATIONS - CELL 4 - PREPARED SUBGRADE (LIFT 1)

CONSTRUCTION QUALITY ASSURANCE

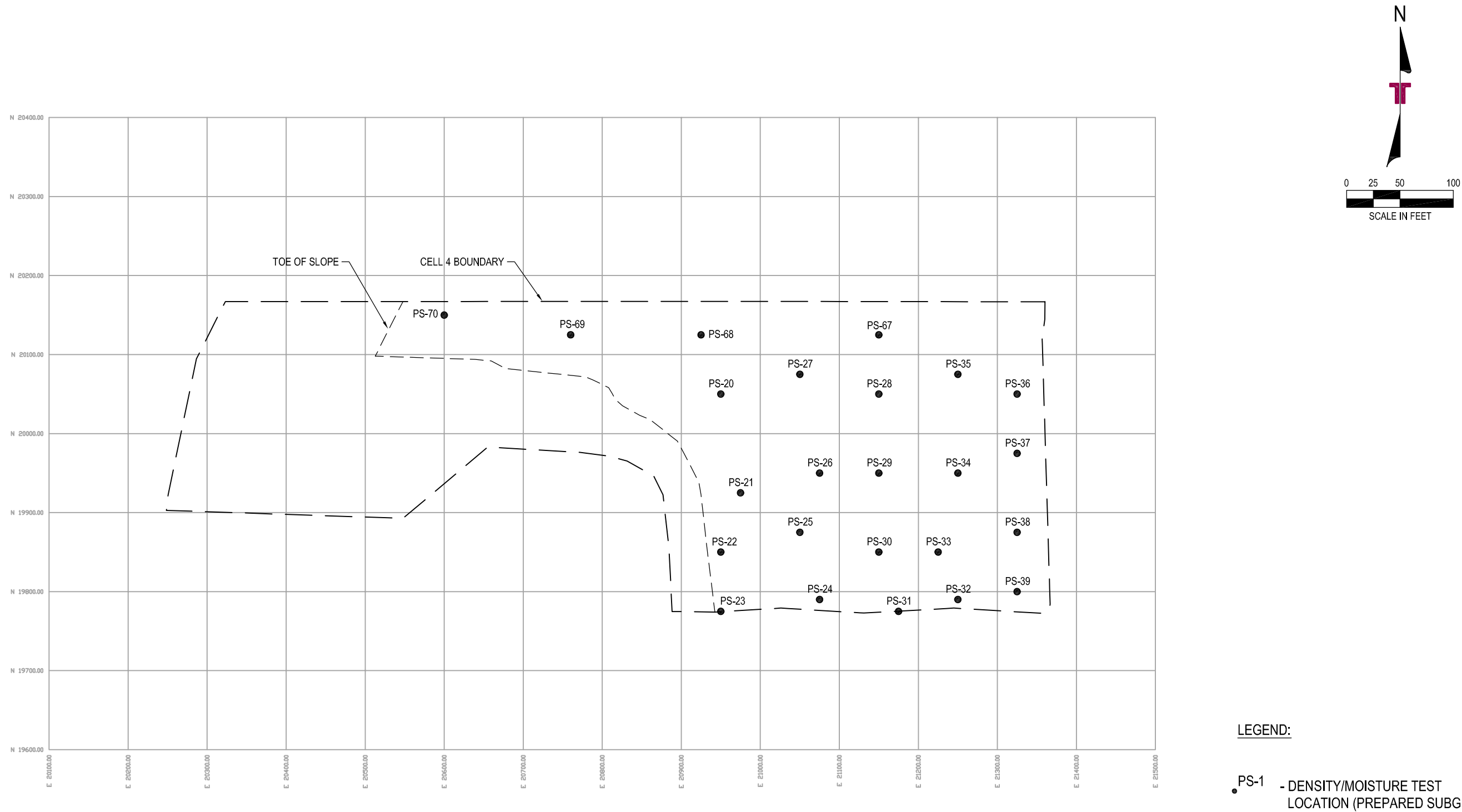
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FIGURE 5	
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ACAD NO.	003
SHEET NO.:	OF



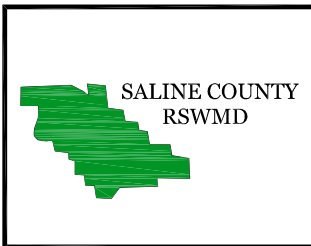
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FIELD DENSITY TEST LOCATIONS - CELL 4 - PREPARED SUBGRADE (LIFT 2)

CONSTRUCTION QUALITY ASSURANCE

SALINE COUNTY REGIONAL SOLID WASTE MANAGEMENT DISTRICT

CLASS 1 LANDFILL

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FIGURE 6	
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3.0 GEOSYNTHETIC LINER INSTALLATION

Installation of the geosynthetic liners for the bottom liner system of Cell 4 occurred during January 2009. Approximately 365,000 square feet of GCL, 60-mil textured HDPE geomembrane liner and 8-ounce double-sided geocomposite were placed in Cell 4 by ESI. The geosynthetic installer information is presented in **APPENDIX G**.

3.1 MANUFACTURER'S QUALITY CONTROL CERTIFICATES

Manufacturer's Quality Control Certificates (roll certification reports) were submitted for comparison of the delivered material properties with the project specifications. Copies of the manufacturer's certificates for the GCL, geomembrane and geocomposite are provided in **APPENDICES H, J, and U** respectively. An inventory of the GCL, geomembrane, and geocomposite used at the site is included in **APPENDIX L**. Based upon the manufacturer's quality control certificates, the supplied materials comply with the project specifications.

3.2 MATERIAL CONFORMANCE TESTING

A copy of the laboratory conformance test results on the GCL, geomembrane and geocomposite are included in **APPENDICES I, K, and V** respectively. Based upon the results of the conformance testing by Precision Geosynthetics Laboratories (PGL), the GCL, geomembrane and geocomposite supplied comply with the project specifications.

3.3 DEPLOYMENT OF GEOSYNTHETICS

Prior to the deployment of the GCL and geomembrane, the ESI quality control foreman and the Terracon quality control technician accepted the subgrade. A Copy of the subgrade acceptance forms are included in **APPENDIX N**.

Deployment of the panels was accomplished by use of a Track-hoe, a 4-wheel ATV, and manual labor to transport each panel into place. A Terracon field representative monitored the deployment of panels. The daily deployment logs for the GCL and geomembrane can be found in **APPENDIX O**. Panel layouts of the bottom liner system for Cell 4 are illustrated in **APPENDIX A**.

Terracon field representatives reviewed each panel and noted any manufacturing and deployment defects for repair. The panels were anchored temporarily with sandbags to prevent wind damage. The panels were permanently anchored at the top of the slopes by anchor trenches filled and compacted with soil. An overbuild area was constructed on the north side of Cell 4 for future tie-in. Plywood was placed over the 60-mil geomembrane and soil was placed over the plywood.

3.4 GEOMEMBRANE TRIAL SEAM MONITORING

Prior to startup of each seaming period (in the morning and after lunch), the fusion and extrusion welder operators were required to prepare a trial seam. The seams were tested in

the field on a gauged tensiometer to check for machine failures or operator errors. **APPENDIX M** contains the calibration certificate for the geosynthetic installation field tensiometer. If the tests passed (in peel and in shear), the operator was then allowed to begin seaming. Trial seam logs are presented in **APPENDIX P**. The seams were checked for peel and shear. The coupons were required to exhibit a film tear bond (FTB) and to meet the project specifications for peel and shear strength in order to be acceptable.

3.5 GEOMEMBRANE SEAM MONITORING

The primary seaming method used for joining geomembrane panels was through an automated double track fusion welder. Extrusion welding was used for patches, repairs, intersections of fusion seams, tie-ins to existing liner, and seam reconstruction. Monitoring of the seaming methods consisted of periodic visual observation of the seaming process, visual examination of the completed seam, and verification that the seam was welded for its entire length. **APPENDIX Q** presents a summary of the panel seaming. Seaming imperfections were marked and subsequently repaired in accordance with the project CQA plan. The panel layouts of the geomembrane installation showing seam locations for the bottom liner system are presented in **APPENDIX A**.

3.6 NON-DESTRUCTIVE SEAM TESTING AND REPAIR MONITORING

Continuity testing on seams, seam repairs, and patches were non-destructively tested by the installer using an air pressure test for fusion welds or vacuum box techniques for extrusion welds. Terracon field CQA personnel monitored and documented field testing of the seams to ensure the tests were performed in accordance with the project CQA plan. Summaries of the geomembrane continuity testing are presented in **APPENDIX R**. The location, size, and testing results of seam repairs and patches were documented. Copies of this documentation can be found in **APPENDIX T**.

3.7 DESTRUCTIVE SEAM STRENGTH TESTING

Each destructive sample was divided into three sections: a sample for field testing, a sample for laboratory testing, and an archive sample. Prior to sending the samples to PGL, they were tested in the field for peel and shear by ESI using a gauged tensiometer. Summaries for the field destructive sampling and laboratory testing for peel and shear are located in **APPENDIX S**. Destructive samples were obtained at a minimum frequency of one sample per 500 linear feet of production seam length. All 38 destructive samples passed laboratory testing. The destructive test locations are noted on the As-Built located in **APPENDIX A**. Based on the results of the seam peel and shear testing performed by ESI and PGL, each seam complies with the project specifications.

4.0 LEACHATE COLLECTION SYSTEM AND PROTECTIVE COVER

The leachate collection system consists of a geocomposite overlying the HDPE liner with a minimum of a two-percent slope to a leachate collection trench.

4.1 LEACHATE COLLECTION PIPE

A leachate collection pipe was installed in the center of the Cell 4 bottom liner system along with two lateral leachate collection lines on the east half of Cell 4. The collection pipe consists of a six-inch diameter perforated HDPE pipe wrapped in a gravel protective/drainage bed. The gravel consists of washed gravel with a gradation varying from No. 4 to 1½ inches in diameter. **TABLE 1** presents the results of laboratory testing of the gravel. The gravel was wrapped with an eight ounce filter fabric to protect the system from clogging. The collection pipe gravity drains at one percent slope into a sump located at the west end of Cell 4. **APPENDIX W** presents the laboratory test results on the gravel and geotextile used in the drainage system.

4.2 PROTECTIVE COVER SOIL

A 12-inch (min) thick on-site soil protective cover layer was placed on top of the geocomposite on the bottom and side slopes of Cell 4. The protective cover was required to have permeability of 1.0E-05 cm/sec or greater. Samples PC-2 and PC-3 had permeability's of 3.5E-03 cm/sec and 2.2E-04 cm/sec respectively, which meets the project requirement. **APPENDIX W** presents the laboratory test results of the protective cover layer. The survey record drawing provided in **APPENDIX A** illustrates the top of the protective cover layer. The layer was placed using low ground pressure dozers while maintaining a 12-inch thick minimum working surface to ensure protection of the underlying geosynthetic liner.

4.3 LEACHATE PUMP SYSTEM

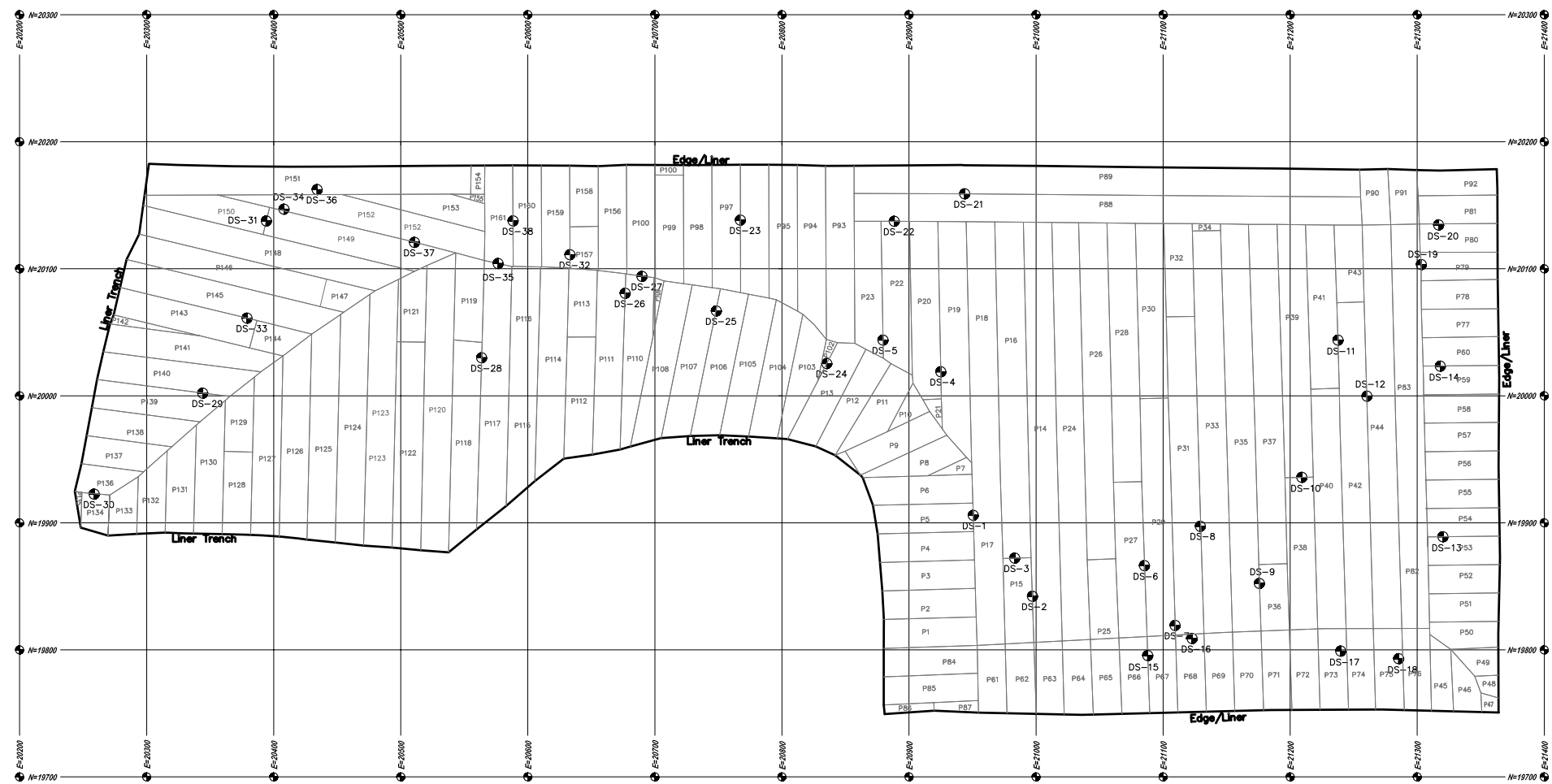
Two 18-inch diameter HDPE side slope riser pipes were installed in the sump and up the western side slope of Cell 4. The pumps were installed within the riser pipes. The liquid in the sump is pumped through a 3-inch by 6-inch diameter dual contained force main and is conveyed to an existing 50,000 gallon storage tank located east of the maintenance shop. See **APPENDIX X** for material supplier information regarding the leachate pumps.

TABLE 1. LEACHATE COLLECTION GRAVEL TEST SUMMARY

Test Description	Calcium Carbonate (%)	Particle Size Analysis ASTM D1140, D422	Soils Classification (USCS)	Permeability (cm/sec)
Project Requirements	<15	Less than 5% passing No. 200 sieve	GP	1.0×10^{-2}
Sample Number	Test Results			
PG-1 (Pre-construction)	0.09	0.2% passing No. 200 sieve	GP	$1.69 \times 10^{+1}$
CG-1 (Construction)	N/A	1.0% passing No. 200 sieve	GP	$1.72 \times 10^{+1}$

APPENDIX A

AS-BUILT DRAWINGS



Liner Panels and Destructs
New Cell 4 Construction
Saline County Landfill
Bauxite, Arkansas

Note:
Panel locations were established by actual shots in the field and notes taken
by Terracon's in field supervisor.



FOR USE AND BENEFIT OF:
Terracon

Drawn By: D. Harmon
Checked By: D. Harmon
SCALE: 1" = 60'
DATE: 03/04/09

HARMON SURVEYING, INC.
P.O. Box 691
Conway, AR 72033
Phone: (501) 730-1518
Fax: (501) 730-0637



APPENDIX B

GENERAL PROJECT CORRESPONDENCE

September 18, 2008

Mr. Bryan Leamons, P.E., Engineer Supervisor
Arkansas Department Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

SUBJECT: **Notification of Construction**
 Saline County Class 1 Landfill
 Permit No. 0261-S1-R2; AFIN 63-00155

Dear Mr. Leamons:

Terracon Consultants, Inc. (Terracon) is providing this notification of construction on behalf of the Saline County Regional Solid Waste Management District Landfill (Saline County Landfill), located near Bauxite, Arkansas. The Saline County Landfill is constructing Cell 4 of the Class 1 Landfill. Terracon and the Saline County Landfill are notifying the Arkansas Department of Environmental Quality (ADEQ) in accordance with Reg.22.428(f) of Regulation 22 of the proposed construction schedule.

Description/Contractor Proposed Schedule

General Earthwork Contractor (Pickett Industries)	9/17/08 – 12/31/08
Surveying (Harmon Surveying)	9/17/08 – 12/31/08
CQA Services (Terracon Consultants, Inc.)	9/17/08 – 12/31/08

Note: This schedule is tentative and may change due to weather delays.

A construction certification report documenting construction activities will be submitted to the ADEQ upon completion of construction.

If you have any questions or comments, please feel free to contact me at bnfureigh@terracon.com or 501-847-9292 at your convenience.

Sincerely,




Brad Fureigh, E.I.
Project Engineer



Ken Bown, P.E.
Engineering Department Manager

Cc: Dennis Wills, Executive Director, SCRSWMD

N:\Projects\2008\35087125\ADEQ Notification bnf 9.18.08.doc

APPENDIX C

DAILY PROJECT FIELD RECORDS

DAILY PROJECT FIELD RECORD

DATE: 9/10/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cloudy

PROJECT NUMBER: 35087125

TERRACON REP: Heath Lockley

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒	Pickett Industries	⇒	(7) Tractors with Pans
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒	Terracon (1)	⇒	(1) Excavator
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 9/18/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 70's, Sunny

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒	Pickett Industries	⇒	(7) Tractors with Pans
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒	Terracon (1)	⇒	(1) Excavator
⇒	Huey Johnson	⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 9/19/2008
PROJECT: SALINE COUNTY CQA
LOCATION: Bauxite, AR

WEATHER CONDITIONS: Clear
PROJECT NUMBER: 35087125
TERRACON REP: Clayton Haynes

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett Industries (10)	⇒ (8) Tractors with Pans (2 each)
⇒ David Bliss - PM	⇒ (2) Bulldozers + (1) Dozer
⇒ Huey Johnson	⇒
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

TIME	NOTES
9:30	Arrived onsite. Tractors excavating northwest side of cell. Fueling up one John Deere tractor. Both dozers broken down. The track broke on the second one about 9:00.
11:30	6 of 8 tractors stopped for lunch.
12:15	Resume excavation.
3:00	One more tractor fuels up. New dozer smooths north side of borrow pit.
3:15	Ken Bown stopped by and we toured the cell.
3:30	Dozer enters the cell to dig out what appears to be a cable or wire rope. (100' E of W side)
4:00	Service man shows up to fix pan on Case III tractor. Dozer operator cannot get the wire rope out at this time, so he resumes work on borrow area.
5:00	Tractor that had broken pan is fixed and running again.
6:00	Fuel up one of the Case III tractors.
6:30	Fuel up one of the other Case III tractors, and greasing the pans. 2 Riggs service trucks arrive onsite to fix dozer with broken track.
6:55	Tractors start shutting down for the day.
7:05	Depart site.

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DAILY PROJECT FIELD RECORD

LOCATION: Bauxite, AR

TERRACON REP: Donald Walls

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries (12)	⇒	(8) Tractors with Pans (2 each)
⇒		⇒	(2) Bulldozers
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: Donald Walls

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries (12)	⇒	(8) Tractors with Pans (2 each)
⇒		⇒	(2) Bulldozers
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 9/22/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 70's, Sunny

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers Active
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 9/23/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 70's, Sunny

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett Industries		⇒ (8) Tractors (Double Pans on Scrapers)	
⇒ SCRSWMD		⇒ (2) Bulldozers	
⇒ Surveyors		⇒	
⇒ Terracon (1)		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 70's, Sunny

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒	Terracon (1)	⇒	
⇒	Dennis	⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

PROJECT: SALINE COUNTY CQA

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒		⇒	
⇒		⇒	One Tractor Down (Case)
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 9/26/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 60 at 8:00, 80 noon

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 9/27/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 60 at 8:00, 80 noon

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒		⇒	
⇒		⇒	One Tractor / One Dozer Active
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 9/29/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 60 at 8:00, 80 noon

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒	Surveyors	⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 9/30/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 60 at 8:00, 80 noon

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒		⇒	(1) Water Truck (Afternoon)
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

PROJECT: SALINE COUNTY CQA

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/2/2008

PROJECT: SALINE COUNTY CQA

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Cool, 51, No wind

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>		<u>Contractor Equipment on Site:</u>	
⇒	Pickett Industries	⇒	(8) Tractors (Double Pans on Scrapers)
⇒	SCRSWMD	⇒	(2) Bulldozers
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

LOCATION: Bauxite, AR

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett Industries		⇒ (8) Tractors (Double Pans on Scrapers)	
⇒ SCRSWMD		⇒ (2) Bulldozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	*Two Tractors down / Cylinders on pans are malfunctioning
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

PROJECT: SALINE COUNTY CELL 4

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett Industries (4)	⇒ (8) Tractors (Double Pans)
⇒ Tractor Operators (8)	⇒ (2) Bulldozers
⇒	⇒ (1) Excavator
⇒	⇒ (1) Trac Hammer
⇒	⇒ (3) Pumps and hoses
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

PROJECT: SALINE COUNTY CELL 4

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett Industries (5)	⇒ (8) Tractors (Double Pans)
⇒ Tractor Operators (8)	⇒ (3) Bulldozers
⇒	⇒ (1) Track Hoe
⇒	⇒ (1) Trac Hammer
⇒	⇒ (3) Pumps and hoses
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

PROJECT: SALINE COUNTY CELL 4

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett Industries (5)	⇒ (8) Tractors (Double Pans)
⇒ Saline County (4)	⇒ (2) Bulldozers
⇒ Tractor Operators (2)	⇒ (1) Track Hoe Excavator
⇒	⇒ (3) Pumps and hoses
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

LOCATION: Bauxite, AR

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett Industries (3)		⇒ (8) Tractors (Double Pans)	
⇒ Saline County (4)		⇒ (3) Bulldozers (2 - Pickett) (1 - Saline Co.)	
⇒		⇒ (2) Excavators (1 - Pickett) (1 - Saline Co.)	
⇒		⇒ (3) Pumps and hoses (Pickett)	
⇒		⇒ (2) Trucks (Saline Co.)	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

LOCATION: Bauxite, AR

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett Industries (3)	⇒	(8) Tractors (Double Pans)
⇒	Saline County (4)	⇒	(3) Bulldozers (2 - Pickett) (1 - Saline Co.)
⇒		⇒	(2) Excavators (1 - Pickett) (1 - Saline Co.)
⇒		⇒	(3) Pumps and hoses (Pickett)
⇒		⇒	(2) Trucks (Saline Co.)
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/13/2008
PROJECT: SALINE COUNTY CELL 4
LOCATION: Bauxite, AR

WEATHER CONDITIONS: Partly Cloudy, 77
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgram

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett Industries (5)	⇒ (8) Tractors (Double Pans)
⇒ Saline County (4)	⇒ (3) Bulldozers (2 - Pickett) (1 - Saline Co.)
⇒	⇒ (2) Excavators (1 - Pickett) (1 - Saline Co.)
⇒	⇒ (3) Pumps and hoses (Pickett)
⇒	⇒ (2) Trucks (Saline Co.)
⇒	⇒
⇒	⇒

TIME	NOTES
9:00	Arrived onsite.
	Checked stormwater level in pond.
	Pump specs, collected for stormwater.
	Leachate pump control inspection.
9:48	(ETM 1 - 2733.3) (ETM 2 - 3192.6) (Disp 19.4)
12:00	(ETM 1 - 2733.3) (ETM 2 - 3192.6) (Disp 19.4)
1:45	Pickett survey personnel onsite.
	Saline County continuing garbage removal.
2:20	Dodd survey personnel onsite.
	Rechecked stormwater pump info.
	Excavation stormwater ditch: North slope.
	Survey crew staking slopes.
4:00	(ETM 1 - 2733.3) (ETM 2 - 3192.6) (Disp 19.4)
4:30	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 10/15/2008

PROJECT: SALINE COUNTY CELL 4

LOCATION: Bauxite, AR

WEATHER CONDITIONS: Partly Sunny, 75, Breeze

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgram

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett Industries (6)	⇒ (8) Tractors (Double Pans)
⇒ Saline County (4)	⇒ (3) Bulldozers (2 - Pickett) (1 - Saline Co.)
⇒	⇒ (2) Excavators (1 - Pickett) (1 - Saline Co.)
⇒	⇒ (2) Pumps and hoses (Pickett)
⇒	⇒ (2) Trucks (Saline Co.)
⇒	⇒ (1) Trac Hammer
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

LOCATION: Bauxite, Arkansas

TERRACON REP: Earl Pilgram

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett Industries (5)	⇒ (2) Tractors (Dual Pans)
⇒	⇒ (3) Dozers
⇒	⇒ (1) Excavator
⇒	⇒ (1) Water Truck
⇒	⇒ (1) Sheeps Foot Roller
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/17/2008
PROJECT: SALINE COUNTY CELL 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, Clear, 73
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgram

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett Industries (5)	⇒ (2) Tractors (Dual Pans)
⇒ Survey Crew (1)	⇒ (3) Dozers
⇒	⇒ (1) Excavator
⇒	⇒ (1) Water Truck
⇒	⇒ (1) Sheeps Foot Roller
⇒	⇒
⇒	⇒

TIME	NOTES
9:30	Arrived onsite.
	(ETM1 - 2733.5) (ETM2 - 3192.6) (Disp 20.5") (WL 21.25')
	Stormwater pump (Hr 1117.2) (RPM 1800)
	Dennis Wills stopped by to request readings on leachate discontinue - Brad confirmed
11:30	Underdrain piping delivered / Pickett using trackhoe to unload.
12:15	Survey personnel from Pickett recalibrating GPS.
	Harmon survey personnel onsite.
	Pickett continuing to pump water from sump area of Cell 4 to stormwater pond.
	Wet conditions in Cell 4 basin area.
2:00	Repair person replacing starter on dozer.
	Checking pipe delivery sheets / partial delivery.
3:00	Trac-hammer transported from site.
	Sump being pumped to stormwater pond.
	Partial load of piping delivered onsite.
4:00	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 10/20/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, 75, Lt. Breeze

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett (6)	⇒	(2) Dozers
⇒		⇒	(1) Trac Excavator
⇒		⇒	(1) Sheepfoot Packer
⇒		⇒	(1) Water Truck
⇒		⇒	Pumps
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/21/2008
PROJECT: Saline County Cell 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, Clear, 73
PROJECT NUMBER: 35087125
TERRACON REP: Brad F., Heath L., Mark W.

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett Industries	⇒ (2) Tractors (Dual Pans)
⇒ (5) Equipment operators/labor	⇒ (2) Dozers
⇒	⇒ (1) Excavator
⇒ Terracon	⇒ (1) Water Truck
⇒ Brad F., Heath L., Mark W., Earl P.	⇒ (1) Sheeps Foot Roller
⇒	⇒
⇒	⇒

TIME	NOTES
1:00	Departed Office.
1:15	Arrived on site.
1:30	Observed equipment concentrated on excavation of north ditch. Equipment operating included: (1) excavator, (1) tractor with dual pans, and (1) dozer. Excavator was removing material from north ditch and loading it into the pans. The tractor was hauling the excavated material to the stockpile area located north of Cell 4.
1:40	Observed sump that had been excavated by Pickett at the north end of the proposed under-drain. The sump was approximately 10 feet deep and had about 3 feet of water in the bottom. Pickett was not pumping this water at the time of the site visit.
	Three Pickett employees were at the pump located at the northeast corner of Cell 4. The pump was not in operation at the time of the site visit.
	The elevation of the stormwater pond appears to have dropped about one foot. Saline County LF continues pumping the stormwater down.
	It is noted that no progress has been made thus far on the under-drain system.
1:50	Brad F. and Heath L. walked around the construction site observing progress that had been made to date.
2:10	Mark, Brad and Heath talked to Earl about progress that was supposed to be made this week. Brad told Earl that Pickett needed to get the north ditch completed by this afternoon to be ready for the rain forecasted for tomorrow. Brad also told Earl to keep thorough documentation in his daily notes and to continue taking photographs.
2:15	Departed site.
2:30	Arrived at office.

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DAILY PROJECT FIELD RECORD

DATE: 10/21/2008
PROJECT: Saline County Cell 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, 76, Breeze
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (6)	⇒ (2) Dozers
⇒	⇒ (1) Trac Excavator
⇒	⇒ (1) Tractor (double pan scraper)
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Gravel Box
⇒	⇒ (1) Water Truck
⇒	⇒ Pumps and hoses

TIME	NOTES
8:30	Arrived onsite.
	Observed excavation of ditch.
	Excavated sump to pump to stormwater pond.
10:00	Saline County working on stormwater replacement pump - Electrical repair for hook-up. *Stormwater pump impeller dissolved.
	*One tractor pan disabled, missing rear tire cylinder.
1:00	Mark, Brad and Heath onsite.
	Found temporary pipe culvert - Access Road.
2:00	Checking ditch elevation (North).
	Track hoe operator ill, leaving site.
3:00	Site visit: Drainage Material Company collected sample.
	Rechecking pipe supplies.
	Pumping water from tie-in (East end).
	Photos taken of ditch excavation and sump excavation.
	Photo of stormwater pond level.
4:30	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 10/22/2008
PROJECT: Saline County Cell 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Partly Sunny, 63, Breeze
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (7)	⇒ (2) Dozers
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (2) Tractors (double pan scraper)
⇒	⇒ (2) Excavators
⇒	⇒ (1) Gravel Box
⇒	⇒ (1) Water Truck
⇒	⇒ Pumps and hoses

TIME	NOTES
8:30	Arrived onsite.
9:00	Bringing North ditch to grade / Track hoe operator returned.
	Delivered: 39 Loads (20T loads) Drainage gravel.
10:00	Delivered: 17 Rolls GCL (15'W x 150'L)
10:15	Delivered: 1 Pallet Bentonite.
12:00	Delivered sample drainage gravel to lab.
	Photograph stockpile of drainage gravel.
	Photograph GCL rolls - covered to protect.
	Excavator 360LC-7 delivered to jobsite.
1:00	Removal of soil East end Cell 4 liner tie-in / Staking end of liner.
	No excavation of underdrain ditch.
3:00	Helped tractor operator replace tire on scraper pan.
	Refilled fuel tank (Pickett).
	No installation of Access Road culvert.
4:30	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 10/23/2008
PROJECT: Saline County Cell 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Wet, Overcast, 55
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (6)	⇒ (2) Dozers
⇒ Riggs Repairmen (2)	⇒ (1) Sheepfoot Packer
⇒	⇒ (2) Tractors (double pan scraper)
⇒	⇒ (2) Excavators
⇒	⇒ (1) Gravel Box
⇒	⇒ (1) Water Truck
⇒	⇒ Pumps and hoses

TIME	NOTES
8:30	Arrived onsite.
	Very muddy conditions.
	Equipment idle.
	Riggs equipment repair personnel onsite for dozer repair.
	Moving track excavators to Cell 4 in install culvert.
12:00	Observed Dennis inspecting landfill.
	Stormwater pump operating.
1:00	Track hoe Longneck Excavator onsite. CAT 322C
3:00	Installing Access Road culvert ADS and steel.
3:30	6" Diesel pump delivered.
	Harmon survey personnel staked underdrain trench.
	Removing sediment from stormwater pond / Outfall of underdrain end pipe.
	Removed soil subgrade to protective cover of liner tie-in. (East end of Cell 4)
4:30	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 10/24/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear, 42, Breezy

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (6)		⇒ (2) Dozers	
⇒ Trench Safety (1)		⇒ (2) Track Excavators	
⇒		⇒ (1) Track Longneck	
⇒		⇒ (1) Packer	
⇒		⇒ (1) Front End Loader	
⇒		⇒ (1) Water Truck	
⇒		⇒ (2) Tractors (double pan scrapers)	(1) Gravel Bin

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/25/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, Clear, 46

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (6)	⇒ (2) Dozers
⇒	⇒ (2) Track Excavators
⇒	⇒ (1) Track Longneck
⇒	⇒ (1) Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (1) Water Truck
⇒	⇒ (2) Tractors (double pan scrapers) (1) Gravel Bin

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/26/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, Breeze, 61

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (6)	⇒ (3) Trac Excavators
⇒	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ (2) Dozers
⇒	⇒ Pumps
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/27/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Cool, Sunny, 65

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (6)		⇒ (3) Trac Excavators	
⇒ Trench Safety (1)		⇒ (1) Front End Loader	
⇒		⇒ (1) Dozer	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/28/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Windy, Cool, 37

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (7)		⇒ (3) Trac Excavators	
⇒ Trench Safety (1)		⇒ (1) Front End Loader	
⇒ ESI (1)		⇒ (1) Dozer	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/29/2008
PROJECT: Saline County Cell 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, 35, no wind
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (7)	⇒ (3) Trac Excavators
⇒ Trench Safety (2)	⇒ (1) Front End Loader
⇒ ESI Fusion Personnel (1)	⇒ (1) Dozer
⇒ Harmon Survey (1)	⇒
⇒ Pickett Survey (1)	⇒
⇒	⇒
⇒	⇒

TIME	NOTES
8:30	Arrived onsite.
9:00	One truckload of GCL arrived.
	Servicing equipment (dozer).
9:30	Continuing underdrain installation.
	Geo cloth installed underdrain trench.
	120' fused HDPE pipe installed in north to south underdrain.
	Drainage gravel added to trench / 3 feet of gravel.
11:30	Survey personnel survey layout of lateral underdrain lines.
	Second load of GCL delivered.
12:00	Saline County personnel pumping manhole of stormwater pond / Grading and excavating southwest area of stormwater pond.
1:00	Fusion personnel fabricating covers for leachate pipes.
	Began removing trench boxes from underdrain trench.
5:00	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 10/30/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, some haze, 43

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (7)	⇒ (3) Trackhoes
⇒ ESI (1)	⇒ (2) Dozers
⇒	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ Gravel Bin
⇒	⇒ Pumps
⇒	⇒ Cables, hooks, chains

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 10/31/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, Cool, 51, Calm

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (3) Trackhoes
⇒ ESI (1)	⇒ (2) Dozers
⇒ Tractor Personnel (1)	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ Gravel Bin
⇒	⇒ Pumps, Cables , Hooks, Chains
⇒	⇒ Maintenance Trailer

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/01/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: 65, Clear, Calm

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (5)	⇒ (3) Trackhoes
⇒ ESI (1)	⇒ (2) Dozers
⇒	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ Gravel Bin
⇒	⇒ Pumps, Cables , Hooks, Chains
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/03/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny, 65, Breeze

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (6)	⇒ (3) Trackhoes
⇒ Trench Safety (1)	⇒ (2) Dozers
⇒	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ Gravel Bin
⇒	⇒ Pumps, Cables , Hooks, Chains
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/04/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Windy, 70, Clear

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (3) Trac Excavators
⇒	⇒ (2) Dozers
⇒	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ Gravel Bin
⇒	⇒ Pumps, Cables , Hooks, Chains
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/06/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Windy, Partly Cloudy, 70

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (8)		⇒ (3) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒ (1) Front End Loader	
⇒		⇒ (1) ATV	
⇒		⇒ Gravel Bin	
⇒		⇒ Pumps	
⇒		⇒ Cables, hooks, chains	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/07/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Very Windy, Clear, 66

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (7)		⇒ (3) Trac Excavators	
⇒ Tractor Personnel (1)		⇒ (2) Dozers	
⇒		⇒ (1) Front End Loader	
⇒		⇒ (1) ATV	
⇒		⇒ Gravel Bin, Pumps, Hoses, Cables	
⇒		⇒ (1) Tractor Scraper (2 pans)	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/08/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Windy, Sunny, 40

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (6)		⇒ (3) Trac Excavators	
⇒ Tractor Personnel (1)		⇒ (2) Dozers	
⇒		⇒ (1) Front End Loader	
⇒		⇒ (1) ATV	
⇒		⇒ Gravel Bin, Pumps, Hoses, Cables	
⇒		⇒ (1) Tractor Scraper (2 pans)	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/09/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Cloudy, 42, Windy

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (7)		⇒ (3) Trac Excavators	
⇒ Tractor Personnel (1)		⇒ (2) Dozers	
⇒		⇒ (1) Front End Loader	
⇒		⇒ (1) ATV	
⇒		⇒ Gravel Bin, Pumps, Hoses, Cables	
⇒		⇒ (1) Tractor Scraper (2 pans)	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/10/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Overcast, 42, Breezy

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (8)	⇒ (3) Trac Excavators
⇒ Surveyor (1)	⇒ (2) Dozers
⇒ Trench Bos Vendor (1)	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ Gravel Bin, Pumps, Hoses, Cables
⇒	⇒ (1) Tractor Scraper (2 pans)
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/12/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Raining - 46 Degrees

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (8)	⇒ (3) Trac Excavators
⇒	⇒ (2) Dozers
⇒	⇒ (1) Front End Loader
⇒	⇒ (1) ATV
⇒	⇒ Gravel Bin, Pumps, Hoses, Cables
⇒	⇒ (1) Tractor Scraper (2 pans)
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/14/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Wet, Windy, Cool, 41

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett (8)		⇒ (1) Trac Hammer	
⇒ Trench Safety (1)		⇒ (2) Dozers	
⇒		⇒ (3) Trac Excavators	
⇒		⇒ (1) Sheepfoot Packer	
⇒		⇒ (2) Tractor Scrapers	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/17/2008
PROJECT: Saline County Cell 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Windy, 52 Degrees
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (1) Trac Hammer
⇒ Surveyor (1)	⇒ (2) Dozers
⇒	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (2) Tractor Scrapers
⇒	⇒
⇒	⇒

TIME	NOTES
7:30	Arrived onsite.
8:30	Geosynthetic materials arriving on 2 trucks.
	Underdrain main is finished.
	Pickett survey personnel - Surveying cell sump grade and slope grade.
	Excess soil removed from Cell 4 is being stockpiled North of Cell 4.
11:00	Geosynthetic material being unloaded (2 trucks)
	Construction photos taken for documentation.
	Continued groundwater removal through underdrain system.
	2nd tractor scraper onsite.
	Delivered photos to Terracon.
15:00	Saline County excavating Cell 4 corners.
	Disassembling more trench boxes.
	Cleaned sediment from North ditch.
	Geosynthetic material completely unloaded (2 trucks, 152 rolls)
	Trenching small area of rock in Northwest ditch.
	Hired dozer operator (Pickett)
16:00	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 11/18/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Cold, 32, Windy, Clear

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (6)	⇒ (1) Trac Hammer
⇒ Surveyor (1)	⇒ (2) Dozers
⇒ Tractor Personnel (2)	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/19/2008
PROJECT: Saline County Cell 4
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Cold, 36, Windy
PROJECT NUMBER: 35087125
TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (1) Trac Hammer
⇒ Survey Personnel (1)	⇒ (2) Dozers
⇒ Tractor Personnel (2)	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

TIME	NOTES
8:00	Arrived onsite.
	Pickett servicing and refueling equipment.
10:00	Continue exposing liner tie-in on South side of Cell 4.
	Finish storing Geosynthetics.
12:30	Remaining trench boxes disassembled and hauled off.
	Trac Hammer leaving site.
13:00	Survey personnel checking excavation grades.
	Water on tie-in liner.
	Leachate collection system not pumping.
15:00	Longneck Trackhoe boom pin broken.
	A 3rd dozer delivered to job site.
	Pickett hired 2 new laborers.
	Started construction of overbuild berm.
16:00	Leaving site.

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DAILY PROJECT FIELD RECORD

DATE: 11/20/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: 36, Windy, Clear

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (8)	⇒ (1) Trac Hammer
⇒	⇒ (2) Dozers
⇒	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 11/21/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: 31, Windy, Clear

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (8)	⇒ (1) Trac Hammer
⇒ Pickett Surveyor (1)	⇒ (3) Dozers
⇒	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 11/22/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Cold, Breeze, 45

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (1) Trac Hammer
⇒ Pickett Surveyor (1)	⇒ (3) Dozers
⇒ Tractor Personnel (2)	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 11/23/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Cool, 42, Overcast

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (1) Trac Hammer
⇒ Tractor Personnel (2)	⇒ (3) Dozers
⇒	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 11/25/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: Stephen Billingsley

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (8)	⇒ (1) Trac Hammer
⇒ Tractor Personnel (2)	⇒ (3) Dozers
⇒	⇒ (3) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 11/26/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Partly Cloudy, 65

PROJECT NUMBER: 35087125

TERRACON REP: Donald Walls

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (7)	⇒ (1) Trac Hammer
⇒	⇒ (2) Dozers
⇒	⇒ (1) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 11/29/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Wet, Cool, 43, Overcast

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (3)	⇒ (1) Trac Hammer
⇒	⇒ (2) Dozers
⇒	⇒ (1) Trac Excavators
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (1) Front End Loader
⇒	⇒ (2) Tractors w/ Scrapers
⇒	⇒ Gravel Bin

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 12/01/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Windy, Clear, 25

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (5)	⇒ (1) Tractor Scraper
⇒ Tractor Personnel (1)	⇒ (2) Dozers
⇒	⇒ (1) Longneck Trackhoe
⇒	⇒ (1) Drum Roller
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 12/02/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: 30, Windy, Clear

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (6)	⇒ (2) Tractor Scrapers
⇒ Tractor Personnel (2)	⇒ (2) Dozers
⇒ Harmon Survey (2)	⇒ (1) Longneck Trackhoe
⇒ Pickett Survey (1)	⇒ (1) Drum Roller
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 12/03/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Very Cold, 31

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (2) Tractor Scrapers
⇒ Tractor Personnel (2)	⇒ (2) Dozers
⇒ ESI (1)	⇒ (2) Trackhoes
⇒	⇒ (1) Drum Roller
⇒	⇒ (1) Sheepfoot Packer
⇒	⇒ (2) Trash Pumps
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 12/08/2008

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Windy, Overcast

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (8)	⇒ (2) Dozers
⇒ Tractor Personnel (2)	⇒ (2) Utility Trucks
⇒ Harmon Survey (1)	⇒ (2) Trackhoes
⇒	⇒ (1) Drum Roller
⇒	⇒ (1) Sheepfoot
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 1/08/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny

PROJECT NUMBER: 35087125

TERRACON REP: Earl Pilgrim

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett (6)	⇒ (2) Dozers
⇒ Pickett Survey (1)	⇒ (2) Pan Scrapers Tractors
⇒ Harmon Survey (1)	⇒ (2) Excavators
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 1/16/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Overcast / Cold 35

PROJECT NUMBER: 35087125

TERRACON REP: Joe W. Smith II

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett (6)	⇒ (2) Dozers
⇒ Pickett Survey (1)	⇒ (2) Pan Scrapers Tractors
⇒ Harmon Survey (1)	⇒ (2) Excavators
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 1/18/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Cold

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

[illegible][illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 1/19/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Cold / Windy

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett	⇒ (1) SkyTrak
⇒ ESI (19)	⇒ (1) Trackhoe
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: January 19, 2009
PROJECT: Saline County Cell 4 CQA
LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Cloudy, Windy, Cold
PROJECT NUMBER: 35087125
TERRACON REP: Brad Fureigh

Contractor Personnel on Site:	Contractor Equipment on Site:
⇒ Pickett - Equipment Operators	⇒ CAT Excavator
⇒	⇒ Haul Truck
⇒	⇒
⇒ ESI - Liner Crew	⇒ Welders
⇒	⇒ Tensiometer
⇒	⇒
⇒	⇒

TIME	NOTES
8:45	Depart office.
9:00	Arrived on site.
9:05	Looked at slope failure on south side of Cell 4 with Stephen and Joe. Leachate from existing Cell 2 - Zones 1 & 2 was seeping around the existing manhole pipe and saturating the Cell 4 tie-in area causing the lower portion of the slope to start failing.
9:15	The defective area to be corrected was identified with orange spray paint. Huey with Pickett was instructed to excavate the unsuitable material and haul it to the working face of the Landfill. He was specifically instructed not to take the excavated soils to the on site stockpile area because of contamination issues.
9:30	Spoke with Randy from ESI and he said they have been having a hard time with Pickett. He said they are not very willing to cooperate with them in getting the existing liner cleaned off for the tie-in.
9:45	Documented construction progress with photographs. Photos were taken of the slope failure and the area that was to be repaired.
10:00	Departed site.
10:15	Arrived at office.
2:30	NOTE: Stephen called to inform me that Pickett attempted to take the contaminated soils to the soil stockpile area. Stephen stopped them and made them take the contaminated soil to the working face of the Landfill.

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DAILY PROJECT FIELD RECORD

DATE: 1/20/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Windy

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett	⇒ (3) Haul Trucks
⇒ ESI	⇒ (2) Trackhoes
⇒	⇒ (2) Tractors and pans
⇒	⇒ (2) Dozers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 1/21/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Windy

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Haul Trucks	
⇒ ESI		⇒ (2) Trackhoes	
⇒		⇒ (2) Tractors and pans	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 1/22/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Windy

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Haul Trucks	
⇒ ESI		⇒ (2) Trackhoes	
⇒		⇒ (2) Tractors and pans	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 1/23/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Windy

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Haul Trucks	
⇒ ESI		⇒ (2) Trackhoes	
⇒		⇒ (2) Tractors and pans	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 1/31/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Sunny

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (1) SkyTrak	
⇒ ESI		⇒ (2) Excavators	
⇒		⇒ (2) D6 Dozers	
⇒		⇒ (2) Tractors with Pans	
⇒		⇒ (2) Haul Trucks	
⇒		⇒	
⇒		⇒	

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DAILY PROJECT FIELD RECORD

DATE: 2/2/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (2) Haul Trucks	
⇒ ESI		⇒ (2) Tractors and pans	
⇒		⇒ (2) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	

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DAILY PROJECT FIELD RECORD

DATE: 2/3/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett	⇒ (2) Haul Trucks
⇒ ESI	⇒ (2) Tractors and pans
⇒	⇒ (2) Trackhoes
⇒	⇒ (2) Dozers
⇒	⇒
⇒	⇒
⇒	⇒

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/4/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett	⇒ (2) Haul Trucks
⇒ ESI	⇒ (2) Tractors and pans
⇒	⇒ (2) Trackhoes
⇒	⇒ (2) Dozers
⇒	⇒
⇒	⇒
⇒	⇒

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DAILY PROJECT FIELD RECORD

DATE: 2/5/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Haul Trucks	
⇒ ESI		⇒ (2) Tractors and pans	
⇒		⇒ (2) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/6/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett	⇒ (3) Haul Trucks
⇒ ESI	⇒ (2) Tractors and pans
⇒	⇒ (2) Trackhoes
⇒	⇒ (2) Dozers
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/7/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Overcast / 57

PROJECT NUMBER: 35087125

TERRACON REP: Joe W. Smith

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett	⇒	(3) Pump Trucks
⇒	ESI	⇒	(2) Trackhoes
⇒		⇒	(1) Dozer
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/8/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett	⇒ (3) Haul Trucks
⇒ ESI	⇒ (2) Trackhoes
⇒	⇒ (2) Dozers
⇒	⇒ (2) Tractors and pans
⇒	⇒
⇒	⇒
⇒	⇒

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 2/9/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Windy

PROJECT NUMBER: 35087125

TERRACON REP: S. Billingsley

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒	Pickett	⇒	(3) Haul Trucks
⇒		⇒	(2) Trackhoes
⇒		⇒	(2) Dozers
⇒		⇒	(2) Tractors and pans
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/13/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Overcast / Calm

PROJECT NUMBER: 35087125

TERRACON REP: Joe W. Smith

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (4) Dump Trucks	
⇒		⇒ (3) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒ Charles Manning - Site Manager		⇒	
⇒ Cell (318) 525-4283		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/14/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny / Very Windy

PROJECT NUMBER: 35087125

TERRACON REP: Joe W. Smith

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett	⇒ (4) Dump Trucks
⇒	⇒ (3) Trackhoes
⇒	⇒ (2) Dozers
⇒	⇒
⇒ Charles Manning - Site Manager	⇒
⇒ Cell (318) 525-4283	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/15/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: P. Cloudy / 15 mph wind

PROJECT NUMBER: 35087125

TERRACON REP: Joe W. Smith

<u>Contractor Personnel on Site:</u>	<u>Contractor Equipment on Site:</u>
⇒ Pickett	⇒ (4) Dump Trucks
⇒	⇒ (3) Trackhoes
⇒	⇒ (2) Dozers
⇒	⇒
⇒ Charles Manning - Site Manager	⇒
⇒ Cell (318) 525-4283	⇒
⇒	⇒

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/16/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Sunny / Cold

PROJECT NUMBER: 35087125

TERRACON REP: Josh Linker

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Dump Trucks	
⇒		⇒ (2) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 2/17/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Overcast / Cold

PROJECT NUMBER: 35087125

TERRACON REP: Josh Linker

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Dump Trucks	
⇒		⇒ (2) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

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DAILY PROJECT FIELD RECORD

DATE: 2/18/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Sunny

PROJECT NUMBER: 35087125

TERRACON REP: Josh Linker

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Dump Trucks	
⇒		⇒ (2) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

DAILY PROJECT FIELD RECORD

DATE: 2/19/2009

PROJECT: Saline County Cell 4

LOCATION: Bauxite, Arkansas

WEATHER CONDITIONS: Clear / Sunny

PROJECT NUMBER: 35087125

TERRACON REP: Josh Linker

Contractor Personnel on Site:		Contractor Equipment on Site:	
⇒ Pickett		⇒ (3) Dump Trucks	
⇒		⇒ (2) Trackhoes	
⇒		⇒ (2) Dozers	
⇒		⇒	
⇒		⇒	
⇒		⇒	
⇒		⇒	

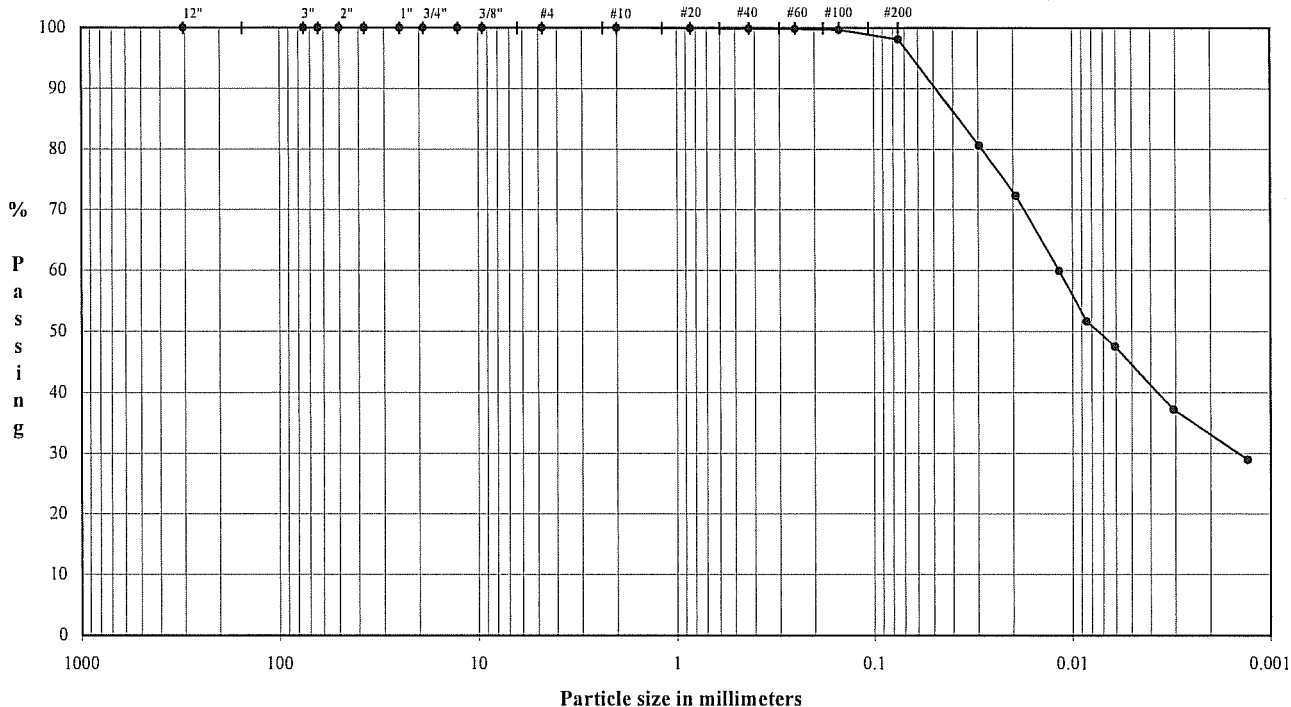
[illegible]

Note: Copies of all completed "Project Field Record Forms" are to be submitted to the Project Manager at the end of each day and should be maintained with the Project Records.

APPENDIX D
SUBGRADE MATERIAL PRE-CONSTRUCTION
TEST RESULTS

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS
ASTM D421, D422, D4318

PROJECT NAME: **TERRACON/SALINE COUNTY CLASS 4 LANDFILL/AL**
SAMPLE ID: **PC-C1** - Depth: -
TYPE: **Bulk**

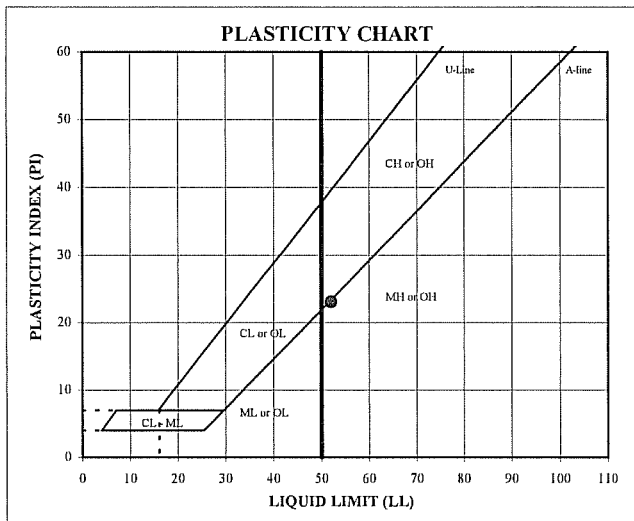


COBBLES	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
	GRAVEL		SAND			FINES

Particle Size (mm) % Passing Classification Percentage

12.0"	304.8	100.0	Cobbles	0.00
3.0"	75.0	100.0		
2.5"	63.5	100.0		
2.0"	50.0	100.0		
1.5"	37.5	100.0		
1.0"	25.0	100.0	Coarse Gravel	0.00
0.75"	19.0	100.0		
0.50"	12.7	100.0		
0.375"	9.5	100.0	Fine Gravel	0.00
#4	4.8	100.0		
#10	2.00	100.0	Coarse Sand	0.00
#20	0.85	100.0	Medium Sand	0.12
#40	0.43	99.9		
#60	0.25	99.9		
#100	0.15	99.7	Fine Sand	1.78
#200	0.075	98.1		

U.S. Standard Sieves Sizes and Numbers



ATTERBERG LIMITS
Method -B (Dry preparation)

M _L	LL	PL	PI	LI
21.6	52	29	23	-0.31

LL (oven-dried)
< 0.75 = ORGANIC (OL/OH)

Hydrometer Analysis

(mm)	%Finer	Fines Silt or Clay	98.10
0.030	80.6		
0.019	72.3		
0.012	59.9		
0.0085	51.7		
0.0061	47.5		
0.0031	37.2		
0.0013	28.9		

DESCRIPTION: Dark Grayish Brown, SILTY CLAY, trace medium to fine sand.

USCS: CH

TECH: MJW/TJ
DATE: 07/16/07
CHECK: [Signature]
REVIEW: [Signature]

MOISTURE / DRY DENSITY CURVE

ASTM D 698 Method A

Mechanical

Standard

Wet Method

PROJECT NAME:

TERRACON/SALINE COUNTY CLASS 4 LANDFILL/AL

PROJECT NUMBER:

073-90216

SAMPLE ID:

PC-C1

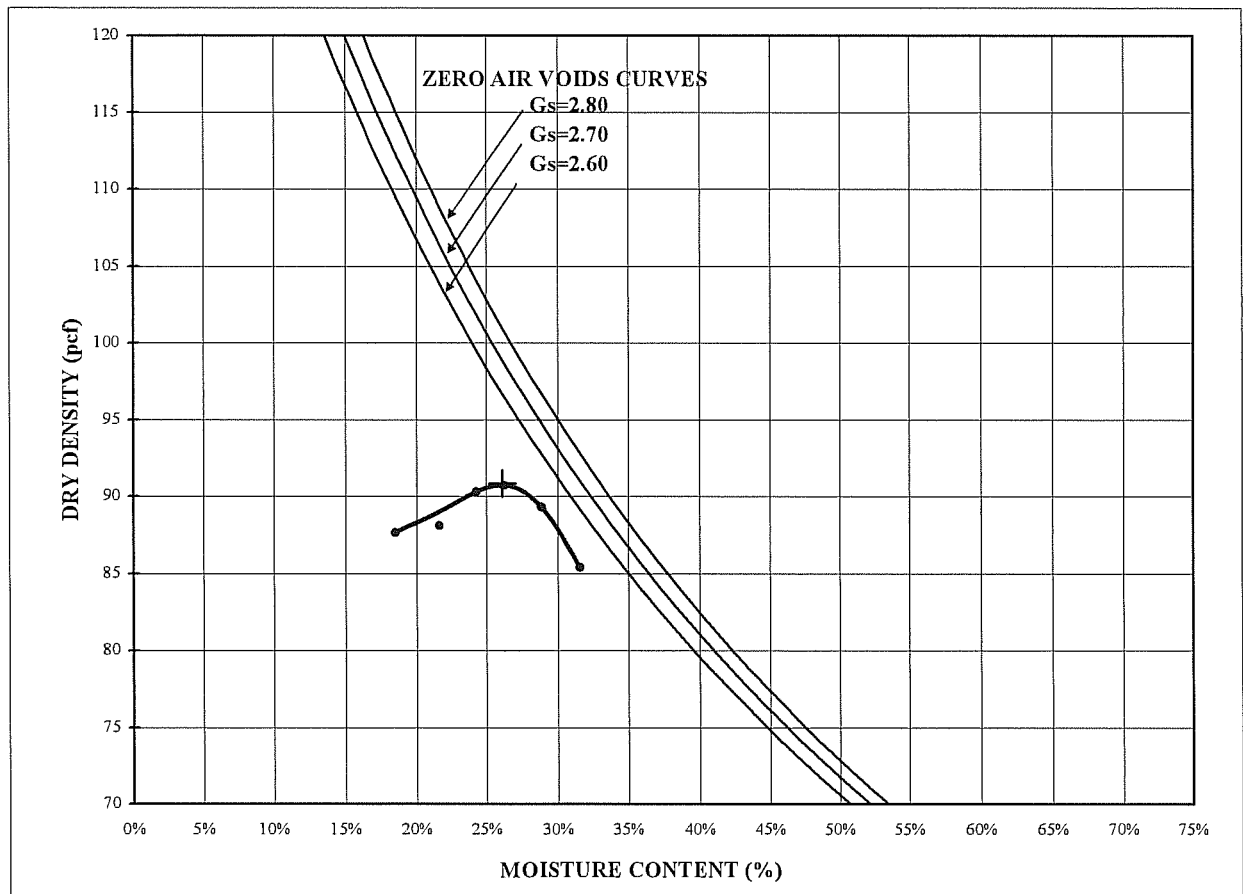
-

DEPTH:

-

SAMPLE TYPE:

Bulk



COMPACTION POINTS		
Specimen Number	Dry Density (pcf)	Moisture Content (%)
1	87.6	18.5%
2	88.1	21.6%
3	90.3	24.3%
4	90.7	26.2%
5	89.3	28.9%
6	85.4	31.6%

Maximum Dry Density (pcf)

90.8

Optimum Moisture (%)

26.1

Corrected Maximum Dry Density (pcf)

Corrected Optimum Moisture (%)

As-Received Moisture Content

21.6%

% Retained on # 4 sieve

% Retained on 3/8" sieve

% Retained on 3/4" sieve

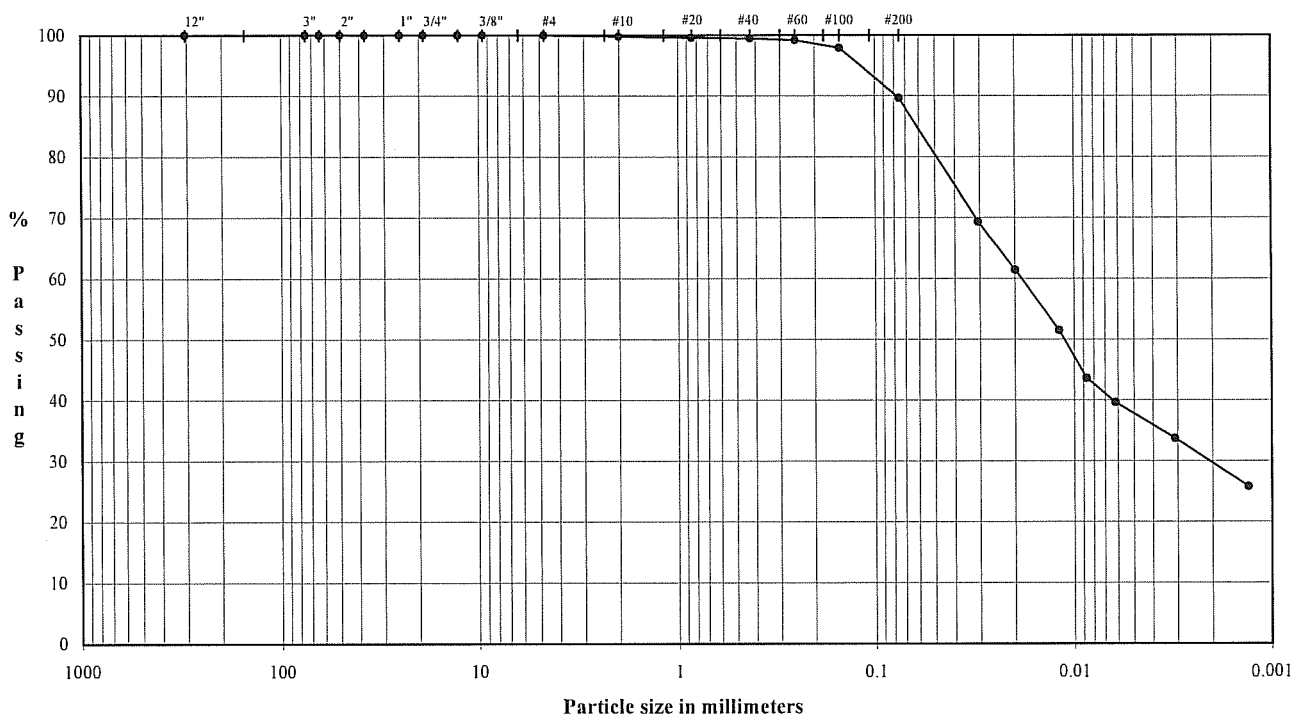
DESCRIPTION: Dark Grayish Brown, SILTY CLAY, trace medium to fine sand.

USCS: CH

CHECK
REVIEW

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS ASTM D421, D422, D4318

PROJECT NAME: **TERRACON/SALINE COUNTY CLASS 4 LANDFILL/AL**
 SAMPLE ID: **PC-C2** Depth: **-**
 TYPE: **Bulk**



COBBLES	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
	GRAVEL		SAND			FINES

Particle Size

Particle Size

(mm)

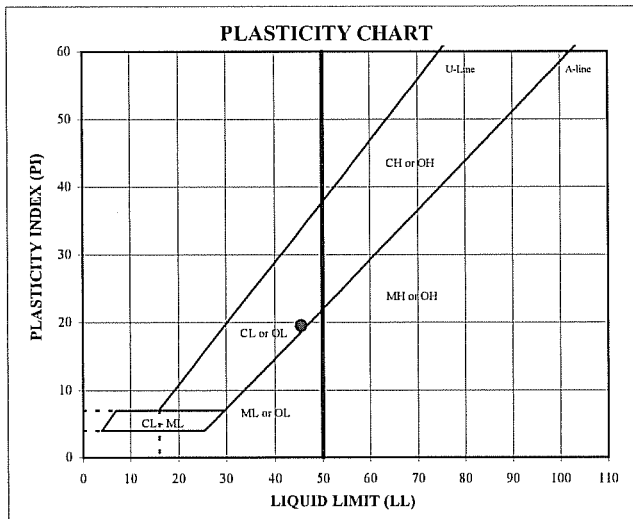
% Passing

Classification

Percentage

U.S. Standard Sieves Sizes and Numbers

12.0"	304.8	100.0	Cobbles	0.00
3.0"	75.0	100.0		
2.5"	63.5	100.0		
2.0"	50.0	100.0		
1.5"	37.5	100.0		
1.0"	25.0	100.0		
0.75"	19.0	100.0	Coarse Gravel	0.00
0.50"	12.7	100.0		
0.375"	9.5	100.0		
#4	4.8	100.0	Fine Gravel	0.00
#10	2.00	99.8	Coarse Sand	0.22
#20	0.85	99.6	Medium Sand	0.30
#40	0.43	99.5		
#60	0.25	99.2		
#100	0.15	97.9	Fine Sand	9.87
#200	0.075	89.6		



Hydrometer Analysis

0.031	69.4	Fines Silt or Clay	89.62
0.020	61.4		
0.012	51.5		
0.0087	43.6		
0.0062	39.6		
0.0031	33.7		
0.0013	25.8		

ATTERBERG LIMITS

Method -B (Dry preparation)

M _c	LL	PL	PI	LI
33.4	45	26	19	0.37

LL (oven-dried)
< 0.75 = ORGANIC (OL/OH)

DESCRIPTION: Black, SILTY CLAY, little fine sand.

USCS: CL

TECH: MJW/TJ
 DATE: 07/16/07
 CHECK: *[Signature]*
 REVIEW: *[Signature]*

MOISTURE / DRY DENSITY CURVE

ASTM D 698 Method A

Mechanical

Standard

Wet Method

PROJECT NAME:

TERRACON/SALINE COUNTY CLASS 4 LANDFILL/AL

PROJECT NUMBER:

073-90216

SAMPLE ID:

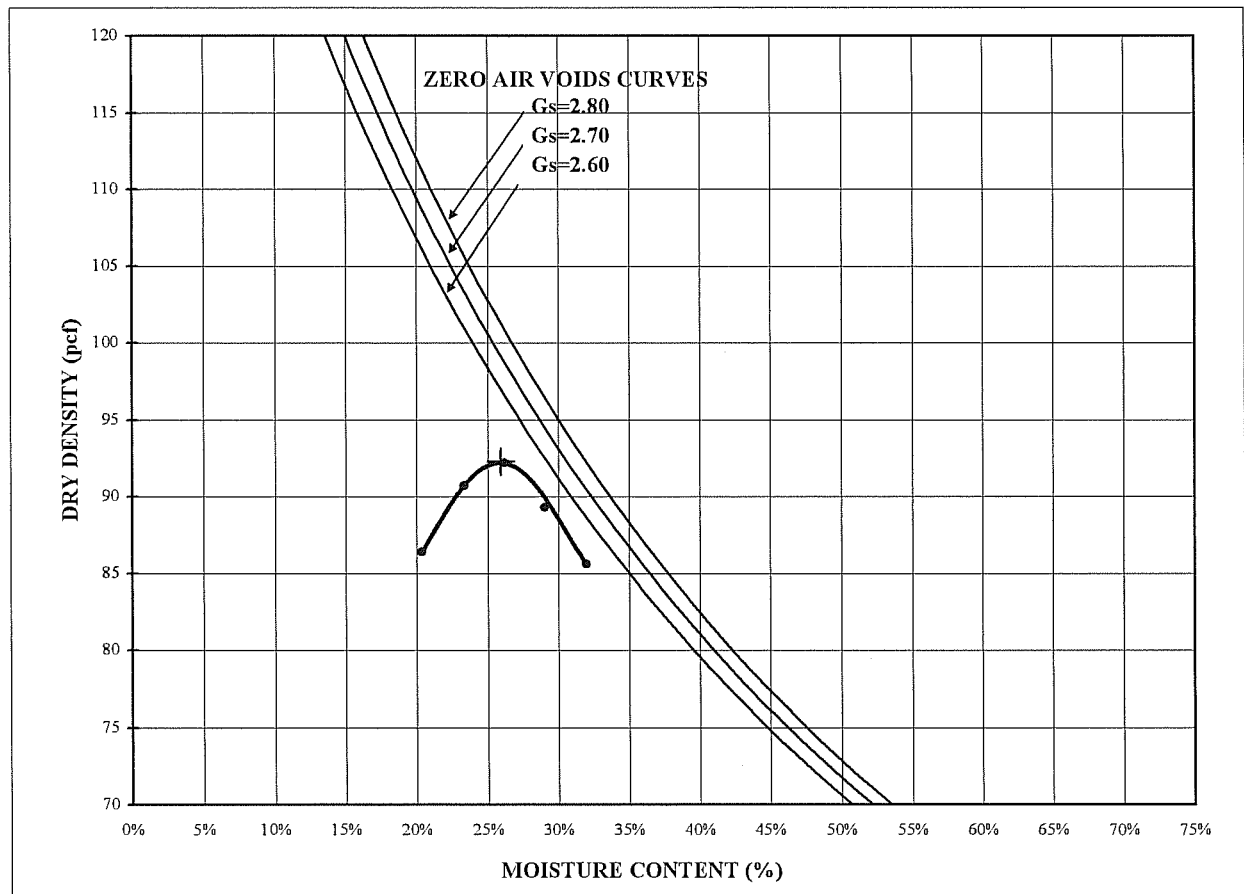
PC-C2

-

DEPTH:

-

SAMPLE TYPE: Bulk



COMPACTION POINTS		
Specimen Number	Dry Density (pcf)	Moisture Content (%)
1	86.4	20.3%
2	90.7	23.3%
3	92.2	26.2%
4	89.3	29.0%
5	85.6	32.0%

Maximum Dry Density (pcf) **92.3**Optimum Moisture (%) **25.9**

Corrected Maximum Dry Density (pcf)

Corrected Optimum Moisture (%)

As-Received Moisture Content **33.4%**

% Retained on # 4 sieve

% Retained on 3/8" sieve

% Retained on 3/4" sieve

DESCRIPTION Black, SILTY CLAY, little fine sand.

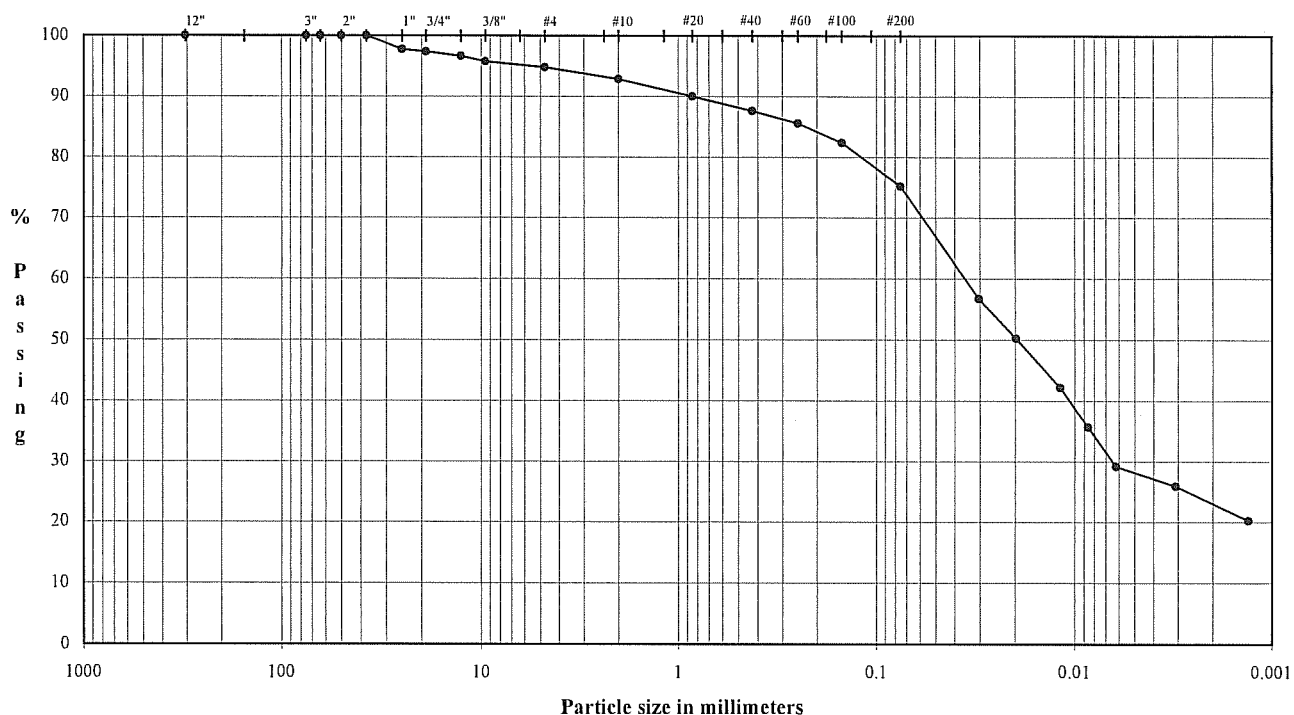
USCS CL

CHECK
REVIEW

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D421, D422, D4318

PROJECT NAME: TERRACON/SALINE COUNTY CLASS 4 LFPHASE II/AR
 SAMPLE ID: C-C2 - Depth: -
 TYPE: Bulk

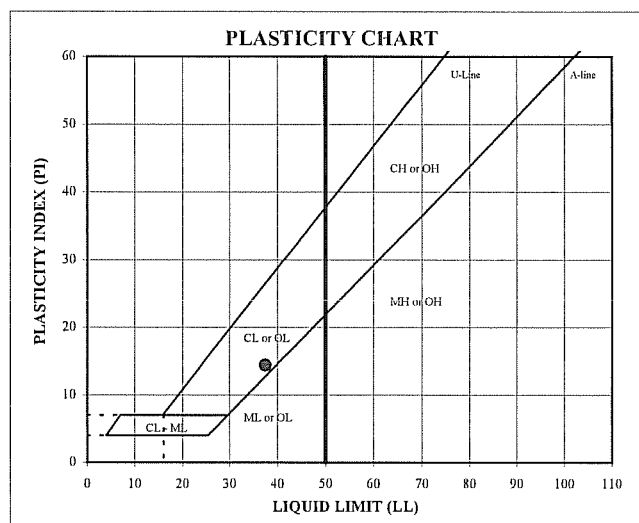


	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
COBBLES	GRAVEL		SAND			FINES

Particle Size (mm) % Passing Classification Percentage

12.0"	304.8	100.0	Cobbles	0.00
3.0"	75.0	100.0		
2.5"	63.5	100.0		
2.0"	50.0	100.0		
1.5"	37.5	100.0		
1.0"	25.0	97.8	Coarse Gravel	2.63
0.75"	19.0	97.4		
0.50"	12.7	96.7		
0.375"	9.5	95.7	Fine Gravel	2.56
#4	4.8	94.8		
#10	2.00	92.9		
#20	0.85	90.1	Coarse Sand	1.95
#40	0.43	87.6		
#60	0.25	85.6		
#100	0.15	82.4	Medium Sand	5.26
#200	0.075	75.2		
			Fine Sand	12.38

U.S. Standard Sieves Sizes and Numbers



ATTERBERG LIMITS
 Method -B (Dry preparation)

M _d	LL	PL	PI	LI
22.6	37	23	14	-0.06

LL (oven-dried)
 < 0.75 = ORGANIC
 (OL/OH)

Hydrometer Analysis

(mm)	% Finer	Fines Silt or Clay	75.23
0.030	56.8		
0.020	50.3		
0.012	42.2		
0.0086	35.7		
0.0062	29.2		
0.0031	26.0		
0.0013	20.3		

DESCRIPTION: Very Dark Brown, SILTY CLAY, some coarse to fine sand, little coarse to fine gravel.

USCS: CL

TECH TJ/BW
 DATE 11/11/07
 CHECK *Am*
 REVIEW *Am*

MOISTURE / DRY DENSITY CURVE

ASTM D 698 Method A

Mechanical

Standard

Wet Method

PROJECT NAME:

TERRACON/SALINE COUNTY CLASS 4 LFPHASE II/AR

PROJECT NUMBER:

073-90216-001

SAMPLE ID:

C-C2

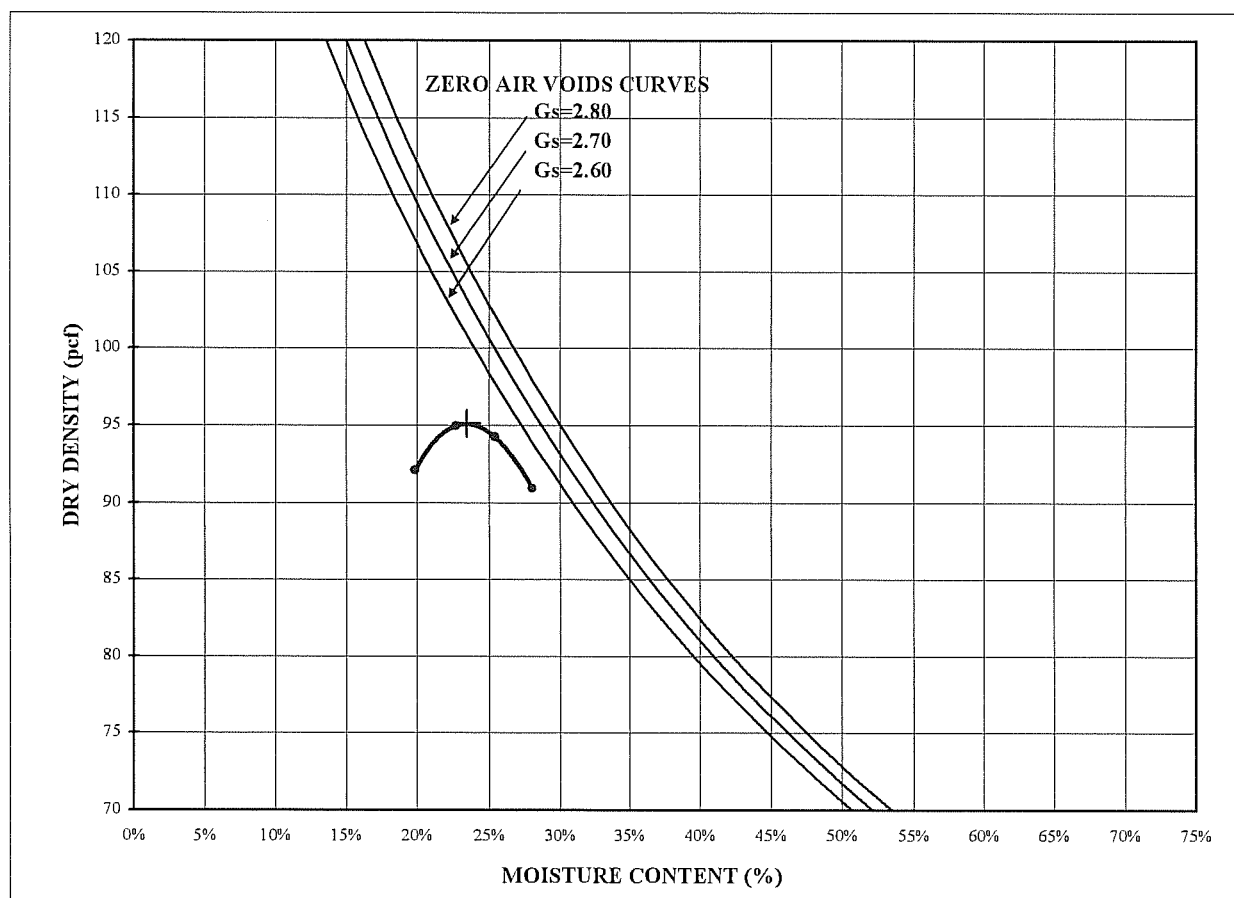
-

DEPTH:

-

SAMPLE TYPE:

Bulk



COMPACTION POINTS		
Specimen Number	Dry Density (pcf)	Moisture Content (%)
1	92.1	19.9%
2	95.0	22.7%
3	94.3	25.4%
4	90.9	28.0%

Maximum Dry Density (pcf)

95.1

Optimum Moisture (%)

23.5

Corrected Maximum Dry Density (pcf)

Corrected Optimum Moisture (%)

As-Received Moisture Content

22.6%

% Retained on # 4 sieve

5.2%

% Retained on 3/8" sieve

% Retained on 3/4" sieve

DESCRIPTION: Very Dark Brown, SILTY CLAY, some coarse to fine sand, trace coarse to fine gravel.

USCS

CL

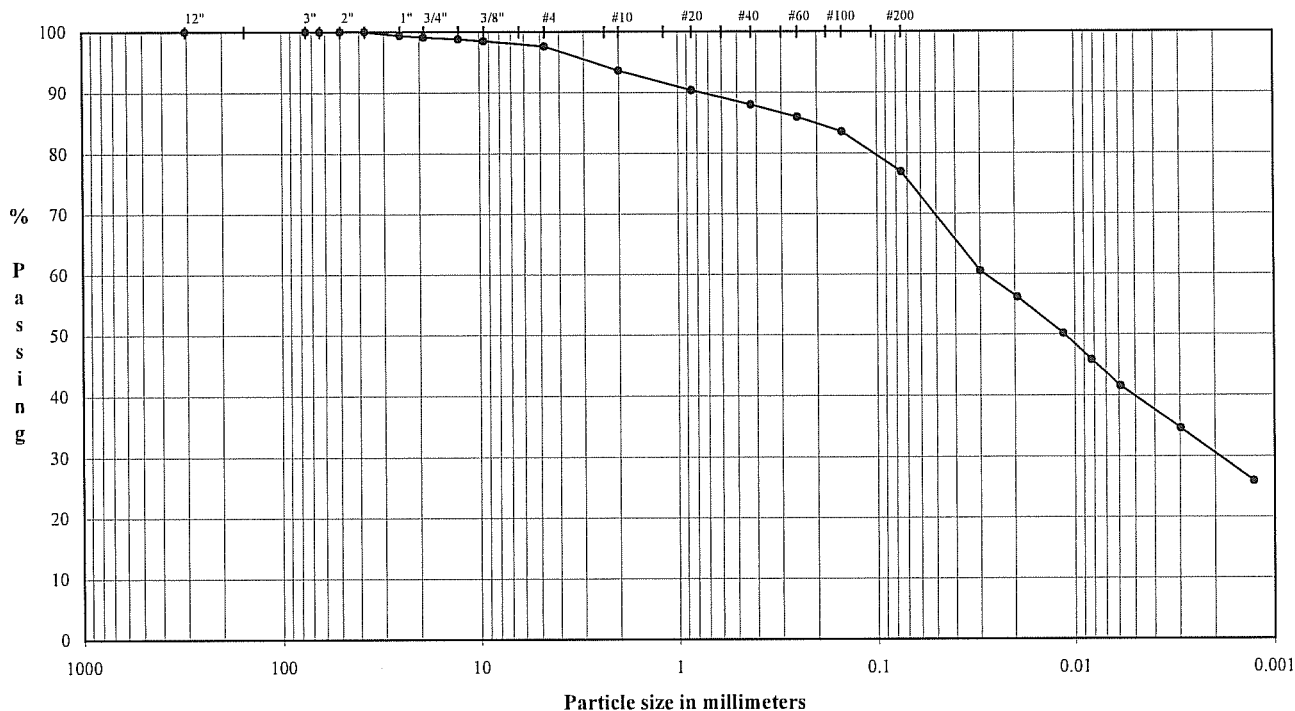
CHECK
REVIEW

PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS

ASTM D421, D422, D4318

PROJECT NAME: TERRACON/SALINE COUNTY CLASS 4 LFPHASE II/AR
 SAMPLE ID: C-C3
 TYPE: Bulk

Depth: -

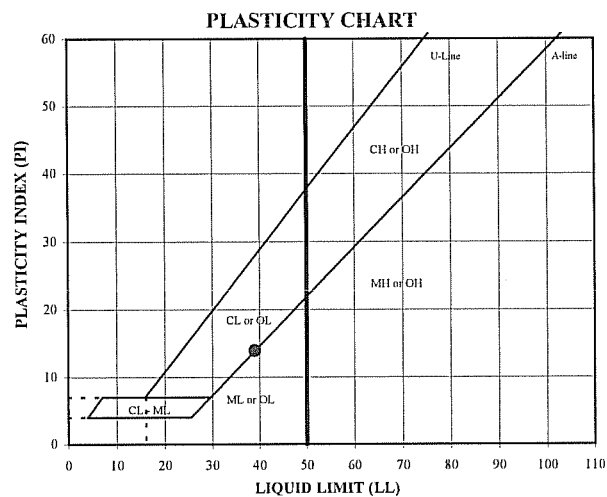


COBBLES	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
	GRAVEL		SAND			FINES

Particle Size (mm) % Passing Classification Percentage

12.0"	304.8	100.0	Cobbles	0.00
3.0"	75.0	100.0		
2.5"	63.5	100.0		
2.0"	50.0	100.0		
1.5"	37.5	100.0		
1.0"	25.0	99.4	Coarse Gravel	0.91
0.75"	19.0	99.1		
0.50"	12.7	98.8		
0.375"	9.5	98.5		
#4	4.8	97.6	Fine Gravel	1.52
#10	2.00	93.6	Coarse Sand	3.96
#20	0.85	90.4	Medium Sand	5.64
#40	0.43	88.0		
#60	0.25	86.0		
#100	0.15	83.5	Fine Sand	11.05
#200	0.075	76.9		

U.S. Standard Sieves Sizes and Numbers



ATTERBERG LIMITS Method -B (Dry preparation)

M _p	LL	PL	PI	LI
24.0	39	25	14	-0.09

LL (oven-dried)
 < 0.75 = ORGANIC
 (OL/OH)

Hydrometer Analysis

(mm)	% Finer	Fines Silt or Clay	76.93
0.030	60.5		
0.019	56.2		
0.011	50.1		
0.0082	45.8		
0.0059	41.5		
0.0030	34.6		
0.0013	25.9		

DESCRIPTION: Black and Gray, SILTY CLAY, some coarse to fine sand, trace coarse to fine gravel.

USCS: CL

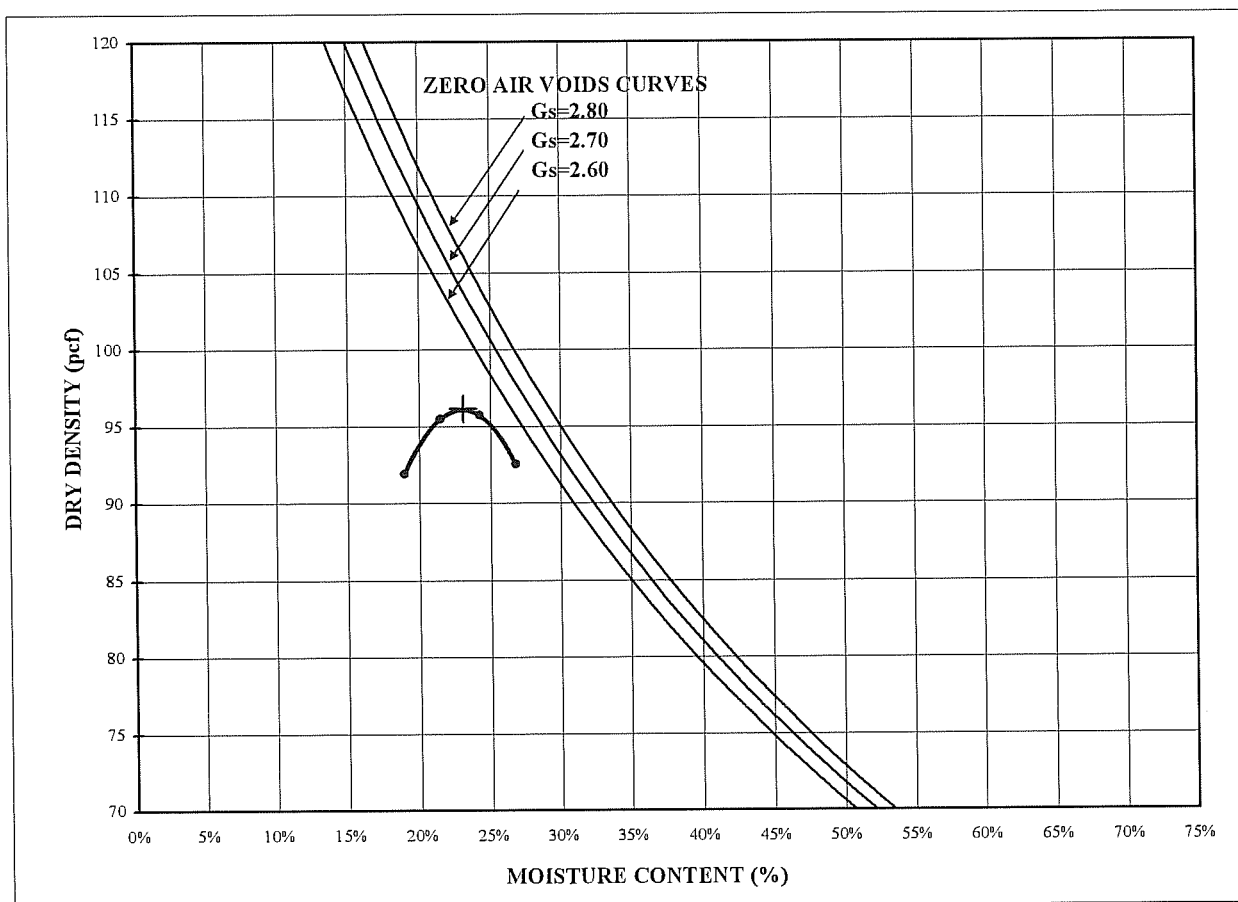
TECH BW/TJ/SDM
 DATE 11/13/07
 CHECK *AK*
 REVIEW *CA*

MOISTURE / DRY DENSITY CURVE

ASTM D 698 Method A

Mechanical	Standard	Wet Method
------------	----------	------------

PROJECT NAME: TERRACON/SALINE COUNTY CLASS 4 LFP HASE II/AR
 PROJECT NUMBER: 073-90216-001
 SAMPLE ID: C-C3 - DEPTH: - SAMPLE TYPE: Bulk



COMPACTION POINTS		
Specimen Number	Dry Density (pcf)	Moisture Content (%)
1	91.9	19.0%
2	95.5	21.5%
3	95.7	24.2%
4	92.5	26.8%

Maximum Dry Density (pcf) **96.1**
 Optimum Moisture (%) **23.1**
 Corrected Maximum Dry Density (pcf)
 Corrected Optimum Moisture (%)

As-Received Moisture Content **24.0%**

% Retained on # 4 sieve **2.4%**
 % Retained on 3/8" sieve
 % Retained on 3/4" sieve

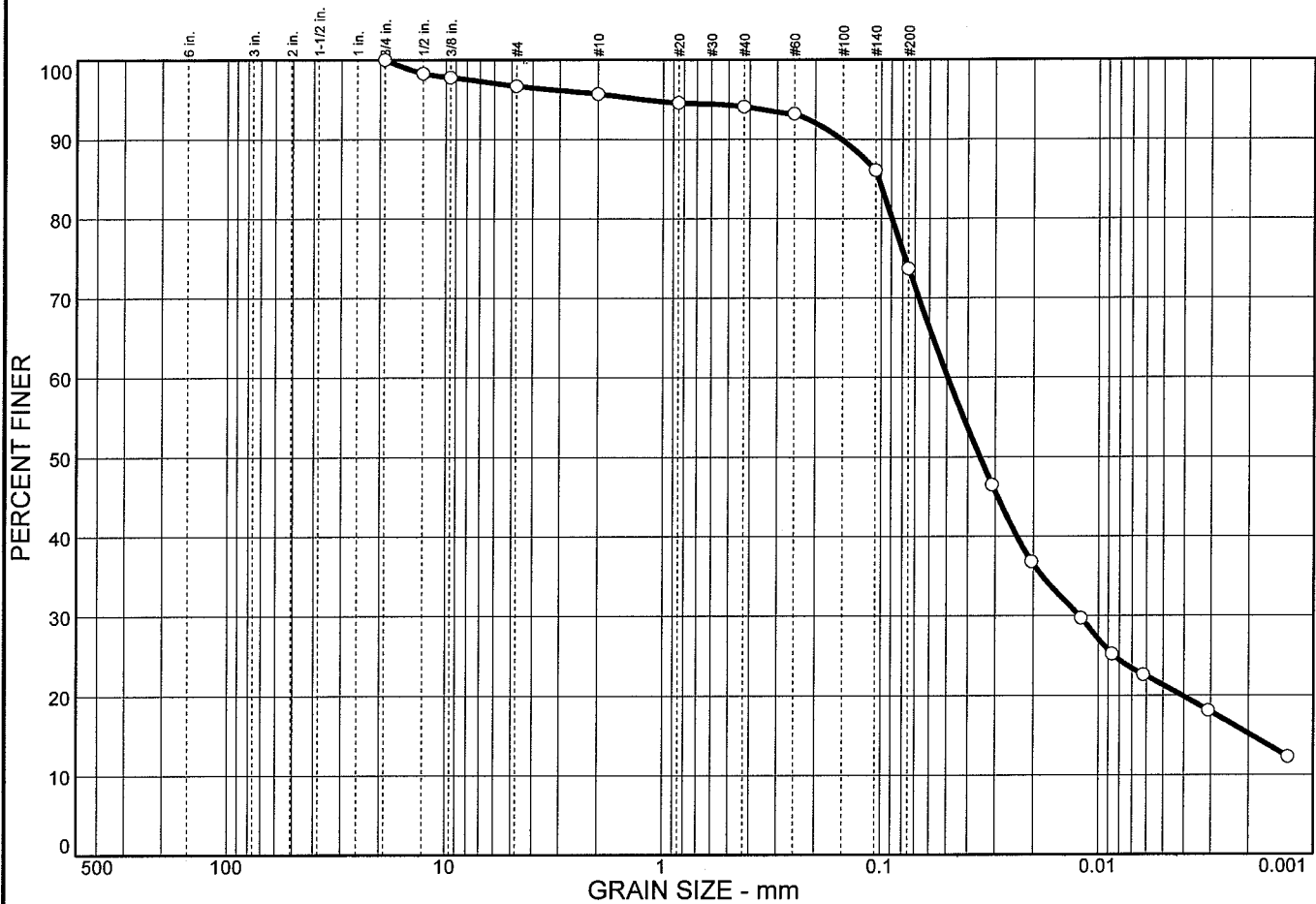
DESCRIPTION Black and Gray, SILTY CLAY, some coarse to fine sand, trace coarse to fine gravel.

USCS **CL**

CHECK *Am*
 REVIEW *CA*

APPENDIX E
SUBGRADE MATERIAL
CONSTRUCTION TEST RESULTS

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	3.3	23.0	52.4	21.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	98.3		
.375 in.	97.8		
#4	96.7		
#10	95.7		
#20	94.6		
#40	94.1		
#60	93.2		
#140	86.1		
#200	73.7		

* (no specification provided)

Material Description
 BROWN SILT WITH SAND

Atterberg Limits
 PL= 22 LL= 27 PI= 5

Coefficients
 D₈₅= 0.103 D₆₀= 0.0495 D₅₀= 0.0352
 D₃₀= 0.0123 D₁₅= 0.0019 D₁₀=
 C_u= C_c=

Classification
 USCS= ML AASHTO=

Remarks
 WC=20.6%

Sample No.: PC-1
Location:

Source of Sample: 9201

Date: 10-7-08
Elev./Depth:

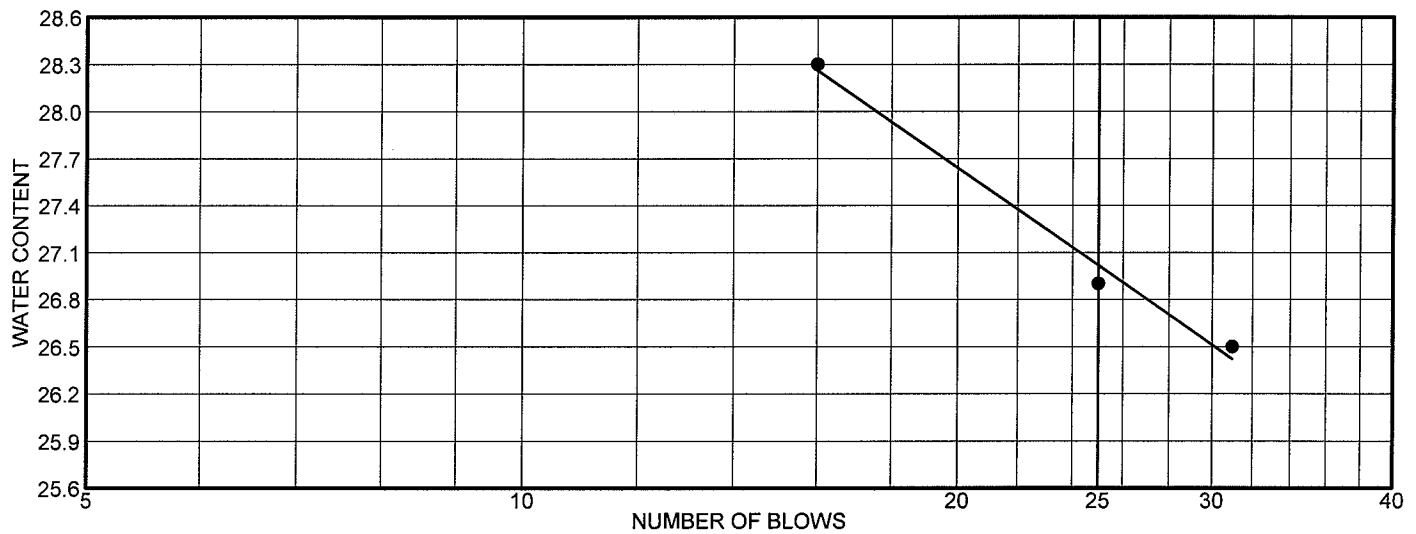
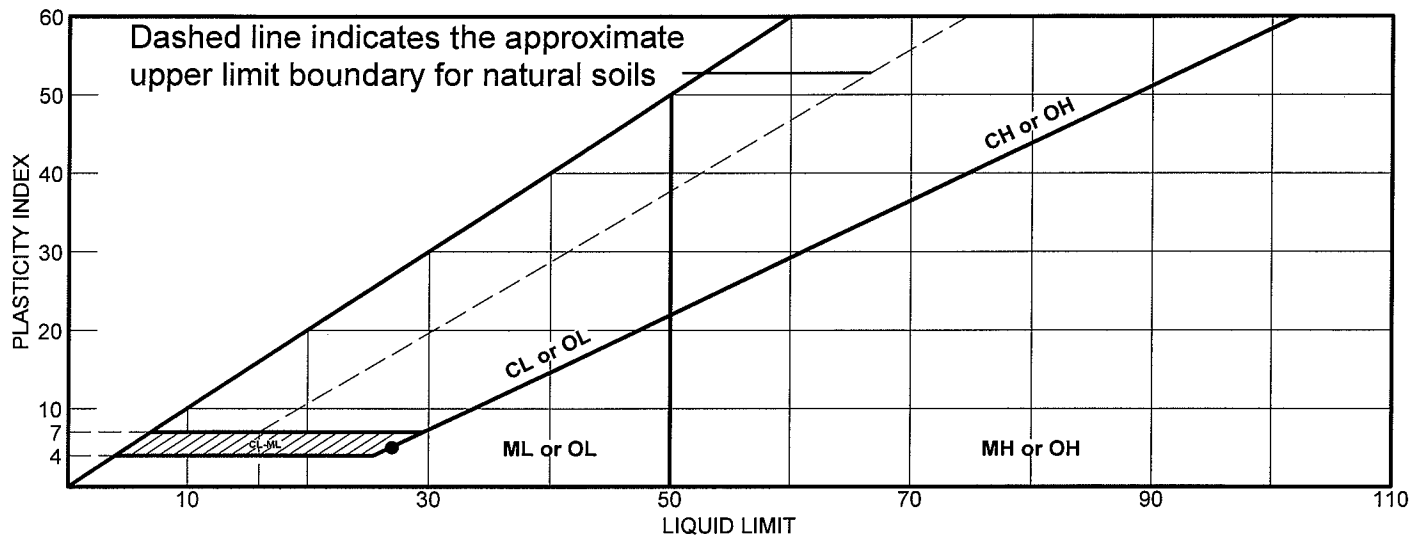
Terracon

Client: TERRACON
Project: SALINE COUNTY CELL 4

Project No: 35087125

Figure 9201

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	BROWN SILT WITH SAND	27	22	5	94.1	73.7	ML

Project No. 35087125 Client: TERRACON

Project: SALINE COUNTY CELL 4

● Source: 9201

Sample No.: PC-1

Remarks:

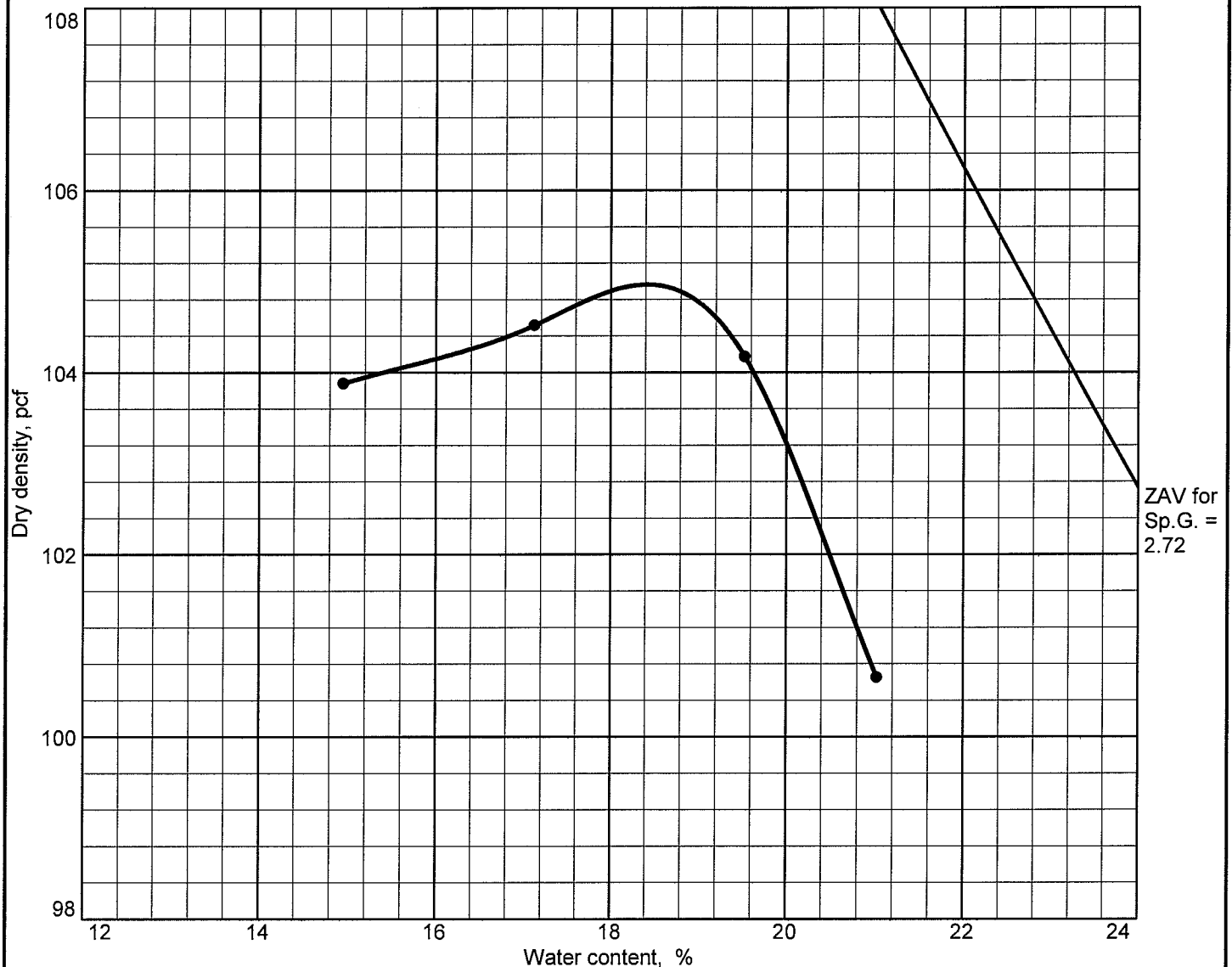
● WC=20.6%

LIQUID AND PLASTIC LIMITS TEST REPORT

Terracon

Figure 9201

COMPACTION TEST REPORT

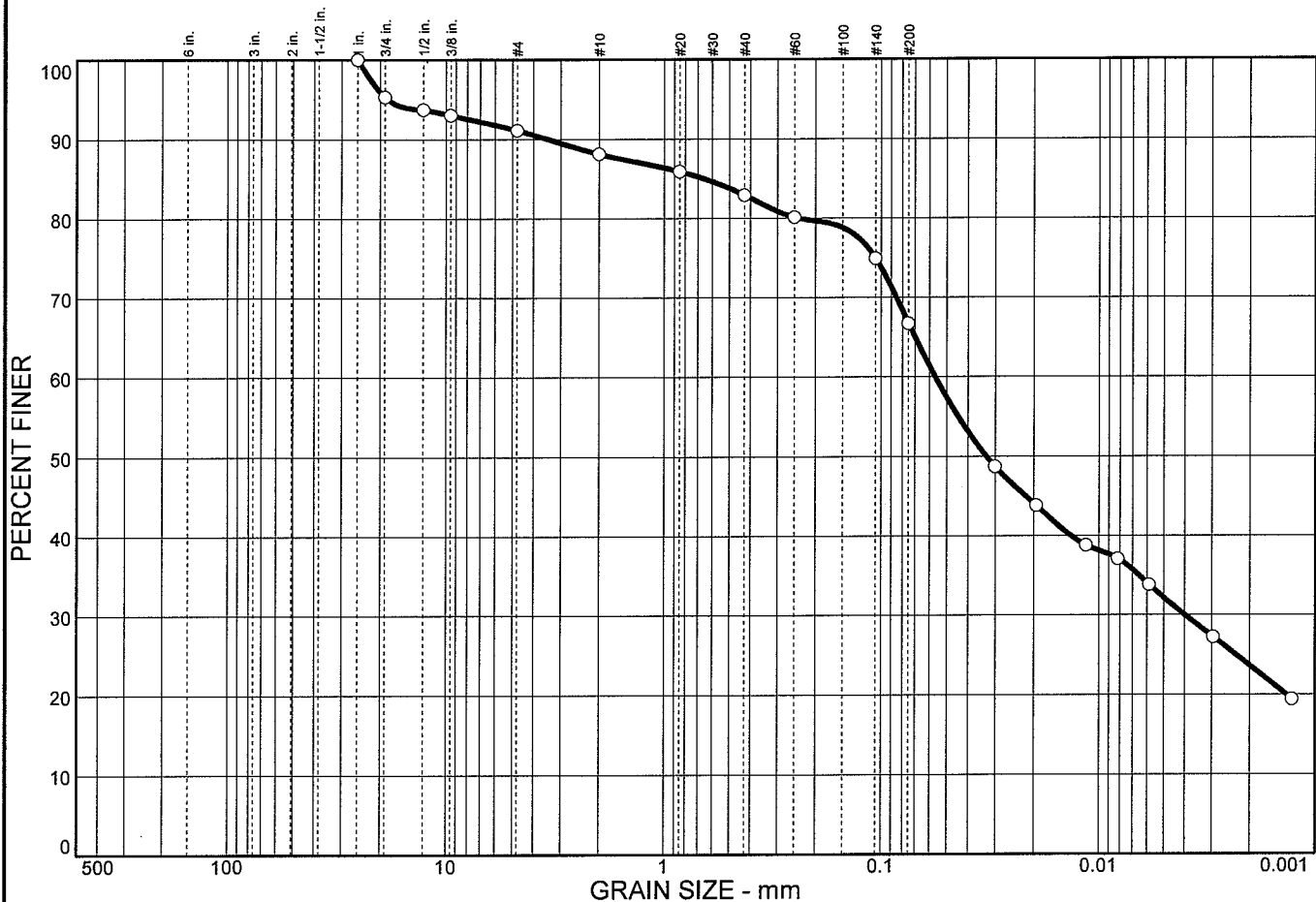


Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	ML		20.6		27	5	2.2	73.7

TEST RESULTS		MATERIAL DESCRIPTION	
Maximum dry density = 105.0 pcf Optimum moisture = 18.4 %		BROWN SILT WITH SAND	
Project No. 35087125 Client: TERRACON Project: SALINE COUNTY CELL 4 ● Source: 9201			

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	8.9	24.4	34.6	32.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
.75 in.	95.3		
.5 in.	93.7		
.375 in.	93.0		
#4	91.1		
#10	88.1		
#20	85.9		
#40	82.9		
#60	80.1		
#140	74.9		
#200	66.7		

* (no specification provided)

Material Description
 BROWN & ORANGE SANDY SILTY CLAY

Atterberg Limits
 PL= 21 LL= 27 PI= 6

Coefficients
 D₈₅= 0.657 D₆₀= 0.0566 D₅₀= 0.0330
 D₃₀= 0.0040 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= CL-ML AASHTO=

Remarks
 WC=18.0%

Sample No.: PC-2
Location:

Source of Sample: 9202

Date: 10-7-08
Elev./Depth:

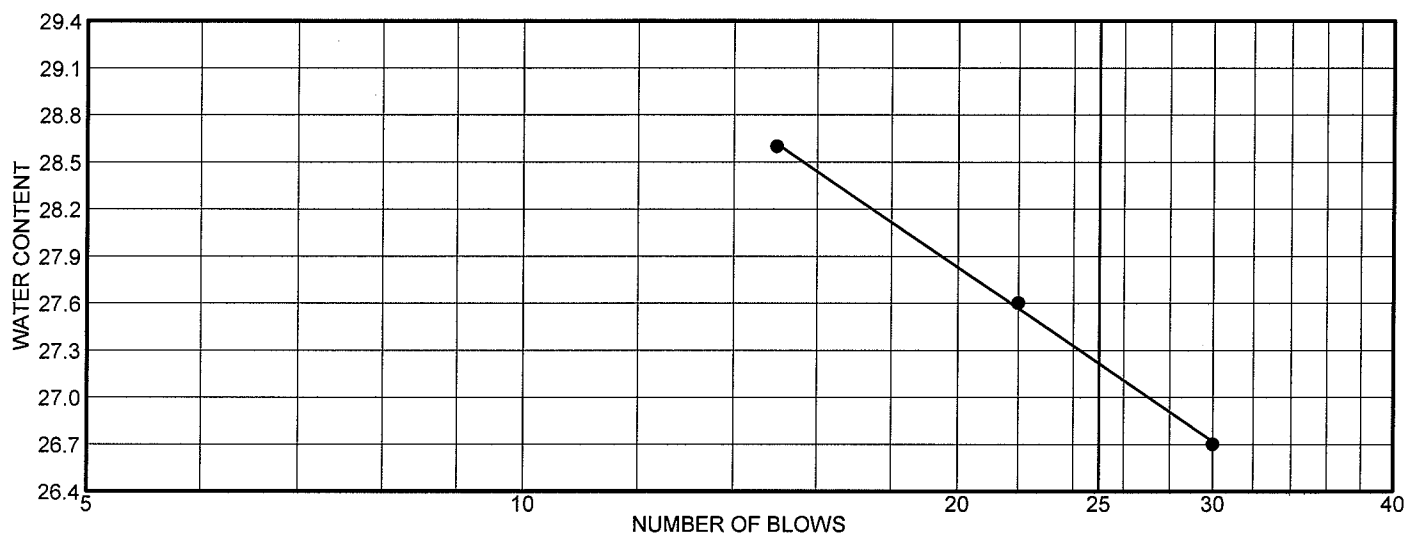
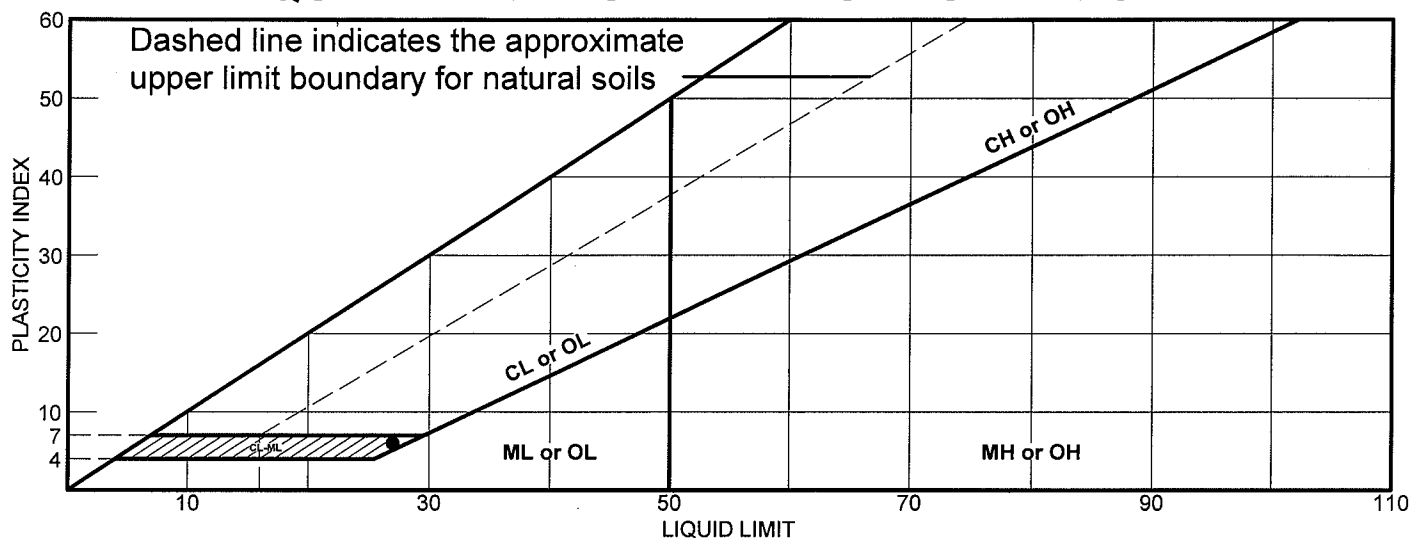
Terracon

Client: TERRACON
Project: SALINE COUNTY CELL 4

Project No: 35087125

Figure 9202

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	BROWN & ORANGE SANDY SILTY CLAY	27	21	6	82.9	66.7	CL-ML

Project No. 35087125 Client: TERRACON

Project: SALINE COUNTY CELL 4

● Source: 9202

Sample No.: PC-2

Remarks:

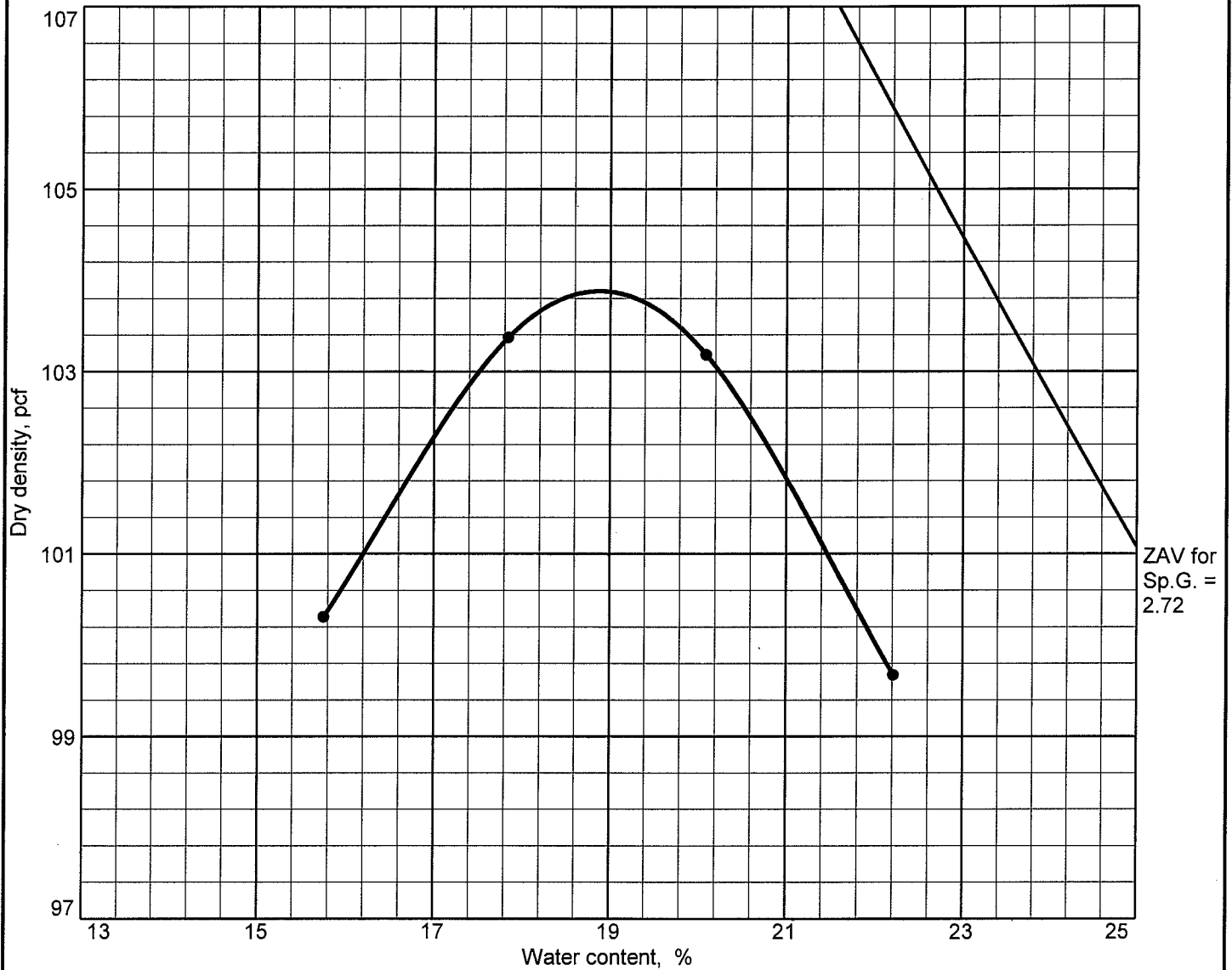
● WC=18.0%

LIQUID AND PLASTIC LIMITS TEST REPORT

Terracon

Figure 9202

COMPACTION TEST REPORT

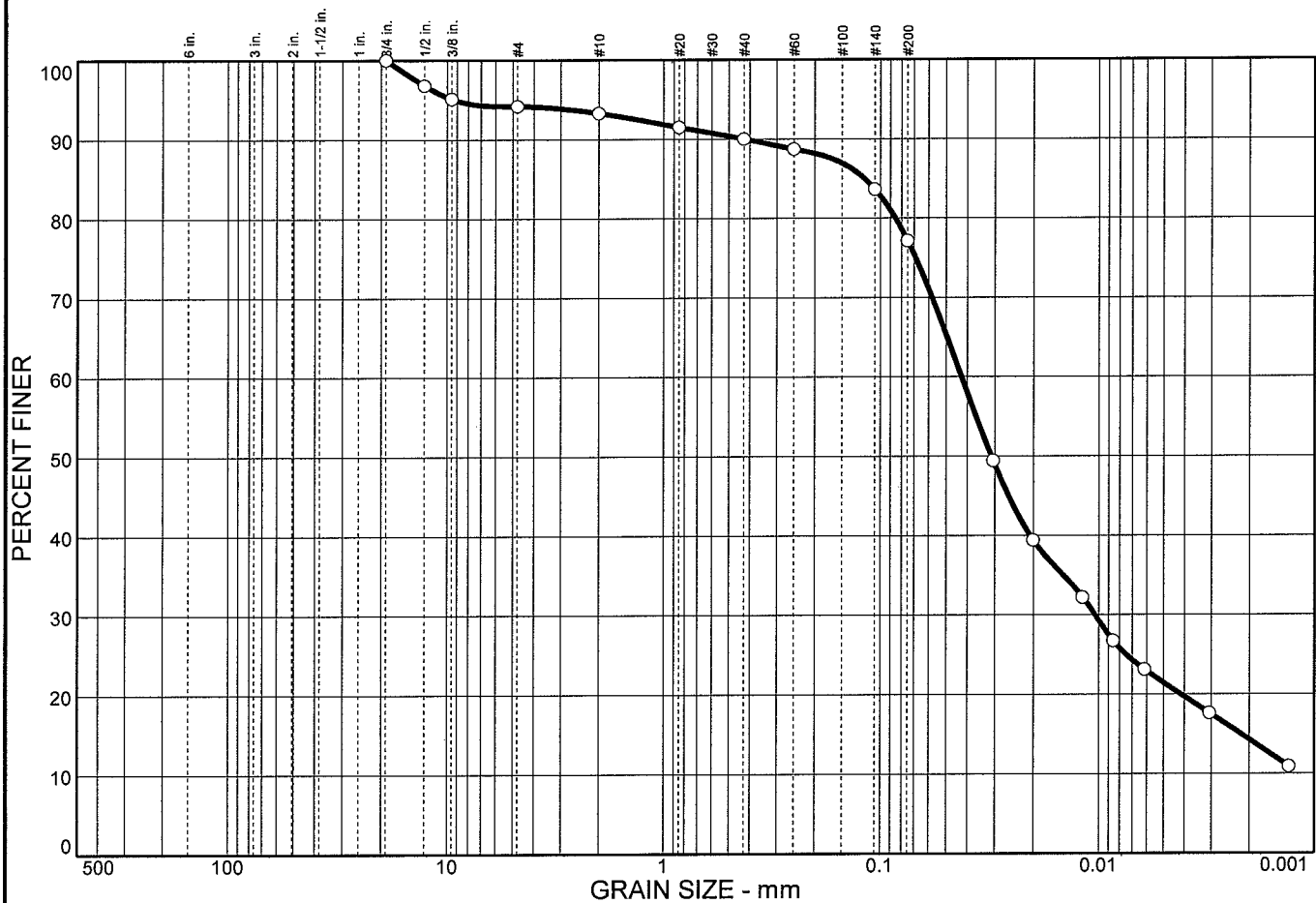


Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	CL-ML		18.0		27	6	7.0	66.7

TEST RESULTS		MATERIAL DESCRIPTION
Maximum dry density = 103.9 pcf		BROWN & ORANGE SANDY SILTY CLAY
Optimum moisture = 18.9 %		
Project No. 35087125 Client: TERRACON Project: SALINE COUNTY CELL 4		Remarks: DATE TYPED 10-6-08 TESTED BY EJ
● Source: 9202		

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	5.8	17.1	55.7	21.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	96.8		
.375 in.	95.1		
#4	94.2		
#10	93.3		
#20	91.5		
#40	90.0		
#60	88.7		
#140	83.6		
#200	77.1		

* (no specification provided)

Material Description
 DARK GRAY LEAN CLAY WITH SAND

Atterberg Limits
 PL= 23 LL= 35 PI= 12

Coefficients
 D₈₅= 0.119 D₆₀= 0.0426 D₅₀= 0.0311
 D₃₀= 0.0104 D₁₅= 0.0022 D₁₀=
 C_u= C_c=

Classification
 USCS= CL AASHTO=

Remarks
 WC=24.9%

Sample No.: PC-3
Location:

Source of Sample: 9203

Date: 10-7-08
Elev./Depth:

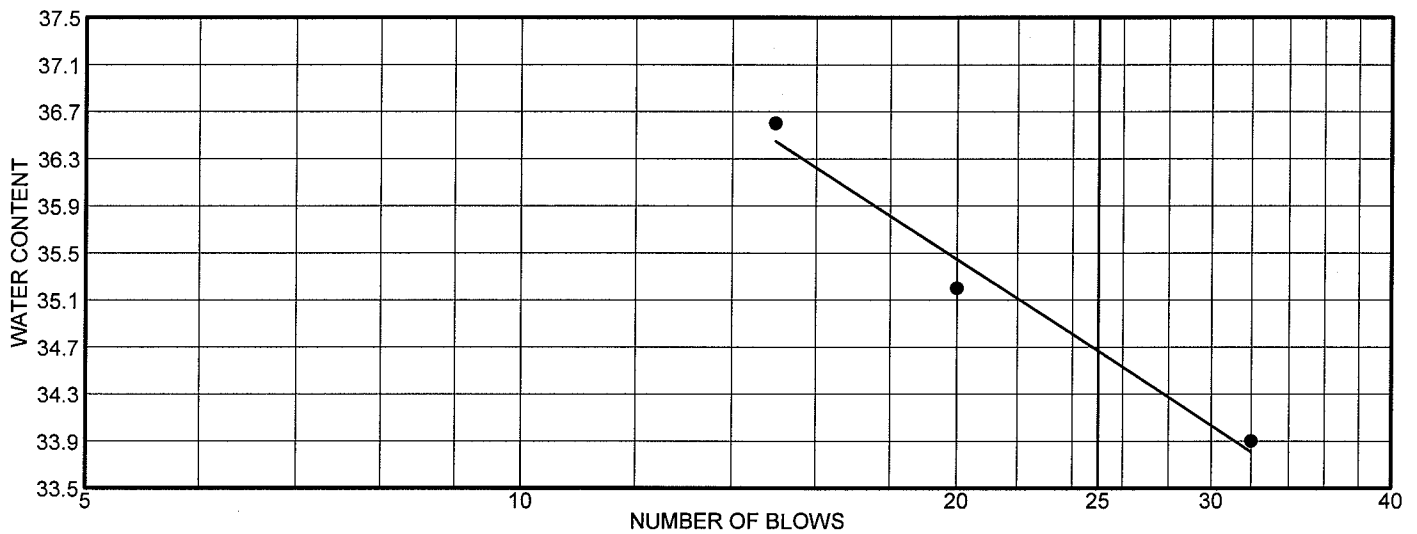
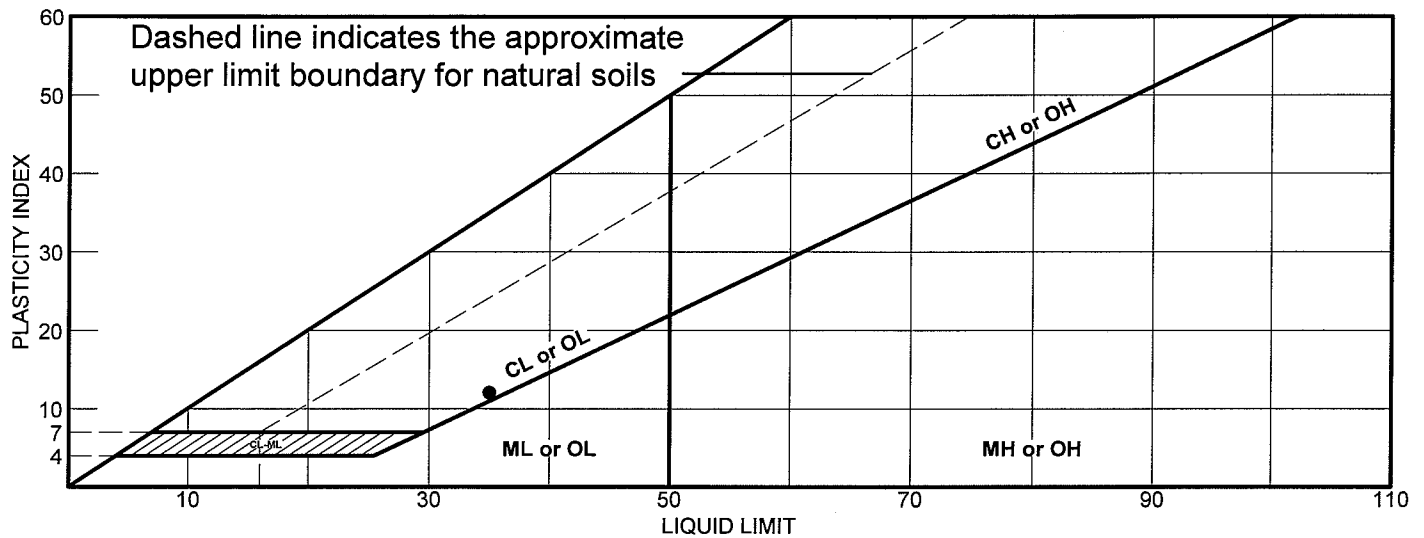
Terracon

Client: TERRACON
Project: SALINE COUNTY CELL 4

Project No: 35087125

Figure 9203

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	DARK GRAY LEAN CLAY WITH SAND	35	23	12	90.0	77.1	CL

Project No. 35087125 Client: TERRACON

Project: SALINE COUNTY CELL 4

● Source: 9203

Sample No.: PC-3

Remarks:

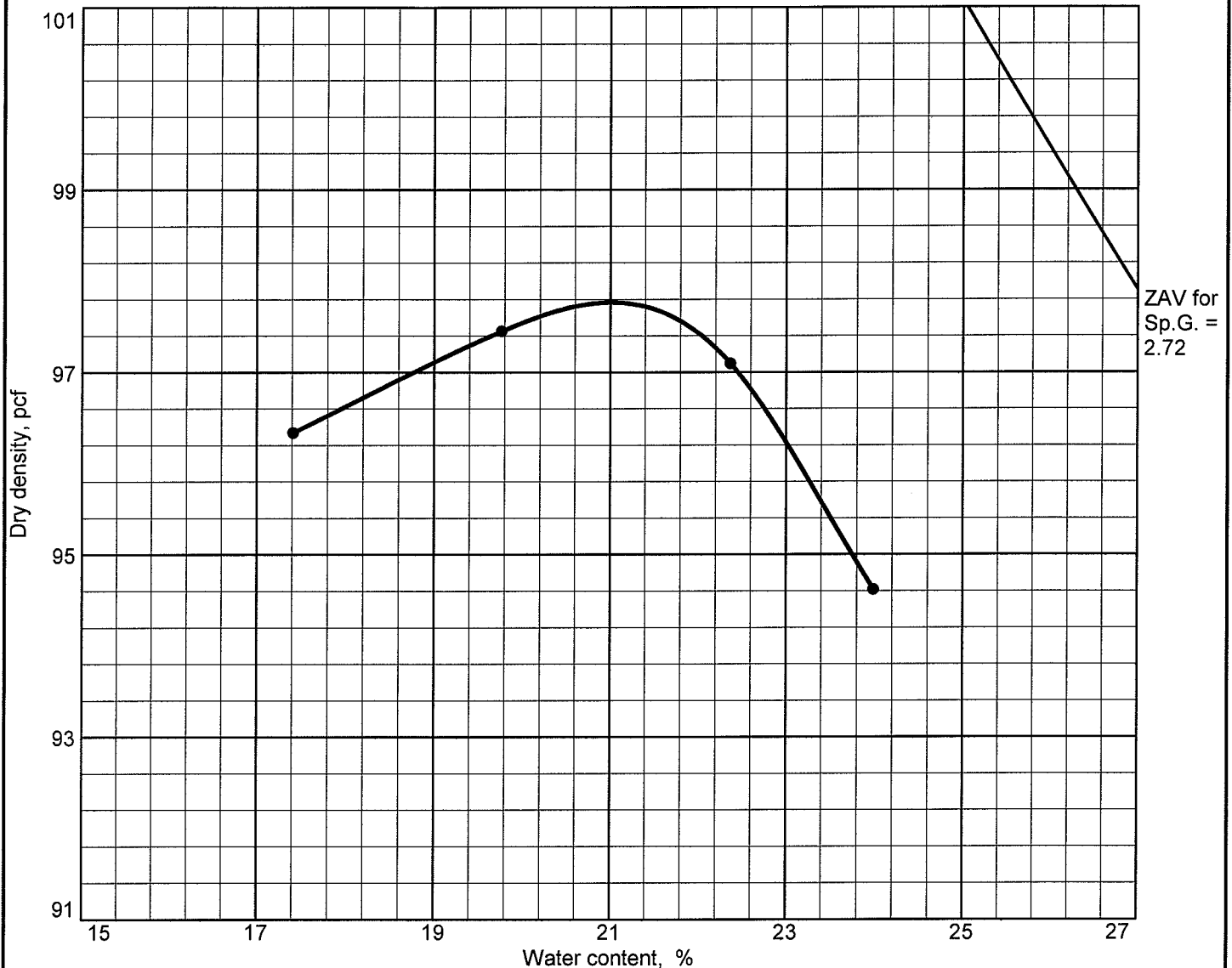
● WC=24.9%

LIQUID AND PLASTIC LIMITS TEST REPORT

Terracon

Figure 9203

COMPACTION TEST REPORT



Test specification: ASTM D 698-91 Procedure B Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
	CL		24.9		35	12	4.9	77.1

TEST RESULTS		MATERIAL DESCRIPTION	
Maximum dry density = 97.8 pcf		DARK GRAY LEAN CLAY WITH SAND	
Optimum moisture = 21.0 %			
Project No. 35087125 Client: TERRACON		Remarks: DATE TYPED 10-6-08 TESTED BY EJ	
Project: SALINE COUNTY CELL 4			
● Source: 9203			

APPENDIX F
FIELD DENSITY/MOISTURE TEST RESULTS

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 10/3/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 4 - Subgrade

Depart Lab: 8:30 AM Depart Site: 4:00 PM
Arrive Site: 10:30 AM Arrive Lab: 4:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-1	1st Lift Subgrade	20150	21225	N/A	PC-C1	115.3	88.3	90.8	97.2	95.0	30.6	26.1	PASS
SG-2	1st Lift Subgrade	20125	21325	N/A	PC-C1	115.6	88.4	90.8	97.4	95.0	30.7	26.1	PASS
SG-3	1st Lift Subgrade	20050	21325	N/A	C-C3	120.1	95.2	96.1	99.0	95.0	26.2	23.1	PASS
SG-4	1st Lift Subgrade	20060	21250	N/A	PC-C1	114.2	89.9	90.8	99.0	95.0	27.1	26.1	PASS
SG-5	1st Lift Subgrade	19950	21250	N/A	PC-C1	115.1	88.8	90.8	97.8	95.0	29.6	26.1	PASS
SG-6	1st Lift Subgrade	19925	21325	N/A	C-C3	120.8	94.2	96.1	98.0	95.0	28.3	23.1	PASS
SG-7	1st Lift Subgrade	19850	21325	N/A	C-C3	121.6	95.8	96.1	99.7	95.0	26.9	23.1	PASS
SG-8	1st Lift Subgrade	19850	21250	N/A	C-C3	115.9	98.0	96.1	101.9	95.0	18.3	23.1	PASS
SG-9	1st Lift Subgrade	19825	21150	N/A	C-C3	114.8	95.3	96.1	99.1	95.0	20.5	23.1	PASS
SG-10	1st Lift Subgrade	19925	21125	N/A	C-C3	116.7	95.9	96.1	99.8	95.0	21.7	23.1	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 10/3/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name:	Saline County RSWMD
Contractor:	Pickett Industries
Project Name:	Cell 4 CQA
Location:	Bauxite, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgrim
Test Location:	Cell 4 - Subgrade

Depart Lab:	<u>8:30 AM</u>	Depart Site:	<u>4:00 PM</u>
Arrive Site:	<u>10:30 AM</u>	Arrive Lab:	<u>4:30 PM</u>

MATERIAL INFORMATION

Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

[illegible]

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 10/6/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 4 - Subgrade

Depart Lab: 8:00 AM Depart Site: 4:30 PM
Arrive Site: 8:30 AM Arrive Lab: 5:00 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
SG-19	2nd Lift Subgrade	20150	20925	N/A	PC-C1	117.0	91.1	90.8	100.4	95.0	28.4	26.1	PASS
SG-20	2nd Lift Subgrade	20075	20925	N/A	C-C3	117.7	92.0	96.1	95.8	95.0	27.9	23.1	PASS
SG-21	2nd Lift Subgrade	19925	20925	N/A	C-C3	121.2	93.9	96.1	97.7	95.0	29.1	23.1	PASS
SG-22	2nd Lift Subgrade	19825	20975	N/A	C-C3	117.1	95.0	96.1	98.8	95.0	23.3	23.1	PASS
SG-23	2nd Lift Subgrade	19825	21075	N/A	C-C3	121.6	95.4	96.1	99.2	95.0	27.5	23.1	PASS
SG-24	2nd Lift Subgrade	19975	21075	N/A	PC-C1	116.5	91.7	90.8	101.0	95.0	27.0	26.1	PASS
SG-25	2nd Lift Subgrade	20075	21025	N/A	PC-C1	116.0	91.8	90.8	101.1	95.0	26.4	26.1	PASS
SG-26	2nd Lift Subgrade	20175	21050	N/A	C-C3	116.2	92.3	96.1	96.0	95.0	25.9	23.1	PASS
SG-27	2nd Lift Subgrade	20175	21175	N/A	PC-C1	116.6	90.5	90.8	99.6	95.0	28.9	26.1	PASS
SG-28	2nd Lift Subgrade	20025	21125	N/A	PC-C1	117.2	91.4	90.8	100.7	95.0	28.2	26.1	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 10/6/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name:	Saline County RSWMD
Contractor:	Pickett Industries
Project Name:	Cell 4 CQA
Location:	Bauxite, Arkansas
Reviewed by:	Brad Fureigh, E.I.
Technician:	Earl Pilgrim
Test Location:	Cell 4 - Subgrade

Depart Lab:	<u>8:00 AM</u>	Depart Site:	<u>4:30 PM</u>
Arrive Site:	<u>8:30 AM</u>	Arrive Lab:	<u>5:00 PM</u>

MATERIAL INFORMATION

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

[illegible]

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 11/22/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 4 - Prepared Subgrade

Depart Lab: 7:30 AM Depart Site: 5:30 PM
Arrive Site: 8:00 AM Arrive Lab: 6:00 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
PS-1	1st Lift Prep-Sub	20050	20950	N/A	C-C2	119.5	91.9	95.1	96.6	95.0	30.1	23.5	PASS
PS-2	1st Lift Prep-Sub	19975	20950	N/A	C-C2	115.0	92.8	95.1	97.6	95.0	23.9	23.5	PASS
PS-3	1st Lift Prep-Sub	19850	20950	N/A	C-C2	113.6	90.5	95.1	95.2	95.0	25.5	23.5	PASS
PS-4	1st Lift Prep-Sub	19790	20975	N/A	C-C2	115.7	91.8	95.1	96.6	95.0	26.0	23.5	PASS
PS-5	1st Lift Prep-Sub	19790	21075	N/A	C-C2	119.8	94.9	95.1	99.7	95.0	26.3	23.5	PASS
PS-6	1st Lift Prep-Sub	19850	21050	N/A	C-C2	116.6	92.5	95.1	97.2	95.0	26.1	23.5	PASS
PS-7	1st Lift Prep-Sub	19925	21050	N/A	C-C2	118.6	92.4	95.1	97.2	95.0	28.3	23.5	PASS
PS-8	1st Lift Prep-Sub	20010	21050	N/A	C-C2	117.7	92.0	95.1	96.7	95.0	28.0	23.5	PASS
PS-9	1st Lift Prep-Sub	20090	21025	N/A	C-C2	117.3	93.9	95.1	98.8	95.0	24.9	23.5	PASS
PS-10	1st Lift Prep-Sub	20090	21110	N/A	C-C2	113.2	91.0	95.1	95.7	95.0	24.4	23.5	PASS

Terracon
25809 Interstate 30 South
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**25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292**

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Depart Lab:	<u>7:30 AM</u>	Depart Site:	<u>5:30 PM</u>
Arrive Site:	8:00 AM	Arrive Lab:	6:00 PM

[illegible]

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 12/3/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 4 - Prepared Subgrade

Depart Lab: 8:00 AM Depart Site: 4:00 PM
Arrive Site: 8:30 AM Arrive Lab: 4:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
PS-20	2nd Lift Prep-Sub	20050	20950	N/A	C-C2	118.9	92.4	95.1	97.1	95.0	28.7	23.5	PASS
PS-21	2nd Lift Prep-Sub	19925	20975	N/A	C-C2	117.9	93.9	95.1	98.8	95.0	25.5	23.5	PASS
PS-22	2nd Lift Prep-Sub	19850	20950	N/A	C-C2	118.6	90.9	95.1	95.6	95.0	30.5	23.5	PASS
PS-23	2nd Lift Prep-Sub	19775	20950	N/A	C-C2	118.9	94.4	95.1	99.2	95.0	26.0	23.5	PASS
PS-24	2nd Lift Prep-Sub	19790	21075	N/A	C-C2	118.2	93.1	95.1	97.9	95.0	26.9	23.5	PASS
PS-25	2nd Lift Prep-Sub	19875	21050	N/A	C-C2	117.3	93.5	95.1	98.3	95.0	25.5	23.5	PASS
PS-26	2nd Lift Prep-Sub	19950	21075	N/A	C-C2	117.7	93.7	95.1	98.5	95.0	25.6	23.5	PASS
PS-27	2nd Lift Prep-Sub	20075	21050	N/A	C-C2	118.5	93.8	95.1	98.7	95.0	26.3	23.5	PASS
PS-28	2nd Lift Prep-Sub	20050	21150	N/A	C-C2	117.6	93.6	95.1	98.5	95.0	25.6	23.5	PASS
PS-29	2nd Lift Prep-Sub	19950	21150	N/A	C-C2	115.7	93.5	95.1	98.4	95.0	23.7	23.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 12/3/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 4 - Prepared Subgrade

Depart Lab: 8:00 AM Depart Site: 4:00 PM
Arrive Site: 8:30 AM Arrive Lab: 4:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
PS-30	2nd Lift Prep-Sub	19850	21150	N/A	C-C2	117.8	93.9	95.1	98.8	95.0	25.4	23.5	PASS
PS-31	2nd Lift Prep-Sub	19775	21175	N/A	C-C2	116.1	93.4	95.1	98.2	95.0	24.3	23.5	PASS
PS-32	2nd Lift Prep-Sub	19790	21250	N/A	C-C2	117.9	94.7	95.1	99.6	95.0	24.5	23.5	PASS
PS-33	2nd Lift Prep-Sub	19850	21225	N/A	C-C2	117.3	93.8	95.1	98.7	95.0	25.0	23.5	PASS
PS-34	2nd Lift Prep-Sub	19950	21250	N/A	C-C2	118.7	94.5	95.1	99.4	95.0	25.6	23.5	PASS
PS-35	2nd Lift Prep-Sub	20075	21250	N/A	C-C2	117.4	92.7	95.1	97.4	95.0	26.7	23.5	PASS
PS-36	2nd Lift Prep-Sub	20050	21325	N/A	C-C2	113.0	91.4	95.1	96.1	95.0	23.6	23.5	PASS
PS-37	2nd Lift Prep-Sub	19975	21325	N/A	C-C2	116.9	94.5	95.1	99.4	95.0	23.7	23.5	PASS
PS-38	2nd Lift Prep-Sub	19875	21325	N/A	C-C2	115.2	92.2	95.1	96.9	95.0	25.0	23.5	PASS
PS-39	2nd Lift Prep-Sub	19800	21325	N/A	C-C2	121.3	95.4	95.1	100.4	95.0	27.1	23.5	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 12/8/2008

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 4 Slopes - Prepared Subgrade

Depart Lab: 8:00 AM Depart Site: 4:00 PM
Arrive Site: 8:30 AM Arrive Lab: 4:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
PS-40	1st Lift Prep-Sub	20025	20825	N/A	PC-3	120.4	95.9	97.8	98.1	95.0	25.5	21.0	PASS
PS-41	1st Lift Prep-Sub	19975	20825	N/A	PC-3	122.6	98.4	97.8	100.6	95.0	24.6	21.0	PASS
PS-42	1st Lift Prep-Sub	19950	20910	N/A	PC-3	119.4	96.3	97.8	98.5	95.0	24.0	21.0	PASS
PS-43	1st Lift Prep-Sub	19890	20890	N/A	PC-3	118.9	95.6	97.8	97.7	95.0	24.4	21.0	PASS
PS-44	1st Lift Prep-Sub	19850	20925	N/A	PC-3	118.0	95.9	97.8	98.0	95.0	23.1	21.0	PASS
PS-45	1st Lift Prep-Sub	19775	20890	N/A	PC-3	122.7	96.0	97.8	98.2	95.0	27.8	21.0	PASS
PS-46	1st Lift Prep-Sub	19775	20950	N/A	PC-3	121.7	97.7	97.8	99.9	95.0	24.6	21.0	PASS
PS-47	1st Lift Prep-Sub	19825	20850	N/A	PC-3	118.5	96.5	97.8	98.7	95.0	22.8	21.0	PASS
PS-48	1st Lift Prep-Sub	19925	20825	N/A	PC-3	122.0	97.8	97.8	100.0	95.0	24.7	21.0	PASS
PS-49	1st Lift Prep-Sub	19975	20775	N/A	PC-3	120.9	97.6	97.8	99.8	95.0	23.9	21.0	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 1/13/2009

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Donnie Walls / Earl Pilgrim
Test Location: Cell 4 Slopes - Prepared Subgrade

Depart Lab: 8:00 AM Depart Site: 4:00 PM
Arrive Site: 8:30 AM Arrive Lab: 4:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
PS-50	1st Lift Prep-Sub	19910	20270	N/A	PC-3	123.3	96.0	97.8	98.2	95.0	28.4	21.0	PASS
PS-51	1st Lift Prep-Sub	19950	20350	N/A	PC-3	120.0	93.0	97.8	95.1	95.0	29.0	21.0	PASS
PS-52	1st Lift Prep-Sub	19925	20450	N/A	PC-3	124.0	96.7	97.8	98.9	95.0	28.2	21.0	PASS
PS-53	1st Lift Prep-Sub	20025	20475	N/A	PC-3	125.1	97.7	97.8	99.9	95.0	28.0	21.0	PASS
PS-54	1st Lift Prep-Sub	20050	20575	N/A	PC-3	124.0	95.5	97.8	97.6	95.0	29.9	21.0	PASS
PS-55	1st Lift Prep-Sub	19990	20560	N/A	PC-3	125.0	95.4	97.8	97.6	95.0	31.0	21.0	PASS
PS-56	1st Lift Prep-Sub	19925	20580	N/A	PC-3	121.3	93.5	97.8	95.6	95.0	29.8	21.0	PASS
PS-57	1st Lift Prep-Sub	19990	20625	N/A	PC-3	123.7	99.1	97.8	101.3	95.0	24.8	21.0	PASS
PS-58	1st Lift Prep-Sub	20050	20325	N/A	PC-3	119.0	95.3	97.8	97.4	95.0	24.9	21.0	PASS
PS-59	1st Lift Prep-Sub	20140	20360	N/A	PC-3	119.1	98.2	97.8	100.4	95.0	21.3	21.0	PASS

Summary of Field Density Test Results ASTM D 2922

Project No: 35087125
Date of Report: 1/13/2009

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Location: Bauxite, Arkansas
Reviewed by: Brad Fureigh, E.I.
Technician: Earl Pilgrim
Test Location: Cell 4 - Prepared Subgrade

Depart Lab: 8:00 AM Depart Site: 4:00 PM
Arrive Site: 8:30 AM Arrive Lab: 4:30 PM

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

Test No.	Lift or Elev.	Test Location		Shelby Tube Sample	Mat'l. No.	Wet Density, pcf	Dry Density, pcf	Lab Max. Dry Density, pcf	Percent Compaction %	Percent Compaction Required	Moisture Content %	Optimum Moisture %	PASS or FAIL
		Northing	Easting										
PS-60	1st Lift Prep-Sub	20150	20450	N/A	PC-3	122.4	98.1	97.8	100.3	95.0	24.8	21.0	PASS
PS-61	1st Lift Prep-Sub	20170	20520	N/A	PC-3	120.4	95.9	97.8	98.1	95.0	25.5	21.0	PASS
PS-62	1st Lift Prep-Sub	20125	20630	N/A	PC-3	122.6	98.4	97.8	100.6	95.0	24.6	21.0	PASS
PS-63	1st Lift Prep-Sub	20050	20650	N/A	PC-3	119.4	96.3	97.8	98.5	95.0	24.0	21.0	PASS
PS-64	1st Lift Prep-Sub	20025	20725	N/A	PC-3	118.9	95.6	97.8	97.7	95.0	24.4	21.0	PASS
PS-65	1st Lift Prep-Sub	20125	20800	N/A	PC-3	118.0	95.9	97.8	98.0	95.0	23.1	21.0	PASS
PS-66	1st Lift Prep-Sub	20125	21000	N/A	PC-3	122.7	96.0	97.8	98.2	95.0	27.8	21.0	PASS
PS-67	2nd Lift Prep-Sub	20125	21150	N/A	PC-3	121.7	97.7	97.8	99.9	95.0	24.6	21.0	PASS
PS-68	2nd Lift Prep-Sub	20125	20925	N/A	PC-3	118.5	96.5	97.8	98.7	95.0	22.8	21.0	PASS
PS-69	2nd Lift Prep-Sub	20125	20760	N/A	PC-3	122.0	97.8	97.8	100.0	95.0	24.7	21.0	PASS

Terracon
25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292

**25809 Interstate 30 South
Bryant, AR 72022
(501) 847-9292**

Depart Lab:	<u>8:00 AM</u>	Depart Site:	<u>4:00 PM</u>
Arrive Site:	<u>8:30 AM</u>	Arrive Lab:	<u>4:30 PM</u>

MATERIAL INFORMATION			
Mat'l. No.	Material Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
PC-C1	Dark Grayish Brown Silty Clay	90.8	26.1
PC-C2	Black Silty Clay	92.3	25.9
C-C2	Very Dark Brown Silty Clay	95.1	23.5
C-C3	Black & Gray Silty Clay	96.1	23.1
PC-3	Dark Gray Clay w/ Sand	97.8	21.0

[illegible]

APPENDIX G

GEOSYNTHETICS INSTALLER'S INFORMATION



ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

EXPERIENCE RESUME

Name: Randy Story
Position: Senior Superintendent

Randy has been employed with Environmental Specialties International, Inc. Since October 2000. His experience is from his prior employment with GSE Lining Technology Corp., formerly Gundle Lining Construction Corp.

CUSTOMER	LOCATION	MATERIAL	SQUARE FEET	COMMENTS
Rocky River WWTF	Anderson, SC	40 HD	196,642	
Kerr McGee	Mobile, AL	40/60/100 HD	2,529,218	
Bee Ridge Landfill	Sarasota, FL	40 VL	4,309,246	
Union Oil Company	Parachute, CO	60 Mil HDPE	21,624	
Laidlaw Denver	Erie, CO	60 Mil HDPE	26,345	
Newmont Mining North Area	Carlin, NV	60 Mil HDPE	1,135,695	
La Honda Lower Reservoir	La Honda, CA	60 Mil HDPE	6,513	
Newmont Gold South Leach Pad	Carlin, NV	60 Mil HDPE	300,000	
Barrick Goldstrike Phase	Carlin, NV	60 Mil HDPE	400,000	
Barrick Goldstrike AA Pond	Elko, NV	60 Mil HDPE	895,000	
Newmont Gold Non-Poverty	Carlin, NV	60 Mil HDPE	1,000,000	
Kapolei Golf Course	Oahu, Hawaii	60 Mil HDPE	43,300	
Otis Air Force Base LF Closure	Cape Cod, MA	40 Mil HDPE	3,397,680	
Town of Huntington LF Closure	Huntington, NY	40 Mil HDPE	2,100,000	
Nestle's Lagoon	Moses Lake, WA	40 Mil HDPE	1,800,000	
Dee Gold Leach Pad	Carlin, NV	60 Mil HDPE	1,000,000	
BFI Randolph	Randolph, MA	60 Mil HDPE	120,000	
Newmont ROTP	Carlin, NV	60 Mil HDPE	400,000	
McAllister Point LF	Middletown, RI	60 Mil HDPE	350,000	
Holston Defense Corporation	Kingsport, TN	60 Mil HDPE	348,000	
Raymark Superfund Site	Stratford, CT	60 Mil HDPE	1,524,600	
Groton Ct Area LF Closure	Groton, CT	40 Mil HDPE	360,000	
Smith Farms OU2	Louisville, KY	60 Mil HDPE	1,000,000	
Earl Navel Weapons Station	Earl, NJ	60 Mil HDPE	525,000	
Stoller Chemical	Jerricho, SC	60 Mil HDPE	350,000	
Three Rivers LF	Jackson, SC	60 Mil HDPE	352,000	
Irredale County LF	Statesville, NC	60 Mil HDPE	500,000	
Natick LF Closure	Natick, MA	60 Mil HDPE	1,562,000	
Casmalia P/S Cap	Casmalia, CA	60 Mil HDPE	696,960	
New Bedford Harbor Superfund	New Bedford, MA	60 Mil HDPE	97,000	
Tuscarora Regional LF	New Bern, NC	30 Mil LLDPE	800,124	
Matlock Bend LF	Louden, TN	60 Mil HDPE	258,773	
Black Warrior LF Cell 4	Coker, AL	60 Mil HDPE	481,339	
Black Warrior LF Cell 4	Coker, AL	12 Mil LLDPE	63,534	
Morgan LF	Decatur, AL	60 Mil HDPE	546,500	
Cumberland County LF	Newburg, PA	60 Mil HDPE	827,111	
Lakeland Disposal LF	Claypool, IN	40 Mil HDPE	980,469	
Alcoa/Reynolds Metal Company	Arkadelphia, AR	60 Mil HDPE	1,055,631	
Southern Ok-Sord	Armored, AR	60 Mil HDPE	342,486	
Republic/Pine Ridge LF	Griffin, GA	60 Mil HDPE	644,120	



ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

EXPERIENCE RESUME

Name: Randy Story
Position: Senior Superintendent

Camp Lejeune	Jacksonville, NC	60 Mil HDPE	558,849
Jefferson Parish LF Cells 11 & 12	Avondale, LA	60 Mil HDPE	746,694
Jefferson Parish LF Cells 11 & 12	Avondale, LA	40 Mil HDPE	746,694
East Texas LF	Henderson, TX	60 Mil HDPE	485,231
Oak Ridge National Lab	Oak Ridge, TN	40 Mil LLDPE	231,932
Lakeland Disposal LF	Claypool, IN	40 Mil LLDPE	980,469
WM-Okeechobee LF	Okeechobee, FL	40 Mil LLDPE	787,181
Alcoa Metals	Arkadelphia, AR	60 Mil HDPE	1,051,513
WM-Oak Ridge	Dorchester, SC	60 Mil HDPE	280,619
Wilmington Harbor	Wilmington, DE	60 Mil HDPE	214,200
IESI Bethlehem LF Cell 4A	Bethlehem, PA	40 Mil HDPE	21,160
IESI Bethlehem LF Cell 4A	Bethlehem, PA	60 Mil HDPE	437,334
Oak Ridge National Lab	Oak Ridge, TN	40 Mil LLDPE	1,546,212
IESI East Texas Regional LF	Henderson, TX	60 Mil HDPE	496,731
Republic/Pine Ridge LF	Griffin, GA	60 Mil HDPE	636,232
Republic Valley View	Griffin, GA	60 Mil HDPE	290,581
Melton Valley	Oakridge, TN	40 Mil LLDPE	1,380,000
Cherokee County LF	Murphy, TN	40 Mil HDPE	22,500
IESI LaSalle Grant	Jena, LA	60 Mil HDPE	609,755
Melton Valley	Oakridge, TN	40 Mil LLDPE	4,791,000
WM Chestnut Ridge	Heiskell, TN	60 Mil HDPE	222,524
Vermillion Parish LF	Abbeville, LA	60 Mil HDPE	166,000
IESI Centerpoint	Prague, OK	60 Mil HDPE	101,790
AWI Ponce Puerto Rico	Ponce, PR	60 Mil HDPE	90,000
Mississippi County	Layora, AR	60 Mil HDPE	160,984
Newland Park LF	Salisbury, MD	40 Mil HDPE	161,185
Dupont Dry Run	Lubeck, WV	40 Mil LLDPE	107,485
Wolfe Creek	Dry Branch, GA	60 Mil HDPE	273,800
Alcoa Gum Springs	Arkadelphia, AR	60 Mil HDPE	254,830
White Oaks Piggyback	Monroe, LA	60 Mil HDPE	71,850
WM Pine Bluff	Ball Ground, GA	60 Mil HDPE	218,537
WM Chestnut Ridge	Heiskell, TN	60 Mil HDPE	497,542

TOTAL 51,988,324



ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

EXPERIENCE RESUME

Name: Rigoberto Garcia
Position: Foreman-Master Seamer

Rigoberto has been employed with Environmental Specialties International, Inc. Since October 1997. His experience is from his prior employment with GSE Lining Technology Corp., formerly Gundle Lining Construction Corp. and National Seal Company

CUSTOMER	LOCATION	MATERIAL	SQUARE FEET	COMMENTS
Rocky River WWTF	Anderson, SC	40 HD	196,642	
Kerr McGee	Mobile, AL	40/60/100 HD	2,529,218	
Bee Ridge Landfill	Sarasota, FL	40 VL	4,309,246	
Union Oil Company	Parachute, CO	60 Mil HDPE	21,624	
Laidlaw Denver	Erie, CO	60 Mil HDPE	26,345	
Newmont Mining North Area	Carlin, NV	60 Mil HDPE	1,135,695	
La Honda Lower Reservoir	La Honda, CA	60 Mil HDPE	6,513	
Newmont Gold South Leach Pad	Carlin, NV	60 Mil HDPE	300,000	
Barrick Goldstrike Phase	Carlin, NV	60 Mil HDPE	400,000	
Barrick Goldstrike AA Pond	Elko, NV	60 Mil HDPE	895,000	
Newmont Gold Non-Poverty	Carlin, NV	60 Mil HDPE	1,000,000	
Kapolei Golf Course	Oahu, Hawaii	60 Mil HDPE	43,300	
Otis Air Force Base LF Closure	Cape Cod, MA	40 Mil HDPE	3,397,680	
Town of Huntington LF Closure	Huntington, NY	40 Mil HDPE	2,100,000	
Nestle's Lagoon	Moses Lake, WA	40 Mil HDPE	1,800,000	
Dee Gold Leach Pad	Carlin, NV	60 Mil HDPE	1,000,000	
BFI Randolph	Randolph, MA	60 Mil HDPE	120,000	
Newmont ROTP	Carlin, NV	60 Mil HDPE	400,000	
McAllister Point LF	Middletown, RI	60 Mil HDPE	350,000	
Holston Defense Corporation	Kingsport, TN	60 Mil HDPE	348,000	
Raymark Superfund Site	Stratford, CT	60 Mil HDPE	1,524,600	
Groton Ct Area LF Closure	Groton, CT	40 Mil HDPE	360,000	
Smith Farms OU2	Louisville, KY	60 Mil HDPE	1,000,000	
Earl Navel Weapons Station	Earl, NJ	60 Mil HDPE	525,000	
Stoller Chemical	Jerricho, SC	60 Mil HDPE	350,000	
Three Rivers LF	Jackson, SC	60 Mil HDPE	352,000	
Irredale County LF	Statesville, NC	60 Mil HDPE	500,000	
Natick LF Closure	Natick, MA	60 Mil HDPE	1,562,000	
Casmalia P/S Cap	Casmalia, CA	60 Mil HDPE	696,960	
New Bedford Harbor Superfund	New Bedford, MA	60 Mil HDPE	97,000	
Tuscarora Regional LF	New Bern, NC	30 Mil LLDPE	800,124	
Matlock Bend LF	Louden, TN	60 Mil HDPE	258,773	
Black Warrior LF Cell 4	Coker, AL	60 Mil HDPE	481,339	
Black Warrior LF Cell 4	Coker, AL	12 Mil LLDPE	63,534	
Morgan LF	Decatur, AL	60 Mil HDPE	546,500	
Cumberland County Lf	Newburg, PA	60 Mil HDPE	827,111	
Lakeland Disposal LF	Claypool, IN	40 Mil HDPE	980,469	
Alcoa/Reynolds Metal Company	Arkadelphia, AR	60 Mil HDPE	1,055,631	
Southern Ok-Sord	Armored, AR	60 Mil HDPE	342,486	
Republic/Pine Ridge LF	Griffin, GA	60 Mil HDPE	644,120	



ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

EXPERIENCE RESUME

Name:

Rigoberto Garcia

Position:

Foreman-Master Seamer

Camp Lejeune	Jacksonville, NC	60 Mil HDPE	558,849
Jefferson Parish LF Cells 11 & 12	Avondale, LA	60 Mil HDPE	746,694
Jefferson Parish LF Cells 11 & 12	Avondale, LA	40 Mil HDPE	746,694
East Texas LF	Henderson, TX	60 Mil HDPE	485,231
Oak Ridge National Lab	Oak Ridge, TN	40 Mil LLDPE	231,932
Lakeland Disposal LF	Claypool, IN	40 Mil LLDPE	980,469
WM-Okeechobee LF	Okeechobee, FL	40 Mil LLDPE	787,181
Alcoa Metals	Arkadelphia, AR	60 Mil HDPE	1,051,513
WM-Oak Ridge	Dorchester, SC	60 Mil HDPE	280,619
Wilmington Habor	Wilmington, DE	60 Mil HDPE	214,200
IESI Bethlehem LF Cell 4A	Bethlehem, PA	40 Mil HDPE	21,160
IESI Bethlehem LF Cell 4A	Bethlehem, PA	60 Mil HDPE	437,334
Oak Ridge National Lab	Oak Ridge, TN	40 Mil LLDPE	1,546,212
IESI East Texas Regional LF	Henderson, TX	60 Mil HDPE	496,731
Republic/Pine Ridge LF	Griffin, GA	60 Mil HDPE	636,232
Republic Valley View	Griffin, GA	60 Mil HDPE	290,581
Melton Valley	Oakridge, TN	40 Mil LLDPE	1,380,000
Cherokee County LF	Murphy, TN	40 Mil HDPE	22,500
IESI LaSalle Grant	Jena, LA	60 Mil HDPE	609,755
Melton Valley	Oakridge, TN	40 Mil LLDPE	4,791,000
WM Chestnut Ridge	Heiskell, TN	60 Mil HDPE	222,524
Vermillion Parish LF	Abbeville, LA	60 Mil HDPE	166,000
IESI Centerpoint	Prague, OK	60 Mil HDPE	101,790
AWI Ponce Puerto Rico	Ponce, PR	60 Mil HDPE	90,000
Mississippi County	Layora, AR	60 Mil HDPE	160,984
Newland Park LF	Salisbury, MD	40 Mil HDPE	161,185
Dupont Dry Run	Lubeck, WV	40 Mil LLDPE	107,485
Wolfe Creek	Dry Branch, GA	60 Mil HDPE	273,800
Alcoa Gum Springs	Arkadelphia, AR	60 Mil HDPE	254,830
White Oaks Piggyback	Monroe, LA	60 Mil HDPE	71,850
WM Pine Bluff	Ball Ground, GA	60 Mil HDPE	218,537
WM Chestnut Ridge	Heiskell, TN	60 Mil HDPE	497,542

TOTAL

51,988,324



ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

EXPERIENCE RESUME

Name: Ron Powell
Position: Field Supervisor, Quality Control Supervisor, and Master Seamer

Ron has been employed with Environmental Specialties International, Inc. since April 2007. His experience is from his prior employment with GSE Lining Technology, Inc., formerly Gundle Lining Construction Corporation and SLT.

CUSTOMER	LOCATION	MATERIAL	SQUARE FEET	COMMENTS
WMI Pine Tree Acres	Michigan	60 HD/gcl	1,940,930	Cell
WMI Pine Tree Acres	Michigan	60 HD/GCL/Geocomp	1,149,787	Cell
WMI Suburban Slope Re	Ohio	60 HD/GCL/Geocomp	570,528	Cell
WMI Coshocton	Ohio	60 HD	322,740	Cell
WMI Suburban	Ohio	60HD/gcl/geocomp	155,301	Cell
WMI Tri-City	Michigan	60 HD/GCL/Geocomp	902,357	Cell
WMI Geneva	Geneva, Ohio	60 HD/gcl	146,564	Cell
WMI Eagle Valley	Michigan	60 HD/gcl/gecomp	1,571,116	Cell
WMI Eagle Valley	Michigan	60 HD/gcl/gecomp	325,028	Cell
WMI Hardy Road	Ohio	40 LLDPE/geotextile	1,991,926	Cap
WMI Woodland Meadows	Michigan	60 HD/gcl/geotextile	395,337	Cell
WMI Woodland Meadows	Michigan	60 HD/gcl/geotextile	383,717	Cell
WMI Autumn Hills	Michigan	60 HD/GCL/Geocomp	646,422	Cell
WMI Mountain Viewl	West Virginia	60 HD/gcl	121,773	Cell
WMI Anderson South Ca	Anderson, CA	60 HD/gcl	103,770	Cell
WMI Anderson Leachate	Anderson, CA	60HD/GCL	841,957	Ponds
WMI Olympic View	Washington	60 HD/GCL	3,883,114	Cap
WMI Olympic View	Washington	60 HD/GCL	186,648	Cap
WMI Westside	Michigan	60 HD/ GCL	32,096	Cell
WMI Peoples LF	Birch Run, Michigan	HD, GCL, Geocomp, Text	47,459	Cell
WMI Westside	Michigan	60 HD/GCL	229,180	Cell
WMI Northern Oaks	Michigan	60 HD/GCL/Geocomp	141,768	Cell
Mississippi Chemical Cor	Mississippi	60 HD	3,058,618	Ponds
WMI Jefferson County	Arkansas	60 HD	440,799	Cell
Georgia Pacific	Louisiana	60 HD	671,000	Cell
NWS Battle Creek	Virginia	60 HD	314,739	Cell
WMI Pottstown	Pennsylvania	60 HD	703,429	landfill closure
WMI Hardy Road	Ohio	40 LLDPE/geotextile	859,646	landfill closure
WMI Cedar Ridge	Michigan	40 LLDPE/geotextile	3,931,494	landfill closure
Cement Kiln Dust Piles	Michigan	60 HD	2,477,471	
TJ Maxx Philly Dist. Cent	Pennsylvania	40 HD	3,355,305	
Allied Conestoga	Pennsylvania	60 HD	353,363	
Town of North Hempstea	New York	60 HD	3,403,335	
Allied /BFI Fall River	Massachussets	60 HD	1,389,549	
Northside Storage Area	Florida	60 HD	5,116,523	
110 Sand Co.	New York	60 HD/HDT/composite	1,813,915	
Hilltop Sand & Gravel	Virginia	60 HD	1,067,387	
Geocon Sonia Rd LF	New York	60 HD/HDT/geotextile	830,170	
Mittal Steel	Gary, IN	40 LLT/Comp/geotextile	1,854,297	landfill closure

TOTAL 47,730,558



ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

EXPERIENCE RESUME

Name: Anousack Phetvongkham
Position: Master Seamer

Anousack has been employed with Environmental Specialties International, Inc. since April 2007. His experience is from his prior employment with GSE Lining Technology, Inc., formerly Gundle Lining Construction Corporation and SLT.

CUSTOMER	LOCATION	MATERIAL	SQUARE FEET	COMMENTS
WMI Pine Tree Acres	Michigan	60 Mil HDPE	1,940,930	
WMI Pine Tree Acres	Michigan	60 Mil HDPE	1,149,787	
WMI Suburban Slope Repair	Ohio	60 Mil HDPE	570,528	
WMI Coshocton	Ohio	60 Mil HDPE	322,740	
WMI Suburban	Ohio	60 Mil HDPE	155,301	
WMI Tri-City	Michigan	60 Mil HDPE	902,357	
WMI Geneva	Geneva, Ohio	60 Mil HDPE	146,564	
WMI Eagle Valley	Michigan	60 Mil HDPE	1,571,116	
WMI Eagle Valley	Michigan	60 Mil HDPE	325,028	
WMI Hardy Road	Ohio	40 Mil LLDPE	1,991,926	
WMI Woodland Meadows	Michigan	60 Mil HDPE	395,337	
WMI Woodland Meadows	Michigan	60 Mil HDPE	383,717	
WMI Autumn Hills	Michigan	60 Mil HDPE	646,422	
WMI Mountain View	West Virginia	60 Mil HDPE	121,773	
WMI Anderson South Canyon	Anderson, CA	60 Mil HDPE	103,770	
WMI Anderson Leachate Pond	Anderson, CA	60 Mil HDPE	841,957	
WMI Olympic View	Washington	60 Mil HDPE	3,883,114	
WMI Olympic View	Washington	60 Mil HDPE	186,648	
WMI Westside	Michigan	60 Mil HDPE	32,096	
WMI Peoples LF	Birch Run, MI	60 Mil HDPE	47,459	
WMI Westside	Michigan	60 Mil HDPE	229,180	
WMI Northern Oaks	Michigan	60 Mil HDPE	141,768	
Mississippi Chemical Corp	Mississippi	60 Mil HDPE	3,058,618	
WMI Jefferson County	Arkansas	60 Mil HDPE	440,799	
Georgia Pacific	Louisiana	60 Mil HDPE	671,000	
NWS Battle Creek	Virginia	60 Mil HDPE	314,739	
WMI Pottstown	Pennsylvania	60 Mil HDPE	703,429	
WMI Hardy Road	Ohio	40 Mil LLDPE	859,646	
WMI Cedar Ridge	Michigan	40 Mil LLDPE	3,931,494	
Cement Kiln Dust Piles	Michigan	60 Mil HDPE	2,477,471	
TJ Maxx Philly Dist. Center	Pennsylvania	40 Mil LLDPE	3,355,305	
Allied Conestoga	Pennsylvania	60 Mil HDPE	353,363	
Town of North Hempstead	New York	60 Mil HDPE	3,403,335	
Allied /BFI Fall River	Massachussets	60 Mil HDPE	1,389,549	
Northside Storage Area	Florida	60 Mil HDPE	5,116,523	
110 Sand Co.	New York	60 Mil HDPE	1,813,915	
Hilltop Sand & Gravel	Virginia	60 Mil HDPE	1,067,387	
Geocon Sonia Rd LF	New York	60 Mil HDPE	830,170	
Mittal Steel	Gary, IN	40 Mil LLDPE	1,854,297	
		TOTAL	47,730,558	

APPENDIX H
GEOSYNTHETIC CLAY LINER MANUFACTURER'S
QC CERTIFICATES



Date: 10/27/2008
Purchase Order: 10238
ORDER NUMBER: 024473701

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/21/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
ORDER NUMBER: 024473701
PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773
Fax:
E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/21/2008

Order Number: 024473701

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	150 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5×10^{-9} cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1×10^{-8} m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	1.0 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT 200R

Raw Material	test method	mass per area	units
Bentomat 200R Nonwoven Cover Fabric	ASTM D-5261	3.5	oz/yd ²
Bentomat 200R Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GCL ORDER PACKING LIST

GCL shipped for certification package number 024473701

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473701	CV-BENTOMAT 200R	200843CV	00000795	150	15	2250	2742
024473701	CV-BENTOMAT 200R	200843CV	00000802	150	15	2250	2738
024473701	CV-BENTOMAT 200R	200843CV	00000803	150	15	2250	2770
024473701	CV-BENTOMAT 200R	200843CV	00000809	150	15	2250	2848
024473701	CV-BENTOMAT 200R	200843CV	00000814	150	15	2250	2786
024473701	CV-BENTOMAT 200R	200843CV	00000817	150	15	2250	2814
024473701	CV-BENTOMAT 200R	200843CV	00000818	150	15	2250	2826
024473701	CV-BENTOMAT 200R	200843CV	00000820	150	15	2250	2766
024473701	CV-BENTOMAT 200R	200843CV	00000821	150	15	2250	2790
024473701	CV-BENTOMAT 200R	200843CV	00000823	150	15	2250	2822
024473701	CV-BENTOMAT 200R	200843CV	00000830	150	15	2250	2798
024473701	CV-BENTOMAT 200R	200843CV	00000831	150	15	2250	2792
024473701	CV-BENTOMAT 200R	200843CV	00000832	150	15	2250	2834
024473701	CV-BENTOMAT 200R	200843CV	00000833	150	15	2250	2784
024473701	CV-BENTOMAT 200R	200843CV	00000836	150	15	2250	2776
024473701	CV-BENTOMAT 200R	200843CV	00000837	150	15	2250	2790
024473701	CV-BENTOMAT 200R	200843CV	00000838	150	15	2250	2782
Totals:				2550	255	38250	47458
				Total Number of Rolls Certified: 17			



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473701

GCL			Geotextiles			Clay	
CV-BENTOMAT 200R			CV-N/W-WH-360-B200R			CV-WOVEN-B200R	CV-CG 50-B200R
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00000795	00000793	2010914825			2010509157	889275A
200843CV	00000802	00000793	2010914835			2010509157	889275A
200843CV	00000803	00000793	2010914835			2010509157	889275A
200843CV	00000809	00000808	2010914835			2010509157	889275A
200843CV	00000814	00000808	2010882811			2010471933	889275A
200843CV	00000817	00000808	2010882811			2010471933	889275A
200843CV	00000818	00000808	2010882811			2010471933	889275A
200843CV	00000820	00000808	2010914830			2010471933	889275A
200843CV	00000821	00000808	2010914830			2010471933	889275A
200843CV	00000823	00000823	2010914830			2010471933	889275A
200843CV	00000830	00000823	2010914830			2010471933	889275A
200843CV	00000831	00000823	2010914833			2010471933	889275A
200843CV	00000832	00000832	2010914833			2010471933	889275A
200843CV	00000833	00000832	2010914833			2010471933	889275A
200843CV	00000836	00000832	2010914833			2010471933	889275A
200843CV	00000837	00000832	2010914833			2010471933	889275A
200843CV	00000838	00000832	2010914833			2010471933	889275A



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473701 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			see property sheet	see property sheet	see property sheet
CV-BENTOMAT 200R	200843CV	00000793	0.97	50.9	5.3
CV-BENTOMAT 200R	200843CV	00000808	1.10	68.6	2.7
CV-BENTOMAT 200R	200843CV	00000823	1.09	68.6	3.4
CV-BENTOMAT 200R	200843CV	00000832	1.00	68.6	3.2

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.

Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473701 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
889275A	9.4	27.0	16.0



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473701 was manufactured with geotextiles which were tested with the following results.

BASE

Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 82TEX	2010471933	3.4	140.2
PPX 82TEX	2010509157	3.5	161.1

CAP

Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 360	2010882811	5.0	77.5
PPX 360	2010914825	4.9	33.2
PPX 360	2010914830	4.0	33.4
PPX 360	2010914833	3.6	24.7
PPX 360	2010914835	3.6	24.7

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.



Date: 10/27/2008

Purchase Order: 10238

ORDER NUMBERS: 024473702, 024473703, 024473704, 024473705, 024473706

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/23/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Saline County Cell

CUSTOMER P.O.: 10238

ORDER NUMBERS: 024473702, 024473703, 024473704, 024473705, 024473706

PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773

Fax:

E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/23/2008

Order Numbers: 024473702, 024473703, 024473704, 024473705, 024473706

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	150 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5×10^{-9} cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1×10^{-8} m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	1.0 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT 200R

Raw Material	test method	mass per area	units
Bentomat 200R Nonwoven Cover Fabric	ASTM D-5261	3.5	oz/yd ²
Bentomat 200R Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GCL ORDER PACKING LIST

GCL shipped for certification package number 024473702

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473704	CV-BENTOMAT 200R	200843CV	00000719	150	15	2250	2888
024473706	CV-BENTOMAT 200R	200843CV	00000724	150	15	2250	2664
024473706	CV-BENTOMAT 200R	200843CV	00000725	150	15	2250	2660
024473702	CV-BENTOMAT 200R	200843CV	00000728	150	15	2250	2604
024473706	CV-BENTOMAT 200R	200843CV	00000730	150	15	2250	2824
024473706	CV-BENTOMAT 200R	200843CV	00000731	150	15	2250	2798
024473706	CV-BENTOMAT 200R	200843CV	00000732	150	15	2250	2778
024473706	CV-BENTOMAT 200R	200843CV	00000733	150	15	2250	2768
024473706	CV-BENTOMAT 200R	200843CV	00000735	150	15	2250	2752
024473706	CV-BENTOMAT 200R	200843CV	00000737	150	15	2250	2738
024473706	CV-BENTOMAT 200R	200843CV	00000738	150	15	2250	2738
024473704	CV-BENTOMAT 200R	200843CV	00000739	150	15	2250	2742
024473704	CV-BENTOMAT 200R	200843CV	00000741	150	15	2250	2770
024473706	CV-BENTOMAT 200R	200843CV	00000742	150	15	2250	2744
024473704	CV-BENTOMAT 200R	200843CV	00000743	150	15	2250	2736
024473706	CV-BENTOMAT 200R	200843CV	00000744	150	15	2250	2736
024473704	CV-BENTOMAT 200R	200843CV	00000749	150	15	2250	2822
024473706	CV-BENTOMAT 200R	200843CV	00000750	150	15	2250	2774
024473706	CV-BENTOMAT 200R	200843CV	00000751	150	15	2250	2788
024473704	CV-BENTOMAT 200R	200843CV	00000752	150	15	2250	2764
024473704	CV-BENTOMAT 200R	200843CV	00000753	150	15	2250	2772
024473706	CV-BENTOMAT 200R	200843CV	00000754	150	15	2250	2770
024473704	CV-BENTOMAT 200R	200843CV	00000755	150	15	2250	2766
024473706	CV-BENTOMAT 200R	200843CV	00000756	150	15	2250	2760
024473702	CV-BENTOMAT 200R	200843CV	00000757	150	15	2250	2756
024473704	CV-BENTOMAT 200R	200843CV	00000760	150	15	2250	2760
024473704	CV-BENTOMAT 200R	200843CV	00000761	150	15	2250	2762

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473704	CV-BENTOMAT 200R	200843CV	00000762	150	15	2250	2732
024473705	CV-BENTOMAT 200R	200843CV	00000763	150	15	2250	2812
024473704	CV-BENTOMAT 200R	200843CV	00000764	150	15	2250	2756
024473704	CV-BENTOMAT 200R	200843CV	00000765	150	15	2250	2738
024473705	CV-BENTOMAT 200R	200843CV	00000766	150	15	2250	2712
024473705	CV-BENTOMAT 200R	200843CV	00000767	150	15	2250	2712
024473705	CV-BENTOMAT 200R	200843CV	00000768	150	15	2250	2706
024473704	CV-BENTOMAT 200R	200843CV	00000769	150	15	2250	2718
024473704	CV-BENTOMAT 200R	200843CV	00000770	150	15	2250	2710
024473704	CV-BENTOMAT 200R	200843CV	00000771	150	15	2250	2722
024473704	CV-BENTOMAT 200R	200843CV	00000772	150	15	2250	2724
024473706	CV-BENTOMAT 200R	200843CV	00000773	150	15	2250	2714
024473705	CV-BENTOMAT 200R	200843CV	00000774	150	15	2250	2714
024473705	CV-BENTOMAT 200R	200843CV	00000775	150	15	2250	2716
024473705	CV-BENTOMAT 200R	200843CV	00000776	150	15	2250	2728
024473705	CV-BENTOMAT 200R	200843CV	00000777	150	15	2250	2716
024473703	CV-BENTOMAT 200R	200843CV	00000778	150	15	2250	2734
024473705	CV-BENTOMAT 200R	200843CV	00000779	150	15	2250	2704
024473703	CV-BENTOMAT 200R	200843CV	00000780	150	15	2250	2722
024473703	CV-BENTOMAT 200R	200843CV	00000781	150	15	2250	2716
024473705	CV-BENTOMAT 200R	200843CV	00000782	150	15	2250	2728
024473703	CV-BENTOMAT 200R	200843CV	00000783	150	15	2250	2738
024473705	CV-BENTOMAT 200R	200843CV	00000784	150	15	2250	2740
024473703	CV-BENTOMAT 200R	200843CV	00000785	150	15	2250	2756
024473705	CV-BENTOMAT 200R	200843CV	00000786	150	15	2250	2764
024473706	CV-BENTOMAT 200R	200843CV	00000787	150	15	2250	2764
024473705	CV-BENTOMAT 200R	200843CV	00000788	150	15	2250	2770
024473703	CV-BENTOMAT 200R	200843CV	00000789	150	15	2250	2772
024473703	CV-BENTOMAT 200R	200843CV	00000790	150	15	2250	2752
024473702	CV-BENTOMAT 200R	200843CV	00000791	150	15	2250	2728
024473703	CV-BENTOMAT 200R	200843CV	00000792	150	15	2250	2726
024473705	CV-BENTOMAT 200R	200843CV	00000793	150	15	2250	2764

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473703	CV-BENTOMAT 200R	200843CV	00000794	150	15	2250	2732
024473705	CV-BENTOMAT 200R	200843CV	00000797	150	15	2250	2746
024473702	CV-BENTOMAT 200R	200843CV	00000798	150	15	2250	2754
024473702	CV-BENTOMAT 200R	200843CV	00000799	150	15	2250	2756
024473702	CV-BENTOMAT 200R	200843CV	00000800	150	15	2250	2780
024473702	CV-BENTOMAT 200R	200843CV	00000801	150	15	2250	2764
024473702	CV-BENTOMAT 200R	200843CV	00000804	150	15	2250	2770
024473703	CV-BENTOMAT 200R	200843CV	00000810	150	15	2250	2810
024473702	CV-BENTOMAT 200R	200843CV	00000811	150	15	2250	2812
024473705	CV-BENTOMAT 200R	200843CV	00000812	150	15	2250	2802
024473702	CV-BENTOMAT 200R	200843CV	00000813	150	15	2250	2808
024473702	CV-BENTOMAT 200R	200843CV	00000815	150	15	2250	2820
024473702	CV-BENTOMAT 200R	200843CV	00000816	150	15	2250	2824
024473702	CV-BENTOMAT 200R	200843CV	00000822	150	15	2250	2800
024473703	CV-BENTOMAT 200R	200843CV	00000824	150	15	2250	2780
024473703	CV-BENTOMAT 200R	200843CV	00000825	150	15	2250	2798
024473705	CV-BENTOMAT 200R	200843CV	00000826	150	15	2250	2782
024473703	CV-BENTOMAT 200R	200843CV	00000827	150	15	2250	2900
024473702	CV-BENTOMAT 200R	200843CV	00000828	150	15	2250	2834
024473702	CV-BENTOMAT 200R	200843CV	00000829	150	15	2250	2794
024473703	CV-BENTOMAT 200R	200843CV	00000834	150	15	2250	2784
024473702	CV-BENTOMAT 200R	200843CV	00000835	150	15	2250	2778
024473703	CV-BENTOMAT 200R	200843CV	00000839	150	15	2250	2782
024473703	CV-BENTOMAT 200R	200843CV	00000840	150	15	2250	2780
Totals:				12450	1245	186750	228932
				Total Number of Rolls Certified: 83			



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473702

GCL			Geotextiles			Clay	
CV-BENTOMAT 200R			CV-N/W-WH-360-B200R			CV-WOVEN-B200R	CV-CG 50-B200R
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00000719	00000719	2010914838			2010538391	883562A
200843CV	00000724	00000719	2010914838			2010538391	883562A
200843CV	00000725	00000719	2010914838			2010538391	883562A
200843CV	00000728	00000719	2010914838			2010538391	883562A
200843CV	00000730	00000719	2010914838			2010538391	883562A
200843CV	00000731	00000719	2010914838			2010416758	883562A
200843CV	00000732	00000719	2010914827			2010416758	883562A
200843CV	00000733	00000719	2010914827			2010416758	883562A
200843CV	00000735	00000734	2010914827			2010416758	883562A
200843CV	00000737	00000734	2010914827			2010416758	883562A
200843CV	00000738	00000734	2010914827			2010416758	883562A
200843CV	00000739	00000734	2010914827			2010416758	883562A
200843CV	00000741	00000734	2010914827			2010416758	883562A
200843CV	00000742	00000734	2010914827			2010416758	883562A
200843CV	00000743	00000734	2010914827			2010416758	883562A
200843CV	00000744	00000734	2010914827			2010416758	883562A
200843CV	00000749	00000749	2010914831			2010416758	883562B
200843CV	00000750	00000749	2010914831			2010416758	883562B
200843CV	00000751	00000749	2010914831			2010416758	883562B
200843CV	00000752	00000749	2010914831			2010416758	883562B
200843CV	00000753	00000749	2010914831			2010416758	883562B
200843CV	00000754	00000749	2010914831			2010416758	883562B
200843CV	00000755	00000749	2010914831			2010416758	883562B
200843CV	00000756	00000749	2010914831			2010416758	883562B
200843CV	00000757	00000749	2010914831			2010416758	883562B
200843CV	00000760	00000749	2010914832			2010484015	883562B
200843CV	00000761	00000749	2010914832			2010484015	883562B
200843CV	00000762	00000749	2010914832			2010484015	883562B
200843CV	00000763	00000763	2010914832			2010484015	883562B

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00000764	00000763	2010914832			2010484015	883562B
200843CV	00000765	00000763	2010914832			2010484015	883562B
200843CV	00000766	00000763	2010914832			2010484015	883562B
200843CV	00000767	00000763	2010914832			2010484015	883562B
200843CV	00000768	00000763	2010914832			2010484015	883562B
200843CV	00000769	00000763	2010914832			2010484015	883562B
200843CV	00000770	00000763	2010914832			2010484015	883562B
200843CV	00000771	00000763	2010914832			2010484015	883562B
200843CV	00000772	00000763	2010882818			2010484015	883562B
200843CV	00000773	00000763	2010882818			2010484015	883562B
200843CV	00000774	00000763	2010882818			2010484015	883562B
200843CV	00000775	00000763	2010882818			2010484015	883562B
200843CV	00000776	00000763	2010882818			2010484015	883562B
200843CV	00000777	00000763	2010882818			2010484015	883562B
200843CV	00000778	00000778	2010882818			2010484015	883562B
200843CV	00000779	00000778	2010882818			2010484015	883562B
200843CV	00000780	00000778	2010882818			2010484015	883562B
200843CV	00000781	00000778	2010882818			2010484015	883562B
200843CV	00000782	00000778	2010882818			2010484015	883562B
200843CV	00000783	00000778	2010882818			2010484015	883562B
200843CV	00000784	00000778	2010914825			2010484015	883562B
200843CV	00000785	00000778	2010914825			2010484015	883562B
200843CV	00000786	00000778	2010914825			2010484015	883562B
200843CV	00000787	00000778	2010914825			2010484015	883562B
200843CV	00000788	00000778	2010914825			2010484015	883562B
200843CV	00000789	00000778	2010914825			2010509157	883562B
200843CV	00000790	00000778	2010914825			2010509157	883562B
200843CV	00000791	00000778	2010914825			2010509157	883562B
200843CV	00000792	00000778	2010914825			2010509157	883562B
200843CV	00000793	00000793	2010914825			2010509157	883562B
200843CV	00000794	00000793	2010914825			2010509157	883562B
200843CV	00000797	00000793	2010914835			2010509157	889275A
200843CV	00000798	00000793	2010914835			2010509157	889275A
200843CV	00000799	00000793	2010914835			2010509157	889275A
200843CV	00000800	00000793	2010914835			2010509157	889275A

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00000801	00000793	2010914835			2010509157	889275A
200843CV	00000804	00000793	2010914835			2010509157	889275A
200843CV	00000810	00000808	2010882811			2010509157	889275A
200843CV	00000811	00000808	2010882811			2010509157	889275A
200843CV	00000812	00000808	2010882811			2010509157	889275A
200843CV	00000813	00000808	2010882811			2010509157	889275A
200843CV	00000815	00000808	2010882811			2010471933	889275A
200843CV	00000816	00000808	2010882811			2010471933	889275A
200843CV	00000822	00000808	2010914830			2010471933	889275A
200843CV	00000824	00000823	2010914830			2010471933	889275A
200843CV	00000825	00000823	2010914830			2010471933	889275A
200843CV	00000826	00000823	2010914830			2010471933	889275A
200843CV	00000827	00000823	2010914830			2010471933	889275A
200843CV	00000828	00000823	2010914830			2010471933	889275A
200843CV	00000829	00000823	2010914830			2010471933	889275A
200843CV	00000834	00000832	2010914833			2010471933	889275A
200843CV	00000835	00000832	2010914833			2010471933	889275A
200843CV	00000839	00000832	2010914833			2010471933	889275A
200843CV	00000840	00000832	2010914833			2010471933	889275A



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473702 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			see property sheet	see property sheet	see property sheet
CV-BENTOMAT 200R	200843CV	00000719	0.92	50.9	6.5
CV-BENTOMAT 200R	200843CV	00000734	0.91	50.9	4.5
CV-BENTOMAT 200R	200843CV	00000749	0.94	50.9	4.7
CV-BENTOMAT 200R	200843CV	00000763	0.91	50.9	4.8
CV-BENTOMAT 200R	200843CV	00000778	0.94	50.9	5.4
CV-BENTOMAT 200R	200843CV	00000793	0.97	50.9	5.3
CV-BENTOMAT 200R	200843CV	00000808	1.10	68.6	2.7
CV-BENTOMAT 200R	200843CV	00000823	1.09	68.6	3.4
CV-BENTOMAT 200R	200843CV	00000832	1.00	68.6	3.2

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.

Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473702 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
883562A	9.0	30.0	16.6
883562B	9.3	29.0	16.8
889275A	9.4	27.0	16.0



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473702 was manufactured with geotextiles which were tested with the following results.

BASE

Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 82TEX	2010416758	3.4	138.4
PPX 82TEX	2010471933	3.4	140.2
PPX 82TEX	2010484015	3.4	130.4
PPX 82TEX	2010509157	3.5	161.1
PPX 82TEX	2010538391	3.4	152.6

CAP

Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 360	2010882811	5.0	77.5
PPX 360	2010882818	4.6	65.7
PPX 360	2010914825	4.9	33.2
PPX 360	2010914827	4.9	33.2
PPX 360	2010914830	4.0	33.4
PPX 360	2010914831	4.0	33.4
PPX 360	2010914832	3.6	24.7
PPX 360	2010914833	3.6	24.7
PPX 360	2010914835	3.6	24.7
PPX 360	2010914838	4.5	38.7

Certifications from our suppliers are on file at our production facility. An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.



Date: 10/28/2008
Purchase Order: 10238
ORDER NUMBER: 024473707

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/27/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
ORDER NUMBER: 024473707
PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773
Fax:
E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/27/2008

Order Number: 024473707

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	150 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5×10^{-9} cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1×10^{-8} m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	1.0 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT 200R

Raw Material	test method	mass per area	units
Bentomat 200R Nonwoven Cover Fabric	ASTM D-5261	3.5	oz/yd ²
Bentomat 200R Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant

[illegible]



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473707

GCL			Geotextiles			Clay	
CV-BENTOMAT 200R			CV-N/W-WH-360-B200R			CV-WOVEN-B200R	CV-CG 50-B200R
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00000721	00000719	2010914838			2010538391	883562A
200843CV	00000722	00000719	2010914838			2010538391	883562A
200843CV	00000723	00000719	2010914838			2010538391	883562A
200843CV	00000734	00000734	2010914827			2010416758	883562A
200843CV	00000736	00000734	2010914827			2010416758	883562A
200843CV	00000740	00000734	2010914827			2010416758	883562A
200843CV	00000745	00000734	2010914827			2010416758	883562A
200843CV	00000746	00000734	2010914827			2010416758	883562A
200843CV	00000747	00000734	2010914831			2010416758	883562B
200843CV	00000748	00000734	2010914831			2010416758	883562B



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473707 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			see property sheet	see property sheet	see property sheet
CV-BENTOMAT 200R	200843CV	00000719	0.92	50.9	6.5
CV-BENTOMAT 200R	200843CV	00000734	0.91	50.9	4.5

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473707 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
883562A	9.0	30.0	16.6
883562B	9.3	29.0	16.8



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473707 was manufactured with geotextiles which were tested with the following results.

BASE			
Material	Roll Number	Mass Area oz/yd²	Grab Strength lbs
PPX 82TEX	2010416758	3.4	138.4
PPX 82TEX	2010538391	3.4	152.6

CAP			
Material	Roll Number	Mass Area oz/yd²	Grab Strength lbs
PPX 360	2010914827	4.9	33.2
PPX 360	2010914831	4.0	33.4
PPX 360	2010914838	4.5	38.7

Certifications from our suppliers are on file at our production facility.
 An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.



Date: 10/28/2008

Purchase Order: 10238

ORDER NUMBERS: 024473707, 024473708, 024473709, 024473710

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/27/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
ORDER NUMBERS: 024473707, 024473708, 024473709, 024473710
PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773
Fax:
E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/27/2008

Order Numbers: 024473707, 024473708, 024473709, 024473710

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	500 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5×10^{-9} cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1×10^{-8} m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	3.5 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd ²
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GCL ORDER PACKING LIST

GCL shipped for certification package number 024473707

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473710	CV-BENTOMAT ST	200843CV	00012764	150	15	2250	2948
024473707	CV-BENTOMAT ST	200843CV	00012765	150	15	2250	2842
024473709	CV-BENTOMAT ST	200843CV	00012768	150	15	2250	2852
024473707	CV-BENTOMAT ST	200843CV	00012769	150	15	2250	2842
024473707	CV-BENTOMAT ST	200843CV	00012770	150	15	2250	2822
024473707	CV-BENTOMAT ST	200843CV	00012771	150	15	2250	2824
024473707	CV-BENTOMAT ST	200843CV	00012772	150	15	2250	2828
024473710	CV-BENTOMAT ST	200843CV	00012777	150	15	2250	2808
024473710	CV-BENTOMAT ST	200843CV	00012778	150	15	2250	2818
024473710	CV-BENTOMAT ST	200843CV	00012779	150	15	2250	2820
024473709	CV-BENTOMAT ST	200843CV	00012780	150	15	2250	2908
024473707	CV-BENTOMAT ST	200843CV	00012781	150	15	2250	2850
024473710	CV-BENTOMAT ST	200843CV	00012782	150	15	2250	2834
024473710	CV-BENTOMAT ST	200843CV	00012784	150	15	2250	2846
024473710	CV-BENTOMAT ST	200843CV	00012785	150	15	2250	2826
024473708	CV-BENTOMAT ST	200843CV	00012786	150	15	2250	2808
024473708	CV-BENTOMAT ST	200843CV	00012787	150	15	2250	2794
024473710	CV-BENTOMAT ST	200843CV	00012789	150	15	2250	2838
024473707	CV-BENTOMAT ST	200843CV	00012791	150	15	2250	2842
024473709	CV-BENTOMAT ST	200843CV	00012792	150	15	2250	2840
024473710	CV-BENTOMAT ST	200843CV	00012793	150	15	2250	2862
024473710	CV-BENTOMAT ST	200843CV	00012794	150	15	2250	2858
024473710	CV-BENTOMAT ST	200843CV	00012798	150	15	2250	2852
024473709	CV-BENTOMAT ST	200843CV	00012826	150	15	2250	2886
024473708	CV-BENTOMAT ST	200843CV	00012827	150	15	2250	3062
024473708	CV-BENTOMAT ST	200843CV	00012830	150	15	2250	2800
024473709	CV-BENTOMAT ST	200843CV	00012835	150	15	2250	2678

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473710	CV-BENTOMAT ST	200843CV	00012842	150	15	2250	2746
024473709	CV-BENTOMAT ST	200843CV	00012843	150	15	2250	2784
024473708	CV-BENTOMAT ST	200843CV	00012844	150	15	2250	2806
024473709	CV-BENTOMAT ST	200843CV	00012845	150	15	2250	2818
024473709	CV-BENTOMAT ST	200843CV	00012846	150	15	2250	2848
024473710	CV-BENTOMAT ST	200843CV	00012847	150	15	2250	2804
024473710	CV-BENTOMAT ST	200843CV	00012851	150	15	2250	2838
024473709	CV-BENTOMAT ST	200843CV	00012852	150	15	2250	2854
024473709	CV-BENTOMAT ST	200843CV	00012853	150	15	2250	2846
024473709	CV-BENTOMAT ST	200843CV	00012854	150	15	2250	2814
024473708	CV-BENTOMAT ST	200843CV	00012855	150	15	2250	2850
024473708	CV-BENTOMAT ST	200843CV	00012858	150	15	2250	2858
024473710	CV-BENTOMAT ST	200843CV	00012860	150	15	2250	2856
024473709	CV-BENTOMAT ST	200843CV	00012862	150	15	2250	2872
024473709	CV-BENTOMAT ST	200843CV	00012863	150	15	2250	2858
024473709	CV-BENTOMAT ST	200843CV	00012864	150	15	2250	2864
024473710	CV-BENTOMAT ST	200843CV	00012868	150	15	2250	2838
024473709	CV-BENTOMAT ST	200843CV	00012869	150	15	2250	2838
024473709	CV-BENTOMAT ST	200843CV	00012870	150	15	2250	2888
024473709	CV-BENTOMAT ST	200843CV	00012871	150	15	2250	2814
024473708	CV-BENTOMAT ST	200843CV	00012872	150	15	2250	2838
024473710	CV-BENTOMAT ST	200843CV	00012875	150	15	2250	2836
024473708	CV-BENTOMAT ST	200843CV	00012876	150	15	2250	2836
024473708	CV-BENTOMAT ST	200843CV	00012877	150	15	2250	2832
024473708	CV-BENTOMAT ST	200843CV	00012878	150	15	2250	2818
024473708	CV-BENTOMAT ST	200843CV	00012879	150	15	2250	2820
024473708	CV-BENTOMAT ST	200843CV	00012880	150	15	2250	2820
024473708	CV-BENTOMAT ST	200843CV	00012881	150	15	2250	2820
024473708	CV-BENTOMAT ST	200843CV	00012882	150	15	2250	2812
024473708	CV-BENTOMAT ST	200843CV	00012883	150	15	2250	2840
Totals:				8550	855	128250	161754
Total Number of Rolls Certified: 57							



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473707

GCL			Geotextiles				Clay
CV-BENTOMAT ST			CV-N/W-WHITE-ST			CV-WOVEN-ST	CV-CG 50-ST
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00012764	00012754	200840CV	00004573	00004571	2010471933	889275A
200843CV	00012765	00012754	200840CV	00004573	00004571	2010471933	889275A
200843CV	00012768	00012754	200840CV	00004573	00004571	2010544101	889274A
200843CV	00012769	00012754	200840CV	00004573	00004571	2010544101	889274A
200843CV	00012770	00012754	200840CV	00004573	00004571	2010544101	889274A
200843CV	00012771	00012754	200841CV	00004623	00004618	2010544101	889274A
200843CV	00012772	00012754	200841CV	00004623	00004618	2010544101	889274A
200843CV	00012777	00012754	200841CV	00004623	00004618	2010544101	889274A
200843CV	00012778	00012754	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012779	00012754	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012780	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012781	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012782	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012784	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012785	00012780	200842CV	00004742	00004742	2010544101	889274A
200843CV	00012786	00012780	200842CV	00004742	00004742	2010544101	889274A
200843CV	00012787	00012780	200842CV	00004742	00004742	2010544101	889274A
200843CV	00012789	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012791	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012792	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012793	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012794	00012780	200839CV	00004425	00004425	2010544101	889274A
200843CV	00012798	00012795	200840CV	00004596	00004588	2010544101	889274A
200843CV	00012826	00012826	200840CV	00004570	00004566	2010504584	889274B
200843CV	00012827	00012826	200840CV	00004610	00004605	2010504584	889274B
200843CV	00012830	00012826	200840CV	00004610	00004605	2010502288	889274B
200843CV	00012835	00012826	200840CV	00004535	00004532	2010502288	889274B
200843CV	00012842	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012843	00012841	200840CV	00004597	00004597	2010502288	889274B

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00012844	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012845	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012846	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012847	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012851	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012852	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012853	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012854	00012841	200840CV	00004537	00004532	2010411352	889274B
200843CV	00012855	00012855	200840CV	00004537	00004532	2010411352	889274B
200843CV	00012858	00012855	200840CV	00004532	00004532	2010411352	889274B
200843CV	00012860	00012855	200840CV	00004532	00004532	2010411352	889274B
200843CV	00012862	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012863	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012864	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012868	00012855	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012869	00012855	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012870	00012870	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012871	00012870	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012872	00012870	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012875	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012876	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012877	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012878	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012879	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012880	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012881	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012882	00012870	200840CV	00004533	00004532	2010411352	889273A
200843CV	00012883	00012870	200840CV	00004533	00004532	2010411352	889273A



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473707 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			0.75 lb/sq ft MARV	30lbs/in MARV	3.5lbs/in Min
CV-BENTOMAT ST	200843CV	00012780	0.91	74.4	7.8
CV-BENTOMAT ST	200843CV	00012795	0.94	74.4	7.81
CV-BENTOMAT ST	200843CV	00012826	1.10	74.4	11.5
CV-BENTOMAT ST	200843CV	00012841	0.98	74.4	10.3
CV-BENTOMAT ST	200843CV	00012855	0.93	53.2	9.1
CV-BENTOMAT ST	200843CV	00012870	0.98	53.2	9.7

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.

Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473707 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
889273A	8.1	28.0	16.2
889274A	8.5	26.0	16.4
889274B	8.5	27.0	16.0
889275A	9.4	27.0	16.0



GEOTEXTILE TEST RESULTS FOR RAW MATERIAL SUPPLIED BY A CETCO FACILITY

The GCL in certification package number 024473707 was manufactured using these geotextiles:

Material	Lot #	Roll #	Mass Area	Grab Strength
CV-NON-WOVEN	200839CV	00004425	6.1	41.4
CV-NON-WOVEN	200840CV	00004520	6.5	42.2
CV-NON-WOVEN	200840CV	00004532	6.5	41.5
CV-NON-WOVEN	200840CV	00004566	6.3	37.0
CV-NON-WOVEN	200840CV	00004571	6.5	40.2
CV-NON-WOVEN	200840CV	00004588	6.4	41.1
CV-NON-WOVEN	200840CV	00004597	7.3	47.1
CV-NON-WOVEN	200840CV	00004605	6.4	38.6
CV-NON-WOVEN	200841CV	00004618	6.3	37.1
CV-NON-WOVEN	200842CV	00004742	7.6	36.4



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473707 was manufactured with geotextiles which were tested with the following results.

BASE			
Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 82TEX	2010411352	3.5	139.4
PPX 82TEX	2010471933	3.4	140.2
PPX 82TEX	2010502288	3.4	157.7
PPX 82TEX	2010504584	3.5	155.1
PPX 82TEX	2010544101	3.4	130.3



Date: 10/28/2008
Purchase Order: 10238
ORDER NUMBER: 024473707

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/27/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
ORDER NUMBER: 024473707
PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773
Fax:
E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/27/2008

Order Number: 024473707

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	150 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10 ⁻⁹ cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10 ⁻⁸ m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	1.0 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT 200R

Raw Material	test method	mass per area	units
Bentomat 200R Nonwoven Cover Fabric	ASTM D-5261	3.5	oz/yd ²
Bentomat 200R Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GCL ORDER PACKING LIST

GCL shipped for certification package number 024473707

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473707	CV-BENTOMAT 200R	200843CV	00000721	150	15	2250	2830
024473707	CV-BENTOMAT 200R	200843CV	00000722	150	15	2250	2712
024473707	CV-BENTOMAT 200R	200843CV	00000723	150	15	2250	2664
024473707	CV-BENTOMAT 200R	200843CV	00000734	150	15	2250	2806
024473707	CV-BENTOMAT 200R	200843CV	00000736	150	15	2250	2748
024473707	CV-BENTOMAT 200R	200843CV	00000740	150	15	2250	2738
024473707	CV-BENTOMAT 200R	200843CV	00000745	150	15	2250	2758
024473707	CV-BENTOMAT 200R	200843CV	00000746	150	15	2250	2774
024473707	CV-BENTOMAT 200R	200843CV	00000747	150	15	2250	2768
024473707	CV-BENTOMAT 200R	200843CV	00000748	150	15	2250	2780
Totals:				1500	150	22500	27578
				Total Number of Rolls Certified: 10			



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473707

GCL			Geotextiles			Clay	
CV-BENTOMAT 200R			CV-N/W-WH-360-B200R			CV-WOVEN-B200R	CV-CG 50-B200R
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00000721	00000719	2010914838			2010538391	883562A
200843CV	00000722	00000719	2010914838			2010538391	883562A
200843CV	00000723	00000719	2010914838			2010538391	883562A
200843CV	00000734	00000734	2010914827			2010416758	883562A
200843CV	00000736	00000734	2010914827			2010416758	883562A
200843CV	00000740	00000734	2010914827			2010416758	883562A
200843CV	00000745	00000734	2010914827			2010416758	883562A
200843CV	00000746	00000734	2010914827			2010416758	883562A
200843CV	00000747	00000734	2010914831			2010416758	883562B
200843CV	00000748	00000734	2010914831			2010416758	883562B



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473707 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			see property sheet	see property sheet	see property sheet
CV-BENTOMAT 200R	200843CV	00000719	0.92	50.9	6.5
CV-BENTOMAT 200R	200843CV	00000734	0.91	50.9	4.5

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473707 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
883562A	9.0	30.0	16.6
883562B	9.3	29.0	16.8



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473707 was manufactured with geotextiles which were tested with the following results.

BASE			
Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 82TEX	2010416758	3.4	138.4
PPX 82TEX	2010538391	3.4	152.6

CAP			
Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 360	2010914827	4.9	33.2
PPX 360	2010914831	4.0	33.4
PPX 360	2010914838	4.5	38.7

Certifications from our suppliers are on file at our production facility. An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.



Date: 10/28/2008

Purchase Order: 10238

ORDER NUMBERS: 024473707, 024473708, 024473709, 024473710

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/27/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
ORDER NUMBERS: 024473707, 024473708, 024473709, 024473710
PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773
Fax:
E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/27/2008

Order Numbers: 024473707, 024473708, 024473709, 024473710

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	500 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5×10^{-9} cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1×10^{-8} m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	3.5 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd ²
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GCL ORDER PACKING LIST

GCL shipped for certification package number 024473707

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473710	CV-BENTOMAT ST	200843CV	00012764	150	15	2250	2948
024473707	CV-BENTOMAT ST	200843CV	00012765	150	15	2250	2842
024473709	CV-BENTOMAT ST	200843CV	00012768	150	15	2250	2852
024473707	CV-BENTOMAT ST	200843CV	00012769	150	15	2250	2842
024473707	CV-BENTOMAT ST	200843CV	00012770	150	15	2250	2822
024473707	CV-BENTOMAT ST	200843CV	00012771	150	15	2250	2824
024473707	CV-BENTOMAT ST	200843CV	00012772	150	15	2250	2828
024473710	CV-BENTOMAT ST	200843CV	00012777	150	15	2250	2808
024473710	CV-BENTOMAT ST	200843CV	00012778	150	15	2250	2818
024473710	CV-BENTOMAT ST	200843CV	00012779	150	15	2250	2820
024473709	CV-BENTOMAT ST	200843CV	00012780	150	15	2250	2908
024473707	CV-BENTOMAT ST	200843CV	00012781	150	15	2250	2850
024473710	CV-BENTOMAT ST	200843CV	00012782	150	15	2250	2834
024473710	CV-BENTOMAT ST	200843CV	00012784	150	15	2250	2846
024473710	CV-BENTOMAT ST	200843CV	00012785	150	15	2250	2826
024473708	CV-BENTOMAT ST	200843CV	00012786	150	15	2250	2808
024473708	CV-BENTOMAT ST	200843CV	00012787	150	15	2250	2794
024473710	CV-BENTOMAT ST	200843CV	00012789	150	15	2250	2838
024473707	CV-BENTOMAT ST	200843CV	00012791	150	15	2250	2842
024473709	CV-BENTOMAT ST	200843CV	00012792	150	15	2250	2840
024473710	CV-BENTOMAT ST	200843CV	00012793	150	15	2250	2862
024473710	CV-BENTOMAT ST	200843CV	00012794	150	15	2250	2858
024473710	CV-BENTOMAT ST	200843CV	00012798	150	15	2250	2852
024473709	CV-BENTOMAT ST	200843CV	00012826	150	15	2250	2886
024473708	CV-BENTOMAT ST	200843CV	00012827	150	15	2250	3062
024473708	CV-BENTOMAT ST	200843CV	00012830	150	15	2250	2800
024473709	CV-BENTOMAT ST	200843CV	00012835	150	15	2250	2678

[illegible]



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473707

GCL			Geotextiles				Clay
CV-BENTOMAT ST			CV-N/W-WHITE-ST			CV-WOVEN-ST	CV-CG 50-ST
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00012764	00012754	200840CV	00004573	00004571	2010471933	889275A
200843CV	00012765	00012754	200840CV	00004573	00004571	2010471933	889275A
200843CV	00012768	00012754	200840CV	00004573	00004571	2010544101	889274A
200843CV	00012769	00012754	200840CV	00004573	00004571	2010544101	889274A
200843CV	00012770	00012754	200840CV	00004573	00004571	2010544101	889274A
200843CV	00012771	00012754	200841CV	00004623	00004618	2010544101	889274A
200843CV	00012772	00012754	200841CV	00004623	00004618	2010544101	889274A
200843CV	00012777	00012754	200841CV	00004623	00004618	2010544101	889274A
200843CV	00012778	00012754	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012779	00012754	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012780	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012781	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012782	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012784	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012785	00012780	200842CV	00004742	00004742	2010544101	889274A
200843CV	00012786	00012780	200842CV	00004742	00004742	2010544101	889274A
200843CV	00012787	00012780	200842CV	00004742	00004742	2010544101	889274A
200843CV	00012789	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012791	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012792	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012793	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012794	00012780	200839CV	00004425	00004425	2010544101	889274A
200843CV	00012798	00012795	200840CV	00004596	00004588	2010544101	889274A
200843CV	00012826	00012826	200840CV	00004570	00004566	2010504584	889274B
200843CV	00012827	00012826	200840CV	00004610	00004605	2010504584	889274B
200843CV	00012830	00012826	200840CV	00004610	00004605	2010502288	889274B
200843CV	00012835	00012826	200840CV	00004535	00004532	2010502288	889274B
200843CV	00012842	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012843	00012841	200840CV	00004597	00004597	2010502288	889274B

GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00012844	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012845	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012846	00012841	200840CV	00004597	00004597	2010502288	889274B
200843CV	00012847	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012851	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012852	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012853	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012854	00012841	200840CV	00004537	00004532	2010411352	889274B
200843CV	00012855	00012855	200840CV	00004537	00004532	2010411352	889274B
200843CV	00012858	00012855	200840CV	00004532	00004532	2010411352	889274B
200843CV	00012860	00012855	200840CV	00004532	00004532	2010411352	889274B
200843CV	00012862	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012863	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012864	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012868	00012855	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012869	00012855	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012870	00012870	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012871	00012870	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012872	00012870	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012875	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012876	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012877	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012878	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012879	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012880	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012881	00012870	200840CV	00004526	00004520	2010411352	889273A
200843CV	00012882	00012870	200840CV	00004533	00004532	2010411352	889273A
200843CV	00012883	00012870	200840CV	00004533	00004532	2010411352	889273A



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473707 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			0.75 lb/sq ft MARV	30lbs/in MARV	3.5lbs/in Min
CV-BENTOMAT ST	200843CV	00012780	0.91	74.4	7.8
CV-BENTOMAT ST	200843CV	00012795	0.94	74.4	7.81
CV-BENTOMAT ST	200843CV	00012826	1.10	74.4	11.5
CV-BENTOMAT ST	200843CV	00012841	0.98	74.4	10.3
CV-BENTOMAT ST	200843CV	00012855	0.93	53.2	9.1
CV-BENTOMAT ST	200843CV	00012870	0.98	53.2	9.7

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.

Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473707 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
889273A	8.1	28.0	16.2
889274A	8.5	26.0	16.4
889274B	8.5	27.0	16.0
889275A	9.4	27.0	16.0



GEOTEXTILE TEST RESULTS FOR RAW MATERIAL SUPPLIED BY A CETCO FACILITY

The GCL in certification package number 024473707 was manufactured using these geotextiles:

Material	Lot #	Roll #	Mass Area	Grab Strength
CV-NON-WOVEN	200839CV	00004425	6.1	41.4
CV-NON-WOVEN	200840CV	00004520	6.5	42.2
CV-NON-WOVEN	200840CV	00004532	6.5	41.5
CV-NON-WOVEN	200840CV	00004566	6.3	37.0
CV-NON-WOVEN	200840CV	00004571	6.5	40.2
CV-NON-WOVEN	200840CV	00004588	6.4	41.1
CV-NON-WOVEN	200840CV	00004597	7.3	47.1
CV-NON-WOVEN	200840CV	00004605	6.4	38.6
CV-NON-WOVEN	200841CV	00004618	6.3	37.1
CV-NON-WOVEN	200842CV	00004742	7.6	36.4



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473707 was manufactured with geotextiles which were tested with the following results.

BASE			
Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 82TEX	2010411352	3.5	139.4
PPX 82TEX	2010471933	3.4	140.2
PPX 82TEX	2010502288	3.4	157.7
PPX 82TEX	2010504584	3.5	155.1
PPX 82TEX	2010544101	3.4	130.3



Date: 10/29/2008
Purchase Order: 10238
ORDER NUMBER: 024473711

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/28/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



**GEOSYNTHETIC CLAY LINER
MANUFACTURING QUALITY ASSURANCE DATA PACKAGE**

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
ORDER NUMBER: 024473711
PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773
Fax:
E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/28/2008

Order Number: 024473711

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	500 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5 x 10 ⁻⁹ cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1 x 10 ⁻⁸ m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	3.5 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT ST

Raw Material	test method	mass per area	units
Nonwoven Cover Fabric	ASTM D 5261	6.0	oz/yd ²
Bentomat ST Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GCL ORDER PACKING LIST

GCL shipped for certification package number 024473711

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473711	CV-BENTOMAT ST	200843CV	00012773	150	15	2250	2824
024473711	CV-BENTOMAT ST	200843CV	00012783	150	15	2250	2834
024473711	CV-BENTOMAT ST	200843CV	00012790	150	15	2250	2830
024473711	CV-BENTOMAT ST	200843CV	00012795	150	15	2250	2872
024473711	CV-BENTOMAT ST	200843CV	00012797	150	15	2250	2842
024473711	CV-BENTOMAT ST	200843CV	00012812	150	15	2250	2824
024473711	CV-BENTOMAT ST	200843CV	00012837	150	15	2250	2858
024473711	CV-BENTOMAT ST	200843CV	00012838	150	15	2250	2936
024473711	CV-BENTOMAT ST	200843CV	00012840	150	15	2250	2796
024473711	CV-BENTOMAT ST	200843CV	00012850	150	15	2250	2844
024473711	CV-BENTOMAT ST	200843CV	00012859	150	15	2250	2860
024473711	CV-BENTOMAT ST	200843CV	00012861	150	15	2250	2874
024473711	CV-BENTOMAT ST	200843CV	00012866	150	15	2250	2858
024473711	CV-BENTOMAT ST	200843CV	00012867	150	15	2250	2838
024473711	CV-BENTOMAT ST	200843CV	00012873	150	15	2250	2834
024473711	CV-BENTOMAT ST	200843CV	00012874	150	15	2250	2834
Totals:				2400	240	36000	45558
				Total Number of Rolls Certified: 16			



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473711

GCL			Geotextiles				Clay
CV-BENTOMAT ST			CV-N/W-WHITE-ST			CV-WOVEN-ST	CV-CG 50-ST
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00012773	00012754	200841CV	00004623	00004618	2010544101	889274A
200843CV	00012783	00012780	200840CV	00004607	00004605	2010544101	889274A
200843CV	00012790	00012780	200841CV	00004620	00004618	2010544101	889274A
200843CV	00012795	00012795	200839CV	00004425	00004425	2010544101	889274A
200843CV	00012797	00012795	200840CV	00004596	00004588	2010544101	889274A
200843CV	00012812	00012810	200840CV	00004572	00004571	2010504584	889274A
200843CV	00012837	00012826	200840CV	00004535	00004532	2010502288	889274B
200843CV	00012838	00012826	200840CV	00004535	00004532	2010502288	889274B
200843CV	00012840	00012826	200840CV	00004535	00004532	2010502288	889274B
200843CV	00012850	00012841	200840CV	00004537	00004532	2010502288	889274B
200843CV	00012859	00012855	200840CV	00004532	00004532	2010411352	889274B
200843CV	00012861	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012866	00012855	200840CV	00004534	00004532	2010411352	889274B
200843CV	00012867	00012855	200840CV	00004534	00004532	2010411352	889273A
200843CV	00012873	00012870	200840CV	00004571	00004571	2010411352	889273A
200843CV	00012874	00012870	200840CV	00004571	00004571	2010411352	889273A



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473711 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			0.75 lb/sq ft MARV	30lbs/in MARV	3.5lbs/in Min
CV-BENTOMAT ST	200843CV	00012780	0.91	74.4	7.8
CV-BENTOMAT ST	200843CV	00012795	0.94	74.4	7.81
CV-BENTOMAT ST	200843CV	00012810	1.00	74.4	5.4
CV-BENTOMAT ST	200843CV	00012826	1.10	74.4	11.5
CV-BENTOMAT ST	200843CV	00012841	0.98	74.4	10.3
CV-BENTOMAT ST	200843CV	00012855	0.93	53.2	9.1
CV-BENTOMAT ST	200843CV	00012870	0.98	53.2	9.7

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.

Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473711 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
889273A	8.1	28.0	16.2
889274A	8.5	26.0	16.4
889274B	8.5	27.0	16.0



GEOTEXTILE TEST RESULTS FOR RAW MATERIAL SUPPLIED BY A CETCO FACILITY

The GCL in certification package number 024473711 was manufactured using these geotextiles:

Material	Lot #	Roll #	Mass Area	Grab Strength
CV-NON-WOVEN	200839CV	00004425	6.1	41.4
CV-NON-WOVEN	200840CV	00004532	6.5	41.5
CV-NON-WOVEN	200840CV	00004571	6.5	40.2
CV-NON-WOVEN	200840CV	00004588	6.4	41.1
CV-NON-WOVEN	200840CV	00004605	6.4	38.6
CV-NON-WOVEN	200841CV	00004618	6.3	37.1



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473711 was manufactured with geotextiles which were tested with the following results.

BASE			
Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 82TEX	2010411352	3.5	139.4
PPX 82TEX	2010502288	3.4	157.7
PPX 82TEX	2010504584	3.5	155.1
PPX 82TEX	2010544101	3.4	130.3



Date: 10/31/2008
Purchase Order: 10238
ORDER NUMBER: 024473714

James Land
ESI
7943 Pecue Lane
Baton Rouge, LA 70809
gabney@esiliners.com;jland@esiliners.com

To Whom it May Concern:

Please find enclosed the MQA/MQC test data package for Geosynthetic Clay Liner shipments to ESI. The shipments left our Cartersville, Georgia plant on 10/30/2008.

If you have any questions regarding this information, please contact Chris Athanassopoulos, Technical Support Engineer, at (847) 818-7945.

Sincerely,

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GEOSYNTHETIC CLAY LINER MANUFACTURING QUALITY ASSURANCE DATA PACKAGE

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
ORDER NUMBER: 024473714
PREPARED FOR: ESI

CONTENTS:

- Daily production and needle detection certification
- GCL property specifications
- Order packing list
- GCL MQA tracking form
- GCL manufacturing quality control test data
- Bentonite clay certification
- Raw material test results

PREPARED BY: Melanie King
Quality Assurance Coordinator
CETCO
218 Industrial Park

Cartersville, GA 30121

Telephone: (770) 387-7773
Fax:
E-Mail: melanie.king@cetco.com



PRODUCTION CERTIFICATION

PROJECT NAME: Saline County Cell
CUSTOMER P.O.: 10238
PREPARED FOR: ESI

CETCO affirms that these products meet the physical and chemical criteria listed on the attached GCL property specification sheet.

NEEDLE REMOVAL AND DETECTION PROCEDURE

CETCO hereby affirms that all Bentomat[®] geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO certifies Bentomat[®] to be essentially free of broken needles and fragments of needles that would negatively effect the performance of the final product.

A handwritten signature in cursive script that reads 'Melanie King'.

Melanie King
Quality Assurance Coordinator
Colloid Environmental Technologies Co. (CETCO)



Ship Date: 10/30/2008

Order Number: 024473714

Prepared For: ESI

The GCL raw materials and GCL finished product manufactured for the above-referenced order number(s) are hereby certified to achieve the properties listed in the tables below.

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT 200R

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D 5891	Bentonite Fluid Loss	1 per 50 Tons	18 ml Max
ASTM D 5993	Bentonite Mass/Area	40,000 sq ft (4000 sq m)	0.75 lb /sq ft (3.6 kg/sq m) Min
ASTM D 5890	Bentonite Swell Index	1 per 50 Tons	24 ml/2g Min
ASTM D 4632	GCL Grab Strength	200,000 sq ft (20,000 sq m)	90 lbs (400 N) MARV
ASTM D 6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 lbs/in MARV
ASTM D 6243	GCL Hydrated Internal Shear Strength	Periodic	150 psf (48 kPa) typ @ 200 psf
ASTM D 5887	GCL Hydraulic Conductivity	Weekly	5×10^{-9} cm/ sec Max
ASTM D 5887	GCL Index Flux	Weekly	1×10^{-8} m ³ /m ² /sec Max
ASTM D 6496	GCL Peel Strength	40,000 sq ft (4000 sq m)	1.0 lbs/in Min
ASTM D 4632	GCL Peel Strength	40,000 sq ft (4000 sq m)	15 lbs (65 N) Min

Bentonite property tests are performed at a bentonite processing facility before shipment to CETCO's production facility. All tensile testing is in the machine direction.

FABRIC SUPPLIER REQUIREMENTS FOR BENTOMAT 200R

Raw Material	test method	mass per area	units
Bentomat 200R Nonwoven Cover Fabric	ASTM D-5261	3.5	oz/yd ²
Bentomat 200R Woven Base Fabric	ASTM D 5261	3.2	oz/yd ²

Fabric certifications from our raw material suppliers are on file at our production facility.



CETCO's MQA laboratory is GAI-accredited (www.geosynthetic-institute.org/gai/lab.html).

Melanie King

Melanie King
Quality Assurance Coordinator
CETCO Cartersville Plant



GCL ORDER PACKING LIST

GCL shipped for certification package number 024473714

Order #	Product	Lot Number	Roll Number	Length (ft)	Width (ft)	Square Ft	Weight (lbs)
024473714	CV-BENTOMAT 200R	200843CV	00000720	150	15	2250	2754
024473714	CV-BENTOMAT 200R	200843CV	00000807	150	15	2250	2758
Totals:				300	30	4500	5512
				Total Number of Rolls Certified: 2			



GCL MQA TRACKING FORM

Listing of finished and raw materials used to produce certification package number 024473714

GCL			Geotextiles			Clay	
CV-BENTOMAT 200R			CV-N/W-WH-360-B200R			CV-WOVEN-B200R	CV-CG 50-B200R
GCL Lot #	GCL Roll #	Roll # Tested	Cap Lot #	Cap Roll #	Roll # Tested	Base Roll #	Clay Lot #
200843CV	00000720	00000719	2010914838			2010538391	883562A
200843CV	00000807	00000793	2010914835			2010509157	889275A



GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 024473714 have been tested in our production facility lab.

Product	Lot # Tested	Roll # Tested	Mass Area	Grab Strength	Peel Strength
Standard Test Method:			ASTM D 5993	ASTM D 6768	ASTM D 6496
Standard Specification:			see property sheet	see property sheet	see property sheet
CV-BENTOMAT 200R	200843CV	00000719	0.92	50.9	6.5
CV-BENTOMAT 200R	200843CV	00000793	0.97	50.9	5.3

ASTM test methods and property specifications per CETCO standard unless non-standard specifications were requested.
Any non-standard property specifications requested for this order are noted on the attached GCL property specifications sheet.



BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 024473714 has been tested by American Colloid Company and yielded the following test results.

Reference	Moist	Swell	Fluid Loss
Test Method:	ASTM D 2216	ASTM D 5890	ASTM D 5891
Specification:	12% Max	24 ml/2g Min	18 ml Max
883562A	9.0	30.0	16.6
889275A	9.4	27.0	16.0



GEOTEXTILE TEST RESULTS FROM MATERIAL SUPPLIERS

The GCL in certification package number 024473714 was manufactured with geotextiles which were tested with the following results.

BASE			
Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 82TEX	2010509157	3.5	161.1
PPX 82TEX	2010538391	3.4	152.6

CAP			
Material	Roll Number	Mass Area oz/yd ²	Grab Strength lbs
PPX 360	2010914835	3.6	24.7
PPX 360	2010914838	4.5	38.7

Certifications from our suppliers are on file at our production facility.
An '*' or 'PT' indicates supplier certifications were unavailable prior to shipping so testing was performed at a CETCO lab.

APPENDIX I
GEOSYNTHETIC CLAY LINER
CONFORMANCE TEST RESULTS



Precision Geosynthetic Laboratories



November 5, 2008

Ken Bown
TERRACON
25809 I-30
Bryant, AR 72022

RE: **Saline City Cell 4 Bauxite**

Dear Mr. Bown:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of three (3) Bentomat 200R GCL samples received October 24, 2008.

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure (Job No. G081481)



Precision Geosynthetic Laboratories



CLIENT: TERRACON
PROJECT NAME: *Saline City Cell 4 Bauxite*

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081481)

MATERIAL DESCRIPTION: Bentomat 200R GCL

SAMPLED BY: PGL @ Cetco, GA

DATE RECEIVED: October 24, 2008

DATE REPORTED: November 5, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R#719	52404
R#763	52405
R#807	52406

TESTS REQUIRED:

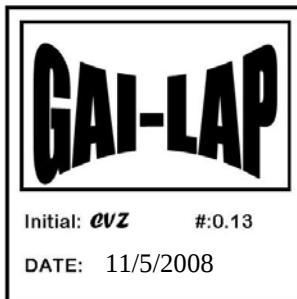
TEST METHOD	DESCRIPTION
ASTM D5993	Mass Per Unit
ASTM D6768	GCL Tensile
ASTM D5887	Index Flux

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 to 3. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **10/24/2008**
Date Reported: **11/5/2008**
Client Sample ID: **R#719**
Material Description: **Bentomat 200R GCL**

QC'd By: 
PGL Job No.: **G081481**
PGL Control No.: **52404**

SPECIMENS											Proj. Specs.				
		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max
METHOD	DESCRIPTION														
ASTM D5887	Index Flux (m. ³ / m. ² /sec.)														
	Confining Pressure: 5 psi														
	2.7E-09														
ASTM D5993	Mass per Unit Area of the Clay (lbs/ ft. ²) @ 0% MC														
	Specimen Size: 4" x 8" Die Cut														
	Drying Time/ Temp: 110+/- 5 ⁰ C for 16 hrs using thermostatically controlled oven.														
	1.05	1.01	0.97	0.98	1.02							1.00	0.03	0.97	1.05
	Mass per Unit area of the GCL (lbs/ ft ²) @ 0 % MC														
	1.11	1.07	1.03	1.04	1.08							1.07	0.03	1.03	1.11
ASTM D6768	Moisture Content of the Clay as received (percent)														
	14.5	15.1	15.6	14.8	14.4							14.9	0.5	14.4	15.6
	Tensile Strength (lbs/in)														
	Instron Tensile Machine was used with a maximum load of 1500lbs.														
MD	75	75	80	75	78							77	3	75	80

MD-Machine Direction
TD-Transverse Direction
DC#1982 Record#263



Precision Geosynthetic Laboratories



TABLE 2.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **10/24/2008**
 Date Reported: **11/5/2008**
 Client Sample ID: **R#763**
 Material Description: **Bentomat 200R GCL**

QC'd By: _____
 PGL Job No.: **G081481**
 PGL Control No.: **52405**

SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
1	2	3	4	5	6	7	8	9	10					
METHOD	DESCRIPTION													
ASTM D5887	Index Flux (m. ³ / m. ² /sec.) Confining Pressure: 5 psi 1.2E-09									1.2E-09	N/A			
ASTM D5993	Mass per Unit Area of the Clay (lbs/ ft. ²) @ 0% MC Specimen Size: 4" x 8" Die Cut Drying Time/ Temp: 110+/- 5 ⁰ C for 16 hrs using thermostatically controlled oven. 1.04 1.05 1.04 1.01 0.98									1.02	0.03	0.98	1.05	
	Mass per Unit area of the GCL (lbs/ ft. ²) @ 0% MC 1.10 1.11 1.10 1.07 1.04									1.08	0.03	1.04	1.11	
	Moisture Content of the Clay as received (percent) 13.6 14.0 15.2 14.7 15.1									14.5	0.7	13.6	15.2	
ASTM D6768	Tensile Strength (lbs/in) Instron Tensile Machine was used with a maximum load of 1500lbs. MD 77 77 78 75 78									77	1	75	78	

MD-Machine Direction
 TD-Transverse Direction
 DC#1982 Record#263



Precision Geosynthetic Laboratories



TABLE 3.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **10/24/2008**
 Date Reported: **11/5/2008**
 Client Sample ID: **R#807**
 Material Description: **Bentomat 200R GCL**

QC'd By: _____
 PGL Job No.: **G081481**
 PGL Control No.: **52406**

SPECIMENS										Proj. Specs.
1	2	3	4	5	6	7	8	9	10	
METHOD	DESCRIPTION									
ASTM D5887	Index Flux (m. ³ /m. ² /sec.)									
	Confining Pressure: 5 psi									
	1.6E-09									1.6E-09
ASTM D5993	Mass per Unit Area of the Clay (lbs/ ft. ²) @ 0% MC									
	Specimen Size: 4" x 8" Die Cut									
	Drying Time/ Temp: 110+/- 5° C for 16 hrs using thermostatically controlled oven.									
	1.04	1.05	0.97	1.02	1.05					1.03
	Mass per Unit area of the GCL (lbs/ ft. ²) @ 0% MC									0.04
	1.10	1.11	1.03	1.08	1.11					1.03
	Moisture Content of the Clay as received (percent)									0.03
	13.6	13.8	15.2	14.2	13.8					1.03
										1.11
										14.1
										0.6
ASTM D6768	Tensile Strength (lbs/in)									
	Instron Tensile Machine was used with a maximum load of 1500lbs.									
MD	77	77	75	77	75					76
										1
										75
										77





Precision Geosynthetic Laboratories



November 5, 2008

Ken Bown
TERRACON
25809 I-30
Bryant, AR 72022

RE: **Saline City Cell 4 Bauxite**

Dear Mr. Bown:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of three (3) Bentomat ST GCL samples received October 24, 2008.

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure (Job No. G081492)



Precision Geosynthetic Laboratories



CLIENT: TERRACON
PROJECT NAME: *Saline City Cell 4 Bauxite*

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081492)

MATERIAL DESCRIPTION: Bentomat ST GCL

SAMPLED BY: PGL @ Cetco, GA

DATE RECEIVED: October 24, 2008

DATE REPORTED: November 5, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R#12764 L#200840C	52407
R#12810 L#200840C	52408
R#12855 L#200840C	52409

TESTS REQUIRED:

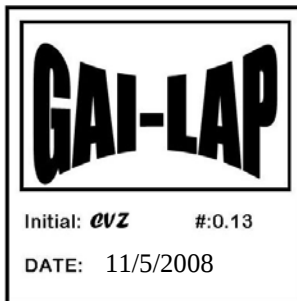
TEST METHOD	DESCRIPTION
ASTM D5993	Mass Per Unit
ASTM D6768	GCL Tensile
ASTM D5887	Index Flux

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 to 3. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **10/24/2008**
 Date Reported: **11/5/2008**
 Client Sample ID: **R#12764 L#200840C**
 Material Description: **Bentomat ST GCL**

QC'd By: _____
 PGL Job No.: **G081492**
 PGL Control No.: **52407**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D5887	Index Flux (m. ³ /m. ² /sec.)														
	Confining Pressure: 5 psi														
	2.6E-09										2.6E-09	N/A			1x10-8
ASTM D5993	Mass per Unit Area of the Clay (lbs/ft. ²) @ 0% MC														
	Specimen Size: 4" x 8" Die Cut														
	Drying Time/ Temp: 110+/- 5° C for 16 hrs using thermostatically controlled oven.														
	1.07	1.03	0.98	0.96	0.96						1.00	0.05	0.96	1.07	0.75
	Mass per Unit area of the GCL (lbs/ft. ²) @ 0 % MC														
	1.13	1.09	1.04	1.02	1.02						1.06	0.04	1.02	1.13	
	Moisture Content of the Clay as received (percent)														
	13.2	14.3	14.8	14.8	14.5						14.3	0.7	13.2	14.8	
ASTM D6768	Tensile Strength (lbs/in)														
	Instron Tensile Machine was used with a maximum load of 1500lbs.														
MD	75	78	75	78	75						76	2	75	78	30

MD-Machine Direction
 TD-Transverse Direction
 DC#1982 Record#263



Precision Geosynthetic Laboratories



TABLE 2.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **10/24/2008**
 Date Reported: **11/5/2008**
 Client Sample ID: **R#12810 L#200840C**
 Material Description: **Bentomat ST GCL**

QC'd By: _____
 PGL Job No.: **G081492**
 PGL Control No.: **52408**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
	1	2	3	4	5	6	7	8	9	10					
METHOD DESCRIPTION															
ASTM D5887 Index Flux (m. ³ / m. ² /sec.)															
Confining Pressure: 5 psi															
2.1E-09											2.1E-09	N/A			1x10-8
ASTM D5993 Mass per Unit Area of the Clay (lbs/ ft. ²) @ 0% MC															
Specimen Size: 4" x 8" Die Cut															
Drying Time/ Temp: 110+/- 5° C for 16 hrs using thermostatically controlled oven.															
1.04 1.05 1.06 1.01 1.01											1.03	0.02	1.01	1.06	0.75
Mass per Unit area of the GCL (lbs/ ft ²) @ 0% MC															
1.10 1.11 1.12 1.07 1.07											1.09	0.02	1.07	1.12	
Moisture Content of the Clay as received (percent)															
13.6 13.9 14.1 14.2 13.9											13.9	0.2	13.6	14.2	
ASTM D6768 Tensile Strength (lbs/in)															
Instron Tensile Machine was used with a maximum load of 1500lbs.															
MD 77 77 78 75 75											76	1	75	78	30

MD-Machine Direction
 TD-Transverse Direction
 DC#1982 Record#263



Precision Geosynthetic Laboratories



TABLE 3.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **10/24/2008**
Date Reported: **11/5/2008**
Client Sample ID: **R#12855 L#200840C**
Material Description: **Bentomat ST GCL**

QC'd By: _____
PGL Job No.: **G081492**
PGL Control No.: **52409**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
	1	2	3	4	5	6	7	8	9	10					
METHOD DESCRIPTION															
ASTM D5887 Index Flux (m. ³ /m. ² /sec.)															
Confining Pressure: 5 psi															
2.6E-09											2.6E-09	N/A			1x10-8
ASTM D5993 Mass per Unit Area of the Clay (lbs/ ft. ²) @ 0% MC															
Specimen Size: 4" x 8" Die Cut															
Drying Time/ Temp: 110+/- 5° C for 16 hrs using thermostatically controlled oven.															
1.02 0.98 1.02 0.97 0.98											0.99	0.03	0.97	1.02	0.75
Mass per Unit area of the GCL (lbs/ ft. ²) @ 0% MC															
1.08 1.04 1.08 1.03 1.04											1.05	0.02	1.03	1.08	
Moisture Content of the Clay as received (percent)															
14.2 15.0 14.2 14.9 14.7											14.6	0.4	14.2	15.0	
ASTM D6768 Tensile Strength (lbs/in)															
Instron Tensile Machine was used with a maximum load of 1500lbs.															
MD 75 75 77 75 75											75	1	75	77	30

MD-Machine Direction
TD-Transverse Direction
DC#1982 Record#263



Precision Geosynthetic Laboratories



APPENDIX J
GEOMEMBRANE MANUFACTURER'S QC
CERTIFICATES

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Saline Cty Cell 4 Bauxite

TYPE OF MQA: LEVEL (2)

QA by: 

Material: 60 Mil Microspike HDPE Geomembrane

SAMPLING FREQUENCY: 1/100,000 sq.ft. /lot

(whichever is greater)

Manufacturer: Aggu

Location: SC

Rec 244, DC # 1972

No.	Roll #	Lot No	Length ft.	Width ft.	Area ft ²	Date Manufactured	Sampled by	Date Sampled	Date Received	Reference Job No/Control No
1	238352 08	7181033	410	23	9430	N/A	BG	9/17/2008	9/19/2008	G081272 C#51441
2	238353 08	7181033	410	23	9430	N/A				
3	238354 08	7181033	410	23	9430	N/A				
4	238355 08	7181033	410	23	9430	N/A				
5	238456 08	7181033	410	23	9430	N/A				
6	238457 08	7181033	410	23	9430	N/A				
7	238458 08	7181033	410	23	9430	N/A				
8	238459 08	7181033	410	23	9430	N/A				
9	238460 08	7181033	410	23	9430	N/A				
10	238461 08	7181033	410	23	9430	N/A				
11	238462 08	7181033	410	23	9430	N/A	BG	9/17/2008	9/19/2008	G081272 C#51442
12	238463 08	7181033	410	23	9430	N/A				
13	238464 08	7181033	410	23	9430	N/A				
14	238465 08	7181033	410	23	9430	N/A				
15	238466 08	7181033	410	23	9430	N/A				
16	238467 08	7181033	410	23	9430	N/A				
17	238468 08	7181033	410	23	9430	N/A				
18	238469 08	7181033	410	23	9430	N/A				
19	238470 08	7181033	410	23	9430	N/A				
20	238471 08	7181033	410	23	9430	N/A				
21	238472 08	7181033	410	23	9430	N/A				
22	238473 08	7181033	410	23	9430	N/A	BG	9/17/2008	9/19/2008	G081272 C#51443
23	238474 08	7181033	410	23	9430	N/A				
24	238475 08	7181033	410	23	9430	N/A				

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Saline Cty Cell 4 Bauxite

TYPE OF MQA: LEVEL (2)

QA by: 

Material: 60 Mil Microspike HDPE Geomembrane

SAMPLING FREQUENCY: 1/100,000 sq.ft. /lot (whichever is greater)

Manufacturer: Agru

Location: SC

Rec 244, DC # 1972

No.	Roll #	Lot No	Length ft.	Width ft.	Area ft ²	Date Manufactured	Sampled by	Date Sampled	Date Received	Reference Job No/Control No
25	238476 08	7181033	410	23	9430	N/A				
26	238477 08	7181033	410	23	9430	N/A				
27	238478 08	7181033	410	23	9430	N/A				
28	238579 08	7181033	410	23	9430	N/A				
29	238580 08	7181033	410	23	9430	N/A				
30	238581 08	7181033	410	23	9430	N/A				
31	238582 08	7181033	410	23	9430	N/A				
32	238583 08	7181033	410	23	9430	N/A	BG	9/21/2008	9/24/2008	G081281 C#51488
33	238584 08	7181033	410	23	9430	N/A				
34	238585 08	7181033	410	23	9430	N/A				
35	238586 08	7181033	410	23	9430	N/A				
36	238587 08	7181033	410	23	9430	N/A				
37	238588 08	7181033	410	23	9430	N/A				
38	238589 08	7181033	410	23	9430	N/A				
39	238590 08	7181033	410	23	9430	N/A				
40	238591 08	7181033	410	23	9430	N/A				
41	238592 08	7181033	410	23	9430	N/A				
42	238593 08	7181033	410	23	9430	N/A				
43	238594 08	7181033	410	23	9430	N/A	BG	9/21/2008	9/24/2008	G081281 C#51489
44	238595 08	7181033	410	23	9430	N/A				
45	238596 08	7181033	410	23	9430	N/A				
46	238597 08	7181033	410	23	9430	N/A				
47	238598 08	7181033	410	23	9430	N/A				
48	238599 08	7181033	410	23	9430	N/A				
49	238500 08	7181033	410	23	9430	N/A				

MANUFACTURING QA IN-PLANT SAMPLING/INSPECTION REPORT

Project Name: Saline Cty Cell 4 Bauxite

TYPE OF MQA: LEVEL (2)

QA by: 

Material: 60 Mil Microspike HDPE Geomembrane

SAMPLING FREQUENCY: 1/100,000 sq.ft. /lot (whichever is greater)

Manufacturer: Agru

Location: SC

Rec 244, DC # 1972

No.	Roll #	Lot No	Length ft.	Width ft.	Area ft ²	Date Manufactured	Sampled by	Date Sampled	Date Received	Reference Job No/Control No
50	238501 08	7181033	410	23	9430	N/A				
51	238602 08	7181033	410	23	9430	N/A				
52	238603 08	7181033	410	23	9430	N/A				
53	238604 08	7181033	410	23	9430	N/A				
54	238605 08	7181033	410	23	9430	N/A	BG	9/21/2008	9/24/2008	G081281 C#51490
55	238606 08	7181033	410	23	9430	N/A				
Total ft ² =					518650					

microspike liner

ESI Saline Cty LF doc 11062

PO#

10136

HDPE

Bauxite, ARK

60 mil

55 rolls 60 HD micro

55

left

METRIC DIMENSIONS

roll #	width	length	area	14 spools 5mm HD CHEVRON WELD ROD						
(K)238352 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	1	3076	stage	7181033	
(K)238353 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	2	3074		7181033	
(K)238354 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	3	3086		7181033	
(K)238355 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	4	3086		7181033	
(K)238456 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	5	3092		7181033	
(K)238457 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	6	3086		7181033	
(K)238458 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	7	3082		7181033	
(K)238459 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	8	3086		7181033	
(K)238460 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	9	3074		7181033	
(K)238461 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	10	3086		7181033	
(K)238462 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	11	3094	stage	7181033	
(K)238463 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	12	3060		7181033	
(K)238464 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	13	3066		7181033	
(K)238465 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	14	3108		7181033	
(K)238466 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	15	3145		7181033	
(K)238467 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	16	3166		7181033	
(K)238468 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	17	3170		7181033	
(K)238469 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	18	3168		7181033	
(K)238470 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	19	3168		7181033	
(K)238471 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	20	3184		7181033	
(K)238472 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	21	3190		7181033	
(K)238473 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	22	3186	stage	7181033	
(K)238474 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	23	2990		7181033	
(K)238475 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	24	3196		7181033	
(K)238476 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	25	3206		7181033	
(K)238477 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	26	3176		7181033	
(K)238478 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	27	3106		7181033	
(K)238579 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	28	3156		7181033	
(K)238580 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	29	3164		7181033	
(K)238581 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	30	3162		7181033	
(K)238582 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	31	3148		7181033	
(K)238583 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	32	3148	stage	7181033	
(K)238584 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	33	3160		7181033	
(K)238585 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	34	3160		7181033	
(K)238586 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	35	3156		7181033	
(K)238587 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	36	3170		7181033	
(K)238588 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	37	3170		7181033	
(K)238589 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	38	3166		7181033	
(K)238590 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	39	3170		7181033	
(K)238591 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	40	3168		7181033	
(K)238592 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	41	3164		7181033	
(K)238593 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	42	3172		7181033	
(K)238594 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	43	3164	stage	7181033	
(K)238595 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	44	3174		7181033	
(K)238596 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	45	3174		7181033	
(K)238597 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	46	3176		7181033	
(K)238598 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	47	3164		7181033	
(K)238599 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	48	3164		7181033	
(K)238500 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	49	3168		7181033	
(K)238501 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	50	3174		7181033	
(K)238602 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	51	3168		7181033	
(K)238603 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	52	3148		7181033	
(K)238604 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	53	3148		7181033	
(K)238605 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	54	3132	stage	7181033	
(K)238606 .08	7	125	875	ESI Saline Cty LF(57 MIN)	55tot	55	3142		7181033	



quality certificate

ROLL #

238352-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.49 mmENGLISH
59 mil

Thickness.....

1.5 mm**60** mil

Length.....

125 m**410.1** feet

Width.....

7.00 m;**23.0** feetAsperity GRI GM12: **30** mil
ODD #: TOP EVEN #: BOTTOM

AVE:

1.57 mm**62** mil

OIT(Standard) ASTM D3895

minutes

185**TEST
RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.16Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

27 N/mm**154** ppi**2,497** psi

Average Strength @ Break

34 N/mm**196** ppi**3,173** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

18.23

Average Elongation @ Break

%

510.9Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

243.1 N**54.645** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

438.1 N**98.499** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

586.5 N**131.84** lbsESCR
ASTM D1693

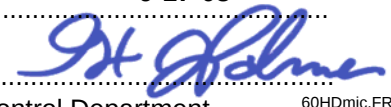
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-17-08**Signature: 
Quality Control Department60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL # **238353-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.49 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.66 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.56 mm	61 mil	TEST RESULTS	
ODD # : TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
Specific Gravity	Density		g/cc		.946	
ASTM D792						
MFI ASTM D1238	Melt Flow Index 190°C /2160 g		g/10 min		.24	
COND. E						
GRADE:	K307					
Carbon Black Content	Range		%		2.16	
ASTM D4218						
Carbon Black Dispersion	Category		10 in Cat. 1			
ASTM D5596						
Tensile Strength	Average Strength @ Yield		28 N/mm	158 ppi	2,580	psi
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break		33 N/mm	187 ppi	3,050	psi
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield		%		17.76	
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break		%		480.2	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change		%		-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance		229.1 N	51.507 lbs		
ASTM D-1004 (Modified)						
Puncture Resistance	Load	416.5 N		93.631 lbs		
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load	595.5 N		133.87 lbs		
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures		1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%		300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-17-08**Signature.....
Quality Control Department

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REV 03
12/23/05



quality certificate

ROLL #

238354-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.45 mmENGLISH
57 mil

MAX:

1.62 mm**64** milThickness..... **1.5** mm
Length..... **125** m
Width..... **7.00** m; **23.0** feetAsperity GRI GM12: **29** mil
ODD #: TOP EVEN #: BOTTOM

AVE:

1.53 mm**60** milOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.16Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

27 N/mm**155** ppi**2,580** psi

Average Strength @ Break

32 N/mm**184** ppi**3,050** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

17.76

Average Elongation @ Break

%

480.2Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

229.1 N**51.507** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

416.5 N**93.631** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

595.5 N**133.87** lbsESCR
ASTM D1693

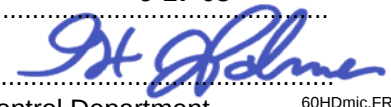
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-17-08**Signature: 
Quality Control Department60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL # **238355-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement ASTM D5994 (Modified)	MIN:	METRIC 1.52 mm	ENGLISH 60 mil	Thickness.....	1.5 mm	60 mil
	MAX:	1.61 mm	63 mil	Length.....	125 m	410.1 feet
	AVE:	1.57 mm	62 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12: 26 mil ODD #: TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895 minutes	185	TEST RESULTS
Specific Gravity ASTM D792	Density			g/cc		.946
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g			g/10 min		.24
Carbon Black Content ASTM D4218	Range			%		2.16
Carbon Black Dispersion ASTM D5596	Category					10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield			28 N/mm	159 ppi	2,580 psi
	Average Strength @ Break			33 N/mm	188 ppi	3,050 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield			%		17.76
Lo = 2.0" Break	Average Elongation @ Break			%		480.2
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change			%		-0.49
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance			229.1 N		51.507 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load			416.5 N		93.631 lbs
Puncture Resistance ASTM D4833 (Modified)	Load			595.5 N		133.87 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures			1500 hrs		CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%			300 hrs		ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-17-08**Signature.....
Quality Control Department

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12/23/05



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ROLL #

238456-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.45 mm	57 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.60 mm	63 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.55 mm	61 mil	TEST	
ODD # : TOP				EVEN #:		OIT(Standard) ASTM D3895 minutes 185
						RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range	%		2.16	
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1	
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28 N/mm	157 ppi	2,580 psi	
	Average Strength @ Break	33 N/mm	186 ppi	3,050 psi	
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		17.76	
	Average Elongation @ Break	%		480.2	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	229.1 N		51.507 lbs	
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	416.5 N		93.631 lbs	
Puncture Resistance ASTM D4833 (Modified)	Load	595.5 N		133.87 lbs	
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING	

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:.....**9-18-08**.....Signature.....
Quality Control Department

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REV 03
12/23/05



quality certificate

ROLL # **238457-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.52 mm	60 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.63 mm	64 mil	Width.....	7.00 m	23.0 feet

Asperity GRI GM12: **27** mil
ODD #: TOP EVEN #: BOTTOMAVE: **1.56** mm **61** milOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.16
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28 N/mm	158 ppi	2,580 psi
	Average Strength @ Break	33 N/mm	187 ppi	3,050 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	17.76
Lo = 2.0" Break	Average Elongation @ Break	%	480.2

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	229.1 N	51.507 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	416.5 N	93.631 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	595.5 N	133.87 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date:..... **9-18-08**Signature.....
Quality Control Department60HDmic.FRM
REV 03
12/23/05



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ROLL # **238458-08** Lot #: **7181033** Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.49 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.57 mm	62 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.52 mm	60 mil		
ODD #: TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
TEST RESULTS						
Specific Gravity	Density		g/cc			
ASTM D792					.946	
MFI ASTM D1238	Melt Flow Index 190°C /2160 g		g/10 min			
COND. E					.24	
GRADE:	K307					
Carbon Black Content	Range		%			
ASTM D4218					2.58	
Carbon Black Dispersion	Category				10 in Cat. 1	
ASTM D5596						
Tensile Strength	Average Strength @ Yield		27 N/mm		156 ppi	
ASTM D6693					2,610 psi	
ASTM D638 (Modified)	Average Strength @ Break		33 N/mm		189 ppi	
(2 inches / minute)					3,154 psi	
Elongation ASTM D6693	Average Elongation @ Yield		%		17.99	
ASTM D638 (Modified)	Average Elongation @ Break		%		483.6	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change		%		-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance		229.1 N		51.507 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance	Load		416.5 N		93.631 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load		595.5 N		133.87 lbs	
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures		1500 hrs		CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%		300 hrs		ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**

Signature.....
Quality Control Department

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REV 03
12/23/05



quality certificate

ROLL #

238459-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.46 mm**57**ENGLISH
mil

MAX:

1.63 mm **64** mil

Thickness.....

1.5 mm**60** mil

Length.....

125 m**410.1** feet

Width.....

7.00 m;**23.0** feetAsperity GRI GM12: **25** mil
ODD #: TOP EVEN #: BOTTOM

AVE:

1.54 mm **61** mil

OIT(Standard) ASTM D3895

minutes

185**TEST
RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.58Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

28 N/mm**158** ppi**2,610** psi

Average Strength @ Break

33 N/mm**191** ppi**3,154** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

17.99

Average Elongation @ Break

%

483.6Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

229.1 N**51.507** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

416.5 N**93.631** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

595.5 N**133.87** lbsESCR
ASTM D1693

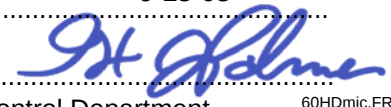
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-18-08**Signature: 
Quality Control Department60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL #

238460-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.49 mmENGLISH
59 mil

Thickness.....

1.5 mm**60** mil

Length.....

125 m**410.1** feet

Width.....

7.00 m;**23.0** feetAsperity GRI GM12: **22** mil
ODD #: TOP EVEN #: BOTTOM

AVE:

1.56 mm**61** mil

OIT(Standard) ASTM D3895

minutes

185**TEST
RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.58Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

28 N/mm**160** ppi**2,610** psi

Average Strength @ Break

34 N/mm**194** ppi**3,154** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

17.99

Average Elongation @ Break

%

483.6Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

229.1 N**51.507** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

416.5 N**93.631** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

595.5 N**133.87** lbsESCR
ASTM D1693

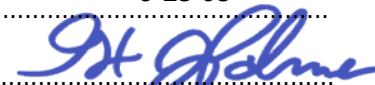
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-18-08**Signature: 
Quality Control Department60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL # **238461-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.63 mm	64 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	20 mil	AVE:	1.57 mm	62 mil	TEST RESULTS	
ODD # : TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
Specific Gravity	Density		g/cc		.946	
ASTM D792						
MFI ASTM D1238	Melt Flow Index 190°C /2160 g		g/10 min		.24	
COND. E						
GRADE:	K307					
Carbon Black Content	Range		%		2.58	
ASTM D4218						
Carbon Black Dispersion	Category		10 in Cat. 1			
ASTM D5596						
Tensile Strength	Average Strength @ Yield		28 N/mm	161 ppi	2,610 psi	
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break		34 N/mm	195 ppi	3,154 psi	
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield		%		17.99	
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break		%		483.6	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change		%		-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance		229.1 N	51.507 lbs		
ASTM D-1004 (Modified)						
Puncture Resistance	Load	416.5 N		93.631 lbs		
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load	595.5 N		133.87 lbs		
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures		1500 hrs		CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%		300 hrs		ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**Signature.....
Quality Control Department

60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL # **238462-08**

Lot #: **7181033**

Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.46 mm	57 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.58 mm	62 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	24 mil	AVE:	1.54 mm	61 mil	TEST RESULTS	
ODD #: TOP		EVEN #: BOTTOM		OIT(Standard) ASTM D3895	minutes	185
Specific Gravity	Density		g/cc		.946	
ASTM D792						
MFI ASTM D1238	Melt Flow Index 190°C /2160 g		g/10 min		.24	
COND. E						
GRADE:	K307					
Carbon Black Content	Range		%		2.58	
ASTM D4218						
Carbon Black Dispersion	Category		10 in Cat. 1			
ASTM D5596						
Tensile Strength	Average Strength @ Yield		28 N/mm		158 ppi	2,610 psi
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break		33 N/mm		191 ppi	3,154 psi
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield		%		17.99	
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break		%		483.6	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change		%		-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance		229.1 N		51.507	lbs
ASTM D-1004 (Modified)						
Puncture Resistance	Load	416.5 N		93.631	lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load	595.5 N		133.87	lbs	
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures		1500 hrs		CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%		300 hrs		ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**

Signature.....
Quality Control Department

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12/23/05



quality certificate

ROLL #

238463-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil	
ASTM D5994	MIN:	1.45 mm	57 mil	Length.....	125 m	410.1 feet	
(Modified)	MAX:	1.58 mm	62 mil	Width.....	7.00 m;	23.0 feet	
Asperity GRI GM12:	21 mil	AVE:	1.52 mm	60 mil	TEST		
ODD #: TOP	EVEN #: BOTTOM	OIT(Standard) ASTM D3895 minutes				185	RESULTS

Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.66Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

28 N/mm**159** ppi**2,664** psi

Average Strength @ Break

31 N/mm**175** ppi**2,927** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

17.93

Average Elongation @ Break

%

480.6Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

237.8 N**53.461** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

415.0 N**93.296** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

615.8 N**138.44** lbsESCR
ASTM D1693

Minimum Hrs w/o Failures

1500 hrs

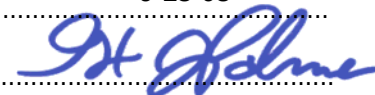
CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-18-08**Signature: 
Quality Control Department

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12/23/05



quality certificate

ROLL # **238464-08** Lot #: **7181033** Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.47 mm	58 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.64 mm	65 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **30** mil AVE: **1.56** mm **61** mil OIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**
ODD #: TOP EVEN #: BOTTOM

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.66
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Carbon Black Dispersion ASTM D5596	Category		10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	164 ppi	2,664 psi
	Average Strength @ Break	31 N/mm	180 ppi	2,927 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	17.93
Lo = 2.0" Break	Average Elongation @ Break	%	480.6

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.8 N	53.461 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	415.0 N	93.296 lbs
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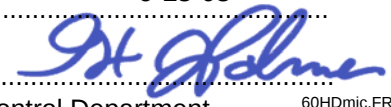
Puncture Resistance ASTM D4833 (Modified)	Load	615.8 N	138.44 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-18-08**

Signature: 
Quality Control Department

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quality certificate

ROLL # **238465-08** Lot #: **7181033** Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.55 mm	61 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.62 mm	64 mil	Width.....	7.00 m	23.0 feet

Asperity GRI GM12: **27** mil AVE: **1.58** mm **62** mil OIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**
ODD #: TOP EVEN #: BOTTOM

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.66
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	166 ppi	2,664 psi
	Average Strength @ Break	32 N/mm	182 ppi	2,927 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	17.93
Lo = 2.0" Break	Average Elongation @ Break	%	480.6

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.8 N	53.461 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	415.0 N	93.296 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	615.8 N	138.44 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-18-08**

Signature: 
Quality Control Department

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12/23/05



quality certificate

ROLL # **238466-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.50 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.64 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.58 mm	62 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.66	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		29 N/mm	166 ppi	2,664 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		32 N/mm	182 ppi	2,927 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	17.93	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	480.6	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		237.8 N	53.461 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		415.0 N	93.296 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		615.8 N	138.44 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**Signature.....
Quality Control Department

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REV 03
12/23/05



quality certificate

ROLL # **238467-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.59 mm	63 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.65 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.62 mm	64 mil	TEST RESULTS	
ODD #: TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
Specific Gravity	Density		g/cc		.946	
ASTM D792						
MFI ASTM D1238	Melt Flow Index 190°C /2160 g		g/10 min		.24	
COND. E						
GRADE:	K307					
Carbon Black Content	Range		%		2.66	
ASTM D4218						
Carbon Black Dispersion	Category		10 in Cat. 1			
ASTM D5596						
Tensile Strength	Average Strength @ Yield		30 N/mm	170 ppi	2,664 psi	
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break		33 N/mm	187 ppi	2,927 psi	
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield		%		17.93	
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break		%		480.6	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change		%		-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance		237.8 N	53.461 lbs		
ASTM D-1004 (Modified)						
Puncture Resistance	Load	415.0 N		93.296 lbs		
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load	615.8 N		138.44 lbs		
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures		1500 hrs		CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%		300 hrs		ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**Signature.....
Quality Control Department

60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL #

238468-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.52 mm**60**

mil

MAX:

1.66 mm**65**

mil

AVE:

1.57 mm**62**

mil

Thickness..... **1.5** mm
Length..... **125** m
Width..... **7.00** m; **23.0** feetAsperity GRI GM12: **32** mil
ODD #: TOP EVEN #: BOTTOMOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.45Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

29 N/mm**167** ppi**2,701** psi

Average Strength @ Break

32 N/mm**185** ppi**3,000** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

18.52

Average Elongation @ Break

%

433.6Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

237.8 N**53.461** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

415.0 N**93.296** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

615.8 N**138.44** lbsESCR
ASTM D1693

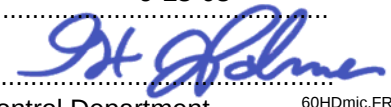
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-18-08**Signature: 
Quality Control Department60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL #

238469-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil	
ASTM D5994	MIN:	1.55 mm	61 mil	Length.....	125 m	410.1 feet	
(Modified)	MAX:	1.74 mm	69 mil	Width.....	7.00 m;	23.0 feet	
Asperity GRI GM12:	26 mil	AVE:	1.65 mm	65 mil	TEST		
ODD # : TOP	EVEN #: BOTTOM	OIT(Standard) ASTM D3895 minutes				185	RESULTS

Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.45Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

31 N/mm**175** ppi**2,701** psi

Average Strength @ Break

34 N/mm**195** ppi**3,000** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

18.52

Average Elongation @ Break

%

433.6Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

237.8 N**53.461** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

415.0 N**93.296** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

615.8 N**138.44** lbsESCR
ASTM D1693

Minimum Hrs w/o Failures

1500 hrs

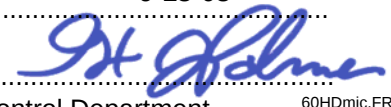
CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-18-08**Signature: 
Quality Control Department

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REV 03
12/23/05



quality certificate

ROLL # **238470-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.50 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.60 mm	63 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	28 mil	AVE:	1.56 mm	61 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.45	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		29 N/mm	166 ppi	2,701 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		32 N/mm	184 ppi	3,000 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	18.52	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	433.6	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		237.8 N	53.461 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		415.0 N	93.296 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		615.8 N	138.44 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**Signature.....
Quality Control Department

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12/23/05



quality certificate

ROLL #

238471-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.52 mm**60**

mil

MAX:

1.61 mm**63**

mil

AVE:

1.57 mm**62**

mil

Thickness..... **1.5** mm
Length..... **125** m
Width..... **7.00** m; **23.0** feetAsperity GRI GM12: **29** mil
ODD #: TOP EVEN #: BOTTOMOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.45Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

29 N/mm**167** ppi**2,701** psi

Average Strength @ Break

32 N/mm**185** ppi**3,000** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

18.52

Average Elongation @ Break

%

433.6Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

237.8 N**53.461** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

415.0 N**93.296** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

615.8 N**138.44** lbsESCR
ASTM D1693

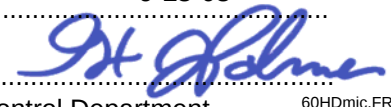
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-18-08**Signature: 
Quality Control Department60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL # **238472-08**

Lot #: **7181033**

Liner Type: **MICROSPIKE™ HDPE**

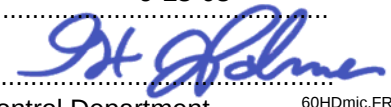
Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.49 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.62 mm	64 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	27 mil	AVE:	1.54 mm	61 mil		
ODD #: TOP	EVEN #: BOTTOM			OIT(Standard) ASTM D3895	minutes	185

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24
Carbon Black Content ASTM D4218	Range	%		2.45
Carbon Black Dispersion ASTM D5596	Category			10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	164 ppi	2,701 psi
	Average Strength @ Break	32 N/mm	182 ppi	3,000 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		18.52
	Average Elongation @ Break	%		433.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.8 N		53.461 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	415.0 N		93.296 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	615.8 N		138.44 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-18-08**

Signature: 
Quality Control Department

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quality certificate

ROLL # **238473-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.50 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.66 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	26 mil	AVE:	1.59 mm	63 mil	TEST RESULTS	
ODD #: TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
Specific Gravity	Density	g/cc				.946
ASTM D792						
MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min				.24
COND. E						
GRADE:	K307					
Carbon Black Content	Range	%				2.55
ASTM D4218						
Carbon Black Dispersion	Category					10 in Cat. 1
ASTM D5596						
Tensile Strength	Average Strength @ Yield	28 N/mm	159 ppi	2,540 psi		
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break	35 N/mm	202 ppi	3,224 psi		
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield	%				16.93
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break	%				502.4
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change	%				-0.49
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance	237.0 N	53.272 lbs			
ASTM D-1004 (Modified)						
Puncture Resistance	Load	438.7 N	98.621 lbs			
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load	613.3 N	137.87 lbs			
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures	1500 hrs			CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%	300 hrs			ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**Signature.....
Quality Control Department

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quality certificate

ROLL # **238474-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.69 mm	67 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	26 mil	AVE:	1.61 mm	63 mil	TEST	
ODD # : TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
						RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946				
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24				
Carbon Black Content ASTM D4218	Range	%		2.55				
Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1						
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28	N/mm	161	ppi	2,540	psi	
	Average Strength @ Break	36	N/mm	204	ppi	3,224	psi	
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		16.93				
	Average Elongation @ Break	%		502.4				
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49				
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.0	N	53.272				lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	438.7	N	98.621				lbs
Puncture Resistance ASTM D4833 (Modified)	Load	613.3	N	137.87				lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500		hrs		CERTIFIED		
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300		hrs		ONGOING		

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-18-08**Signature.....
Quality Control Department

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quality certificate

ROLL #

238475-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.50 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.71 mm	67 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	30 mil	AVE:	1.56 mm	61 mil	TEST	
ODD # : TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
						RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946				
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24				
Carbon Black Content ASTM D4218	Range	%		2.55				
Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1						
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	27	N/mm	156	ppi	2,540	psi	
	Average Strength @ Break	35	N/mm	198	ppi	3,224	psi	
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%		16.93				
Lo = 2.0" Break	Average Elongation @ Break	%		502.4				
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49				
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.0	N	53.272				lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	438.7	N	98.621				lbs
Puncture Resistance ASTM D4833 (Modified)	Load	613.3	N	137.87				lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED				
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING				

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:.....**9-18-08**.....Signature.....
Quality Control Department

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quality certificate

ROLL # **238476-08** Lot #: **7181033** Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.52 mm	60 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.65 mm	65 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **35** mil
ODD #: TOP EVEN #: BOTTOM

AVE: **1.58** mm **62** mil

OIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.55
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28 N/mm	158 ppi	2,540 psi
	Average Strength @ Break	35 N/mm	201 ppi	3,224 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	16.93
Lo = 2.0" Break	Average Elongation @ Break	%	502.4

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.0 N	53.272 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	438.7 N	98.621 lbs
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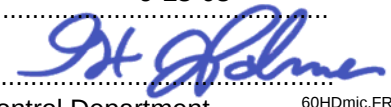
Puncture Resistance ASTM D4833 (Modified)	Load	613.3 N	137.87 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-18-08**

Signature: 
Quality Control Department

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quality certificate

ROLL #

238477-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.45 mm**57**

mil

MAX:

1.65 mm**65**

mil

Thickness..... **1.5** mm
Length..... **125** m
Width..... **7.00** m; **23.0** feetAsperity GRI GM12: **26** mil
ODD #: TOP EVEN #: BOTTOM

AVE:

1.57 mm**62**

mil

OIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.55Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

27 N/mm**157** ppi**2,540** psi

Average Strength @ Break

35 N/mm**199** ppi**3,224** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

16.93

Average Elongation @ Break

%

502.4Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

237.0 N**53.272** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

438.7 N**98.621** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

613.3 N**137.87** lbsESCR
ASTM D1693

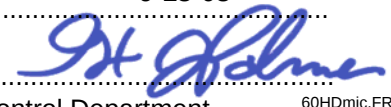
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-18-08**Signature: 
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quality certificate

ROLL #

238478-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.54 mm**61**

mil

MAX:

1.62 mm**64**

mil

AVE:

1.58 mm**62**

mil

Thickness..... **1.5** mm
Length..... **125** m
Width..... **7.00** m; **23.0** feetAsperity GRI GM12: **30** mil
ODD #: TOP EVEN #: BOTTOMOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.28Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

30 N/mm**172** ppi**2,759** psi

Average Strength @ Break

32 N/mm**182** ppi**2,929** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

16.86

Average Elongation @ Break

%

451.4Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

237.0 N**53.272** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

438.7 N**98.621** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

613.3 N**137.87** lbsESCR
ASTM D1693

Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-18-08**Signature: 
Quality Control Department60HDMic.FRM
REV 03
12/23/05



quality certificate

ROLL #

238579-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.45 mm	57 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.61 mm	63 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	30 mil	AVE:	1.52 mm	60 mil	TEST	
ODD # : TOP				EVEN #:		OIT(Standard) ASTM D3895 minutes 185
						TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.946
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
Carbon Black Content ASTM D4218	Range	%	2.28
Carbon Black Dispersion ASTM D5596	Category		10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	165 ppi
	Average Strength @ Break	31 N/mm	175 ppi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	16.86
Lo = 2.0" Break	Average Elongation @ Break	%	451.4
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.0 N	53.272 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	438.7 N	98.621 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	613.3 N	137.87 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:.....**9-19-08**.....Signature.....
Quality Control Department

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quality certificate

ROLL # **238580-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.58 mm	62 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	26 mil	AVE:	1.56 mm	61 mil	TEST	
ODD # : TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
						RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range	%		2.28	
Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1			
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	30	N/mm	169	ppi 2,759 psi
	Average Strength @ Break	31	N/mm	180	ppi 2,929 psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		16.86	
	Average Elongation @ Break	%		451.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.0	N	53.272	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	438.7	N	98.621	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	613.3	N	137.87	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING	

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
Quality Control Department

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REV 03
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quality certificate

ROLL #

238581-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.46 mm	57 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.64 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	28 mil	AVE:	1.57 mm	62 mil	TEST	
ODD # : TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
						RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range	%		2.28	
Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1			
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	30 N/mm	171 ppi	2,759	psi
	Average Strength @ Break	32 N/mm	181 ppi	2,929	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%		16.86	
Lo = 2.0" Break	Average Elongation @ Break	%		451.4	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	237.0 N	53.272 lbs		
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	438.7 N	98.621 lbs		
Puncture Resistance ASTM D4833 (Modified)	Load	613.3 N	137.87 lbs		
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING		

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:.....**9-19-08**.....Signature.....
Quality Control Department

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REV 03
12/23/05



quality certificate

ROLL #

238582-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil	
ASTM D5994	MIN:	1.48 mm	58 mil	Length.....	125 m	410.1 feet	
(Modified)	MAX:	1.68 mm	66 mil	Width.....	7.00 m;	23.0 feet	
Asperity GRI GM12:	34 mil	AVE:	1.60 mm	63 mil	TEST		
ODD #: TOP	EVEN #: BOTTOM	OIT(Standard) ASTM D3895 minutes				185	RESULTS

Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.28Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

30 N/mm**174** ppi**2,759** psi

Average Strength @ Break

32 N/mm**184** ppi**2,929** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

16.86

Average Elongation @ Break

%

451.4Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

237.0 N**53.272** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

438.7 N**98.621** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

613.3 N**137.87** lbsESCR
ASTM D1693

Minimum Hrs w/o Failures

1500 hrs

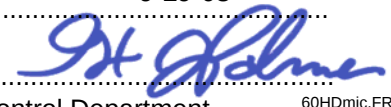
CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-19-08**Signature: 
Quality Control Department

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REV 03
12/23/05



quality certificate

ROLL # **238583-08**

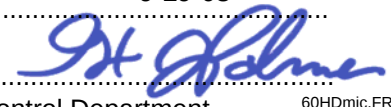
Lot #: **7181033**

Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.71 mm	67 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	27 mil	AVE:	1.62 mm	64 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.10	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		30 N/mm	171 ppi	2,683 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		37 N/mm	212 ppi	3,322 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	19.34	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	494.0	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		249.8 N	56.151 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		433.0 N	97.353 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		614.3 N	138.09 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-19-08**

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ROLL # **238584-08** Lot #: **7181033** Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.63 mm	64 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **30** mil
ODD #: TOP EVEN #: BOTTOM

AVE: **1.57** mm **62** mil

OIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.10
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	166 ppi	2,683 psi
	Average Strength @ Break	36 N/mm	205 ppi	3,322 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	19.34
Lo = 2.0" Break	Average Elongation @ Break	%	494.0

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	249.8 N	56.151 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	433.0 N	97.353 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	614.3 N	138.09 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

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ROLL # **238585-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.48 mm	58 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.64 mm	65 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **23** mil
ODD #: TOP EVEN #: BOTTOMAVE: **1.56** mm **61** milOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.10
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	165 ppi	2,683 psi
	Average Strength @ Break	36 N/mm	204 ppi	3,322 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	19.34
Lo = 2.0" Break	Average Elongation @ Break	%	494.0

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	249.8 N	56.151 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	433.0 N	97.353 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	614.3 N	138.09 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date:..... **9-19-08**Signature.....
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ROLL #

238586-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.48 mm	58 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.63 mm	64 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	28 mil	AVE:	1.57 mm	62 mil	TEST	
ODD # : TOP EVEN # : BOTTOM				OIT(Standard) ASTM D3895	minutes	185
						RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range	%		2.10	
Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1			
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	166 ppi	2,683	psi
	Average Strength @ Break	36 N/mm	205 ppi	3,322	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		19.34	
	Average Elongation @ Break	%		494.0	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	249.8 N	56.151 lbs		
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	433.0 N	97.353 lbs		
Puncture Resistance ASTM D4833 (Modified)	Load	614.3 N	138.09 lbs		
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING		

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

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ROLL # **238587-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.49 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.66 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.57 mm	62 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.10	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		29 N/mm	166 ppi	2,683 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		36 N/mm	205 ppi	3,322 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	19.34	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	494.0	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		249.8 N	56.151 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		433.0 N	97.353 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		614.3 N	138.09 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

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ROLL # **238588-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.56 mm	61 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.72 mm	68 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	31 mil	AVE:	1.64 mm	65 mil		
ODD #: TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
				TEST RESULTS		
Specific Gravity		Density		g/cc		.946
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min		.24
COND. E						
GRADE:	K307					
Carbon Black Content		Range		%		2.29
ASTM D4218						
Carbon Black Dispersion		Category				10 in Cat. 1
ASTM D5596						
Tensile Strength		Average Strength @ Yield		31 N/mm	175 ppi	2,707 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		37 N/mm	214 ppi	3,310 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%		17.73
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%		492.6
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%		-0.49
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		249.8 N		56.151 lbs
ASTM D-1004 (Modified)						
Puncture Resistance		Load		433.0 N		97.353 lbs
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		614.3 N		138.09 lbs
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures		1500 hrs		CERTIFIED
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%		300 hrs		ONGOING
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
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ROLL # **238589-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.60 mm	63 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.67 mm	66 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **27** mil
ODD #: TOP EVEN #: BOTTOMAVE: **1.63** mm **64** milOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.29
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	30 N/mm	174 ppi	2,707 psi
	Average Strength @ Break	37 N/mm	212 ppi	3,310 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	17.73
Lo = 2.0" Break	Average Elongation @ Break	%	492.6

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	249.8 N	56.151 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	433.0 N	97.353 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	614.3 N	138.09 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date:..... **9-19-08**Signature.....
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ROLL # **238590-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.62 mm	64 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.58 mm	62 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.29	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		29 N/mm	168 ppi	2,707 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		36 N/mm	206 ppi	3,310 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	17.73	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	492.6	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		249.8 N	56.151 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		433.0 N	97.353 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		614.3 N	138.09 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
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ROLL # **238591-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.63 mm	64 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.57 mm	62 mil	TEST	
ODD # : TOP EVEN #: BOTTOM					OIT(Standard) ASTM D3895 minutes	185
RESULTS						

Specific Gravity ASTM D792	Density	g/cc	.946
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
Carbon Black Content ASTM D4218	Range	%	2.29
Carbon Black Dispersion ASTM D5596	Category		10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	29 N/mm	167 ppi
	Average Strength @ Break	36 N/mm	205 ppi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	17.73
Lo = 2.0" Break	Average Elongation @ Break	%	492.6
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	249.8 N	56.151 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	433.0 N	97.353 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	614.3 N	138.09 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
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ROLL # **238592-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.54 mm	61 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.66 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	30 mil	AVE:	1.63 mm	64 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.29	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		30 N/mm	174 ppi	2,707 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		37 N/mm	212 ppi	3,310 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	17.73	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	492.6	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		249.8 N	56.151 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		433.0 N	97.353 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		614.3 N	138.09 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
Quality Control Department

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ROLL # **238593-08** Lot #: **7181033** Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.56 mm	61 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.64 mm	65 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **26** mil AVE: **1.59** mm **63** mil OIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**
 ODD #: TOP EVEN #: BOTTOM

Specific Gravity	Density	g/cc	.946
ASTM D792			

MFI ASTM D1238	Melt Flow Index 190°C /2160 g	g/10 min	.24
COND. E			
GRADE: K307			

Carbon Black Content	Range	%	2.28
ASTM D4218			

Carbon Black Dispersion	Category	10 in Cat. 1
ASTM D5596		

Tensile Strength	Average Strength @ Yield	31 N/mm	175 ppi	2,789 psi
ASTM D6693				
ASTM D638 (Modified)				
(2 inches / minute)	Average Strength @ Break	38 N/mm	219 ppi	3,504 psi

Elongation ASTM D6693	Average Elongation @ Yield	%	18.29
ASTM D638 (Modified)			
(2 inches / minute)			
Lo = 1.3" Yield	Average Elongation @ Break	%	488.3
Lo = 2.0" Break			

Dimensional Stability	Average Dimensional change	%	-0.49
ASTM D1204 (Modified)			

Tear Resistance	Average Tear Resistance	254.7 N	57.263 lbs
ASTM D-1004 (Modified)			

Puncture Resistance	Load	446.9 N	100.47 lbs
FTMS 101 Method 2065 (Modified)			

Puncture Resistance	Load	655.3 N	147.32 lbs
ASTM D4833 (Modified)			

ESCR	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
ASTM D1693			

Notched Constant Tensile Load	pass / fail @ 30%	300 hrs	ONGOING
ASTM D5397			

Customer: **Environmental Specialties**
 PO: **10136 Saline County Landfill**
 Destination **Bauxite, AR**

Date:..... **9-19-08**

Signature.....
 Quality Control Department

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 12/23/05



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ROLL # **238594-08** Lot #: **7181033** Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.50 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.65 mm	65 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **27** mil
ODD #: TOP EVEN #: BOTTOM

AVE: **1.59** mm **63** mil

OIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.28
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	31 N/mm	175 ppi	2,789 psi
	Average Strength @ Break	38 N/mm	219 ppi	3,504 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	18.29
Lo = 2.0" Break	Average Elongation @ Break	%	488.3

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	254.7 N	57.263 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	446.9 N	100.47 lbs
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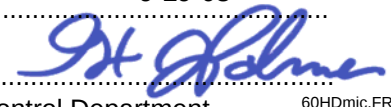
Puncture Resistance ASTM D4833 (Modified)	Load	655.3 N	147.32 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-19-08**

Signature: 
Quality Control Department

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12/23/05



quality certificate

ROLL #

238595-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil	
ASTM D5994	MIN:	1.52 mm	60 mil	Length.....	125 m	410.1 feet	
(Modified)	MAX:	1.64 mm	65 mil	Width.....	7.00 m;	23.0 feet	
Asperity GRI GM12:	26 mil	AVE:	1.58 mm	62 mil	TEST		
ODD # : TOP	EVEN #: BOTTOM	OIT(Standard) ASTM D3895 minutes				185	RESULTS

Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.28Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

30 N/mm**173** ppi**2,789** psi

Average Strength @ Break

38 N/mm**218** ppi**3,504** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

18.29

Average Elongation @ Break

%

488.3Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

254.7 N**57.263** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

446.9 N**100.47** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

655.3 N**147.32** lbsESCR
ASTM D1693

Minimum Hrs w/o Failures

1500 hrs

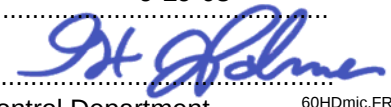
CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-19-08**Signature: 
Quality Control Department

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quality certificate

ROLL # **238596-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.56 mm	61 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.65 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	30 mil	AVE:	1.61 mm	63 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.28	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		31 N/mm	177 ppi	2,789 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		39 N/mm	222 ppi	3,504 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	18.29	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	488.3	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		254.7 N	57.263 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		446.9 N	100.47 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		655.3 N	147.32 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
Quality Control Department

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quality certificate

ROLL # **238597-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.50 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.62 mm	64 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.58 mm	62 mil	TEST RESULTS	
ODD #: TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
Specific Gravity	Density		g/cc		.946	
ASTM D792						
MFI ASTM D1238	Melt Flow Index 190°C /2160 g		g/10 min		.24	
COND. E						
GRADE:	K307					
Carbon Black Content	Range		%		2.28	
ASTM D4218						
Carbon Black Dispersion	Category		10 in Cat. 1			
ASTM D5596						
Tensile Strength	Average Strength @ Yield		30 N/mm		173 ppi	2,789 psi
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break		38 N/mm		218 ppi	3,504 psi
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield		%		18.29	
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break		%		488.3	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change		%		-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance		254.7 N		57.263	lbs
ASTM D-1004 (Modified)						
Puncture Resistance	Load	446.9 N		100.47 lbs		
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load	655.3 N		147.32 lbs		
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures		1500 hrs		CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%		300 hrs		ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
Quality Control Department

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quality certificate

ROLL #

238598-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**Measurement
ASTM D5994
(Modified)

MIN:

METRIC
1.55 mmENGLISH
61 mil

Thickness.....

1.5 mm**60** mil

Length.....

125 m**410.1** feet

Width.....

7.00 m;**23.0** feetAsperity GRI GM12: **32** mil
ODD #: TOP EVEN #: BOTTOM

AVE:

1.59 mm**63** mil

OIT(Standard) ASTM D3895

minutes

185**TEST
RESULTS**Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.18Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

31 N/mm**179** ppi**2,862** psi

Average Strength @ Break

32 N/mm**182** ppi**2,906** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

17.40

Average Elongation @ Break

%

493.9Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

254.7 N**57.263** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

446.9 N**100.47** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

655.3 N**147.32** lbsESCR
ASTM D1693

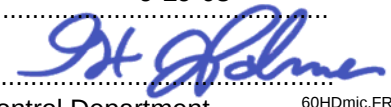
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-19-08**Signature: 
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ROLL #

238599-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.54 mm	61 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.62 mm	64 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	26 mil	AVE:	1.58 mm	62 mil	TEST	
ODD # : TOP				EVEN #:		BOTTOM
				OIT(Standard) ASTM D3895	minutes	185
RESULTS						

Specific Gravity
ASTM D792

Density

g/cc

.946MFI ASTM D1238
COND. E
GRADE: **K307**

Melt Flow Index 190°C /2160 g

g/10 min

.24Carbon Black Content
ASTM D4218

Range

%

2.18Carbon Black Dispersion
ASTM D5596

Category

10 in Cat. 1Tensile Strength
ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)

Average Strength @ Yield

31 N/mm**178** ppi**2,862** psi

Average Strength @ Break

32 N/mm**181** ppi**2,906** psiElongation ASTM D6693
ASTM D638 (Modified)
(2 inches / minute)
Lo = 1.3" Yield
Lo = 2.0" Break

Average Elongation @ Yield

%

17.40

Average Elongation @ Break

%

493.9Dimensional Stability
ASTM D1204 (Modified)

Average Dimensional change

%

-0.49Tear Resistance
ASTM D-1004 (Modified)

Average Tear Resistance

254.7 N**57.263** lbsPuncture Resistance
FTMS 101 Method 2065 (Modified)

Load

446.9 N**100.47** lbsPuncture Resistance
ASTM D4833 (Modified)

Load

655.3 N**147.32** lbsESCR
ASTM D1693

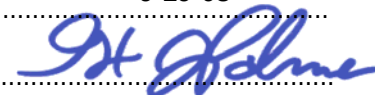
Minimum Hrs w/o Failures

1500 hrs

CERTIFIEDNotched Constant Tensile Load
ASTM D5397

pass / fail @ 30%

300 hrs

ONGOINGCustomer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date: **9-19-08**Signature: 
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REV 03
12/23/05



quality certificate

ROLL # **238500-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.50 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.69 mm	67 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	33 mil	AVE:	1.61 mm	63 mil	TEST	
ODD # : TOP				EVEN #:		BOTTOM
				OIT(Standard) ASTM D3895	minutes	185
RESULTS						

Specific Gravity ASTM D792	Density	g/cc		.946			
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24			
Carbon Black Content ASTM D4218	Range	%		2.18			
Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1					
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	32	N/mm	181	ppi	2,862	psi
	Average Strength @ Break	32	N/mm	184	ppi	2,906	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		17.40			
	Average Elongation @ Break	%		493.9			
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49			
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	254.7	N	57.263			lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	446.9	N	100.47			lbs
Puncture Resistance ASTM D4833 (Modified)	Load	655.3	N	147.32			lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED			
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING			

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-19-08**Signature.....
Quality Control Department

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ROLL #

238501-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.53 mm	60 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.66 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.62 mm	64 mil	TEST	
ODD # : TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
						RESULTS

Specific Gravity ASTM D792	Density	g/cc		.946	
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min		.24	
Carbon Black Content ASTM D4218	Range	%		2.18	
Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1			
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	32 N/mm	183 ppi	2,862	psi
	Average Strength @ Break	32 N/mm	185 ppi	2,906	psi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%		17.40	
	Average Elongation @ Break	%		493.9	
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%		-0.49	
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	254.7 N		57.263	lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	446.9 N		100.47	lbs
Puncture Resistance ASTM D4833 (Modified)	Load	655.3 N		147.32	lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs		CERTIFIED	
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs		ONGOING	

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:.....**9-19-08**.....Signature.....
Quality Control Department

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12/23/05



quality certificate

ROLL # **238602-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.51 mm	59 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.59 mm	63 mil	Width.....	7.00 m;	23.0 feet

Asperity GRI GM12: **28** mil
ODD #: TOP EVEN #: BOTTOMAVE: **1.56** mm **61** milOIT(Standard) ASTM D3895 minutes **185** **TEST RESULTS**

Specific Gravity ASTM D792	Density	g/cc	.946
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MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
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Carbon Black Content ASTM D4218	Range	%	2.18
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Carbon Black Dispersion ASTM D5596	Category	10 in Cat. 1
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Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	31 N/mm	176 ppi	2,862 psi
	Average Strength @ Break	31 N/mm	178 ppi	2,906 psi

Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield	Average Elongation @ Yield	%	17.40
Lo = 2.0" Break	Average Elongation @ Break	%	493.9

Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
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Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	254.7 N	57.263 lbs
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Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	446.9 N	100.47 lbs
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Puncture Resistance ASTM D4833 (Modified)	Load	655.3 N	147.32 lbs
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ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
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Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING
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Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**Date:..... **9-20-08**Signature.....
Quality Control Department60HDMic.FRM
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12/23/05



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ROLL # **238603-08**

Lot #: **7181033**

Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.48 mm	58 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.65 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	29 mil	AVE:	1.57 mm	62 mil	TEST RESULTS	
ODD #: TOP EVEN #: BOTTOM				OIT(Standard) ASTM D3895	minutes	185
Specific Gravity	Density		g/cc		.946	
ASTM D792						
MFI ASTM D1238	Melt Flow Index 190°C /2160 g		g/10 min		.24	
COND. E						
GRADE:	K307					
Carbon Black Content	Range		%		2.24	
ASTM D4218						
Carbon Black Dispersion	Category		10 in Cat. 1			
ASTM D5596						
Tensile Strength	Average Strength @ Yield		28 N/mm		159 ppi	2,578 psi
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break		35 N/mm		198 ppi	3,200 psi
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield		%		18.47	
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break		%		481.3	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change		%		-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance		239.4 N		53.815 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance	Load	424.2 N		95.367 lbs		
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load	604.7 N		135.94 lbs		
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures		1500 hrs		CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%		300 hrs		ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-20-08**

Signature.....
Quality Control Department

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quality certificate

ROLL #

238604-08

Lot #:

7181033Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.45 mm	57 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.59 mm	63 mil	Width.....	7.00 m	23.0 feet
Asperity GRI GM12:	36 mil	AVE:	1.55 mm	61 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity		Density		g/cc	.946	
ASTM D792						
MFI ASTM D1238		Melt Flow Index 190°C /2160 g		g/10 min	.24	
COND. E						
GRADE: K307						
Carbon Black Content		Range		%	2.24	
ASTM D4218						
Carbon Black Dispersion		Category			10 in Cat. 1	
ASTM D5596						
Tensile Strength		Average Strength @ Yield		28 N/mm	157 ppi	2,578 psi
ASTM D6693						
ASTM D638 (Modified)		Average Strength @ Break		34 N/mm	195 ppi	3,200 psi
(2 inches / minute)						
Elongation ASTM D6693		Average Elongation @ Yield		%	18.47	
ASTM D638 (Modified)						
(2 inches / minute)		Average Elongation @ Break		%	481.3	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability		Average Dimensional change		%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance		Average Tear Resistance		239.4 N	53.815 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance		Load		424.2 N	95.367 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance		Load		604.7 N	135.94 lbs	
ASTM D4833 (Modified)						
ESCR		Minimum Hrs w/o Failures	1500 hrs	CERTIFIED		
ASTM D1693						
Notched Constant Tensile Load		pass / fail @ 30%	300 hrs	ONGOING		
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-20-08**Signature: 
Quality Control Department

60HDmic.FRM
REV 03
12/23/05



quality certificate

ROLL # **238605-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.52 mm	60 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.65 mm	65 mil	Width.....	7.00 m;	23.0 feet
Asperity GRI GM12:	31 mil	AVE:	1.59 mm	63 mil	TEST RESULTS	
ODD #: TOP	EVEN #: BOTTOM					
Specific Gravity	Density			g/cc	.946	
ASTM D792						
MFI ASTM D1238						
COND. E						
GRADE: K307	Melt Flow Index 190°C /2160 g			g/10 min	.24	
Carbon Black Content	Range			%	2.24	
ASTM D4218						
Carbon Black Dispersion	Category				10 in Cat. 1	
ASTM D5596						
Tensile Strength	Average Strength @ Yield			28 N/mm	161 ppi	2,578 psi
ASTM D6693						
ASTM D638 (Modified)	Average Strength @ Break			35 N/mm	200 ppi	3,200 psi
(2 inches / minute)						
Elongation ASTM D6693	Average Elongation @ Yield			%	18.47	
ASTM D638 (Modified)						
(2 inches / minute)	Average Elongation @ Break			%	481.3	
Lo = 1.3" Yield						
Lo = 2.0" Break						
Dimensional Stability	Average Dimensional change			%	-0.49	
ASTM D1204 (Modified)						
Tear Resistance	Average Tear Resistance			239.4 N	53.815 lbs	
ASTM D-1004 (Modified)						
Puncture Resistance	Load			424.2 N	95.367 lbs	
FTMS 101 Method 2065 (Modified)						
Puncture Resistance	Load			604.7 N	135.94 lbs	
ASTM D4833 (Modified)						
ESCR	Minimum Hrs w/o Failures			1500 hrs	CERTIFIED	
ASTM D1693						
Notched Constant Tensile Load	pass / fail @ 30%			300 hrs	ONGOING	
ASTM D5397						

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date:..... **9-20-08**Signature.....
Quality Control Department

60HDmic.FRM
REV 03
12/23/05



quality certificate

ROLL # **238606-08**Lot #: **7181033**Liner Type: **MICROSPIKE™ HDPE**

Measurement		METRIC	ENGLISH	Thickness.....	1.5 mm	60 mil
ASTM D5994	MIN:	1.54 mm	61 mil	Length.....	125 m	410.1 feet
(Modified)	MAX:	1.65 mm	65 mil	Width.....	7.00 m	23.0 feet
Asperity GRI GM12:	22 mil	AVE:	1.59 mm	63 mil		
ODD #: TOP	EVEN #: BOTTOM			OIT(Standard) ASTM D3895	minutes	185

TEST RESULTS

Specific Gravity ASTM D792	Density	g/cc	.946
MFI ASTM D1238 COND. E GRADE: K307	Melt Flow Index 190°C /2160 g	g/10 min	.24
Carbon Black Content ASTM D4218	Range	%	2.24
Carbon Black Dispersion ASTM D5596	Category		10 in Cat. 1
Tensile Strength ASTM D6693 ASTM D638 (Modified) (2 inches / minute)	Average Strength @ Yield	28 N/mm	161 ppi
	Average Strength @ Break	35 N/mm	200 ppi
Elongation ASTM D6693 ASTM D638 (Modified) (2 inches / minute) Lo = 1.3" Yield Lo = 2.0" Break	Average Elongation @ Yield	%	18.47
	Average Elongation @ Break	%	481.3
Dimensional Stability ASTM D1204 (Modified)	Average Dimensional change	%	-0.49
Tear Resistance ASTM D-1004 (Modified)	Average Tear Resistance	239.4 N	53.815 lbs
Puncture Resistance FTMS 101 Method 2065 (Modified)	Load	424.2 N	95.367 lbs
Puncture Resistance ASTM D4833 (Modified)	Load	604.7 N	135.94 lbs
ESCR ASTM D1693	Minimum Hrs w/o Failures	1500 hrs	CERTIFIED
Notched Constant Tensile Load ASTM D5397	pass / fail @ 30%	300 hrs	ONGOING

Customer: **Environmental Specialties**
PO: **10136 Saline County Landfill**
Destination **Bauxite, AR**

Date: **9-20-08**Signature: 
Quality Control Department

60HDmic.FRM
REV 03
12/23/05

Certificate of Analysis

Shipped To: AGRU AMERICA INC
500 GARRISON RD
GEORGETOWN SC 29440
USA

Recipient: PALMER
Fax:

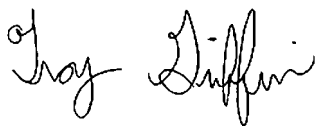
CPC Delivery #: 87718355
PO #: 004792
Weight: 195100 LB
Ship Date: 08/15/2008
Package: BULK
Mode: Hopper Car
Car #: PSPX003166
Seal No: 266796

Product:
MARLEX POLYETHYLENE K307 BULK

Lot Number: 7181033

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.240	g/10mi
HLMI Flow Rate	ASTM D1238	20.00	g/10mi
Density	ASTM D1505	0.9360	g/cm3
Pellet Count	P02.08.03	30.000	pel/g
Production Date		08/13/2008	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.



Troy Griffin
Quality Systems Coordinator

For CoA questions contact Tom Scheirman at 832-813-4637

APPENDIX K

GEOMEMBRANE CONFORMANCE TEST RESULTS



Precision Geosynthetic Laboratories



October 1, 2008

Ken Bown
TERRACON
25809 I-30
Bryant, AR 72022

RE: **Saline City Cell 4 Bauxite**

Dear Mr. Bown:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of three (3) 60 Mil Microspike HDPE Geomembrane samples received September 23, 2008.

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure (Job No. G081272)



Precision Geosynthetic Laboratories



CLIENT: TERRACON
PROJECT NAME: *Saline City Cell 4 Bauxite*

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081272)

MATERIAL DESCRIPTION: 60 Mil Microspike HDPE Geomembrane

SAMPLED BY: PGL @ Agru, SC

DATE RECEIVED: September 23, 2008

DATE REPORTED: October 1, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R#238352.08 L#7181033	51441
R#238462.08 L#7181033	51442
R#238473.08 L#7181033	51443

TESTS REQUIRED:

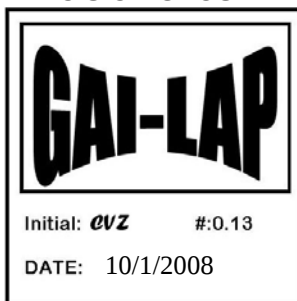
TEST METHOD	DESCRIPTION
ASTM D1505	Density
ASTM D4218	Carbon Content Muffle
ASTM D5596	Carbon Black Dispersion
ASTM D5994	Thickness
ASTM D6693	Tensile Dog Bone
ASTM D4833	Puncture Resistance
ASTM D1004	Tear Resistance

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 to 3. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

1160 North Gilbert Street, Anaheim, CA. 92801, Tel# 714-520-9631, Fax# 714-520-9637

TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/23/2008**
Date Reported: **10/1/2008**
Client Sample ID: **R#238352.08 L#7181033**
Material Description: **60 Mil Microspike HDPE Geomembrane**

QC'd By: 
PGL Job No.: **G081272**
PGL Control No.: **51441**

SPECIMENS															Proj. Specs.	
		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	
METHOD	DESCRIPTION															
ASTM D5994	Thickness (mils)															
	Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)															
	Loading Time: 5 sec Specimen Size: 4" x 4"															
		63	63	64	65	64	66	65	64	65	64	64	1	63	66	57 min
ASTM D1505	Density (grams/ cm.3)															
		0.9474	0.9474	0.9474								0.9474	0.0000	0.9474	0.9474	0.940
ASTM D6693	Tensile Properties:															
Type IV	Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)															
	Tensile Strength at Yield (lbs/ in.-width)															
	MD	157	162	155	158	156					158	3	155	162	126 min	
	TD	171	171	168	172	171					171	1	168	172		
	Tensile Strength at Break (lbs/ in.- width)															
	MD	203	194	209	207	201					203	6	194	209	126 min	
	TD	177	180	184	168	175					177	6	168	184		
	Elongation at Yield (percent)															
	MD	24	24	23	23	23					23	0	23	24	12	
	TD	17	17	18	19	19					18	1	17	19		
	Elongation at Break (percent)	Gauge Length = 2.0 in.														
	MD	423	374	425	440	443					421	28	374	443	100	
	TD	485	501	515	491	505					499	12	485	515		
ASTM D1004	Tear Resistance (lbs)															
Die C	Machine: Tensile machine equipped with constant rate of extension and chart recorder.															
	MD	59	58	58	57	58	58	58	58	56	54	57	1	54	59	42
	TD	51	50	52	48	49	48	48	54	50	52	50	2	48	54	
ASTM D4833	Puncture Resistance (lbs)															
	Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
		150	146	147	145	146	145	142	140	142	140	145	4	140	150	90
		142	142	148	150	150										
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
		1	1	1	1	1	1	1	1	1	1	1	N/A			1 or 2



TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/23/2008**
 Date Reported: **10/1/2008**
 Client Sample ID: **R#238352.08 L#7181033**
 Material Description: **60 Mil Microspike HDPE Geomembrane**

QC'd By: 
 PGL Job No.: **G081272**
 PGL Control No.: **51441**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
		1	2	3	4	5	6	7	8	9	10					
METHOD	DESCRIPTION															
ASTM D4218	Carbon Content Muffle															
		2.62	2.62									2.62	0.00	2.62	2.62	2 to 3



TABLE 2.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/23/2008**
Date Reported: **10/1/2008**
Client Sample ID: **R#238462.08 L#7181033**
Material Description: **60 Mil Microspike HDPE Geomembrane**

QC'd By: 
PGL Job No.: **G081272**
PGL Control No.: **51442**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		63	64	62	62	64	64	64	64	64	65	64	1	62	65	57 min 60 ave
ASTM D1505	Density (grams/ cm.3) 0.9484 0.9484 0.9484											0.9484	0.0000	0.9484	0.9484	0.940
ASTM D6693	<u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>															
	Tensile Strength at Yield (lbs/ in.-width)															
MD	158 162 170 168 169											165	5	158	170	126 min
TD	182 179 180 182 182											181	1	179	182	
	Tensile Strength at Break (lbs/ in.- width)															
MD	174 182 178 166 172											174	6	166	182	126 min
TD	154 151 147 161 181											159	13	147	181	
	Elongation at Yield (percent)															
MD	23 22 23 22 24											23	1	22	24	12
TD	20 19 19 20 20											20	1	19	20	
	Elongation at Break (percent) <i>Gauge Length = 2.0 in.</i>															
MD	484 401 392 385 374											407	44	374	484	100
TD	372 388 343 381 363											369	18	343	388	
ASTM D1004	Tear Resistance (lbs)															
Die C	<i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
MD	58 56 57 58 57 57 57 59 57 58											57	1	56	59	42
TD	57 54 56 57 56 57 58 55 56 49											56	3	49	58	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>															
		151 146 145 142 142 143 142 142 142 140										143	3	140	151	90
		142 143 142 142 142														
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
		1 1 1 1 1 1 1 1 1 1										1	N/A			1 or 2



TABLE 2.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/23/2008**

Date Reported: **10/1/2008**

Client Sample ID: **R#238462.08 L#7181033**

Material Description: **60 Mil Microspike HDPE Geomembrane**

QC'd By: 

PGL Job No.: **G081272**

PGL Control No.: **51442**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
		1	2	3	4	5	6	7	8	9	10					
METHOD	DESCRIPTION															
ASTM D4218	Carbon Content Muffle															
		2.54	2.60									2.57	0.04	2.54	2.60	2 to 3



TABLE 3.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/23/2008**

Date Reported: **10/1/2008**

Client Sample ID: **R#238473.08 L#7181033**

Material Description: **60 Mil Microspike HDPE Geomembrane**

QC'd By: 

PGL Job No.: **G081272**

PGL Control No.: **51443**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>	62	64	63	64	65	64	64	64	64	64	64	1	62	65	57 min 60 ave
ASTM D1505	Density (grams/ cm.3) 0.9488 0.9488 0.9488											0.9488	0.0000	0.9488	0.9488	0.940
ASTM D6693 Type IV	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i> Tensile Strength at Yield (lbs/ in.-width) <i>MD 172 170 165 163 171</i> <i>TD 182 174 171 162 162</i> Tensile Strength at Break (lbs/ in.- width) <i>MD 183 182 205 183 204</i> <i>TD 148 144 172 168 183</i> Elongation at Yield (percent) <i>MD 23 24 23 23 23</i> <i>TD 20 19 19 19 20</i> Elongation at Break (percent) <i>Gauge Length = 2.0 in.</i> <i>MD 389 409 441 416 434</i> <i>TD 308 306 467 369 427</i>											168 170	4 8	163 162	172 182	126 min 126 min
ASTM D1004 Die C	Tear Resistance (lbs) <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i> <i>MD 56 57 58 57 58 56 59 58 56 59</i> <i>TD 49 51 54 58 57 58 57 59 59</i>											57 56	1 3	56 49	59 59	42
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i> 142 146 145 143 142 146 142 142 143 146 150 142 143 142 142											144	2	142	150	90
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38) 1 1 1 1 1 1 1 1 1 1											1	N/A			1 or 2



TABLE 3.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/23/2008**

Date Reported: **10/1/2008**

Client Sample ID: **R#238473.08 L#7181033**

Material Description: **60 Mil Microspike HDPE Geomembrane**

QC'd By: 

PGL Job No.: **G081272**

PGL Control No.: **51443**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
		1	2	3	4	5	6	7	8	9	10					
METHOD	DESCRIPTION															
ASTM D4218	Carbon Content Muffle															
		2.58	2.59									2.58	0.01	2.58	2.59	2 to 3





Precision Geosynthetic Laboratories



October 3, 2008

Ken Bown
TERRACON
25809 I-30
Bryant, AR 72022

RE: **Saline City Cell 4 Bauxite**

Dear Mr. Bown:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of three (3) 60 Mil Microspike HDPE Geomembrane samples received September 24, 2008.

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. **Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure (Job No. G081281)



Precision Geosynthetic Laboratories



CLIENT: TERRACON
PROJECT NAME: *Saline City Cell 4 Bauxite*

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081281)

MATERIAL DESCRIPTION: 60 Mil Microspike HDPE Geomembrane

SAMPLED BY: PGL @ Agru, SC

DATE RECEIVED: September 24 2008

DATE REPORTED: October 3, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R#238583.08 L#7181033	51488
R#238594.08 L#7181033	51489
R#238605.08 L#7181033	51490

TESTS REQUIRED:

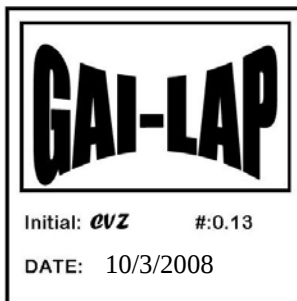
TEST METHOD	DESCRIPTION
ASTM D1505	Density
ASTM D4218	Carbon Content Muffle
ASTM D5596	Carbon Black Dispersion
ASTM D5994	Thickness
ASTM D6693	Tensile Dog Bone
ASTM D4833	Puncture Resistance
ASTM D1004	Tear Resistance

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Tables 1 to 3. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/24/2008**
Date Reported: **10/3/2008**
Client Sample ID: **R#238583.08 L#7181033**
Material Description: **60 Mil Microspike HDPE**

QC'd By: 
PGL Job No.: **G081281**
PGL Control No.: **51488**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		62	61	61	62	61	61	63	63	61	61	62	1	61	63	57 min 60 ave
ASTM D1505	Density (grams/ cm.3) 0.9484 0.9484 0.9484											0.9484	0.0000	0.9484	0.9484	0.940
ASTM D6693	<u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2 °C (73.4+/-3.6 °F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>															
	Tensile Strength at Yield (lbs/ in.-width)															
MD	182 172 173 173 176											175	4	172	182	126 min
TD	184 191 184 189 181											186	4	181	191	
	Tensile Strength at Break (lbs/ in.- width)															
MD	244 223 239 236 240											236	8	223	244	126 min
TD	200 192 199 184 188											193	7	184	200	
	Elongation at Yield (percent)															
MD	23 22 23 24 23											23	1	22	24	12
TD	22 20 20 19 20											20	1	19	22	
	Elongation at Break (percent) <i>Gauge Length = 2.0 in.</i>															
MD	439 443 408 411 416											423	16	408	443	100
TD	498 406 539 352 355											430	85	352	539	
ASTM D1004	Tear Resistance (lbs)															
Die C	<i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
MD	56 54 58 56 59 55 53 59 57 55											56	2	53	59	42
TD	50 51 48 45 51 54 47 48 47 46											49	3	45	54	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>															
	140 143 142 142 141 148 146 145 146 150											143	3	140	150	90
	143 142 142 141 140															
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
	1 1 1 1 1 1 1 1 1 1											1	N/A			1 or 2
ASTM D4218	Carbon Content Muffle 2.57 2.58											2.57	0.00	2.57	2.58	2to3



TABLE 2.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/24/2008**
Date Reported: **10/3/2008**
Client Sample ID: **R#238594.08 L#7181033**
Material Description: **60 Mil Microspike HDPE**

QC'd By: 
PGL Job No.: **G081281**
PGL Control No.: **51489**

		SPECIMENS														Proj.
		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Specs.
METHOD	DESCRIPTION															
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															57 min
		62	61	61	62	61	61	61	61	61	63	61	1	61	63	60 ave
ASTM D1505	Density (grams/ cm.3)															
		0.9479	0.9479	0.9479								0.9479	0.0000	0.9479	0.9479	0.940
ASTM D6693	<u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2 °C (73.4+/-3.6 °F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>															
	Tensile Strength at Yield (lbs/ in.-width)															
MD	177	175	177	198	174						180	10	174	198	126 min	
TD	181	191	188	189	173						184	7	173	191		
	Tensile Strength at Break (lbs/ in.- width)															
MD	230	223	198	196	231						216	17	196	231	126 min	
TD	160	159	170	182	175						169	10	159	182		
	Elongation at Yield (percent)															
MD	22	23	23	24	24						23	1	22	24	12	
TD	19	20	20	19	19						20	0	19	20		
	Elongation at Break (percent)															
MD	440	407	440	415	424						425	15	407	440	100	
TD	391	373	418	473	436						418	39	373	473		
ASTM D1004	Tear Resistance (lbs)															
Die C	<i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
MD	58	57	55	58	54	54	55	57	56	54	56	2	54	58	42	
TD	50	46	48	47	47	46	48	49	47	50	48	1	46	50		
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>															
		138	142	142	145	146	145	141	140	143	142	142	2	138	146	90
		140	142	140	142	140										
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)															
		1	1	1	1	1	1	1	1	1	1	1	N/A			1 or 2
ASTM D4218	Carbon Content Muffle															
		2.58	2.62								2.60	0.03	2.58	2.62	2to3	



TABLE 3.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **9/24/2008**
Date Reported: **10/3/2008**
Client Sample ID: **R#238605.08 L#7181033**
Material Description: **60 Mil Microspike HDPE**

QC'd By: 
PGL Job No.: **G081281**
PGL Control No.: **51490**

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60o +/- 2 to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>	61	61	61	62	61	61	61	61	61	61	61	0	61	62	57 min 60 ave
ASTM D1505	Density (grams/ cm.3) 0.9484 0.9484 0.9484											0.9484	0.0000	0.9484	0.9484	0.940
ASTM D6693	Tensile Properties: Type IV <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2 °C (73.4+/-3.6 °F, and 50+/-5% relative humidity. Rate of Separation: 2"/min (HDPE) 2"/min (VLDPE/LLDPE)</i>															
	Tensile Strength at Yield (lbs/ in.-width)											168	5	162	174	126 min
	MD 162 163 172 174 170											176	3	171	178	
	TD 178 174 177 171 177															
	Tensile Strength at Break (lbs/ in.- width)											207	29	181	239	126 min
	MD 239 236 181 197 182											176	11	159	188	
	TD 159 188 180 181 173															
	Elongation at Yield (percent)											23	1	22	24	12
	MD 24 23 23 22 23											19	1	18	20	
	TD 20 18 19 20 20															
	Elongation at Break (percent) Gauge Length = 2.0 in.											431	29	394	474	100
	MD 429 432 394 424 474											457	52	406	532	
	TD 411 532 462 476 406															
ASTM D1004	Tear Resistance (lbs) Die C <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>											55	1	53	57	42
	MD 57 56 56 53 55 57 54 54 55 54											49	2	46	53	
	TD 46 50 47 49 53 49 47 47 52 49															
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>											141	1	139	143	90
	140 142 140 140 140 142 143 142 142 140															
	142 140 139 142 140															
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)											1	N/A			1 or 2
	1 1 1 1 1 1 1 1 1 1															
ASTM D4218	Carbon Content Muffle											2.52	0.08	2.46	2.58	2to3
	2.46 2.58															



APPENDIX L

GEOSYNTHETICS INVENTORY LISTING

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Manufacturer: AGRU America
Transportation: Truck
Date of Arrival: 10/6/08
Material Type: 60T
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
1	238352	7181033	410	23.0	9,430	64	EP	YES	PASSED
2	238462	7181033	410	23.0	9,430	64	EP	YES	PASSED
3	238466	7181033	410	23.0	9,430	60	EP		
4	238467	7181033	410	23.0	9,430	60	EP		
5	238468	7181033	410	23.0	9,430	60	EP		
6	238469	7181033	410	23.0	9,430	60	EP		
7	238470	7181033	410	23.0	9,430	60	EP		
8	238473	7181033	410	23.0	9,430	64	EP	YES	PASSED
9	238477	7181033	410	23.0	9,430	60	EP		
10	238478	7181033	410	23.0	9,430	60	EP		
11	238579	7181033	410	23.0	9,430	60	EP		
12	238580	7181033	410	23.0	9,430	60	EP		
13	238581	7181033	410	23.0	9,430	60	EP		
14	238582	7181033	410	23.0	9,430	60	EP		
15	238584	7181033	410	23.0	9,430	60	EP		
16	238585	7181033	410	23.0	9,430	60	EP		
17	238586	7181033	410	23.0	9,430	60	EP		
18	238587	7181033	410	23.0	9,430	60	EP		
19	238588	7181033	410	23.0	9,430	60	EP		
20	238589	7181033	410	23.0	9,430	60	EP		
21	238590	7181033	410	23.0	9,430	60	EP		
22	238591	7181033	410	23.0	9,430	60	EP		
23	238592	7181033	410	23.0	9,430	60	EP		
24	238593	7181033	410	23.0	9,430	60	EP		
25	238595	7181033	410	23.0	9,430	60	EP		

TOTAL THIS PAGE: 235,750 ft²
TOTAL ACCUMULATED: 235,750 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Terracon

**25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210**

Manufacturer:	AGRU America
Transportation:	Truck
Date of Arrival:	10/6/08
Material Type:	60T
Condition of Material:	Good

TOTAL THIS PAGE: 28,290 ft²
TOTAL ACCUMULATED: 264,040 ft²

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
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6oz Geo - 6 ounce Geotextile
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Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Manufacturer: AGRU America
Transportation: Truck
Date of Arrival: 10/7/08
Material Type: 60T
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
29	238353	7181033	410	23.0	9,430	60	EP		
30	238354	7181033	410	23.0	9,430	60	EP		
31	238355	7181033	410	23.0	9,430	60	EP		
32	238456	7181033	410	23.0	9,430	60	EP		
33	238457	7181033	410	23.0	9,430	60	EP		
34	238458	7181033	410	23.0	9,430	60	EP		
35	238459	7181033	410	23.0	9,430	60	EP		
36	238460	7181033	410	23.0	9,430	60	EP		
37	238461	7181033	410	23.0	9,430	60	EP		
38	238463	7181033	410	23.0	9,430	60	EP		
39	238464	7181033	410	23.0	9,430	60	EP		
40	238465	7181033	410	23.0	9,430	60	EP		
41	238471	7181033	410	23.0	9,430	60	EP		
42	238472	7181033	410	23.0	9,430	60	EP		
43	238474	7181033	410	23.0	9,430	60	EP		
44	238475	7181033	410	23.0	9,430	60	EP		
45	238476	7181033	410	23.0	9,430	60	EP		
46	238583	7181033	410	23.0	9,430	62	EP	YES	PASSED
47	238594	7181033	410	23.0	9,430	60	EP	YES	PASSED
48	238598	7181033	410	23.0	9,430	60	EP		
49	238599	7181033	410	23.0	9,430	60	EP		
50	238500	7181033	410	23.0	9,430	60	EP		
51	238501	7181033	410	23.0	9,430	60	EP		
52	238502	7181033	410	23.0	9,430	60	EP		
53	238503	7181033	410	23.0	9,430	60	EP		

TOTAL THIS PAGE: 235,750 ft²
TOTAL ACCUMULATED: 499,790 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Terracon

**25809 Interstate 30 South
Bryant, AR 72022
Phone 501.847.9292
Fax 501.847.9210**

Manufacturer:	AGRU America
Transportation:	Truck
Date of Arrival:	10/7/08
Material Type:	60T
Condition of Material:	Good

TOTAL THIS PAGE: 18,860 ft²
TOTAL ACCUMULATED: 518,650 ft²

40S = 40 Mil Smooth HDPE Geomembrane
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6oz Geo - 6 ounce Geotextile
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Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: CETCO

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 10/23/08

Address: Bauxite, Arkansas

Material Type: GCL

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
1	00000821	200843CV	150	15.0	2,250		EP		200R
2	00000823	200843CV	150	15.0	2,250		EP		200R
3	00000830	200843CV	150	15.0	2,250		EP		200R
4	00000831	200843CV	150	15.0	2,250		EP		200R
5	00000832	200843CV	150	15.0	2,250		EP		200R
6	00000833	200843CV	150	15.0	2,250		EP		200R
7	00000836	200843CV	150	15.0	2,250		EP		200R
8	00000837	200843CV	150	15.0	2,250		EP		200R
9	00000838	200843CV	150	15.0	2,250		EP		200R
10	00000763	200843CV	150	15.0	2,250		EP	YES	200R
11	00000766	200843CV	150	15.0	2,250		EP		200R
12	00000767	200843CV	150	15.0	2,250		EP		200R
13	00000768	200843CV	150	15.0	2,250		EP		200R
14	00000774	200843CV	150	15.0	2,250		EP		200R
15	00000775	200843CV	150	15.0	2,250		EP		200R
16	00000776	200843CV	150	15.0	2,250		EP		200R
17	00000777	200843CV	150	15.0	2,250		EP		200R
18	00000779	200843CV	150	15.0	2,250		EP		200R
19	00000782	200843CV	150	15.0	2,250		EP		200R
20	00000784	200843CV	150	15.0	2,250		EP		200R
21	00000786	200843CV	150	15.0	2,250		EP		200R
22	00000788	200843CV	150	15.0	2,250		EP		200R
23	00000793	200843CV	150	15.0	2,250		EP		200R
24	00000797	200843CV	150	15.0	2,250		EP		200R
25	00000812	200843CV	150	15.0	2,250		EP		200R

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 56,250 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South
Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Manufacturer: CETCO
Transportation: Truck
Date of Arrival: 10/25/08
Material Type: GCL
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
26	00000811	200843CV	150	15.0	2,250		EP		200R
27	00000813	200843CV	150	15.0	2,250		EP		200R
28	00000815	200843CV	150	15.0	2,250		EP		200R
29	00000816	200843CV	150	15.0	2,250		EP		200R
30	00000822	200843CV	150	15.0	2,250		EP		200R
31	00000828	200843CV	150	15.0	2,250		EP		200R
32	00000829	200843CV	150	15.0	2,250		EP		200R
33	00000835	200843CV	150	15.0	2,250		EP		200R
34	00000724	200843CV	150	15.0	2,250		EP		200R
35	00000725	200843CV	150	15.0	2,250		EP		200R
36	00000730	200843CV	150	15.0	2,250		EP		200R
37	00000731	200843CV	150	15.0	2,250		EP		200R
38	00000732	200843CV	150	15.0	2,250		EP		200R
39	00000733	200843CV	150	15.0	2,250		EP		200R
40	00000735	200843CV	150	15.0	2,250		EP		200R
41	00000737	200843CV	150	15.0	2,250		EP		200R
42	00000738	200843CV	150	15.0	2,250		EP		200R
43	00000742	200843CV	150	15.0	2,250		EP		200R
44	00000744	200843CV	150	15.0	2,250		EP		200R
45	00000750	200843CV	150	15.0	2,250		EP		200R
46	00000751	200843CV	150	15.0	2,250		EP		200R
47	00000754	200843CV	150	15.0	2,250		EP		200R
48	00000756	200843CV	150	15.0	2,250		EP		200R
49	00000773	200843CV	150	15.0	2,250		EP		200R
50	00000787	200843CV	150	15.0	2,250		EP		200R

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 112,500 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: CETCO

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 10/25/08

Address: Bauxite, Arkansas

Material Type: GCL

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
51	00000826	200843CV	150	15.0	2,250		EP		200R
52	00000778	200843CV	150	15.0	2,250		EP		200R
53	00000780	200843CV	150	15.0	2,250		EP		200R
54	00000781	200843CV	150	15.0	2,250		EP		200R
55	00000783	200843CV	150	15.0	2,250		EP		200R
56	00000785	200843CV	150	15.0	2,250		EP		200R
57	00000789	200843CV	150	15.0	2,250		EP		200R
58	00000790	200843CV	150	15.0	2,250		EP		200R
59	00000792	200843CV	150	15.0	2,250		EP		200R
60	00000794	200843CV	150	15.0	2,250		EP		200R
61	00000810	200843CV	150	15.0	2,250		EP		200R
62	00000824	200843CV	150	15.0	2,250		EP		200R
63	00000825	200843CV	150	15.0	2,250		EP		200R
64	00000827	200843CV	150	15.0	2,250		EP		200R
65	00000834	200843CV	150	15.0	2,250		EP		200R
66	00000839	200843CV	150	15.0	2,250		EP		200R
67	00000840	200843CV	150	15.0	2,250		EP		200R
68	00000728	200843CV	150	15.0	2,250		EP		200R
69	00000757	200843CV	150	15.0	2,250		EP		200R
70	00000791	200843CV	150	15.0	2,250		EP		200R
71	00000798	200843CV	150	15.0	2,250		EP		200R
72	00000799	200843CV	150	15.0	2,250		EP		200R
73	00000800	200843CV	150	15.0	2,250		EP		200R
74	00000801	200843CV	150	15.0	2,250		EP		200R
75	00000804	200843CV	150	15.0	2,250		EP		200R

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 168,750 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: CETCO

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 10/26/08

Address: Bauxite, Arkansas

Material Type: GCL

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
76	00000719	200843CV	150	15.0	2,250		EP	YES	200R
77	00000739	200843CV	150	15.0	2,250		EP		200R
78	00000741	200843CV	150	15.0	2,250		EP		200R
79	00000743	200843CV	150	15.0	2,250		EP		200R
80	00000749	200843CV	150	15.0	2,250		EP		200R
81	00000752	200843CV	150	15.0	2,250		EP		200R
82	00000753	200843CV	150	15.0	2,250		EP		200R
83	00000755	200843CV	150	15.0	2,250		EP		200R
84	00000760	200843CV	150	15.0	2,250		EP		200R
85	00000761	200843CV	150	15.0	2,250		EP		200R
86	00000762	200843CV	150	15.0	2,250		EP		200R
87	00000764	200843CV	150	15.0	2,250		EP		200R
88	00000765	200843CV	150	15.0	2,250		EP		200R
89	00000769	200843CV	150	15.0	2,250		EP		200R
90	00000770	200843CV	150	15.0	2,250		EP		200R
91	00000771	200843CV	150	15.0	2,250		EP		200R
92	00000772	200843CV	150	15.0	2,250		EP		200R
93	00012806	200843CV	150	15.0	2,250		EP		ST
94	00012775	200843CV	150	15.0	2,250		EP		ST
95	00000720	200843CV	150	15.0	2,250		EP		200R
96	00000807	200843CV	150	15.0	2,250		EP	YES	200R
97	00012774	200843CV	150	15.0	2,250		EP		ST
98	00012801	200843CV	150	15.0	2,250		EP		ST
99	00012813	200843CV	150	15.0	2,250		EP		ST
100	00012815	200843CV	150	15.0	2,250		EP		ST

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 225,000 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South
Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Manufacturer: CETCO
Transportation: Truck
Date of Arrival: 10/29/08
Material Type: GCL
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
101	00000721	200843CV	150	15.0	2,250		EP		200R
102	00000722	200843CV	150	15.0	2,250		EP		200R
103	00000723	200843CV	150	15.0	2,250		EP		200R
104	00000734	200843CV	150	15.0	2,250		EP		200R
105	00000736	200843CV	150	15.0	2,250		EP		200R
106	00000740	200843CV	150	15.0	2,250		EP		200R
107	00000745	200843CV	150	15.0	2,250		EP		200R
108	00000746	200843CV	150	15.0	2,250		EP		200R
109	00000747	200843CV	150	15.0	2,250		EP		200R
110	00000748	200843CV	150	15.0	2,250		EP		200R
111	00012765	200843CV	150	15.0	2,250		EP		ST
112	00012769	200843CV	150	15.0	2,250		EP		ST
113	00012770	200843CV	150	15.0	2,250		EP		ST
114	00012771	200843CV	150	15.0	2,250		EP		ST
115	00012772	200843CV	150	15.0	2,250		EP		ST
116	00012781	200843CV	150	15.0	2,250		EP		ST
117	00012791	200843CV	150	15.0	2,250		EP		ST
118	00012764	200843CV	150	15.0	2,250		EP	YES	ST
119	00012777	200843CV	150	15.0	2,250		EP		ST
120	00012778	200843CV	150	15.0	2,250		EP		ST
121	00012779	200843CV	150	15.0	2,250		EP		ST
122	00012782	200843CV	150	15.0	2,250		EP		ST
123	00012784	200843CV	150	15.0	2,250		EP		ST
124	00012785	200843CV	150	15.0	2,250		EP		ST
125	00012789	200843CV	150	15.0	2,250		EP		ST

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 281,250 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South
Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Manufacturer: CETCO
Transportation: Truck
Date of Arrival: 10/29/08
Material Type: GCL
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
126	00012793	200843CV	150	15.0	2,250		EP		ST
127	00012794	200843CV	150	15.0	2,250		EP		ST
128	00012798	200843CV	150	15.0	2,250		EP		ST
129	00012842	200843CV	150	15.0	2,250		EP		ST
130	00012847	200843CV	150	15.0	2,250		EP		ST
131	00012851	200843CV	150	15.0	2,250		EP		ST
132	00012860	200843CV	150	15.0	2,250		EP		ST
133	00012868	200843CV	150	15.0	2,250		EP		ST
134	00012875	200843CV	150	15.0	2,250		EP		ST
135	00012786	200843CV	150	15.0	2,250		EP		ST
136	00012787	200843CV	150	15.0	2,250		EP		ST
137	00012827	200843CV	150	15.0	2,250		EP		ST
138	00012830	200843CV	150	15.0	2,250		EP		ST
139	00012844	200843CV	150	15.0	2,250		EP		ST
140	00012855	200843CV	150	15.0	2,250		EP	YES	ST
141	00012858	200843CV	150	15.0	2,250		EP		ST
142	00012872	200843CV	150	15.0	2,250		EP		ST
143	00012876	200843CV	150	15.0	2,250		EP		ST
144	00012877	200843CV	150	15.0	2,250		EP		ST
145	00012878	200843CV	150	15.0	2,250		EP		ST
146	00012879	200843CV	150	15.0	2,250		EP		ST
147	00012880	200843CV	150	15.0	2,250		EP		ST
148	00012881	200843CV	150	15.0	2,250		EP		ST
149	00012882	200843CV	150	15.0	2,250		EP		ST
150	00012883	200843CV	150	15.0	2,250		EP		ST

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 337,500 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: CETCO

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 10/29/08

Address: Bauxite, Arkansas

Material Type: GCL

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
151	00012768	200843CV	150	15.0	2,250		EP		ST
152	00012780	200843CV	150	15.0	2,250		EP		ST
153	00012792	200843CV	150	15.0	2,250		EP		ST
154	00012826	200843CV	150	15.0	2,250		EP		ST
155	00012835	200843CV	150	15.0	2,250		EP		ST
156	00012843	200843CV	150	15.0	2,250		EP		ST
157	00012845	200843CV	150	15.0	2,250		EP		ST
158	00012846	200843CV	150	15.0	2,250		EP		ST
159	00012852	200843CV	150	15.0	2,250		EP		ST
160	00012853	200843CV	150	15.0	2,250		EP		ST
161	00012854	200843CV	150	15.0	2,250		EP		ST
162	00012862	200843CV	150	15.0	2,250		EP		ST
163	00012863	200843CV	150	15.0	2,250		EP		ST
164	00012864	200843CV	150	15.0	2,250		EP		ST
165	00012869	200843CV	150	15.0	2,250		EP		ST
166	00012870	200843CV	150	15.0	2,250		EP		ST
167	00012871	200843CV	150	15.0	2,250		EP		ST
168	00012773	200843CV	150	15.0	2,250		EP		ST
169	00012783	200843CV	150	15.0	2,250		EP		ST
170	00012790	200843CV	150	15.0	2,250		EP		ST
171	00012795	200843CV	150	15.0	2,250		EP		ST
172	00012797	200843CV	150	15.0	2,250		EP		ST
173	00012812	200843CV	150	15.0	2,250		EP		ST
174	00012837	200843CV	150	15.0	2,250		EP		ST
175	00012838	200843CV	150	15.0	2,250		EP		ST

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 393,750 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
 40T = 40 Mil Textured HDPE Geomembrane
 60S = 60 Mil Smooth HDPE Geomembrane
 60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
 SSG - Single Sided Geocomposite
 6oz Geo - 6 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: CETCO

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 10/29/08

Address: Bauxite, Arkansas

Material Type: GCL

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
176	00012840	200843CV	150	15.0	2,250		EP		ST
177	00012850	200843CV	150	15.0	2,250		EP		ST
178	00012859	200843CV	150	15.0	2,250		EP		ST
179	00012861	200843CV	150	15.0	2,250		EP		ST
180	00012866	200843CV	150	15.0	2,250		EP		ST
181	00012867	200843CV	150	15.0	2,250		EP		ST
182	00012873	200843CV	150	15.0	2,250		EP		ST
183	00012874	200843CV	150	15.0	2,250		EP		ST
184	00012776	200843CV	150	15.0	2,250		EP		ST
185	00012788	200843CV	150	15.0	2,250		EP		ST
186	00012796	200843CV	150	15.0	2,250		EP		ST
187	00012799	200843CV	150	15.0	2,250		EP		ST
188	00012800	200843CV	150	15.0	2,250		EP		ST
189	00012802	200843CV	150	15.0	2,250		EP		ST
190	00012803	200843CV	150	15.0	2,250		EP		ST
191	00012804	200843CV	150	15.0	2,250		EP		ST
192	00012807	200843CV	150	15.0	2,250		EP		ST
193	00012808	200843CV	150	15.0	2,250		EP		ST
194	00012809	200843CV	150	15.0	2,250		EP		ST
195	00012811	200843CV	150	15.0	2,250		EP		ST
196	00012814	200843CV	150	15.0	2,250		EP		ST
197	00012816	200843CV	150	15.0	2,250		EP		ST
198	00012817	200843CV	150	15.0	2,250		EP		ST
199	00012818	200843CV	150	15.0	2,250		EP		ST
200	00012820	200843CV	150	15.0	2,250		EP		ST

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 450,000 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: CETCO

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 10/29/08

Address: Bauxite, Arkansas

Material Type: GCL

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
201	00012810	200843CV	150	15.0	2,250		EP	YES	ST
202	00012819	200843CV	150	15.0	2,250		EP		ST
203	00012821	200843CV	150	15.0	2,250		EP		ST
204	00012822	200843CV	150	15.0	2,250		EP		ST
205	00012828	200843CV	150	15.0	2,250		EP		ST
206	00012829	200843CV	150	15.0	2,250		EP		ST
207	00012831	200843CV	150	15.0	2,250		EP		ST
208	00012832	200843CV	150	15.0	2,250		EP		ST
209	00012833	200843CV	150	15.0	2,250		EP		ST
210	00012834	200843CV	150	15.0	2,250		EP		ST
211	00012841	200843CV	150	15.0	2,250		EP		ST
212	00012848	200843CV	150	15.0	2,250		EP		ST
213	00012849	200843CV	150	15.0	2,250		EP		ST
214	00012856	200843CV	150	15.0	2,250		EP		ST
215	00012857	200843CV	150	15.0	2,250		EP		ST
216	00012865	200843CV	150	15.0	2,250		EP		ST
217	00012885	200843CV	150	15.0	2,250		EP		ST
218	00000795	200843CV	150	15.0	2,250		EP		200R
219	00000802	200843CV	150	15.0	2,250		EP		200R
220	00000803	200843CV	150	15.0	2,250		EP		200R
221	00000809	200843CV	150	15.0	2,250		EP		200R
222	00000814	200843CV	150	15.0	2,250		EP		200R
223	00000817	200843CV	150	15.0	2,250		EP		200R
224	00000818	200843CV	150	15.0	2,250		EP		200R
225	00000820	200843CV	150	15.0	2,250		EP		200R

TOTAL THIS PAGE: 56,250 ft²
TOTAL ACCUMULATED: 506,250 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: SKAPS

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 11/17/08

Address: Bauxite, Arkansas

Material Type: DSG

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
1	302710001	UTCX59478	240	14.5	3,480		EP	YES	
2	302710002	UTCX59478	240	14.5	3,480		EP		
3	302710003	UTCX59478	240	14.5	3,480		EP		
4	302710004	UTCX59478	240	14.5	3,480		EP		
5	302710005	UTCX59478	240	14.5	3,480		EP		
6	302710006	UTCX59478	240	14.5	3,480		EP		
7	302710007	UTCX59478	240	14.5	3,480		EP		
8	302710008	UTCX59478	240	14.5	3,480		EP		
9	302710009	UTCX59478	240	14.5	3,480		EP		
10	302710010	UTCX59478	240	14.5	3,480		EP		
11	302710011	UTCX59478	230	14.5	3,335		EP		
12	302710012	UTCX59478	230	14.5	3,335		EP		
13	302710013	UTCX59478	230	14.5	3,335		EP		
14	302710014	UTCX59478	230	14.5	3,335		EP		
15	302710015	UTCX59478	230	14.5	3,335		EP		
16	302710016	UTCX59478	230	14.5	3,335		EP		
17	302710017	UTCX59478	230	14.5	3,335		EP		
18	302710018	UTCX59478	230	14.5	3,335		EP		
19	302710019	UTCX59478	230	14.5	3,335		EP		
20	302710020	UTCX59478	230	14.5	3,335		EP		
21	302710021	UTCX59478	230	14.5	3,335		EP		
22	302710022	UTCX59478	230	14.5	3,335		EP		
23	302710023	UTCX59478	230	14.5	3,335		EP		
24	302710024	UTCX59478	230	14.5	3,335		EP		
25	302710025	UTCX59478	230	14.5	3,335		EP		

TOTAL THIS PAGE: 84,825 ft²
TOTAL ACCUMULATED: 84,825 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: SKAPS

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 11/17/08

Address: Bauxite, Arkansas

Material Type: DSG

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
26	302710026	UTCX59478	230	14.5	3,335		EP		
27	302710027	UTCX59478	230	14.5	3,335		EP		
28	302710028	UTCX59478	230	14.5	3,335		EP		
29	302710029	UTCX59478	230	14.5	3,335		EP		
30	302710030	UTCX59478	230	14.5	3,335		EP	YES	
31	302710031	UTCX59478	230	14.5	3,335		EP		
32	302710032	UTCX59478	230	14.5	3,335		EP		
33	302710033	UTCX59478	230	14.5	3,335		EP		
34	302710034	UTCX59478	230	14.5	3,335		EP		
35	302710035	UTCX59478	230	14.5	3,335		EP		
36	302710036	UTCX59478	230	14.5	3,335		EP		
37	302710037	UTCX59478	230	14.5	3,335		EP		
38	302710038	UTCX59478	230	14.5	3,335		EP		
39	302710039	UTCX59478	230	14.5	3,335		EP		
40	302710040	UTCX59478	230	14.5	3,335		EP		
41	302710041	UTCX59478	230	14.5	3,335		EP		
42	302710042	UTCX59478	230	14.5	3,335		EP		
43	302710043	UTCX59478	230	14.5	3,335		EP		
44	302710044	UTCX59478	230	14.5	3,335		EP		
45	302710045	UTCX59478	230	14.5	3,335		EP		
46	302710046	UTCX59478	230	14.5	3,335		EP		
47	302710047	UTCX59478	230	14.5	3,335		EP		
48	302710048	UTCX59478	230	14.5	3,335		EP		
49	302710049	UTCX59478	230	14.5	3,335		EP		
50	302710050	UTCX59478	230	14.5	3,335		EP		

TOTAL THIS PAGE: 83,375 ft²
TOTAL ACCUMULATED: 168,200 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South
Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Cell 4 CQA
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Manufacturer: SKAPS
Transportation: Truck
Date of Arrival: 11/17/08
Material Type: DSG
Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
51	302710051	UTCX59478	230	14.5	3,335		EP		
52	302710052	UTCX59478	230	14.5	3,335		EP		
53	302710053	UTCX59478	230	14.5	3,335		EP		
54	302710054	UTCX59478	230	14.5	3,335		EP		
55	302710055	UTCX59478	230	14.5	3,335		EP		
56	302710056	UTCX59478	230	14.5	3,335		EP		
57	302710057	UTCX59478	230	14.5	3,335		EP		
58	302710058	UTCX59478	230	14.5	3,335		EP		
59	302710059	UTCX59478	230	14.5	3,335		EP	YES	
60	302710060	UTCX59478	230	14.5	3,335		EP		
61	302710061	UTCX59478	230	14.5	3,335		EP		
62	302710062	UTCX59478	230	14.5	3,335		EP		
63	302710063	UTCX59478	230	14.5	3,335		EP		
64	302710064	UTCX59478	230	14.5	3,335		EP		
65	302710065	UTCX59478	230	14.5	3,335		EP		
66	302710066	UTCX59478	230	14.5	3,335		EP		
67	302710067	UTCX59478	230	14.5	3,335		EP		
68	302710068	UTCX59478	230	14.5	3,335		EP		
69	302710069	UTCX59478	230	14.5	3,335		EP		
70	302710070	UTCX59478	230	14.5	3,335		EP		
71	302710071	UTCX59478	230	14.5	3,335		EP		
72	302710072	UTCX59478	230	14.5	3,335		EP		
73	302710073	UTCX59478	230	14.5	3,335		EP		
74	302710074	UTCX59478	230	14.5	3,335		EP		
75	302710075	UTCX59478	230	14.5	3,335		EP		

TOTAL THIS PAGE: 83,375 ft²
TOTAL ACCUMULATED: 251,575 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: SKAPS

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 11/17/08

Address: Bauxite, Arkansas

Material Type: DSG

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
76	302710076	UTCX59478	230	14.5	3,335		EP		
77	302710077	UTCX59478	230	14.5	3,335		EP		
78	302710078	UTCX59478	230	14.5	3,335		EP		
79	302710079	UTCX59478	230	14.5	3,335		EP		
80	302710080	UTCX59478	230	14.5	3,335		EP		
81	302710081	UTCX59478	230	14.5	3,335		EP		
82	302710082	UTCX59478	230	14.5	3,335		EP		
83	302710083	UTCX59478	230	14.5	3,335		EP		
84	302710084	UTCX59478	230	14.5	3,335		EP		
85	302710085	UTCX59478	230	14.5	3,335		EP		
86	302710086	UTCX59478	230	14.5	3,335		EP		
87	302710087	UTCX59478	230	14.5	3,335		EP		
88	302710088	UTCX59478	230	14.5	3,335		EP	YES	
89	302710089	UTCX59478	230	14.5	3,335		EP		
90	302710090	UTCX59478	230	14.5	3,335		EP		
91	302710091	UTCX59478	230	14.5	3,335		EP		
92	302710092	UTCX59478	230	14.5	3,335		EP		
93	302710093	UTCX59478	230	14.5	3,335		EP		
94	302710094	UTCX59478	230	14.5	3,335		EP		
95	302710095	UTCX59478	230	14.5	3,335		EP		
96	302710096	UTCX59478	230	14.5	3,335		EP		
97	302710097	UTCX59478	230	14.5	3,335		EP		
98	302710098	UTCX59478	230	14.5	3,335		EP		
99	302710099	UTCX59478	230	14.5	3,335		EP		
100	302710100	UTCX59478	230	14.5	3,335		EP		

TOTAL THIS PAGE: 83,375 ft²
TOTAL ACCUMULATED: 334,950 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: SKAPS

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 11/17/08

Address: Bauxite, Arkansas

Material Type: DSG

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
101	302710101	UTCX59478	230	14.5	3,335		EP		
102	302710102	UTCX59478	230	14.5	3,335		EP		
103	302710103	UTCX59478	230	14.5	3,335		EP		
104	302710104	UTCX59478	230	14.5	3,335		EP		
105	302710105	UTCX59478	230	14.5	3,335		EP		
106	302710106	UTCX59478	230	14.5	3,335		EP		
107	302710107	UTCX59478	230	14.5	3,335		EP		
108	302710108	UTCX59478	230	14.5	3,335		EP		
109	302710109	UTCX59478	230	14.5	3,335		EP		
110	302710110	UTCX59478	230	14.5	3,335		EP		
111	302710111	UTCX59478	230	14.5	3,335		EP		
112	302710112	UTCX59478	230	14.5	3,335		EP		
113	302710113	UTCX59478	230	14.5	3,335		EP		
114	302710114	UTCX59478	230	14.5	3,335		EP		
115	302710115	UTCX59478	230	14.5	3,335		EP		
116	302710116	UTCX59478	230	14.5	3,335		EP		
117	302710117	UTCX59478	230	14.5	3,335		EP	YES	
118	302710118	UTCX59478	230	14.5	3,335		EP		
119	302710119	UTCX59478	230	14.5	3,335		EP		
120	302710120	UTCX59478	230	14.5	3,335		EP		
121	302710121	UTCX59478	230	14.5	3,335		EP		
122	302710122	UTCX59478	230	14.5	3,335		EP		
123	302710123	UTCX59478	230	14.5	3,335		EP		
124	302710124	UTCX59478	230	14.5	3,335		EP		
125	302710125	UTCX59478	230	14.5	3,335		EP		

TOTAL THIS PAGE: 83,375 ft²
TOTAL ACCUMULATED: 418,325 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Geosynthetics Inventory



Terracon Project No: 35087125

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Manufacturer: SKAPS

Contractor: Pickett Industries

Transportation: Truck

Project Name: Cell 4 CQA

Date of Arrival: 11/17/08

Address: Bauxite, Arkansas

Material Type: DSG

Location: Saline County Class 1 Landfill

Condition of Material: Good

ROLL COUNT	ROLL NUMBER	RESIN OR LOT NO.	MATERIAL DIMENSIONS				QC/QA CERT.	CONF. SAMPLE	REMARKS
			LENGTH (FEET)	WIDTH (FEET)	SQUARE FEET	THICK (MILLS)			
126	302710126	UTCX59478	230	14.5	3,335		EP		
127	302710127	UTCX59478	230	14.5	3,335		EP		
128	302710128	UTCX59478	230	14.5	3,335		EP		
129	302710129	UTCX59478	230	14.5	3,335		EP		
130	302710130	UTCX59478	230	14.5	3,335		EP		
131	302710131	UTCX59478	230	14.5	3,335		EP		
132	302710132	UTCX59478	230	14.5	3,335		EP		
133	302710133	UTCX59478	230	14.5	3,335		EP		
134	302710134	UTCX59478	230	14.5	3,335		EP		
135	302710135	UTCX59478	230	14.5	3,335		EP		
136	302710136	UTCX59478	230	14.5	3,335		EP		
137	302710137	UTCX59478	230	14.5	3,335		EP		
138	302710138	UTCX59478	230	14.5	3,335		EP		
139	302710139	UTCX59478	230	14.5	3,335		EP		
140	302710140	UTCX59478	230	14.5	3,335		EP		
141	302710141	UTCX59478	230	14.5	3,335		EP		
142	302710142	UTCX59478	230	14.5	3,335		EP		
143	302710143	UTCX59478	230	14.5	3,335		EP		
144	302710144	UTCX59478	230	14.5	3,335		EP		
145	302710145	UTCX59478	230	14.5	3,335		EP		
146	302710146	UTCX59478	230	14.5	3,335		EP	YES	
147	302710147	UTCX59478	230	14.5	3,335		EP		
148	302710148	UTCX59478	230	14.5	3,335		EP		
149	302710149	UTCX59478	100	14.5	1,450		EP		
150	302710150	UTCX59478	230	14.5	3,335		EP		

TOTAL THIS PAGE: 81,490 ft²
TOTAL ACCUMULATED: 499,815 ft²

Material Type Legend:

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

Terracon

25809 Interstate 30 South
Bryant, AR 72022

Fax: 501.847.9210

Manufacturer:	SKAPS
Transportation:	Truck
Date of Arrival:	11/17/08
Material Type:	DSG
Condition of Material:	Good

TOTAL THIS PAGE: 6,670 ft²
TOTAL ACCUMULATED: 506,485 ft²

40S = 40 Mil Smooth HDPE Geomembrane
40T = 40 Mil Textured HDPE Geomembrane
60S = 60 Mil Smooth HDPE Geomembrane
60T = 60 Mil Textured HDPE Geomembrane

DSG - Double Sided Geocomposite
SSG - Single Sided Geocomposite
6oz Geo - 6 ounce Geotextile
12oz Geo - 12 ounce Geotextile

APPENDIX M
GEOMEMBRANE EQUIPMENT CALIBRATION
CERTIFICATE

T016-05

Demtech Services, Inc.
Placerville, California, USA

CALIBRATION CERTIFICATE

Customer Name: Environmental Specialties Int'l., Inc.

Tensiometer Model: Pro-Tester T-0100

Device Calibrated: S-Type load cell
Range: 0 - 750 lbs. Tension
Model No: M2405-750#
Serial No: **206365**

Calibration Apparatus:
Reference load cell (S/N 204781)

A/D Module Model No: T-029
A/D Module Serial No: **4205206365**
Channel No: N/A

Dead Weight:		Reference Cell:	
W1	2	R1	2
W2	152	R2	152
W3	302	R3	302

Indicator reading with no load: **0**

Offset: **9.394565** Scale: **4.980441**

Applied Force lbs.

2
52
102
152
202
252
302

Cell Response:

2
52
102
152
202
252
302

Deviation Error:

0.00
0.00
0.00
0.00
0.00
0.00
0.00

Total Deviation Error (%): **0.00%**

Temperature at time of calibration: 73 degrees F
Excitation Voltage: **5** V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable.

Calibration Technician:

Dean Cato
Dean P. Cato

Date: 01/09/08

APPENDIX N

SUBGRADE ACCEPTANCE CERTIFICATES

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: SALINE-Co

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: BRYANT, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted:

Subgrade was Approved
for Liner Panel #1 - To - Panel #13

Date: 01-14-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC-Foreman

OWNERS REPRESENTATIVE:

Date: 1/20/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: COA TECH

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline-Co

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryant, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was approved
For Liner - panel # 14 - to - panel # 26

Date: 01-17-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC- Foreman

OWNERS REPRESENTATIVE:

Date: 1/20/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: COA TECH

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline Co

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryant, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was Approved for
Liner Panel # 27 - 70 - Panel # 44

Date: 01-18-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC-Foreman

OWNERS REPRESENTATIVE:

Date: 1/20/09

Signature: Stephen B. Riley

Name: STEPHEN B. RILEY

Title: CQA TECH.

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline Co. LF

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryant, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was approved for Liner
Panel # 45 - To - Panel # 64

Date: 1-19-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC Foreman

OWNERS REPRESENTATIVE:

Date: 1/20/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: COA TECH.

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline-Co-LF

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryant, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was approved for liner
Panel # 65 - to - panel # 83

Date: 1-20-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC- Foreman

OWNERS REPRESENTATIVE:

Date: 1/30/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: CQA TECH.

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline Co-LF

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryant, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was approved for liner
Panel # 84-10 - Panel # 92

Date: 1-21-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC Foreman

OWNERS REPRESENTATIVE:

Date: 1/20/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: COA TECH

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline Co - LF

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryant, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was approved for liner
Panel # 93 - to - Panel # 116

Date: 1-22-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC- Foreman

OWNERS REPRESENTATIVE:

Date: 1/20/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: CGA TECH

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline-Co-LF

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryant, AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was approved for liner
Panel # 117-70-Panel # 144

Date: 1-23-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC-foreman

OWNERS REPRESENTATIVE:

Date: 1/30/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: COA TECH

Company: TERRACON

ENVIRONMENTAL SPECIALTIES INTERNATIONAL, INC.

SUBGRADE ACCEPTANCE

PROJECT NAME: Saline Co-LF

PROJECT NUMBER: 08-08-1228

OWNER: _____

LOCATION: Bryants AR

I, undersigned, a duly appointed representative of Environmental Specialties International, Inc., have visually observed the soil subgrade surface described below, and found it to be an acceptable surface on which to install geomembrane.

The certification is based on observations of the subgrade only. No subterranean inspections or tests have been performed by Environmental Specialties International, Inc. and ESI makes no representations or warranties regarding conditions which may exist below the surface of the subgrade. Environmental Specialties International, Inc. accepts no responsibility for conformance of the subgrade to this project's specifications.

Area Being Accepted :

Subgrade was Approved for Liner
Panel #145 - to - Panel #161

Date: 1-24-09

Signature: Antonio Sanchez

Name: Antonio Sanchez

Title: QC- Foreman

OWNERS REPRESENTATIVE:

Date: 1/30/09

Signature: Stephen Billingsley

Name: STEPHEN BILLINGSLEY

Title: CQA TECH.

Company: TERRACON

APPENDIX O

GEOMEMBRANE DAILY DEPLOYMENT LOGS

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: C. Haynes/D. Walls
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/14/09	P1	8582	55	Clear/15 mph	60T	85	23	Y	CH
1/14/09	P2	8582	55	Clear/15 mph	60T	85	23	Y	CH
1/14/09	P3	8582	55	Clear/15 mph	60T	85	23	Y	CH
1/14/09	P4	8582	55	Clear/15 mph	60T	85	23	Y	CH
1/14/09	P5	8456	55	Clear/15 mph	60T	85	23	Y	CH
1/14/09	P6	8456	55	Clear/15 mph	60T	85	23	Y	CH
1/14/09	P7	8456	55	Clear/15 mph	60T	41	23	Y	CH
1/14/09	P8	8456	55	Clear/15 mph	60T	80	23	Y	CH
1/14/09	P9	8456	55	Clear/15 mph	60T	88	23	Y	CH
1/14/09	P10	8464	55	Clear/15 mph	60T	45	23	Y	CH
1/14/09	P11	8464	55	Clear/15 mph	60T	82	23	Y	CH
1/14/09	P12	8464	55	Clear/15 mph	60T	88	23	Y	CH
1/14/09	P13	8464	55	Clear/15 mph	60T	91	23	Y	CH
1/17/09	P14	8353	46	Cloudy/15 mph	60T	265	23	Y	DW
1/17/09	P15	8353	46	Cloudy/15 mph	60T	70	23	Y	DW
1/17/09	P16	8354	46	Cloudy/15 mph	60T	274	23	Y	DW
1/17/09	P17	8354	46	Cloudy/15 mph	60T	134	23	Y	DW
1/17/09	P18	8598	46	Cloudy/15 mph	60T	205	23	Y	DW
1/17/09	P19	8598	46	Cloudy/15 mph	60T	194	23	Y	DW
1/17/09	P20	8598	46	Cloudy/15 mph	60T	144	23	Y	DW

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Donnie Walls
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/17/09	P21	8598	46	Cloudy/15 mph	60T	23	23	Y	DW
1/17/09	P22	8602	46	Cloudy/15 mph	60T	128	23	Y	DW
1/17/09	P23	8602	46	Cloudy/15 mph	60T	118	23	Y	DW
1/17/09	P24	8594	46	Cloudy/15 mph	60T	342	23	Y	DW
1/17/09	P25	8594	46	Cloudy/15 mph	60T	64	23	Y	DW
1/17/09	P26	8472	46	Cloudy/15 mph	60T	278	23	Y	DW
1/18/09	P27	8472	45	Sunny/5 mph	60T	129	23	Y	DW
1/18/09	P28	8606	46	Sunny/5 mph	60T	212	23	Y	DW
1/18/09	P29	8606	47	Sunny/10 mph	60T	194	23	Y	DW
1/18/09	P30	8476	48	Sunny/10 mph	60T	149	23	Y	DW
1/18/09	P31	8476	49	Sunny/10 mph	60T	258	23	Y	DW
1/18/09	P32	8604	50	Sunny/10 mph	60T	80	23	Y	DW
1/18/09	P33	8604	51	Sunny/10 mph	60T	328	23	Y	DW
1/18/09	P34	8603	51	Sunny/10 mph	60T	11	23	Y	DW
1/18/09	P35	8603	52	Sunny/10 mph	60T	339	23	Y	DW
1/18/09	P36	8603	58	Sunny/10 mph	60T	59	23	Y	DW
1/18/09	P37	8463	59	Sunny/10 mph	60T	277	23	Y	DW
1/18/09	P38	8463	60	Sunny/10 mph	60T	127	23	Y	DW
1/18/09	P39	8475	60	Sunny/10 mph	60T	208	23	Y	DW
1/18/09	P40	8475	60	Sunny/10 mph	60T	197	23	Y	DW

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Donnie Walls/Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/18/09	P41	8471	60	Sunny/10 mph	60T	137	23	Y	DW
1/18/09	P42	8471	61	Sunny/10 mph	60T	264	23	Y	DW
1/18/09	P43	8584	61	Sunny/10 mph	60T	68	23	Y	DW
1/18/09	P44	8584	56	Sunny/10 mph	60T	348	23	Y	DW
1/19/09	P45	8477	50	Overcast/15mph	60T	67.8	23	Y	JWS
1/19/09	P46	8477	50	Overcast/15mph	60T	40.8	23	Y	JWS
1/19/09	P47	8477	50	Overcast/15mph	60T	20	23	Y	JWS
1/19/09	P48	8477	50	Overcast/15mph	60T	25	23	Y	JWS
1/19/09	P49	8477	50	Overcast/15mph	60T	47	23	Y	JWS
1/19/09	P50	8477	50	Overcast/15mph	60T	46	23	Y	JWS
1/19/09	P51	8477	50	Overcast/15mph	60T	61	23	Y	JWS
1/19/09	P52	8477	50	Overcast/15mph	60T	61	23	Y	JWS
1/19/09	P53	8477	50	Overcast/15mph	60T	61	23	Y	JWS
1/19/09	P54	8585	50	Overcast/15mph	60T	60	23	Y	JWS
1/19/09	P55	8585	50	Overcast/15mph	60T	60	23	Y	JWS
1/19/09	P56	8585	50	Overcast/15mph	60T	61	23	Y	JWS
1/19/09	P57	8585	50	Overcast/15mph	60T	62	23	Y	JWS
1/19/09	P58	8585	50	Overcast/15mph	60T	63	23	Y	JWS
1/19/09	P59	8542	50	Overcast/15mph	60T	62	23	Y	JWS
1/19/09	P60	8542	50	Overcast/15mph	60T	62	23	Y	JWS

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/19/09	P61	8542	50	Overcast/15mph	60T	57	23	Y	JWS
1/19/09	P62	8542	50	Overcast/15mph	60T	58	23	Y	JWS
1/19/09	P63	8542	50	Overcast/15mph	60T	59	23	Y	JWS
1/19/09	P64	8542	50	Overcast/15mph	60T	60	23	Y	JWS
1/20/09	P65	8591	39	Overcast/15mph	60T	61.5	23	Y	JWS
1/20/09	P66	8591	39	Overcast/15mph	60T	59	23	Y	JWS
1/20/09	P67	8591	39	Overcast/15mph	60T	62	23	Y	JWS
1/20/09	P68	8591	39	Overcast/15mph	60T	61.5	23	Y	JWS
1/20/09	P69	8591	39	Overcast/15mph	60T	63	23	Y	JWS
1/20/09	P70	8591	39	Overcast/15mph	60T	62	23	Y	JWS
1/20/09	P71	8586	39	Overcast/15mph	60T	63.5	23	Y	JWS
1/20/09	P72	8586	39	Overcast/15mph	60T	63.5	23	Y	JWS
1/20/09	P73	8586	39	Overcast/15mph	60T	63	23	Y	JWS
1/20/09	P74	8586	39	Overcast/15mph	60T	63	23	Y	JWS
1/20/09	P75	8586	39	Overcast/15mph	60T	66	23	Y	JWS
1/20/09	P76	8586	39	Overcast/15mph	60T	68.5	23	Y	JWS
1/20/09	P77	8478	41	Overcast/15mph	60T	64.5	23	Y	JWS
1/20/09	P78	8478	41	Overcast/15mph	60T	67.8	23	Y	JWS
1/20/09	P79	8478	41	Overcast/15mph	60T	65.8	23	Y	JWS
1/20/09	P80	8478	41	Overcast/15mph	60T	68.8	23	Y	JWS

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith / S. Billingsley
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/20/09	P81	8478	36	Overcast/15mph	60T	67	23	Y	JWS
1/20/09	P82	8478	36	Overcast/15mph	60T	75	23	Y	JWS
1/20/09	P83	8592	36	Overcast/15mph	60T	351	23	Y	JWS
1/20/09	P84	8473	36	Overcast/15mph	60T	80	23	Y	JWS
1/21/09	P85	8473	42	Clear	60T	80	23	Y	SB
1/21/09	P86	8473	42	Clear	60T	40	5	Y	SB
1/21/09	P87	8473	42	Clear	60T	40	5	Y	SB
1/22/09	P88	8579	50	Clear	60T	400	23	Y	SB
1/22/09	P89	8587	50	Clear	60T	400	23	Y	SB
1/22/09	P90	8592	50	Clear	60T	50	23	Y	SB
1/22/09	P91	8592	50	Clear	60T	50	23	Y	SB
1/22/09	P92	8473	50	Clear	60T	75	23	Y	SB
1/22/09	P93	8458	50	Clear	60T	147	23	Y	SB
1/22/09	P94	8458	50	Clear	60T	142	23	Y	SB
1/22/09	P95	8458	50	Clear	60T	120.5	23	Y	SB
1/22/09	P96	8468	50	Clear	60T	110	23	Y	SB
1/22/09	P97	8468	50	Clear	60T	106	23	Y	SB
1/22/09	P98	8468	50	Clear	60T	103	23	Y	SB
1/22/09	P99	8468	50	Clear	60T	90	23	Y	SB
1/22/09	P100	8597	50	Clear	60T	9.5	23	Y	SB

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Stephen Billingsley
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/23/09	P101	8597	50	Clear	60T	97	23	Y	SB
1/23/09	P102	8605	50	Clear	60T	38	8	Y	SB
1/23/09	P103	8605	50	Clear	60T	121.5	23	Y	SB
1/23/09	P104	8605	50	Clear	60T	110	23	Y	SB
1/22/09	P105	8605	73	Clear	60T	122	23	Y	SB
1/22/09	P106	8352	73	Clear	60T	127	23	Y	SB
1/22/09	P107	8352	73	Clear	60T	128	23	Y	SB
1/22/09	P108	8352	73	Clear	60T	140	23	Y	SB
1/22/09	P109	8466	73	Clear	60T	54	5	Y	SB
1/22/09	P110	8466	73	Clear	60T	151	23	Y	SB
1/22/09	P111	8466	73	Clear	60T	158	23	Y	SB
1/22/09	P112	8466	73	Clear	60T	95	23	Y	SB
1/22/09	P113	8590	73	Clear	60T	60	23	Y	SB
1/22/09	P114	8590	73	Clear	60T	183	23	Y	SB
1/22/09	P115	8590	73	Clear	60T	146	23	Y	SB
1/22/09	P116	8464	73	Clear	60T	40	23	Y	SB
1/23/09	P117	8443	48	Clear	60T	227	23	Y	SB
1/23/09	P118	8443	48	Clear	60T	178.5	23	Y	SB
1/23/09	P119	8460	48	Clear	60T	84	23	Y	SB
1/23/09	P120	8460	48	Clear	60T	254	23	Y	SB

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Stephen Billingsley
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/23/09	P121	8460	48	Clear	60T	66	23	Y	SB
1/23/09	P122	8461	48	Clear	60T	175	23	Y	SB
1/23/09	P123	8461	48	Clear	60T	223	23	Y	SB
1/23/09	P124	8474	48	Clear	60T	213	23	Y	SB
1/23/09	P125	8474	48	Clear	60T	196	23	Y	SB
1/23/09	P126	8593	48	Clear	60T	177	23	Y	SB
1/23/09	P127	8583	48	Clear	60T	156	23	Y	SB
1/23/09	P128	8583	48	Clear	60T	75.5	23	Y	SB
1/23/09	P129	8465	48	Clear	60T	56.5	23	Y	SB
1/23/09	P130	8465	48	Clear	60T	112	23	Y	SB
1/23/09	P131	8465	62	Clear	60T	97	23	Y	SB
1/23/09	P132	8465	62	Clear	60T	75.5	23	Y	SB
1/23/09	P133	8465	62	Clear	60T	58	23	Y	SB
1/23/09	P134	8355	62	Clear	60T	37	23	Y	SB
1/23/09	P135	8355	62	Clear	60T	30	6	Y	SB
1/23/09	P136	8355	62	Clear	60T	43.5	23	Y	SB
1/23/09	P137	8355	62	Clear	60T	71	23	Y	SB
1/23/09	P138	8355	62	Clear	60T	93.5	23	Y	SB
1/23/09	P139	8355	62	Clear	60T	115.5	23	Y	SB
1/23/09	P140	8588	62	Clear	60T	136	23	Y	SB

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith / S. Billingsley
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/23/09	P141	8588	62	Clear	60T	153	23	Y	SB
1/23/09	P142	8588	62	Clear	60T	74	23	Y	SB
1/23/09	P143	8588	62	Clear	60T	122	23	Y	SB
1/23/09	P144	8462	62	Clear	60T	50	23	Y	SB
1/24/09	P145	8462	40	Clear	60T	187	23	Y	JWS
1/24/09	P146	8462	40	Clear	60T	172	23	Y	JWS
1/24/09	P147	8501	40	Clear	60T	40	23	Y	JWS
1/24/09	P148	8501	40	Clear	60T	235	23	Y	JWS
1/24/09	P149	8501	40	Clear	60T	130.5	23	Y	JWS
1/24/09	P150	8500	40	Clear	60T	135.5	23	Y	JWS
1/24/09	P151	8500	40	Clear	60T	274	23	Y	JWS
1/24/09	P152	8595	40	Clear	60T	190	23	Y	JWS
1/24/09	P153	8595	45	Clear	60T	80	23	Y	JWS
1/24/09	P154	8464	45	Clear	60T	18.5	23	Y	JWS
1/24/09	P155	8500	45	Clear	60T	10	23	Y	JWS
1/24/09	P156	8500	45	Clear	60T	89	23	Y	JWS
1/24/09	P157	8500	45	Clear	60T	37	23	Y	JWS
1/24/09	P158	8593	45	Clear	60T	48	23	Y	JWS
1/24/09	P159	8593	45	Clear	60T	85	23	Y	JWS
1/24/09	P160	8593	45	Clear	60T	83	23	Y	JWS

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Terracon

Project Number:	35087125
CQA Monitor:	Joe Smith
Reviewed By:	Brad Fureigh, E.I.
Approved By:	Ken Bown, P.E.
Liner Installer:	ESI

**25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292**

<u>Material Type Legend:</u>	
60S - 60-Mil Smooth HDPE Geomembrane	DSGC - Double Sided Geocomposite
60T - 60-Mil Textured HDPE Geomembrane	SSGC - Single Sided Geocomposite
40S - 40-Mil Smooth HDPE Geomembrane	8oz Geo - 8 ounce Geotextile
40T - 40-Mil Textured HDPE Geomembrane	12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: C. Haynes/Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/14/09	N/A	12771	55	Clear/15 mph	GCL	150	15	Y	CH
1/14/09	N/A	12845	55	Clear/15 mph	GCL	150	15	Y	CH
1/14/09	N/A	12854	55	Clear/15 mph	GCL	150	15	Y	CH
1/14/09	N/A	12826	55	Clear/15 mph	GCL	150	15	Y	CH
1/14/09	N/A	12864	55	Clear/15 mph	GCL	150	15	Y	CH
1/14/09	N/A	12792	55	Clear/15 mph	GCL	150	15	Y	CH
1/14/09	N/A	12846	55	Clear/15 mph	GCL	150	15	Y	CH
1/14/09	N/A	12830	55	Clear/15 mph	GCL	150	15	Y	CH
1/17/09	N/A	751	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	764	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	724	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	765	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	753	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	744	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	770	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	737	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	769	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	756	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	730	36	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	738	37	Overcast/15 mph	GCL	150	15	Y	JWS

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/17/09	N/A	750	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	732	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	725	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	754	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	733	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	787	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	739	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	731	37	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	829	49	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	835	49	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	801	49	Overcast/15 mph	GCL	150	15	Y	JWS
1/17/09	N/A	804	49	Overcast/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	773	38	Sunny	GCL	150	15	Y	JWS
1/18/09	N/A	799	38	Sunny	GCL	150	15	Y	JWS
1/18/09	N/A	816	38	Sunny	GCL	150	15	Y	JWS
1/18/09	N/A	757	38	Sunny	GCL	150	15	Y	JWS
1/18/09	N/A	742	38	Sunny	GCL	150	15	Y	JWS
1/18/09	N/A	815	38	Sunny	GCL	150	15	Y	JWS
1/18/09	N/A	798	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	813	41	Sunny/15 mph	GCL	150	15	Y	JWS

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/18/09	N/A	811	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	838	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	800	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	822	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	828	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	746	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	721	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	747	41	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	740	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	748	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	734	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	791	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	722	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	745	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	723	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	728	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	707	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	826	50	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	777	57	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	782	57	Sunny/15 mph	GCL	150	15	Y	JWS

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith/S. Billingleys
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/18/09	N/A	788	57	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	827	57	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	784	57	Sunny/15 mph	GCL	150	15	Y	JWS
1/18/09	N/A	793	57	Sunny/15 mph	GCL	150	15	Y	JWS
1/19/09	N/A	12881	40	Cloudy	GCL ST	67.8	15	Y	SB
1/19/09	N/A	12881	40	Cloudy	GCL ST	40	15	Y	SB
1/19/09	N/A	12881	40	Cloudy	GCL ST	20	15	Y	SB
1/19/09	N/A	12883	40	Cloudy	GCL ST	47	15	Y	SB
1/19/09	N/A	12883	40	Cloudy	GCL ST	25	15	Y	SB
1/19/09	N/A	12883	40	Cloudy	GCL ST	46	15	Y	SB
1/19/09	N/A	12883	40	Cloudy	GCL ST	15	15	Y	SB
1/19/09	N/A	12781	50	Overcast/20mph	GCL	150	15	Y	JWS
1/19/09	N/A	12882	50	Overcast/20mph	GCL	150	15	Y	JWS
1/19/09	N/A	12777	50	Overcast/20mph	GCL	150	15	Y	JWS
1/19/09	N/A	12844	50	Overcast/20mph	GCL	150	15	Y	JWS
1/19/09	N/A	12863	50	Overcast/20mph	GCL	150	15	Y	JWS
1/19/09	N/A	12870	50	Overcast/20mph	GCL	150	15	Y	JWS
1/19/09	N/A	12868	50	Overcast/20mph	GCL	150	15	Y	JWS
1/19/09	N/A	12860	50	Overcast/20mph	GCL	150	15	Y	JWS
1/20/09	N/A	12860 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith/Donnie Walls
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/20/09	N/A	12784 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	12794 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	12778 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	781 R	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	780 R	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	12812 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	12851 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	12772 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/20/09	N/A	12875 ST	39	Overcast/15 mph	GCL	150	15	Y	JWS
1/21/09	N/A	763	32	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	839	34	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	786	42	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	794	46	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	785	47	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	840	48	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	789	49	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	778	50	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	12798	52	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	12779	53	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	825	54	Sunny/5 mph	GCL	150	15	Y	DW

Material Type Legend:

60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane

DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

Geosynthetics Daily Deployment Log



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Donnie Walls
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

25809 Interstate 30 South
Bryant, Arkansas 72022
(501) 847-9292

Date	Panel ID	Roll Number	Weather Conditions		Material Type	Approximate Panel Dimensions		Panel Visually Inspected (Y or N)	CQA Monitor
			Amb. Temp. (°F)	Weather/ Wind		Length (Feet)	Width (Feet)		
1/21/09	N/A	812	54	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	790	54	Sunny/5 mph	GCL	150	15	Y	DW
1/21/09	N/A	12840	54	Sunny/5 mph	GCL	150	15	Y	DW

Material Type Legend:
 60S - 60-Mil Smooth HDPE Geomembrane
 60T - 60-Mil Textured HDPE Geomembrane
 40S - 40-Mil Smooth HDPE Geomembrane
 40T - 40-Mil Textured HDPE Geomembrane
 DSGC - Double Sided Geocomposite
 SSGC - Single Sided Geocomposite
 8oz Geo - 8 ounce Geotextile
 12oz Geo - 12 ounce Geotextile

APPENDIX P
GEOMEMBRANE TRIAL WELD SUMMARY

Geomembrane Trial Weld Summary



25809 Interstate 30 South

Bryant, Arkansas 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Clayton H./Joe S.
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Specification for Trial Welds	
Peel Extrusion =	78
Peel Fusion =	121
Shear Extrusion =	98
Shear Fusion =	121

Date	Time	Ambient Temp °F	Sample ID	QC Initials	Machine Number	Seamer Initials	Weld Type	Fusion Weld		Extrusion Weld		Test Values lbs/inch								Pass or Fail
								Wedge Temp °F	Speed ft/hr	Temp °F	Preheat Setting									
1/14/09	3:00	55	1	CH	3	MV	F	860	550.0			P 144	130	144	129	130	121			Pass
												S 189		175		176				
1/14/09	3:00	55	2	CH	69	AD	F	860	550.0			P 130	147	112	141	139	110			Pass
												S 193		182		176				
1/17/09	10:35	38	3	JWS	69	AD	F	860	550.0			P 156	129	139	114	149	117			Pass
												S 219		213		219				
1/17/09	10:44	38	4	JWS	3	MV	F	860	550.0			P 134	130	116	130	110	134			Pass
												S 196		200		204				
1/17/09	10:40	38	5	JWS	69	AD	F	860	550.0			P 162	159	156	153	159	149			Pass
												S 207		193		208				
1/17/09	10:45	38	6	JWS	3	MV	F	860	550.0			P 170	155	158	149	142	143			Pass
												S 197		187		182				
1/17/09	2:10	38	7	JWS	69	AD	F	860	550.0			P 129	131	147	119	147	120			Pass
												S 203		192		199				
1/17/09	3:00	38	8	JWS	3	MV	F	860	550.0			P 143	116	127	121	129	108			Pass
												S 211		182		180				
1/17/09	3:10	38	9	JWS	69	AD	F	860	550.0			P 140	144	121	144	143	122			Pass
												S 200		177		192				
1/17/09	3:15	38	10	JWS	69	AD	F	860	500.0			P 110	139	140	131	143	124			Pass
												S 180		190		193				
1/18/09	9:05	45	11	JWS	0722	AD	F	860	550.0			P 150	145	137	129	133	128			Pass
												S 209		187		189				
1/18/09	9:10	45	12	JWS	0722	AD	F	860	500.0			P 147	139	140	128	149	121			Pass
												S 186		191		201				
1/18/09	9:10	45	13	JWS	3	MV	F	860	550.0			P 141	146	137	129	134	134			Pass
												S 196		185		184				
1/18/09	9:15	45	14	JWS	3	MV	F	860	500.0			P 152	150	157	146	144	145			Pass
												S 179		188		189				
1/18/09	1:15	57	15	JWS	3	MV	F	860	550.0			P 137	123	124	110	128	112			Pass
												S 183		177		181				

Geomembrane Trial Weld Summary



25809 Interstate 30 South

Bryant, Arkansas 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Saline County RSWMD
 Contractor: Pickett Industries
 Project Name: Saline County Cell 4
 Address: Bauxite, Arkansas
 Location: Saline County Class 1 Landfill

Project Number: 35087125
 CQA Monitor: Joe Smith/Stephen B.
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: ESI

Specification for Trial Welds	
Peel Extrusion =	78
Peel Fusion =	121
Shear Extrusion =	98
Shear Fusion =	121

Date	Time	Ambient Temp °F	Sample ID	QC Initials	Machine Number	Seamer Initials	Weld Type	Fusion Weld		Extrusion Weld		Test Values lbs/inch								Pass or Fail			
								Wedge Temp °F	Speed ft/hr	Temp °F	Preheat Setting												
1/18/09	1:18	57	16	JWS	3	MV	F	860	550.0			P	136	120	124	120	129	124					Pass
												S	158		179		180						
1/18/09	1:10	57	17	JWS	0722	AD	F	860	560.0			P	139	129	129	116	122	135					Pass
												S	173		175		173						
1/18/09	1:16	57	18	JWS	0722	AD	F	860	500.0			P	138	139	146	131	132	129					Pass
												S	157		192		195						
1/19/09	10:42	45	19	SB	47	JJ	E			500	450	P	119		145		130						Pass
												S	205		197		196						
1/19/09	10:40	45	20	SB	23	JN	E			500	500	P	164		160		163						Pass
												S	195		189		185						
1/19/09	10:22	45	21	SB	3	MV	F	860	550.0			P	128	147	118	132	131	106					Pass
												S	232		221		202						
1/19/09	10:20	45	22	SB	0722	AD	F	860	550.0			P	112	135	110	138	99	119					Pass
												S	218		209		201						
1/19/09	10:35	45	23	SB	3	MV	F	860	550.0			P	157	158	149	154	159	150					Pass
												S	187		173		180						
1/19/09	1:15	45	24	JWS	3	MV	F	860	550.0			P	134	138	128	136	131	120					Pass
												S	203		197		191						
1/19/09	2:00	45	25	JWS	0722	AD	F	860	540.0			P	131	135	122	126	142	119					Pass
												S	187		188		186						
1/19/09	2:15	45	26	JWS	23	JN	E			500	500	P	150		111		119						Pass
												S	177		168		165						
1/19/09	3:15	45	27	JWS	8247	AD	E			500	500	P	153		154		153						Pass
												S	175		172		153						
1/20/09	7:50	38	28	JWS	23	JN	E			500	500	P	149		143		146						Pass
												S	212		149		212						
1/20/09	8:05	38	29	JWS	3	MV	F	860	550.0			P	136	138	127	139	134	130					Pass
												S	246		237		245						
1/20/09	8:20	38	30	JWS	8247	AD	E			500	500	P	133		168		152						Pass
												S	206		193		195						

Geomembrane Trial Weld Summary



25809 Interstate 30 South

Bryant, Arkansas 72022

Phone 501.847.9292

Fax 501.847.9210

Client Name: Saline County RSWMD
 Contractor: Pickett Industries
 Project Name: Saline County Cell 4
 Address: Bauxite, Arkansas
 Location: Saline County Class 1 Landfill

Project Number: 35087125
 CQA Monitor: Joe Smith/Stephen B.
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: ESI

Specification for Trial Welds	
Peel Extrusion =	78
Peel Fusion =	121
Shear Extrusion =	98
Shear Fusion =	121

Date	Time	Ambient Temp °F	Sample ID	QC Initials	Machine Number	Seamer Initials	Weld Type	Fusion Weld		Extrusion Weld		Test Values lbs/inch								Pass or Fail
								Wedge Temp °F	Speed ft/hr	Temp °F	Preheat Setting									
1/20/09	1:20	45	31	JWS	23	JN	E			500	500	P 120	98	127						Pass
												S 190	175	172						
1/20/09	1:30	45	32	JWS	3	MV	F	860	550.0			P 152	132	153	142	153	139			Pass
												S 218	207	211						
1/20/09	1:35	45	33	JWS	3	MV	F	860	550.0			P 171	153	148	135	153	140			Pass
												S 197	181	179						
1/20/09	1:45	45	34	JWS	0722	AD	F	860	540.0			P 126	145	125	151	141	114			Pass
												S 214	200	200						
1/20/09	1:40	45	35	JWS	0722	AD	F	860	490.0			P 132	156	130	138	140	130			Pass
												S 205	200	212						
1/21/09	8:40	42	36	SB	23	JN	E			500	485	P 111	116	125						Pass
												S 216	196	215						
1/21/09	8:15	42	37	SB	0722	AD	F	860	500.0			P 130	124	112	145	129	132			Pass
												S 219	221	217						
1/21/09	8:20	42	38	SB	0722	AD	F	860	450.0			P 168	155	156	161	134	141			Pass
												S 216	213	207						
1/21/09	8:50	42	39	SB	8247	VJ	E			500	400	P 195	189	176						Pass
												S 199	194	190						
1/21/09	1:35	64	40	SB	0722	AD	F	860	500.0			P 134	136	119	126	129	129			Pass
												S 180	172	178						
1/21/09	1:30	64	41	SB	23	JN	E			500	485	P 111	90	125						Pass
												S 169	165	161						
1/21/09	1:30	64	42	SB	3	MV	F	860	550.0			P 131	132	117	135	132	116			Pass
												S 187	176	187						
1/21/09	1:30	64	43	SB	47	VJ	E			500	500	P 167	146	150						Pass
												S 158	149	153						
1/21/09	1:30	64	44	SB	0722	AD	F	860	500.0			P 122	124	131	116	121	120			Pass
												S 170	166	159						
1/22/09	8:10	43	45	SB	23	JN	E			500	485	P 138	123	133						Pass
												S 185	176	164						

Terracon

Bryant, Arkansas 72022

Fax 501.847.9210

Liner Installer: ESI

Specification for Trial Welds	
Peel Extrusion =	78
Peel Fusion =	121
Shear Extrusion =	98
Shear Fusion =	121

[illegible]

APPENDIX Q

GEOMEMBRANE PANEL SEAMING SUMMARY

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#69

Carry Over: _____ ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/14/09	3:02	AD	2 - 3	85.0	CH	AT-P17	85				
1/14/09	3:12	AD	4 - 5	85.0	CH	AT-P17	170				
1/14/09	3:25	AD	7 - 8	39.0	CH	P6-P19	209				
1/14/09	3:40	AD	6 - 8	52.0	CH	AT-P7	261				
1/14/09	3:47	AD	6 - 7	41.0	CH	P8-P18	302				
1/14/09	4:20	AD	12 - 13	91.0	CH	AT-P23	393				
1/14/09	4:37	AD	9 - 12	9.0	CH	AT-P11	402				
1/14/09	4:39	AD	9 - 11	38.0	CH	P12-P10	440				
1/14/09	4:44	AD	9 - 10	38.0	CH	P11-P21	478				
1/17/09	11:00	AD	15 - 16	23.0	JWS	P14-P17	501	DS-3	10' E OF W. EOS	Pass	Pass
1/17/09	11:20	AD	18 - 16	350.0	JWS	P17-P88	851				
1/17/09	11:13	AD	17 - 18	23.0	JWS	P16-P6	874				
1/17/09	1:22	AD	19 - 21	24.0	JWS	P9-P20	898	DS-4	20' N OF S. EOS	Pass	Pass
1/17/09	1:25	AD	19 - 20	143.0	JWS	P21-N	1041				
1/17/09	1:17	AD	21 - 20	23.0	JWS	P19-P10	1064				
1/17/09	1:48	AD	20 - 22	127.0	JWS	P11-P88	1191				
1/17/09	2:23	AD	13 - 23	15.0	JWS	P93-P12	1206				
1/17/09	2:25	AD	12 - 23	23.0	JWS	P13-P11	1229				
1/17/09	2:28	AD	11 - 22	23.0	JWS	P12-P10	1252				
1/17/09	2:31	AD	10 - 20/21	23.0	JWS	P11-P9	1275				

Seam Length this Machine:

Note: _____

This Page: 1,275 ft
 Accumulated: 1,275 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#69

Carry Over: 1,275 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/17/09	2:35	AD	9 - 21	23.0	JWS	P10-P8	1298				
1/17/09	2:39	AD	8 - 19	23.0	JWS	P9-P7	1321				
1/17/09	2:42	AD	7 - 19	16.0	JWS	P8-P6	1337				
1/17/09	2:44	AD	6 - 17	23.0	JWS	P7-P5	1360				
1/17/09	2:48	AD	5 - 17	23.0	JWS	P6-P4	1383	DS-1	10' N OF S. EOS	Pass	Pass
1/17/09	2:51	AD	4 - 17	23.0	JWS	P5-P3	1406				
1/17/09	2:54	AD	3 - 17	23.0	JWS	P4-P2	1429				
1/17/09	2:57	AD	2 - 17	23.0	JWS	P3-P1	1452				
1/17/09	3:00	AD	1 - 17	23.0	JWS	P2-P84	1475				
1/17/09	3:24	AD	25 - 26	23.0	JWS	P24-P27	1498				
1/17/09	3:30	AD	25 - 24	64.0	JWS	P65-P26	1562				
1/17/09	3:39	AD	26 - 24	278.0	JWS	P25-P88	1840				

Seam Length this Machine:

Note: _____

This Page: 565 ft
 Accumulated: 1,840 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 1,840 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/18/09	9:22	AD	27 - 25	65.0	JWS	P65-P26	1905				
1/18/09	9:25	AD	27 - 26	60.0	JWS	P27-P28	1965				
1/18/09	9:37	AD	28 - 26	210.0	JWS	P27-P88	2175				
1/18/09	9:18	AD	27 - 28	23.0	JWS	P26-P29	2198				
1/18/09	10:37	AD	31 - 32	23.0	JWS	P30-P33	2221				
1/18/09	10:50	AD	34 - 33	23.0	JWS	P32-P35	2244				
1/18/09	10:58	AD	33 - 31	155.0	JWS	P68-P32	2399	DS-8	90' N OF S. EOS	Pass	Pass
1/18/09	11:32	AD	33 - 32	75.0	JWS	P31-P34	2474				
1/18/09	11:41	AD	34 - 32	10.0	JWS	P33-P88	2484				
1/18/09	1:45	AD	36 - 37	23.0	JWS	P35-P38	2507				
1/18/09	1:54	AD	35 - 37	276.0	JWS	P88-P36	2783				
1/18/09	2:30	AD	35 - 36	66.0	JWS	P37-P70	2849	DS-9	30' N OF S. EOS	Pass	Pass
1/18/09	3:09	AD	40 - 41	23.0	JWS	P39-P42	2872				
1/18/09	3:17	AD	39 - 41	137.0	JWS	P88-P40	3009				
1/18/09	3:32	AD	39 - 40	81.0	JWS	P41-P38	3090				
1/18/09	3:45	AD	38 - 40	127.0	JWS	P39-P72	3217				
1/18/09	4:35	AD	44 - 42	262.0	JWS	P74-P43	3479	DS-12	70' S OF N. EOS	Pass	Pass
1/19/09	10:58	AD	46 - 45	50.0	JWS	P50-EXI	3529				
1/19/09	11:05	AD	49 - 50	38.0	JWS	P46-EXI	3567				
1/19/09	11:17	AD	50 - 51	60.5	JWS	P82-EXI	3628				

Seam Length this Machine:

Note: _____

This Page: 1,788 ft
 Accumulated: 3,628 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith / S. Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 3,628 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/19/09	11:26	AD	51 - 52	61.0	JWS	P82-EXI	3689				
1/19/09	2:17	AD	56 - 57	63.5	JWS	P83-EXI	3753				
1/19/09	2:27	AD	57 - 58	64.5	JWS	P83-EXI	3817				
1/19/09	2:40	AD	59 - 60	62.0	JWS	P83-EXI	3879	DS-14	10' E OF W. EOS	Pass	Pass
1/21/09	9:00	AD	1 - 84	74.0	SB	P6-AT	3953				
1/21/09	9:45	AD	84 - 61	27.5	SB	P1-P85	3981				
1/21/09	9:15	AD	84 - 85	74.5	SB	P61-AT	4055				
1/21/09	9:50	AD	85 - 61	22.5	SB	P84-P87	4078				
1/21/09	10:00	AD	87 - 61	7.0	SB	P84-AT	4085				
1/21/09	9:35	AD	87 - 85	45.5	SB	P85-AT	4130				
1/21/09	9:27	AD	86 - 85	32.0	SB	P87-AT	4162				
1/21/09	8:54	AD	17 - 61	22.5	SB	P1-P15	4185				
1/21/09	3:30	AD	15 - 62	22.5	SB	P17-P63	4207				
1/21/09	3:34	AD	14 - 63	22.5	SB	P62-P64	4230				
1/21/09	3:38	AD	24 - 64	22.5	SB	P63-P65	4252				
1/21/09	3:42	AD	25 - 65	22.5	SB	P64-P66	4275				
1/21/09	2:46	AD	27 - 66	22.5	SB	P65-P67	4297				
1/21/09	3:50	AD	29 - 67	22.5	SB	P66-P68	4320				
1/21/09	3:54	AD	31 - 68	22.5	SB	P67-P69	4342	DS-16	10' E OF W. EOS	Pass	Pass
1/21/09	3:58	AD	33 - 69	22.5	SB	P68-P70	4365				

Seam Length this Machine:

Note: _____

This Page: 737 ft
 Accumulated: 4,365 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Stephen Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 4,365 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/21/09	4:02	AD	35 - 70	22.5	SB	P69-P71	4388				
1/21/09	4:06	AD	36 - 71	22.5	SB	P70-P72	4410				
1/21/09	4:16	AD	38 - 72	22.5	SB	P71-P73	4433				
1/21/09	4:14	AD	40 - 73	22.5	SB	P73-P74	4455				
1/21/09	4:19	MV	42 - 74	22.5	SB	P73-P75	4478				
1/21/09	4:23	MV	44 - 75	22.5	SB	P74-P76	4500				
1/21/09	4:27	MV	76 - 82	22.5	SB	P75-P50	4523				
1/21/09	3:52	AD	50 - 82	5.0	SB	P76-P51	4528				
1/21/09	3:55	AD	51 - 82	22.5	SB	P50-P52	4550				
1/21/09	4:00	AD	52 - 82	22.5	SB	P51-P53	4573				
1/21/09	4:03	AD	53 - 82	22.5	SB	P52-P54	4595				
1/21/09	4:06	AD	53 - 83	22.5	SB	P82-P54	4618				
1/21/09	4:09	AD	54 - 83	22.5	SB	P53-P55	4640				
1/21/09	4:12	AD	55 - 83	22.5	SB	P54-P56	4663				
1/21/09	4:15	AD	56 - 83	22.5	SB	P55-P57	4685				
1/21/09	4:20	AD	57 - 83	22.5	SB	P56-P58	4708				
1/21/09	4:23	AD	58 - 83	22.5	SB	P57-P59	4730				
1/21/09	4:23	AD	59 - 83	22.5	SB	P58-P60	4753				
1/21/09	4:26	AD	60 - 83	22.5	SB	P59-P77	4775				
1/21/09	4:30	AD	77 - 83	22.5	SB	P60-P78	4798				

Seam Length this Machine:

Note: _____

This Page: 433 ft
 Accumulated: 4,798 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD
 Contractor: Pickett Industries
 Project Name: Saline County Cell 4
 Address: Bauxite, Arkansas
 Location: Saline County Class 1 Landfill

Project Number: 35087125
 CQA Monitor: Stephen Billingsley
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 4,798 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/21/09	4:33	AD	78 - 83	22.5	SB	P77-P79	4821				
1/21/09	4:36	AD	79 - 83	22.5	SB	P78-P80	4843	DS-19	10' N OF S. EOS	Pass	Pass
1/21/09	4:19	AD	81 - 91	22.5	SB	P80-P92	4866				
1/21/09	4:17	AD	91 - 92	22.5	SB	P81-OBB	4888				
1/21/09	3:43	AD	89 - 90	22.5	SB	P88-OBB	4911				
1/21/09	2:18	AD	88 - 90	22.5	SB	P90-P93	4933				
1/21/09	3:40	AD	91 - 83	22.5	SB	P8-P44	4956				
1/21/09	3:50	AD	90 - 44	22.5	SB	P83-P43	4978				
1/21/09	2:00	AD	88 - 43	22.5	SB	P44-P41	5001				
1/21/09	2:03	AD	88 - 41	22.5	SB	P43-P39	5023				
1/21/09	2:06	AD	88 - 39	22.5	SB	P41-P37	5046				
1/21/09	2:09	AD	88 - 37	22.5	SB	P39-P35	5068				
1/21/09	2:14	AD	88 - 35	22.5	SB	P37-P34	5091				
1/21/09	2:15	AD	88 - 34	22.5	SB	P35-P32	5113				
1/21/09	2:18	AD	88 - 32	22.5	SB	P34-P30	5136				
1/21/09	2:14	AD	88 - 30	22.5	SB	P32-P28	5158				
1/21/09	2:24	AD	88 - 28	22.5	SB	P30-P26	5181				
1/21/09	2:27	AD	88 - 26	22.5	SB	P28-P24	5203				
1/21/09	2:30	AD	88 - 24	22.5	SB	P26-P14	5226				
1/21/09	2:33	AD	88 - 14	22.5	SB	P24-P16	5248				

Seam Length this Machine:

Note: _____

This Page: 450 ft
 Accumulated: 5,248 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Stephen Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 5,248 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/21/09	2:36	AD	88 - 16	22.5	SB	P14-P18	5271				
1/21/09	2:39	AD	88 - 18	22.5	SB	P16-P19	5293				
1/21/09	2:43	AD	88 - 19	22.5	SB	P18-P20	5316				
1/21/09	2:46	AD	88 - 20	22.5	SB	P19-P22	5338				
1/21/09	2:49	AD	88 - 22	22.5	SB	P20-P23	5361	DS-22	10' W OF E. EOS	Pass	Pass
1/21/09	2:53	AD	88 - 23	22.5	SB	P22-P93	5383				
1/22/09	9:00	AD	1 - 84	74.0	SB	AT-P61	5457				
1/22/09	9:45	AD	84 - 61	22.5	SB	P1-P85	5480				
1/22/09	9:15	AD	84 - 85	74.0	SB	AT-P61	5554				
1/22/09	9:49	AD	85 - 61	22.5	SB	P84-P87	5576				
1/22/09	10:08	AD	23 - 93	98.0	SB	P13-P88	5674				
1/22/09	10:23	AD	88 - 93	22.5	SB	P23-P89	5697				
1/22/09	10:26	AD	89 - 93	22.5	SB	P88-OBB	5719				
1/22/09	10:34	AD	94 - 95	120.0	SB	P104-OBB	5839				
1/22/09	10:57	AD	96 - 97	105.5	SB	P106-OBB	5945	DS-23	45' N OF S. EOS	Pass	Pass
1/22/09	11:23	AD	98 - 99	90.0	SB	P110-P100	6035				
1/22/09	11:35	AD	98 - 100	8.0	SB	P99-OBB	6043				
1/22/09	11:16	AD	99 - 100	22.5	SB	P98-P101	6065				
1/21/09	3:40	AD	88 - 90	22.5	SB	P43-P89	6088				
1/21/09	3:42	AD	89 - 90	22.5	SB	P88-OBB	6110				

Seam Length this Machine:

Note: _____

This Page: 862 ft
 Accumulated: 6,110 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Stephen Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 6,110 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/22/09	1:40	AD	103 - 104	101.5	SB	AT-P94	6212				
1/22/09	1:57	AD	104 - 105	112.5	SB	AT-P95	6324				
1/22/09	2:27	AD	106 - 107	121.5	SB	AT-P97	6446	DS-25	15' S OF N. EOS	Pass	Pass
1/22/09	3:50	AD	108 - 109	47.0	SB	P110-P99	6493				
1/22/09	3:37	AD	108 - 110	89.5	SB	AT-P109	6582				
1/22/09	4:43	AD	112 - 114	97.0	SB	AT-P113	6679				
1/22/09	4:56	AD	113 - 114	59.5	SB	P112-P157	6739				
1/22/09	5:10	AD	114 - 116	40.0	SB	P115-P159	6779				
1/22/09	5:07	AD	115 - 116	22.5	SB	P114-P117	6801				
1/22/09	4:35	AD	112 - 113	22.5	SB	P111-P114	6824				
1/23/09	8:27	AD	110 - 101	22.5	SB	P109-P156	6846	DS-27	10' W OF E. EOS	Pass	Pass
1/23/09	8:30	AD	109 - 99	7.5	SB	P108-P101	6854				
1/23/09	8:31	AD	108 - 99	16.0	SB	P109P-P98	6870				
1/23/09	8:34	AD	108 - 98	7.0	SB	P107-P99	6877				
1/23/09	8:35	AD	107 - 98	16.0	SB	P97-P108	6893				
1/23/09	8:37	AD	107 - 97	6.5	SB	P106-P98	6899				
1/23/09	8:38	AD	106 - 96	6.0	SB	P105-P97	6905				
1/23/09	8:39	AD	105 - 96	17.0	SB	P95-P106	6922				
1/23/09	8:40	AD	105 - 95	5.0	SB	P104-P96	6927				
1/23/09	8:43	AD	104 - 95	19.5	SB	P94-P105	6947				

Seam Length this Machine:

Note: _____

This Page: 837 ft
 Accumulated: 6,947 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Stephen Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 6,947 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/23/09	8:44	AD	104 - 94	4.0	SB	P103-P95	6951				
1/23/09	8:47	AD	103 - 94	27.5	SB	P102-P104	6979				
1/22/09	8:51	AD	102 - 93	9.5	SB	P13-P103	6988				
1/22/09	8:53	AD	13 - 93	13.5	SB	P23-P102	7002				
1/23/09	2:22	AD	128 - 130	68.0	SB	AT-P129	7070				
1/23/09	2:17	AD	129 - 130	39.0	SB	P128-P139	7109				
1/23/09	2:31	AD	130 - 131	87.0	SB	AT-P138	7196				
1/23/09	2:54	AD	132 - 133	44.5	SB	AT-P136	7240				
1/23/09	3:12	AD	133 - 134	29.5	SB	AT-P136	7270				
1/23/09	3:08	AD	134 - 135	20.0	SB	AT-P136	7290				
1/23/09	4:10	AD	139 - 140	108.0	SB	AT-P129	7398	DS-29	20' W OF E. EOS	Pass	Pass
1/23/09	4:38	AD	141 - 142	71.5	SB	AT-P143	7469				
1/23/09	4:42	AD	141 - 143	72.0	SB	P142-P144	7541				
1/23/09	5:22	AD	141 - 127	22.0	SB	P140-P126	7563				
1/23/09	5:27	AD	140 - 127	7.5	SB	P129-P141	7571				
1/23/09	5:29	AD	140 - 129	25.0	SB	P139-P127	7596				
1/23/09	5:32	AD	139 - 129	5.0	SB	P130-P140	7601				
1/23/09	5:31	AD	139 - 130	26.0	SB	P138-P129	7627				
1/23/09	5:34	AD	138 - 130	4.0	SB	P131-P139	7631				
1/23/09	5:35	AD	138 - 131	27.0	SB	P130-P137	7658				

Seam Length this Machine:

Note: _____

This Page: 711 ft
 Accumulated: 7,658 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Stephen Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#0722

Carry Over: 7,658 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/24/09	1:03	AD	145 - 146	168.5	SB	P147-AT	7827				
1/24/09	1:24	AD	145 - 147	19.5	SB	P146-P124	7846				
1/24/09	1:50	AD	148 - 150	13.5	SB	P149-AT	7860				
1/24/09	1:33	AD	150 - 149	22.5	SB	P148-P152	7882	DS-31	10' N OF S.EOS	Pass	Pass
1/24/09	1:42	AD	149 - 148	100.0	SB	P150-P121	7982				
1/24/09	2:55	AD	155 - 153	27.0	SB	P151-P161	8009				
1/24/09	2:45	AD	151 - 153	23.0	SB	P152-P155	8032				
1/24/09	2:22	AD	163 - 152	130.0	SB	P151-P119	8162				
1/24/09	3:09	AD	101 - 156	88.0	SB	P110-N. EOS	8250				
1/24/09	3:34	AD	156 - 158	47.5	SB	P157-N. EOS	8298				
1/24/09	3:25	AD	158 - 157	22.5	SB	P159-P156	8320				
1/24/09	3:28	AD	156 - 157	36.0	SB	P111-P158	8356				
1/24/09	3:44	AD	157 - 159	36.0	SB	P113-P158	8392	DS-32	10' S OF N. EOS	Pass	Pass
1/24/09	3:47	AD	158 - 159	47.5	SB	P157-N. EOS	8440				
1/24/09	3:57	AD	159 - 160	88.0	SB	P114-N. EOS	8528				
1/24/09	4:08	AD	160 - 161	88.0	SB	P116-N. EOS	8616	DS-38	45' S OF N. EOS	Pass	Pass
1/24/09	4:22	AD	161 - 152	22.5	SB	P119-P153	8638				
1/24/09	4:25	AD	161 - 153	22.5	SB	P152-P155	8661				
1/24/09	4:28	AD	161 - 155	8.0	SB	P153-P154	8669				
1/24/09	4:30	AD	161 - 154	23.0	SB	P155-N. EOS	8692				

Seam Length this Machine:

Note: _____

This Page: 1,034 ft
 Accumulated: 8,692 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: C. Haynes / Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#3

Carry Over: 8,692 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/14/09	3:05	MV	1 - 2	85.0	CH	AT-P17	8777				
1/14/09	3:18	MV	3 - 4	85.0	CH	AT-P17	8862				
1/14/09	3:30	MV	5 - 6	85.0	CH	AT-P17	8947				
1/14/09	3:47	MV	8 - 9	80.0	CH	AT-P19	9027				
1/14/09	4:27	MV	11 - 12	82.0	CH	AT-P22	9109				
1/14/09	4:40	MV	10 - 11	44.0	CH	P9-P20	9153				
1/17/09	11:56	MV	15 - 14	67.0	JWS	P62-P16	9220	DS-2	30' S OF N. EOS	Pass	Pass
1/17/09	11:05	MV	16 - 14	265.0	JWS	P88-P15	9485				
1/17/09	1:12	MV	18 - 19	194.0	JWS	P7-P88	9679				
1/17/09	1:46	MV	22 - 23	118.0	JWS	P12-P88	9797	DS-5	13' N OF S. EOS	Pass	Pass
1/17/09	3:14	MV	14 - 24	342.0	JWS	P63-P88	10139				
1/18/09	9:30	MV	29 - 27	130.0	JWS	P67-P28	10269				
1/18/09	9:50	MV	29 - 28	65.0	JWS	P27-P30	10334	DS-6	60' N OF S.EOS	Pass	Pass
1/18/09	9:22	MV	29 - 30	23.0	JWS	P28-P31	10357				
1/18/09	10:00	MV	30 - 28	144.0	JWS	P29-P88	10501				
1/18/09	10:37	MV	31 - 29	195.0	JWS	P67-P30	10696				
1/18/09	11:06	MV	31 - 30	66.0	JWS	P29-P32	10762	DS-7	9' N OF S. EOS	Pass	Pass
1/18/09	11:15	MV	32 - 30	80.0	JWS	P31-P88	10842				
1/18/09	1:26	MV	34 - 35	11.0	JWS	P88-P33	10853				
1/18/09	1:28	MV	33 - 35	327.0	JWS	P34-P69	11180				

Seam Length this Machine:

Note: _____

This Page: 2,488 ft
 Accumulated: 11,180 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#3

Carry Over: 11,180 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/18/09	2:30	MV	38 - 39	23.0	JWS	P37-P40	11203	DS-10	10' E OF W. EOS	Pass	Pass
1/18/09	2:40	MV	37 - 39	208.0	JWS	P88-P38	11411				
1/18/09	3:11	MV	37 - 38	67.0	JWS	P39-P36	11478				
1/18/09	3:20	MV	36 - 38	59.0	JWS	P37-P71	11537				
1/18/09	3:46	MV	42 - 43	23.0	JWS	P41-P44	11560				
1/18/09	3:55	MV	41 - 43	68.0	JWS	P88-P42	11628				
1/18/09	4:02	MV	41 - 42	67.0	JWS	P43-P40	11695	DS-11	25' W OF S. EOS	Pass	Pass
1/18/09	4:14	MV	40 - 42	196.0	JWS	P41-P73	11891				
1/18/09	4:50	MV	44 - 43	66.0	JWS	P42-P90	11957				
1/19/09	11:44	MV	50 - 45	27.0	JWS	P70-P46	11984				
1/19/09	10:59	MV	47 - 46	14.5	JWS	P48-EXI	11999				
1/19/09	11:30	MV	48 - 46	14.5	JWS	P49-P47	12013				
1/19/09	11:32	MV	49 - 46	29.0	JWS	P50-P48	12042				
1/19/09	1:34	MV	52 - 53	62.0	JWS	P82-EXI	12104				
1/19/09	11:27	MV	48 - 47	10.5	JWS	P46-EXI	12115				
1/19/09	11:08	MV	49 - 48	19.0	JWS	P46-EXI	12134				
1/19/09	1:50	MV	53 - 54	63.5	JWS	P82-EXI	12197	DS-13	10' E OF W. EOS	Pass	Pass
1/19/09	2:03	MV	54 - 55	63.0	JWS	P83-EXI	12260				
1/19/09	2:20	MV	55 - 56	63.5	JWS	P83-EXI	12324				
1/19/09	2:33	MV	58 - 59	64.0	JWS	P83-EXI	12388				

Seam Length this Machine:

Note: _____

This Page: 1,208 ft
 Accumulated: 12,388 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#3

Carry Over: 12,388 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/19/09	3:37	MV	61 - 62	56.0	JWS	P15-EXI	12444				
1/19/09	3:50	MV	62 - 63	57.0	JWS	P16-EXI	12501				
1/19/09	4:02	MV	63 - 64	58.0	JWS	P24-EXI	12559				
1/20/09	8:56	MV	64 - 65	60.5	JWS	P25-EXI	12620				
1/20/09	9:12	MV	65 - 66	58.0	JWS	P27-EXI	12678				
1/20/09	9:22	MV	66 - 67	61.0	JWS	P29-EXI	12739	DS-15	12' S OF N. EOS	Pass	Pass
1/20/09	9:41	MV	67 - 68	60.5	JWS	P31-EXI	12799				
1/20/09	9:54	MV	68 - 69	62.0	JWS	P33-EXI	12861				
1/20/09	10:16	MV	69 - 70	61.5	JWS	P35-EXI	12923				
1/20/09	10:23	MV	70 - 71	62.5	JWS	P36-EXI	12985				
1/20/09	10:35	MV	71 - 72	62.5	JWS	P36-EXI	13048				
1/20/09	10:50	MV	72 - 73	62.0	JWS	P38-EXI	13110				
1/20/09	11:02	MV	74 - 73	62.0	JWS	P42-EXI	13172	DS-17	11' S OF N. EOS	Pass	Pass
1/20/09	11:16	MV	74 - 75	61.5	JWS	P44-EXI	13233				
1/20/09	11:26	MV	76 - 75	64.0	JWS	P42-EXI	13297				
1/20/09	11:47	MV	76 - 45	60.0	JWS	P50-EXI	13357				
1/20/09	1:40	MV	60 - 77	64.0	JWS	P83-EXI	13421				
1/20/09	2:02	MV	77 - 78	66.5	JWS	P83-EXI	13488				
1/20/09	2:28	MV	78 - 79	65.0	JWS	P83-EXI	13553				
1/20/09	2:42	MV	79 - 80	68.0	JWS	P83-EXI	13621				

Seam Length this Machine:

Note: _____

This Page: 1,233 ft
 Accumulated: 13,621 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith / S. Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#3

Carry Over: 13,621 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/20/09	2:50	MV	80 - 81	66.5	JWS	P83-EXI	13688	DS-20	13' E OF W. EOS	Pass	Pass
1/20/09	2:55	MV	82 - 83	23.0	JWS	P44-P54	13711				
1/21/09	3:03	MV	82 - 44	74.0	JWS	P75-P83	13785				
1/21/09	3:19	MV	83 - 44	246.0	JWS	P82-N. EOS	14031				
1/21/09	3:33	MV	90 - 91	22.5	SB	P83-OBB	14053				
1/21/09	2:18	MV	88 - 89	400.0	SB	P90-P93	14453	DS-21	90' E OF W. EOS	Pass	Pass
1/21/09	3:40	MV	88 - 90	22.5	SB	P44-P89	14476				
1/21/09	3:42	MV	89 - 90	22.5	SB	P88-OBB	14498				
1/22/09	10:27	MV	93 - 94	140.0	SB	P103-OBB	14638				
1/22/09	10:54	MV	95 - 96	110.0	SB	P105-OBB	14748				
1/22/09	11:13	MV	97 - 98	101.0	SB	P107-OBB	14849				
1/22/09	11:33	MV	99 - 101	89.0	SB	P110-P100	14938				
1/22/09	11:52	MV	100 - 101	8.0	SB	P99-OBB	14946				
1/22/09	1:42	MV	102 - 13	34.5	SB	P103-P13	14981	DS-24	18' S OF N. EOS	Pass	Pass
1/22/09	1:45	MV	103 - 13	51.5	SB	P102-AT	15032				
1/22/09	2:03	MV	102 - 103	34.5	SB	P13-P93	15067				
1/22/09	2:25	MV	105 - 106	116.0	SB	AT-P96	15183				
1/22/09	2:47	MV	107 - 108	126.5	SB	AT-P98	15309				
1/22/09	3:40	MV	109 - 110	48.5	SB	P108-P101	15358				
1/22/09	3:53	MV	110 - 111	141.5	SB	AT-P156	15499	DS-26	130' FROM AT	Pass	Pass

Seam Length this Machine:

Note: _____

This Page: 1,878 ft
 Accumulated: 15,499 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Stephen Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#3

Carry Over: 15,499 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/22/09	4:40	MV	111 - 112	94.0	SB	AT-P113	15593				
1/22/09	5:07	MV	114 - 115	136.0	SB	AT-P116	15729				
1/22/09	4:54	MV	111 - 113	59.0	SB	P112-P157	15788				
1/23/09	8:20	MV	115 - 117	158.5	SB	AT-P116	15947				
1/23/09	9:06	MV	117 - 118	152.0	SB	AT-P119	16099	DS-28	10' S OF N. EOS	Pass	Pass
1/23/09	8:35	MV	116 - 117	41.0	SB	P115-P159	16140				
1/23/09	3:02	MV	131 - 132	64.5	SB	AT-P137	16204				
1/23/09	9:37	MV	118 - 119	22.0	SB	P117-P120	16226				
1/23/09	2:13	MV	128 - 129	22.5	SB	P127-P130	16249				
1/23/09	2:30	MV	127 - 128	68.0	SB	AT-P129	16317				
1/23/09	2:20	MV	127 - 129	57.0	SB	P128-P140	16374				
1/23/09	5:36	MV	134 - 136	23.0	SB	P135-P133	16397				
1/23/09	5:40	MV	1335 - 136	22.5	SB	AT-P134	16419	DS-30	10' W OF EOS	Pass	Pass
1/23/09	3:16	MV	136 - 137	48.0	SB	AT-P132	16467				
1/23/09	3:45	MV	138 - 139	37.5	SB	AT-P130	16505				
1/23/09	3:39	MV	137 - 138	67.5	SB	AT-P131	16572				
1/23/09	4:15	MV	140 - 141	132.0	SB	AT-P127	16704				
1/23/09	4:55	MV	142 - 143	47.0	SB	AT-P141	16751				
1/23/09	5:00	MV	141 - 144	49.0	SB	P143-P126	16800				
1/23/09	5:22	MV	137 - 131	5.0	SB	P132-P138	16805				

Seam Length this Machine:

Note: _____

This Page: 1,306 ft
 Accumulated: 16,805 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith / S. Billingsley

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. W#3

Carry Over: 16,805 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/23/09	5:23	MV	137 - 132	26.0	SB	P136-P131	16831				
1/23/09	5:28	MV	136 - 132	7.0	SB	P133-P137	16838				
1/23/09	5:29	MV	136 - 133	26.0	SB	P134-P132	16864				
1/24/09	4:35	MV	116 - 160	22.5	JWS	P161-P114	16887				
1/24/09	4:39	MV	114 - 159	22.5	JWS	P160-P113	16909				
1/24/09	4:43	MV	113 - 157	22.5	JWS	P159-P111	16932				
1/24/09	4:47	MV	111 - 156	22.5	JWS	P157-P110	16954				
1/24/09	4:50	MV	151 - 155	33.0	JWS	P153-P154	16987				
1/24/09	12:49	MV	143 - 145	117.0	JWS	P144-AT	17104	DS-33	10' W OF EOS	Pass	Pass
1/24/09	1:11	MV	144 - 145	47.0	JWS	P143-P145	17151				
1/24/09	1:13	MV	146 - 147	22.5	JWS	P145-P148	17174				
1/24/09	1:23	MV	146 - 148	166.0	JWS	P147-AT	17340				
1/24/09	1:53	MV	147 - 148	39.0	JWS	P146-P123	17379				
1/24/09	1:58	MV	152 - 149	129.0	JWS	P150-P120	17508	DS-37	30' W OF E. EOS	Pass	Pass
1/24/09	2:18	MV	152 - 150	85.0	JWS	P149-P151	17593	DS-34	15' E OF W. EOS	Pass	Pass
1/24/09	3:17	MV	151 - 152	108.0	JWS	P150-P153	17701	DS-36	10' W OF E. EOS	Pass	Pass
1/24/09	2:57	MV	151 - 153	111.0	JWS	P152-P155	17812				
1/24/09	3:00	MV	154 - 155	11.0	JWS	P151-P161	17823				
1/24/09	2:41	MV	151 - 150	53.0	JWS	P152-AT	17876				
1/24/09	3:51	MV	119 - 152	22.5	JWS	P149-P161	17898				

Seam Length this Machine:

Note: _____

This Page: 1,093 ft
 Accumulated: 17,898 ft

Terracon

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

☒ Primary

☐ Secondary

☐ Other:

Carry Over: 17,898 ft

[illegible]

Note: _____

This Page: 156 ft
Accumulated: 18,054 ft

Geomembrane Panel Seaming Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

☒ Primary

☐ Secondary

☐ Other: _____

Machine No. G#23

Carry Over: 18,054 ft

PRODUCTION SEAM			LOCATION AND DISTANCE					DESTRUCTIVE TESTING			
Date	Time	Seamer Initials	Seam Number	Seam Length (ft)	QA ID	Location From - To	Accum. Seam Length (ft)	Destruct No.	Location From - To	Field Test Pass/Fail	Lab Test Pass/Fail
1/19/09	11:20	JN	47 - EXI	19.5	JWS	P46-P48	18074				
1/19/09	11:25	JN	46 - EXI	22.5	JWS	P45-P47	18096				
1/19/09	11:30	JN	45 - EXI	22.5	JWS	P76-P46	18119				
1/19/09	11:32	JN	48 - EXI	16.5	JWS	P47-P49	18135				
1/19/09	11:35	JN	47 - EXI	22.5	JWS	P48-P50	18158				
1/19/09	11:40	JN	50 - EXI	22.5	JWS	P49-P51	18180				
1/19/09	11:45	JN	51 - EXI	22.5	JWS	P50-P52	18203				
1/19/09	1:30	JN	52 - EXI	22.5	JWS	P51-P53	18225				
1/19/09	1:35	JN	53 - EXI	22.5	JWS	P52-P54	18248				
1/19/09	1:40	JN	54 - EXI	22.5	JWS	P53-P55	18270				
1/19/09	1:43	JN	55 - EXI	22.5	JWS	P54-P56	18293				
1/19/09	1:48	JN	56 - EXI	22.5	JWS	P55-P57	18315				
1/19/09	1:52	JN	57 - EXI	22.5	JWS	P56-P58	18338				
1/19/09	1:55	JN	58 - EXI	22.5	JWS	P57-P59	18360				
1/19/09	2:00	JN	59 - EXI	22.5	JWS	P58-P60	18383				
1/19/09	2:08	JN	60 - EXI	22.5	JWS	P59-P77	18405				
1/20/09	11:00	JN	70 - EXI	22.5	JWS	P69-P11	18428				
1/20/09	11:03	JN	71 - EXI	22.5	JWS	P70-P72	18450				
1/20/09	11:06	JN	72 - EXI	22.5	JWS	P71-P73	18473				
1/20/09	11:35	JN	73 - EXI	22.5	JWS	P72-P74	18495				

Seam Length this Machine:

Note: _____

This Page: 441 ft
 Accumulated: 18,495 ft

Terracon

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

☒ Primary

☐ **Secondary**

☐ Other:

Carry Over: 18,495 ft

[illegible]

Note: _____

This Page: 45 ft
Accumulated: 18,540 ft

Terracon

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

☒ Primary

☐ **Secondary**

☐ Other:

Carry Over: 18,540 ft

[illegible]

Note: _____

This Page: 225 ft
Accumulated: 18,765 ft

APPENDIX R
GEOMEMBRANE NON-DESTRUCTIVE TEST LOG
SUMMARY

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith / D. Walls

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/14/09	1 - 2	85	OH	30	30	0	3:27	3:32	P		Anchor Trench - End
01/14/09	2 - 3	85	OH	30	30	0	3:28	3:33	P		Anchor Trench - End
01/14/09	3 - 4	85	OH	30	30	0	3:36	3:41	P		Anchor Trench - End
01/14/09	4 - 5	85	OH	30	29	-1	3:37	3:42	P		Anchor Trench - End
01/14/09	5 - 6	85	OH	30	30	0	3:55	4:00	P		Anchor Trench - End
01/14/09	6 - 7	41	OH	30	30	0	3:57	4:02	P		Anchor Trench - End
01/14/09	7 - 8	39	OH	30	30	0	4:05	4:10	P		P6 - End
01/14/09	6 - 8	52	OH	30	29	-1	4:04	4:09	P		P7 Point - Anchor Trench
01/14/09	8 - 9	80	OH	30	30	0	4:12	4:17	P		Anchor Trench - End
01/14/09	12 - 13	91	OH	30	29	-1	4:35	4:40	P		Anchor Trench - End
01/14/09	11 - 12	82	OH	30	29	-1	4:41	4:46	P		Anchor Trench - End
01/14/09	10 - 11	44	OH	30	30	0	4:56	5:01	P		P9 - End
01/14/09	9 - 12	9	OH	30	30	0	4:48	4:53	P		Anchor Trench - P11-P12
01/14/09	9 - 11	38	OH	30	30	0	4:49	4:54	P		P12 - P10-P11
01/14/09	9 - 10	38	OH	30	30	0	4:55	5:00	P		P11 - End
01/17/09	17 - 15	70	OH	30	29	-1	1:55	2:00	P		P16 - South
01/17/09	15 - 16	23	OH	30	30	0	1:56	2:01	P		P16 - North
01/17/09	16 - 14	274	OH	30	30	0	2:05	2:10	P		P16 - North
01/17/09	15 - 14	70	OH	30	30	0	1:58	2:03	P		P15 - P North
01/17/09	17 - 18	23	OH	30	30	0	2:12	2:17	P		P17 - P North
01/17/09	18 - 16	205	OH	30	30	0	2:13	2:18	P		P18 - North
01/17/09	18 - 19	194	OH	30	29	-1	2:35	2:40	P		P18 - North
01/17/09	19 - 21	23	OH	30	30	0	2:46	2:51	P		P19 - South
01/17/09	19 - 20	144	OH	30	30	0	2:47	2:52	P		P19 - North
01/17/09	21 - 20	15	OH	30	30	0	2:48	2:53	P		P21 - West

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Donnie Walls

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/17/09	22 - 23	118	OH	30	30	0	3:07	3:12	P		P22 - North
01/17/09	12 - 23	23	OH	30	30	0	3:09	3:14	P		P12 - West
01/17/09	13 - 23	8	OH	30	30	0	3:03	3:08	P		P13 - West
01/17/09	12 - 22	6	OH	30	30	0	3:15	3:20	P		P12 - West
01/17/09	11 - 22	18	OH	30	30	0	3:16	3:21	P		P11 - East
01/17/09	10 - 20	14	OH	30	30	0	3:23	3:28	P		P10 - S East
01/17/09	10 - 21	10	OH	30	30	0	3:25	3:30	P		P10 - S East
01/17/09	9 - 21	17	OH	30	30	0	3:27	3:32	P		P9 - S East
01/17/09	9 - 19	5	OH	30	30	0	3:28	3:33	P		P9 - S East
01/17/09	8 - 19	23	OH	30	30	0	3:35	3:40	P		P8 - S East
01/17/09	7 - 18	15	OH	30	30	0	3:38	3:43	P		P7 - South
01/17/09	6 - 17	23	OH	30	30	0	3:44	3:49	P		P6 - South
01/17/09	5 - 17	23	OH	30	30	0	3:45	3:50	P		P5 - South
01/17/09	4 - 17	23	OH	30	30	0	3:46	3:51	P		P4 - South
01/17/09	3 - 17	23	OH	30	30	0	3:55	4:00	P		P3 - South
01/17/09	2 - 17	23	OH	30	30	0	3:56	4:01	P		P2 - South
01/17/09	1 - 17	23	OH	30	30	0	3:58	4:03	P		P1 - South
01/17/09	14 - 24	342	OH	30	29	-1	4:07	4:12	P		P17 - North
01/17/09	25 - 24	64	OH	30	30	0	4:14	4:19	P		P25 - North
01/17/09	25 - 26	23	OH	30	30	0	4:21	4:26	P		P25 - East
01/17/09	26 - 24	37	OH	30	30	0	4:22	4:27	P		P26 - North
01/19/09	28 - 26	210	OH	30	30	0	8:28	8:33	P		P27 - North
01/19/09	27 - 28	23	OH	30	30	0	8:12	8:17	P		P26 - P29
01/19/09	27 - 26	60	OH	30	30	0	8:02	8:07	P		P27 - P28
01/19/09	27 - 25	65	OH	30	30	0	8:03	8:08	P		South - P26

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section From - To
				Pressure			Time		P/F		
				Start	End	+/-	Start	End			
01/19/09	29 - 27	126	OH	30	29	-1	8:10	8:15	P		South - P28
01/19/09	29 - 28	65	OH	30	30	0	8:20	8:25	P		P27 - P30
01/19/09	29 - 30	23	OH	30	30	0	8:37	8:42	P		P28 - P31
01/19/09	30 - 28	144	OH	30	30	0	8:35	8:40	P		P29 - North
01/19/09	32 - 30	79	OH	30	30	0	8:55	9:00	P		P31 - North
01/19/09	31 - 32	23	OH	30	30	0	8:54	8:59	P		P30 - P33
01/19/09	31 - 30	64	OH	30	30	0	8:45	8:50	P		P29 - P32
01/19/09	31 - 29	192	OH	30	30	0	8:44	8:49	P		South - P30
01/19/09	33 - 31	257	OH	30	30	0	9:02	9:07	P		South - P32
01/19/09	33 - 32	10	OH	30	30	0	9:03	9:08	P		P31 - P34
01/19/09	34 - 33	23	OH	30	30	0	9:11	9:16	P		P32 - P35
01/19/09	34 - 32	10	OH	30	30	0	9:10	9:15	P		P33 - P88
01/19/09	34 - 35	10.5	OH	30	30	0	9:19	9:24	P		P33 - P88
01/19/09	33 - 35	327	OH	30	30	0	9:18	9:23	P		P34 - P69
01/19/09	35 - 37	276	OH	30	30	0	9:25	9:30	P		P36 - P88
01/19/09	37 - 39	208	OH	30	30	0	9:48	9:53	P		P38 - P88
01/19/09	38 - 39	23	OH	30	30	0	9:49	9:54	P		P37 - P40
01/19/09	37 - 38	67	OH	30	30	0	9:40	9:45	P		P36 - P39
01/19/09	36 - 38	59	OH	30	30	0	9:41	9:46	P		P37 - P71
01/19/09	35 - 36	66	OH	30	29	-1	9:32	9:37	P		P37 - P71
01/19/09	36 - 37	23	OH	30	30	0	9:33	9:38	P		P35 - P38
01/19/09	38 - 40	127	OH	30	30	0	9:54	9:59	P		P39 - P72
01/19/09	39 - 40	81	OH	30	30	0	9:55	10:00	P		P38 - P41
01/19/09	40 - 41	23	OH	30	30	0	10:02	10:07	P		P39 - P42
01/19/09	39 - 41	137	OH	30	30	0	10:01	10:06	P		P40 - P88

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/19/09	41 - 42	67	OH	30	30	0	10:09	10:14	P		P40 - P43
01/19/09	40 - 42	196	OH	30	30	0	10:08	10:13	P		P41 - P73
01/19/09	41 - 43	68	OH	30	30	0	10:16	10:21	P		P42 - P88
01/19/09	42 - 43	23	OH	30	30	0	10:17	10:22	P		P41 - P44
01/19/09	44 - 43	66	OH	30	30	0	10:25	10:30	P		P42 - P88
01/19/09	44 - 42	262	OH	30	30	0	10:24	10:29	P		P43 - P74
01/19/09	50 - 45	27	OH	30	30	0	11:50	11:55	P		West - P46
01/19/09	49 - 46	29	OH	30	30	0	11:48	11:53	P		P50 - P48
01/19/09	49 - 50	39	OH	30	30	0	11:47	11:52	P		P46 - Existing
01/19/09	46 - 45	50	OH	30	30	0	11:20	11:25	P		P50 - Existing
01/19/09	47 - 46	15	OH	30	30	0	11:22	11:27	P		P48 - Existing
01/19/09	48 - 47	11	OH	30	30	0	11:30	11:35	P		P46 - Existing
01/19/09	48 - 46	15	OH	30	30	0	11:36	11:41	P		P49 - P47
01/19/09	49 - 48	20	OH	30	30	0	11:40	11:45	P		P46 - Existing
01/19/09	50 - 51	61	OH	30	30	0	11:51	11:56	P		West - Existing
01/19/09	51 - 52	62	OH	30	30	0	12:00	12:05	P		West - Existing
01/19/09	52 - 53	62	OH	30	29	-1	1:40	1:45	P		West - Existing
01/19/09	53 - 54	64	OH	30	30	0	2:05	2:10	P		West - Existing
01/19/09	54 - 55	64	OH	30	30	0	2:15	2:20	P		West - Existing
01/19/09	55 - 56	64	OH	30	30	0	2:30	2:35	P		West - Existing
01/19/09	56 - 57	64	OH	30	30	0	2:31	2:36	P		West - Existing
01/19/09	57 - 58	65	OH	30	30	0	2:40	2:45	P		West - Existing
01/19/09	58 - 59	64	OH	30	30	0	2:50	2:55	P		West - Existing
01/19/09	59 - 60	62	OH	30	30	0	2:52	2:57	P		West - Existing
01/19/09	61 - 62	57	OH	30	30	0	3:45	3:50	P		P15 - Existing

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/19/09	62 - 63	50	OH	30	30	0	4:03	4:08	P		50' South - P15
01/19/09	62 - 63	15	OH	30	30	0	4:09	4:14	P		15' North - Existing
01/19/09	63 - 64	60	OH	30	30	0	4:15	4:20	P		P24 - Existing
01/20/09	64 - 65	60' 7"	OH	30	30	0	9:10	9:15	P		P14 - Existing
01/20/09	65 - 66	58	OH	30	30	0	9:24	9:29	P		P25 - Existing
01/20/09	66 - 67	61	OH	30	29	-1	9:38	9:43	P		P27 - Existing
01/20/09	67 - 68	60.5	OH	30	30	0	9:52	9:57	P		P29 - Existing
01/20/09	68 - 69	62	OH	30	29	-1	10:05	10:10	P		P31 - Existing
01/20/09	69 - 70	61' 7"	OH	30	30	0	10:17	10:22	P		P33 - Existing
01/20/09	70 - 71	62' 5"	OH	30	29	-1	10:33	10:38	P		P36 - Existing
01/20/09	71 - 72	62' 3"	OH	30	29	-1	10:46	10:51	P		P36 - Existing
01/20/09	72 - 73	62	OH	30	30	0	11:03	11:08	P		P38 - Existing
01/20/09	74 - 73	62	OH	30	30	0	11:14	11:19	P		P40 - Existing
01/20/09	74 - 75	61.5	OH	30	30	0	11:30	11:35	P		P42 - Existing
01/20/09	76 - 75	64	OH	30	30	0	11:40	11:45	P		P44 - Existing
01/20/09	76 - 45	60	OH	30	30	0	1:07	1:12	P		P50 - Existing
01/20/09	60 - 77	64	OH	30	30	0	1:55	2:00	P		P83 - Existing
01/20/09	77 - 78	66.5	OH	30	29	-1	2:13	2:18	P		P83 - Existing
01/20/09	78 - 79	29' 6"	OH	30	30	0	2:35	2:40	P		P83 - Existing
01/20/09	78 - 79	35' 1"	OH	30	30	0	2:41	2:46	P		P83 - Existing
01/20/09	79 - 80	68' 1"	OH	30	30	0	2:52	2:57	P		P83 - Existing
01/20/09	80 - 81	66' 8"	OH	30	30	0	3:10	3:15	P		P83 - Existing
01/20/09	82 - 83	23	OH	30	30	0	3:20	3:25	P		P44 - P53
01/20/09	82 - 44	74	OH	30	30	0	3:23	3:28	P		P75 - P83
01/21/09	60 - 83	22.5	OH	30	30	0	8:26	8:31	P		P59 - P77

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/21/09	77 - 83	22.5	OH	30	30	0	8:16	8:21	P		P60 - P78
01/21/09	78 - 83	22.5	OH	30	30	0	8:15	8:20	P		P77 - P79
01/21/09	79 - 83	22.5	OH	30	30	0	8:06	8:11	P		P78 - P80
01/21/09	80 - 83	22.5	OH	30	30	0	8:05	8:10	P		P79 - P81
01/21/09	81 - 91	22.5	OH	30	30	0	5:16	5:21	P		P83 - P92
01/21/09	91 - 92	22.5	OH	30	30	0	5:15	5:20	P		P81 - OBB
01/21/09	90 - 91	22.5	OH	30	30	0	5:07	5:12	P		P44 - OBB
01/21/09	89 - 90	22.5	OH	30	30	0	4:59	5:04	P		P88 - OBB
01/21/09	88 - 89	400	OH	30	29	-1	3:42	3:47	P		P90 - P93
01/21/09	88 - 90	22.5	OH	30	30	0	4:58	5:03	P		P43 - P89
01/21/09	91 - 83	22.5	OH	30	30	0	5:08	5:13	P		P44 - P80
01/21/09	90 - 44	22.5	OH	30	30	0	5:09	5:14	P		P43 - P83
01/21/09	88 - 43	22.5	OH	30	30	0	4:51	4:56	P		P41 - P44
01/21/09	88 - 41	22.5	OH	30	30	0	4:50	4:55	P		P43 - P39
01/21/09	88 - 39	22.5	OH	30	30	0	4:44	4:49	P		P41 - P37
01/21/09	88 - 37	22.5	OH	30	30	0	4:43	4:48	P		P39 - P35
01/21/09	88 - 35	22.5	OH	30	30	0	4:37	4:42	P		P37 - P34
01/21/09	88 - 34	22.5	OH	30	30	0	4:36	4:41	P		P35 - P32
01/21/09	88 - 32	22.5	OH	30	30	0	4:30	4:35	P		P34 - P30
01/21/09	88 - 30	22.5	OH	30	30	0	4:29	4:34	P		P32 - P28
01/21/09	88 - 28	22.5	OH	30	30	0	4:23	4:28	P		P30 - P26
01/21/09	88 - 26	22.5	OH	30	30	0	4:22	4:27	P		P28 - P24
01/21/09	88 - 24	22.5	OH	30	30	0	4:16	4:21	P		P26 - P14
01/21/09	88 - 14	22.5	OH	30	30	0	4:15	4:20	P		P24 - P16
01/21/09	88 - 16	22.5	OH	30	30	0	4:06	4:11	P		P14 - P18

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/21/09	88 - 18	22.5	OH	30	30	0	4:05	4:10	P		P16 - P19
01/21/09	88 - 19	22.5	OH	30	30	0	3:58	4:03	P		P18 - P20
01/21/09	88 - 20	22.5	OH	30	30	0	3:57	4:07	P		P19 - P22
01/21/09	88 - 22	22.5	OH	30	30	0	3:51	3:56	P		P20 - P23
01/21/09	88 - 23	22.5	OH	30	30	0	3:50	3:55	P		P22 - P99
01/21/09	1 - 84	74	OH	30	30	0	9:17	9:22	P		P61 - AT
01/21/09	84 - 61	22.5	OH	30	30	0	10:00	10:05	P		P1 - P85
01/21/09	84 - 85	74	OH	30	30	0	9:30	9:35	P		P61 - AT
01/21/09	85 - 61	22.5	OH	30	30	0	10:01	10:06	P		P84 - P87
01/21/09	92 - 81	66.5	OH	30	30	0	4:22	4:27	P		P91 - Existing
01/21/09	19 - 20	140	OH	30	30	0	4:20	4:25	P		P21 - P88
01/21/09	11 - 20	5	OH	30	30	0	4:19	4:24	P		P10 - P22
01/21/09	7 - 18	9	OH	30	30	0	4:05	4:10	P		P6 - P19
01/21/09	18 - 16	20	OH	30	30	0	4:04	4:09	P		P17 - P88
01/21/09	17 - 16	63.5	OH	30	30	0	4:03	4:18	P		P15 - P18
01/21/09	17 - 15	65.75	OH	30	30	0	3:31	3:36	P		P16 - P61
01/21/09	1 - 17	22.5	OH	30	30	0	3:30	3:35	P		P2 - P84
01/21/09	82 - 44	72.5	OH	30	30	0	3:23	3:28	P		P83 - P75
01/21/09	83 - 44	247	OH	30	30	0	3:24	3:29	P		P90 - P82
01/21/09	61 - 17	22.5	OH	30	30	0	9:10	9:15	P		P84 - P62
01/21/09	62 - 15	22.5	OH	30	30	0	3:44	3:49	P		P61 - P63
01/21/09	63 - 14	22.5	OH	30	30	0	3:45	3:50	P		P62 - P64
01/21/09	64 - 24	22.5	OH	30	30	0	3:55	4:00	P		P63 - P65
01/21/09	65 - 25	22.5	OH	30	30	0	3:56	4:01	P		P64 - P66
01/21/09	66 - 27	22.5	OH	30	30	0	4:04	4:09	P		P65 - P67

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/21/09	67 - 29	22.5	OH	30	30	0	4:05	4:10	P		P66 - P68
01/21/09	68 - 31	22.5	OH	30	30	0	4:13	4:18	P		P67 - P69
01/21/09	69 - 33	22.5	OH	30	30	0	4:14	4:19	P		P68 - P70
01/21/09	70 - 35	22.5	OH	30	30	0	4:24	4:29	P		P69 - P71
01/21/09	71 - 36	22.5	OH	30	30	0	4:25	4:30	P		P70 - P72
01/21/09	72 - 38	22.5	OH	30	30	0	4:37	4:42	P		P71 - P73
01/21/09	73 - 40	22.5	OH	30	30	0	4:38	4:43	P		P72 - P74
01/21/09	74 - 42	22.5	OH	30	30	0	4:45	4:50	P		P73 - P75
01/21/09	75 - 44	22.5	OH	30	30	0	4:46	4:51	P		P74 - P76
01/21/09	76 - 82	22.5	OH	30	30	0	4:52	4:57	P		P75 - P50
01/21/09	51 - 82	22.5	OH	30	30	0	5:00	5:05	P		P50 - P52
01/21/09	52 - 82	22.5	OH	30	30	0	5:03	5:08	P		P51 - P53
01/21/09	53 - 82	22.5	OH	30	30	0	8:53	8:58	P		P52 - P54
01/21/09	54 - 83	22.5	OH	30	30	0	8:52	8:57	P		P53 - P55
01/21/09	55 - 83	22.5	OH	30	30	0	8:46	8:51	P		P54 - P56
01/21/09	56 - 83	22.5	OH	30	30	0	8:45	8:50	P		P55 - P57
01/21/09	57 - 83	22.5	OH	30	30	0	8:38	8:43	P		P56 - P58
01/21/09	58 - 83	22.5	OH	30	30	0	8:37	8:42	P		P57 - P59
01/21/09	59 - 83	22.5	OH	30	30	0	8:27	8:32	P		P58 - P60
01/23/09	89 - 93	22.5	OH	30	30	0	7:35	7:40	P		P88 - OBB
01/23/09	88 - 93	22.5	OH	30	30	0	7:36	7:41	P		P23 - P89
01/23/09	23 - 93	98	OH	30	30	0	7:50	7:55	P		P13 - P88
01/23/09	13 - 103	51.5	OH	30	30	0	7:57	8:02	P		P102 - AT
01/23/09	13 - 93	13.5	OH	30	30	0	8:50	8:55	P		P23 - P102
01/23/09	102 - 93	9.25	OH	30	30	0	8:56	9:01	P		P13 - P103

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/23/09	102 - 103	34.25	OH	30	30	0	8:17	8:22	P		P13 - P93
01/23/09	93 - 94	140	OH	30	30	0	8:25	8:30	P		P103 - OBB
01/23/09	103 - 94	27.25	OH	30	30	0	9:00	9:05	P		P93 - P104
01/23/09	103 - 104	101.5	OH	30	30	0	9:35	9:40	P		P94 - AT
01/23/09	95 - 94	120	OH	30	30	0	8:40	8:45	P		P104 - OBB
01/23/09	104 - 95	19.25	OH	30	30	0	9:06	9:11	P		P94 - P105
01/23/09	104 - 105	112.25	OH	30	29	-1	9:07	9:12	P		P95 - AT
01/23/09	105 - 95	5	OH	30	30	0	9:12	9:17	P		P105 - P96
01/23/09	95 - 96	110	OH	30	30	0	9:13	9:18	P		P105 - OBB
01/23/09	104 - 95	19.25	OH	30	30	0	9:20	9:25	P		P94 - P105
01/23/09	105 - 106	116	OH	30	30	0	9:21	9:26	P		P96 - AT
01/23/09	96 - 97	105.5	OH	30	29	-1	9:28	9:33	P		P106 - OBB
01/23/09	106 - 97		OH	30	30	0	9:34	9:39	P		P107 - P98
01/23/09	106 - 107	121.5	OH	30	30	0	9:33	9:38	P		P97 - AT
01/23/09	107 - 97	6.5	OH	30	30	0	9:40	9:45	P		P106 - P98
01/23/09	97 - 98	101	OH	30	30	0	9:41	9:46	P		P107 - OBB
01/23/09	107 - 98	16	OH	30	30	0	9:49	9:54	P		P97 - P108
01/23/09	107 - 108	126.5	OH	30	30	0	9:50	9:55	P		P98 - AT
01/23/09	108 - 98	6.75	OH	30	30	0	9:56	10:01	P		P107 - P99
01/23/09	98 - 99	90	OH	30	29	-1	9:57	10:02	P		P108 - P100
01/23/09	108 - 99	16	OH	30	30	0	10:03	10:08	P		P98 - P109
01/23/09	109 - 99	7	OH	30	30	0	10:04	10:09	P		P108 - P110
01/23/09	108 - 109	47	OH	30	30	0	10:26	10:31	P		P99 - P110
01/23/09	109 - 110	48.25	OH	30	30	0	10:27	10:32	P		P101 - P108
01/23/09	108 - 110	89.5	OH	30	30	0	10:35	10:40	P		P109 - AT

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/23/09	99 - 100	22.5	OH	30	30	0	10:11	10:16	P		P98 - P101
01/23/09	98 - 100	8	OH	30	30	0	10:10	10:15	P		P99 - OBB
01/23/09	99 - 101	89	OH	30	30	0	10:17	10:22	P		P100 - P101
01/23/09	100 - 101	8	OH	30	30	0	10:18	10:23	P		P99 - OBB
01/23/09	110 - 101	22	OH	30	30	0	10:44	10:49	P		P109 - P111
01/23/09	110 - 111	141.5	OH	30	29	-1	10:45	10:50	P		P101 - AT
01/23/09	111 - 112	94	OH	30	29	-1	11:03	11:09	P		P113 - AT
01/23/09	111 - 113	59	OH	30	30	0	10:55	11:00	P		P156 - P112
01/23/09	112 - 113	22.5	OH	30	30	0	11:04	11:09	P		P111 - P114
01/23/09	112 - 114	97	OH	30	30	0	11:05	11:10	P		P113 - AT
01/23/09	113 - 114	59.5	OH	30	29	-1	10:56	11:01	P		P112 - P157
01/23/09	114 - 115	136	OH	30	30	0	11:17	11:22	P		P116 - AT
01/23/09	114 - 116	40	OH	30	30	0	11:30	11:35	P		P115 - P160
01/23/09	115 - 116	22.5	OH	30	30	0	11:15	11:20	P		P114 - P117
01/23/09	117 - 161	22.5	OH	30	30	0	11:18	11:25	P		P116 - P119
01/23/09	116 - 117	41	OH	30	30	0	11:31	11:36	P		P115 - P160
01/23/09	115 - 117	158.5	OH	30	29	-1	11:18	11:23	P		P116 - AT
01/23/09	117 - 118	152	OH	30	30	0	12:55	1:00	P		P119 - AT
01/23/09	117 - 119	68.5	OH	30	30	0	12:56	1:01	P		P118 - P152
01/23/09	118 - 120	174	OH	30	30	0	1:08	1:13	P		P119 - AT
01/23/09	119 - 120	72.75	OH	30	30	0	1:09	1:14	P		P118 - P152
01/23/09	120 - 121	113.5	OH	30	30	0	1:26	1:31	P		P122 - P149
01/23/09	120 - 122	173.5	OH	30	30	0	1:25	1:30	P		P121 - AT
01/23/09	121 - 122	173	OH	30	30	0	1:32	1:37	P		P120 - P123
01/23/09	121 - 123	50	OH	30	30	0	1:33	1:38	P		P122 - P148

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/23/09	122 - 123	173.5	OH	30	30	0	1:40	1:45	P		P121 - AT
01/23/09	118 - 119	22	OH	30	30	0	1:05	1:10	P		P117 - P120
01/23/09	123 - 124	208	OH	30	30	0	1:42	1:47	P		P147 - AT
01/23/09	124 - 125	190.25	OH	30	29	-1	1:53	1:58	P		P145 - AT
01/23/09	125 - 126	170.75	OH	30	30	0	1:55	2:00	P		P144 - AT
01/23/09	126 - 127	147.5	OH	30	30	0	9:51	9:56	P		P141 - AT
01/23/09	127 - 128	68	OH	30	30	0	9:22	9:27	P		P120 - AT
01/23/09	127 - 129	57	OH	30	30	0	9:23	9:28	P		P128 - P140
01/23/09	128 - 129	22.5	OH	30	30	0	9:16	9:21	P		P127 - P130
01/23/09	128 - 130	68	OH	30	30	0	9:15	9:20	P		P128 - AT
01/23/09	130 - 129	39	OH	30	30	0	9:04	9:09	P		P128 - P139
01/23/09	139 - 130	92	OH	30	30	0	9:03	9:08	P		EOS - P131
01/23/09	131 - 130	87	OH	30	30	0	8:48	8:53	P		P138 - AT
01/23/09	138 - 131	27	OH	30	30	0	8:47	8:52	P		EOS - P132
01/23/09	138 - 139	37.5	OH	30	30	0	8:55	9:00	P		P130 - AT
01/23/09	132 - 131	64.5	OH	30	30	0	8:31	8:36	P		P137 - AT
01/23/09	137 - 132	26	OH	30	30	0	8:30	8:35	P		EOS - P133
01/23/09	137 - 138	67.5	OH	30	30	0	8:40	8:45	P		P133 - AT
01/23/09	136 - 137	48	OH	30	30	0	8:20	8:25	P		P132 - AT
01/23/09	136 - 132	7	OH	30	30	0	8:19	8:24	P		P137 - P132
01/23/09	132 - 133	44.5	OH	30	30	0	8:10	8:15	P		P136 - AT
01/23/09	136 - 133	26	OH	30	30	0	8:11	8:16	P		P132 - P134
01/23/09	134 - 133	29.5	OH	30	30	0	8:01	8:06	P		P136 - AT
01/23/09	136 - 134	23	OH	30	30	0	8:00	8:05	P		P133 - P135
01/23/09	136 - 135	4	OH	30	30	0	7:49	7:54	P		P134 - AT

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section
				Pressure			Time		P/F		From - To
				Start	End	+/-	Start	End			
01/23/09	135 - 134	20	OH	30	30	0	7:45	7:50	P		P136 - AT
01/24/09	154 - 161	23	OH	30	30	0	4:35	4:40	P		P155 - OBB
01/24/09	161 - 153	22.5	OH	30	30	0	4:33	4:38	P		P155 - P152
01/24/09	155 - 154	11	OH	30	30	0	3:19	3:24	P		P161 - P151
01/24/09	151 - 154	23	OH	30	30	0	3:20	3:25	P		P155 - OBB
01/24/09	151 - 155	16	OH	30	30	0	3:10	3:15	P		P154 - P153
01/24/09	155 - 153	27	OH	30	30	0	3:11	3:16	P		P161 - P151
01/24/09	152 - 149	129	OH	30	30	0	4:31	4:36	P		P119 - P150
01/24/09	119 - 152	22.5	OH	30	30	0	2:44	2:49	P		P117 - P120
01/24/09	150 - 149	22.5	OH	30	30	0	3:57	4:02	P		P148 - P152
01/24/09	152 - 150	85	OH	30	30	0	2:43	2:48	P		P149 - AT
01/24/09	150 - 148	138	OH	30	30	0	2:52	2:57	P		P149 - AT
01/24/09	149 - 148	100	OH	30	30	0	2:35	2:40	P		P121 - P150
01/24/09	149 - 121	11	OH	30	30	0	2:36	2:41	P		P148 - P120
01/24/09	148 - 121	14	OH	30	30	0	4:09	4:14	P		P149 - P123
01/24/09	148 - 123	21.5	OH	30	30	0	4:08	4:13	P		P121 - P147
01/24/09	147 - 123	6	OH	30	30	0	4:10	4:15	P		P148 - P124
01/24/09	147 - 148	39	OH	30	30	0	2:25	2:31	P		P123 - P146
01/24/09	147 - 124	26	OH	30	30	0	2:25	2:30	P		P123 - P145
01/24/09	145 - 147	19.5	OH	30	30	0	2:16	2:21	P		P124 - P146
01/24/09	146 - 147	22.5	OH	30	30	0	2:15	2:20	P		P145 - P148
01/24/09	145 - 146	168.5	OH	30	30	0	2:00	2:05	P		P147 - AT
01/24/09	145 - 125	30	OH	30	30	0	4:18	4:23	P		P124 - P144
01/24/09	144 - 126	29	OH	30	30	0	4:25	4:30	P		P125 - P121
01/24/09	141 - 127	22	OH	30	30	0	9:52	9:57	P		P126 - P140

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

Geomembrane Non-Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD

Contractor: Pickett Industries

Project Name: Saline County Cell 4

Address: Bauxite, Arkansas

Location: Saline County Class 1 Landfill

Project Number: 35087125

CQA Monitor: Joe Smith

Reviewed By: Brad Fureigh, E.I.

Approved By: Ken Bown, P.E.

Liner Installer: ESI

Date	Seam Number	Seam Length (ft)	Tester Initials	Air Testing						Vacuum Box P/F	Seam Section	
				Pressure			Time		P/F		From - To	
				Start	End	+/-	Start	End				
01/24/09	144 - 145	47	OH	30	30	0	1:46	1:51	P		P125 - P143	
01/24/09	143 - 145	117	OH	30	30	0	1:45	1:50	P		P144 - AT	
01/24/09	143 - 144	67	OH	30	30	0	10:04	10:09	P		P141 - P145	
01/24/09	141 - 144	49	OH	30	30	0	10:03	10:08	P		P126 - P143	
01/24/09	140 - 141	132	OH	30	30	0	9:40	9:45	P		P127 - AT	
01/24/09	140 - 127	7.5	OH	30	30	0	9:39	9:44	P		P141 - P129	
01/24/09	140 - 129	25	OH	30	30	0	9:30	9:35	P		P147 - P129	
01/24/09	139 - 140	108	OH	30	30	0	9:05	9:10	P		P129 - AT	
01/24/09	141 - 142	71.5	OH	30	30	0	10:24	10:29	P		P143 - AT	
01/24/09	142 - 143	47	OH	30	30	0	10:25	10:30	P		P141 - AT	
01/24/09	141 - 143	72	OH	30	30	0	10:18	10:23	P		P144 - P142	
01/24/09	146 - 148	166	OH	30	30	0	2:02	2:07	P		P147 - AT	
01/24/09	149 - 120	25	OH	30	30	0	4:01	4:06	P		P119 - P121	
01/24/09	160 - 161	88	OH	30	30	0	4:40	4:45	P		P116 - OBB	
01/24/09	116 - 160	22.5	OH	30	30	0	4:49	4:54	P		P114 - P117	
01/24/09	159 - 160	88	OH	30	30	0	4:48	4:53	P		P114 - OBB	
01/24/09	114 - 159	22.5	OH	30	30	0	4:58	5:03	P		P113 - P116	
01/24/09	157 - 159	36	OH	30	30	0	4:55	5:00	P		P113 - P158	
01/24/09	113 - 157	22.5	OH	30	30	0	5:01	5:06	P		P111 - P114	
01/24/09	156 - 158	47.5	OH	30	30	0	3:51	3:56	P		P157 - OBB	
01/24/09	111 - 156	22.5	OH	30	30	0	5:02	5:07	P		P110 - P113	
01/24/09	101 - 156	88	OH	30	30	0	3:50	3:55	P		P110 - OBB	
01/24/09	158 - 157	22.5	OH	30	30	0	5:11	5:16	P		P156 - P159	
01/24/09	158 - 159	47.5	OH	30	30	0	5:10	5:15	P		P157 - OBB	

Key: AT = Anchor Trench P1 = Panel Number 1
EOS = End of Seam OBB = Overbuild Berm

APPENDIX S
GEOMEMBRANE DESTRUCTIVE TEST LOG
SUMMARY AND LABORATORY TEST RESULTS

Geomembrane Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD
 Contractor: Pickett Industries
 Project Name: Saline County Cell 4
 Address: Bauxite, Arkansas
 Location: Saline County Landfill

Project Number: 35087125
 CQA Monitor: Joe Smith
 Reviewed By: Brad Fureigh, E.I.
 Approved By: Ken Bown, P.E.
 Liner Installer: ESI

Destructive Testing Specifications	
Peel Extrusion =	<u>78</u>
Shear Extrusion =	<u>121</u>
Peel Fusion =	<u>98</u>
Shear Fusion =	<u>121</u>

Date	Sample ID	Seam Number	Machine Number	Seamer Initials	Test Values lbs/inch										Field Pass/Fail	Lab Pass/Fail	Comments	
1/21/09	DS-4	19-20	69	AD	P	131	108	124	113	129	130					Pass	Pass	
					S	165		168										
1/21/09	DS-5	22-23	3	MV	P	118	111	132	128	114	136					Pass	Pass	
					S	172		164										
1/21/09	DS-7	31-29	3	MV	P	130	128	126	122	133	115					Pass	Pass	
					S	185		172										
1/21/09	DS-11	41-42	3	MV	P	127	123	132	134	116	118					Pass	Pass	
					S	165		176										
1/21/09	DS-9	35-36	722	AD	P	123	131	126	138	135	129					Pass	Pass	
					S	184		169										
1/22/09	DS-1	5-17	69	AD	P	112	119	122	121	123	111					Pass	Pass	
					S	178		173		169								
1/22/09	DS-2	15-14	3	MV	P	134	123	116	117	110	108					Pass	Pass	
					S	167		175		176								
1/22/09	DS-3	15-16	69	AD	P	113	114	119	120	103	121					Pass	Pass	
					S	180		174										
1/22/09	DS-6	29-27	3	MV	P	131	124	112	134	127	109					Pass	Pass	
					S	182		179										
1/22/09	DS-8	33-31	722	AD	P	109	134	119	125	124	134					Pass	Pass	
					S	170		164										
1/23/09	DS-10	38-39	3	MV	P	126	107	132	114	120	109					Pass	Pass	
					S	177		186										
1/23/09	DS-12	42-44	722	AD	P	131	134	126	138	128	120					Pass	Pass	
					S	174		179										
1/22/09	DS-13	53-54	3	MV	P	108	119	117	104	112	132					Pass	Pass	
					S	158		164										
1/23/09	DS-14	59-60	722	AD	P	128	132	122	127	118	141					Pass	Pass	
					S	181		190										
1/22/09	DS-15	66-67	3	MV	P	120	130	127	123	132	112					Pass	Pass	
					S	176		168										

Geomembrane Destructive Test Log Summary



25809 Interstate 30 South

Bryant, AR 72022

Phone: 501.847.9292

Fax: 501.847.9210

Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Destructive Testing Specifications	
Peel Extrusion =	<u>78</u>
Shear Extrusion =	<u>121</u>
Peel Fusion =	<u>98</u>
Shear Fusion =	<u>121</u>

Date	Sample ID	Seam Number	Machine Number	Seamer Initials	Test Values lbs/inch								Field Pass/Fail	Lab Pass/Fail	Comments
1/22/09	DS-16	31-68	722	AD	P	103	121	109	125	116	130		Pass	Pass	
					S	160		172							
1/22/09	DS-17	74-73	3	MV	P	134	138	122	133	114	127		Pass	Pass	
					S	170		182							
1/22/09	DS-18	75-76	3	MV	P	121	134	139	127	124	119		Pass	Pass	
					S	178		189							
1/23/09	DS-19	79-83	722	AD	P	132	117	122	128	125	126		Pass	Pass	
					S	190		176							
1/23/09	DS-20	80-81	3	MV	P	115	137	111	112	122	111		Pass	Pass	
					S	189		199							
1/23/09	DS-21	88-89	3	MV	P	131	130	115	123	112	123		Pass	Pass	90' from W EOS
					S	195		201							
1/23/09	DS-22	88-22	722	AD	P	122	119	135	136	129	126		Pass	Pass	10' from E EOS
					S	179		186							
1/23/09	DS-23	96-97	722	AD	P	115	114	128	120	134	132		Pass	Pass	45' from N EOS
					S	187		192							
1/23/09	DS-24	102-13	3	MV	P	112	131	129	137	139	138		Pass	Pass	18' from N EOS
					S	195		192							
1/23/09	DS-25	106-107	722	AD	P	139	140	134	135	120	126		Pass	Pass	15' from N EOS
					S	196		175							
1/23/09	DS-26	110-111	3	MV	P	142	138	116	117	112	110		Pass	Pass	130' from AT
					S	179		192							
1/23/09	DS-27	110-101	722	MV	P	119	113	141	139	111	129		Pass	Pass	10' from E EOS
					S	192		190							
1/26/09	DS-28	117-118	3	MV	P	136	122	129	128	125	116		Pass	Pass	
					S	182		174							
1/26/09	DS-29	139-140	722	AD	P	124	129	120	139	129	126		Pass	Pass	20.5' from E EOS
					S	178		167							
1/26/09	DS-30	134-136	3	MV	P	116	118	131	132	125	124		Pass	Pass	10' from E EOS
					S	193		181							

APPENDIX T
GEOMEMBRANE REPAIR LOG SUMMARY

Geomembrane Repair Log Summary



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

25809 Interstate 30 South
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/21/09		84/1/61/17			R1	P	E	2.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		17/61	95.0	AT	R2	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		15/17/61/62			R3	P	E	2.0	2.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		14/15/62/63			R4	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		14/24/63/64			R5	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		62/63	10.0	N. EOS	R6	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		85/87/61			R7	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		84/85/61			R8	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		85/86/87			R9	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		24/25/64/65			R10	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		25/27/65/66			R11	P	E	1.5	1.5		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		27/29/66/67			R12	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		29/31/67/68			R13	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		31/33/68/69			R14	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		33/35/69/70			R15	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP

NOTES: (1) Repair No.: Repairs should be numbered sequentially
 (2) Repair Codes.: P = Patch, C = Cap, S = Anchor Trench Ext., D = Destructive Sample, G = Grind and Weld, T = Topping along Fusion Seam
 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing PP = Pipe Penetration

Geomembrane Repair Log Summary



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ Primary
☐ Secondary
☐ Other: _____

25809 Interstate 30 South
 Bryant, AR 72022
 Phone 501.847.9292
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DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/21/09		35/36/70/71			R16	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		36/38/71/72			R17	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		38/40/72/73			R18	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		40/42/73/74			R19	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		42/44/74/75			R20	P	E	2.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		44/82/75/76			R21	P	E	2.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		50/76/82			R22	P	E	2.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		45/50/76			R23	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		50/51/82			R24	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		45/46/49/50			R25	P	E	2.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		46/48/49			R26	P	E	1.5	1.5		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		46/47/48			R27	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		51/52/82			R28	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		52/53/82			R29	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		53/54/82/83			R30	P	E	2.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		54/55/83			R31	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		55/56/83			R32	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		56/57/83			R33	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		57/58/83			R34	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		58/59/83			R35	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP

NOTES: (1) Repair No.: Repairs should be numbered sequentially
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 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing PP = Pipe Penetration

Geomembrane Repair Log Summary



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ Primary
☐ Secondary
☐ Other: _____

25809 Interstate 30 South
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/21/09		59/60/83			R36	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		59/60	70.0	EOS	R37	D 14	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		60/77/83			R38	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		77/78/83			R39	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		78/79/83			R40	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		79/83	64.0	EOS	R41	D 19	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		79/80/83			R42	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		80/81/83/91			R43	P	E	2.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		80/81	70.0	EOS	R44	D 20	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		91/92	40.0	EOS	R45	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		81/91/92			R46	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		81/92	40.0	EOS	R47	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09	92		5.0	R48	R48	P	E	1.5	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		83/90/91/44			R49	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		42/43/44			R50	C	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		42/44	200.0	EOS	R51	D 12	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		40/41/42			R52	P	E	1.5	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		41/42	170.0	EOS	R53	D 11	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		41/42/43			R54	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		41/43/88			R55	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP

NOTES: (1) Repair No.: Repairs should be numbered sequentially
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Geomembrane Repair Log Summary



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Earl Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ Primary
☐ Secondary
☐ Other: _____

25809 Interstate 30 South
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 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/22/09		89/90	22.0	EOS	R56	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		43/44/89/90			R57	P	E	2.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		89/41/88			R58	P	E	2.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		39/40/41			R59	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		38/39/40			R60	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		38/39	5.0	R61	R61	D 10	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		37/39/38			R62	P	E	2.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		37/38/39			R63	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		36/37/88			R64	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		35/37/88			R65	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		35/36/37			R66	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		35/36	285.0	P88	R67	D 9	E	4.0	2.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		32/33/88			R68	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		31/32/33			R69	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		32/33/88			R70	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		30/32/88			R71	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		32	66.0	P88	R72	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		32	74.0	P88	R73	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		30/31/32			R74	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		31/33	60.0	P68	R75	DS 8	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP

NOTES: (1) Repair No.: Repairs should be numbered sequentially
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Geomembrane Repair Log Summary



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith / E. Pilgram
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ Primary
☐ Secondary
☐ Other: _____

25809 Interstate 30 South
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
											MACH NO	OPER ID						
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	(1)	(2)		(3)	LENGTH (ft)	WIDTH (ft)	DIA (ft)				DATE	OPER ID	PASS/ FAIL	ACTION
1/21/09		29/30/31			R76	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		29/31	319.0	P88	R77	D 7	E	4.0	2.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		27/29	277.0	P88	R78	D 6	E	4.0	2.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		27/28/29			R79	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		28/29/30			R80	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/22/09		28/30/88			R81	P	E	1.0	1.0		23	JN	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		33/35/88			R82	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		33/35	3.0	P88	R83	P	E	1.0	1.0		47	VJ	EP	1/26/09	FS	P	Vacuum	EP
1/21/09		44/82/83			R84	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		75/76	30.0	P44	R85	D 18	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		77/73	10.0	P42	R86	D 17	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		31/68	10.0	P67	R87	D 16	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		66/67	15.0	P29	R88	D 15	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		25/26/27			R89	P	E	2.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		24/25/26			R90	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		26/24	37.0	P25	R91	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		26/24	51.0	P25	R92	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		27/28/26			R93	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		88/28/26			R94	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		88/26/24			R95	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS

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 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing PP = Pipe Penetration

Geomembrane Repair Log Summary



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

25809 Interstate 30 South
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/21/09		88/14/24			R96	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		88/16/14			R97	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		88/18/16			R98	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		88/18/19			R99	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		88/19/20			R100	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		88/20/21			R101	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		88/22/23			R102	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		13/23/93			R103	P	E	3.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		12/13/23			R104	P	E	2.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		12/22/23			R105	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		22/23	16.0	P12	R106	D 5	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		11/12/22			R107	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		10/11/20/22			R108	P	E	8.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		19/20	20.0	P21	R109	D 4	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		19/21/20			R110	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		10/21/20			R111	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		9/10/21			R112	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		9/19/20			R113	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		8/9/19			R114	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		7/8/19			R115	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS

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Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

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DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
											MACH NO	OPER ID						
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	(1)	(2)		(3)	LENGTH (ft)	WIDTH (ft)	DIA (ft)				DATE	OPER ID	PASS/ FAIL	ACTION
1/21/09		7/18/19			R116	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		6/7/17/18			R117	P	E	4.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		17/18/16			R118	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		5/6/17			R119	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		5/17	10.0	P4	R120	D 1	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		4/5/17			R121	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		3/4/17			R122	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		2/3/17			R123	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		1/2/17			R124	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		14/15	40.0	S. EOS	R125	D 2	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/22/09		15/16	10.0	P17	R126	D 3	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		17/15/16			R127	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		15/16/14			R128	P	E	1.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		6/7/8			R129	P	E	2.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		9/10/11			R130	P	E	2.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/21/09		9/11/12			R131	P	E	2.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		131/102/103			R132	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		13/102	10.0	P93	R133	DS 24	E	4.5	2.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		102/103/93/99			R134	P	E	3.5	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		103/104/94/95			R135	P	E	6.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS

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Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ **Primary**
☐ **Secondary**
☐ **Other:** _____

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DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/23/09		104/105/95			R136	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		105/95/96			R137	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		105/106/96			R138	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		106/96/97			R139	P	E	1.5	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		106/107/97			R140	P	E	2.0	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		107/97/98			R141	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		107/108/98			R142	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		108/98/99			R143	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		108/109/110			R144	P	E	3.5	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		108/109/99			R145	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		109/110/99/100			R146	P	E	2.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09	99		5.0	P101	R147	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		110/101	10.0	E. EOS	R148	D 27	E	5.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		99/100/101			R149	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		98/99/100			R150	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		96/97	45.0	N. EOS	R151	D 23	E	5.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		88/23/93			R152	P	E	1.5	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		89/88/93			R153	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		88/22	10.0	E. EOS	R154	D 22	E	5.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		89/88	90.0	W. EOS	R155	D 21	E	5.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS

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Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
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Liner System

☒ Primary
☐ Secondary
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DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/24/09		136/135/134			R156	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		136/134/133			R157	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		136/133/132			R158	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		136/137/132			R159	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		137/138/132/131			R160	P	E	7.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		138/139/131/130			R161	P	E	6.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		130/128/129			R162	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		128/129/127			R163	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		139/130/140/129			R164	P	E	7.0	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		140/129/127			R165	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		140/141/127			R166	P	E	1.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		141/144/127/126			R167	P	E	1.5	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		117/118/119			R168	P	E	3.5	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		115/116/117			R169	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		114/115/116			R170	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		112/113/114			R171	P	E	2.0	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		111/112/113			R172	P	E	2.0	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/23/09		110/111/101			R173	D-26	E	5.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		141/142/143			R174	P	E	6.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		141/143/144			R175	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS

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Liner System

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	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/24/09		139/140			R176	P	E	5.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		110/111/101/156			R177	P	E	3.5	3.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		111/113/156/151			R178	P	E	2.5	1.5		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		113/114/157/159			R179	P	E	2.5	1.5		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		114/116/159/160			R180	P	E	2.5	1.5		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		116/117/160/161			R181	P	E	2.5	2.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		117/119/161/152			R182	P	E	3.0	3.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		161/153/152			R183	P	E	2.0	1.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		152/149/119/120			R184	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		149/120/121			R185	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		149/148/121			R186	P	E	1.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		148/123/121			R187	P	E	2.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		147/148/123			R188	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		147/124/123			R189	P	E	2.0	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		145/147/125/124			R190	P	E	4.5	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		144/145/126/125			R191	P	E	2.5	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		144/126			R192	P	E	3.0	3.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS

NOTES: (1) Repair No.: Repairs should be numbered sequentially
 (2) Repair Codes: P = Patch, C = Cap, S = Anchor Trench Ext., D = Destructive Sample, G = Grind and Weld, T = Topping along Fusion Seam
 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing PP = Pipe Penetration

Geomembrane Repair Log Summary



Client Name: Saline County RSWMD
Contractor: Pickett Industries
Project Name: Saline County Cell 4
Address: Bauxite, Arkansas
Location: Saline County Class 1 Landfill

Project Number: 35087125
CQA Monitor: Joe Smith
Reviewed By: Brad Fureigh, E.I.
Approved By: Ken Bown, P.E.
Liner Installer: ESI

Liner System

☒ Primary
☐ Secondary
☐ Other: _____

25809 Interstate 30 South
 Bryant, AR 72022
 Phone 501.847.9292
 Fax 501.847.9210

DATE	LOCATION				REPAIR NO. AND CODE		REPAIR TYPE (3)	SIZE			WELDER ID		QA ID	NON-DESTRUCTIVE TESTING				
	PANEL	SEAM	DIST (ft)	OFFSET (ft)	CODE			LENGTH (ft)	WIDTH (ft)	DIA (ft)	MACH NO	OPER ID		DATE	OPER ID	PASS/ FAIL	ACTION	QA ID
					(1)	(2)												
1/26/09		145/146/147			R193	P	E	2.0	2.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		146/147/148			R194	P	E	2.0	2.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		150/148/149			R195	P	E	2.5	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		152/150/149			R196	P	E	2.0	1.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		151/152/153			R197	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		151/150/152			R198	P	E	6.0	3.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		151/153			R199	P	E	2.5	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		151/155/153			R200	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		151/154/155			R201	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		161/154/155			R202	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		161/155/153			R203	P	E	2.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/24/09		157/159	10.0	S. EOS	R204	D-32	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		156/158/157			R205	P	E	2.0	2.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		158/159/157			R206	P	E	2.0	2.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		152/150	15.0	W. EOS	R207	D-34	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		150/149	10.0	N. EOS	R208	D-31	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		143/145	10.0	E. EOS	R209	D-33	E	4.0	2.0		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		143/144/145			R210	P	E	2.0	1.5		23	JN	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		122/121/123			R211	P	E	2.0	2.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS
1/26/09		120/122/121			R212	P	E	2.0	2.0		47	VJ	JWS	1/26/09	FS	P	Vacuum	JWS

NOTES: (1) Repair No.: Repairs should be numbered sequentially
 (2) Repair Codes.: P = Patch, C = Cap, S = Anchor Trench Ext., D = Destructive Sample, G = Grind and Weld, T = Topping along Fusion Seam
 (3) Repair Types: E = Extrusion and F = Fusion

ABBREVIATIONS:
 GV = Gas Vent AT = Anchor Trench
 EXT = Existing PP = Pipe Penetration

APPENDIX U
GEOCOMPOSITE MANUFACTURER'S QC
CERTIFICATES

November 3, 2008
Environmental Specialties Int'l
7943 Pecue Lane, Suite A
Baton Rouge, LA 70809

Ref. : Saline County Landfill, AR
Customer P.O. # 10453
Transnet 220-2-8

We certify that the Transnet 220-2-8 drainage composite, meets the project requirements as stated in the specifications. The properties listed in this section are:

Property	Test Method	Unit	Required Value	Qualifier
Geonet⁴				
Mass per Unit Area	ASTM D 5261	lbs/ft ²	0.162	Minimum
Thickness	ASTM D 5199	mil	220 ± 20	Range
Carbon Black	ASTM D 4218	%	2.0	Minimum
Tensile Strength	ASTM D 5035	lbs/in	45	Minimum
Melt Flow	ASTM D 1238 ³	g/10 min	1.0	Maximum
Density	ASTM D 1505	g/cm ³	0.94	Minimum
Transmissivity ¹	ASTM D 4716	m ² /sec	2.0 x 10 ⁻³	MARV ⁶
Composite				
Ply Adhesion (Min)	GRI GC7	lb/in	1.0	MARV
Ply Adhesion (Avg)	GRI GC7	lb/in	2.0	MARV
Transmissivity ²	ASTM D 4716	m ² /sec	1.0 x 10 ⁻⁴	MARV
Geotextile^{4 & 5}				
Fabric Weight	ASTM D 5261	oz/yd ²	8.0	MARV
Grab Strength	ASTM D 4632	lbs	225	MARV
Tear Strength	ASTM D 4533	lbs	90	MARV
Water Flow Rate	ASTM D 4491	gpm/ft ²	100	MARV
AOS	ASTM D 4751	US Sieve	80	MARV
UV Resistance	ASTM D 4355	%/hrs	70/500	MARV

Notes:

- 1 Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 4000 psf between steel plates after 1 hour.
- 2 Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 10000 psf between steel plates after 1 hour.
- 3 Condition 190/2.16
- 4 Geotextile and Geonet properties are prior to lamination.
- 5 Geotextile data is provided by the supplier.
- 6 MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.

Sincerely,
Nilay Patel
Nilay Patel
QA Manager

Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geocomposite manufacturer, hereby certify the following for the material delivered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m ² /sec)
			Top	Bottom	Minimum	Average	
1	302710001	302710001 - N	3027.05	3027.03	2.22	2.97	1.78 x 10 ⁻⁴
2	302710002	302710002 - N	3027.05	3027.03			
3	302710003	302710003 - N	3027.05	3027.03			
4	302710004	302710004 - N	3027.05	3027.03			
5	302710005	302710005 - N	3027.05	3027.03			
6	302710006	302710006 - N	3027.13	3027.09			
7	302710007	302710007 - N	3027.13	3027.09			
8	302710008	302710008 - N	3027.13	3027.09			
9	302710009	302710009 - N	3027.13	3027.09			
10	302710010	302710010 - N	3027.13	3027.09	2.53	3.18	
11	302710011	302710011 - N	3027.02	3027.23			
12	302710012	302710012 - N	3027.02	3027.23			
13	302710013	302710013 - N	3027.02	3027.23			
14	302710014	302710014 - N	3027.02	3027.23			
15	302710015	302710015 - N	3027.02	3027.23			
16	302710016	302710016 - N	3027.19	3027.06			
17	302710017	302710017 - N	3027.19	3027.06			
18	302710018	302710018 - N	3027.19	3027.06			
19	302710019	302710019 - N	3027.19	3027.06			
20	302710020	302710020 - N	3027.19	3027.06	2.26	2.93	
21	302710021	302710021 - N	3027.35	3027.18			
22	302710022	302710022 - N	3027.35	3027.18			
23	302710023	302710023 - N	3027.35	3027.18			
24	302710024	302710024 - N	3027.35	3027.18			
25	302710025	302710025 - N	3027.35	3027.18			1.89 x 10 ⁻⁴
26	302710026	302710026 - N	3027.08	3027.10			
27	302710027	302710027 - N	3027.08	3027.10			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 10000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geonet Manufacturer, hereby certify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft ²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m ² /sec)
302710001 - N	UTCX59478	0.9563	0.183	217	2.38	69	2.11 x 10 ⁻³
302710002 - N	UTCX59478	0.9563					
302710003 - N	UTCX59478	0.9563					
302710004 - N	UTCX59478	0.9563					
302710005 - N	UTCX59478	0.9563					
302710006 - N	UTCX59478	0.9563					
302710007 - N	UTCX59478	0.9563					
302710008 - N	UTCX59478	0.9563					
302710009 - N	UTCX59478	0.9563					
302710010 - N	UTCX59478	0.9563	0.192	223	2.70	76	
302710011 - N	UTCX59478	0.9563					
302710012 - N	UTCX59478	0.9563					
302710013 - N	UTCX59478	0.9563					
302710014 - N	UTCX59478	0.9563					
302710015 - N	UTCX59478	0.9563					
302710016 - N	UTCX59478	0.9563					
302710017 - N	UTCX59478	0.9563					
302710018 - N	UTCX59478	0.9563					
302710019 - N	UTCX59478	0.9563					
302710020 - N	UTCX59478	0.9563	0.185	219	2.31	71	
302710021 - N	UTCX59478	0.9563					
302710022 - N	UTCX59478	0.9563					
302710023 - N	UTCX59478	0.9563					
302710024 - N	UTCX59478	0.9563					
302710025 - N	UTCX59478	0.9563					2.23 x 10 ⁻³
302710026 - N	UTCX59478	0.9563					
302710027 - N	UTCX59478	0.9563					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 4000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geocomposite manufacturer, hereby certify the following for the material delivered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m ² /sec)
			Top	Bottom	Minimum	Average	
1	302710028	302710028 - N	3027.08	3027.10			
2	302710029	302710029 - N	3027.08	3027.10			
3	302710030	302710030 - N	3027.08	3027.10	2.50	3.15	
4	302710031	302710031 - N	3027.24	3027.16			
5	302710032	302710032 - N	3027.24	3027.16			
6	302710033	302710033 - N	3027.24	3027.16			
7	302710034	302710034 - N	3027.24	3027.16			
8	302710035	302710035 - N	3027.24	3027.16			
9	302710036	302710036 - N	3027.12	3027.21			
10	302710037	302710037 - N	3027.12	3027.21			
11	302710038	302710038 - N	3027.12	3027.21			
12	302710039	302710039 - N	3027.12	3027.21			
13	302710040	302710040 - N	3027.12	3027.21	2.31	2.99	
14	302710041	302710041 - N	3027.20	3027.28			
15	302710042	302710042 - N	3027.20	3027.28			
16	302710043	302710043 - N	3027.20	3027.28			
17	302710044	302710044 - N	3027.20	3027.28			
18	302710045	302710045 - N	3027.20	3027.28			
19	302710046	302710046 - N	3027.07	3027.46			
20	302710047	302710047 - N	3027.07	3027.46			
21	302710048	302710048 - N	3027.07	3027.46			
22	302710049	302710049 - N	3027.07	3027.46			
23	302710050	302710050 - N	3027.07	3027.46	2.47	3.10	1.81 x 10 ⁻⁴
24	302710051	302710051 - N	3027.26	3027.15			
25	302710052	302710052 - N	3027.26	3027.15			
26	302710053	302710053 - N	3027.26	3027.15			
27	302710054	302710054 - N	3027.26	3027.15			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 10000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geonet Manufacturer, hereby certify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft ²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m ² /sec)
302710028 - N	UTCX59478	0.9563					
302710029 - N	UTCX59478	0.9563					
302710030 - N	UTCX59478	0.9563	0.190	221	2.66	74	
302710031 - N	UTCX59478	0.9563					
302710032 - N	UTCX59478	0.9563					
302710033 - N	UTCX59478	0.9563					
302710034 - N	UTCX59478	0.9563					
302710035 - N	UTCX59478	0.9563					
302710036 - N	UTCX59478	0.9563					
302710037 - N	UTCX59478	0.9563					
302710038 - N	UTCX59478	0.9563					
302710039 - N	UTCX59478	0.9563					
302710040 - N	UTCX59478	0.9563	0.182	216	2.35	68	
302710041 - N	UTCX59478	0.9563					
302710042 - N	UTCX59478	0.9563					
302710043 - N	UTCX59478	0.9563					
302710044 - N	UTCX59478	0.9563					
302710045 - N	UTCX59478	0.9563					
302710046 - N	UTCX59478	0.9563					
302710047 - N	UTCX59478	0.9563					
302710048 - N	UTCX59478	0.9563					
302710049 - N	UTCX59478	0.9563					
302710050 - N	UTCX59478	0.9563	0.193	224	2.62	72	2.14 x 10 ⁻³
302710051 - N	UTCX59478	0.9563					
302710052 - N	UTCX59478	0.9563					
302710053 - N	UTCX59478	0.9563					
302710054 - N	UTCX59478	0.9563					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 4000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geocomposite manufacturer, hereby certify the following for the material delivered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m ² /sec)
			Top	Bottom	Minimum	Average	
1	302710055	302710055 - N	3027.26	3027.15			
2	302710056	302710056 - N	3027.17	3027.25			
3	302710057	302710057 - N	3027.17	3027.25			
4	302710058	302710058 - N	3027.17	3027.25			
5	302710059	302710059 - N	3027.17	3027.25			
6	302710060	302710060 - N	3027.17	3027.25	2.34	3.01	
7	302710061	302710061 - N	3027.49	3027.36			
8	302710062	302710062 - N	3027.49	3027.36			
9	302710063	302710063 - N	3027.49	3027.36			
10	302710064	302710064 - N	3027.49	3027.36			
11	302710065	302710065 - N	3027.49	3027.36			
12	302710066	302710066 - N	3027.31	3027.52			
13	302710067	302710067 - N	3027.31	3027.52			
14	302710068	302710068 - N	3027.31	3027.52			
15	302710069	302710069 - N	3027.31	3027.52			
16	302710070	302710070 - N	3027.31	3027.52	2.42	3.13	
17	302710071	302710071 - N	3027.45	3027.29			
18	302710072	302710072 - N	3027.45	3027.29			
19	302710073	302710073 - N	3027.45	3027.29			
20	302710074	302710074 - N	3027.45	3027.29			
21	302710075	302710075 - N	3027.45	3027.29			1.86 x 10 ⁻⁴
22	302710076	302710076 - N	3027.34	3027.50			
23	302710077	302710077 - N	3027.34	3027.50			
24	302710078	302710078 - N	3027.34	3027.50			
25	302710079	302710079 - N	3027.34	3027.50			
26	302710080	302710080 - N	3027.34	3027.50	2.38	3.04	
27	302710081	302710081 - N	3027.51	3027.38			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 10000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geonet Manufacturer, hereby certify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft ²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m ² /sec)
302710055 - N	UTCX59478	0.9563					
302710056 - N	UTCX59478	0.9563					
302710057 - N	UTCX59478	0.9563					
302710058 - N	UTCX59478	0.9563					
302710059 - N	UTCX59478	0.9563					
302710060 - N	UTCX59478	0.9563	0.184	218	2.43	70	
302710061 - N	UTCX59478	0.9563					
302710062 - N	UTCX59478	0.9563					
302710063 - N	UTCX59478	0.9563					
302710064 - N	UTCX59478	0.9563					
302710065 - N	UTCX59478	0.9563					
302710066 - N	UTCX59478	0.9563					
302710067 - N	UTCX59478	0.9563					
302710068 - N	UTCX59478	0.9563					
302710069 - N	UTCX59478	0.9563					
302710070 - N	UTCX59478	0.9563	0.189	222	2.58	75	
302710071 - N	UTCX59478	0.9563					
302710072 - N	UTCX59478	0.9563					
302710073 - N	UTCX59478	0.9563					
302710074 - N	UTCX59478	0.9563					
302710075 - N	UTCX59478	0.9563					2.19 x 10 ⁻³
302710076 - N	UTCX59478	0.9563					
302710077 - N	UTCX59478	0.9563					
302710078 - N	UTCX59478	0.9563					
302710079 - N	UTCX59478	0.9563					
302710080 - N	UTCX59478	0.9563	0.186	220	2.47	73	
302710081 - N	UTCX59478	0.9563					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 4000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geocomposite manufacturer, hereby certify the following for the material delivered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m ² /sec)
			Top	Bottom	Minimum	Average	
1	302710082	302710082 - N	3027.51	3027.38			
2	302710083	302710083 - N	3027.51	3027.38			
3	302710084	302710084 - N	3027.51	3027.38			
4	302710085	302710085 - N	3027.51	3027.38			
5	302710086	302710086 - N	3027.01	3027.04			
6	302710087	302710087 - N	3027.01	3027.04			
7	302710088	302710088 - N	3027.01	3027.04			
8	302710089	302710089 - N	3027.01	3027.04			
9	302710090	302710090 - N	3027.01	3027.04	2.40	3.19	
10	302710091	302710091 - N	3027.37	3027.48			
11	302710092	302710092 - N	3027.37	3027.48			
12	302710093	302710093 - N	3027.37	3027.48			
13	302710094	302710094 - N	3027.37	3027.48			
14	302710095	302710095 - N	3027.37	3027.48			
15	302710096	302710096 - N	3027.43	3027.33			
16	302710097	302710097 - N	3027.43	3027.33			
17	302710098	302710098 - N	3027.43	3027.33			
18	302710099	302710099 - N	3027.43	3027.33			
19	302710100	302710100 - N	3027.43	3027.33	2.21	3.08	1.84 x 10 ⁻⁴
20	302710101	302710101 - N	3027.30	3027.42			
21	302710102	302710102 - N	3027.30	3027.42			
22	302710103	302710103 - N	3027.30	3027.42			
23	302710104	302710104 - N	3027.30	3027.42			
24	302710105	302710105 - N	3027.30	3027.42			
25	302710106	302710106 - N	3027.53	3027.39			
26	302710107	302710107 - N	3027.53	3027.39			
27	302710108	302710108 - N	3027.53	3027.39			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 10000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geonet Manufacturer, hereby certify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft ²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m ² /sec)
302710082 - N	UTCX59478	0.9563					
302710083 - N	UTCX59478	0.9563					
302710084 - N	UTCX59478	0.9563					
302710085 - N	UTCX59478	0.9563					
302710086 - N	UTCX59478	0.9563					
302710087 - N	UTCX59478	0.9563					
302710088 - N	UTCX59478	0.9563					
302710089 - N	UTCX59478	0.9563					
302710090 - N	UTCX59478	0.9563	0.194	217	2.54	76	
302710091 - N	UTCX59478	0.9563					
302710092 - N	UTCX59478	0.9563					
302710093 - N	UTCX59478	0.9563					
302710094 - N	UTCX59478	0.9563					
302710095 - N	UTCX59478	0.9563					
302710096 - N	UTCX59478	0.9563					
302710097 - N	UTCX59478	0.9563					
302710098 - N	UTCX59478	0.9563					
302710099 - N	UTCX59478	0.9563					
302710100 - N	UTCX59478	0.9563	0.188	223	2.51	69	2.16 x 10 ⁻³
302710101 - N	UTCX59478	0.9563					
302710102 - N	UTCX59478	0.9563					
302710103 - N	UTCX59478	0.9563					
302710104 - N	UTCX59478	0.9563					
302710105 - N	UTCX59478	0.9563					
302710106 - N	UTCX59478	0.9563					
302710107 - N	UTCX59478	0.9563					
302710108 - N	UTCX59478	0.9563					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 4000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geocomposite manufacturer, hereby certify the following for the material delivered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m ² /sec)
			Top	Bottom	Minimum	Average	
1	302710109	302710109 - N	3027.53	3027.39			
2	302710110	302710110 - N	3027.53	3027.39	2.55	3.12	
3	302710111	302710111 - N	3027.32	3027.41			
4	302710112	302710112 - N	3027.32	3027.41			
5	302710113	302710113 - N	3027.32	3027.41			
6	302710114	302710114 - N	3027.32	3027.41			
7	302710115	302710115 - N	3027.32	3027.41			
8	302710116	302710116 - N	3027.11	3027.14			
9	302710117	302710117 - N	3027.11	3027.14			
10	302710118	302710118 - N	3027.11	3027.14			
11	302710119	302710119 - N	3027.11	3027.14			
12	302710120	302710120 - N	3027.11	3027.14	2.27	3.02	
13	302710121	302710121 - N	3027.57	3027.44			
14	302710122	302710122 - N	3027.57	3027.44			
15	302710123	302710123 - N	3027.57	3027.44			
16	302710124	302710124 - N	3027.57	3027.44			
17	302710125	302710125 - N	3027.57	3027.44			1.91 x 10 ⁻⁴
18	302710126	302710126 - N	3027.47	3027.40			
19	302710127	302710127 - N	3027.47	3027.40			
20	302710128	302710128 - N	3027.47	3027.40			
21	302710129	302710129 - N	3027.47	3027.40			
22	302710130	302710130 - N	3027.47	3027.40	2.49	3.17	
23	302710131	302710131 - N	3027.54	3027.59			
24	302710132	302710132 - N	3027.54	3027.59			
25	302710133	302710133 - N	3027.54	3027.59			
26	302710134	302710134 - N	3027.54	3027.59			
27	302710135	302710135 - N	3027.54	3027.59			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 10000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geonet Manufacturer, hereby certify the following for the material sent to the above referenced project :

Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft ²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m ² /sec)
302710109 - N	UTCX59478	0.9563					
302710110 - N	UTCX59478	0.9563	0.191	220	2.73	74	
302710111 - N	UTCX59478	0.9563					
302710112 - N	UTCX59478	0.9563					
302710113 - N	UTCX59478	0.9563					
302710114 - N	UTCX59478	0.9563					
302710115 - N	UTCX59478	0.9563					
302710116 - N	UTCX59478	0.9563					
302710117 - N	UTCX59478	0.9563					
302710118 - N	UTCX59478	0.9563					
302710119 - N	UTCX59478	0.9563					
302710120 - N	UTCX59478	0.9563	0.185	222	2.26	70	
302710121 - N	UTCX59478	0.9563					
302710122 - N	UTCX59478	0.9563					
302710123 - N	UTCX59478	0.9563					
302710124 - N	UTCX59478	0.9563					
302710125 - N	UTCX59478	0.9563					2.21 x 10 ⁻³
302710126 - N	UTCX59478	0.9563					
302710127 - N	UTCX59478	0.9563					
302710128 - N	UTCX59478	0.9563					
302710129 - N	UTCX59478	0.9563					
302710130 - N	UTCX59478	0.9563	0.187	216	2.65	75	
302710131 - N	UTCX59478	0.9563					
302710132 - N	UTCX59478	0.9563					
302710133 - N	UTCX59478	0.9563					
302710134 - N	UTCX59478	0.9563					
302710135 - N	UTCX59478	0.9563					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 4000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geocomposite manufacturer, hereby certify the following for the material delivered to the above referenced project :

Roll	Geocomposite Roll Number	Geonet Roll Number	Geotextile Roll Number		Ply Adhesion (lb/in)		Geocomposite Transmissivity* (m ² /sec)
			Top	Bottom	Minimum	Average	
1	302710136	302710136 - N	3027.62	3027.55			
2	302710137	302710137 - N	3027.62	3027.55			
3	302710138	302710138 - N	3027.62	3027.55			
4	302710139	302710139 - N	3027.62	3027.55			
5	302710140	302710140 - N	3027.62	3027.55	2.32	3.06	
6	302710141	302710141 - N	3027.58	3027.61			
7	302710142	302710142 - N	3027.58	3027.61			
8	302710143	302710143 - N	3027.58	3027.61			
9	302710144	302710144 - N	3027.58	3027.61			
10	302710145	302710145 - N	3027.58	3027.61			
11	302710146	302710146 - N	3027.22	3027.27			
12	302710147	302710147 - N	3027.22	3027.27			
13	302710148	302710148 - N	3027.22	3027.27			
14	302710149	302710149 - N	3027.22	3027.27			
15	302710150	302710150 - N	3027.22	3027.27	2.44	3.14	1.77 x 10 ⁻⁴
16	302710151	302710151 - N	3027.60	3027.56			
17	302710152	302710152 - N	3027.60	3027.56			
18	302710153	302710153 - N	3027.60	3027.56			
19	302710154	302710154 - N	3027.60	3027.56			
20	302710155	302710155 - N	3027.60	3027.56			

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 10000 psf between steel plates after 1 hour.



Product : TN220-2-8
Project : Saline County Landfill, AR

We, the Geonet Manufacturer, hereby certify the following for the material sent to the above referenced project :

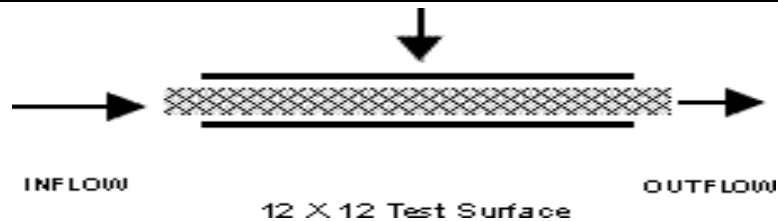
Geonet Roll Number	Resin Lot Number	Geonet Density (gm/cc)	Mass Per Unit Area (lb/ft ²)	Thickness (mils)	Carbon Black (%)	Tensile Strength (MD) (lb/in)	Transmissivity* (m ² /sec)
302710136 - N	UTCX59478	0.9563					
302710137 - N	UTCX59478	0.9563					
302710138 - N	UTCX59478	0.9563					
302710139 - N	UTCX59478	0.9563					
302710140 - N	UTCX59478	0.9563	0.182	224	2.33	68	
302710141 - N	UTCX59478	0.9563					
302710142 - N	UTCX59478	0.9563					
302710143 - N	UTCX59478	0.9563					
302710144 - N	UTCX59478	0.9563					
302710145 - N	UTCX59478	0.9563					
302710146 - N	UTCX59478	0.9563					
302710147 - N	UTCX59478	0.9563					
302710148 - N	UTCX59478	0.9563					
302710149 - N	UTCX59478	0.9563					
302710150 - N	UTCX59478	0.9563	0.193	219	2.59	73	2.12 x 10 ⁻³
302710151 - N	UTCX59478	0.9563					
302710152 - N	UTCX59478	0.9563					
302710153 - N	UTCX59478	0.9563					
302710154 - N	UTCX59478	0.9563					
302710155 - N	UTCX59478	0.9563					

* Transmissivity measured using water at 21 ± 2 °C (70 ± 4 °F) with a gradient of 1.0 and a confining pressure of 4000 psf between steel plates after 1 hour.



Client: Environmental Specialties Int'l
Project: Saline County Landfill, AR
Product: TN220-2-8

Job # 3027

Test Configuration:**Test Information:**

Boundary Conditions: Steel Plate
Geocomposite
Steel Plate

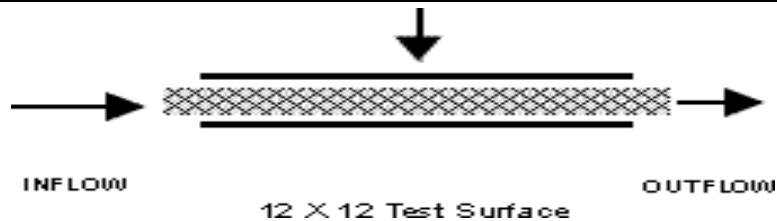
Normal Load: 10000 psf
Gradient: 1.0 ft
Seating Time: 1 hour
Flow Direction: MD

Test Results:

Roll No.	Pressure (psf)	Gradient, ft	Transmissivity, m ² /sec
			1 hour
302710001	10000	1.0	1.78 x 10 ⁻⁴
302710025			1.89 x 10 ⁻⁴
302710050			1.81 x 10 ⁻⁴
302710075			1.86 x 10 ⁻⁴
302710100			1.84 x 10 ⁻⁴
302710125			1.91 x 10 ⁻⁴
302710150			1.77 x 10 ⁻⁴

Client: Environmental Specialties Int'l
Project: Saline County Landfill, AR
Product: TN220-2-8

Job # 3027

Test Configuration:

Test Information:

Boundary Conditions:	Steel Plate	Normal Load: 4000 psf
	Geonet	Gradient: 1.0 ft
	Steel Plate	Seating Time: 1 hour
		Flow Direction: MD

Test Results:

Roll No.	Pressure (psf)	Gradient, ft	Transmissivity, m ² /sec
			1 hour
302710001 - N	4000	1.0	2.11 x 10 ⁻³
302710025 - N			2.23 x 10 ⁻³
302710050 - N			2.14 x 10 ⁻³
302710075 - N			2.19 x 10 ⁻³
302710100 - N			2.16 x 10 ⁻³
302710125 - N			2.21 x 10 ⁻³
302710150 - N			2.12 x 10 ⁻³



POLYETHYLENE RESIN CERTIFICATION

Customer Name : Environmental Specialties Int'l
Project Name : Saline County Landfill, AR
Geocomposite Manufacturer : SKAPS Industries
Geocomposite Production Plant : Commerce, GA
Geocomposite Brand Name : TN220-2-8

We, the Geonet Manufacturer, hereby certify the following for the material delivered to the above referenced project:

Resin Supplier	Resin Production Plant	Resin Brand Name	Resin Lot Number	Property	Test Method	Units	Resin Supplier Value	Tested Value*
I Resin LLC	Chevron, TX	HDPE	UTCX59478	Density	ASTM D 1505	gm/cc	0.955	0.952
				Melt Flow Index	ASTM D 1238 ^(a)	gm/10 min	0.12	0.12

(a) Condition 190/2.16

* Data from SKAPS Quality Control





**Engineered Synthetic
Products, Inc.**

Product : TN220-2-8

Project : Saline County Landfill, AR

We, the Geocomposite Manufacturer, hereby certify the following for the material delivered to the above referenced project :

GEOCOMP ROLL #	FABRIC ROLL #	WEIGHT oz/sq yd	MD TENSILE lbs.	XMD TENSILE lbs.	MD TRAP lbs.	XMD TRAP lbs.	AOS us sieve	WATER- FLOW gpm/sq f
302710001	3027.05	8.27	225	232	102	115	80	103
	3027.03	8.49	233	241	102	115	80	103
302710025	3027.35	8.17	226	234	98	107	80	103
	3027.18	8.31	227	230	96	110	80	103
302710050	3027.07	8.27	225	232	102	115	80	103
	3027.46	8.29	228	231	101	116	80	103
302710075	3027.45	8.29	228	231	101	116	80	103
	3027.29	8.22	229	235	104	118	80	103
302710100	3027.43	8.42	234	238	101	116	80	103
	3027.33	8.53	232	242	98	107	80	103
302710125	3027.57	8.34	227	236	95	111	80	101
	3027.44	8.42	234	238	101	116	80	103
302710150	3027.22	8.45	235	244	104	118	80	103
	3027.27	8.22	229	235	104	118	80	103

APPENDIX V

GEOCOMPOSITE CONFORMANCE TEST RESULTS



Precision Geosynthetic Laboratories



November 17, 2008

Ken Bown
TERRACON
25809 I-30
Bryant, AR 72022

RE: **Saline City Cell 4 Bauxite**

Dear Mr. Bown:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of three (3) Double-Sided Geocomposite samples received November 3, 2008.

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure (Job No. G081531)



Precision Geosynthetic Laboratories



CLIENT: TERRACON
PROJECT NAME: *Saline City Cell 4 Bauxite*

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081531)

MATERIAL DESCRIPTION: Double Sided Geocomposite

SAMPLED BY: PGL @ Skaps, GA

DATE RECEIVED: November 3, 2008

DATE REPORTED: November 17, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R# 302710001	
Geocomposite	52720
Textile Side A	52721
Textile Side B	52722
R#302710030	
Geocomposite	52723
Textile Side A	52724
Textile Side B	52725
R#302710059	
Geocomposite	52726
Textile Side A	52727
Textile Side B	52728

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
Geotextile Component	
ASTM D5261	Mass per Unit
ASTM D4632	Grab Tensile
ASTM D4833	Puncture Resistance
ASTM D4491	Permeability/Permittivity
ASTM D4751	Apparent Opening Size
Geocomposite Component	
ASTM D4716	Transmissivity
ASTM D7005	Ply Adhesion

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.



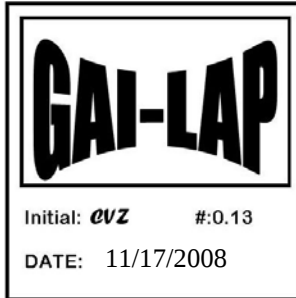
Precision Geosynthetic Laboratories



TEST RESULTS:

The test results are summarized in Tables 1 to 3. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received : **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID : **R#302710001**
 Material Description: **Double Sided Geocomposite**

QC'd by: _____
 PGL Job No. : **G081531**
 PGL Control No. : **52720**

SPECIMENS

SPECIMENS															Proj. Specs. MARV	
1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max			
METHOD	DESCRIPTION															
ASTM D4716	Transmissivity	Tested at Normal Pressure : <u>10,000</u> psf, Gradient: <u>1.0</u> , Seating Time: <u>1 hr.</u>														
		Temperature of Test Water: <u>20.0</u> ⁰ C Specimen Size: 12" x 14"														
	Transmissivity (m. ² / sec.)															
	MD	1.01E-04	1.07E-04								1.04E-04	3.94E-06	1.01E-04	1.07E-04	1 x 10 ⁻⁴	
	Flow Rate (gal/min)															
	MD	0.49	0.52								0.50	0.02	0.49	0.52		
	Transmissivity (gal/min/ft)															
	MD	0.49	0.52								0.50	0.02	0.49	0.52		
	Geosynthetics arranged as follows:										Thickness : <u>297</u> mils (Before)					
	Plate _____										Thickness : <u>254.5</u> mils (After)					
Geocomposite <u>XXXXXX</u>																
Plate _____																
ASTM D7005	Ply Bond Adhesion	(lbs/ in.- width)														
	Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm.															
	Side A of Composite															
	MD	3.0	3.3	3.5	3.8	4.8					3.7	0.7	3.0	4.8	1.0	
	Side B of Composite															
MD	4.5	4.5	4.5	5.8	4.8					4.8	0.5	4.5	5.8			



TABLE 2.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received : **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID : **R#302710030**
 Material Description: **Double Sided Geocomposite**

QC'd by: 
 PGL Job No. : **G081531**
 PGL Control No. : **52723**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D4716	Transmissivity Tested at Normal Pressure : <u>10,000</u> psf, Gradient: <u>1.0</u> , Seating Time: <u>1 hr.</u> Temperature of Test Water: <u>20.0</u> ⁰ C Specimen Size: 12" x 14" Transmissivity (m. ² / sec.) MD 1.02E-04 1.02E-04 Flow Rate (gal/min) MD 0.49 0.49 Transmissivity (gal/min/ft) MD 0.49 0.49 Geosynthetics arranged as follows: Plate _____ Thickness : <u>292</u> mils (Before) Geocomposite <u>XXXXXX</u> Thickness : <u>250.5</u> mils (After) Plate _____										1.02E-04	0.00E+00	1.02E-04	1.02E-04	1 x 10 ⁻⁴
ASTM D7005	Ply Bond Adhesion (lbs/ in.- width) Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm. Side A of Composite MD 4.5 5.8 6.0 5.0 3.3 Side B of Composite MD 6.0 5.8 5.5 5.3 3.0										4.9	1.1	3.3	6.0	1.0
											5.1	1.2	3.0	6.0	



TABLE 3.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received : **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID : **R#302710059**
 Material Description: **Double Sided Geocomposite**

QC'd by: 
 PGL Job No. : **G081531**
 PGL Control No. : **52726**

SPECIMENS

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D4716	Transmissivity	Tested at Normal Pressure : <u>10,000</u> psf, Gradient: <u>1.0</u> , Seating Time: <u>1 hr.</u> Temperature of Test Water: <u>20.0</u> ⁰ C Specimen Size: 12" x 14"													
	Transmissivity (m. ² / sec.)														
	MD	1.09E-04	1.11E-04								1.10E-04	1.42E-06	1.09E-04	1.11E-04	1 x 10 ⁻⁴
	Flow Rate (gal/min)														
	MD	0.53	0.53								0.53	0.01	0.53	0.53	
	Transmissivity (gal/min/ft)														
	MD	0.52	0.53								0.53	0.01	0.52	0.53	
	Geosynthetics arranged as follows:					Thickness : <u>304</u> mils (Before)									
	Plate _____					Thickness : <u>260</u> mils (After)									
	Geocomposite <u>XXXXXX</u>														
	Plate _____														
ASTM D7005	Ply Bond Adhesion	(lbs/ in.- width)													
	Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm.														
	Side A of Composite														
	MD	3.5	5.8	4.5	4.0	4.8					4.5	0.8	3.5	5.8	1.0
	Side B of Composite														
	MD	4.5	5.8	5.3	3.5	3.5					4.5	1.0	3.5	5.8	



TABLE 1A.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710001**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Top)**

QC'd By: 

PGL Job No.: **G081531**

PGL Control No.: **52721**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
<i>Test Specimen Size: 4" x 8"</i>															
	8.5	8.6	8.3	8.3	8.6						8.4	0.1	8.3	8.6	≥ 8
ASTM D4632 Grab Tensile															
<i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
Grab Breaking Load (lbs)															
MD	220	215	230	225	240	235	240	235	236	242	232	9	215	242	225
TD	251	248	250	250	262	235	248	255	258	262	252	8	235	262	
Apparent Breaking Elongation (percent)															
MD	82	77	80	77	73	80	86	87	86	87	82	5	73	87	
TD	89	90	94	94	93	87	93	87	86	93	91	3	86	94	
ASTM D4833 Puncture Resistance (lbs)															
<i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>															
	150	158	158	160	158	158	158	154	160	150	153	6	142	160	
	142	142	150	152	150										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head <i>Specimens were tested as directed in Test Method D4491 using the Constant Head method.</i>															
	1.64	1.64	1.64	1.66							1.64	0.01	1.64	1.66	
Permeability (cm./ sec.)															
	0.36	0.37	0.38	0.35							0.37	0.01	0.35	0.38	
Flow Rate (gpm/ ft. ²)															
	122	122	123	124							123	1	122	124	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 1B.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID: **R#302710001**
 Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Bottom)**

QC'd By: _____
 PGL Job No.: **G081531**
 PGL Control No.: **52722**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D5261	Mass per Unit Area (oz/ yd. ²)														
	<i>Test Specimen Size: 4" x 8"</i>														
	8.6	8.3	8.5	8.4	8.6						8.5	0.1	8.3	8.6	≥ 8
ASTM D4632	Grab Tensile														
	<i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>														
	Grab Breaking Load (lbs)														
MD	218	220	218	230	229	232	236	232	228	230	227	6	218	236	225
TD	235	240	255	242	260	259	262	255	248	250	251	9	235	262	
	Apparent Breaking Elongation (percent)														
MD	87	86	82	86	87	93	87	86	87	88	87	3	82	93	
TD	90	86	87	86	87	86	92	87	83	88	87	2	83	92	
ASTM D4833	Puncture Resistance (lbs)														
	<i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>														
	150	150	154	150	148	150	143	150	150	148	147	4	140	154	
	140	142	143	142	142										
ASTM D4491	Permittivity (sec. ⁻¹)														
Constant Head	<i>Specimens were tested as directed in Test Method D4491 using the Constant Head method.</i>														
	1.64	1.61	1.61	1.60							1.61	0.01	1.60	1.64	
	Permeability (cm./ sec.)														
	0.37	0.38	0.37	0.35							0.37	0.01	0.35	0.38	
	Flow Rate (gpm/ ft. ²)														
	122	120	120	120							121	1	120	122	100
ASTM D4751	Apparent Opening Size (U.S. standard sieve size)														
	<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>														
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
 TD - TRANSVERSE DIRECTION

TABLE 2A.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710030**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Top)**

QC'd By: 

PGL Job No.: **G081531**

PGL Control No.: **52724**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.6	8.3	9.0	8.4	8.2						8.5	0.3	8.2	9.0	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	220	217	220	215	232	260	259	245	220	226	231	17	215	260	225
TD	260	275	260	259	260	259	245	245	245	242	255	10	242	275	
Apparent Breaking Elongation (percent)															
MD	80	86	87	86	87	87	86	87	77	80	84	4	77	87	
TD	94	93	87	86	87	93	94	93	90	87	90	3	86	94	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	150	162	162	170	178	160	142	150	150	150	155	10	142	178	
	155	155	150	148	146										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.64	1.61	1.64	1.64							1.63	0.01	1.61	1.64	
Permeability (cm./ sec.)															
	0.35	0.35	0.35	0.36							0.35	0.00	0.35	0.36	
Flow Rate (gpm/ ft. ²)															
	122	121	122	122							122	1	121	122	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 2B.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710030**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Bottom)**

QC'd By: 

PGL Job No.: **G081531**

PGL Control No.: **52725**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.4	8.4	9.4	8.6	8.3						8.6	0.5	8.3	9.4	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	220	215	220	218	220	230	236	229	245	242	227	11	215	245	225
TD	260	275	262	282	255	259	245	250	245	245	258	13	245	282	
Apparent Breaking Elongation (percent)															
MD	77	80	86	87	86	80	81	82	86	81	83	4	77	87	
TD	87	86	78	87	86	87	86	96	87	90	87	4	78	96	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	150	152	160	158	150	152	148	150	148	142	149	5	140	160	
	140	150	148	148	141										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.63	1.62	1.64	1.61							1.63	0.01	1.61	1.64	
Permeability (cm./ sec.)															
	0.37	0.36	0.37	0.36							0.36	0.01	0.36	0.37	
Flow Rate (gpm/ ft. ²)															
	122	121	122	120							122	1	120	122	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 3A.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710059**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Top)**

QC'd By: 

PGL Job No.: **G081531**

PGL Control No.: **52727**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.3	8.3	8.4	8.6	8.7						8.5	0.2	8.3	8.7	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	220	231	226	228	222	218	226	232	220	226	225	5	218	232	225
TD	260	259	248	262	259	258	243	250	245	275	256	10	243	275	
Apparent Breaking Elongation (percent)															
MD	83	83	87	86	87	90	87	86	82	82	85	3	82	90	
TD	90	93	90	87	86	87	90	91	87	86	89	2	86	93	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	148	148	145	160	162	160	163	162	161	159	160	8	145	175	
	163	162	160	175	170										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.61	1.64	1.64	1.64							1.63	0.01	1.61	1.64	
Permeability (cm./ sec.)															
	0.39	0.37	0.36	0.36							0.37	0.01	0.36	0.39	
Flow Rate (gpm/ ft. ²)															
	120	122	122	122							122	1	120	122	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 3B.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710059**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Bottom)**

QC'd By: 

PGL Job No.: **G081531**

PGL Control No.: **52728**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.3	8.5	8.6	8.5	8.7						8.5	0.2	8.3	8.7	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	220	218	230	245	220	226	228	232	230	228	228	8	218	245	225
TD	238	248	255	262	250	275	235	260	259	262	254	12	235	275	
Apparent Breaking Elongation (percent)															
MD	90	87	86	80	81	87	86	81	81	80	84	4	80	90	
TD	90	87	86	87	86	87	90	94	97	93	90	4	86	97	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	158	162	160	165	145	143	136	150	145	145	148	9	136	165	
	143	142	143	141	150										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.64	1.61	1.61	1.60							1.61	0.02	1.60	1.64	
Permeability (cm./ sec.)															
	0.37	0.36	0.37	0.35							0.36	0.01	0.35	0.37	
Flow Rate (gpm/ ft. ²)															
	122	120	120	120							121	1	120	122	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



November 17, 2008

Ken Bown
TERRACON
25809 I-30
Bryant, AR 72022

RE: **Saline City Cell 4 Bauxite**

Dear Mr. Bown:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of three (3) Double-Sided Geocomposite samples received November 3, 2008.

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,
PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical/Laboratory Director

Enclosure (Job No. G081532)



Precision Geosynthetic Laboratories



CLIENT: TERRACON
PROJECT NAME: *Saline City Cell 4 Bauxite*

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G081532)

MATERIAL DESCRIPTION: Double Sided Geocomposite

SAMPLED BY: PGL @ Skaps, GA

DATE RECEIVED: November 3, 2008

DATE REPORTED: November 17, 2008

SAMPLE IDENTIFICATIONS:

SAMPLE ID	PRECISION CONTROL NUMBER
R# 302710088	
Geocomposite	52729
Textile Side A	52730
Textile Side B	52731
R#302710117	
Geocomposite	52732
Textile Side A	52733
Textile Side B	52734
R#302710146	
Geocomposite	52735
Textile Side A	52736
Textile Side B	52737

TESTS REQUIRED:

TEST METHOD	DESCRIPTION
Geotextile Component	
ASTM D5261	Mass per Unit
ASTM D4632	Grab Tensile
ASTM D4833	Puncture Resistance
ASTM D4491	Permeability/Permittivity
ASTM D4751	Apparent Opening Size
Geocomposite Component	
ASTM D4716	Transmissivity
ASTM D7005	Ply Adhesion

TEST CONDITIONS: The samples were conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.



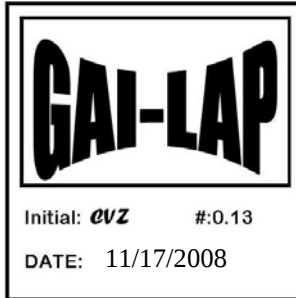
Precision Geosynthetic Laboratories



TEST RESULTS:

The test results are summarized in Tables 1 to 3. The units in which the data are reported are included on these tables.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical/Laboratory Director

TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received : **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID : **R#302710088**
 Material Description: **Double Sided Geocomposite**

QC'd by: 
 PGL Job No. : **G081532**
 PGL Control No. : **52729**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D4716	Transmissivity Tested at Normal Pressure : <u>10,000</u> psf, Gradient: <u>1.0</u> , Seating Time: <u>1 hr.</u> Temperature of Test Water: <u>20.5</u> °C Specimen Size: 12" x 14" Transmissivity (m. ² / sec.) MD 1.16E-04 1.12E-04 Flow Rate (gal/min) MD 0.57 0.55 Transmissivity (gal/min/ft) MD 0.56 0.54 Geosynthetics arranged as follows: Plate _____ Thickness : <u>306.5</u> mils (Before) Geocomposite <u>XXXXXX</u> Thickness : <u>261</u> mils (After) Plate _____										1.14E-04	3.01E-06	1.12E-04	1.16E-04	1 x 10 ⁻⁴
ASTM D7005	Ply Bond Adhesion (lbs/ in.- width) Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm. Side A of Composite MD 5.5 5.5 6.0 6.8 5.8 Side B of Composite MD 4.0 6.5 7.0 5.5 5.0										5.9	0.5	5.5	6.8	1.0
											5.6	1.2	4.0	7.0	



TABLE 2.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received : **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID : **R#302710117**
 Material Description: **Double Sided Geocomposite**

QC'd by: 
 PGL Job No. : **G081532**
 PGL Control No. : **52732**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D4716	Transmissivity Tested at Normal Pressure : <u>10,000</u> psf, Gradient: <u>1.0</u> , Seating Time: <u>1 hr.</u> Temperature of Test Water: <u>20.5</u> °C Specimen Size: 12" x 14" Transmissivity (m. ² / sec.) MD 1.03E-04 1.01E-04 Flow Rate (gal/min) MD 0.50 0.49 Transmissivity (gal/min/ft) MD 0.50 0.49 Geosynthetics arranged as follows: Plate _____ Thickness : <u>297</u> mils (Before) Geocomposite <u>XXXXXX</u> Thickness : <u>251.5</u> mils (After) Plate _____										1.02E-04	1.43E-06	1.01E-04	1.03E-04	1 x 10 ⁻⁴
ASTM D7005	Ply Bond Adhesion (lbs/ in.- width) Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm. Side A of Composite MD 6.5 7.3 6.3 6.5 4.5 Side B of Composite MD 5.0 5.5 6.3 6.8 7.3										6.2	1.0	4.5	7.3	1.0
											6.2	0.9	5.0	7.3	



TABLE 3.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received : **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID : **R#302710146**
 Material Description: **Double Sided Geocomposite**

QC'd by: 
 PGL Job No. : **G081532**
 PGL Control No. : **52735**

SPECIMENS

SPECIMENS															Proj. Specs. MARV	
1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max			
METHOD	DESCRIPTION															
ASTM D4716	Transmissivity	Tested at Normal Pressure : <u>10,000</u> psf, Gradient: <u>1.0</u> , Seating Time: <u>1 hr.</u> Temperature of Test Water: <u>20.5</u> ⁰ C Specimen Size: 12" x 14"														
	Transmissivity (m. ² / sec.)															
	MD	1.05E-04	1.03E-04								1.04E-04	1.54E-06	1.03E-04	1.05E-04	1 x 10 ⁻⁴	
	Flow Rate (gal/min)															
	MD	0.51	0.50								0.51	0.01	0.50	0.51		
	Transmissivity (gal/min/ft)															
	MD	0.51	0.50								0.50	0.01	0.50	0.51		
	Geosynthetics arranged as follows:										Thickness : <u>299</u> mils (Before)					
	Plate _____										Thickness : <u>253.5</u> mils (After)					
	Geocomposite <u>XXXXXX</u>															
	Plate _____															
ASTM D7005	Ply Bond Adhesion	(lbs/ in.- width)														
	Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm.															
	Side A of Composite															
	MD	4.5	6.0	5.0	5.5	6.3					5.5	0.7	4.5	6.3	1.0	
	Side B of Composite															
	MD	5.0	5.5	5.5	6.5	6.0					5.7	0.6	5.0	6.5		



TABLE 1A.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID: **R#302710088**
 Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Top)**

QC'd By: _____
 PGL Job No.: **G081532**
 PGL Control No.: **52730**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.4	8.6	8.3	8.2	8.3						8.4	0.1	8.2	8.6	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	238	240	250	252	242	238	238	241	238	242	242	5	238	252	225
TD	270	261	275	262	282	290	232	241	238	270	262	20	232	290	
Apparent Breaking Elongation (percent)															
MD	80	83	77	76	77	79	80	87	86	81	81	4	76	87	
TD	90	94	97	93	82	87	86	87	86	89	89	4	82	97	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	150	145	142	138	129	142	145	150	142	142	142	5	129	150	
	143	140	142	142	142										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.71	1.68	1.63	1.63							1.66	0.04	1.63	1.71	
Permeability (cm./ sec.)															
	0.34	0.35	0.34	0.33							0.34	0.01	0.33	0.35	
Flow Rate (gpm/ ft. ²)															
	128	125	122	122							124	3	122	128	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
 TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 1B.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710088**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Bottom)**

QC'd By: 

PGL Job No.: **G081532**

PGL Control No.: **52731**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.5	8.3	8.2	8.3	8.6						8.4	0.2	8.2	8.6	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	230	222	260	250	245	260	238	245	250	236	244	12	222	260	225
TD	238	245	260	250	272	262	281	271	245	246	257	14	238	281	
Apparent Breaking Elongation (percent)															
MD	80	86	82	87	86	81	81	87	86	81	84	3	80	87	
TD	90	94	97	94	93	87	86	83	83	80	89	6	80	97	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	150	145	143	142	142	143	143	142	138	138	141	3	138	150	
	138	138	142	142	138										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.62	1.63	1.60	1.62							1.62	0.01	1.60	1.63	
Permeability (cm./ sec.)															
	0.35	0.35	0.34	0.33							0.34	0.01	0.33	0.35	
Flow Rate (gpm/ ft. ²)															
	121	122	119	121							121	1	119	122	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 2A.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite



Date Received: **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID: **R#302710117**
 Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Top)**

QC'd By: _____
 PGL Job No.: **G081532**
 PGL Control No.: **52733**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
<i>Test Specimen Size: 4" x 8"</i>															
	8.6	8.4	8.4	8.5	8.3						8.4	0.1	8.3	8.6	≥ 8
ASTM D4632 Grab Tensile															
<i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
Grab Breaking Load (lbs)															
MD	220	238	242	260	262	259	245	250	242	238	245	13	220	262	225
TD	260	275	282	282	275	282	275	300	290	282	280	10	260	300	
Apparent Breaking Elongation (percent)															
MD	80	80	83	81	77	81	79	80	79	79	80	2	77	83	
TD	90	93	96	87	92	87	86	82	81	82	88	5	81	96	
ASTM D4833 Puncture Resistance (lbs)															
<i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>															
	129	160	159	150	142	142	138	142	142	142	143	8	129	160	
	138	136	142	142	142										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head <i>Specimens were tested as directed in Test Method D4491 using the Constant Head method.</i>															
	1.74	1.74	1.77	1.71							1.74	0.02	1.71	1.77	
Permeability (cm./ sec.)															
	0.33	0.33	0.32	0.34							0.33	0.01	0.32	0.34	
Flow Rate (gpm/ ft. ²)															
	130	130	132	128							130	2	128	132	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
 TD - TRANSVERSE DIRECTION

TABLE 2B.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710117**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Bottom)**

QC'd By: 

PGL Job No.: **G081532**

PGL Control No.: **52734**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.4	8.6	8.7	8.4	8.3						8.5	0.2	8.3	8.7	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	230	220	219	230	222	220	226	230	232	229	226	5	219	232	225
TD	236	240	260	275	280	300	290	275	245	260	266	22	236	300	
Apparent Breaking Elongation (percent)															
MD	87	86	80	77	76	80	83	79	80	76	81	4	76	87	
TD	90	87	86	83	87	86	87	79	96	92	87	5	79	96	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	140	178	170	145	120	138	142	142	142	135	143	14	120	178	
	145	142	134	138	138										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.64	1.63	1.60	1.63							1.62	0.02	1.60	1.64	
Permeability (cm./ sec.)															
	0.35	0.37	0.38	0.38							0.37	0.01	0.35	0.38	
Flow Rate (gpm/ ft. ²)															
	123	122	119	122							121	1	119	123	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 3A.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**
 Date Reported: **11/17/2008**
 Client Sample ID: **R#302710146**
 Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Top)**

QC'd By: 
 PGL Job No.: **G081532**
 PGL Control No.: **52736**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
<i>Test Specimen Size: 4" x 8"</i>															
	8.3	8.5	8.6	8.7	8.5						8.5	0.2	8.3	8.7	≥ 8
ASTM D4632 Grab Tensile															
<i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
Grab Breaking Load (lbs)															
MD	221	260	259	245	250	245	238	238	240	238	243	11	221	260	225
TD	240	260	275	282	290	275	282	290	275	282	275	15	240	290	
Apparent Breaking Elongation (percent)															
MD	80	87	83	77	87	81	73	77	80	75	80	5	73	87	
TD	87	79	87	94	97	92	87	93	87	86	89	5	79	97	
ASTM D4833 Puncture Resistance (lbs)															
<i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>															
	138	140	142	143	142	138	142	142	138	145	140	4	128	145	
	140	128	138	140	142										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head <i>Specimens were tested as directed in Test Method D4491 using the Constant Head method.</i>															
	1.59	1.62	1.62	1.62							1.61	0.02	1.59	1.62	
Permeability (cm./ sec.)															
	0.40	0.37	0.37	0.37							0.37	0.01	0.37	0.40	
Flow Rate (gpm/ ft. ²)															
	119	121	121	121							121	1	119	121	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
 TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



TABLE 3B.
MATERIAL PROPERTIES
CLIENT: TERRACON
PROJECT: Saline Cty Cell 4 Bauxite

Date Received: **11/3/2008**

Date Reported: **11/17/2008**

Client Sample ID: **R#302710146**

Material Description: **Non Woven Geotextile Component of Double-Sided Geocomposite (Bottom)**

QC'd By: 

PGL Job No.: **G081532**

PGL Control No.: **52737**

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD DESCRIPTION															
ASTM D5261 Mass per Unit Area (oz/ yd. ²)															
Test Specimen Size: 4" x 8"															
	8.3	8.2	8.4	8.5	8.6						8.4	0.1	8.2	8.6	≥ 8
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: <u>1500</u> lbs															
Grab Breaking Load (lbs)															
MD	220	219	226	232	240	238	240	220	221	220	228	9	219	240	225
TD	260	270	262	280	229	238	240	262	290	275	261	20	229	290	
Apparent Breaking Elongation (percent)															
MD	87	86	87	86	81	80	79	76	80	77	82	4	76	87	
TD	90	93	97	94	97	94	88	93	94	97	94	3	88	97	
ASTM D4833 Puncture Resistance (lbs)															
Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.															
	140	138	142	142	138	145	142	138	142	142	141	2	138	145	
	142	142	140	138	142										
ASTM D4491 Permittivity (sec. ⁻¹)															
Constant Head Specimens were tested as directed in Test Method D4491 using the Constant Head method.															
	1.80	1.68	1.68	1.71							1.72	0.06	1.68	1.80	
Permeability (cm./ sec.)															
	0.36	0.35	0.35	0.36							0.35	0.01	0.35	0.36	
Flow Rate (gpm/ ft. ²)															
	135	126	126	128							128	4	126	135	100
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

MD - MACHINE DIRECTION
TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



APPENDIX W
LEACHATE COLLECTION SYSTEM MATERIAL TEST
RESULTS

GEOTEXTILE

LABORATORY TESTING



Precision Geosynthetic Laboratories



January 26, 2009

Ken Bown
Terracon
25809 Interstate 30 South
Bryant, AR 72022

RE: **Saline County Cell 4 Construction 35087125**

Dear Mr. Bown:

Thank you for consulting Precision Geosynthetic Laboratories for your material testing needs.

Enclosed is the **final** laboratory report for the testing of one (1) 8oz non woven geotextile sample received on January 20, 2009

It shall be noted that the sample tested is believed to be a true representative of the material produced under the designation herein stated. In addition, the attached laboratory test results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. Precision Geosynthetic Laboratories neither accepts responsibility for nor makes claims to the intended final use and purpose of the material.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims arising out of the use of this data to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself.

It is a policy of the company to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. ***Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. Similarly, retained conformance samples are disposed of after one (1) month.*** On the other hand, should you need us to keep them at longer time, please advise us in writing.

Should you have any questions or if we may be of further service to you, please do not hesitate to contact us at telephone number: 800-522-4599.

Sincerely,

PRECISION GEOSYNTHETIC LABORATORIES

Carmelo V. Zantua
Technical / Laboratory Director

Enclosure: (Job No. G090039)



Precision Geosynthetic Laboratories



CLIENT: Terracon
PROJECT NAME: Saline County cell 4

VERIFICATION OF MATERIAL PROPERTIES
(PGL Job No. G090039)

MATERIAL DESCRIPTION: Non woven Geotextile

SAMPLES SENT BY: B. Fureigh, Terracon

DATE RECEIVED: January 20, 2009

DATE REPORTED: January 26, 2009

SAMPLE IDENTIFICATIONS:

SAMPLE ID

PRECISION CONTROL NUMBER

GT-1

53766

TESTS REQUIRED:

TEST METHOD

DESCRIPTION

ASTM D5261
ASTM D4632
ASTM D4533
ASTM D4833
ASTM D4491
ASTM D4751

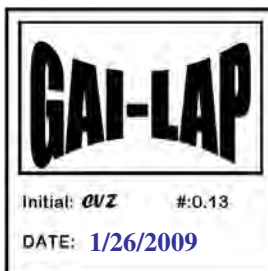
Mass Per unit area
Grab Tensile
Trapeziodal Tear Resistance
Puncture Resistance
Pemitivity
Apparent Opening Size (AOS)

TEST CONDITIONS: The sample was conditioned for a minimum one hour in the laboratory at $22 \pm 2^{\circ}\text{C}$ ($71.6 \pm 3.6^{\circ}\text{F}$) and at $60 \pm 10\%$ relative humidity prior to test.

TEST RESULTS:

The test results are summarized in Table 1. The units in which the data are reported are included on this table.

PRECISION GEOSYNTHETIC LABORATORIES



Carmelo V. Zantua
Technical / Laboratory Director

TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON

PROJECT: Saline Cty RSWMD Cell 4 Construction 35087125



Date Received: 1/20/2009
Date Reported: 1/26/2009
Client Sample ID: GT-1
Material Description: 8oz Non-woven Geotextile

QC'd By: _____
PGL Job No.: G090039
PGL Control No.: 53766

SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD	DESCRIPTION														
ASTM D5261	Mass per Unit Area (oz/ yd. ²) <i>Test Specimen Size: 4" x 8"</i>														
	8.3	8.2	8.4	8.2	8.4						8.3	0.1	8.2	8.4	≥ 8
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>														
	Grab Breaking Load (lbs)														
MD	236	220	226	238	226	229	236	229	240	242	232	7	220	242	225
TD	246	250	260	272	260	255	248	255	259	242	255	9	242	272	
	Apparent Breaking Elongation (percent)														
MD	73	73	77	76	80	77	76	97	73	72	78	7	72	97	50
TD	119	102	110	115	110	112	110	109	107	109	110	4	102	119	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens extended to or beyond the outer edges of the clamping plates.</i>														
	192	200	180	180	181	182	183	182	180	198	193	12	180	211	130
	206	211	208	201	209										
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>														
MD	120	87	80	110	78	106	112	82	100	112	99	16	78	120	90
TD	142	138	126	108	126	124	116	134	104	105	122	14	104	142	
ASTM D4491	Permittivity (sec. ⁻¹) <i>Specimens were tested as directed in Test Method D4491 using the Constant Head method.</i>														
Constant Head	1.61	1.67	1.67	1.72							1.67	0.04	1.61	1.72	1.26
	Permeability (cm./ sec.)														
	0.37	0.37	0.37	0.38							0.37	0.01	0.37	0.38	
	Flow Rate (gpm/ ft. ²)														
	121	125	125	129							125	3	121	129	



TABLE 1.
MATERIAL PROPERTIES
CLIENT: TERRACON

PROJECT: Saline Cty RSWMD Cell 4 Construction 35087125



Date Received: **1/20/2009**
 Date Reported: **1/26/2009**
 Client Sample ID: **GT-1**
 Material Description: **8oz Non-woven Geotextile**

QC'd By: _____
 PGL Job No.: **G090039**
 PGL Control No.: **53766**

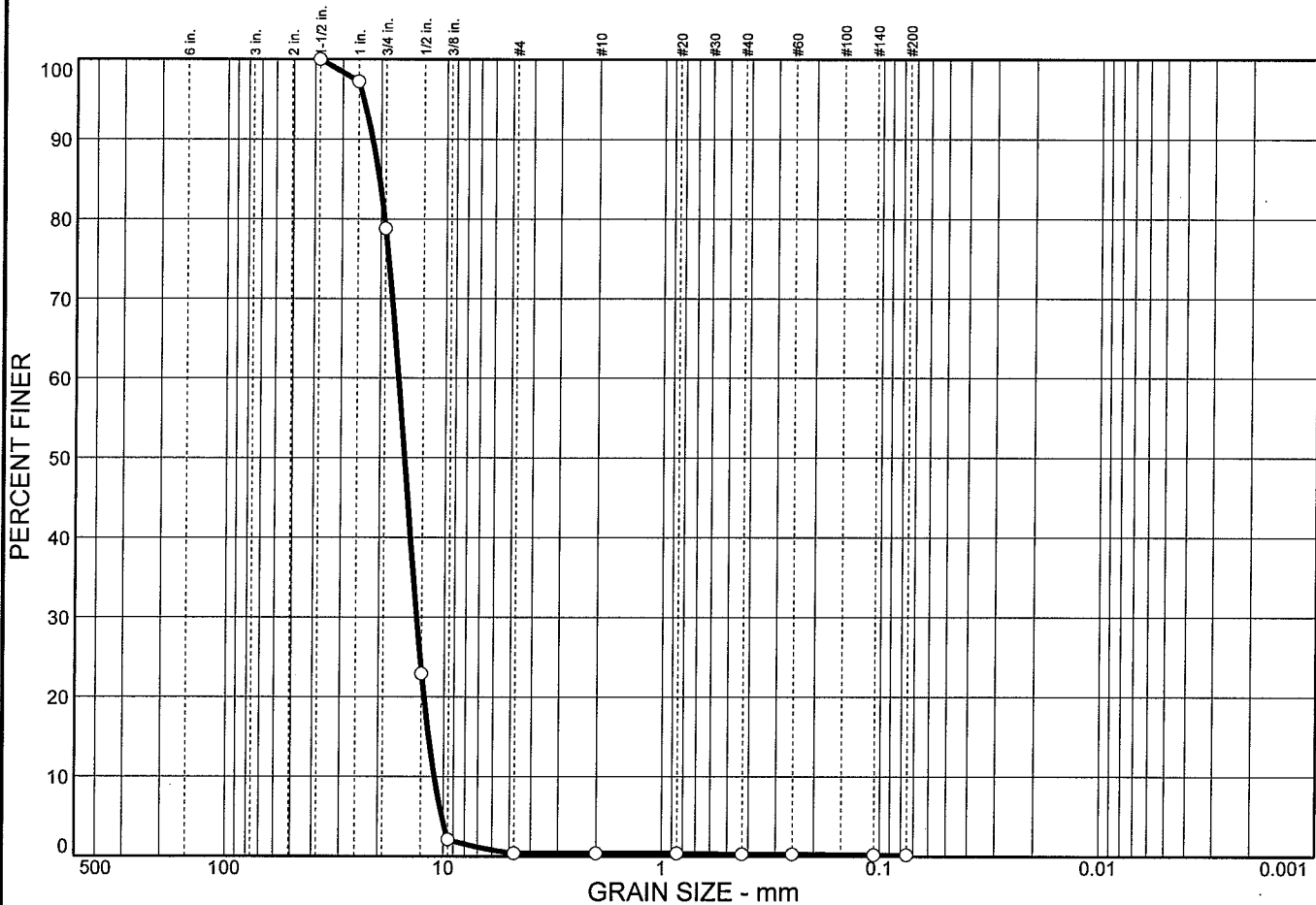
SPECIMENS

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD	DESCRIPTION														
ASTM D4751	Apparent Opening Size (U.S. standard sieve size)														
	<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>														
	70-100	70-100	70-100	70-100	70-100						70-100	N/A	N/A	N/A	80

WASHED GRAVEL

LABORATORY TESTING

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	99.6	0.2	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	97.2		
.75 in.	78.8		
.5 in.	22.9		
.375 in.	2.1		
#4	0.4		
#10	0.4		
#20	0.4		
#40	0.3		
#60	0.3		
#140	0.2		
#200	0.2		

* (no specification provided)

Material Description
 Poorly graded gravel

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₈₅= 20.4 D₆₀= 16.5 D₅₀= 15.4
 D₃₀= 13.4 D₁₅= 11.8 D₁₀= 11.0
 C_u= 1.49 C_c= 0.99

Classification
 USCS= GP AASHTO=

Remarks

Sample No.: PG-1
Location:

Source of Sample: 9945

Date: 11-7-08
Elev./Depth:

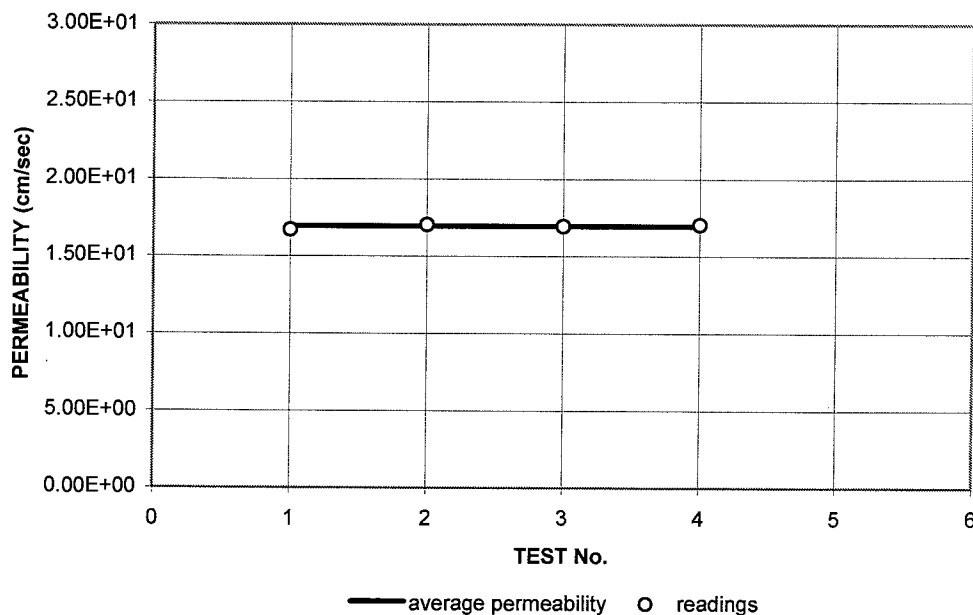
H. C. NUTTING COMPANY

Client: TERRACON
Project: SALINE COUNTY CELL 4

Project No: 35087125

Figure 9945

CONSTANT HEAD PERMEABILITY TEST



Test Specification: ASTM D 2434

Test No.	Manometers		Water Levels		Water Head (cm)	Flow Volume (cm ³)	Elapsed Time (s)	Calculated Permeability (cm/s)
	H1 (cm)	H2 (cm)	L1 (cm)	L2 (cm)				
1	40.9	40.6	1000		0.3	1000	16.66	1.67E+01
2	40.9	40.6	1000		0.3	1000	16.34	1.71E+01
3	40.9	40.6	1000		0.3	1000	16.44	1.69E+01
4	40.9	40.6	1000		0.3	1000	16.34	1.71E+01
Average								1.69E+01

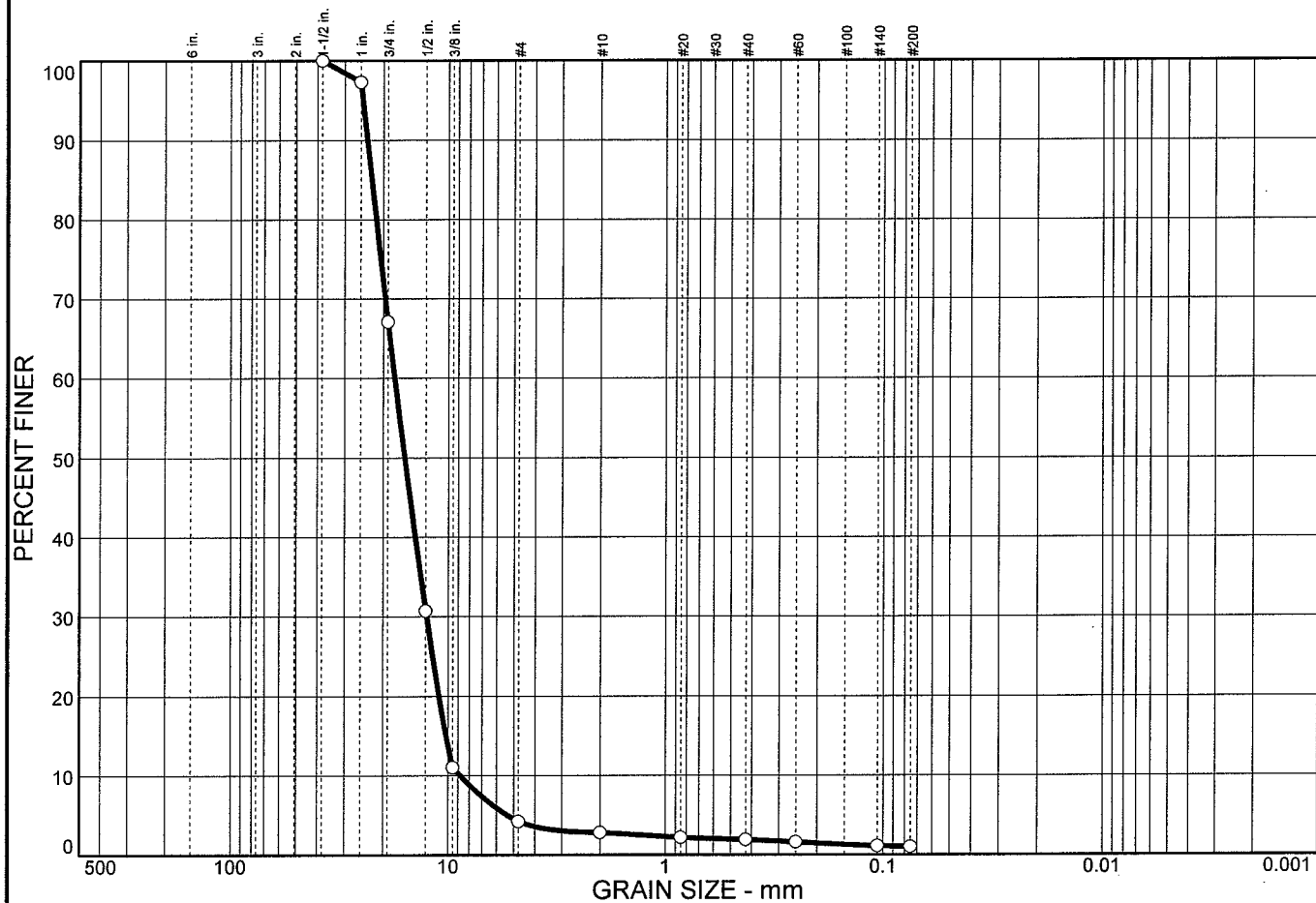
Specimen Conditions

Diameter D (in)	6.0	Weight of Specimen (gms)	6155.0
Length of Specimen (in)	8.5	Density of Specimen (pcf)	97.6
Length of Flow (in)	6.0	Approximate Porosity(%)	42.1

Material Description	Remarks
Carbonate Content (%) 0.09 USCS Water Content (%)	

Project Name	SALINE COUNTY CELL 4			Tested by	AC	Review. by	TGG
Client	WM	W.O.#	35087125	CONSTANT HEAD PERMEABILITY TEST			
Sample Number	S-9945						
Sample Location	PG-1						
Date	31-Oct-08	Lab No.	9945	 H. C. NUTTING COMPANY			

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	95.8	3.2	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	97.3		
.75 in.	67.1		
.5 in.	30.7		
.375 in.	11.0		
#4	4.2		
#10	2.8		
#20	2.2		
#40	1.9		
#60	1.6		
#140	1.1		
#200	1.0		

* (no specification provided)

Material Description Poorly graded gravel		
Atterberg Limits PL= LL= PI=	Coefficients D ₈₅ = 22.6 D ₆₀ = 17.7 D ₃₀ = 12.6 D ₁₅ = 10.2 C _u = 2.01 C _c = 1.01	
Classification USCS= GP AASHTO=	Remarks	

Sample No.: CG-1
Location:

Source of Sample: 694

Date: 2-10-09
Elev./Depth: BULK

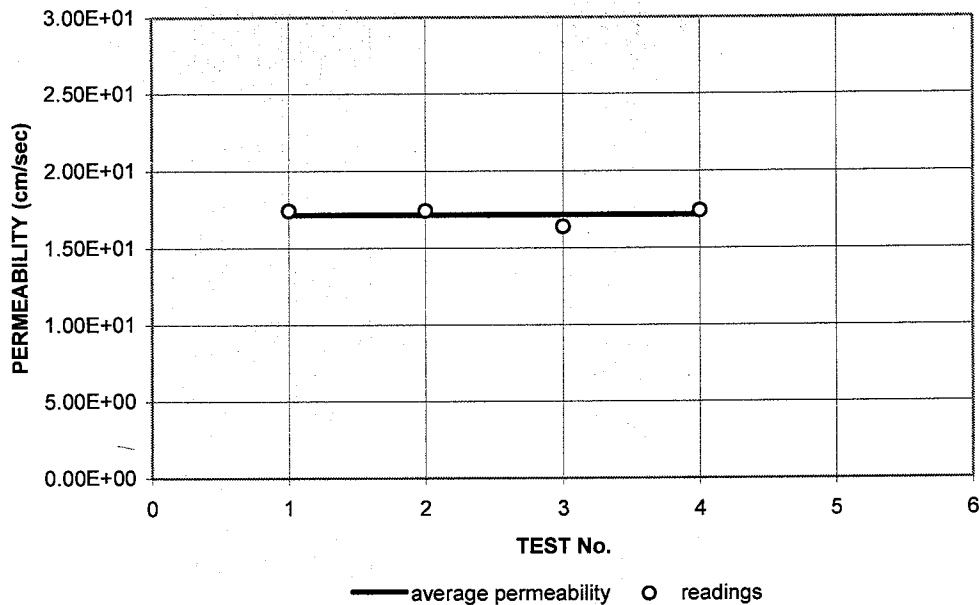
H. C. NUTTING COMPANY

Client: TERRACON
Project: SALINE COUNTY CELL 4

Project No: 35087125

Figure 694

CONSTANT HEAD PERMEABILITY TEST



Test Specification: ASTM D 2434

Test No.	Manometers		Water Levels		Water Head (cm)	Flow Volume (cm ³)	Elapsed Time (s)	Calculated Permeability (cm/s)
	H1 (cm)	H2 (cm)	L1 (cm)	L2 (cm)				
1	41.2	41.5	1000		0.3	1000	16	1.74E+01
2	41.2	41.5	1000		0.3	1000	16	1.74E+01
3	41.2	41.5	1000		0.3	1000	17	1.64E+01
4	41.2	41.5	1000		0.3	1000	16	1.74E+01
Average								1.72E+01

Specimen Conditions

Diameter D (in)	6.0	Weight of Specimen (gms)	5930.1
Length of Specimen (in)	8.0	Density of Specimen (pcf)	99.9
Length of Flow (in)	6.0	Approximate Porosity(%)	40.7

Material Description	Remarks
Carbonate Content (%)	
USCS	
Water Content (%)	

Project Name	SALINE COUNTY CELL 4			Tested by	FCE	Review. by	TGG
Client	WM	W.O.#	35087125	CONSTANT HEAD PERMEABILITY TEST			
Sample Number	S-694						
Sample Location	CG-1			 H. C. NUTTING COMPANY			
Date	9-Feb-09	Lab No.	694				

PROTECTIVE COVER **LABORATORY TESTING**

CONSTANT HEAD PERMEABILITY TEST

ASTM D 2434

PROJECT TITLE
PROJECT NUMBER
REMARKS

TERRACON/SALINE COUNTY CELL 4/AR
083-90291

SAMPLE ID
SAMPLE TYPE
SAMPLE DEPTH

PC-2
Bulk
-

	TIME (sec)	VOLUME (ml)	TEMP. (°C)	(ml/sec)	
1.	780.0	33	21.2	0.04	
2.	780.0	35	21.2	0.04	*
3.	780.0	37	21.2	0.05	*
4.	780.0	41	21.2	0.05	*
5.	780.0	43	21.2	0.06	*

UNIT WEIGHT DETERMINATION

APPARATUS & WET SAMPLE (g):
APPARATUS WEIGHT (g):
WET SAMPLE WEIGHT (g):
SAMPLE HEIGHT (in):
SAMPLE DIAMETER (in):
SAMPLE AREA (in²):
SAMPLE AREA (cm²):
SAMPLE VOLUME (in³):
SAMPLE VOLUME (cm³):
WET DENSITY (pcf):
DRY DENSITY (pcf):

2111.3
1349.6
761.8
5.94
3.00
7.07
45.60
41.99
688.05
69.1
69.1

MOISTURE CONTENT

WET SAMPLE & TARE (g):
DRY SAMPLE & TARE (g):
WEIGHT OF TARE (g):
WEIGHT OF WATER (g):
DRY SAMPLE WEIGHT (g):
MOISTURE CONTENT (%):

SPECIFIC GRAVITY:
VOLUME OF SOLIDS (cm³):
VOLUME OF VOIDS (cm³):

2.7
282.14
405.91

DISTANCE B/W MANOMETERS (cm):
AVERAGE Q VALUE:
AVERAGE TEMP:
TEMPERATURE CORRECTION:
HEAD OF WATER (cm):
HYDRAULIC GRADIENT (i):

7.62
0.05
21.2
0.97
2.30
0.302

K VALUE CORRECTED FOR 20 °C = 3.5E-03 cm/sec

Note: Non-ASTM - sample appears to contain more than 10% fines, material passing the #200 sieve.

TECH	TW
DATE	11/21/08
CHECK	AK
REVIEW	TW

CONSTANT HEAD PERMEABILITY TEST

MODIFIED - ASTM D 2434

PROJECT TITLE
PROJECT NUMBER
REMARKS

TERRACON/SALINE COUNTY CELL 4/AR
093-90015
-

SAMPLE ID
SAMPLE TYPE
SAMPLE DEPTH

PC-3	-
Bulk	
-	

	TIME (sec)	VOLUME (ml)	TEMP. (°C)	(ml/sec)	
1.	1260	12.0	20.5	0.010	*
2.	2040	11.4	20.6	0.006	*
3.	1500	5.9	20.6	0.004	*
4.	1500	4.1	20.6	0.003	*
5.	1500	3.1	20.6	0.002	*
6.	2280	2.7	20.6	0.001	*

UNIT WEIGHT DETERMINATION

APPARATUS & WET SAMPLE (g):

APPARATUS WEIGHT (g):

WET SAMPLE WEIGHT (g):

SAMPLE HEIGHT (in):

SAMPLE DIAMETER (in):

SAMPLE AREA (in²):

SAMPLE AREA (cm²):

SAMPLE VOLUME (in³):

SAMPLE VOLUME (cm³):

WET DENSITY (pcf):

DRY DENSITY (pcf):

2088.7
1348.8
739.9
5.85
3.00
7.07
45.60
41.34
677.39
68.2
67.2

MOISTURE CONTENT

WET SAMPLE & TARE (g):

DRY SAMPLE & TARE (g):

WEIGHT OF TARE (g):

WEIGHT OF WATER (g):

DRY SAMPLE WEIGHT (g):

MOISTURE CONTENT (%):

SPECIFIC GRAVITY:

VOLUME OF SOLIDS (cm³):

VOLUME OF VOIDS (cm³):

231.57
228.83
50.95
2.74
177.88
1.54
2.65
274.97
402.42

DISTANCE B/W MANOMETERS (cm):

AVERAGE Q VALUE:

AVERAGE TEMP:

TEMPERATURE CORRECTION:

HEAD OF WATER (cm):

HYDRAULIC GRADIENT (i):

7.62
0.00
20.6
0.99
3.10
0.407

K VALUE CORRECTED FOR 20 °C = 2.2E-04 cm/sec

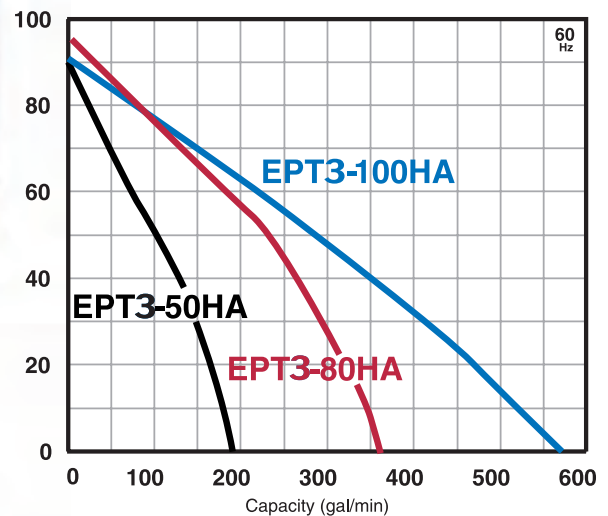
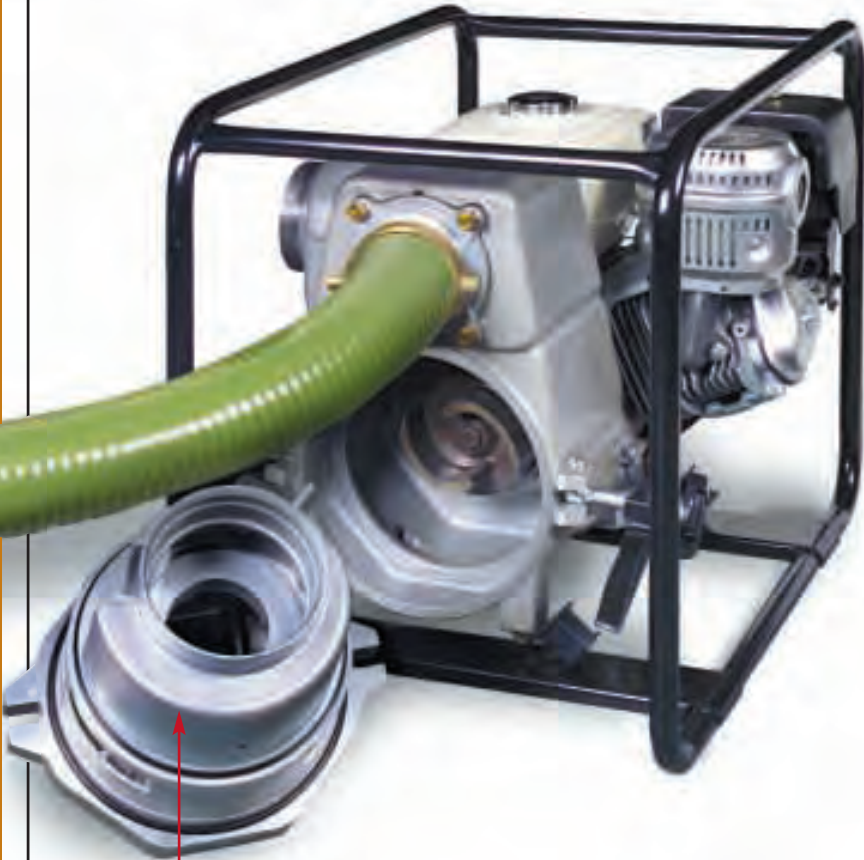
Note: Non-ASTM - sample appears to contain more than 10% fines, material passing the #200 sieve.

TECH	RF
DATE	2/10/09
CHECK	DA
REVIEW	PWA

APPENDIX X
CONTRACTOR MATERIAL SUBMITTALS

New and Improved Powerful Trash Handling Pumps

Built with tough materials to handle your tough applications.



NEW EPT3 Gas Engine Trash Pumps *Powered by Honda*

• **New Feature:** The cleaning door can be disassembled easily without taking out suction hose.

- New design with larger pump casing.
- Heavy-duty Honda gas engine.
- Oil sensor, and silicon carbide mechanical seal.
- Mounted to cage frame on Rubber Vibration Cushions.
- Durable rolled-steel frame.
- High Chrome impeller
- Cast Iron volute casing, stainless steel wear plate, and galvanized Steel hose couplings.
- Carrying Handle/Wheel Kit and Lifting Bail (optional).



TSURUMI (AMERICA), INC. 845 N. Dillon Drive, Wood Dale, IL 60191
Phone: 1-888-TSURUMI (878-7864) Fax: 1-630-766-6445 www.tsurumiamerica.com

APPENDIX Y
PROJECT PHOTOGRAPHIC LOG



Looking north at excavation of Cell 4



Looking east at excavation of Cell 4



Excavating and grading subgrade in Cell 4



Excavation of rock near sump of Cell 4



Placing and grading of prepared subgrade



Installation of under-drain system in Cell 4



Installation of under-drain lateral in Cell 4



Completed prepared subgrade on west and south slopes of Cell 4



Looking south at installation of GCL and 60mil geomembrane in Cell 4



Looking southeast at installation of 60mil geomembrane on east half of Cell 4



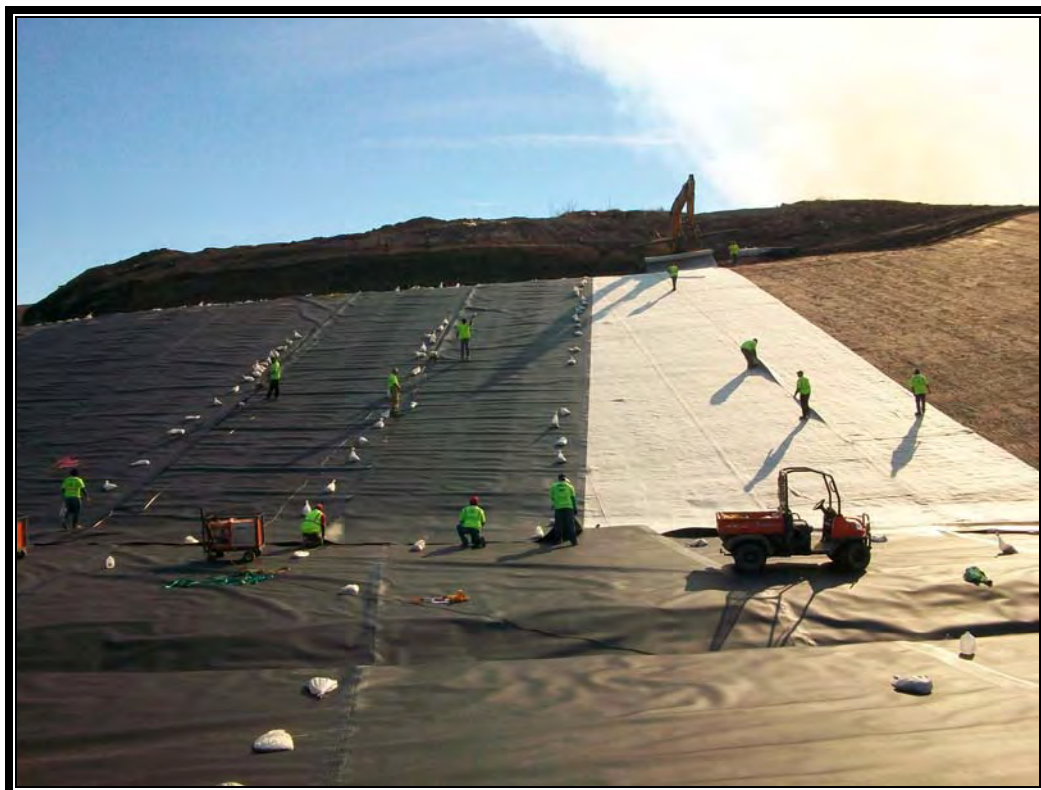
Looking east at installed GCL and 60mil geomembrane on east half of Cell 4



Liner tie-in between Cell 2 (Zones 1 & 2) and Cell 4



Looking east at placement of 8 ounce double sided geocomposite in Cell 4



Placement of GCL and 60mil Geomembrane on south slope of Cell 4



Looking east at completed liner system in Cell 4



Placing protective cover material on west slope Cell 4



Placing protective cover material on south slope of Cell 4



Installation of leachate collection trench in Cell 4



Completed leachate collection system in Cell 4



Looking west at north liner overbuild



Placement of protective cover on south slope of Cell 4



Forming up Leachate Headwall at west end of Cell 4



Pouring concrete base for leachate headwall



Looking southwest at completed Cell 4