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February 23, 1998
Project 86078-004.000

Mr. Edwin Bakowski
Permit Section, Bureau of Land
Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchhill Road
Springfield, IL 62794-9276

Re: Construction Quality Assurance Acceptance Report
Pagel Landfill, Rockford, Illinois
Permit No. 2018080001

Dear Mr. Bakowski:

On behalf of our client, Winnebago Reclamation Service, Inc. (WRS), we are pleased to submit the *Construction Quality Assurance Acceptance Report, Pagel Landfill Final Cover Construction, Western Portion.* This acceptance report certifies the final cover construction for 16.62 acres (plan view) for the Northern Unit of Pagel Landfill. This acceptance report contains 1 volume of text and appendices, and 1 full size set of record drawings. We are submitting 1 original, and 2 copies of the acceptance report.

As stated in Mr. Hilbert's letter, this acceptance report is being submitted as an addendum to the *Application for Significant Modification for the Renewal of Existing Facility Permit*, Log Number 1998-001.

If you have any questions or comments, please contact Mr. Thomas Hilbert at (815) 874-4806. Thank You.

Sincerely,

EMCON

Daniel R. Feezor
Project Manager

cc: Mr. Thomas Hilbert, WRS
Mr. David S. Vladic, P.E., EMCON w/out attachments.

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CONSTRUCTION QUALITY ASSURANCE ACCEPTANCE REPORT PAGEL LANDFILL FINAL COVER CONSTRUCTION WESTERN PORTION ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

Prepared For:

WINNEBAGO RECLAMATION SERVICE, INC.
Winnebago County
Rockford, Illinois

February, 1998

EMCON
Naperville, Illinois
Springfield, Illinois

Environmental Engineers • Scientists • Constructors

CONSTRUCTION QUALITY ASSURANCE ACCEPTANCE REPORT PAGEL LANDFILL FINAL COVER CONSTRUCTION WESTERN PORTION

ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

ROCKFORD, ILLINOIS

Prepared for

Winnebago Reclamation Service, Inc.

February 23, 1998

Prepared by

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Project 86078-004.000

Construction Quality Assurance Acceptance Report
Pagel Landfill Final Cover Construction- Western Portion

The material and data in this report were prepared under the supervision and direction of the undersigned.

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1 INTRODUCTION

1.1 Overview of Project

During the 1997 Construction Season, Winnebago Reclamation Services, Inc. (WRS) partially closed the Western Portion of the Pagel Landfill in Rockford, Illinois. This closure was in accordance with the Illinois Environmental Protection Agency's (IEPA) Permit Number 1991-138-LF, issued on April 15, 1993. Approximately 16.6 acres of the 42 acre site were closed during this project.

Specifically, during this project the following components of the final cover system were constructed and/or installed:

- grading layer
- 1 foot recompacted clay layer
- 40 mil flexible membrane liner
- drainage layer
- 2.5 feet protective layer
- 6 inch topsoil layer, with fertilizer, seed, and mulch
- stormwater terraces, letdowns, ditches, and culverts
- leachate extraction and conveyance system
- gas collection and flare system.

EMCON was selected as the Construction Quality Assurance (CQA) consultant to observe and document the construction throughout the project. Daniel R. Feezor, P.E. of EMCON was selected to be the Construction Quality Assurance Officer (CQAO).

1.2 Regulatory Requirements

In accordance with 35 Ill. Adm. Code 811.505(d), this Acceptance Report includes:

- A certification by the CQA Officer that the construction has been prepared and constructed in accordance with the engineering design,
- As-built record drawings,
- All Daily Summary and Daily Inspection Reports.

The as-built record drawings includes a plat of the landfill boundary and thickness/elevation information concerning the subgrade, low permeability layer, drainage layer, and protective layer. A topographic map based on the surveyed elevations of the top of the protective soil layer has also been included.

The Daily Summary Reports contained within this report include:

- The name and title of the CQAO;
- The date;
- Weather conditions, including the maximum and minimum temperatures and the amount of precipitation, if any;
- The type of work performed, including equipment and personnel;
- Summary of any meetings held and attendees;
- A description of all materials used and references or results of testing and documentation;
- Calibration and recalibration of test equipment; and
- Daily Inspection Reports.

The Daily Inspection Report information has been combined within the Daily Summary Reports to avoid redundancy. The additional information also includes:

- The date and site location;
- The construction material and type of inspection;
- Inspector's and tester's initials;

- The specific location of the test;
- Testing procedures; and
- Testing results.

2 CONSTRUCTION DOCUMENTS

2.1 Technical Specifications

A detailed set of construction technical specifications were created for the necessary components for this project. These specifications were divided into two separate phases. The Phase I package encompassed most of the general site work, including all earthwork, vertical well construction, geomembrane installation, erosion control, and seeding. The Phase II package included items specific to the leachate and gas collection systems, controls, and electrical service that was constructed after the general site work was completed. These specifications followed the Construction Standard Institute (CSI) format.

2.2 Construction Drawings

A detailed set of construction drawings were also created for this project. These drawings provided the necessary detail to properly construct all necessary components for the final cover closure activities. These were also used for the proper procurement of materials, and provided adequate detail for grading activities, and for the installation of the dual leachate and gas collection system.

2.3 Revisions to Previously Approved Significant Modification

The construction of the Pagel Landfill final cover required two deviations from the previously approved Significant Modification. These two deviations were the lift thickness and compaction of the compacted low permeability layer, and the drainage plan.

During the preconstruction planning, it was determined that the contractor would be unable to construct the low permeability layer with a self propelled sheepsfoot compactor in multiple loose lifts. Since the performance specification for the low permeability layer was 1.0×10^{-6} cm/sec, alternative construction methods were investigated, and the best method was selected for the specific conditions at the Pagel Landfill. The investigation

and selection of alternative construction methods for the low permeability layer is discussed in Section 3.2 of this text.

The drainage plan also deviated from the previously approved Significant Modification. The location and configuration of the ditches and the pipe drop inlets were altered. However, the hydraulic capacity of these structures was calculated to assure that they would convey the runoff resulting from the 25-year, 24 hour design storm, and safely pass the runoff resulting from the 100 year, 24 hour storm. The revised drainage features are depicted on **Drawings 2 and 10**. The revised drainage calculations are in **Appendix I**.

This Acceptance Report hereby requests approval for these two alterations from the previously approved Significant Modification.

2.4 Revisions to Permitted Contours

The topography west of the 1997 Construction Limit Line, as shown on **Drawing 1** is the final as-built topography. The maximum elevation is 864 M.S.L., and the maximum slope is 2 1/2 (H): 1(V). This Acceptance Report hereby requests approval for this revised topography, west of the 1997 Construction Limit Line.

3 PRE-CONSTRUCTION ACTIVITIES

3.1 Borrow Source Investigations

The previously approved CQA plan requires a minimum permeability of 1.0 x 10^{-6} cm/sec, with a minimum density of 90% Proctor, wet of optimum moisture. However, in an study by David Daniel & Craig Benson entitled, "Water Content - Density Criteria for Compacted Soil Liners," December 1990, *Journal of Geotechnical Engineering,* they state that the best way to establish an appropriate acceptable compaction zone is to measure the permeability value at various water contents and dry unit weights. Their method entails selecting several compactive efforts in the laboratory that span the range of compactive efforts in the field, so the water content / dry unit weight criterion applies to any reasonable compactive efforts.

Therefore, the borrow evaluation followed this process. Samples from the borrow area from the southern unit were taken and evaluated for Modified Proctor, Standard Proctor, and a Reduced Proctor (15 blows with the hammer). Next six remolded hydraulic conductivities were tested and were plotted on the Proctor curves. An acceptable "window" of compactive efforts was then plotted on this family of curves, using the permeabilities that was less than of 1.0 x 10^{-6} cm/sec. This window was used in the field as an acceptable level of compactive efforts, and acceptable moistures. The Geotechnical Window can be seen on **Figure 1**, and the supporting analytical data is in **Appendix A.1**.

3.2 Alternative Low Permeability Layer Construction Method Investigations

As stated previously, during the preconstruction planning, it was determined that the contractor would be unable to construct the low permeability layer with a self propelled sheepsfoot compactor in multiple loose lifts. Since the performance specification for the low permeability layer was 1.0 x 10^{-6} cm/sec, alternative construction methods were investigated, using the actual soil in test pads on the south west slope of the landfill. The analysis of these test pads dictated which construction method was allowed.

3.2.1 Test Pad Construction Methods

Four test pads were constructed and evaluated. The construction methods for these test pads were:

Option 1) 6 inch loose lift, tracked with D8N twice, no moisture, nor disking.

Option 2) 13-14 inch loose lift disked, wetted, and tracked with D8N twice.

Option 3) 13-14 inch loose lift was disked, wetted, and compacted with a pull behind sheepsfoot compactor with a D8N.

Option 4) 13-14 inch loose lift, tracked with D8N twice, no moisture, nor disking.

The contractor wanted to compact the low permeability layer in a single lift, without using a sheepsfoot compactor (Option 4). The results of these test strips would govern the selection of the compactive efforts.

All test strips were prepared in a similar manner. The gray clay used in for the test pads was excavated from the Southern Unit borrow area by using a Kobelko Mark IV SK-120-LC Track-hoe, and loading ten wheel semi haul trucks and Volvo A35, 6 x 6 articulated haul trucks. The borrow soils were then trucked to the working area and the lifts were spread to the proper thickness. Then, the specific compactive effort occurred.

The CQAO excavated a test pit into each test pad. All four methods deformed the clay into a homogeneous layer, without voids. The moisture content and density testing was performed by the CQAO a minimum of two tests per test pad. Moisture content and density testing was performed in accordance with ASTM D-2922 and ASTM D-3017. The results of the Troxler Nuclear Density Gage (TNDG) tests are in **Appendix A.2.**

3.2.2 Test Pad Analytical Testing

Two thin walled (Shelby Tube) samples were taken from the each test pad, and were tested for permeability in accordance with ASTM 5084. All results were below the 1.0×10^{-6} cm/sec requirement. The results are in **Appendix A.3.** and presented in tabular form in **Table 1**.

3.2.3 Selected Construction Methods

Based upon the analysis of the test pads, it was determined that all options would yield a low permeability layer with a permeability of 1.0×10^{-6} cm/sec. Option 4 was selected.

4 LOW-PERMEABILITY LAYER CONSTRUCTION

4.1 Subgrade Improvements

Prior to placement of the low permeability layer, a 6 inch intermediate cover layer was placed over the waste and compacted with a D-8 dozer. The subgrade was cleared of any roots, rocks, garbage, or other deleterious materials. The subgrade was proofrolled, and any soft areas of the subgrade was excavated and recompacted.

4.2 Low Permeability Layer Construction Methods

Prior to placement of the low permeability layer, the prepared subgrade was scarified to a roughened depth of approximately two (2) inches, by tracking it with a D-8 Dozer. The contractor placed and compacted the low permeability layer in a single lift as described in Section 3.2.1 in this text. The gray clay used in for the low permeability layer was excavated from the Southern Unit borrow area by using a Kobelko Mark IV SK-120-LC Track-hoe, and loading ten wheel semi haul trucks and Volvo A35, 6 x 6 articulated haul trucks. The borrow soils were then trucked to the working area and the lifts were spread and compacted 2 times with a CAT D8 Dozer (Flattrack). This compaction occurred until the proper density was achieved.

The loose lift of low permeability layer soils were cleared of any roots, rocks, or other deleterious materials prior to compaction. The low permeability layer was placed so as to minimize ponding of rainfall and runoff. Where ponding occurred, the contractor removed the water prior to continuing operations in those areas. Any material which became too wet to compact sufficiently or showed visible weaving or pumping while compacting was removed and/or dried prior to compaction. The low permeability layer was not constructed with frozen soil material.

Compaction of the low permeability layer around the wells and wellheads was performed using hand manipulated compaction equipment and by using a Bobcat Skid Steer Loader with hydraulic roller attachments.

The top of the low permeability layer was prepared by using a vibratory drum compactor to achieve an intimate contact between the low permeability layer and the geomembrane liner.

4.3 Construction Quality Assurance

4.3.1 Construction Oversight

The CQAO inspected the construction of the low permeability layer. The CQAO ensured that the soil used in the low permeability layer was the same soil that was used in the test pad analysis. During construction of the low-permeability layer the CQAO ensured that the placement and compaction of the low permeability layer adhered to the following criteria:

- No soil was placed when free water is standing on the surface of the area where the soil was to be placed and compacted.
- No soil was placed or compacted in a frozen condition or on top of frozen materials, frozen subgrade, ice, or snow.
- The work area was kept sufficiently dry during soil placement and compaction operations. Excavation areas was kept dry during soil placement. Soil around structures and piping was brought up evenly on all sides.
- Soil containing organic materials, sands, silts, or other unacceptable material was removed and replaced with approved soil material.
- Care was taken to avoid damaging the low-permeability soil layer when constructing subsequent improvements.
- The low-permeability layer was compacted in accordance with the geotechnical window procedure, but at no time was less than the optimum moisture as defined by ASTM D1557 (Modified Proctor).
- Compaction of cap material around leachate collection manholes, gas extraction system wells and headers, and sumps was conducted in a similar manner as to the compaction of the low permeability layer.
- The final surface of the low-permeability layer, which lies directly below the geomembrane, was finish graded and compacted with a smooth drum roller.

Prior to compaction, the surface was inspected for rocks and any large protruding rocks, and removed.

The CQAO conducted field density and moisture measurements per ASTM D-2922 and ASTM D-3017 using a Troxler Nuclear Density Gauge (TNDG) no less than five tests per acre per lift. In addition, thin walled samples (Shelby Tubes) were extracted from the layer to perform analytical tests. The CQAO recorded all applicable test data, areas of construction, problems and remedies, construction equipment and methodologies, survey data, and equipment calibration on the Daily Summary Report.

4.3.2 Testing

4.3.2.1 Thickness Verification

Thickness of the low permeability layer was verified by digging, with a soil sampler, down to the intermediate cover layer on an approximate 200 foot grid. The core from the soil sampler was inspected to determine the thickness of the layer. All boreholes were backfilled with Benseal granular bentonite. A summary of the probe locations and corresponding low permeability layer thickness are presented in **Appendix C.5**.

4.3.2.2 Field Testing

The moisture content and density testing was performed by the CQAO a minimum of five tests per lift per acre. Moisture content and density testing was performed in accordance with ASTM D-2922 and ASTM D-3017. The locations of the Troxler Nuclear Density Gage (TNDG) tests are depicted on **Figure 1**, and the test results are in **Appendix C.3.**

4.3.2.3 Analytical Testing

In accordance with the approved CQA plan, the following analytical testing was conducted for the low permeability layer.

Testing Parameters	Min. Testing Frequency	Specification
Nuclear Density (ASTM D-2922)	5 Test per Acre /Lift	Geotechnical Window
Moisture Content (ASTM D-3017)	5 Test per Acre /Lift	Geotechnical Window
Atterberg Limits (ASTM D-3017)	10,000 yds^3	LL% > 25 PI% > 4
Grain Size Distribution (ASTM D-422)	10,000 yds^3	≥ 75% below #200 sieve

Permeability (ASTM 5084)	10,000 yds^3	1.0×10^{-6} cm/sec.

4.3.2.3.1 Permeability

Five thin walled (Shelby Tube) samples were taken from the low permeability layer, and were tested for permeability in accordance with ASTM 5084. The location of these samples are listed in **Appendix C.4**. All results were below the 1.0×10^{-6} cm/sec requirement. The results are in **Appendix C.2**.

4.3.2.3.2 Grain Size

Five soil samples were tested for grain size in accordance with ASTM D-422. All samples had a grain size less than 75% below the #200 sieve. The results are in **Appendix C.2**.

4.3.2.3.3 Atterburg Limits

Five soil samples were tested for Atterburg Limits in accordance with ASTM D-3017. Four samples had a liquid limit greater than 25, and a plastic index greater than 4. Sample ST-0822-CL-01A had a liquid limit of 24, but the soil was deemed acceptable since it had a clay content of 22% (2 micron) and a plastic index of 12. The results are in **Appendix C.2**.

5 FLEXIBLE MEMBRANE LINER INSTALLATION

5.1 Pre - Installation Activities

The low permeability layer was compacted and graded to the required elevation and smoothed upon completion with a combination of vibratory compacting smooth drum rollers. In addition, the surface was observed for dirt clods, stones and any protrusion that would impair the integrity of the geomembrane liner. A subgrade acceptance form was jointly completed by EMCON and Serrot Corporation for each area of geomembrane deployment stating that the subgrade was suitable to the engineer and installer's representative for membrane placement. Subgrade Acceptance forms may be found in **Appendix E.1**.

5.2 Flexible Membrane Liner Properties

The installed material consists of 40-mil and 60-mil linear low density polyethylene (LLDPE) geomembrane. The geomembrane deployed on the sloped sides was textured on both sides. The geomembrane deployed on the mildly sloped crown was smooth on both sides.

The geomembrane materials were sampled and tested prior to use. Conformance CQA testing was performed on these materials by the manufacturer. Serrot provided manufacturer's certifications and test results for the 40-mil and 60-mil geomembrane. The resin conformance test results and manufacturer's certifications are included in **Appendix D.1 and D.2**, respectively.

5.2.1 Quality Control Testing

5.2.1.1 Resin Testing

Quality control testing of the LLDPE resin used to manufacture the geomembrane and the welding rod products was performed by the resin supplier, Phillips Chemical Company (Phillips). Each resin batch was, at a minimum, tested for flow rate, density, and melt flow index. The reported test results were reviewed by EMCON which indicate that materials provided by Phillips comply with the minimum values established in the CQA

Plan for this project. Copies of test results provided by Phillips are included in **Appendix D.1**.

5.2.1.2 Roll Testing

All of the rolls of smooth and textured LLDPE geomembrane supplied for this project by Serrot, were CQA tested in the manufacturing facility. The rolls were evaluated for tensile characteristics which include stress at yield, elongation at yield, and stress at break. Carbon black content was measured after the resin was blended. The reported values of each roll tested exceed the requirements of the CQA Plan. The number of CQA samples exceeds the industry standard of 1 sample for every 100,000 square feet. The geomembrane roll CQA test results are provided in **Appendix D.2**.

5.3 Product Delivery, Storage, and Handling

Each roll of geosynthetic was delivered on site by tractor-trailer. The rolls were unloaded using a loader with a forklift attachment. The rolls were stacked three high on a smooth dry surface adjacent to the working area. Each rolls identification number, lot number, roll number, weight, and dimensions were documented. This information can be found in **Appendix D.3**.

5.4 Installation Procedures

5.4.1 Anchor Trench Preparation

An anchor trench was excavated along the toe of the constructed fill. This trench was located at the bottom of the compacted soil liner slope. After the geomembrane panels were placed, seamed, and CQA tested, the anchor trenches were backfilled with on-site material and compacted.

5.4.2 Deployment

All geomembrane panels were installed by Serrot Corporation. Rolls were supported by a spreader bar rigged to an endloader and were deployed by Serrot employees with the assistance of local laborers. Smooth sheets were placed across the crown of the fill in a predominantly north / south direction. Textured sheets were placed perpendicular to elevational contours (parallel to the slope direction). Adjacent panels were overlapped approximately 4 to 6 inches and were overlapped in the direction of drainage. Panels were placed in a manner that minimized seams. Textured panels were deployed a minimum of twenty-five feet above the break in slope at the crown to a minimum of 5

feet beyond the toe of sideslope. All seams on sideslopes run parallel to slope directions. Unbound edges of the geomembrane panels were temporarily loaded with sandbags prior to seaming.

As it was deployed, each panel was assigned a unique field identification number by EMCON. Panels were examined, after placement and prior to seaming, for damage and manufacturing imperfections. Observed defects were marked by EMCON and repaired by Serrot. The panel placement diagram showing liner panels and repairs is included on the construction record drawings, **Attachment J**.

5.4.3 Seaming Procedures

5.4.3.1 Trial Welds

Prior to field seaming, trial weld samples were prepared and tested in the field using a field tensiometer to qualify welders for seaming activities. A tensiometer calibration certificate is included in **Appendix E.3**. Trial weld samples were made from excess liner and prepared using the same procedures and conditions the welder expected during field welding. Three 1-inch samples were tested for peel and three 1-inch samples were tested for shear. EMCON personnel observed the trial weld preparation and testing performed on the test strips. The minimum strength criterion required for peel testing was 48 pounds per inch (ppi) for extrusion welds and 48 pound per inch (ppi) for fusion welds. For shear testing, the minimum strength criterion was 40 pounds per inch (ppi) for both fusion and extrusion welds. The failure mode was required to be a film tear bond as shown in Figures A4 through A6 of NSF 54[1] and the welds were to show no (0%) delamination into the weld.

If all three samples passed this criteria, the equipment and operator were allowed to proceed. If a sample failed, the reason for failure was investigated and a new sample was prepared and tested. This process was performed at the start of the day, after lunch, after extended delays without seaming (greater than one hour), and after equipment shutdowns. If possible, the time between pre-weld samples was kept to a maximum of 4-5 hours. Results of trial weld testing are presented in **Appendix E.4**.

The various procedures associated with both fusion and extrusion seaming operations were observed by EMCON. These observations included: seam preparation, weather conditions, general seaming procedures, overlap of geomembrane panels, and temporary bonding procedures. Seams were monitored throughout their length for quality and seam completion. Visually detected imperfections were marked by EMCON and subsequently

[1] NSF 54 - 1993, The NSF Joint Committee on Flexible Membrane Liners, NSF International, Ann Arbor, Michigan

repaired by Serrot. Panel placement and seaming records are presented in **Appendix E.2 and E.5**, respectively.

5.4.3.2 Fusion Welding Procedures

Production seaming was made using a dual hot wedge welder. The unit heats the two overlapped panels above polyethylene's melting point. The panels then pass through a set of preset pressure wheels which compress the two panels together to form a weld. This device creates an air channel between the fused seams which can be non-destructively pressure tested.

5.4.3.3 Extrusion Welding Procedures

Repairs and patching were performed with an extrusion welder. The unit introduces a bead of molten resin along the edge of the seam of the two sheets to be welded. The continuity of the extrusion welds were verified by vacuum testing the entirety of each weld.

5.4.4 Defects and Repairs

Geomembrane panels were initially monitored for damage during deployment. Additionally, EMCON personnel observed the geomembrane panels and seams on an on-going basis throughout the installation process until the drainage layer and geonet were placed.

Each repair was documented by EMCON and repaired by Serrot. Repairs were made by seaming a piece of geomembrane over the affected area with an extrusion welding machine. All patches exceeded damaged areas by a minimum of 3 inches. Extrusion welded repairs were nondestructively tested using a vacuum box apparatus.

Vacuum testing consisted of placing a sealed box with a glass cover for viewing over a seam that has been soaped with a water / soap solution and creating a vacuum of 5 psi for 10-15 seconds. If no air bubbles were observed coming from the seam, the test was considered to be a passing test. Documentation of geomembrane repairs and testing is included in **Appendix E.8**.

5.5 Construction Quality Assurance

5.5.1 Oversight

All fusion and extrusion welds were completed by Serrot personnel and 100 percent non-destructively tested by either vacuum box or air channel testing in addition to regular destructive test samples along seams.

5.5.2 Testing

5.5.2.1 Non Destructive testing

Non-destructive testing of all geomembrane liner seams consisted of air channel pressure testing or vacuum testing. Extrusion weld seams were vacuum tested and double wedge seams were air-pressure tested. Seams and repairs failing non-destructive testing were repaired and retested until passing results were obtained.

Air channel testing consisted of pressurizing the channels between the double wedge seams with air to a minimum pressure of 30 pounds per square inch (psi). The channels were kept pressurized for a minimum of 5 minutes. Passing tests were those with no more than a 2 psi drop over the 5 minute period. Results of nondestructive testing of geomembrane seams is presented in **Appendix E.6**.

5.5.2.2 Destructive testing

Destructive geomembrane seam samples were obtained at a minimum frequency of one per 500 linear feet of seam. Destructive seam testing was performed at EMCON's geosynthetics laboratory. The pass / fail criteria were as follows:

Peel Adhesion (ASTM D 413 as modified by NSF)

- Each test specimen is greater than or equal to 48 ppi for extrusion, 48 ppi for fusion
- At least four out of five test specimens exceed the minimum strength
- Failure mode is a film-tear bond as shown in Figures A4 through A6 of NSF 54.

Shear Strength (ASTM D 3083 as modified by NSF)

- Each test specimens is greater than or equal to 40 ppi for fusion and extrusion welds

- At least four out of five test specimens exceed the minimum strength
- Failure mode is a film-tear bond as shown in Figures A4 through A6 of NSF 54.

Destructive samples were obtained and were labeled numerically. If a sample test failed, additional samples were taken on either side of the original location at distances of at least 10 feet. This process was continued until the defective area of the seam was "bounded" by two passing samples. All failing areas were bounded by passing samples, and were repaired by either extruding the exposed edge of a fusion welded seam, or were capped. Caps are a construction repair patch made by seaming a piece of geomembrane over the affected area with an extrusion gun welding machine. A summary log of destructive samples is presented in **Appendix E.7.1**. Results of laboratory testing of destructive seam samples is included as **Appendix E.7.2**.

During liner construction, one destructive sample yielded failing results. This sample was number DS-21. DS-21 was "bounded" by passing destructive samples DS-21A and DS-21B.

6 DRAINAGE LAYER CONSTRUCTION

6.1 Drainage Layer Construction Methods

6.1.1 Granular Drainage Layer

The 8-inch thick granular drainage layer located on the crown of the fill, within the boundary of the corrugated HDPE drain pipe, consists of 3/8" to 1" pea stone. Samples of the proposed drainage material were obtained from the quarry pit, and tested by Testing Service Corporation (TSC) of Carol Stream, IL for grain size, classification, and permeability. In addition, Rockford Blacktop provided a summary of grain size analyses for the entire borrow area during the delivery of this material.

Drainage layer material was hauled to the site using tandem-axle dump trucks and spread by low ground pressure dozers (Cat D5H-LGP, JD 750-LGP, and JD 650-LGP). Empty five gallon buckets, marked at the eight inch level, on a forty foot grid were used to measure the depth of the material as it was placed. Tired-vehicles and heavier equipment were only allowed to travel on the area when a two foot depth of cover soils had been established. Also, the trucks only dumped on areas where material was already spread. Dumping of material directly on the FML was prohibited. Material was spread in a manner that minimized wrinkle propagation, which was not a major problem due to the unusually cool and cloudy weather conditions.

6.1.2 Sideslope Geonet Layer

The drainage layer on the sideslopes of the fill consists of Tensar Geocomposite DC 4205, as manufactured by Tensar Corporation. The drainage net consists of an HDPE geonet with geotextile fused to both sides. The drainage net was installed in the area between the corrugated HDPE drain pipe that follows the terrace ridge along the edge of the crown (terrace drain) and the corrugated HDPE drain pipe that follows the toe of the fill (toe drain).

Installation of the drainage net was performed by Serrot corporation. The panels were laid parallel to the slope and butt-jointed in both directions, each overlapping the next by approximately four inches. Adjacent panels were initially connected with polyethylene

ties at a maximum interval of five foot along the seam. Each exposed seam of geotextile was then sewn together. The Geocomposite Drainage Layer Conformance Data is included in **Appendix F.3**.

6.2 Construction Quality Assurance

6.2.1 Construction Oversight

6.2.1.1 Granular Drainage Layer

The contractor's operators and laborers were instructed on placement procedures to aid in eliminating wrinkles that were created during placement. The CQA officer observed the placement of the material directly on the liner and measured the depth of the material on an approximate 30 foot grid as it was placed. Upon completion, the depth of the drainage layer was measured and documented on a 200 foot grid. All damage observed by EMCON personnel during this operation was repaired and tested before it was approved.

6.2.1.2 Sideslope Geonet Layer

The CQA officer observed the installation of the drainage net panels and visually inspected each of them for damage. At the completion of each step of installation the seams were visually inspected. Holes in the drainage net were repaired by lystering a patch of drainage net on top of the area with an overlapping of at least 3 inches. All damage observed by EMCON personnel during this operation was repaired and visually inspected before it was approved.

6.2.2 Testing

6.2.2.1 Thickness Verification

Thickness of the drainage layer material was verified by hand digging, on an approximate 200 foot grid. A summary of the probe locations and corresponding drainage material thickness are presented in **Appendix F.2**.

6.2.2.2 Analytical Testing

TSC was unable to conduct a permeability test using the typical laboratory technique (constant head permeameter), due to the coarse grained characteristic of the material. Therefore, the calculated the permeability, using Poiseuille's law. Their calculations, and the gradations are included in **Appendix F.1**.

7 PROTECTIVE LAYER CONSTRUCTION

7.1 Protective Layer Construction Methods

7.1.1 Protective Layer

A thirty (30) inch thick layer of protective soil cover material was placed over the drainage layer. This material consisted of silty sand material from excavation of a future quarry location on the site, directly north of the fill. The material used on the crown was hauled to the fill with tandem-axle dump trucks. The material used on the remaining areas was hauled to the fill with Volvo A35, 6 x 6 articulated haul trucks. The material was spread by low ground pressure dozers (Cat D5H-LGP(2), JD 750-LGP, and JD 650-LGP) until a minimum two foot thickness was reached. A Cat D8N was then used to spread the remaining material to grade. Truck traffic was only allowed on areas that had been sufficiently over-built to a depth greater than two feet. The material used for the protective cover satisfied the criteria set forth in the CQA Plan.

7.1.2 Topsoil Layer

A single six (6) inch layer of topsoil was placed over the protective cover soil layer. This soil consisted of a loam material stripped from the clay borrow area to the southwest and the future quarry site to the north. The topsoil spread on the crown was hauled to the fill with tandem-axle dump trucks. The topsoil spread on the remaining area was hauled to the fill with Volvo A35, 6 x 6 articulated haul trucks. The material was spread by low ground pressure dozers (Cat D5H-LGP, JD 750-LGP, JD 650-LGP, JD 772 BH). Truck traffic was kept to a minimum in all areas. The material used for the topsoil layer satisfied the criteria set forth in the CQA Plan.

7.1.3 Seeding

When the placement of topsoil was completed to grade and smoothed, the soil was harrowed and dragged to a depth of three inches (3"). A standard fertilizer mix consisting of 120 lbs/acre (actual) each of Nitrogen, Phosphorus, and Potassium was spray applied. Because other phases of the project ran over their allotted time, the fall seeding deadline

of September 15th was not met. Therefore a temporary cover seeding of winter wheat was broadcast at approximately sixty (60) pounds per acre, with twenty (20) pounds per acre of perennial ryegrass. The permanent seeding mix consisted of a native prairie grass mixture selected by Prairie Restorations, Inc., based on the specific nature of the application and the local climate. The mixture contained the following native species:

Species	Quantity
Andropogon Gerardi	40 lbs.
Bouteloua Curtipendula	60 lbs.
Bouteloua Gracilis	20 lbs.
Schizachyrium Scoparium	80 lbs.
Sorghastron Nutans	40 lbs.
Anorpha Canescens	60 oz.
Heliopsis Helianthoides	30 oz.
Petalostemun Candidun	20 oz.
Petalostemun Purpureun	80 oz.
Ratibida Pinnata	40 oz.
Rudbeckia Hiria	180 oz.
Solidago Memoralis	25 oz.
Solidago Rigida	20 oz.
Monarda Fistulosa	20 oz.

The seed mixture was drilled at a rate of approximately fifteen (15) pounds per acre. A layer of mulching material, consisting of hay, was spread thoroughly over the entire seeded area. The hay mulch was then anchored into the ground by running one pass over the area with a pull behind disc, set to a depth of an inch. The mulch layer was completed by spraying an insoluble and nondispersible organic tackifier with mineral bonding agents to adhere the layer to the surface, and to prevent erosion. All seeded areas will be maintained by the contractor until vegetation is well established. Maintenance of the established vegetation shall be provided by the owner as described in Article 1.07 B. The fertilizing, seeding, mulching, and methods used to establish vegetation met the criteria set forth in the construction specifications.

7.2 Construction Quality Assurance

7.2.1 Construction Oversight

The contractor's operators and laborers were instructed on placement procedures to aid in eliminating wrinkles that were created during the placement of the protective soils layer onto the drainage net. They were also instructed on placement procedures to minimize the disturbance of the granular drainage layer. The CQA officer observed and documented the placement of the material directly on the drainage layer. Upon completion, the thickness of

the protective soil layer was measured and documented on a 200 foot grid. No damage to the liner was observed by EMCON personnel during this operation.

7.2.2 Testing

7.2.2.1 Protective Layer Thickness Verification

Thickness of the protective layer material was verified by digging, with a hand auger, down to the drainage layer on an approximate 200 foot grid. A summary of the probe locations and corresponding drainage material thickness are presented in **Appendix G.2**.

7.2.2.2 Direct Shear Testing

The interface between the geocomposite and the overlying protective soils was tested to assure that the geonet could be used. The Direct Shear Test (ASTM D5321) was used to evaluate the effective cohesion, and the effective friction angle for this interface. The results were that the effective cohesion was 231 pounds per square foot and the effective friction angle was 28.3°. The results of this testing is in **Appendix G.1**.

8 DUAL LEACHATE AND GAS COLLECTION SYSTEM INSTALLATION

8.1 Dual Leachate and Gas Collection System Construction Methods

A dual leachate and gas collection system was installed on the western portion of the final cover. This included the installation of seven (7) new wells, and the installation of a header and lateral system which conveys both leachate and gas to the appropriate locations. Additional electrical service was provided to each well, to provide power to the pumps, and sensors.

8.1.1 Dual Leachate and Gas Wells and Pumps

Leachate/gas extraction wells were constructed of 8 inch diameter HDPE, SDR -21 pipe, which was perforated on the bottom two thirds of the pipe. A 36 inch diameter borehole was drilled with a bucket rig through the entire thickness of the landfill. The bottom of the well casing was capped and drain holes were placed in the bottom of the cap. Backfilling of the well commenced immediately after the well drilling was completed and the well piping was installed in the borehole. The gravel pack was poured around the pipe into the borehole. The gas well boring logs, and the well installation reports can be found in **Appendices H.1 and H.2**, respectively.

The well seal was formed by evenly distributing two 50 pound bags of bentonite material around the annulus of the well and then adding ten (10) gallons of fresh water in a manner that allowed for a thorough saturation of the bentonite material. This process was continued until a minimum plug thickness of five (5) feet has been achieved. Soil backfill was tamped in the boring to provide even distribution and compaction. A detail of the completed boring and a schedule of the depths is shown on **Detail 1, Drawing 8**.

Dual leachate/gas extraction well heads were installed on the extraction wells. These well heads are shown on **Detail 4, Drawing 8**.

8.1.2 Electrical Systems

The a new electrical system was installed with the gas and leachate system to provide power to each well. This power was required for the pumps and sensors. Electrical wiring was placed in the same trench as the gas and leachate header and lateral piping. Individual casing and electrical pedestals were used to support the control equipment at each well. 220 volt electrical outlets were also provided at each well for service activities, and for heat taping if needed. A detail showing this electrical control pedestal is shown on **Drawing 9, Detail 6**. The pump and sensor information is contained in **Appendix H.4**.

8.1.3 Header and Lateral Piping

The gas and leachate piping was installed in the protective layer soils. The protective layer was carefully placed over the installed header piping. These header and lateral pipes were HDPE - SDR-21. The main header piping was 12 inch diameter, while the laterals were 6 and 8 inch in diameter, depending upon the number of wells it drained.

Pipes were installed in the locations and to the required lines and grades as shown on **Drawing 7**. HDPE pipe was joined by butt-fusion methods, having a completely uniform and monolithic pipe interior according to the fusion joining procedures as instructed by the manufacturer.

8.1.4 Leachate Vacuum Lock

A leachate vacuum - lock condensate sump was installed on the downgradient end of the leachate conveyance system. This sump consisted of a 6 feet long, 24 inch diameter HDPE SDR-17 pipe. A 6" x 3" dual walled HDPE SDR -17 pipe was connected to the top of this sump, which conveys leachate to the existing underground storage tank. The header line empties into this sump, approximately 6 feet below the intake to the dual walled pipe. The as- built detail of this can be seen on **Detail 1, Drawing 9**.

8.1.5 Gas Flare

WRS installed a 1,000 SCFM enclosed flare during the 1997 construction season. The information about this flare has been provided by WRS and is contained in **Appendix H.3**.

8.2 Construction Quality Assurance

8.2.1 Construction Oversight

The CQAO inspected all materials for the leachate/gas pipe, valves, fittings, and backfill material to ensure that these materials are acceptable and consistent with the construction plans. The CQAO inspected the materials to be constructed of HDPE pipe to determine if the materials meet the following requirements:

- All HDPE pipe was new, or first quality, and was furnished at lengths as indicated on the approved design plans. All HDPE piping was straight throughout their length and free from all imperfections.
- The HDPE pipe and fittings had a minimum Standard Dimension Ratio (SDR) as noted on the design plans.

During installation of the landfill leachate and gas system, the CQAO ensured that the construction adheres to the plans and specifications. This included:

- Pipe and appurtenances was installed true to line, grade, and location with the pipe supported and restrained against movement with all valve stems plumb.
- The pipe joints, except where flanged joints are called for on the approved design plans, was electro-fused with conventional fusion equipment using standard heating and cooling cycles, or fused, as recommended by the pipe manufacturer. All shavings from the preparation of pipe ends for fusion was removed from the pipe prior to installation.

9 DRAINAGE SYSTEM AND MISCELLANEOUS CONSTRUCTION

9.1 Drainage Systems

9.1.1 Terrace and Toe Drains

The installed drainage pipe consisted of nominal six (6) inch diameter perforated corrugated, polyethylene drainage piping, with filter wrap and fittings for the toe drain, and four (4) inch diameter perforated corrugated, polyethylene drainage piping with filter wrap for the final cover drainage piping. The location of the drain pipe was field adjusted by the Project Engineer and approved by the CQA officer to ensure proper drainage. The drain pipe was installed with a minimum of one (1) percent slope. The CQA officer inspected the pipe visually for damage, proper installation, and observed the placement of material over the pipes. No deviation to the construction specifications was observed by EMCON personnel.

9.1.2 Terrace Outlets

Four (4) inch diameter corrugated, polyethylene drainage piping with filter wrap was initially laid a minimum of three (3) inches below grade along a four (4) foot offset line running parallel to the centerline of the terrace channel. A JD 750-LGP was used to construct the parallel berms to a minimum two (2) foot height and two to one sideslopes, on top of the existing grade. Turf reinforcement mat was hand laid in the channel of the terrace, stretching between the centerlines of each berm, and anchored as required. Seeding and mulching of the terrace channel was completed by broadcasting the seed by hand. No deviation to the construction specifications was observed by EMCON personnel.

9.1.3 Perimeter Drainage Ditches

The core channels of the perimeter stormwater drainage ditches were excavated by a JD 992 D-LC track-hoe and shaped into a trapezoidal channel using a D5H-LGP. A six inch layer of topsoil was placed over all areas that were disturbed using a JD 750-LGP. Turf

reinforcement mat was hand laid in the channel bottom of the ditch, following the centerline of the channel, and anchored as required. The ditches were fertilized, seeded, and mulched according to the same specifications and methods as the topsoil of the protective layer, explained in section 7.1.3. All ditches met or exceeded the required dimensions set in the specifications.

9.2 Erosion Protection

9.2.1 Turf Reinforcement Mats

Turf reinforcement mat was installed in the channels of all terraces, terrace outlets, and stormwater drainage outlets. The mat was anchored with four (4) inch hook spikes set at a 45 degree angle at twenty foot intervals. The turf mat was an 'Excelsior Mat'.

9.2.2 Seeding and Mulch

In areas of drainage outlet channels, terraces, terrace outlets, and around drainage structures where possible, seeding and mulching procedures were carried out as discussed in Section 7.1.3. In the areas where it was not possible to use these methods, the same seeding and mulching combination and rates were used with different application methods. Both the temporary and permanent seeding were hand broadcast by qualified personnel onto areas covered with turf mat and in areas equipment could not reach. Fertilizer, mulching material, and the tackifier were applied as before. The hay mulch was not anchored in these areas to reduce damage to the drainage structures. Areas of heavy saturation, requiring additional erosion protection, were covered with erosion netting prior to seeding. All seeded areas will be maintained by the contractor until vegetation is well established. Maintenance of the established vegetation shall be provided by the owner as described in Article 1.07 B. The fertilizing, seeding, mulching, and methods used to establish vegetation met the criteria set forth in the construction specifications.

9.2.3 Straw Bale Dikes

Straw bale checks were installed prior to the outlets of the stormwater drainage channels to help control flow velocity and prevent scour from occurring. The straw bales were typical wire bound bales embedded four (4) inches into the existing grade running perpendicular to the centerline of the channel. The bales were secured with 2 steel re-bar pickets driven two (2) feet into the ground with each stake at opposite angles, toward the adjacent bales.

9.2.4 Silt Fences

Silt fences were installed as an erosion protection measure perpendicular to the slope at designed intervals within the drainage outlets. The silt fence consists of a woven wire mesh backed filter fabric anchored with thirty-six inch (36") wooden stakes at eight (8) foot intervals. The wooden stakes were driven to a depth of sixteen inches (16"), leaving twenty inches (20") of the stake above grade. The woven mesh was securely fastened to the posts with construction staples. At the intersection of two sections of cloth, the sections were overlapped by six inches (6") and folded.

10 SURVEY CONTROL

10.1 Plat of Survey

Rockford Blacktop Construction Company provided the closed area plat. This plat can be seen on **Drawing 11**.

10.2 Closed Boundary

The total portion of the landfill footprint that was closed during the 1997 construction season was 16.62 acres, as determined by Gordon Stannard, L.S., of Rockford Blacktop Construction Company.

11 CERTIFICATION

I, Daniel R. Feezor, P.E., do hereby certify to my best knowledge and belief, that the 16.62 acres portion of the Pagel Landfill Final Cover was constructed in accordance with the approved Construction Quality Assurance Program, with the exceptions noted herein.

I also certify that in my absence, Construction Quality Assurance Officers in Absentia were used. Keith Howard, P.E., and Jason Nemeth, E.I.T., were the two Construction Quality Assurance Officers in Absentia, and I take responsibility for their Pagel Landfill 1997 inspections and daily reports contained herein.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

REFERENCES

Daniel, D. E., and C.H. Benson. 1990. Water Content-Density Criteria for Compacted Soil Liners. *Journal of Geotechnical Engineering*. 116(12): 1811-1829.

TABLES

Table 1

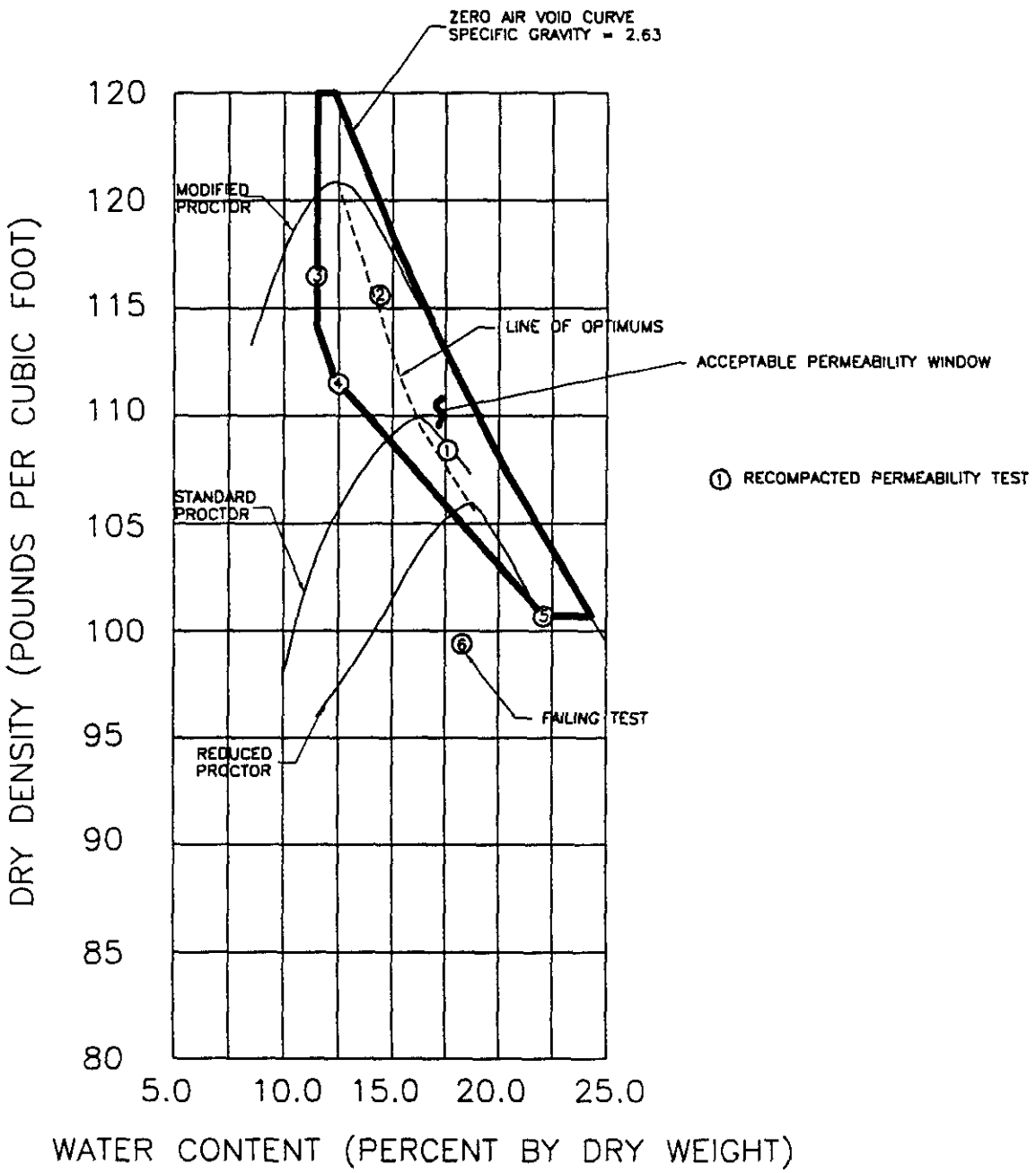
Summary of Test Pad Laboratory Results

Pagel Landfill

Test Pad 1		Test Pad 2		Test Pad 3		Test Pad 4		Test
ST-0724-TP-1A	ST-0724-TP-1B	ST-0724-TP-2A	ST-0724-TP-2B	ST-0724-TP-3A	ST-0724-TP-3B	ST-0724-TP-4A	ST-0724-TP-4B	Sample ID
13.0	13.67	13.22	13.24	13.67	13.46	13.96	12.80	Initial Moisture (%)
117.52	113.82	117.34	118.65	118.58	120.64	115.47	120.66	Dry Density (pcf)
3.38×10^{-7}	5.64×10^{-8}	4.32×10^{-8}	2.49×10^{-8}	1.29×10^{-7}	9.91×10^{-8}	8.93×10^{-8}	4.41×10^{-8}	Permeability (cm/sec)
11	7	8	8	8	4	10	11	Depth of Test (in)
2.73	2.71	2.74	2.73	2.76	2.76	2.74	2.75	Specific Gravity

TABLE 2 Results of Geotechnical Windows Pagel Landfill			
Sample	**Remolded Dry Density/(pcf)**	**Remolded % Moisture**	**Permeability (cm/sec)**
1	108.4	17.6	2.8×10^{-8}
2	115.6	14.4	1.1×10^{-8}
3	116.5	11.5	1.9×10^{-8}
4	111.5	12.5	1.0×10^{-8}
5	100.7	22.1	1.8×10^{-8}
6	99.4	18.3	3.7×10^{-6}

FIGURES



Sample	Remolded Dry Density/(pcf)	Remolded % Moisture	Permeability (cm/sec)
1	108.4	17.6	2.8×10^{-8}
2	115.6	14.4	1.1×10^{-8}
3	116.5	11.5	1.9×10^{-8}
4	111.5	12.5	1.0×10^{-8}
5	100.7	22.1	1.8×10^{-8}
6	99.4	18.3	3.7×10^{-6}

EMCON

DATE 2/15/98
DWN DRF
APP DRF
REV
PROJECT NO.
86078-004.000

FIGURE 1
FINAL COVER CONSTRUCTION
WESTERN PORTION – PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

GEOTECHNICAL WINDOW

<server unknown>/DATA: C:\DRAWINGS\DAN\PAGELWIN.dwg Xrefs: <NONE>
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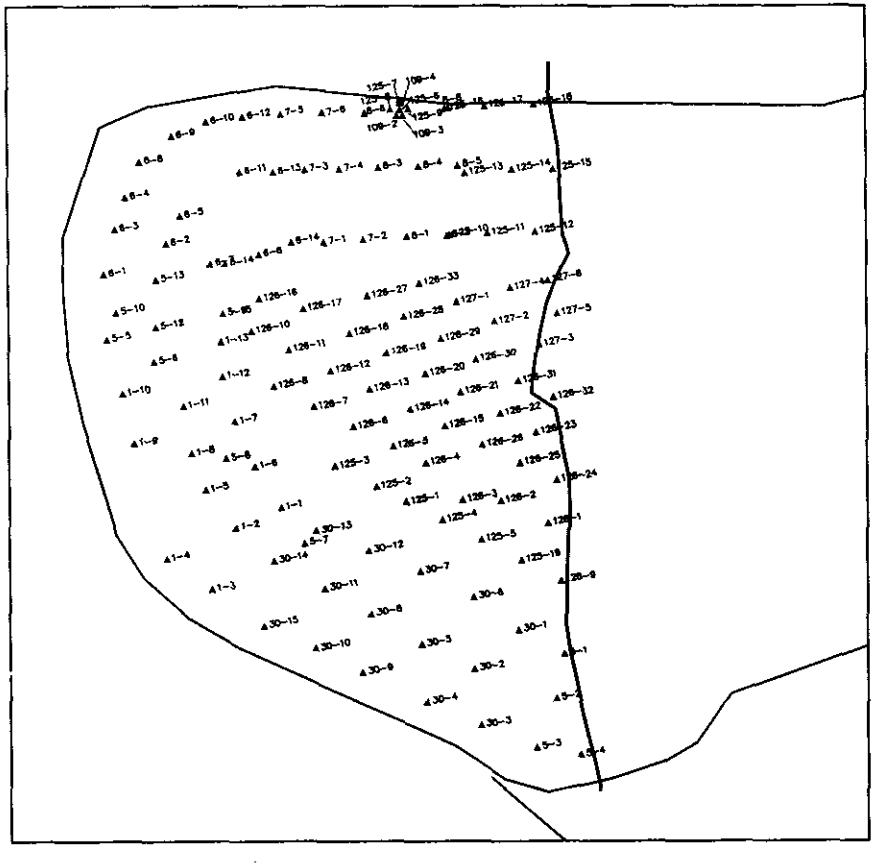

LEGEND

REFUSE LIMIT

LIMIT OF CONSTRUCTION BOUNDARY

▲ NUCLEAR DENSITY TEST LOCATION

0 200 400

SCALE IN FEET

EMCON

DATE 2/15/98
DWN RRM
APP DRF
REV
PROJECT NO.
86078-004.000

FIGURE 2
FINAL COVER CONSTRUCTION
WESTERN PORTION – PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

NUCLEAR DENSITY TEST LOCATION

in unknown>/DATA A:\BRDR1.dwg Xrefs <NONE>
1 = 1.00 DimScale: 1 = 1.00 Date: 2/6/98 Time 11:13 AM Operator: <unknown>

APPENDIX A

APPENDIX A

PRE- CONSTRUCTION TESTING

Sub-Appendices

A.1 Borrow Pile Characterization Testing
A.2 Test Pad Nuclear Density Test Summary
A.3 Test Pad Analytical Summary

Sub- Appendix A.1

Borrow Pile Characterization Testing

TSC
TESTING SERVICE CORPORATION

Geotechnical Engineering
Environmental Services
Construction Materials Engineering & Testing
Laboratory Testing of Soils & Materials
Subsurface Exploration

Carol Stream, Illinois

August 12, 1997

Mr. Tom Hilbert
Winnebago Reclamation Service, Inc.
8403 Lindenwood Road
Rockford, Illinois 61109

Re: Laboratory Testing
Pagel Landfill Final Cover Project
Winnebago County
TSC L-42,801

Dear Mr. Hilbert:

Enclosed are the results of the analysis performed for the Pagel Landfill as directed by Dan Feezor of EMCON in Springfield. The work includes: three (3) Proctors, a particle size analysis with hydrometer, Atterberg Limits, six (6) laboratory remolded hydraulic permeability and a specific gravity. The Proctor curves, particle size, limits and specific gravity are included on separate sheets.

The result for the remolded for hydraulic permeabilities are as follows:

Sample No.	Remolded PCF (dry)	Remolded % Moisture	Gradient	K_T (cm/sec)
1	108.4	17.6	29.1	2.8×10^{-8}
2	115.6	14.4	20.4	1.1×10^{-8}
3	116.5	11.5	17.8	1.9×10^{-8}
4	111.5	12.5	17.4	1.0×10^{-8}
5	100.7	22.1	18.0	1.8×10^{-8}
6	99.4	18.3	18.4	3.7×10^{-6}

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309.662 2215
FAX 309 662.2138

CARY, IL 60013-2978
209 CLEVELAND STREET, UNIT C
847.516.0505
FAX 847.516.0527

GURNEE, IL 60031-5906
401 RIVERSIDE DRIVE, UNIT 10
847 249 6040
FAX 847 249.6042

PEORIA, IL 61615-1913
7806 N. PIONEER LANE, SUITE B
309.693 8310
FAX 309 693.8312

TINLEY PARK, IL 60477-1755
16646 S. OAK PARK AVENUE
708.429 2080
FAX 708.429.2144

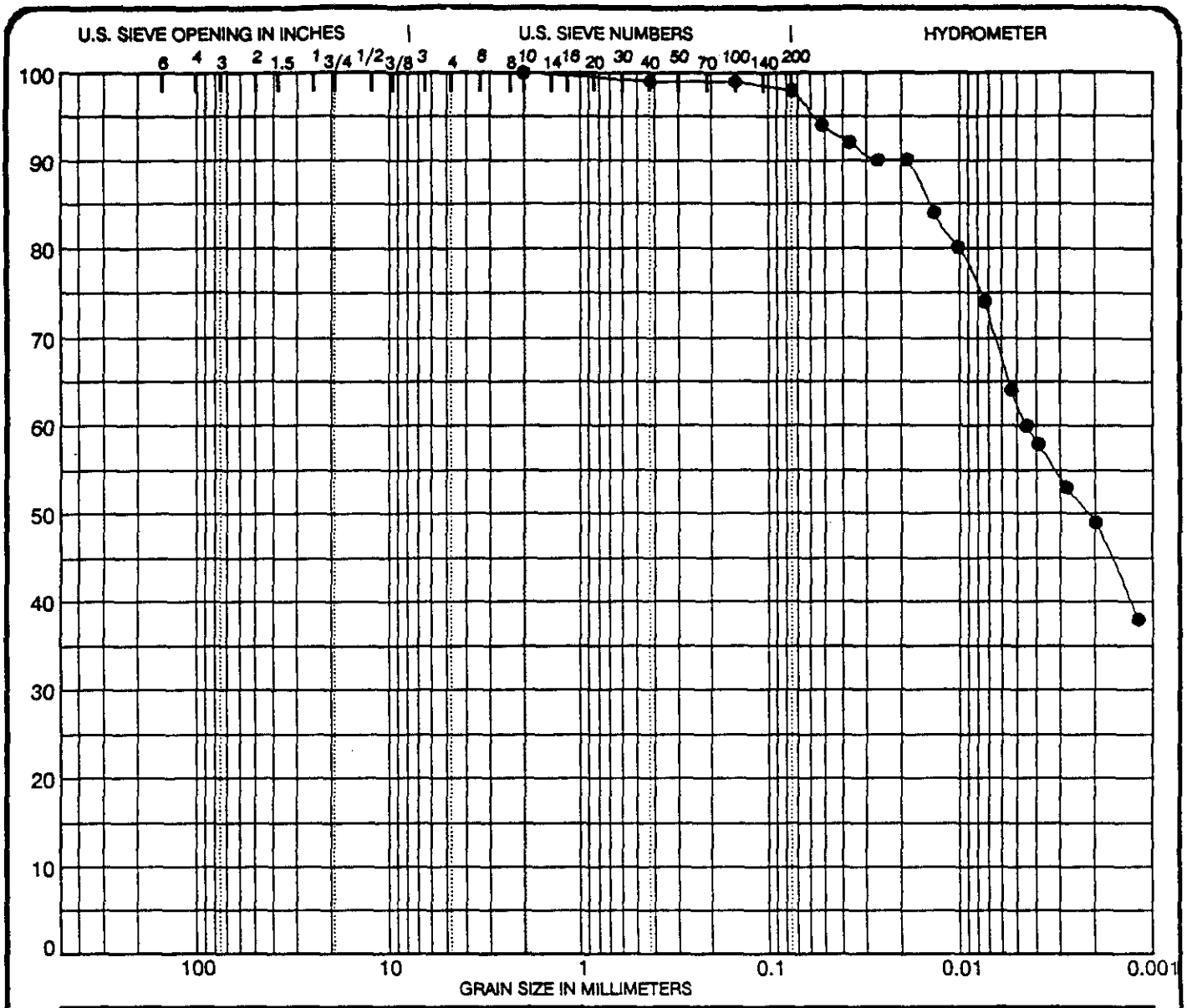
It was a pleasure to assist you on this project. Please call if you have any questions or require additional information.

Respectfully submitted,

TESTING SERVICE CORPORATION

Larry Lockwald
Laboratory Manager

LL:cn
Enc. 4 pages
cc: D. Feezor



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

SPECIMEN IDENTIFICATION	SIEVE	% PASS	CLASSIFICATION			
	3 inch	100	Brown and gray silty CLAY, trace sand (CL)			
	2	100				
	1 1/2	100				
	1	100	%GRAVEL	%SAND	%SILT	%CLAY
NOTES:	3/4	100	0	2	36	62
	3/8	100				
	# 4	100			LL	PL	PI
	# 10	100			41	18	23
	# 40	99				
	# 100	99				
	# 200	98	SP Gr	2.63		

PROJECT Pagel Landfill -
LOCATION Winnebago, Illinois

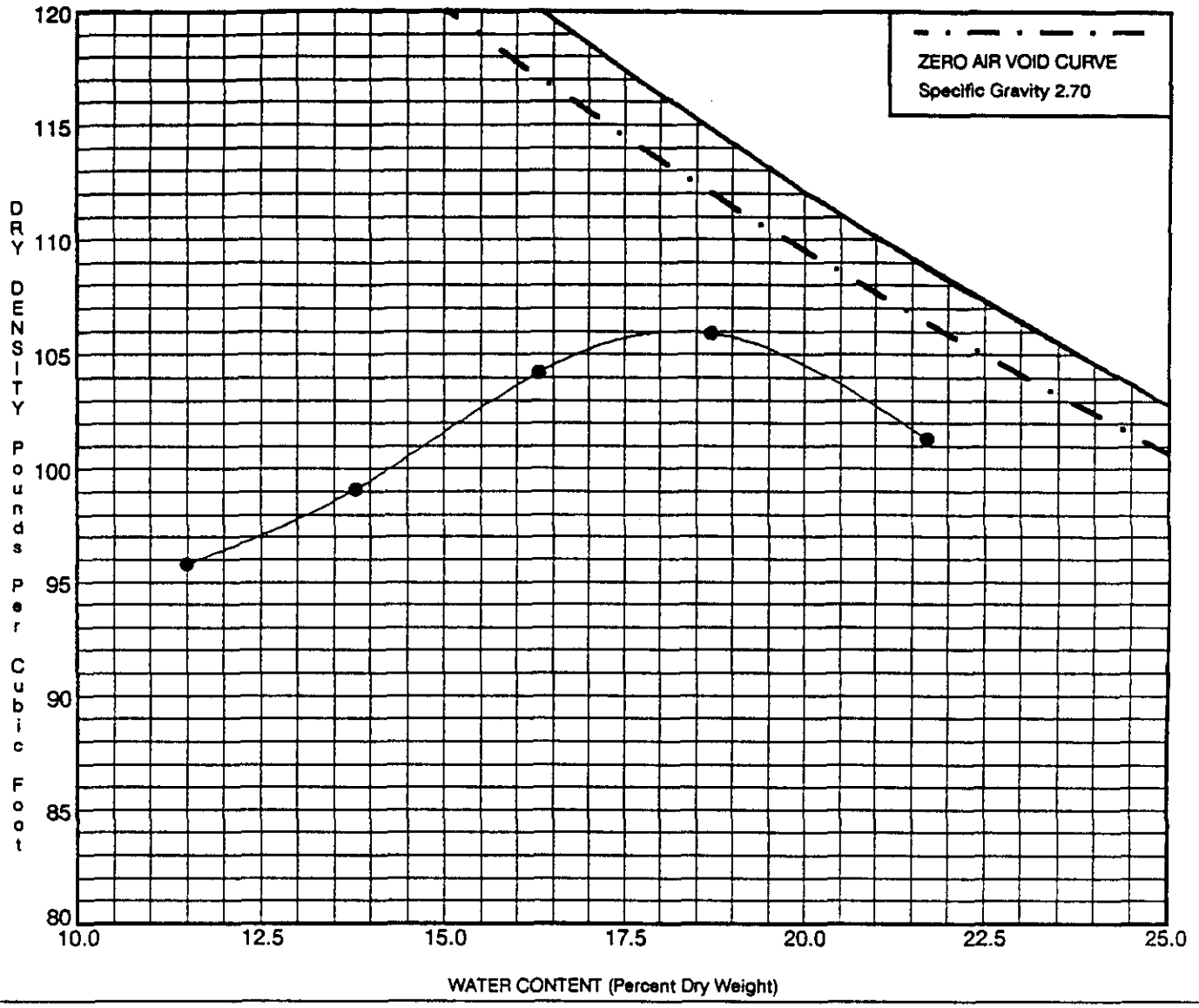
JOB NO. L - 42,801
DATE July 17, 1997

4

SOIL DATA SHEET

Testing Service Corporation

CAROL STREAM



SPECIMEN IDENTIFICATION	CLASSIFICATION
	Brown and gray silty CLAY (CL)

MOISTURE/DENSITY RELATIONSHIP		
X	Standard ASTM D698/AASHTO T99	
	Modified ASTM D1557/AASHTO T180	
Maximum Dry Density (PCF)	106.0	
Optimum Water Content (%)	18.3	

NOTES :
Reduced

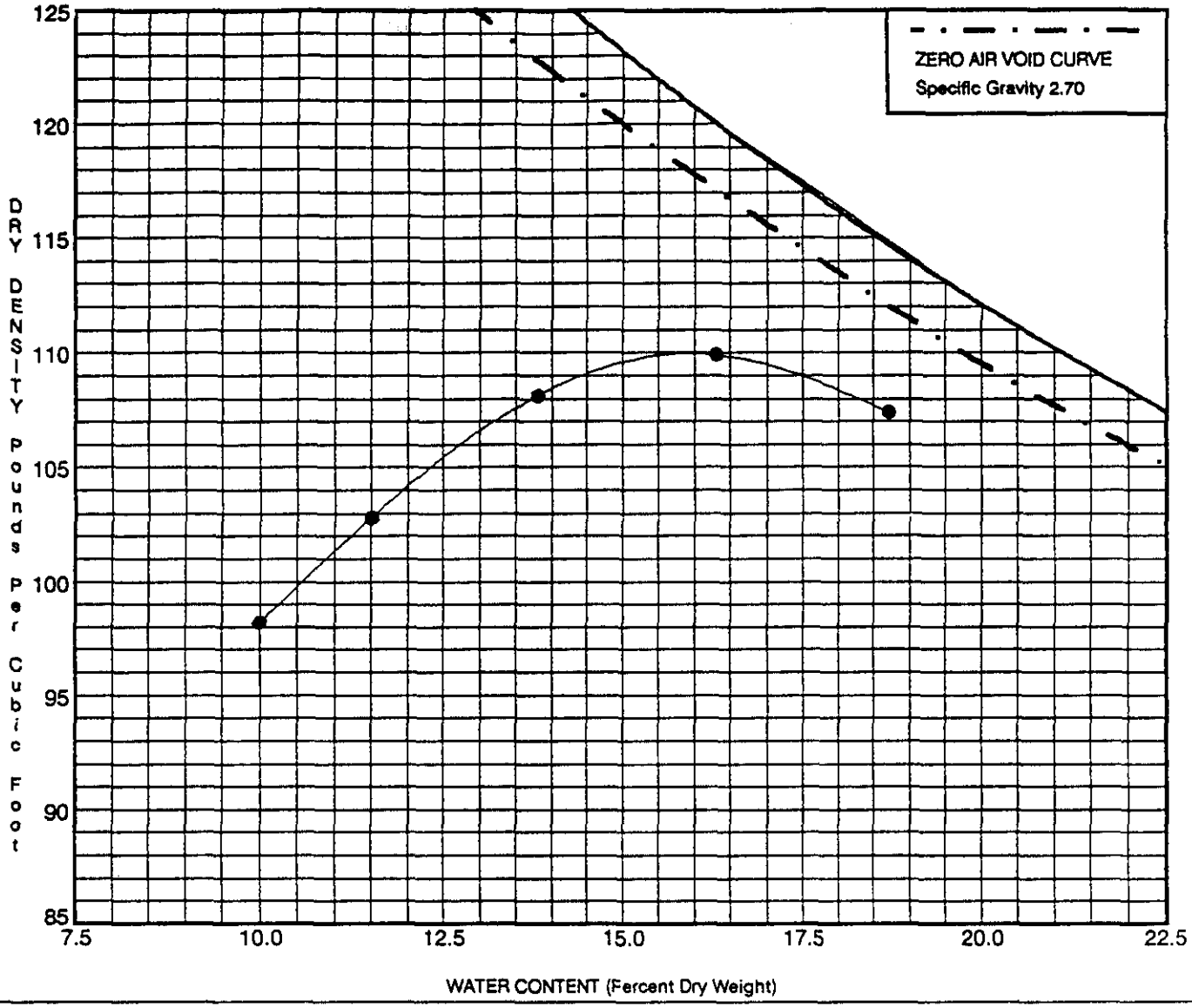
PROJECT Pagel Landfill
LOCATION Winnebago, Illinois

JOB NO. L - 42,801
DATE July 15, 1997

3

MOISTURE-DENSITY RELATIONSHIP

Testing Service Corporation
CAROL STREAM



SPECIMEN IDENTIFICATION	CLASSIFICATION
	Brown and gray silty CLAY (CL)

MOISTURE/DENSITY RELATIONSHIP		NOTES :
X	Standard ASTM D698/AASHTO T99	
	Modified ASTM D1557/AASHTO T180	
Maximum Dry Density (PCF)	110.0	
Optimum Water Content (%)	15.9	

PROJECT **Pagel Landfill** JOB NO. **L - 42,801**

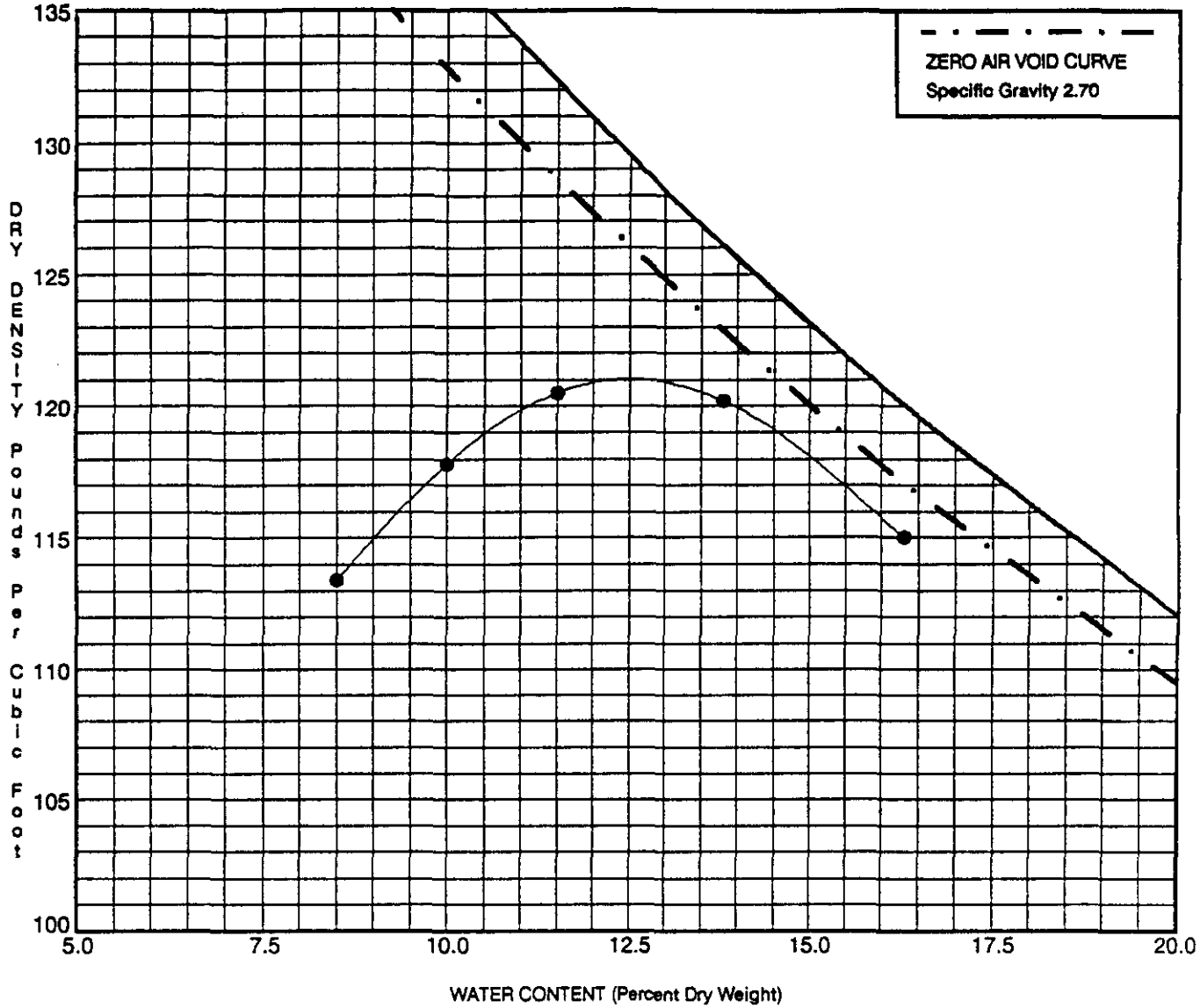
LOCATION **Winnebago, Illinois** DATE **July 15, 1997**

2

MOISTURE-DENSITY RELATIONSHIP

Testing Service Corporation

CAROL STREAM



SPECIMEN IDENTIFICATION	CLASSIFICATION
	Brown and gray silty CLAY (CL)

MOISTURE/DENSITY RELATIONSHIP		
	Standard ASTM D698/AASHTO T99	
X	Modified ASTM D1557/AASHTO T180	
Maximum Dry Density (PCF)		121.0
Optimum Water Content (%)		12.5

NOTES :

PROJECT Pagel Landfill
LOCATION Winnebago, Illinois

JOB NO. L - 42,801
DATE July 15, 1997

1

MOISTURE-DENSITY RELATIONSHIP

Testing Service Corporation
CAROL STREAM

Sub- Appendix A.2

Test Pad Nuclear Density Test Summary

MOISTURE-DENSITY TEST SUMMARY

Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job No: 86078-004.000

Technician: JPN
Data Entry: JPN
Backcheck:

Date	Test No.	Lift No.	Northing	Easting	Probe Depth (inches)	Wet Density (Pcf)	Dry Density (Pcf)	Moisture Content (%)	Proctor Density (Pcf)	Optimum Moisture (%)	Percent Compaction	Pass/ Fail	Retest No.	Comments
7/24/97	24-A	TP	TP	TP	8	129.0	116.1	11.1	121.0	1.4	95.95%	Pass		OD#1 (Test Pad 1)
7/24/97	24-B	TP	TP	TP	8	131.7	117.8	11.8	121.0	0.7	97.36%	Pass		(Test Pad 1)
7/24/97	24-C	TP	TP	TP	8	136.4	121.6	12.1	121.0	0.4	100.50%	Pass		'OD#2 (Test Pad 2)
7/24/97	24-D	TP	TP	TP	8	132.3	118.4	11.7	121.0	0.8	97.85%	Pass		(Test Pad 2)
7/24/97	24-E	TP	TP	TP	8	130.2	114.8	13.4	121.0	0.9	94.88%	Pass		'OD#3 (Test Pad 3)
7/24/97	24-F	TP	TP	TP	8	130.5	114.3	14.2	121.0	1.7	94.46%	Pass		(Test Pad 3)
7/24/97	24-G	TP	TP	TP	8	134.2	119.6	12.3	121.0	0.2	98.84%	Pass		OD#4 (Test Pad 4)
7/24/97	24-H	TP	TP	TP	8	134.0	120.2	11.4	121.0	1.1	99.34%	Pass		(Test Pad 4)

Sub- Appendix A.3

Test Pad Analytical Summary

EMCON
Geotechnical Laboratory
210 Rt. 17A Sterling Forest
Tuxedo, New York 10987
Ph:(914)351-5100 Fax:(914)351-5199

LETTER OF TRANSMITTAL

Date	Job No.
7-29-97	86078.004.000
Attention: Daniel Feezor	
RE: Lab Testing	
Winnebago Reclamation Service	
Pagel Landfill	

TO EMCON
1414 South Fifth St., Suite 200
Springfield, IL 62692

WE ARE SENDING YOU ATTACHED: [ ] Samples [X] Test results # 5199

COPIES	DATE	NO.	DESCRIPTION
2	7-29-97	1	Grain Size Distribution test report TP-1A
2	7-29-97	1	Liquid & Plastic Limits test report TP-1A
2	7-29-97	8	Permeability test report ST-0724-TP-1A,1B,2A,2B,3A,3B,4A,4B
2	7-29-97	8	Logs of tube samples ST-0724-TP-1A,1B,2A,2B,3A,3B,4A,4B

THESE ARE TRANSMITTED as checked below:

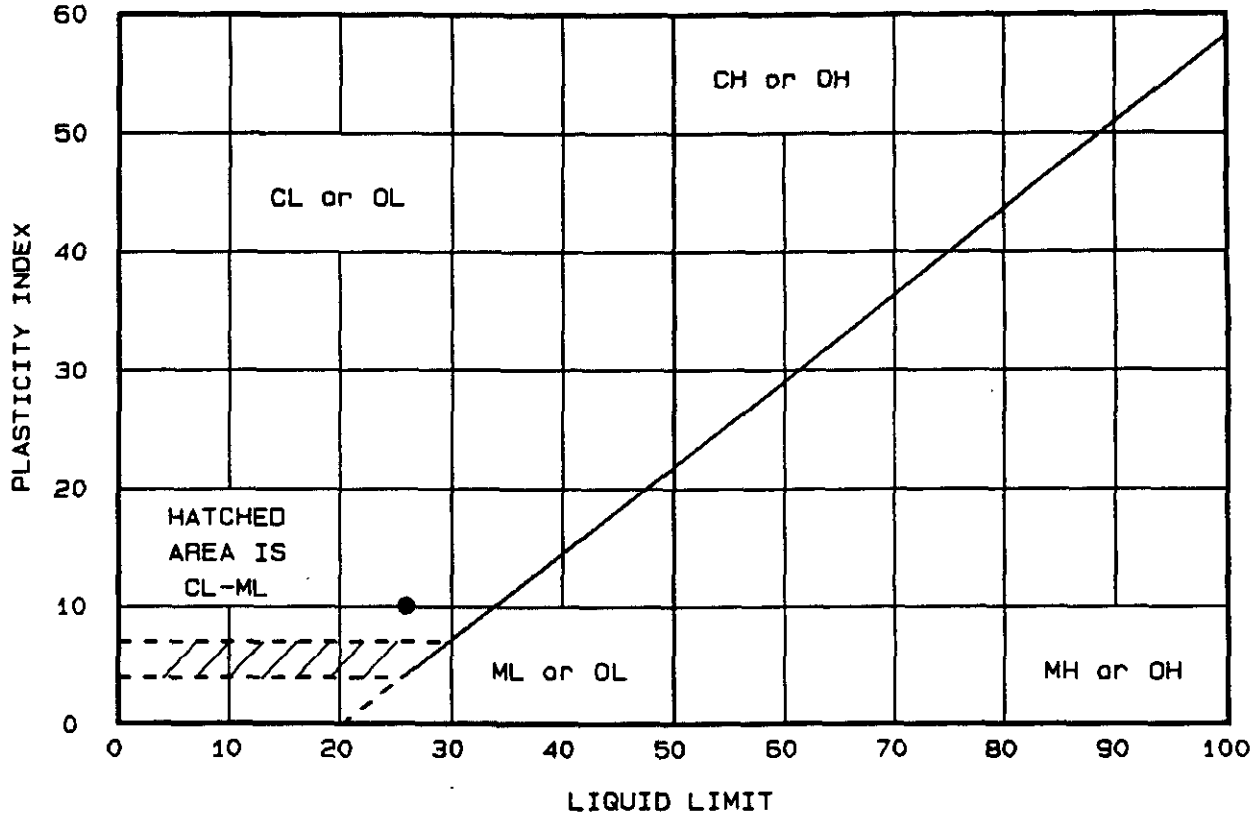
[ ] For approval
[X] As requested
[ ] For review and comment
[ ] Approved as submitted
[ ] Returned for corrections
[ ] Resubmit ___ copies for approval
[ ] Return ___ corrected prints

REMARKS If you have any questions, please call 914-351-5100.

COPY TO (2) copies SIGNED: [signature]

EM\NY-GL\TRANSLET\WINN5199.XLS

LIQUID AND PLASTIC LIMITS TEST REPORT



SAMPLE IDENTIFICATION	LL	PL	PI	-200	MATERIAL DESCRIPTION BURMISTER ☐ ASTM D 2487 ☒
● ST-0724-TP-01A	26	16	10	75.3	CL, Lean clay with sand

Project No.: 86078004 Date: 7-29-97
Project: PAGEL LANDFILL TEST STRIPS

Client: WINNEBAGO RECLAMATION SERVICE
Location:

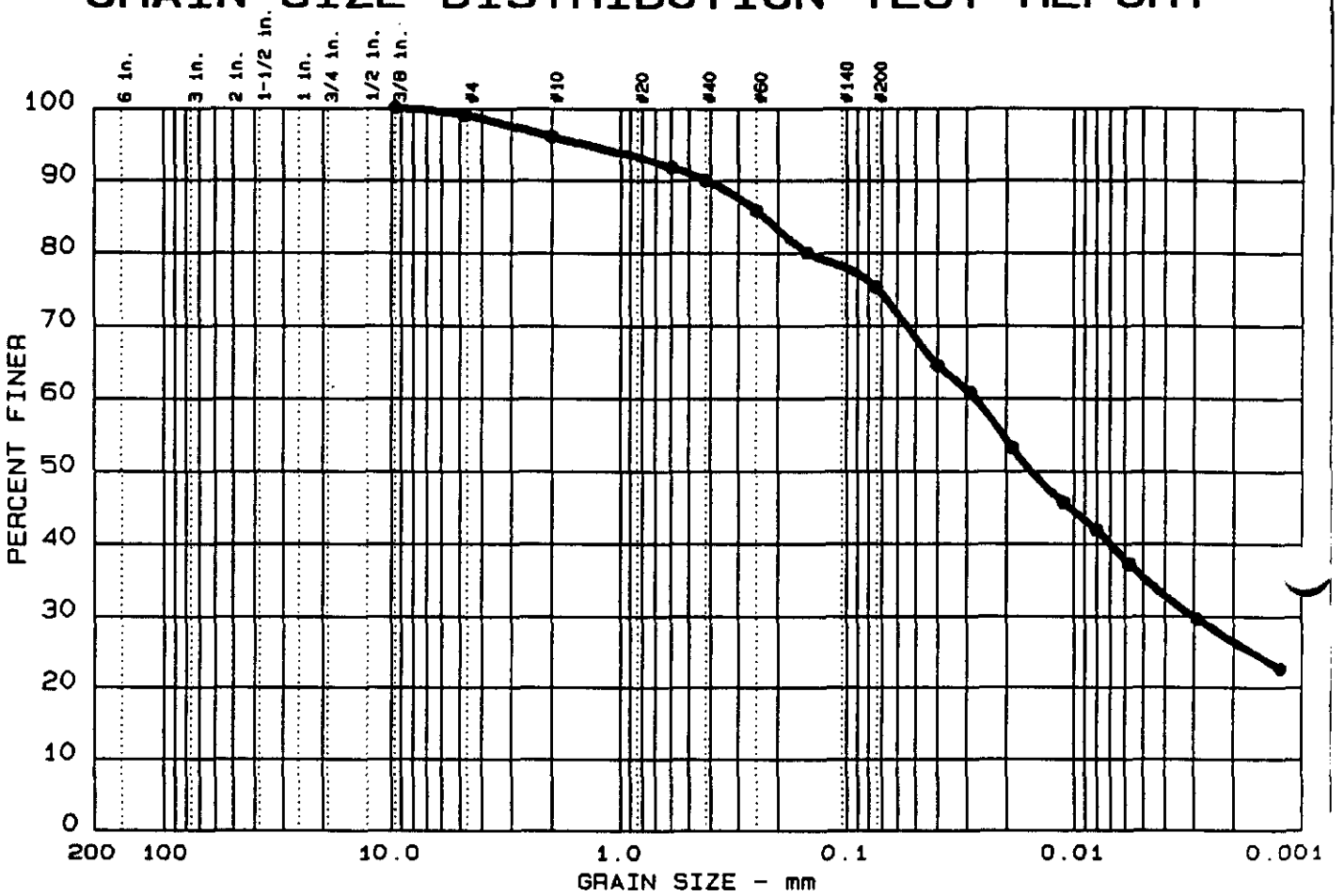
Performed by: K.K./N.B.
Entered by: D.L.
Checked by: R.S.A.

Remarks:
ASTM-D4318

EMCON

Fig. No. _____

GRAIN SIZE DISTRIBUTION TEST REPORT



	S. #	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	1A	0.0	1.0	23.7	40.0	35.3

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.23		0.02	0.003				

MATERIAL DESCRIPTION	ASTM	BURMISTER	AASHTO
● YELLOWISH BROWN Lean clay with sand	CL		A-4 (5)

Project No.: 86078004 Date: 7-29-97
Project: PAGEL LANDFILL TEST STRIPS
Client: WINNEBAGO RECLAMATION SERVICE
● Sample: ST-0724-TP-01A Sample No.: 1A

Performed by: D.L.
Entered by: D.L.
Checked by: R.S.A.
Remarks:
MOISTURE CONTENT= 12.6%

EMCON

Figure No.

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0724-TP- 1A	Date:	7-26-97	Checked by:	R.S.A.

Remarks:

Cell 4
Panel 5

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.310	1.	2.815
2.	3.317	2.	2.810
3.	3.320	3.	2.790
4.	3.322	4.	2.807
5.	3.314	5.	2.828

Weight of Specimen:

Initial Weigh	717.0	Grams
	1.579	Lbs.
Final Weight	739.2	Grams
	1.628	Lbs.
Dry Weight	634.5	Grams
	1.398	Lbs.

Avg.	3.317	In	Ave.	2.810	In
	8.424	CM		7.137	CM
Area	6.202	In^2		40.010	CM^2
Volume	20.568164	In^3		0.0119029	Cft.

Moisture Content:

Initial	13.00	%
Final	16.50	%
Density, Wet Initial	132.80	pcf
Density, Dry	117.52	pcf
Effl. Confining Pressure	0.5	tsf

Density, Wet Final: 136.91 pcf

Back Pressure: 90 psi

Specific Gravity 2.7298

Saturation: 100.2 %

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.15	0.14	0.11	0.12
L cms	8.424	8.424	8.424	8.424
Rt (Temp)	0.931	0.931	0.931	0.931
h cms	220.62	220.62	220.62	220.62
A Sq. cms	40.010	40.010	40.010	40.010
t Sec.	386	366	292	320
K_{20} cm/sec	3.453E-07	3.399E-07	3.347E-07	3.332E-07

K_{20} Avg. cm/sec **3.383E-07**

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0724-TP- 1B	Date:	7-26-97	Checked by:	R.S.A.

Remarks:

Cell	1
Panel	5

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	2.830	1.	2.800
2.	2.811	2.	2.850
3.	2.807	3.	2.855
4.	2.825	4.	2.861
5.	2.833	5.	2.844

Weight of Specimen:

Initial Weigh	607.8	Grams
	1.339	Lbs.
Final Weight	625.8	Grams
	1.378	Lbs.
Dry Weight	534.7	Grams
	1.178	Lbs.

Avg.	2.821	In	Ave.	2.842	In
	7.166	CM		7.219	CM
Area	6.344	In^2		40.927	CM^2
Volume	17.896653	In^3		0.0103569	Cft.

Moisture Content:

Initial	13.67	%
Final	17.04	%

Density, Wet Initial	129.38	pcf
Density, Dry	113.82	pcf
Density, Wet Final:	133.21	pcf
Back Pressure:	90	psi
Specific Gravity	2.7052	
Saturation:	95.4	%
Efft. Confining Pressure	0.5	tsf

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.10	0.10	0.12	0.10
L cms	7.166	7.166	7.166	7.166
Rt (Temp)	0.931	0.931	0.931	0.931
h cms	220.62	220.62	220.62	220.62
A Sq. cms	40.927	40.927	40.927	40.927
t Sec.	1230	1290	1590	1400
K_{20} cm/sec	6.007E-08	5.728E-08	5.576E-08	5.278E-08

K_{20} Avg. cm/sec **5.647E-08**

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0724-TP- 2A	Date:	7-26-97	Checked by:	R.S.A.

Remarks:

Cell	16
Panel	4

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	2.615	1.	2.851
2.	2.614	2.	2.880
3.	2.610	3.	2.865
4.	2.610	4.	2.835
5.	2.614	5.	2.825

Weight of Specimen:

Initial Weigh	581.7	Grams
	1.281	Lbs.
Final Weight	595.8	Grams
	1.312	Lbs.
Dry Weight	513.8	Grams
	1.132	Lbs.

Avg.	2.613	In	Ave.	2.851	In
	6.636	CM		7.242	CM
Area	6.385	In^2		41.192	CM^2
Volume	16.680846	In^3		0.0096533	Cft.

Moisture Content:

Initial	13.22	%
Final	15.96	%

Density, Wet Initial	132.85	pcf
Density, Dry	117.34	pcf
Efft. Confining Pressure	0.5	tsf

Density, Wet Final:	136.07	pcf
Back Pressure:	90	psi
Specific Gravity	2.7392	
Saturation:	95.7	%

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.10	0.10	0.10	0.10
L cms	6.636	6.636	6.636	6.636
Rt (Temp)	0.931	0.931	0.931	0.931
h cms	166.11	166.11	166.11	166.11
A Sq. cms	41.192	41.192	41.192	41.192
t Sec.	1755	2135	2245	2310
K 20 cm/sec	5.145E-08	4.229E-08	4.022E-08	3.909E-08

K_{20} Avg. cm/sec: 4.326E-08

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by:	K.H.
Sample:	ST-0724-TP- 2B	Date:	7-26-97	Entered by:	K.H.
				Checked by:	R.S.A.

Remarks:

Cell	15
Panel	5

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.333	1.	2.850
2.	3.325	2.	2.838
3.	3.320	3.	2.851
4.	3.320	4.	2.835
5.	3.321	5.	2.833

Weight of Specimen:

Initial Weigh	743.3	Grams
	1.637	Lbs.
Final Weight	757.3	Grams
	1.668	Lbs.
Dry Weight	656.4	Grams
	1.446	Lbs.

Avg.	3.324	In	Ave.	2.841	In
	8.442	CM		7.217	CM
Area	6.341	In^2		40.909	CM^2
Volume	21.07606	In^3		0.0121968	Cft.

Moisture Content:

Initial	13.24	%
Final	15.37	%

Density, Wet Initial	134.35	pcf
Density, Dry	118.65	pcf
Efft. Confining Pressure	0.5	tsf

Density, Wet Final:	136.88	pcf
Back Pressure:	90	psi
Specific Gravity	2.7309	
Saturation:	96.2	%

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.10	0.10	0.10	0.10
L cms	8.442	8.442	8.442	8.442
Rt (Temp)	0.931	0.931	0.931	0.931
h cms	248.20	248.20	248.20	248.20
A Sq. cms	40.909	40.909	40.909	40.909
t Sec.	2420	3470	3555	3605
K_{20} cm/sec	3.199E-08	2.231E-08	2.177E-08	2.147E-08

K_{20} Avg. cm/sec **2.439E-08**

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0724-TP- 3A	Date:	7-26-97	Checked by:	R.S.A.

Remarks:

Cell	17
Panel	4

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	2.695	1.	2.841
2.	2.710	2.	2.848
3.	2.707	3.	2.844
4.	2.705	4.	2.885
5.	2.692	5.	2.885

Weight of Specimen:

Initial Weigh	614.4	Grams
	1.353	Lbs.
Final Weight	624.8	Grams
	1.376	Lbs.
Dry Weight	540.5	Grams
	1.191	Lbs.

Avg.	2.702	In	Ave.	2.861	In
	6.863	CM		7.266	CM
Area	6.427	In^2		41.464	CM^2
Volume	17.364299	In^3		0.0100488	Cft.

Moisture Content:

Initial	13.67	%
Final	15.60	%

Density, Wet Initial	134.79	pcf
Density, Dry	118.58	pcf
Density, Wet Final:	137.07	pcf
Back Pressure:	90	psi
Specific Gravity	2.7551	
Saturation:	95.6	%
Effl. Confining Pressure	0.5	tsf

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.12	0.11	0.10	0.10
L cms	6.863	6.863	6.863	6.863
Rt (Temp)	0.931	0.931	0.931	0.931
h cms	166.11	166.11	166.11	166.11
A Sq. cms	41.464	41.464	41.464	41.464
t Sec.	852	788	716	718
K_{20} cm/sec	1.307E-07	1.295E-07	1.296E-07	1.292E-07

K_{20} Avg. cm/sec: 1.297E-07

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by:	K.H.
				Entered by:	K.H.
Sample:	ST-0724-TP- 3B	Date:	7-26-97	Checked by:	R.S.A.

Remarks:

Cell	8
Panel	4

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	2.240	1.	2.830
2.	2.235	2.	2.830
3.	2.238	3.	2.821
4.	2.241	4.	2.838
5.	2.244	5.	2.841

Weight of Specimen:

Initial Weigh	504.8	Grams
	1.112	Lbs.
Final Weight	512.3	Grams
	1.128	Lbs.
Dry Weight	444.9	Grams
	0.980	Lbs.

Avg.	2.240	In	Ave.	2.832	In
	5.689	CM		7.193	CM
Area	6.299	In^2		40.639	CM^2
Volume	14.107392	In^3		0.0081640	Cft.

Moisture Content:

Initial	13.46	%
Final	15.15	%

Density, Wet Initial	136.31	pcf
Density, Dry	120.14	pcf
Density, Wet Final:	138.34	pcf
Back Pressure:	90	psi
Specific Gravity	2.7553	
Saturation:	96.8	%
Efft. Confining Pressure	0.5	tsf

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.11	0.10	0.10	0.10
L cms	5.689	5.689	5.689	5.689
Rt (Temp)	0.931	0.931	0.931	0.931
h cms	166.11	166.11	166.11	166.11
A Sq. cms	40.639	40.639	40.639	40.639
t Sec.	865	790	790	800
K_{20} cm/sec	9.977E-08	9.931E-08	9.931E-08	9.807E-08

K_{20} Avg. cm/sec: 9.911E-08

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by:	K.H.
				Entered by:	K.H.
Sample:	ST-0724-TP- 4A	Date:	7-26-97	Checked by:	R.S.A.

Remarks:

Cell	7
Panel	5

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.472	1.	2.780
2.	3.470	2.	2.810
3.	3.448	3.	2.868
4.	3.467	4.	2.775
5.	3.462	5.	2.842

Weight of Specimen:

Initial Weigh	744.6	Grams
	1.640	Lbs.
Final Weight	768.5	Grams
	1.693	Lbs.
Dry Weight	653.4	Grams
	1.439	Lbs.

Avg.	3.464	In	Ave.	2.815	In
	8.798	CM		7.150	CM
Area	6.224	In^2		40.153	CM^2
Volume	21.55755	In^3	0.0124754	Cft.	

Moisture Content:

Initial	13.96	%
Final	17.62	%

Density, Wet Initial	131.58	pcf
Density, Dry	115.47	pcf
Density, Wet Final:	135.80	pcf
Back Pressure:	90	psi
Efft. Confining Pressure	0.5	tsf
Specific Gravity	2.7401	
Saturation:	100.4	%

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.11	0.10	0.10	0.10
L cms	8.798	8.798	8.798	8.798
Rt (Temp)	0.931	0.931	0.931	0.931
h cms	252.44	252.44	252.44	252.44
A Sq. cms	40.153	40.153	40.153	40.153
t Sec.	990	905	907	908
K_{20} cm/sec	8.979E-08	8.929E-08	8.910E-08	8.900E-08

K_{20} Avg. cm/sec: 8.929E-08

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by:	K.H.
Sample:	ST-0724-TP- 4B	Date:	7-26-97	Entered by:	K.H.
				Checked by:	R.S.A.

Remarks:

Cell	18
Panel	4

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.075	1.	2.825
2.	3.080	2.	2.838
3.	3.058	3.	2.800
4.	3.067	4.	2.830
5.	3.077	5.	2.830

Weight of Specimen:

Initial Weigh	687.6	Grams
	1.515	Lbs.
Final Weight	701.4	Grams
	1.545	Lbs.
Dry Weight	609.6	Grams
	1.343	Lbs.

Avg.	3.071	In	Ave.	2.825	In
	7.801	CM		7.174	CM
Area	6.266	In^2		40.427	CM^2
Volume	19.245982	In^3		0.0111377	Cft.

Moisture Content:

Initial	12.80	%
Final	15.06	%

Density, Wet Initial	136.10	pcf
Density, Dry	120.66	pcf
Density, Wet Final:	138.83	pcf
Back Pressure:	90	psi
Specific Gravity	2.7473	
Saturation:	98.3	%
Efft. Confining Pressure	0.5	tsf

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.10	0.10	0.10	0.10
L cms	7.801	7.801	7.801	7.801
Rt (Temp)	1.000	1.000	1.000	1.000
h cms	166.11	166.11	166.11	166.11
A Sq. cms	40.427	40.427	40.427	40.427
t Sec.	2180	2675	2730	3122
K_{20} cm/sec	5.329E-08	4.343E-08	4.255E-08	3.721E-08

K_{20} Avg. cm/sec **4.412E-08**

EMCON	MOISTURE CONTENTS *TEST METHOD ASTM D-2216*

CLIENT:	WINNEBAGO RECLAMATION SERVICE	**DATE:**	28-Jul-97
PROJECT:	PAGEL LANDFILL TEST STRIPS	**PROJECT #**	86078.004 000

HOLE #/ SAMPLE #	OD-1	OD-2	OD-3	OD-4	
DEPTH					
WET WGT. + TARE (gms.)	530.80	520.60	521.70	510.90	
DRY WGT. + TARE (gms.)	474.20	463.10	455.60	450.10	
WGT. WATER (gms.)	56.60	57.50	66.10	60.80	0.00
TARE (gms.)	7.80	7.90	8.00	7.90	
DRY WGT. (gms.)	466.40	455.20	447.60	442.20	0.00
MOISTURE CONTENT	12.14%	12.63%	14.77%	13.75%	

HOLE #/ SAMPLE #					
DEPTH					
WET WGT. + TARE (gms.)					
DRY WGT. + TARE (gms.)					
WGT. WATER (gms.)	0.00	0.00	0.00	0.00	0.00
TARE (gms.)					
DRY WGT. (gms.)	0.00	0.00	0.00	0.00	0.00
MOISTURE CONTENT					

Performed by: D.L. Entered by: D.L. Checked by: R.S.A.

EMCON

CONSULTING ENGINEERS

LOG OF UNDISTURBED SOIL SAMPLES

Project:	WINNEBAGO REC.SERV.,PAGEL LF	Project #	86078.004.000
Client:		Diameter:	3"
Sample:	ST-0724-TP-1A	Recovery:	13"
Date:	7-25-97	Remarks:	

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14	Yellowish Brown Lean clay with sand, CL	
	13		
	12		
	11		K
	10		
	9		
	8		
	7		
	6		
	5	Brown Sandy Silt with Gravel	
	4	(visual)	
	3		
	2		
	1		
Bottom of Sample	0		

EMCON

CONSULTING ENGINEERS

LOG OF UNDISTURBED SOIL SAMPLES

Project: WINNEBAGO REC.SERV.,PAGEL LF	Project # 86078.004.000
Client:	Diameter: 3"
Sample: ST-0724-TP-1B	Recovery: 12"
Date: 7-25-97	Remarks:

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14		
	13	Yellowish Brown Lean clay with sand, CL	
	12	(visual)	
	11		
	10		
	9		
	8		
	7		K
	6		
	5		
	4		
	3	Brown Sandy Silt with Gravel	
	2	(visual)	
	1		
Bottom of Sample	0		

EMCON

CONSULTING ENGINEERS

LOG OF UNDISTURBED SOIL SAMPLES

Project:	WINNEBAGO REC.SERV.,PAGEL LF	Project #	86078.004.000
Client:		Diameter:	3"
Sample:	ST-0724-TP-2A	Recovery:	12"
Date:	7-25-97	Remarks:	

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14		
	13	Light Yellowish Brown Lean clay with sand, CL	
	12	(visual)	
	11		
	10		
	9		
	8		K
	7		
	6		
	5		
	4	Dark Brown Sandy Silt with Gravel	
	3	(visual)	
	2		
	1		
Bottom of Sample	0		

EMCON CONSULTING ENGINEERS	LOG OF UNDISTURBED SOIL SAMPLES

Project: WINNEBAGO REC.SERV.,PAGEL LF Client: Sample: ST-0724-TP-2B Date: 7-25-97	Project # 86078.004.000 Diameter: 3" Recovery: 12" Remarks:

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14		
	13	Light Yellowish Brown Lean clay with sand, CL	
	12	(visual)	
	11		
	10		
	9		
	8		K
	7		
	6		
	5		
	4	Dark Brown Sandy Silt with Gravel	
	3	(visual)	
	2		
	1		
Bottom of Sample	0		

EMCON

CONSULTING ENGINEERS

LOG OF UNDISTURBED SOIL SAMPLES

Project:	WINNEBAGO REC.SERV.,PAGEL LF	Project #	86078.004.000
Client:		Diameter:	3"
Sample:	ST-0724-TP-3A	Recovery:	12"
Date:	7-25-97	Remarks:	

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14		
	13	Yellowish Brown Lean clay with sand, CL	
	12	(visual)	
	11		
	10		
	9		
	8		K
	7		
	6		
	5		
	4		
	3		
	2		
	1		
Bottom of Sample	0		

EMCON

CONSULTING ENGINEERS

LOG OF UNDISTURBED SOIL SAMPLES

Project:	WINNEBAGO REC.SERV.,PAGEL LF	Project #	86078.004.000
Client:		Diameter:	3"
Sample:	ST-0724-TP-3B	Recovery:	13"
Date:	7-25-97	Remarks:	

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14	Light Yellowish Brown Lean clay with sand, CL	
	13	(visual)	
	12		
	11		
	10		
	9		
	8		
	7		
	6		
	5		
	4		K
	3		
	2		
	1		
Bottom of Sample	0		

EMCON

CONSULTING ENGINEERS

LOG OF UNDISTURBED SOIL SAMPLES

Project:	WINNEBAGO REC.SERV.,PAGEL LF	Project #	86078.004.000
Client:		Diameter:	3"
Sample:	ST-0724-TP-4A	Recovery:	12"
Date:	7-25-97	Remarks:	

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14		
	13	Light Yellowish Brown Lean clay with sand, CL	
	12	(visual)	
	11		
	10		K
	9		
	8		
	7		
	6		
	5		
	4		
	3		
	2		
	1		
Bottom of Sample	0		

EMCON CONSULTING ENGINEERS	LOG OF UNDISTURBED SOIL SAMPLES

Project: WINNEBAGO REC.SERV.,PAGEL LF	Project # 86078.004.000
Client:	Diameter: 3"
Sample: ST-0724-TP-4B	Recovery: 13"
Date: 7-25-97	Remarks:

Top of Sample	Inches		Type of Test Performed
	23		
	22		
	21		
	20		
	19		
	18		
	17		
	16		
	15		
	14	Yellowish Brown Lean clay with sand, CL	
	13	(visual)	
	12		
	11		K
	10		
	9		
	8		
	7		
	6		
	5		
	4		
	3		
	2		
	1		
Bottom of Sample	0		

APPENDIX B

APPENDIX B

DAILY FIELD REPORTS

Sub-Appendices

B.1 Daily Field Reports
B.2 Weekly Project Meeting Summary
B.3 Summary of Weather Conditions During Construction
B.4 Summary of Construction Equipment Used On Site

Sub- Appendix B.1

Daily Field Reports

July 1997

Pagel Landfill 1997 Landfill Final Cover Construction

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23 CQA 9.5 hours Observed compaction and smoothing of clay liner test pads	24 CQA 10.0 hours Observed compaction of clay liner test pads. Took shelby tube and density samples	25	26
27	28	29 CQA 5.0 hours Observed compaction and smoothing of clay liner	30 CQA 10 hours Observed Compaction of Clay	31 CQA 10 Hours Observed compaction of clay		

June

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

August

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August 1997

Pagel Landfill 1997 Landfill Final Cover Construction

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 CQA 8.5 Hours Observed compaction and smoothing of Clay Liner	*2*
3	*4* CQA 9.0 hours Observed compaction and smoothing of clay liner and anchor trench. Two sets of shelby tube samples were taken.	*5* CQA 9.0 hours Observed compaction and smoothing of clay liner and anchor trench. 15 density tests were taken.	*6* CQA 10.0 hours Observed compaction of clay liner and anchor trench. 14 density tests were taken. Conducted survey for drainage berm.	*7* CQA 10.0 hours Observed compaction of clay liner/anchor trench and excavation of unknown pipeline. 6 density tests were taken.	*8* CQA 9.0 hours AM:Pre-liner meeting. PM:Observed compaction of clay liner. 9 density tests were taken.	*9*
10	*11* CQA 10.0 hours Observed placement of drainage berm. Observed storage and handling of incoming geosynthetics. Inventory was taken.	*12*	*13*	*14*	*15*	*16*
17	*18*	*19*	*20* CQA 5.0 hours Conducted clay depth probe samples.	*21*	*22* CQA 12.5 hours Observed and documented construction of clay low permeability layer. One set of shelby tubes taken.	*23*
24	*25* CQA 12.5 hours Observed and documented construction of clay low permeability layer and drainage structures. Start of FML construction.	*26* CQA 13.0 hours Observed and documented construction of clay low permeability layer and FML. Two sets of shelby tubes taken.	*27* CQA 12.0 hours Observed and documented construction of clay low permeability layer and FML. Completed nuclear density testing of clay layer.	*28* CQA 11.5 hours Observed and documented flexible membrane liner installation and testing.	*29* CQA 12.0 hours Observed and documented flexible membrane liner installation and testing.	*30* CQA 12.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer construction.
31 CQA 12 hours Observed and Documented Flexible Membrane Liner installation and testing						

July

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

September 1997

Pagel Landfill 1997 Landfill Final Cover Construction

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 CQA 12.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	3 CQA 11.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	4 CQA 13.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	5 CQA 12.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	6
7	8 CQA 12.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	9 CQA 12.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	10 CQA 8.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	11 CQA 12.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	12 CQA 13.5 Hours Observed and documented flexible membrane liner installation and testing, and protective layer construction	13 CQA 10.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer construction.
14	15 CQA 8.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	16 CQA 14.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	17 CQA 13.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	18 CQA 11.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	19 CQA 6.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	20 CQA 10.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer construction.
21 CQA 8.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer construction.	22 CQA 12.0 hours Observed and documented: flexible membrane liner installation and testing; drainage layer and protective layer construction.	23 CQA 12.0 hours Observed and documented: FML installation and testing, drainage and protective layer constr.; and dual collection system installation FML and geonet layer completed today.	24 CQA 10.0 hours Observed and documented: Protective layer construction, drainage system construction, and well boring.	25 CQA 10.0 hours Observed and documented: Protective layer construction, drainage system construction, and well boring.	26 CQA 10.0 hours Observed and documented: Protective layer construction, drainage system construction, dual collection system installation, and well boring.	27 CQA 6.0 hours Observed and documented well boring and installation.
28	29 CQA 8.0 hours Observed and documented: Protective layer construction, drainage system construction, dual collection system installation, and well boring.	30 CQA 10.0 hours Observed and documented: Protective layer construction, drainage system construction, dual collection system installation, and well boring.				

August

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

October

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

October 1997

Pagel Landfill 1997 Landfill Final Cover Construction

September

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

November

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 CQA 11.0 hours Observed and documented: Protective layer construction, drainage system construction, dual collection system installation, seeding and fertilizing, and well boring.	2 CQA 8.0 hours Observed and documented: Protective layer construction, drainage system construction, dual collection system installation, seeding and fertilizing, and well boring.	3 CQA 9.0 hours Observed and documented: Protective layer construction, drainage system construction, seeding and fertilizing, and well boring.	4 CQA 8.0 Hours Observed and documented well borings and construction
5	6 CQA 10.0 hours Observed and documented: Protective layer construction, drainage system construction, seeding and fertilizing, and well boring.	7 CQA 8.0 hours Observed and documented: Protective layer construction, drainage system construction, seeding and fertilizing, and well boring.	8 CQA 8.0 hours Observed and documented: Protective layer construction, drainage system construction, seeding and fertilizing, and well boring.	9	10 CQA 7.0 hours Observed and documented: Protective layer construction, dual collection system construction, drainage system construction, seeding and fertilizing, and well boring.	11
12	13 CQA 8.0 hours Observed and documented: Protective layer construction, drainage system construction, seeding and mulching, and well boring.	14 CQA 8.0 hours Observed and documented: Drainage system construction, seeding and mulching, and well boring.	15	16	17 CQA 8.0 hours Observed and documented well boring and construction.	18
19	20	21 CQA 8.0 hours Observed and documented well boring and construction.	22	23	24	25
26	27	28	29	30	31	

November 1997

Pagel Landfill 1997 Landfill Final Cover Construction

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19 CQA 5.0 hours Documented and approved well boots installed by Serrot Corp. Met with site manager (Jeff) to discuss project.	20	21	22
23	24	25	26	27	28	29
30						

October

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

December

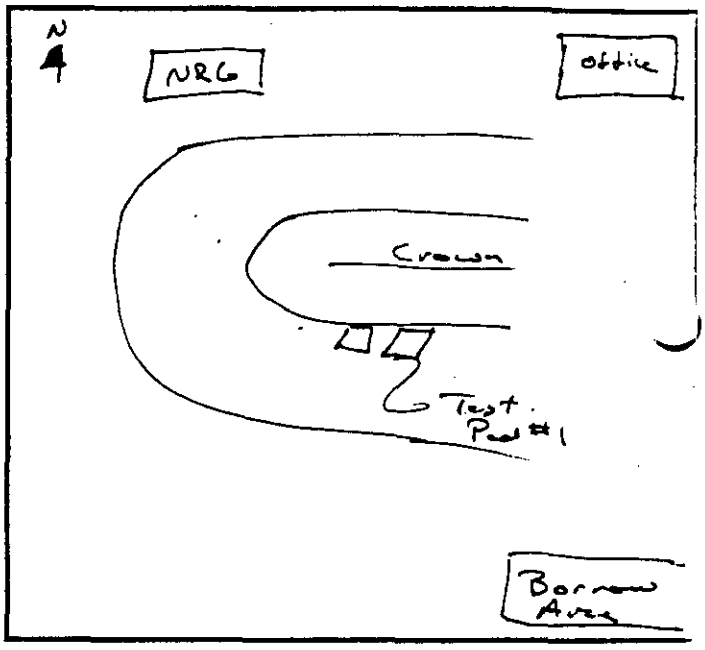
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

EMCON
1414 South Fifth Street
Suite 104
Springfield, Illinois 62692
(217) 492-9450

Daily Field Report Summary

CLIENT:	Winnebago Reclamation Service, Inc.	DATE	7-23-97
PROJECT:	Pagel Landfill	REPORT NO:	
PROJECT NO.:	86078 -004.000	PAGE:	1 OF 1
WEATHER: AM/PM:	Sunny /	TEMP: HIGH/LOW	83° /

ARRIVAL TIME: 8:00 am
DEPARTURE TIME: 6:00 pm.
TOTAL HOURS: 9.5



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Meet Contractor & client on-site. Received that we would test alternative construction techniques for the recompacted clay liner. The contractor could not use a self propelled sheepsfoot compactor on the 2½ : 1 slopes. Therefore, we would try 4 separate test pads.

We started the first test pad in the afternoon. We built the first test pad in 2 6" lifts, compacted with a D8-N twice. The dirt was excavated from the Southern Unit borrow area and hauled to the top of the cap. Then the D-8 spread the loose lift, and then tracked twice with the same D-8. We finalized the second lift, after Nuclear Density Tests were taken. Ended Construction at 6:00 pm

Approved By: _____

Title: _____

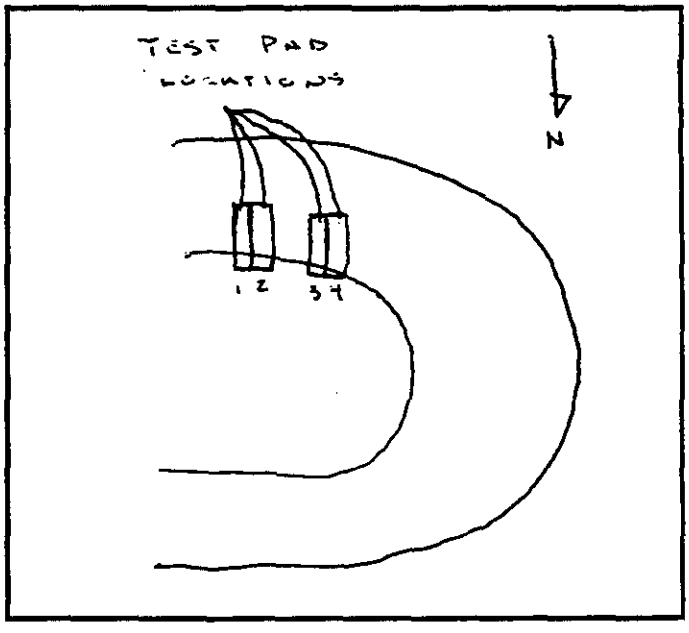
Dana R. Fegan
EMCON Representative

EMCON
1414 South Fifth Street
Suite 200
Springfield, IL 62703
(217) 492-9450

Daily Field Report Summary

CLIENT: Winnebago Reclamation Service
DATE 7-24-97
PROJECT: Pagel Landfill CCA
REPORT NO:
PROJECT NO.: 86076 - 004.000
PAGE: OF
WEATHER: AM/PM: Sunny / Sunny
TEMP: HIGH/LOW 74 / 91

ARRIVAL TIME: 0645
DEPARTURE TIME: 1730
TOTAL HOURS: 1045



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon Arrival Gathered Equip. & Forms For Daily Activities Proceeded To Cap Area To Monitor RBC Place Clay Liner Material Clay Was From on Site Source & Brought to Pad Area with 10 wheel Dumps (4) Areas ~50' x 200' were placed with a D-8N. All Areas were conditioned as follows 1) Tracked Twice with D8N 2) Turned with Sissor Disc & Moistened Then Tracked with D8N Twice 3) Disced with Sissor Disc, Moistened, & Two Passes with D8N / Pull Behind Padfoot Roller 4) Two Passes with D8N / with Pull Behind Padfoot Roller. After Completion of Prep. Areas (2) Shelby Tubes, (2) TNG Tests, & (1) Oven Dry were Taken. Tubes Were Pushed ~14" To Ensure Entire 12" Lift was Tested

Approved By:

Title:

Wm. N. Harris
EMCON Representative

EMCON
1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

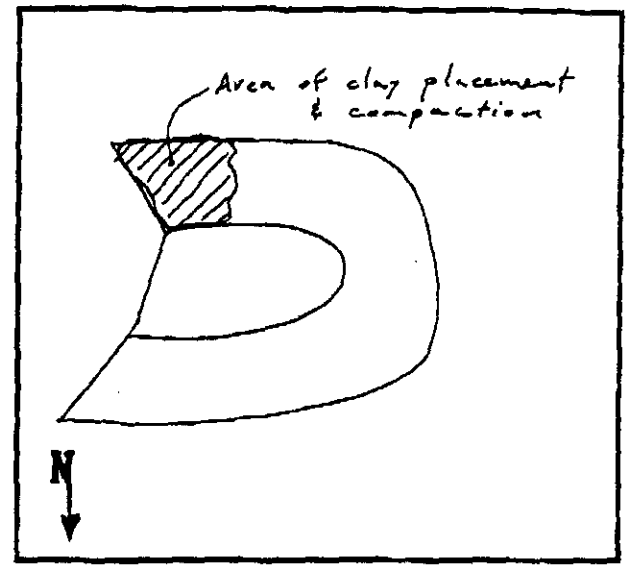
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	7/29/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	Cloudy / Partly Sunny	TEMP: HIGH/LOW	77 / 61

ARRIVAL TIME: 10:00 am
DEPARTURE TIME: 4:00 pm
TOTAL HOURS: 5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

RBT hauled clay from the borrow area using (4) Volvo A35 trucks. Clay Fill was placed using a D8L, D8H, and a D5L LGP. Material was then tracked by the above and compacted using a vibratory pull behind roller. No areas were completely prepared for testing.



LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

EMCON
1414 South Fifth Street
Suite 200
Springfield, IL 62703
(217) 492-9450

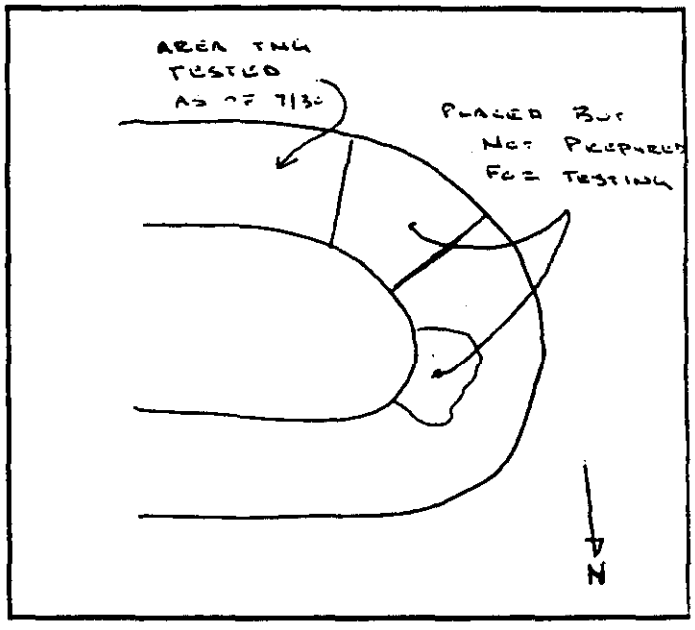
Daily Field Report Summary

CLIENT:	Winnebago Reclamation Service	DATE	7-30-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	OF
WEATHER: AM/PM:	60 / 84	TEMP: HIGH/LOW	Sunny / Sunny

ARRIVAL TIME: 0645
DEPARTURE TIME: 1700
TOTAL HOURS: 10.15

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon Arrival Gathered Field Forms & Equip For Daily Activities Tested Previously Placed Clay Material. Test Were Taken & Deed All Results Were Recorded on Field Forms. Four Volvo A35 Trucks were used to Bring Material From Borrow Area which Was Then Placed In Thin Lifts with A D8K, D8H, & D6H LGP Material Contained No Visible Organics or Course Fragments Larger Than 1½"-2". Material Was Consistant in Color & Texture But Occasionally Had Pockets with Higher Than Normal Moisture, But Still Passing TNG Testing. RBT Continuously Wet Roads & Kept Clean



LOCATION DIAGRAM

Approved By: _____

Title: _____

W. N. Harris
EMCON Representative

EMCON
1414 South Fifth Street
Suite 200
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(217) 492-9450

Daily Field Report Summary

CLIENT:	Winnebago Reclamation Service	DATE	7-31-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:	86078-004.000 TASK 1	PAGE:	OF
WEATHER: AM/PM:	Overcast / Sunny	TEMP: HIGH/LOW	81 / 65

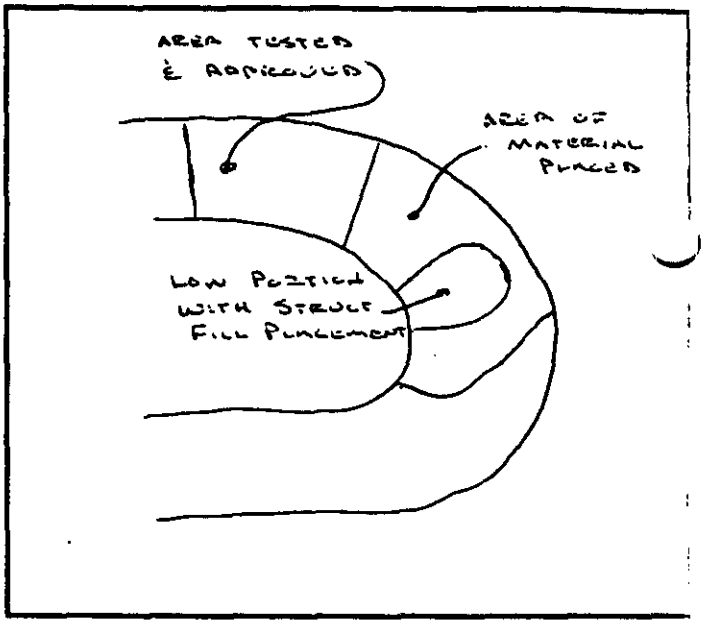
ARRIVAL TIME: 0645

DEPARTURE TIME: 1715

TOTAL HOURS: 10.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon Arrival Gathered Field Forms & Supplies For Daily Activities. RBT Hauled Clay Until Approx. 0830. At ~0830 Articulating Trucks & Dozers Began Hauling Structural Fill To A Low Area Of Fill. Struct. Fill Was Hauled With (4) Volvo A35 Which Was Then Placed With A D8L, D6L, & D5L LGP After Low Portion Of Cap Area Was Completed. RBT Began Hauling LPS Material From Borrow Area With (4) Volvo A35 A D8 With A Vibratory Roller Was Used To Compact Material Placed With A D6L & D5C LGP. Material Was Not Completely Prepared For Testing Will Test 8-1-97



LOCATION DIAGRAM

Approved By: _____

Title: _____

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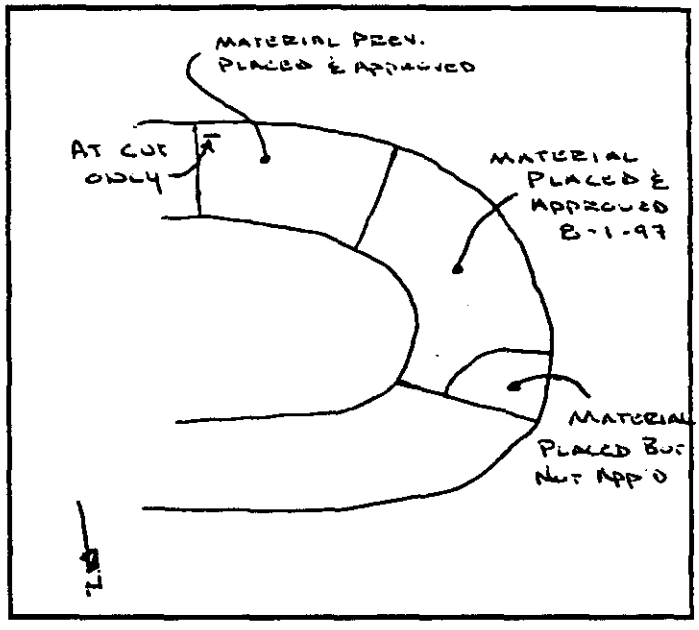
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAIMATION SERVICE	DATE	8-1-97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	OF
WEATHER: AM/PM:	SUNNY / SUNNY	TEMP: HIGH/LOW	82 / 59

ARRIVAL TIME: 0700
DEPARTURE TIME: 1530
TOTAL HOURS: 85



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

UPON ARRIVIAL GATHERED FIELD FORMS & SUPPLIES FOR DAILY ACTIVITIES. TESTED COMPLETED AREAS OF CAP WITH TNG AND MARKED LOCATIONS WITH FLAGS FOR FUTURE SURVEY LOCATION (4) VOLVO A35 BROUGHT MATERIAL TO CAP AREA WHICH WAS THEN PLACED WITH A D8L & D5H LGP AFTER WHICH A D8H WITH A VIBRATORY ROLLER. ADDITION 6" TESTS WERE TAKEN DURING PLACEMENT. A JOHN DEERE TRACK HOE WAS USED TO REMOVE SOIL & REFUSE FROM THE TOE OF SLOPE. AREA WILL HAVE CLAY MATERIAL PLACED FOR BACKFILL & TO CREATE AN ANCHOR TRENCH

Approved By:

Title:

Wm. D. Harris
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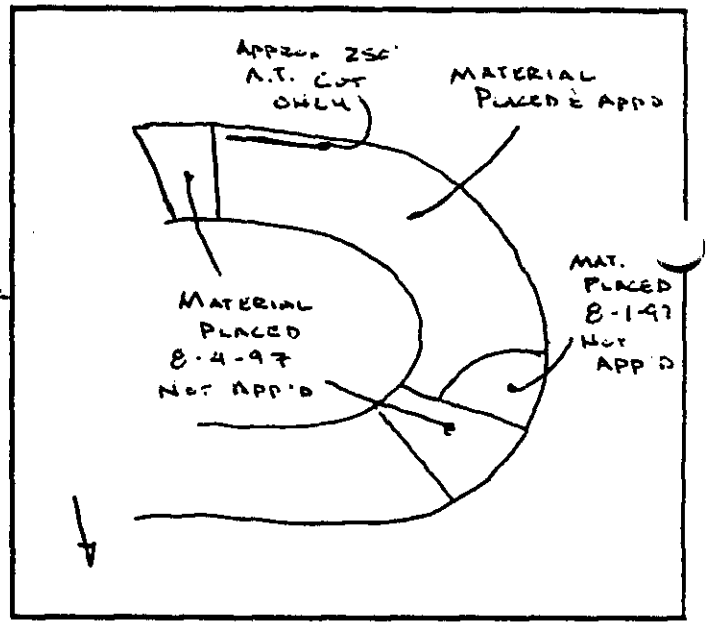
Daily Field Report Summary

CLIENT: Winnebago Reclamation Service DATE 8-4-97
PROJECT: Pagel Landfill CQA REPORT NO:
PROJECT NO.: 86078 - 004.000 Task 1 PAGE: OF
WEATHER: AM/PM: Sunny / Cloudy / Rain TEMP: HIGH/LOW 80 / 58

ARRIVAL TIME: 0645
DEPARTURE TIME: 1630
TOTAL HOURS: 9.75



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon Arrival Gathered Field Forms & Supplies For Daily Activities. Proceeded To Cap Area To Monitor RBT Place Clay Material on Slope Areas. (4) Volvo A35 Art. Trucks Were Used To Bring Material To Slope which was Then Placed With A DSHLCP & D8L A D8H With a Vibrating Roller was used For Compactive Effort. A JD Track Continued Cutting Anchor Trench. Refuse & Cuttings Were Placed in Dump Trucks & Hauled To Working Face. No Backfill Was Placed Yet. (2) Set Of Shelby Tubes Were Taken on South Portion of Cap Area. Tubes Were Sent To Lab With COC. Hard Brief Rain Began At 1615 Til 1630 Work Was Stopped For Day.

Approved By:
Title:

Wm. V. Harris
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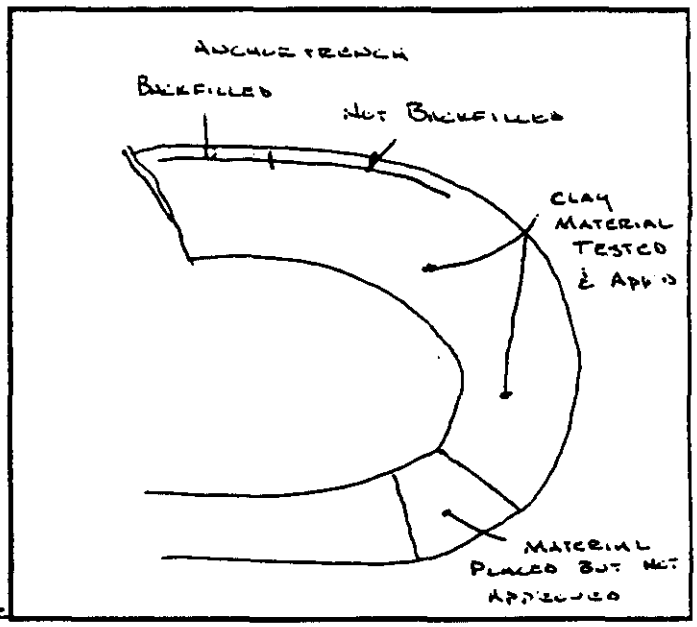
Daily Field Report Summary

CLIENT: Winnebago Reclamation Service
DATE: 8-5-97
PROJECT: Pagel Landfill CQA
REPORT NO:
PROJECT NO.:
PAGE: OF
WEATHER: AM/PM: Sunny / Sunny
TEMP: HIGH/LOW 79 / 54

ARRIVAL TIME: 0645
DEPARTURE TIME:
TOTAL HOURS:



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon Arrival Gathered Field Forms & Supplies For Daily Activities Proceeded To Cap Area To Monitor RBT Place Clay Liner Material (#) Volvo A35 Art Trucks Brought Material From on Site Borrow Source. A D5H LGP & D8L Placed & Tracked Material A D8H w/ Vibrating Roller Compacted Material RBT Also Used A Skid Steer Loader with A Hydraulic Roller To Clean-up And Compact Material Around Gas Wells. RBT Continued To Excavate Anchor Trench With A JD 892E-LC Track Hoe. Art. Trucks Also Dumped Clay Material Which was Placed With A JD 450 Dozer All Area Available & Completed Were TNG Tested. Two Areas Were Retested Due To Low Moisture which May Have Been Caused By Surface Voids Retested Areas Passed

Approved By:
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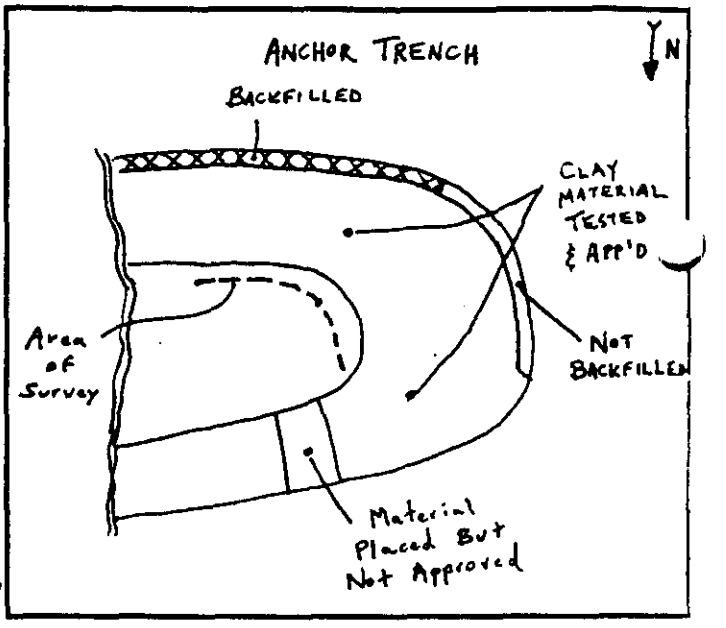
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	8/6/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF 1
WEATHER: AM/PM:	PARTLY CLOUDY/ SUNNY	TEMP: HIGH/LOW	78 / 52

ARRIVAL TIME: 0700
DEPARTURE TIME: 1800
TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field forms and supplies, and calibrated test equiptment for daily activities. Monitored placement of clay liner material by RBT. 4 Volvo A35 trucks brought material from on site borrow area to placement areas. A DSH LGP & D8L placed and tracked material. A D8H w/ vibrating roller smoothed & compacted the material. RBT continued to excavate anchor trench with a JD892E-LC track-hoe. ART trucks were also used to dump material in the trench which was placed with a JD 450 dozer. A skid steer loader was used to clean-up and compact material in the trench. All available & completed areas were TNG tested. A survey was conducted to estimate cut/fill for drainage berm on south side as shown above. BH, DF, & JPN on site



LOCATION DIAGRAM

Approved By:

Title:

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	8/7/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	-
PROJECT NO.:	86078-004.000	PAGE:	1 OF 2
WEATHER: AM/PM:	SUNNY / SUNNY	TEMP: HIGH/LOW	82 / 60

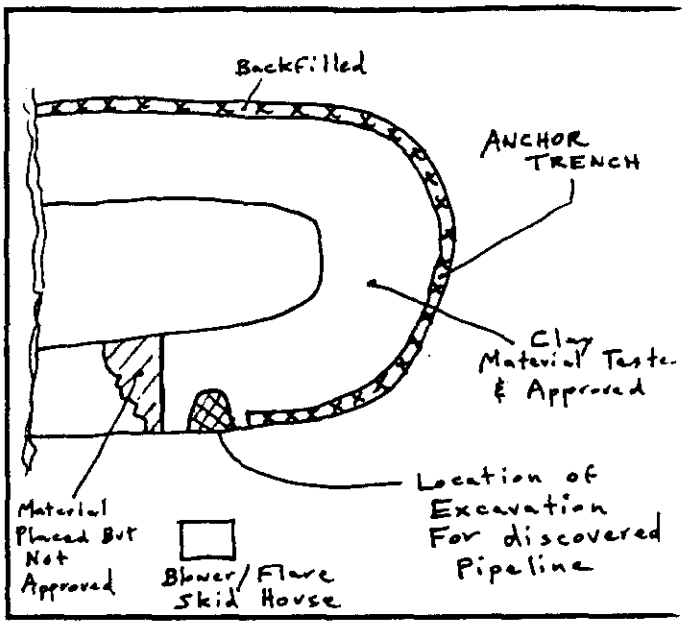
ARRIVAL TIME: 0700

DEPARTURE TIME:

TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field forms and supplies, and calibrated test equiptment for daily activities. Monitored placement of clay liner material by R.B.T. 4 Volvo A35 trucks & 5 ART dump trucks brought material from on site borpow area to placement areas. A D5H LGP & D8L placed and tracked material. A D8H w/vibrating roller smoothed & compacted the material. R.B.T continued to excavate anchor trench with a JD892E-LC track-hoe. The same machine was use. to place and compact the material. All available & completed area were TNG tested. Areas of fill on southwest portion of drain. berm were marked on lath as calculated from survey of 8/6. An unknown gas pipeline was discovered leading into blower/flare skid (location shown above). Area was excavated to determine course of action. Excavation was in progress @ 3:30 when R.B.T. ended activity for the day. Manho lids were placed and backfilled by W.R.S. (See attached figu

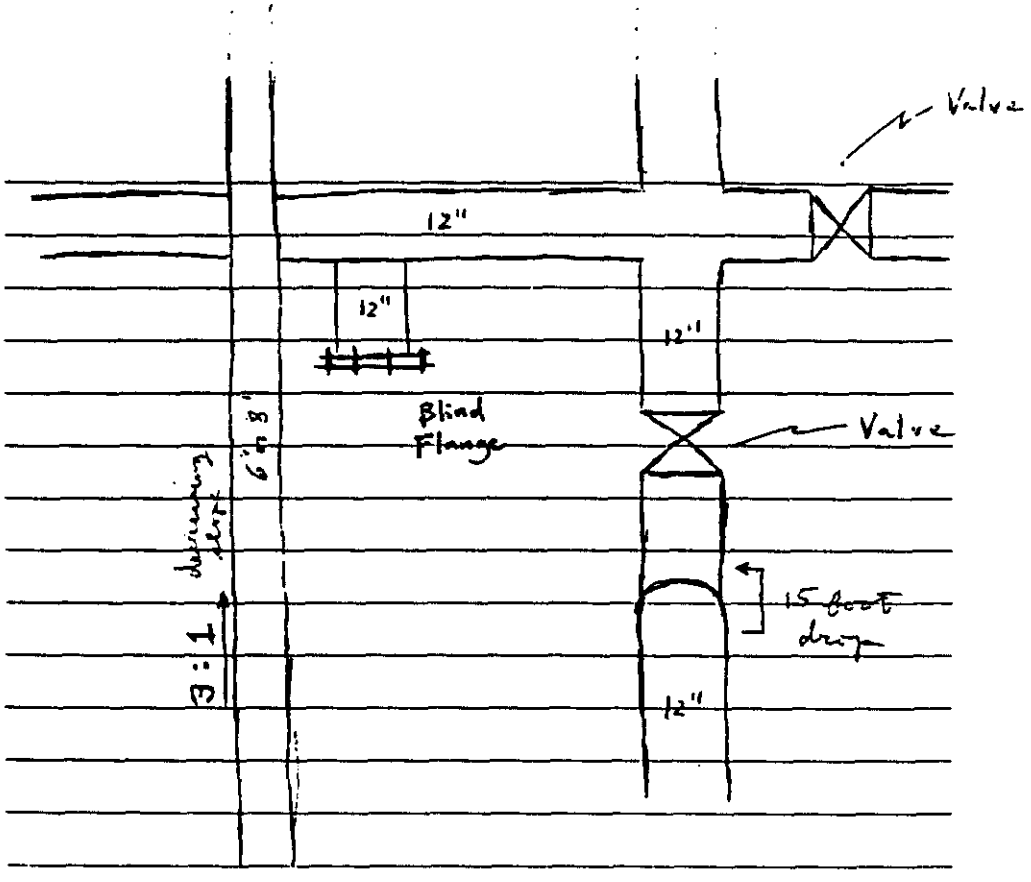


LOCATION DIAGRAM

Approved By:

Title:

EMCON Representative



Top View

EMCON
1414 South Fifth Street
Suite 200
Springfield, IL 62703
(217) 492-9450

Daily Field Report Summary

CLIENT:	Winnebago Reclimation Service	DATE	8-8-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:		PAGE:	OF
WEATHER: AM/PM:	Sunny / Sunny	TEMP: HIGH/LOW	86 / 65

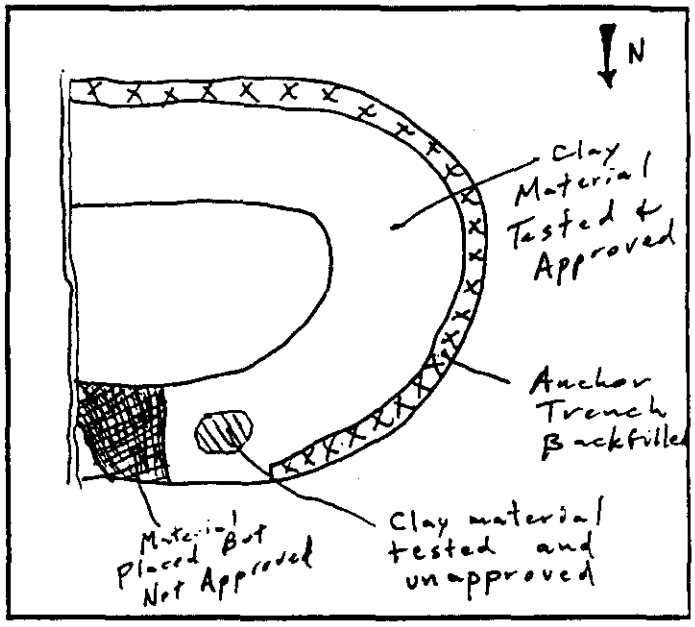
ARRIVAL TIME: 0700

DEPARTURE TIME:

TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Monitored Placement of clay liner by R.B.T. 4 Volvo A35 trucks and 4 ART Dump trucks brought material from on site borrow area. A D5H LGP & two D8L's placed material and tracked it in. A D8H w/ vibrating roller smoothed and compacted the material. An Ingersol Rand front-end roller was used to smooth material on top of slope. All areas completed and available were TNG tested. One 2000 ft² area failed to satisfy specs. R.B.T. ended activity at 3:00 pm. E.L., D.F., K.H., + J.N. met with Tom Hilbert in the morning for a pre-liner meeting. Liner activities and procedures were discussed. A site inspection was then conducted.



LOCATION DIAGRAM

Approved By:

Title:

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Suite 200
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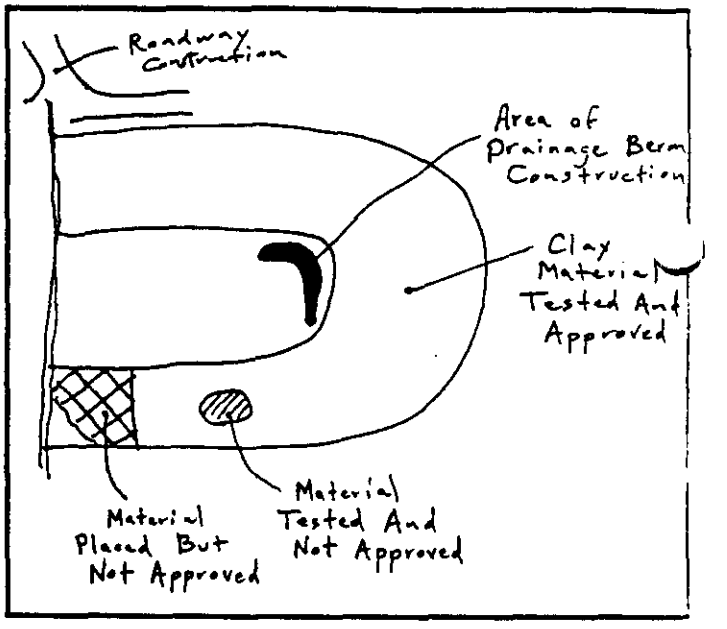
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	8/11/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	RAIN / RAIN	TEMP: HIGH/LOW	67 / 57

ARRIVAL TIME: 0700

DEPARTURE TIME:

TOTAL HOURS:



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field-forms and supplies, and calibrated equiptment for daily activity. Monitored unloading of 5 rolls of FML and 60 rolls of geonet. Monitored placement of material for drainage berm. A D8H and a D5H LGP placed and shaped material for the berm. 4 Volvo A35 trucks were used to haul material to the berm in the AM and to roadways in PM. 4 ART dump trucks were also used. A CAT 973 front end loader was used to excavate material for roadway reshaping. A scraper and D5H LGP were used to smooth roadways. An Ingersol rand front end roller was used to smooth roadways. Activity by R.B.T. was ended at 3:30 pm.

Approved By:

Title:

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	8/20/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	— / CLOUDY	TEMP: HIGH/LOW	78 / 70

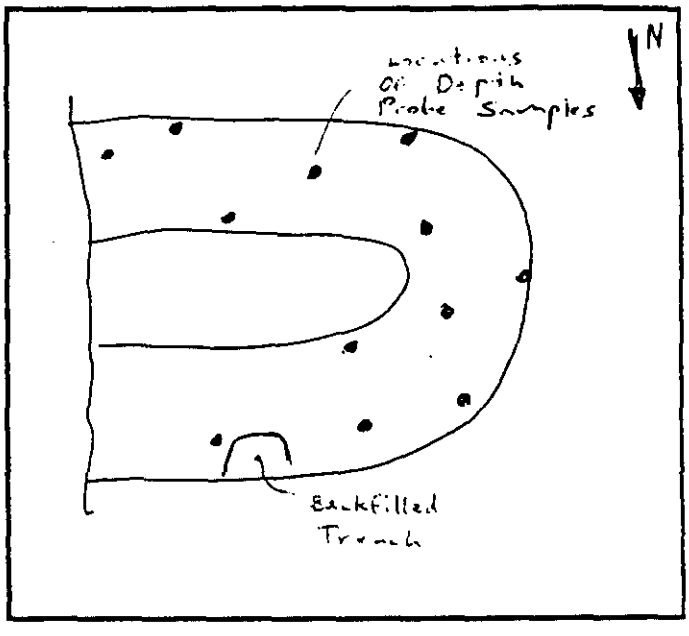
ARRIVAL TIME: 12:15

DEPARTURE TIME:

TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field equiptment to perform depth probe samples. There was no activity from the contractor today. Depth probe samples were performed on all completed side slope areas. Results can be found in the soils file. All areas tested met specs. WRS completed excavation, sealing, and backfilling in the area across from the flare station. Pictures were taken to document damage done by excessive rains that have forced construction to come to a halt.



LOCATION DIAGRAM

Approved By:

Title:

EMCON Representative

EMCON
1414 South Fifth Street
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Springfield, IL 62703
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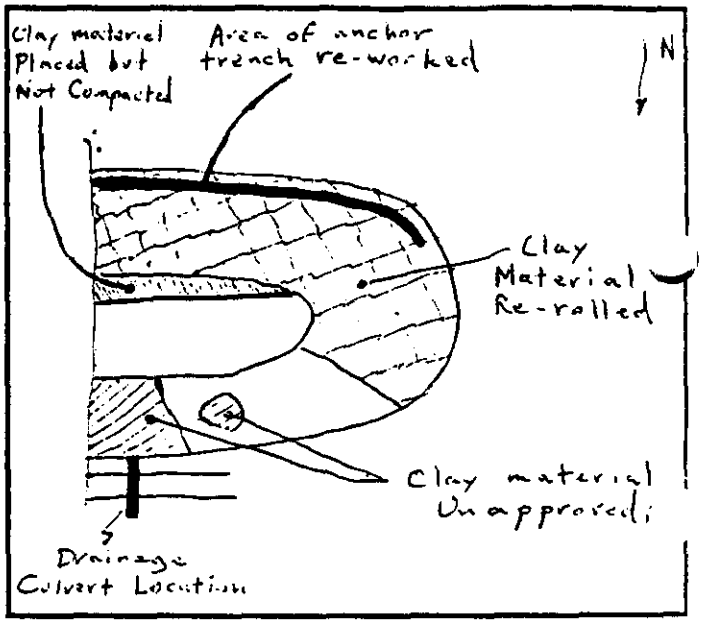
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	8/22/97
PROJECT:	Rigel Landfill CQA	REPORT NO:	
PROJECT NO.:		PAGE:	OF
WEATHER: AM/PM:	PARTLY CLOUDY SUNNY	TEMP: HIGH/LOW	84 / 68

ARRIVAL TIME: 0700

DEPARTURE TIME:

TOTAL HOURS:



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered equiptment and field forms for daily activities. One set of shelby tubes were taken at TNG test location 6-5. A D8H w/ vibratory compacting roller was used to smooth and compact side slopes. The D8H and a D5L were used to smooth and compact clay material on the crown. A 992 D-LC track-hoe was used to excavate clay material from borrow area and load it into 4 Volvo A35 trucks that transported the material to the active work areas. A 790D-LC track-hoe was used to re-excavate anchor trench and compact/smooth the trench. A Kobelco Mark IV SK 120LC track-hoe was used to excavate old and install new drainage pipe crossing road near entrance to storage building.

Approved By:

Title:

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 23 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	1 OF 1
WEATHER: AM/PM:	/	TEMP: HIGH/LOW	/

ARRIVAL TIME: 8:00 AM
DEPARTURE TIME: 11:00 PM
TOTAL HOURS: 3 + 2 Hr Travel = 5 Hrs

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

MET WITH VINCENTES (SERROT)
+ TOM HILBERT (WINNEBAGO R.S.)
DISCUSSED DEPLOYMENT SCHEME,
SUBGRADE CONDITION + MANPOWER.
SERROT FILLED SANDBAGS BUT
COULD NOT FIND THE SPREADER BAR.
SERROT DROVE TO THE SOUTH SIDE
OF CHICAGO TO RETRIEVE A
BAR FROM ANOTHER CREW. LEFT
SITE @ 11:00 AM

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 24 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	1 OF 1
WEATHER: AM/PM:	/	TEMP: HIGH/LOW	/

ARRIVAL TIME: 700 AM
DEPARTURE TIME: 800 AM
TOTAL HOURS: 1 HR + 2 HRS TRAVEL = 3 HRS

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

ARRIVED ON SITE. MET WITH VINCENTE OF SERROT. HE INDICATED THAT HE HAD NO WORKING FUSION MACHINES AND WOULD HAVE TO TRAVEL TO INDIANAPOLIS TO RETRIEVE ONE. LEFT SITE @ 8:00 AM.

SPOKE W/ T. HILBERT OF WRINC. @ 9:00 AM TO INFORM HIM THAT SERROT WOULD NOT START UNTIL MONDAY.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

EMCON
1414 South Fifth Street
Suite 200
Springfield, IL 62703
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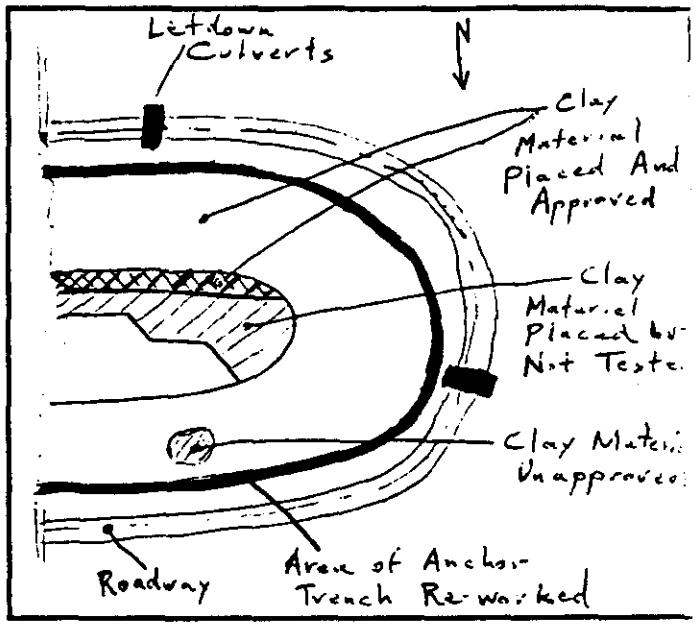
Daily Field Report Summary

CLIENT: WINNEBAGO RECLIMATION SERVICE DATE 8/25/97
PROJECT: PAGEL LANDFILL CQA REPORT NO:
PROJECT NO.: PAGE: 1 OF
WEATHER: AM/PM: CLOUDY / PARTLY CLOUDY TEMP: HIGH/LOW 83 / 65

ARRIVAL TIME: 0700
DEPARTURE TIME:
TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field forms and calibrated equiptment for daily activities. A D8H with vibratory compacting roller was used to smooth and compact side slopes. The D8H and a D5L were used to smooth and compact clay material on the crown. An Ingersol-Rand 100D front-end roller was used to smooth the crown. A 992 D-LC track-hoe was used to excavate clay material from borrow area and load it into 4 Volvo A35 trucks that transported the material to active work area. A 790 D-LC track-hoe was used to excavate and re-compact anchor trench. A Kobelco Mark IV SK 120 LC track-hoe was used to install new drainage pipe in terrace letdown areas. All areas compacted and available were TNG tested. DF, KH, and JN were on site.



LOCATION DIAGRAM

Approved By:
Title:

EMCON Representative

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Springfield, Illinois 62703
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Fax: (217) 492-9453

Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 25 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	1 OF 1
WEATHER: AM/PM:	65 / 75	TEMP: HIGH/LOW	/

ARRIVAL TIME: 700 AM — 900 AM (ON SITE)
DEPARTURE TIME: 730 PM
TOTAL HOURS: 12.5 - ½ Hr Lunch + ½ PP WK = 12.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SEDROT ON SITE 800 AM.
9 TECHS
1 FOREMAN.

CONTRACTOR DEPLOYED 10 PANELS.
1 FUSION WELDER IN THE AM
3 FUSION WELDERS IN PM. BY
4 O'CLOCK ONLY 1 FUSION
WELDER. THE OTHER 2 WELDERS
FELL SUBJECT TO MAINTENANCE
PROBLEMS. LABELED DS 1-5.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

EMCON
1414 South Fifth Street
Suite 200
Springfield, IL 62703
(217) 492-9450

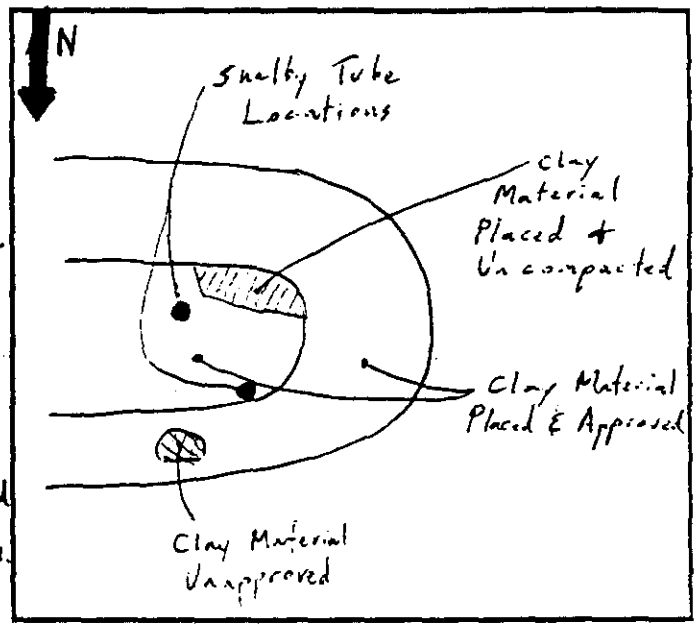
Daily Field Report Summary

CLIENT: WINNEBAGO RECLIMATION SERVICE DATE 8/26/97
PROJECT: PAGEL LANDFILL CQA REPORT NO:
PROJECT NO.: PAGE: 1 OF
WEATHER: AM/PM: CLOUDY / PARTLY CLOUDY TEMP: HIGH/LOW 84 / 62

ARRIVAL TIME: 0700
DEPARTURE TIME:
TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon Arrival, gathered field forms and calibrated equiptment for daily activity. A D8H and a D5L were used to smooth and compact clay material on the crown. An Ingersol Rand 100 D front end roller was used to smooth and compact the clay on the crown. A 992 D-LC track-hoe was used to ~~load~~ excavate clay material from the borrow area and load it into (4) Volvo A35 trucks that transported the material to the active work area. All clay completed and available ~~for~~ was TNDG tested. (2) Sets of shelby tube samples were taken on the crown and sent to EMCON laboratory for testing.



LOCATION DIAGRAM

Approved By:

Title:

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Fax: (217) 492-9453

Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8/26/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	1 OF 1
WEATHER: AM/PM:	Pt Cloudy /	TEMP: HIGH/LOW	82 / 65

ARRIVAL TIME: 700a
DEPARTURE TIME: 800P -
TOTAL HOURS: 13 - ½ lunch + ½ panic = 13

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SEEBOT CONTINUED DEPLOYMENT OF TEXTURED MATERIAL ON THE SOUTH SLOPE, LABELED DS FOR EXISTING SEAMS

DISCUSSED STABILITY ISSUES WITH TOM HILBERT AND SEEBOT. EXPRESSED CONCERN ABOUT PLACING COVER SOILS ON UNANCHORED LINER. EVALUATED SEVERAL ANCHORING SCHEME. DISCUSSION WILL CONTINUE TOMORROW.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

EMCON
1414 South Fifth Street
Suite 200
Springfield, IL 62703
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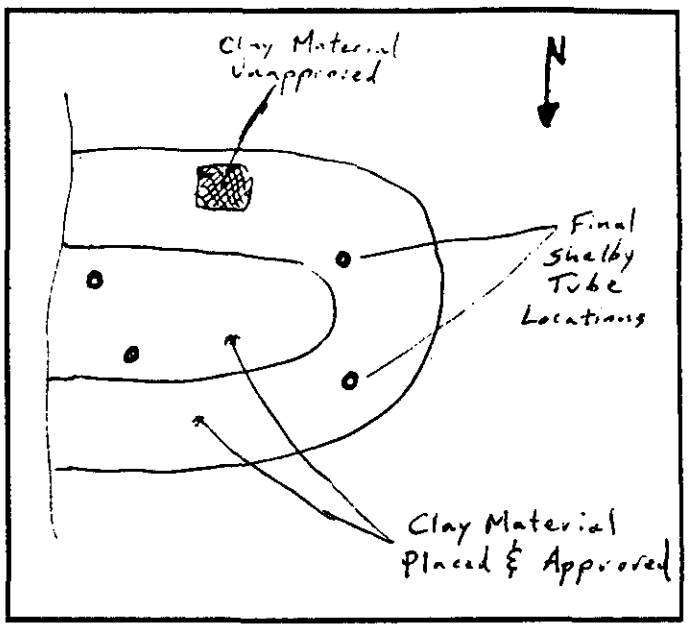
Daily Field Report Summary

CLIENT:	Winnebago Reclimation Service	DATE	8/27/97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:		PAGE:	1 OF
WEATHER: AM/PM:	Cloudy / Sunny	TEMP: HIGH/LOW	88 / 68

ARRIVAL TIME: 0700
DEPARTURE TIME: 2000
TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field forms and calibrated equiptment for daily activity. A D8H and a D5L were used to smooth and compact clay on the crown. An Ingersol-Rand 100 D front end roller was used to smooth and compact the clay on the crown. A 992 D-LC track-hoe was used to excavate clay material from the borrow area and load it into (4) Volvo A35 trucks that transported the material to the active work area. All shelby tube, depth probe, & TNDG tests have been completed with the exception of the failing area as shown above. The crown was re-rolled in the afternoon w/ Ingersol Rand 100D and RBT ended activity for the day.



LOCATION DIAGRAM

Approved By:

Title:

EMCON Representative

EMCON
1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 27 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Cloy / Pt Cloy	TEMP: HIGH/LOW	85 / 70

ARRIVAL TIME: 700a

DEPARTURE TIME: 800p - ½

TOTAL HOURS: 13 - ½ hr Lunch + ½ hr Travel = 13

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERRO CONTINUED DEPLOYMENT AND SEAMING OF MATERIAL ON THE S(1) SLOPE.
PERFORMED AIR TESTING ON SLOPE SEAMS IN ADDITION TO REMOVING DESTRUCTS AND STAGING DETAIL WORK.
CLAY CONTRACTOR PREPARED CROWN OF LANDFILL FOR LINER PLACEMENT.
PLACED 2 PANELS IN THE FAR EASTERN SECTION.
SERRO / FOREMAN / 2 TECHS.

LOCATION DIAGRAM

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Title: _____

EMCON Representative

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Fax: (217) 492-9453

Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 28 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Cloudy /	TEMP: HIGH/LOW	65 / 82

ARRIVAL TIME: 700 AM

DEPARTURE TIME: 630 PM

TOTAL HOURS: 11.5 Hr - ½ hr lunch + ½ hr approx 11.5

Description of field activities (Include labor, equipment, site conditions, sampling, etc.)

SECRET COMPLETED DEPLOYMENT AND SEAMING ON AREA TO THE EAST ON THE SOUTH SLOPE.

PERFORMED AIR PRESSURE TESTS FOR PANELS 1-36. POULED DS 1-15 AND SENT TO THE LAB FOR TESTING.

MADE REPAIRS TO THE SOUTH SLOPE AND PERFORMED VACUUM BOX TESTING.

LOCATION DIAGRAM

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 29 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Sunny /	TEMP: HIGH/LOW	64 / 80

ARRIVAL TIME: 700 am
DEPARTURE TIME: 730 pm (½ Hr lunch)
TOTAL HOURS: 12 + ½ hr lunch = 12.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Select completed QC of South Slope. Deployed 40 mil smooth HDPE across the top of the site. All panels were fusion welded including the tie in to the textured slope liner. Completed vacuum testing on South Slope.

Received results for DS-1-15. Passing. Area is prepared for placement of geocomposite.

LOCATION DIAGRAM

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Title: _____

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 30 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	1 OF 1
WEATHER: AM/PM:	Cloy / Rain	TEMP: HIGH/LOW	75 / 68

ARRIVAL TIME: 700 AM

DEPARTURE TIME: 1200 PM

TOTAL HOURS: 5 hr + 1/2 hr = 6

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERRIOT PERFORMED REPAIR WORK ON THE SOUTH EAST SLOPE AND THE TEXTURED / SMOOTH TIE IN.
SERRIOT DEPLOYED GEOCOMPOSITE ON THE SOUTH SLOPE. TIES WERE SPACED ON 5' CENTERS AND THE TOP LAYER OF GEOTEXTILE WAS SEWN
SERRIOT SHUT DOWN AT 1200pm DUE TO RAIN.

LOCATION DIAGRAM

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	8 / 31 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	1 OF 1
WEATHER: AM/PM:	Fog / Sunny	TEMP: HIGH/LOW	85 / 68

ARRIVAL TIME: 700 Am

DEPARTURE TIME: 700 Pm

TOTAL HOURS: 12 - ½ Lunch - ½ break = 12

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERROT PERFORMED AND COMPLETED REPAIRS ON THE SMOOTH LINER AND THE TEXTURED / SMOOTH TIE-IN.

SERROT CONTINUE DEPLOYMENT OF GEOCOMPOSITE ON THE SOUTH SLOPE.

ALL AIR PRESSURE TESTS ON THE SMOOTH LINER SEAMS WERE COMPLETED.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

EMCON
1414 South Fifth Street
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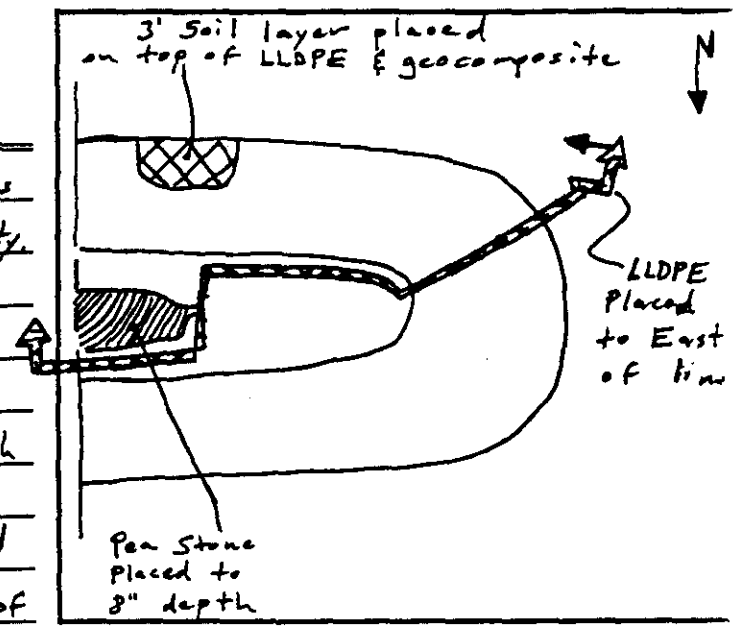
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	9-2-97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	CLOUDY / CLOUDY	TEMP: HIGH/LOW	75 / 55

ARRIVAL TIME: 0700
DEPARTURE TIME: 1900
TOTAL HOURS:



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field forms and equiptment for daily activity. Today R.B.T. began pushing pea stone for the 8" drainage layer on the crown and the 3' of cover soils on the south side slope. A D5H LGP and a John Deere 550G dozer were used to place the stone on top of the smooth LLDPE. 4 semis were used to haul the stone in from offsite. 4 Volvo A3 trucks were used to haul cover soils to the south slope which were placed by a D8L. A 60' area of active LLDPE seam was covered with stone by R.B.T. The are will be cleaned and ready for seaming by R.B.T. before the following afternoon.

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 2 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Cloudy /	TEMP: HIGH/LOW	78 / 65

ARRIVAL TIME: 700A

DEPARTURE TIME: 700P

TOTAL HOURS: 12 - ½ hr Lunch + ½ hr break = 12

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SEEDED COMPLETED TO SMOOTH TO TEXTURED TIE-IN SEAM AT THE TOP OF THE SOUTH SLOPE FOR ALL SMOOTH LINER PLACED TO DATE.

PERFORMED ALL REPAIR WORK IN THE SOUTH EAST CORNER AND ALONG THE TIE IN. ALSO PERFORMED ALL VACUUM TESTING ON THESE REPAIRS

REPAIRS ON THE EXISTING SMOOTH LINER WERE VACUUM TESTED PRIOR TO THE START OF STONE PLACEMENT. SEEDED CONTIN[illegible] PLACEMENT OF GEOCOMPOSITE ON THE SOUTH SLOPE.

ROCKFORD BLACKTOP BEGAN PLACING STONE ON THE TOP OF THE HILL & PLACING PROTECTIVE COVER ON THE SOUTH SLOPE.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

EMCON
1414 South Fifth Street
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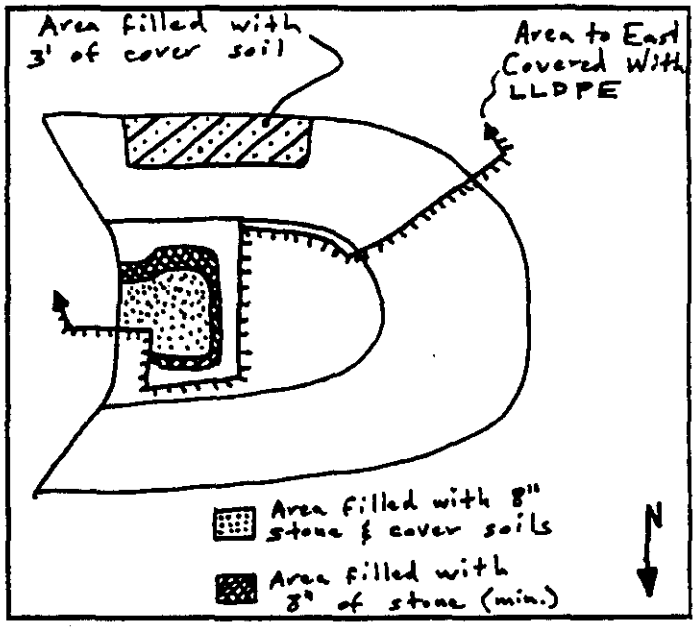
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	9/3/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	CLOUDY / PARTLY SUNNY	TEMP: HIGH/LOW	75 / 51

ARRIVAL TIME: 0700
DEPARTURE TIME: 1900
TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathed field forms & equipment for daily activity.



LOCATION DIAGRAM

Approved By: _____

Title: _____

_____
EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 3 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Sunny / Sunny	TEMP: HIGH/LOW	70 / 50

ARRIVAL TIME: 700 A

DEPARTURE TIME: 630 A

TOTAL HOURS: 11.5 - ½ hr lunch - ½ break = 11.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Sergot Deployed, Seamed & Air Pressure Tested Panels 71-76. Sergot Waited Deployment Due To Strong Winds. Installed 18" Main Flap Across South Slope Rear Tel Tom Hilbert's Request (404 LF) Continued Deployment Of Geocomposite.

Rockford Blacktop Continued Placement Of Drainage Stone And Protective Cover On The Top Of The Site And The South Slope.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 4 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Sunny /	TEMP: HIGH/LOW	73 / 55

ARRIVAL TIME: 700 A

DEPARTURE TIME: 830 P

TOTAL HOURS: 17.5 - ½ Hr Lunch + ½ Hr Break = 13.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Serrot Deployed And Seamed Textured Panels 76 - 87 + Smooth Panels 88 - 97. Performed Minimal Repairs Along Panel 36.

Rockford Blacktop Continued Placement Of Drainage Stone And Protective Cover.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 5 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Cloudy /	TEMP: HIGH/LOW	70° / 55°

ARRIVAL TIME: 700A

DEPARTURE TIME: 630P

TOTAL HOURS: 11.5 - ½ Lunch - 1 Trav = 12

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Coupons From The Previous Day For JR/079 Failed Field Testing, Seamer Elected To Remove The Failing Seam (~6") And Re-Seamed. Also Seamer Completed Tie-In Seams (Test-Smooth) For Areas To Date. Repairs Were Performed On The Crown, Tie-In And West Slope. All Air Pressure Tests Were Completed For Liner Placed To Date. One Panel Was Deployed And Seamed But Further Deployment Was Halted. Met With Dan Freeze Of EMCON To Discuss Weekend Activities. Delivered DS 34-48 + 21A, 21B For Packaging To The Lab.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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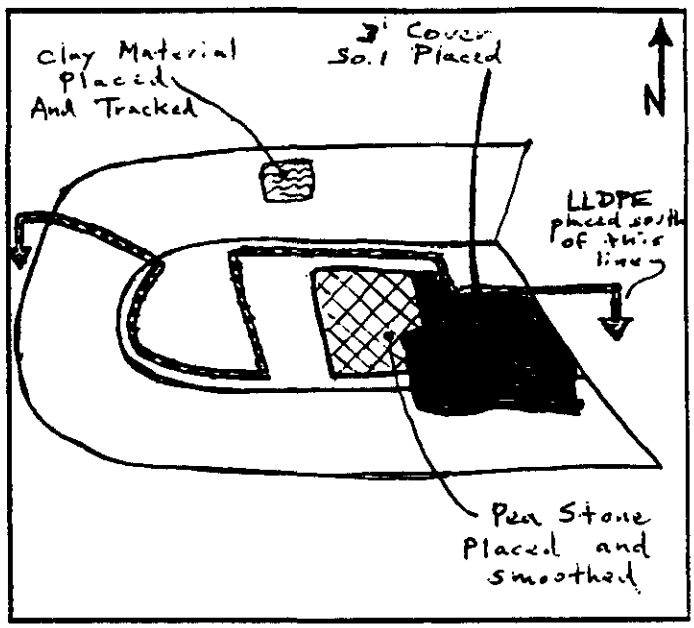
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	9-8-97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	LIGHT RAIN / CLOUDY	TEMP: HIGH/LOW	71 / 59

ARRIVAL TIME: 0700
DEPARTURE TIME: 1800
TOTAL HOURS:



LOCATION DIAGRAM

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Upon arrival, gathered field forms and equiptment for daily activity. A D8H was used to place & track clay material in the previously failing area. Material to be compacted & tested on 9/9. A D5H was used to push the pea stone on the crown that was hauled in by 8 semi trucks. The D8H was also used to push cover soils on the crown. A 992 D-LC track-hoe was used to excavate clay & cover soils and load it into (4) Volvo A35 trucks that brought the material to the active areas. Serrot corp. continued to deploy drainage composite for the entire day. All available areas were covered and sewn/lystered. Repairs that were covered were marked for location to be uncovered on 9/9. KH & Mark, on-site in a.m.

Approved By:

Title:

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 8 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Clay - Rain /	TEMP: HIGH/LOW	65 / 55

ARRIVAL TIME: 700A
DEPARTURE TIME: 1200P
TOTAL HOURS: 5 + 1 Hr Trav = 6

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERROT COMPLETED PLACEMENT OF GEOCOMPOSITE IN SW SLOPE. OPERATIONS WERE STOPPED DUE TO RAIN.

ROCKFORD BRACETOP PLACED CLAY CAP MATERIAL ON NORTH SLOPE AND RECOMPACTED AREA - PLACED SOME PROTECTIVE COVER ON SOUTH SLOPE.

LOCATION DIAGRAM

Approved By:

Title:

EMCON Representative

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Springfield, Illinois 62703
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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 9 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	/	TEMP: HIGH/LOW	/

ARRIVAL TIME: 700A
DEPARTURE TIME: 430P
TOTAL HOURS: 9.5 - ½ LUNCH = 9

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SEGROT CONTINUED PLACEMENT OF GEOCOMPOSITE IN SE CORNER AND IN SW SECTION OF SLOPE. SEGROT COMPLETED VACUUM TESTING OF REPAIRS ON SMOOTH LINER.

POWLEDGE BLACKTOP CONTINUED PROTECTIVE COVER PLACEMENT ON SLOPES AND PLACED DRAINAGE STONE ON CROWN.

SEGROT COMPLETED 2ND SECTION OF THE DRAINAGE RAIN FLAP.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 10 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Cloy - Windy	TEMP: HIGH/LOW	65 / 55

ARRIVAL TIME: 7:00A
DEPARTURE TIME: 4:30A
TOTAL HOURS: 9.5 - ½ Lunch - ½ Prep - 9.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Serrot Completing Sewing And Ties For Geocomposite In The SE Corner Serrot Attempted To Deploy Liner In NW Corner But Stopped Operations Due To Strong Winds -

Rockford Blacktop Continued Protective Cover And Drainage Stone Placement -

LOCATION DIAGRAM

Approved By:

Title:

EMCON Representative

EMCON
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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 11 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Cloudy /	TEMP: HIGH/LOW	70 / 50

ARRIVAL TIME: 6 00A
DEPARTURE TIME: 7 00P
TOTAL HOURS: 13.0 - ½L + ½ prep = 13

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Sergot Deployed Textured Liner In NW Slope + North Slope And Performed Fusion Welds. All Panels Were Seamed And Secured.

Rockford Blacktop Continued Protective Cover Placement On South + SW Slopes.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 12 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Cloy /	TEMP: HIGH/LOW	75 / 55

ARRIVAL TIME: 700A
DEPARTURE TIME: 800A
TOTAL HOURS: 13-½ lunch-½ ppm = 13.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERROT CONTINUED DEPLOYMENT OF TEXTURED LINER ON NORTH SLOPE. PLACED AND COMPLETED SMOOTH LINER PLACEMENT ON CROWN. ALL SEAMS WERE FUSION WELDED.
ALL LABELED DESTRUCTIVE SAMPLES WILL BE PULLED OVER THE WEEKEND

LOCATION DIAGRAM

ROCKFORD BLACKTOP CONTINUED PROTECTIVE COVER PLACEMENT ON SW SLOPE AND ADDED REQUIRED ADDITIONAL PROTECTIVE COVER ON CROWN

Approved By: _____

Title: _____

EMCON Representative

1414 South Fifth Street
Suite 104
Springfield, Illinois 62692
(217) 492-9450

EMCON

Daily Field Report Summary

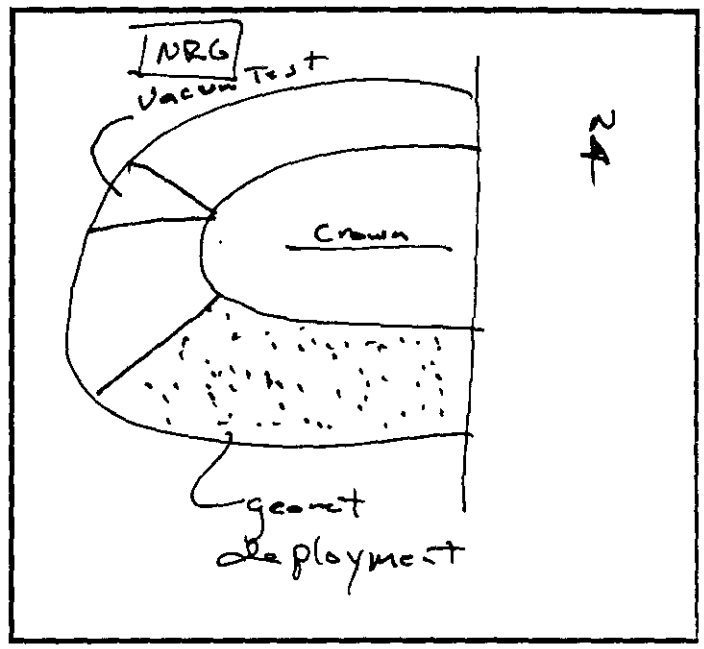
CLIENT:	Winnebago Reclamation Service, Inc.	DATE	Sept. 13/997
PROJECT:	86078-004.000	REPORT NO:	
PROJECT NO.:		PAGE:	OF
WEATHER: AM/PM:	Lt. Rain /	TEMP: HIGH/LOW	76 /

ARRIVAL TIME: 7:00 am
DEPARTURE TIME: 5:00 pm
TOTAL HOURS: 10 hours

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Servatt Continued to do detail work, repairing intersections, and performing vacum tests, using the extrusion welder, and the vacum box.

- Servatt also deployed and tied geonet/geocomposite on the south west slope of the landfill.



LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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1414 South 5th Street, Suite 200
Springfield, Illinois 62703
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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 15 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Cloudy	TEMP: HIGH/LOW	77 / 55

ARRIVAL TIME: 700A

DEPARTURE TIME: 600P

TOTAL HOURS: 11 - ½ hr Lunch + ½ PPWK = 11

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Serrot Completed Air Pressure Testing And Repair Work. Vaccum Testing Was Performed On All Smooth Liner Repairs. GEOComposite Was Deployed On The Northwest And North Slopes.

Rockford Blacktop Continued Placement Of Drainage Stone On Smooth Liner And Placed Protective Cover On The West Slope.

LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 16 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Sunny-Windy /	TEMP: HIGH/LOW	86 / 65

ARRIVAL TIME: 700A
DEPARTURE TIME: 900P
TOTAL HOURS: 14-½ hr Lunch = 13.5

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Sellot Completed Next Section Of Rain Diversion Flap Along West Edge Of The Crown.
Began Deployment Of Textile Liner On South Slope. All Seams Were Fusion Welded.

Rockford Blacktop Continued Placement Of Drainage Stone On Smooth Liner. Protective Cover Was Also Placed On The West Slope And Over Drainage Layer Material.

LOCATION DIAGRAM

Approved By: _____

Title: _____

_____
EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 17 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Sunny - Wind	TEMP: HIGH/LOW	86 / 62

ARRIVAL TIME: 700A
DEPARTURE TIME: 800P
TOTAL HOURS: 13 - [illegible] - [illegible] - 13

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Serrot Place Geocomposite On The West Slope of The NW Corner. In The PM, Serrot Deployed Textured Liner On The North Slope. All Panels Were Fusion Seamed.

Roccery Blacktop Continued Placement Of Protective Cover On The West Slope. Pipe Crew Installed Next Section Of Gas Header On West Slope Including Condensate/Leachate Drop-Out Connections.

LOCATION DIAGRAM

Approved By: _____

Title: _____

_____
EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 18 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Sunny - Windy	TEMP: HIGH/LOW	85 / 65

ARRIVAL TIME: 700A
DEPARTURE TIME: 630P
TOTAL HOURS: 11.5 - [illegible] - 11

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERROT CONTINUED DEPLOYMENT OF GEOCOMPOSITE IN THE NW CORNER. SERROT FUSION SEAMED REMAINING TEXTURED SEAMS AND THE TEXTURED/SMOOTH TIE-IN. BEGAN AIR PRESSURE TESTING OF SLOPE SEAMS.

ROCKFORD BLACKTOP CONTINUED PLACEMENT OF PROTECTIVE COVER ON THE WEST SLOPE.

LOCATION DIAGRAM

Approved By: _____

Title: _____

_____
EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 19 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Cloudy / Rain	TEMP: HIGH/LOW	60 / 83

ARRIVAL TIME: 700A
DEPARTURE TIME: 100P
TOTAL HOURS: 6 Hrs

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERROT BEGAN REPAIR WORK ON NORTH SLOPE. AIR PRESSURE TESTING OF NORTH SLOPE SEAMS CONTINUES. SERROT CONTINUED DEPLOYMENT OF GEOCOMPOSITE IN THE NW CORNER AND AT THE BOTTOM OF THE WESTERN HALF OF THE NORTH SLOPE. DS-64-77 WERE SHIPPED FOR TESTING.

ROCKFORD BLACKTOP CONTINUED PLACEMENT OF PROTECTIVE COVER ON THE WEST SLOPE.

CONSTRUCTION ACTIVITIES HALTED DUE TO RAIN @ 1:00PM

LOCATION DIAGRAM

Approved By: _____

Title: _____

_____
EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 20 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Sunny/Windy	TEMP: HIGH/LOW	55 / 65

ARRIVAL TIME: 700A
DEPARTURE TIME: 700P
TOTAL HOURS: 12 - ½ lunch - ½ break = 12

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Serrot Completed All Repair Work
And Air Pressure Testing On The
North Slope. Vacuum Testing
Commenced And Is 50% Complete.
Received Destructive Sample
Results. All Testing Passed Site
Criteria. Results For DS 63, 65 + 68
Will Arrive Monday.
Additional Required Geocomposite
Arrived On Site.

LOCATION DIAGRAM

Approved By: _____

Title: _____

_____
EMCON Representative

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1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 21 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Pt Cloudy /	TEMP: HIGH/LOW	65 / 45

ARRIVAL TIME: 700 A
DEPARTURE TIME: 330P
TOTAL HOURS: 8.0

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SEERGOT COMPLETED REPAIRS ALONG THE TEXTURED TO SMOOTH TIE-IN. FUSION WELDS WERE NON AIR-TESTED. SEERGOT CUTTED IN EXTRUSION WELDS OUTSIDE SEAMS. ALL SLOPE REPAIRS AND TIE-IN EXTRUSION WELDS WERE VACUUM TESTED. ONLY TIE-IN REPAIRS FROM SEAM 64/164 TO THE EAST REMAIN UNTESTED. SEERGOT INSTALLED 528' OF THE REMAINING CROWN PERIMETER RAIN FLAP. DURING PM, SEERGOT CONCENTRATED ON DEPLOYMENT OF GEOCOMPOSITE.

LOCATION DIAGRAM

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT:	W. R. S.	DATE	9-22-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) Cloudy / Rain 70°/51°

Due to weather conditions, Serrott deployed composite on the north slope for the majority of the day, covering all completed areas. In the late afternoon they began installing boots around GW-101, GW-100, and GW-110. A small methane fire was caused around GW-100 by a lyster gun. The fire was contained and the effected liner was cut out. Activity was halted after completi 101 and 110 due to rain.

RBT continued placing the 2.5' of cover soils on the sideslopes as well as finishing the tile drain on the crown. The 8" of stone was completed on the crown, pushed to the edge of the rain flap installed by Serrott earlier that day.

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	9 / 22 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	OF
WEATHER: AM/PM:	Cloy / Rain /	TEMP: HIGH/LOW	50 / 63

ARRIVAL TIME: 700A
DEPARTURE TIME: 130PM
TOTAL HOURS: 6 hr

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

SERROT CONTINUED DEPLOYMENT OF GEOCOMPOSITE.

ROCKFORD BLACKTOP CONTINUED PLACEMENT OF PROTECTIVE COVER IN THE NW CORNER SLOPE.

MET WITH DAN FERROR TO DISCUSS REMAINING GEOSYNTHETICS WORK AND REMAINING REQUIRED SURVEY ITEMS. MEETING ALSO INVOLVED TOM HILBERT TO DISCUSS FUTURE CLOSURE CONSTRUCTION SCHEDULE FOR EARTHWORK AND DRAINAGE CONTROL MEASURES

LOCATION DIAGRAM

Approved By: _____

Title: _____

_____
EMCON Representative

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Daily Field Report Summary

CLIENT: W.R.S.
DATE: 9-23-97
PROJECT: Pagel Landfill CQA
REPORT NO:
PROJECT NO.: 86078-004.000
PAGE: 1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) Cloudy / Cloudy 75°/58°

Serrott: completed and QC'd all remaining areas. 3 new panels were deployed, repaired, and QA'd. Boots were installed around GW-100, GW-130, and the header/valve fittings across from the processing building. The entire area was covered with compiste to the toe drain. Upon completion of all QC/QA activity, Serrott cleaned up and moved off site.

RBT: finished installing the toe drain along the north slope and connected into the outlet. Continued pushing cover soils on side slopes on the NW corner and completed cover soils on the crown. Installed 12" header pipe around the northwest corner to midway between GW-100 and GW-110. Began cutting culvert outlet channel from north terrace outlet.

Serrott on site from 0700 to 1900
RBT on site from 0630 to 1730

Approved By:
Title:

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Daily Field Report Summary

CLIENT: W.R.S.
DATE: 9-24-97
PROJECT: Pagel Landfill CQA
REPORT NO:
PROJECT NO.: 86078-004.000
PAGE: 1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) PARTLY CLOUDY / SUNNY 73°/53°

O.W.T.: arrived on site at 9:30 am and prepared equiptment and materials. Began drilling on GW-112 near lunch-time. Drilled from 0' to 60' and discontinued activity for the day.

R.B.T.: continued placing cover soils on north slope. completed cutting culvert outlet channel from north terrace outlet. 4 Volvo A35 6x6 trucks and 4 semi haul trucks were used to haul soils to the active face. A D5H and a John Deer 550 G were used to push the soils. A 992 D-LC track hoe was used to excavate and load the cover soil.

RBT on site from 0630 to 1730
OWT on site from 0930 to 1730

Approved By:

Title:

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Daily Field Report Summary

CLIENT: WRS
DATE: 9-25-97
PROJECT: Pagel Landfill CQA
REPORT NO:
PROJECT NO.: 86078-004.000
PAGE: 1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) SUNNY / SUNNY 79°/59°

OWT: continued drilling on GW-112. Drilled from 60' to 102', hit obstruction at 1:00 pm. Spun on it until 5:30 pm with no progress. Stoped activity for the day.

RBT: continued placing cover soils on the north slope. A D5H was used to push soil up to the header. A J.D. 550 G was used to push soil down slope to the header from the top. A D8H was used to push soils across the slope and to cut to grade. 4 Volvo A35 6×6 trucks and 4 semi haul trucks were used to transport the soils to the active face. A 912 D-LC track hoe was used to excavate and load the cover soils. A 790 D-LC track hoe was used to excavate (begin to) culvert outlet channel from northwest terrace outlet. Started placing topsoil on south crown late in the day.

OWT: 0700 to 1800
RBT: 0630 to 1730

Approved By:
Title:

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Daily Field Report Summary

CLIENT:	W.R.S.	DATE	9-26-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) SUNNY / SUNNY 71° / 51°

OWT: continued drilling on GW-112. Drilled from 102' to 116', spun on obstruction all day. Stopped activity for the day early. Waiting for equiptment to arrive on Sat. morning to continue.

RBT: continued placing cover soils using same equiptment/procedure as previous day. Installed the remainder of the 12" header line. Continued cutting culvert outlet channel from northwest terrace outlet using a 790-D-LC track hoe. All areas excluding ≈ 5000 ft² area around NE end of 12" header were completed with cover soils (placement).

OWT: 0700 to 1630
RBT: 0630 to 1730

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLIMATION SERVICE	DATE	9-27-97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Arrived on site at 11:30 am. OWT continued drilling GW-112. At 3:30 pm they reached the tire layer and sand just above the asphalt baseliner and stopped drilling. Final depth was 137.5 feet. They spent the remainder of the day inserting the piping into the well hole and filling with stone. No further work was completed. Descriptions of procedure and material quantities can be found in the field book.

Drill diameter was changed from 36" to 24" at the begining of the day

OWT: 0700 to 2000

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT: WRS
DATE: 9-29-97
PROJECT: Pagel Landfill CQA
REPORT NO:
PROJECT NO.: 86078-004.000
PAGE: 1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) Cloudy / Partly Sunny 70°/46°

OWT: began drilling on GW-122. Completed back filling of GW-112. Stopped drilling due to near 50 mph winds and near zero visibility due to dry-dusty conditions.

RBT: Covered the remaining 5000 ft² area mentioned on 9-26 with cover soils to complete to the limit of construction the 2.5' cover soil layer. A D5H and JD 550 G were used to place and grade the cover soils. A D8H was used to place the 6" top soil layer on the south slope. Continued to install lateral gas header loop piping. Started placing topsoil in south terrace culvert outlet channel. Continued cutting northwest culvert outlet channel with a 790 D-LC track-hoe. A 992 D-LC track hoe was used to excavate soils and place them into 4 Volvo A35 6×6 trucks and 4 semi haul trucks that transported the soil to the active face.

RBT: 0630 to 1730
OWT: 0700 to 1400

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Daily Field Report Summary

CLIENT:	WRS	DATE	9-30-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) PARTLY CLOUDY / SUNNY 76° / 49°

OWT: continued drilling on GW-122. Spun on hole entire day. Stopped activity for the day at 5:30. Drilled from 50' to 110'.

RBT: A D5H, JD 750 G and a JD 550 G were used to place and grade topsoil on the southern crown and south slope. Continued to install lateral gas header lines. Continued cutting northwest culvert outlet channel with a 992 D-LC track hoe. A 790 D-LC track hoe was used to excavate topsoil and load it into 4 Volvo A35 6x6 trucks and 4 semi haul trucks that transported the soil to the active face.

RBT: 0630 to 1730
OWT: 0700 to 1730

Approved By: _____

Title: _____

EMCON Representative

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Daily Field Report Summary

CLIENT: WRS
DATE: Wed. 10-1-97
PROJECT: Pagel Landfill CQA
REPORT NO:
PROJECT NO.: 86078-004.000
PAGE: 1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) SUNNY / SUNNY 72°/47°

OWT: Arrived on site at 7:00 AM. Continued drilling on GW-122. Drilled from 110' to 138'. Stopped activity for the day at 7:30 pm when they hit tire/sand layer.

RBT: Continued placing top soil on southwest slope and northwest crown using a D5H, JD 650 G, and a JD 550 G. Continued to install lateral gas header lines. Completed construction of northwest culvert outlet channels. The D5H & a scraper were used to complete the channels. A 790 D-LC track hoe was used to excavate top soils and load them into 4 Volvo A35 6x6 trucks that transported the soils to the active face. The seeding & fertilizing crew showed up and groomed the south slope in preparation for fertilizing & seeding. RBT on site from 0700 to 1730.

Approved By:

Title:

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Daily Field Report Summary

CLIENT:	WRS	DATE	10-2-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) SUNNY / SUNNY 79° / 48°

OWT: Arrived on site at 7:00 am. Cleaned out GW-122. Set pipe and completed back fill to surface. Moved to GW-133. Drilled from 0' to 80'. Stopped activity for the day at 5:00 pm

RBT: Continued placing top soil on the west slope and the north crown using a D5H, JD 650 G, and a JD 550 G. The D5H was also used to groom & complete the north terrace culvert outlet channel. Completed installation of gas piping & connected to existing header. A 790 D-LC track-hoe was used to load top soil into (4) Volvo A35 trucks and (4) 10 wheel semi haul trucks that transported the soil to the active face. The seed crew fertilized and seeded the south slope with wheat. RBT on site from 6:30 am to 5:30 pm.

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT:	WRS	DATE	10-3-97
PROJECT:	Pagel Landfill CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.) SUNNY / SUNNY 70°/53°

OWT: Arrived on site at 7:00 am. Drilled on GW-133 from 80' to 120'. Slow progress due to high leachate levels. Stopped drilling for the day at 6:00 pm.

RBT: Continued placing top soil on the west/southwest slope and the north crown using a JD 550 G and a JD 650 G. A 790 D-LC track-hoe was used to load the top soil into (4) Volvo A35 trucks & (4) 10 wheel semi trucks that transported the soil to the active faces. The seed crew fertilized and placed wheat seed on the southwest corner of the slope and in the southern and northwest terrace culvert outlet channels. RBT on site from 0630 to 1730.

Approved By: _____

Title: _____

_____
EMCON Representative

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Daily Field Report Summary

CLIENT: WRS
DATE: 10-4-97
PROJECT: Pagel Landfill CQA
REPORT NO:
PROJECT NO.: 86078-004.000
PAGE: 1 OF

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

JWT: Arrived on site at 7:00 am. Drilled from 120' to bottom (126') on GW-133. Set pipe and completed back fill to surface. Moved on to GW-111. Drilled from 0' to 44'. Stopped activity for the day at 3:00 pm.

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Title:

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Daily Field Report Summary

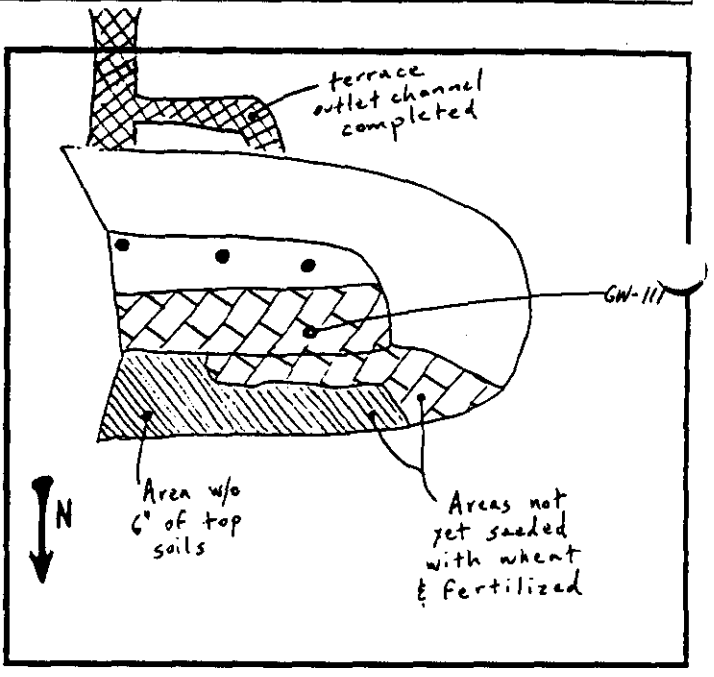
CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	10 / 6 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	CLOUDY / SUNNY	TEMP: HIGH/LOW	81° / 57°

ARRIVAL TIME: 0700
DEPARTURE TIME: 1730
TOTAL HOURS: 10

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: Arrived on site at 7:00am. Drilled from 44' to , Slow progress due to high leachate level again. Stopped drilling for the day at 5:00 pm.

RBT: Continued placing top soil on west & north slope. A JD 550 G & a JD650G were used to push the soils. A 790 D-LC track hoe was used to excavate the top soil & load it in to 4 Volvo A35 trucks that transport the soil to the active face. Wheat seed & fertilizer were placed on the south half of the crown and on the west slope. The wheat was broadcast. Drainage net and hay were placed in the southern terrace outlet channels to complete their constr.



LOCATION DIAGRAM

Approved By: _____

Title: _____

EMCON Representative

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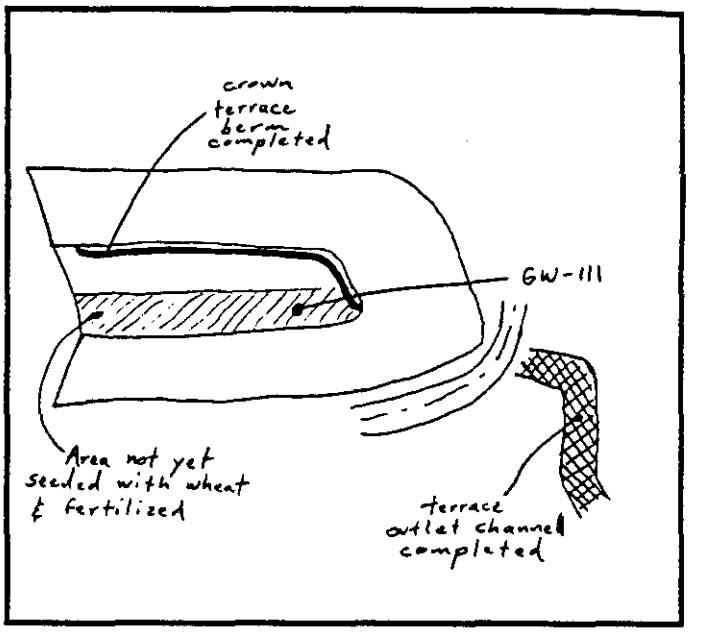
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	10 / 7 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	SUNNY / SUNNY	TEMP: HIGH/LOW	85° / 57°

ARRIVAL TIME: 0700
DEPARTURE TIME: 1530
TOTAL HOURS: 8

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: Arrived on site at 0700. Continued drilling on GW-111. Drilled from 105' to 130'. Stopped activity for the day at 5:30 pm.



LOCATION DIAGRAM

RBT: Continued placing top soils on the north slope. A JD550 G and a JD 650 G were used to push the soils. A 790-D LC track hoe was used to excavate soils and load them into 4 Volvo A 35 6×6 trucks that transported the soils to the active slope. The entire area was completed with the placement of top soil. The JD550G & JD650G were used with a Scraper to build and smooth the terrace berm on the crown (south and west portion). Wheat seed & fertilizer were placed on the remaining available areas excluding the north half of the crown. Drainage net and hay were placed in the northwest terrace outlet channel to complete channel.

Approved By: _____

Title: _____

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Daily Field Report Summary

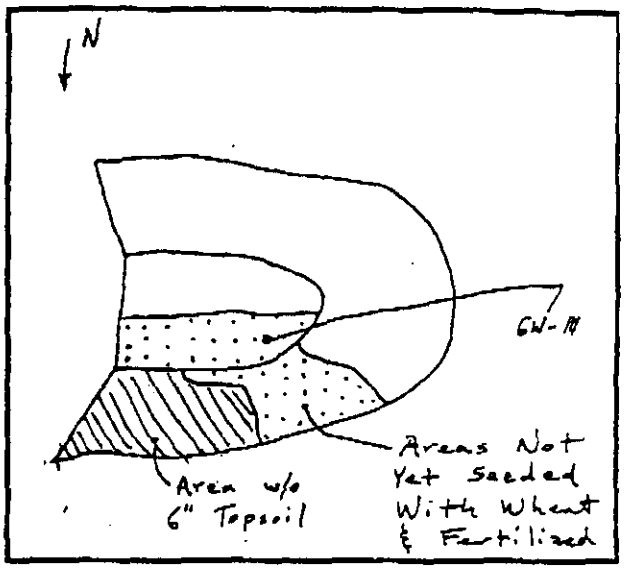
CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	10/8/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	Cloudy / Cloudy	TEMP: HIGH/LOW	72 / 60

ARRIVAL TIME: 7:00 am
DEPARTURE TIME: 4:00 pm
TOTAL HOURS: 8

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: On site from 7:00am to 5:30 pm. Drilled from 0' to 60' on well EW-111

RBT: Continued placing topsoil on the north slope. Same equiptment used as previous day. Seed & fertilizer crew continued seeding and mulching the drainage outlet channels on the west perimeter. RBT ended activity for the day at 3:30 pm



LOCATION DIAGRAM

Approved By: _____

Title: _____

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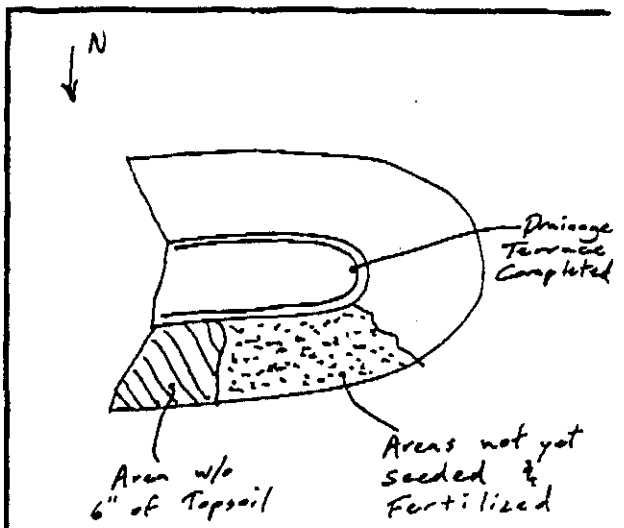
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	10 / 10 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	Cloudy / Cloudy	TEMP: HIGH/LOW	67 / 49

ARRIVAL TIME: 8:00 am
DEPARTURE TIME: 4:00 pm
TOTAL HOURS: 7

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: On site from 7:00am to 5:30 pm. Drilled from 95' - 110', ran into an obstruction. No progress made from 12:30 pm on.



LOCATION DIAGRAM

RBT: Completed construction of tack on drainage berm on crown & placement of erosion matting in terrace outlet channell. Seed crew fontinued to seed & mulch on the north half of the crown and in the northern drainage channels. RBT was on site from 7:00 am to 3:30 pm

Approved By: _____

Title: _____

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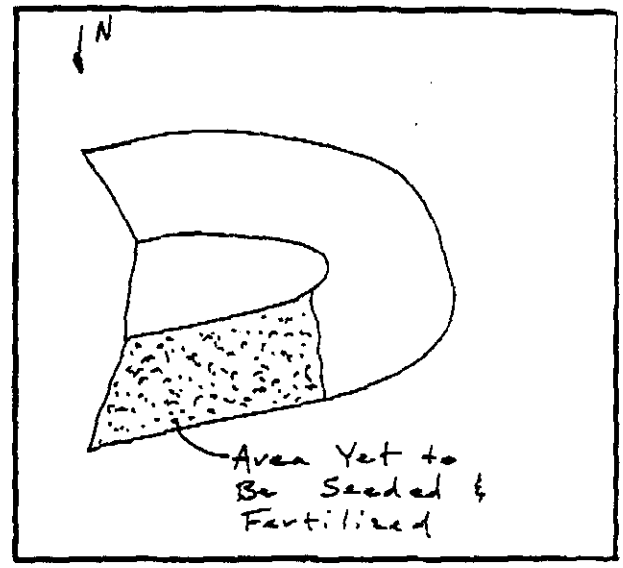
Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	10 / 13 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	Cloudy, Cloudy	TEMP: HIGH/LOW	68 / 50

ARRIVAL TIME: 7:00 am
DEPARTURE TIME: 4:00 pm
TOTAL HOURS: 8

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: On site from 7:00 am to 9:30 am. High winds prevented them from doing any work for the day.



LOCATION DIAGRAM

RBT: All areas of construction were covered with 6" of topsoil. Drainage terrace tack on berms were smoothed and cut to design on the south of the crown. Seed crew finished up misc. seeding & fertilizing in the perimeter drainage channels. RBT was on site from 7:00 am to 3:30 pm.

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	10/14/97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	66 / 49	TEMP: HIGH/LOW	Cloudy / Cloudy

ARRIVAL TIME: 7:00 am
DEPARTURE TIME: 4:00 pm
TOTAL HOURS: 8

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: Began drilling on new well, GW-112. Drilled from 0'- 110'. Installed sample ports on all wells & well heads. On site from 7:00am to 6:00 pm

LOCATION DIAGRAM

RBT: Reminder of drainage tack on berms were smoothed & cut to design. Seed crew finished the remainder of the site, hand broadcasting in areas where necessary. RBT cleaned up site & prepared equiptment to move off site. RBT was on site from 7:00 am to 3:30 pm

Approved By: _____

Title: _____

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Daily Field Report Summary

CLIENT: WINNEBAGO RECLAMATION SERVICE
DATE: 10/17/97
PROJECT: PAGEL LANDFILL CQA
REPORT NO:
PROJECT NO.: 86078-004.000
PAGE: 1 OF
WEATHER: AM/PM: Partly Sunny/ Partly Sunny TEMP: HIGH/LOW 77 / 51

ARRIVAL TIME: 7:00 am
DEPARTURE TIME: 4:00 pm
TOTAL HOURS: 8

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: On site from 7:00 am to 5:30 pm. Drilled from 105' to 130'. DF on site. Meeting with Tom H. and OWT to discuss leachate pumps and the hook up of existing well #130

LOCATION DIAGRAM

Approved By:
Title:

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	10 / 21 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-004.000	PAGE:	1 OF
WEATHER: AM/PM:	Cloudy / Cloudy	TEMP: HIGH/LOW	63 / 44

ARRIVAL TIME: 7:00 am
DEPARTURE TIME: 4:00 pm
TOTAL HOURS: 8

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

OWT: Constructed well heads on existing wells & finished new wells. Completed drilling on final well and completed set ups on all wells. Prepared equiptment to move off site and cleaned up work area of construction debris. On site from 7:00 am to 6:00 pm

LOCATION DIAGRAM

Approved By:

Title:

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Daily Field Report Summary

CLIENT:	WINNEBAGO RECLAMATION SERVICE	DATE	11 / 19 / 97
PROJECT:	PAGEL LANDFILL CQA	REPORT NO:	
PROJECT NO.:	86078-003.002	PAGE:	1 OF
WEATHER: AM/PM:	Cloudy / Sunny	TEMP: HIGH/LOW	72 / 49

ARRIVAL TIME: 9:00 am
DEPARTURE TIME: 3:00 pm
TOTAL HOURS:

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

Inspected documented, and approved well boots installed by Serrot Corp. Boots were installed on all newly constructed wells. Met with site manager (Jeff) to discuss project.

LOCATION DIAGRAM

Approved By:

Title:

EMCON Representative

Sub- Appendix B.2

Weekly Project Meeting Summary

1414 South 5th Street, Suite 200
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EMCON

Weekly Project Meeting Summary

CLIENT:	Winnebago Reclimation Service	DATE	10 / 20 / 97
PROJECT:	Pagel Landfill CQA	SUMMARY NO:	1
PROJECT NO:	86078-004.000	PAGE:	1 OF 1

7/23/97	EM: DF, WH, JN WRS: TH	Clay test pads. Compaction methods. CQA activities.
8/6/97	EM: DF, WH, JN WRS: TH	Weekly meeting: Clay sampling. CQA activities. Site safety.
8/8/97	EM: DF, EL, KH, JN WRS: TH	FML pre-construction meeting: Project requirements, Personnel roles, Documentation, Procedures, Communication, Walk through.
8/25/97	EM: DF, KH, JN WRS: TH Serrot: VF	Start of liner, Procedures, Personnel, Materials.
9/6/97	EM: DF, JN WRS: TH	Weekly meeting: Composite deployment, CQA activity, FML repairs, Well boots.
9/13/97	EM: DF, JN WRS: TH	Weekly meeting: Survey control points, CQA activity, Drainage layer material placement, Gas build-up control.
9/22/97	EM: DF, JN WRS: TH	Weekly meeting: FML panel survey, CQA activity, Cover soils placement.
10/10/97	EM: DF, JN WRS: TH	Weekly meeting: Well drilling and back filling procedures, Terrace construction, Structures, Seeding mixture, Seeding procedure.
10/17/97	EM: DF, JN WRS: TH	Weekly meeting: Well drilling progress, Well building progress, Seeding progress.

Approved By: David R. Fagan

Title: Project Manager

EMCON Representative

Sub- Appendix B.3

Summary of Weather Conditions During Construction

STATION: ROCKFORD_WSO_AP, IL (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	|<--Temperature->| High (F)	Low (F)	Mean (F)	Snow Fall (in)	Snow Depth (in)	Observe Time	Source
1997	07	01	0.00	88	65	77	M	M	MID	F
1997	07	02	0.58	80	66	73	M	M	MID	F
1997	07	03	0.00	71	60	66	M	M	MID	F
1997	07	04	0.08	69	55	62	M	M	MID	F
1997	07	05	0.00	76	50	63	M	M	MID	F
1997	07	06	0.03	78	59	69	M	M	MID	F
1997	07	07	0.00	77	54	66	M	M	MID	F
1997	07	08	0.12	84	61	73	M	M	MID	F
1997	07	09	0.00	74	56	65	M	M	MID	F
1997	07	10	0.00	78	52	65	M	M	MID	F
1997	07	11	0.00	83	55	69	M	M	MID	F
1997	07	12	0.00	87	62	75	M	M	MID	F
1997	07	13	0.00	93	69	81	M	M	MID	F
1997	07	14	T	88	65	77	M	M	MID	F
1997	07	15	0.00	90	64	77	M	M	MID	F
1997	07	16	0.00	93	65	79	M	M	MID	F
1997	07	17	0.00	85	69	77	M	M	MID	F
1997	07	18	0.31	89	68	79	M	M	MID	F
1997	07	19	0.07	84	65	75	M	M	MID	F
1997	07	20	T	88	62	75	M	M	MID	F
1997	07	21	0.38	76	63	70	M	M	MID	F
1997	07	22	0.05	75	63	69	M	M	MID	F
1997	07	23	0.07	80	61	71	M	M	MID	F
1997	07	24	0.00	83	58	71	M	M	MID	F
1997	07	25	T	87	66	77	M	M	MID	F
1997	07	26	0.00	95	76	86	M	M	MID	F
1997	07	27	T	89	72	81	M	M	MID	F
1997	07	28	0.00	87	63	75	M	M	MID	F
1997	07	29	0.00	79	56	68	M	M	MID	F
1997	07	30	0.00	81	54	68	M	M	MID	F
1997	07	31	0.00	82	51	67	M	M	MID	F
		Sum	1.69				M			
		Average		82.9	61.5	72.2				

Abbreviations: M = missing, e = estimated, T = trace
P = preliminary data, F = final data from NCDC

STATION: ROCKFORD_WSO_AP, IL (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	|<--Temperature->| High (F)	Low (F)	Mean (F)	Snow Fall (in)	Snow Depth (in)	Observe Time	Source
1997	08	01	0.00	86	57	72	M	M	MID	P
1997	08	02	0.00	91	65	78	M	M	MID	P
1997	08	03	0.21	91	62	77	M	M	MID	P
1997	08	04	0.22	84	61	73	M	M	MID	P
1997	08	05	0.00	75	52	64	M	M	MID	P
1997	08	06	0.00	78	51	65	M	M	MID	P
1997	08	07	0.00	83	52	68	M	M	MID	P
1997	08	08	0.00	83	55	69	M	M	MID	P
1997	08	09	0.35	75	62	69	M	M	MID	P
1997	08	10	0.01	81	66	74	M	M	MID	P
1997	08	11	0.26	66	61	64	M	M	MID	P
1997	08	12	0.21	73	62	68	M	M	MID	P
1997	08	13	0.00	78	59	69	M	M	MID	P
1997	08	14	T	75	57	66	M	M	MID	P
1997	08	15	0.43	84	67	76	M	M	MID	P
1997	08	16	0.29	88	68	78	M	M	MID	P
1997	08	17	1.15	74	59	67	M	M	MID	P
1997	08	18	T	69	57	63	M	M	MID	P
1997	08	19	0.02	70	54	62	M	M	MID	P
1997	08	20	0.02	73	59	66	M	M	MID	P
1997	08	21	0.01	73	55	64	M	M	MID	P
1997	08	22	0.00	74	52	63	M	M	MID	P
1997	08	23	0.05	74	49	62	M	M	MID	P
1997	08	24	0.00	79	60	70	M	M	MID	P
1997	08	25	0.00	73	57	65	M	M	MID	P
1997	08	26	0.01	79	56	68	M	M	MID	P
1997	08	27	0.00	84	68	76	M	M	MID	P
1997	08	28	0.00	81	60	71	M	M	MID	P
1997	08	29	0.00	76	56	66	M	M	MID	P
1997	08	30	0.16	73	59	66	M	M	MID	P
1997	08	31	0.00	83	63	73	M	M	MID	P
		Sum	3.40				M			
		Average		78.3	58.7	68.5				

Abbreviations: M = missing, e = estimated, T = trace
P = preliminary data, F = final data from NCDC

STATION: ROCKFORD_WSO_AP, IL (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	|<--Temperature->| High (F)	Low (F)	Mean (F)	Snow Fall (in)	Snow Depth (in)	Observe Time	Source
1997	09	01	0.00	83	57	70	M	M	AM	P
1997	09	02	T	75	54	65	M	M	AM	P
1997	09	03	0.00	70	48	59	M	M	AM	P
1997	09	04	0.00	71	41	56	M	M	AM	P
1997	09	05	T	73	45	59	M	M	AM	P
1997	09	06	0.00	85	56	71	M	M	AM	P
1997	09	07	0.13	73	57	65	M	M	AM	P
1997	09	08	0.02	73	60	67	M	M	AM	P
1997	09	09	T	74	56	65	M	M	AM	P
1997	09	10	0.00	73	52	63	M	M	AM	P
1997	09	11	0.00	72	48	60	M	M	AM	P
1997	09	12	0.00	73	43	58	M	M	AM	P
1997	09	13	0.01	76	50	63	M	M	AM	P
1997	09	14	T	76	60	68	M	M	AM	P
1997	09	15	0.00	83	56	70	M	M	AM	P
1997	09	16	0.84	87	63	75	M	M	AM	P
1997	09	17	T	81	57	69	M	M	AM	P
1997	09	18	0.00	83	54	69	M	M	AM	P
1997	09	19	0.60	82	62	72	M	M	AM	P
1997	09	20	0.00	68	48	58	M	M	AM	P
1997	09	21	0.00	64	44	54	M	M	AM	P
1997	09	22	0.10	62	50	56	M	M	AM	P
1997	09	23	0.09	65	47	56	M	M	AM	P
1997	09	24	0.00	69	42	56	M	M	AM	P
1997	09	25	0.00	79	46	63	M	M	AM	P
1997	09	26	0.00	73	48	61	M	M	AM	P
1997	09	27	0.00	77	49	63	M	M	AM	P
1997	09	28	T	72	57	65	M	M	AM	P
1997	09	29	T	74	53	64	M	M	AM	P
1997	09	30	0.00	68	48	58	M	M	AM	P
		Sum	1.79				M			
		Average		74.5	51.7	63.1				

Abbreviations: M = missing, e = estimated, T = trace
P = preliminary data, F = final data from NCDC

STATION: ROCKFORD_WSO_AP, IL (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	|<--Temperature->| High (F)	Low (F)	Mean (F)	Snow Fall (in)	Snow Depth (in)	Observe Time	Source
1997	10	01	0.00	63	45	54	M	M	AM	P
1997	10	02	0.00	81	42	62	M	M	AM	P
1997	10	03	0.00	90	56	73	M	M	AM	P
1997	10	04	T	80	51	66	M	M	AM	P
1997	10	05	0.00	89	49	69	M	M	AM	P
1997	10	06	0.00	86	55	71	M	M	AM	P
1997	10	07	0.00	85	61	73	M	M	AM	P
1997	10	08	0.04	85	62	74	M	M	AM	P
1997	10	09	0.21	69	46	58	M	M	AM	P
1997	10	10	0.00	70	42	56	M	M	AM	P
1997	10	11	0.00	78	50	64	M	M	AM	P
1997	10	12	0.06	79	63	71	M	M	AM	P
1997	10	13	0.44	66	38	52	M	M	AM	P
1997	10	14	0.00	46	32	39	M	M	AM	P
1997	10	15	0.00	56	30	43	M	M	AM	P
1997	10	16	0.00	58	38	48	M	M	AM	P
1997	10	17	0.00	57	32	45	M	M	AM	P
1997	10	18	0.00	59	30	45	M	M	AM	P
1997	10	19	0.00	64	32	48	M	M	AM	P
1997	10	20	0.00	51	31	41	M	M	AM	P
1997	10	21	T	47	32	40	M	M	AM	P
1997	10	22	0.00	44	34	39	M	M	AM	P
1997	10	23	T	52	36	44	0.0	M	AM	P
1997	10	24	0.24	48	44	46	0.0	M	AM	P
1997	10	25	0.00	46	40	43	0.0	M	AM	P
1997	10	26	0.45	42	32	37	M	M	AM	P
1997	10	27	T	36	23	30	0.0	M	AM	P
1997	10	28	0.00	50	23	37	0.0	M	AM	P
1997	10	29	0.00	57	28	43	0.0	M	AM	P
1997	10	30	0.00	58	39	49	0.0	M	AM	P
1997	10	31	0.00	67	52	60	0.0	M	AM	P
		Sum	1.44				M			
		Average		63.2	40.9	52.1				

Abbreviations: M = missing, e = estimated, T = trace
P = preliminary data, F = final data from NCDC

STATION: ROCKFORD_WSO_AP, IL (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	|<--Temperature->| High (F)	Low (F)	Mean (F)	Snow Fall (in)	Snow Depth (in)	Observe Time	Source
1997	11	01	0.06	55	41	48	M	M	AM	P
1997	11	02	T	44	32	38	M	M	AM	P
1997	11	03	0.04	41	32	37	M	M	AM	P
1997	11	04	T	40	35	38	M	M	AM	P
1997	11	05	0.34	42	35	39	M	M	AM	P
1997	11	06	0.08	44	41	43	M	M	AM	P
1997	11	07	T	49	33	41	M	M	AM	P
1997	11	08	0.00	44	28	36	M	M	AM	P
1997	11	09	0.01	44	38	41	M	M	AM	P
1997	11	10	T	40	27	34	M	M	AM	P
1997	11	11	T	33	23	28	M	M	AM	P
1997	11	12	0.00	33	17	25	M	M	AM	P
1997	11	13	0.00	35	26	31	M	M	AM	P
1997	11	14	0.05	40	32	36	M	M	AM	P
1997	11	15	0.06	32	26	29	M	M	AM	P
1997	11	16	0.00	26	12	19	M	M	AM	P
1997	11	17	0.00	33	11	22	M	M	AM	P
1997	11	18	0.00	39	22	31	M	M	AM	P
1997	11	19	T	33	22	28	M	M	AM	P
1997	11	20	0.05	41	23	32	M	M	AM	P
1997	11	21	0.00	42	25	34	M	M	AM	P
1997	11	22	T	38	20	29	M	M	AM	P
1997	11	23	T	32	18	25	M	M	AM	P
1997	11	24	0.00	36	9	23	M	M	AM	P
1997	11	25	0.00	54	34	44	M	M	AM	P
1997	11	26	0.00	50	30	40	M	M	AM	P
1997	11	27	0.16	43	27	35	M	M	AM	P
1997	11	28	0.01	51	43	47	M	M	AM	P
1997	11	29	0.31	47	40	44	M	M	AM	P
1997	11	30	0.05	44	35	40	M	M	AM	P
		Sum	1.22				M			
		Average		40.8	27.9	34.4				

Abbreviations: M = missing, e = estimated, T = trace
P = preliminary data, F = final data from NCDC

STATION: ROCKFORD_WSO_AP, IL (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	|<--Temperature->| High (F)	Low (F)	Mean (F)	Snow Fall (in)	Snow Depth (in)	Observe Time	Source
1997	12	01	0.00	38	30	34	M	M	MID	P
1997	12	02	0.00	39	34	37	M	M	MID	P
1997	12	03	0.31	36	32	34	0.8	1	MID	P
1997	12	04	0.00	33	26	30	1.5	0	MID	P
1997	12	05	0.00	28	22	25	0.0	0	MID	P
1997	12	06	0.00	30	25	28	0.0	M	MID	P
1997	12	07	0.00	30	25	28	M	M	MID	P
1997	12	08	0.02	28	25	27	0.0	0	MID	P
1997	12	09	0.06	34	28	31	1.0	1	MID	P
1997	12	10	0.21	34	31	33	0.4	3	MID	P
1997	12	11	0.00	33	30	32	M	M	MID	P
1997	12	12	0.00	30	20	25	M	2	MID	P
1997	12	13	0.00	32	17	25	M	M	MID	P
1997	12	14	0.00	33	12	23	M	2	MID	P
1997	12	15	0.00	40	21	31	M	2	MID	P
1997	12	16	0.00	40	22	31	M	1	MID	P
1997	12	17	0.00	40	16	28	M	0	MID	P
1997	12	18	0.00	41	28	35	M	0	MID	P
1997	12	19	0.00	45	26	36	M	M	MID	P
1997	12	20	0.00	34	19	27	M	0	MID	P
1997	12	21	0.00	35	18	27	M	M	MID	P
1997	12	22	0.03	34	31	33	M	0	MID	P
1997	12	23	0.00	34	29	32	M	0	MID	P
1997	12	24	0.21	34	29	32	4.5	0	MID	P
1997	12	25	0.00	30	24	27	M	M	MID	P
1997	12	26	0.00	30	18	24	0.0	4	MID	P
1997	12	27	0.00	22	8	15	M	4	MID	P
1997	12	28	0.00	31	12	22	M	3	MID	P
1997	12	29	0.03	30	22	26	0.5	3	MID	P
1997	12	30	0.00	24	7	16	0.0	3	MID	P
1997	12	31	0.00	24	6	15	0.0	4	MID	P
		Sum	0.87				M			
		Average		33.1	22.4	27.7				

Abbreviations: M = missing, e = estimated, T = trace
P = preliminary data, F = final data from NCDC

Sub- Appendix B.4

Summary of Construction Equipment Used On Site

SUMMARY OF CONSTRUCTION EQUIPTMENT USED ON SITE
Pagel Landfill Western Portion Final Cover, Dual Leachate-Gas Extraction System, and Drainage System Construction

4	Volvo A35 6 x 6 Articulated Haul Trucks
10	Ten Wheel Semi Haul Trucks
2	Cat D8N Dozers
1	Pull Behind Hydraulic Scissor Disc
1	Pull Behind Vibratory Padfoot Roller
1	Pull Behind Sheeps Foot Roller
2	Cat D5H LGP Dozers
1	Cat D8L Dozer
1	Cat D8H Dozer
2	Bobcat Skid Steer Loaders With Hydraulic Roller Attachments
1	John Deere 892 E-LC
8	ART Dump Trucks
1	Cat 973 Front End Loader
1	Cat 992 D-LC Track-hoe
1	Cat 790 D-LC Track-hoe
1	Kobelko Mark IV SK-120-LC Track-hoe
1	Ingersol Rand 100D Vibratory Padfoot Roller
1	JD 550 G LGP Dozer
1	JD 650 G LGP Dozer
2	JD 750 G LGP Dozer
1	JD 772 BH Scraper
2	Polyethylene Pressure Welder
1	Komatsu 943 WA 250 Loader
1	E-Z Bore Bucket Rig Model # 120-54
1	J. Crane 3016 Load-all
1	JD Rubber Tired Back-Hoe
1	Wabco Off-Road Water Truck
1	Ten Wheel Semi Water Truck
1	Fertilizer Spray Wagon
1	JD 2555 Rubber Tired Tractor
1	Pull Behind Hydraulic Disc
1	Pull Behind Seed Drill
1	Pull Behind Seed Broadcaster
1	Pull Behind Harrow
1	Pull Behind Hay Mulcher and Spreader
1	Alliss-Chalmers 8070 Rubber Tired Tractor
1	Case IH Rubber Tired Hay Loader

APPENDIX C

APPENDIX C

COMPACTED SOIL LINER INFORMATION

Sub-Appendices

C.1 Troxler Nuclear Density Gage Calibration Data
C.2 Clay Liner Laboratory Testing Results
C.3 Troxler Nuclear Density Moisture Density Test Results
C.4 Shelby Tube Sample Laboratory Test Results
C.5 Clay Liner Thickness Verification

Sub- Appendix C.1

Troxler Nuclear Density Gage Calibration Data

EMCON
1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

NUCLEAR DENSITY METER CALIBRATION DATA

CLIENT:	Winnebago Reclamation Service	TECHNICIAN:	JPN, WVH
PROJECT:	Pagel Landfill CQA	MODEL:	3411-B
PR. NO.:	86078-004.000	SERIAL NUMBER:	17724

Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/23/97	2928	-	626	-	WVH
7/24/97	2938	0.34	630	0.64	WVH
7/30/97	2929	0.31	636	0.95	WVH
7/31/97	2934	0.17	636	0.00	WVH
8/1/97	2923	0.37	637	0.16	WVH
8/4/97	2911	0.41	635	0.31	WVH
8/5/97	2917	0.21	630	0.79	JPN
8/6/97	2927	0.34	628	0.32	JPN
8/7/97	2927	0.00	633	0.80	JPN
8/8/97	2919	0.27	633	0.00	JPN
8/11/97	2937	0.62	637	0.63	JPN
8/22/97	2908	0.99	638	0.16	JPN
8/25/97	2917	0.31	631	1.10	JPN
8/26/97	2922	0.17	637	0.95	JPN
8/27/97	2917	0.17	633	0.63	JPN
9/9/97	2902	0.51	633	0.00	JPN

Sub- Appendix C.2

Clay Liner Laboratory Testing Results

TSC
TESTING SERVICE CORPORATION

Geotechnical Engineering
Environmental Services
Construction Materials Engineering & Testing
Laboratory Testing of Soils & Materials
Subsurface Exploration

Carol Stream, Illinois

September 5, 1997

Mr. Tom Hilbert
Winnebago Reclamation Service, Inc.
8403 Lindenwood Road
Rockford, Illinois 61109

Re: Laboratory Testing
Pagel Landfill Final Cover Project
Winnebago County
TSC L-42,801

Dear Mr. Hilbert:

Enclosed is the result of the analysis performed on Sample ST-0822, CL-01A from Pagel Landfill. The laboratory data is presented on a separate Soil Data Sheet. The analysis was performed following current ASTM and IEPA methodologies.

It was a pleasure to assist you on this project. Please call if you have any questions or require additional information.

Respectfully submitted,

TESTING SERVICE CORPORATION

Larry Lockwald
Laboratory Manager

LL:cn
Enc. 1 page
cc: D. Feezor

CAROL STREAM, IL 60188-2492
457 E. GUNDERSEN DRIVE
630.653 3920
FAX 630.653 2726

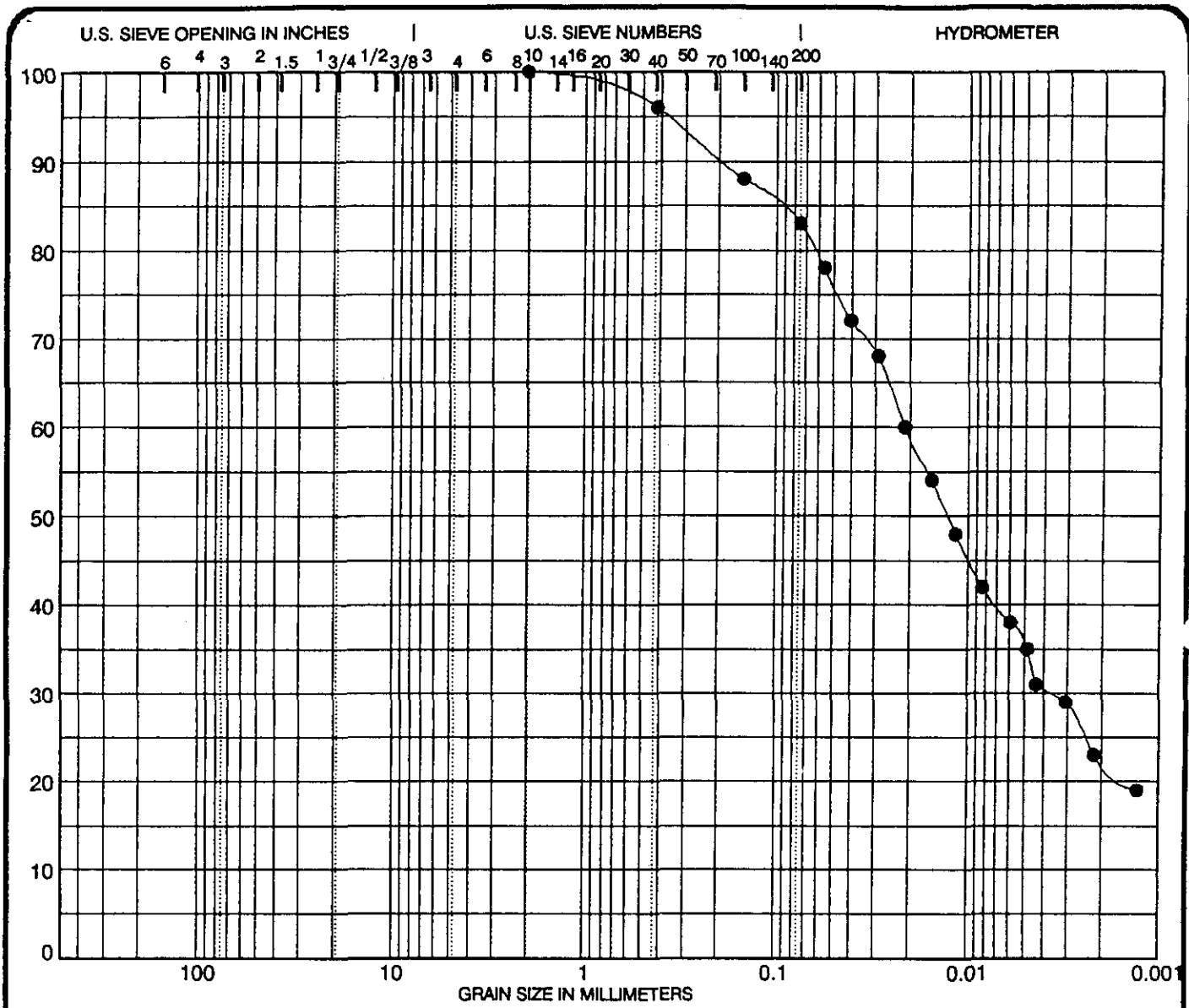
BLOOMINGTON, IL 61704-8141
2911 GILL STREET, SUITE A1
309 662.2215
FAX 309 662.2138

CARY, IL 60013-2978
209 CLEVELAND STREET, UNIT C
847.516.0505
FAX 847 516 0527

GURNEE, IL 60031-5906
401 RIVERSIDE DRIVE UNIT 10
847 249 6040
FAX 847 249 6042

PEORIA, IL 61615-1913
7806 N. PIONEER LANE, SUITE B
309 693 8310
FAX 309 693 8312

TINLEY PARK, IL 60477-1755
16646 S. OAK PARK AVENUE
708 429 2080
FAX 708 429 2144



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

SPECIMEN IDENTIFICATION		SIEVE	% PASS	CLASSIFICATION			
ST-0822		3 inch	100	Brown silty CLAY, little sand (CL)			
CL-01A		2	100				
		1 1/2	100				
		1	100	%GRAVEL	%SAND	%SILT	%CLAY
PERMEABILITY		3/4	100	0	17	61	22
GRADIENT	28.7	3/8	100				
EFFECTIVE STRESS (psi)	3.0	# 4	100	γ_{dry}(pcf)	%MC	LL	PL	PI
CELL PRESSURE (psi)	33.0	# 10	100	122.8	12.4	24	12	12
K (cm/sec)	1.1X10-7	# 40	96				
		# 100	88				
		# 200	83				

PROJECT **Pagel Landfill -**
LOCATION **Winnebago, Illinois**

JOB NO. **L - 42,801**
DATE **August 29, 1997**

5

SOIL DATA SHEET

Testing Service Corporation
CAROL STREAM

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0804-CL 1B	Date:	8-8-97	Checked by:	R.S.A.

Remarks:

Cell	17
Panel	4

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.192	1.	2.858
2.	3.180	2.	2.847
3.	3.161	3.	2.863
4.	3.151	4.	2.860
5.	3.161	5.	2.843

Weight of Specimen:

Initial Weigh	715.2	Grams
	1.575	Lbs.
Final Weight	729.6	Grams
	1.607	Lbs.
Dry Weight	629.4	Grams
	1.386	Lbs.

Avg.	3.169	In	Ave.	2.854	In
	8.049	CM		7.250	CM
Area	6.398	In^2		41.279	CM^2
Volume	20.275932	In^3		0.0117338	Cft.

Moisture Content:

Initial	13.63	%
Final	15.92	%

Density, Wet Initial	134.37	pcf
Density, Dry	118.25	pcf
Density, Wet Final:	137.08	pcf
Back Pressure:	90	psi
Specific Gravity	2.7126	
Saturation:	100	%
Efft. Confining Pressure	0.5	tsf

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.15	0.22	0.13	0.19
L cms	8.049	8.049	8.049	8.049
Rt (Temp)	1.000	1.000	1.000	1.000
h cms	236.98	236.98	236.98	236.98
A Sq. cms	41.279	41.279	41.279	41.279
t Sec.	295	440	260	390
K_{20} cm/sec	4.184E-07	4.114E-07	4.114E-07	4.009E-07

K_{20} Avg. cm/sec **4.105E-07**

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0804-CL 2A	Date:	8-8-97	Checked by:	R.S.A.

Remarks:

Cell	6
Panel	4

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.409	1.	2.826
2.	3.415	2.	2.825
3.	3.408	3.	2.831
4.	3.409	4.	2.838
5.	3.414	5.	2.829

Weight of Specimen:

Initial Weigh	782.9	Grams
	1.724	Lbs.
Final Weight	788.5	Grams
	1.737	Lbs.
Dry Weight	685.2	Grams
	1.509	Lbs.

Avg.	3.411	In	Ave.	2.830	In
	8.664	CM		7.188	CM
Area	6.289	In^2		40.576	CM^2
Volume	21.452751	In^3		0.0124148	Cft.

Moisture Content:

Initial	14.26	%
Final	15.08	%

Density, Wet Initial	139.03	pcf
Density, Dry	121.68	pcf
Eff. Confining Pressure	0.5	tsf

Density, Wet Final:	140.02	pcf
Back Pressure:	90	psi
Specific Gravity	2.744	
Saturation:	101.2	%

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.18	0.12	0.16	0.16
L cms	8.664	8.664	8.664	8.664
Rt (Temp)	1.000	1.000	1.000	1.000
h cms	236.98	236.98	236.98	236.98
A Sq. cms	40.576	40.576	40.576	40.576
t Sec.	573	407	551	559
K 20 cm/sec	2.830E-07	2.657E-07	2.616E-07	2.579E-07

K_{20} Avg. cm/sec **2.671E-07**

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EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0826CL- 1A LOC. 126-2	Date:	8-29-97	Checked by:	R.S.A.

Remarks:

Cell	16
Panel	5

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.651	1.	2.850
2.	3.652	2.	2.851
3.	3.653	3.	2.848
4.	3.658	4.	2.833
5.	3.651	5.	2.821

Weight of Specimen:

Initial Weigh	809.0	Grams
	1.782	Lbs.
Final Weight	820.2	Grams
	1.807	Lbs.
Dry Weight	696.1	Grams
	1.533	Lbs.

Avg.	3.653	In	Ave.	2.841	In
	9.279	CM		7.215	CM
Area	6.337	In^2		40.886	CM^2
Volume	23.15046	In^3		0.0133973	Cft.

Moisture Content:

Initial	16.22	%
Final	17.83	%

Density, Wet Initial	133.12	pcf
Density, Dry	114.55	pcf
Density, Wet Final:	134.97	pcf
Back Pressure:	90	psi
Eff. Confining Pressure	0.5	tsf
Specific Gravity	2.7601	
Saturation:	97.7	%

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.16	0.10	0.14	0.17
L cms	9.279	9.279	9.279	9.279
Rt (Temp)	1.000	1.000	1.000	1.000
h cms	212.14	212.14	212.14	212.14
A Sq. cms	40.886	40.886	40.886	40.886
t Sec.	704	440	620	756
K_{20} cm/sec	2.431E-07	2.431E-07	2.416E-07	2.406E-07

K_{20} Avg. cm/sec: 2.421E-07

EMCON

PERMEABILITY TEST BY TRIAXIAL CELL WITH BACK PRESSURE

Constant Head Method (ASTM D5084)

Project:	WINNEBAGO RECLAMATION SERVICE PAGEL LANDFILL TEST STRIPS	Proj. No.	86078.004.000 Task 5	Tested by: Entered by:	K.H. K.H.
Sample:	ST-0826CL- 1A LOC. 126-2	Date:	8-29-97	Checked by:	R.S.A.
Remarks:					

Cell	16
Panel	5

Dimensions of Specimen:

	Length (Inches)		Diameter (Inches)
1.	3.651	1.	2.850
2.	3.652	2.	2.851
3.	3.653	3.	2.848
4.	3.658	4.	2.833
5.	3.651	5.	2.821

Weight of Specimen:

Initial Weigh	809.0	Grams
	1.782	Lbs.
Final Weight	820.2	Grams
	1.807	Lbs.
Dry Weight	696.1	Grams
	1.533	Lbs.

Avg.	3.653	In	Ave.	2.841	In
	9.279	CM		7.215	CM
Area	6.337	In^2		40.886	CM^2
Volume	23.15046	In^3		0.0133973	Cft.

Moisture Content:

Initial	16.22	%
Final	17.83	%

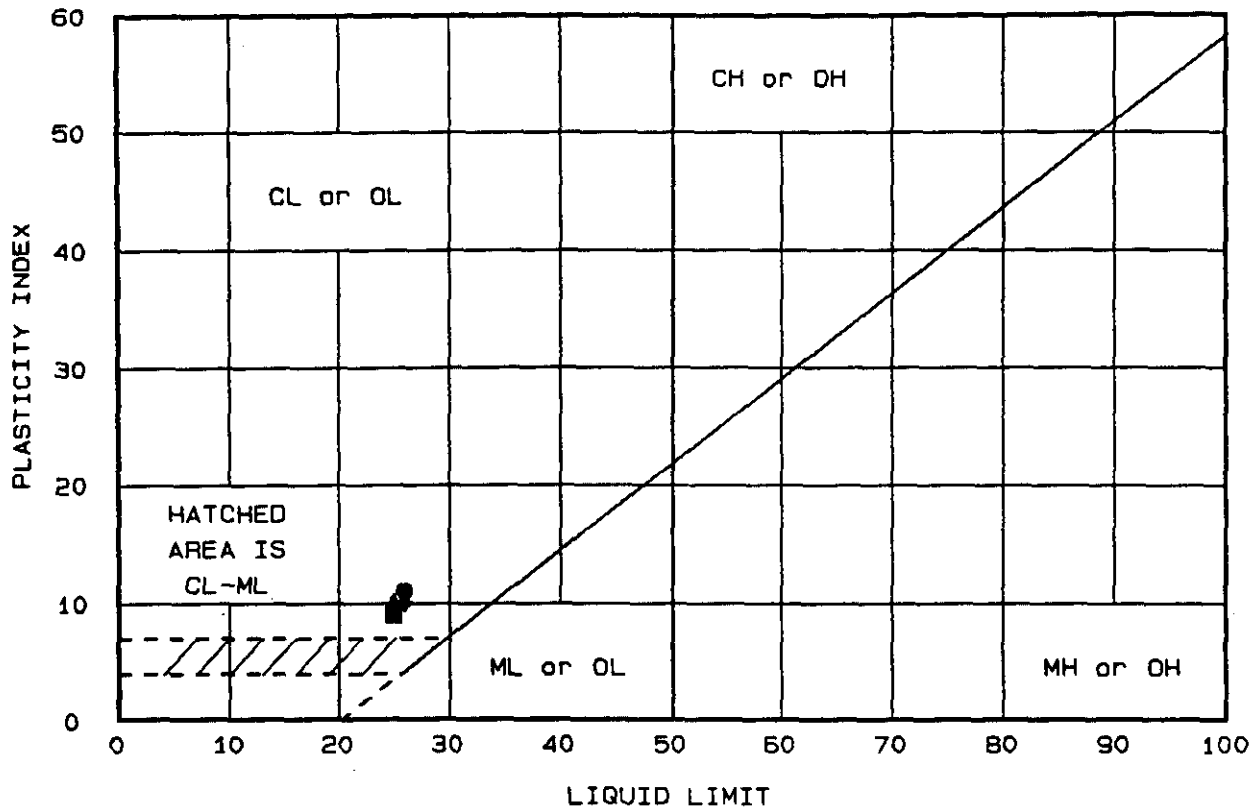
Density, Wet Initial	133.12	pcf
Density, Dry	114.55	pcf
Density, Wet Final:	134.97	pcf
Back Pressure:	90	psi
Eff. Confining Pressure	0.5	tsf
Specific Gravity	2.7601	
Saturation:	97.7	%

$$K_{20} = \frac{Q \times L \times Rt}{h \times A \times t}$$

	Trial 1	Trial 2	Trial 3	Trial 4
Q cc	0.16	0.10	0.14	0.17
L cms	9.279	9.279	9.279	9.279
Rt (Temp)	1.000	1.000	1.000	1.000
h cms	212.14	212.14	212.14	212.14
A Sq. cms	40.886	40.886	40.886	40.886
t Sec.	704	440	620	756
K 20 cm/sec	2.431E-07	2.431E-07	2.416E-07	2.406E-07

K_{20} Avg. cm/sec **2.421E-07**

LIQUID AND PLASTIC LIMITS TEST REPORT



	SAMPLE IDENTIFICATION	LL	PL	PI	-200	MATERIAL DESCRIPTION BURMISTER ☐ ASTM D 2487 ☒
●	ST-0804-CL-01A	26	15	11	89.1	CL, Lean clay
▲	ST-0804-CL-01B	25	15	10	90.8	CL, Lean clay
■	ST-0804-CL-02A	25	16	9	82.2	CL, Lean clay with sand
◆	ST-0804-CL-02B	26	16	10	89.7	CL, Lean clay

Project No.: 86078004 Date: 8-15-97
Project: PAGEL LANDFILL

Client: WINNEBAGO RECLAMATION SERVICE
Location:

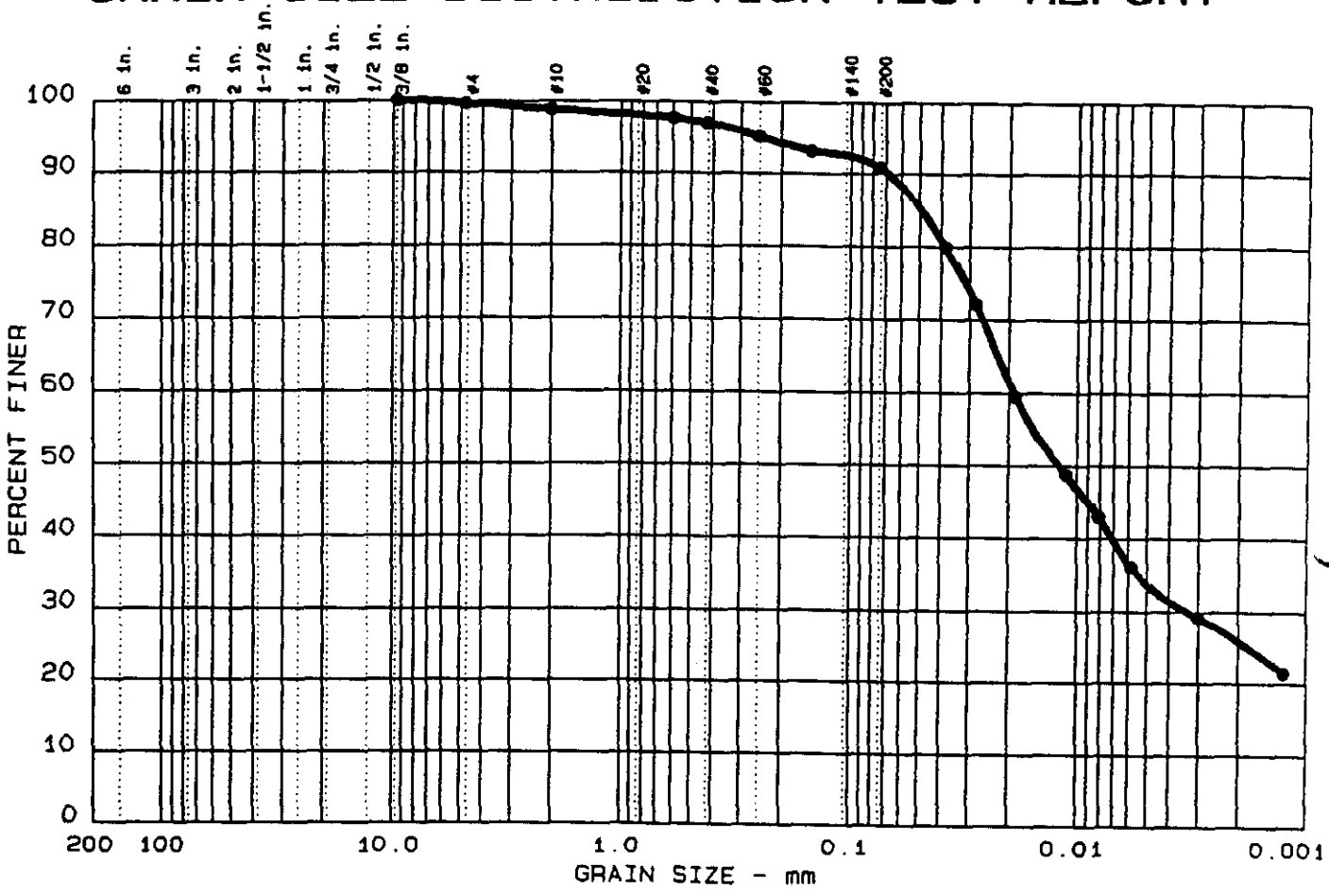
Performed by: N.B.
Entered by: D.L.
Checked by: R.S.A.

Remarks:
ASTM-D4318

EMCON

Fig. No. _____

GRAIN SIZE DISTRIBUTION TEST REPORT



	S. #	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	01B	0.0	0.4	8.8	57.2	33.6

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●					0.01	0.003				

MATERIAL DESCRIPTION	ASTM	BURMISTER	AASHTO
● LIGHT YELLOWISH BROWN Lean clay	CL		A-4 (6)

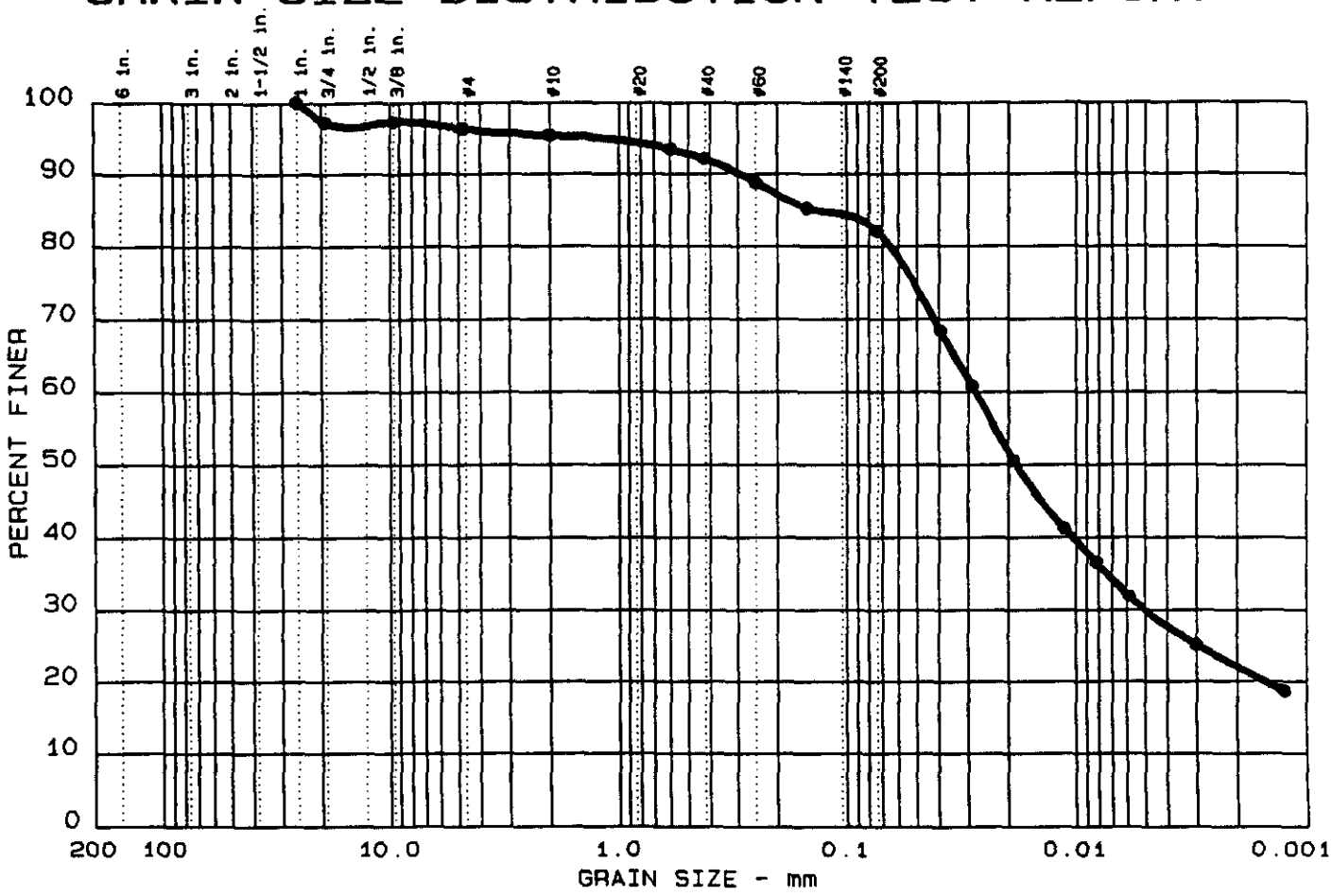
Project No.: 86078004 Date: 8-15-97
Project: PAGEL LANDFILL
Client: WINNEBAGO RECLAMATION SERVICE
● Sample: ST-0804-CL-01B Sample No.: 01B

Performed by: N.B.
Entered by: D.L.
Checked by: R.S.A.
Remarks:
MOISTURE CONTENT= 14.3%

EMCON

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	S. #	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	02A	0.0	3.8	14.1	52.3	29.8

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_U
●			0.13		0.02	0.005				

MATERIAL DESCRIPTION	ASTM	BURMISTER	AASHTO
● LIGHT YELLOWISH BROWN Lean clay with sand	CL		A-4 (5)

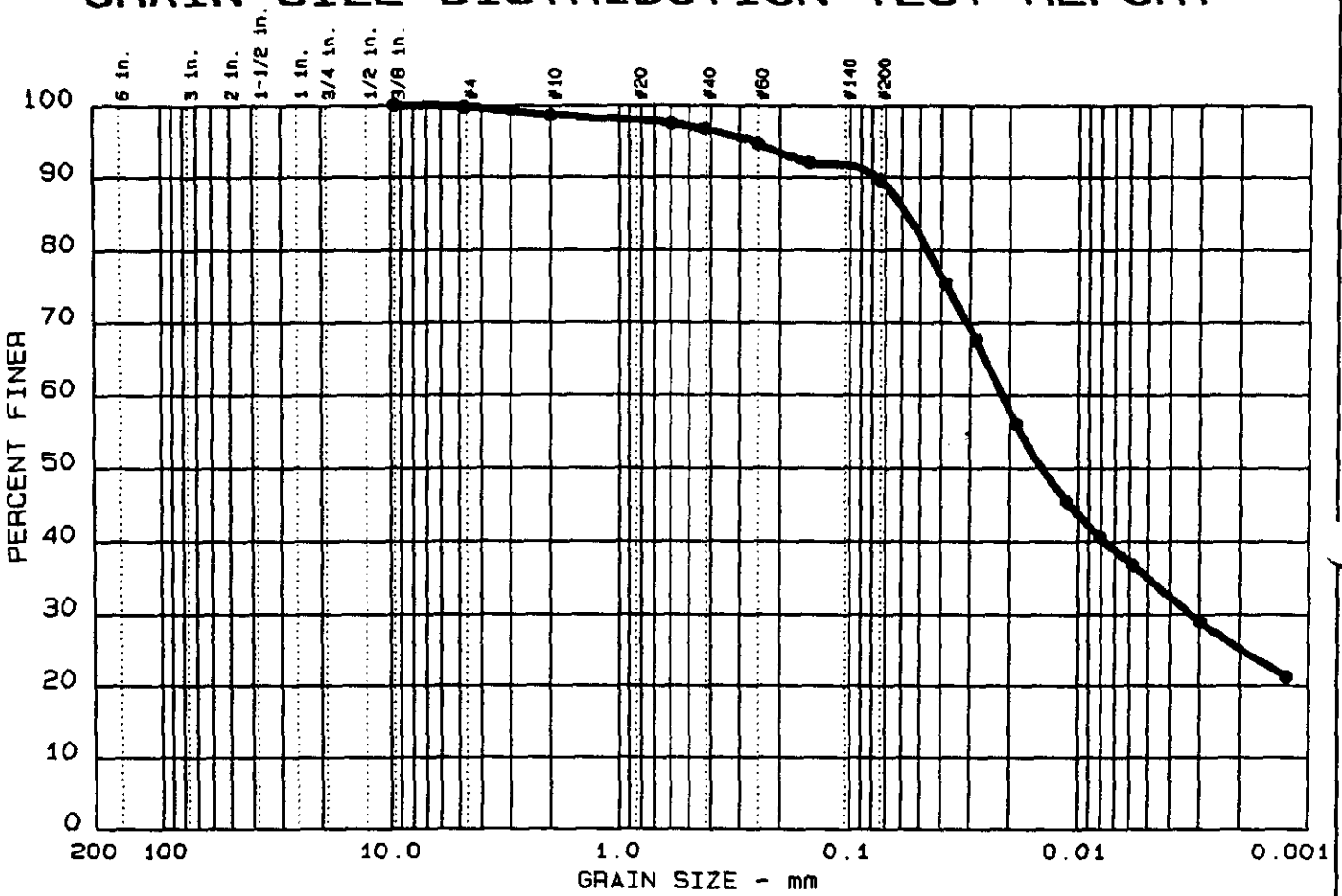
Project No.: 86078004 Date: 8-15-97
Project: PAGEL LANDFILL
Client: WINNEBAGO RECLAMATION SERVICE
● Sample: ST-0804-CL-02A Sample No.: 02A

Performed by: N.B.
Entered by: D.L.
Checked by: R.S.A.
Remarks:
MOISTURE CONTENT= 13.2%

EMCON

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	S. #	%+75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	02B	0.0	0.3	10.0	54.7	35.0

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●					0.01	0.003				

MATERIAL DESCRIPTION	ASTM	BURMISTER	AASHTO
● LIGHT YELLOWISH BROWN Lean clay	CL		A-4 (7)

Project No.: 86078004 Date: 8-15-97
Project: PAGEL LANDFILL
Client: WINNEBAGO RECLAMATION SERVICE
● Sample: ST-0804-CL-02B Sample No.: 02B

Performed by: N.B.
Entered by: D.L.
Checked by: R.S.A.
Remarks:
MOISTURE CONTENT= 13.9%

EMCON

Figure No.

Sub- Appendix C.3

Troxler Nuclear Density Gage Moisture Density Test Results

MOISTURE-DENSITY TEST SUMMARY

EMCON

Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job No: 86078-004.000

Technician: JPN
Data Entry: JPN
Backcheck:

Date	Test No.	Lift No.	Northing	Easting	Probe Depth (inches)	Wet Density (Pcf)	Dry Density (Pcf)	Moisture Content (%)	Proctor Density (Pcf)	Optimum Moisture (%)	Percent Compaction	Pass/ Fail	Retest No.	Comments
7/30/97	30-1	12"	2001424.4	800327.2	8	125.5	109.6	14.5	121.0	12.5	90.58%	Pass		
7/30/97	30-2	12"	2001361.7	800255.0	8	127.5	109.9	16.1	121.0	12.5	90.83%	Pass		
7/30/97	30-3	12"	2001270.7	800265.8	8	126.9	112.6	12.8	121.0	12.5	93.06%	Pass		
7/30/97	30-4	12"	2001308.6	800177.8	8	127.3	112.5	13.2	121.0	12.5	92.98%	Pass		
7/30/97	30-5	12"	2001401.7	800169.7	8	129.1	113.5	13.7	121.0	12.5	93.80%	Pass		
7/30/97	30-6	12"	2001477.3	800253.8	8	128.6	113.9	12.9	121.0	12.5	94.13%	Pass		
7/30/97	30-7	12"	2001519.5	800167.6	8	128.5	113.4	13.3	121.0	12.5	93.72%	Pass		
7/30/97	30-8	12"	2001450.4	800089.0	8	125.4	111.4	12.6	121.0	12.5	92.10%	Pass		
7/30/97	30-9	12"	2001356.2	800074.5	8	124.5	109.7	13.4	121.0	12.5	90.66%	Pass		
7/30/97	30-10	12"	2001395.2	799999.4	8	127.5	113.1	12.7	121.0	12.5	93.47%	Pass		
7/30/97	30-11	12"	2001491.9	800014.4	8	132.2	113.8	16.2	121.0	12.5	94.05%	Pass		
7/30/97	30-12	12"	2001552.8	800085.6	8	132.1	113.8	16.0	121.0	12.5	94.05%	Pass		
7/30/97	30-13	12"	2001584.2	800001.9	8	127.0	110.9	14.5	121.0	12.5	91.65%	Pass		
7/30/97	30-14	12"	2001536.1	799931.3	8	128.0	109.3	17.2	121.0	12.5	90.33%	Pass		
7/30/97	30-15	12"	2001431.4	799915.0	8	132.0	114.9	14.8	121.0	12.5	94.96%	Pass		
8/1/97	1-1	12"	2001621.8	799943.3	8	127.8	113.1	13.0	121.0	12.5	93.47%	Pass		
8/1/97	1-2	12"	2001589.9	799870.0	8	127.2	108.9	16.8	121.0	12.5	90.00%	Pass		
8/1/97	1-3	12"	2001490.3	799830.5	8	129.1	110.6	16.8	121.0	12.5	91.40%	Pass		
8/1/97	1-4	12"	2001539.9	799757.9	8	127.1	110.2	15.4	121.0	12.5	91.07%	Pass		
8/1/97	1-5	12"	2001649.9	799821.3	8	130.0	110.7	17.4	121.0	12.5	91.49%	Pass		
8/1/97	1-6	12"	2001687.4	799901.4	8	135.1	116.5	16.0	121.0	12.5	96.28%	Pass		
8/1/97	1-7	12"	2001759.3	799868.5	8	136.4	118.7	14.8	121.0	12.5	98.10%	Pass		
8/1/97	1-8	12"	2001708.2	799799.6	8	135.4	117.3	15.4	121.0	12.5	96.94%	Pass		
8/1/97	1-9	12"	2001724.1	799707.0	8	128.4	111.2	15.4	121.0	12.5	91.90%	Pass		
8/1/97	1-10	12"	2001803.5	799688.4	8	128.9	112.0	15.1	121.0	12.5	92.56%	Pass		
8/1/97	1-11	12"	2001783.2	799785.7	8	131.8	114.4	15.3	121.0	12.5	94.55%	Pass		
8/1/97	1-12	12"	2001830.5	799849.3	8	132.4	115.1	15.0	121.0	12.5	95.12%	Pass		

MOISTURE-DENSITY TEST SUMMARY

Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job No: 86078-004.000

EMCON

Technician: JPN
Data Entry: JPN
Backcheck:

Date	Test No.	Lift No.	Northing	Easting	Probe Depth (inches)	Wet Density (Pcf)	Dry Density (Pcf)	Moisture Content (%)	Proctor Density (Pcf)	Optimum Moisture (%)	Percent Compaction	Pass/ Fail	Retest No.	Comments
8/1/97	1-13	12"	2001886.1	799846.3	8	132.4	115.4	14.8	121.0	12.5	95.37%	Pass		
8/5/97	5-1	12"	2001385.2	800400.9	8	131.1	114.8	14.2	121.0	12.5	94.88%	Pass		
8/5/97	5-2	12"	2001313.8	800386.5	8	135.4	117.2	15.5	121.0	12.5	96.86%	Pass		
8/5/97	5-3	12"	2001235.2	800355.4	8	132.9	114.4	16.1	121.0	12.5	94.55%	Pass		
8/5/97	5-4	12"	2001223.8	800426.3	8	135.0	116.9	15.9	121.0	12.5	96.61%	Pass		
8/5/97	5-5	12"	2001889.9	799663.2	8	131.1	114.4	14.7	121.0	12.5	94.55%	Pass		
8/5/97	5-6	12"	2001854.9	799739.3	8	128.9	114.3	12.7	121.0	12.5	94.46%	Pass		
8/5/97	5-7	12"	2001564.5	799982.5	8	133.9	118.7	12.8	121.0	12.5	98.10%	Pass		ST-0804-LPS-01A/B
8/5/97	5-8	12"	2001699.9	799855.1	8	132.0	116.7	13.8	121.0	12.5	96.45%	Pass		ST-0804-LPS-02A/B
8/5/97	5-9	12"	2001931.2	799850.3	8	122.9	110.7	11.0	121.0	12.5	91.49%	FAIL		Possible failure due to poor surface
8/5/97	5-10	12"	2001933.4	799678.6	8	132.8	117.5	13.0	121.0	12.5	97.11%	Pass		
8/5/97	5-11	12"	2001909.9	799741.4	8	131.1	116.9	12.2	121.0	12.5	96.61%	FAIL		Possible failure due to poor surface
8/5/97	5-12	12"	2001909.9	799741.4	8	130.5	114.8	13.6	121.0	12.5	94.88%	Pass	5-11	
8/5/97	5-13	12"	2001986.2	799743.1	8	135.0	116.7	15.7	121.0	12.5	96.45%	Pass		
8/5/97	5-14	12"	2002010.7	799853.8	8	132.3	116.2	13.9	121.0	12.5	96.03%	Pass		
8/5/97	5-15	12"	2001931.2	799850.3	8	126.6	111.1	13.9	121.0	12.5	91.82%	Pass	5-9	
8/6/97	6-1	12"	2001994.0	799659.7	8	130.5	115.4	13.0	121.0	12.5	95.37%	Pass		
8/6/97	6-2	12"	2002043.9	799758.7	8	131.7	115.0	14.4	121.0	12.5	95.04%	Pass		
8/6/97	6-3	12"	2002066.2	799677.0	8	131.1	115.4	13.6	121.0	12.5	95.37%	Pass		
8/6/97	6-4	12"	2002117.6	799694.7	8	131.4	115.7	13.6	121.0	12.5	95.62%	Pass		
8/6/97	6-5	12"	2002088.2	799781.8	8	132.0	116.7	13.1	121.0	12.5	96.45%	Pass		ST-0822-CL-01A/B
8/6/97	6-6	12"	2002025.9	799908.2	8	133.3	116.0	14.9	121.0	12.5	95.87%	Pass		
8/6/97	6-7	12"	2002010.9	799830.6	8	132.0	116.2	13.6	121.0	12.5	96.03%	Pass		
8/6/97	6-8	12"	2002174.2	799716.3	8	133.4	118.0	13.1	121.0	12.5	97.52%	Pass		
8/6/97	6-9	12"	2002216.0	799768.9	8	131.0	114.6	14.3	121.0	12.5	94.71%	Pass		
8/6/97	6-10	12"	2002238.5	799824.7	8	129.2	112.1	15.3	121.0	12.5	92.64%	Pass		
8/6/97	6-11	12"	2002158.3	799878.1	8	130.9	114.4	14.3	121.0	12.5	94.55%	Pass		
8/6/97	6-12	12"	2002247.0	799884.0	8	127.8	112.6	13.5	121.0	12.5	93.06%	Pass		
8/6/97	6-13	12"	2002157.5	799932.4	8	131.1	115.4	13.7	121.0	12.5	95.37%	Pass		
8/6/97	6-14	12"	2002045.5	799961.8	8	128.9	114.3	12.7	121.0	12.5	94.46%	Pass		
8/7/97	7-1	12"	2002045.4	800015.6	8	129.6	113.3	14.4	121.0	12.5	93.64%	Pass		

MOISTURE-DENSITY TEST SUMMARY

EMCON

Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job No: 86078-004.000

Technician: JPN
Data Entry: JPN
Backcheck:

Date	Test No.	Lift No.	Northing	Easting	Probe Depth (inches)	Wet Density (Pcf)	Dry Density (Pcf)	Moisture Content (%)	Proctor Density (Pcf)	Optimum Moisture (%)	Percent Compaction	Pass/ Fail	Retest No.	Comments
8/7/97	7-2	12"	2002049.6	800078.7	8	134.7	118.2	13.9	121.0	12.5	97.69%	Pass		
8/7/97	7-3	12"	2002161.7	799984.7	8	129.5	112.9	14.6	121.0	12.5	93.31%	Pass		
8/7/97	7-4	12"	2002162.8	800041.0	8	131.0	114.3	14.6	121.0	12.5	94.46%	Pass		
8/7/97	7-5	12"	2002251.9	799946.0	8	131.2	116.4	12.7	121.0	12.5	96.20%	Pass		
8/7/97	7-6	12"	2002253.2	800014.4	8	133.1	118.0	12.7	121.0	12.5	97.52%	Pass		
8/8/97	8-1	12"	2002054.1	800148.6	8	134.4	118.9	13.1	121.0	12.5	98.26%	Pass		
8/8/97	8-2	12"	2002056.2	800213.9	8	129.1	114.1	13.1	121.0	12.5	94.30%	Pass		
8/8/97	8-3	12"	2002165.6	800103.1	8	130.5	115.5	13.0	121.0	12.5	95.45%	Pass		
8/8/97	8-4	12"	2002167.7	800167.7	8	130.5	118.1	13.1	121.0	12.5	97.60%	Pass		
8/8/97	8-5	12"	2002169.4	800232.0	8	131.4	115.5	13.7	121.0	12.5	95.45%	Pass		
8/8/97	8-6	12"	2002253.0	800082.8	8	129.2	116.3	12.6	121.0	12.5	96.12%	Pass		
8/8/97	8-7	12"	2002258.8	800139.1	8	120.9	110.7	9.1	121.0	12.5	91.49%	FAIL		
8/8/97	8-8	12"	2002261.4	800212.3	8	130.5	113.9	14.5	121.0	12.5	94.13%	Pass		
8/8/97	8-9	12"	2002258.8	800139.1	8	130.8	117.1	11.7	121.0	12.5	96.78%	FAIL	8-7	Retest failed
8/25/97	125-1	12"	2001630.8	800145.6	8	135.4	119.3	13.4	121.0	12.5	98.60%	Pass		
8/25/97	125-2	12"	2001654.7	800098.1	8	129.6	117.7	12.8	121.0	12.5	97.27%	Pass		
8/25/97	125-3	12"	2001687.6	800032.1	8	130.4	114.4	14.0	121.0	12.5	94.55%	Pass		
8/25/97	125-4	12"	2001601.9	800204.0	8	132.3	115.3	14.7	121.0	12.5	95.29%	Pass		
8/25/97	125-5	12"	2001569.8	800268.1	8	134.3	117.1	14.7	121.0	12.5	96.78%	Pass		
8/25/97	125-6	12"	2002258.8	800139.1	8	131.5	119.7	9.9	121.0	12.5	98.93%	FAIL	8-7	
8/25/97	125-7	12"	2002274.0	800139.0	8	134.6	120.9	11.4	121.0	12.5	99.92%	FAIL	8-7	15' North of 8-7
8/25/97	125-8	12"	2002259.0	800124.0	8	132.7	121.8	9.0	121.0	12.5	100.66%	FAIL	8-7	15' West of 8-7
8/25/97	125-9	12"	2002259.0	800153.0	8	133.5	120.7	9.9	121.0	12.5	99.75%	FAIL	8-7	15' East of 8-7
8/25/97	125-10	12"	2002057.6	800218.4	8	132.4	116.9	13.2	121.0	12.5	96.61%	Pass		
8/25/97	125-11	12"	2002060.0	800279.7	8	128.7	113.0	13.9	121.0	12.5	93.39%	Pass		
8/25/97	125-12	12"	2002062.9	800356.3	8	133.3	117.6	13.3	121.0	12.5	97.19%	Pass		
8/25/97	125-13	12"	2002157.1	800242.7	8	137.1	121.6	12.8	121.0	12.5	100.50%	Pass		
8/25/97	125-14	12"	2002162.5	800319.0	8	133.8	116.6	14.8	121.0	12.5	96.36%	Pass		
8/25/97	125-15	12"	2002163.3	800385.2	8	127.0	112.8	12.6	121.0	12.5	93.22%	Pass		
8/25/97	125-16	12"	2002261.1	800218.0	8	131.5	117.1	12.5	121.0	12.5	96.78%	Pass		
8/25/97	125-17	12"	2002264.4	800276.7	8	133.8	116.7	14.6	121.0	12.5	96.45%	Pass		

MOISTURE-DENSITY TEST SUMMARY

Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job No: 86078-004.000

EMCON

Technician: JPN
Data Entry: JPN
Backcheck:

Date	Test No.	Lift No.	Northing	Easting	Probe Depth (inches)	Wet Density (Pcf)	Dry Density (Pcf)	Moisture Content (%)	Proctor Density (Pcf)	Optimum Moisture (%)	Percent Compaction	Pass/ Fail	Retest No.	Comments
8/25/97	125-18	12"	2002267.7	800355.9	8	124.6	110.3	12.9	121.0	12.5	91.16%	Pass		
8/25/97	125-19	12"	2001537.1	800332.1	8	130.3	114.6	13.8	121.0	12.5	94.71%	Pass		
8/26/97	126-1	12"	2001596.0	800374.9	8	131.2	113.7	15.4	121.0	12.5	93.97%	Pass		
8/26/97	126-2	12"	2001632.1	800299.4	8	127.2	111.2	14.4	121.0	12.5	91.90%	Pass		ST-0826-CL-01A/B
8/26/97	126-3	12"	2001633.2	800237.5	8	132.2	116.9	13.1	121.0	12.5	96.61%	Pass		
8/26/97	126-4	12"	2001692.9	800177.9	8	131.7	117.0	12.6	121.0	12.5	96.69%	Pass		
8/26/97	126-5	12"	2001718.8	800125.7	8	133.5	116.9	14.2	121.0	12.5	96.61%	Pass		
8/26/97	126-6	12"	2001750.7	800061.1	8	132.1	115.1	14.7	121.0	12.5	95.12%	Pass		
8/26/97	126-7	12"	2001782.2	799998.2	8	136.0	119.2	14.0	121.0	12.5	98.51%	Pass		
8/26/97	126-8	12"	2001814.8	799932.8	8	128.9	114.1	13.0	121.0	12.5	94.30%	Pass		
8/26/97	126-9	12"	2001503.4	800395.6	8	130.4	114.6	13.8	121.0	12.5	94.71%	Pass		
8/26/97	126-10	12"	2001903.4	799895.9	8	135.6	117.6	15.3	121.0	12.5	97.19%	Pass		
8/26/97	126-11	12"	2001873.5	799957.0	8	132.5	114.8	15.4	121.0	12.5	94.88%	Pass		
8/26/97	126-12	12"	2001840.2	800026.4	8	130.5	113.8	14.7	121.0	12.5	94.05%	Pass		
8/26/97	126-13	12"	2001810.2	800088.2	8	134.3	119.3	12.6	121.0	12.5	98.60%	Pass		
8/26/97	126-14	12"	2001778.8	800152.8	8	132.4	115.9	14.2	121.0	12.5	95.79%	Pass		
8/26/97	126-15	12"	2001751.6	800208.6	8	132.1	113.2	16.6	121.0	12.5	93.55%	Pass		
8/26/97	126-16	12"	2001954.6	799909.5	8	132.2	113.4	16.6	121.0	12.5	93.72%	Pass		
8/26/97	126-17	12"	2001938.5	799981.5	8	132.5	113.7	16.5	121.0	12.5	93.97%	Pass		
8/26/97	126-18	12"	2001899.5	800055.6	8	131.9	114.2	15.5	121.0	12.5	94.38%	Pass		
8/26/97	126-19	12"	2001868.4	800115.2	8	137.0	121.0	13.2	121.0	12.5	100.00%	Pass		
8/26/97	126-20	12"	2001835.7	800177.9	8	128.3	110.6	16.0	121.0	12.5	91.40%	Pass		
8/26/97	126-21	12"	2001805.6	800234.9	8	137.5	120.1	14.5	121.0	12.5	99.26%	Pass		
8/26/97	126-22	12"	2001771.9	800298.8	8	133.3	113.5	17.5	121.0	12.5	93.80%	Pass		
8/26/97	126-23	12"	2001741.8	800355.9	8	133.7	114.8	16.5	121.0	12.5	94.88%	Pass		
8/26/97	126-24	12"	2001665.1	800389.6	8	132.8	115.7	14.7	121.0	12.5	95.62%	Pass		
8/26/97	126-25	12"	2001693.0	800330.5	8	131.2	111.2	18.0	121.0	12.5	91.90%	Pass		
8/26/97	126-26	12"	2001721.5	800270.5	8	134.1	117.0	14.6	121.0	12.5	96.69%	Pass		
8/26/97	126-27	12"	2001959.7	800085.5	8	134.8	116.7	15.5	121.0	12.5	96.45%	Pass		
8/26/97	126-28	12"	2001926.4	800143.1	8	134.5	115.3	16.7	121.0	12.5	95.29%	Pass		
8/26/97	126-29	12"	2001891.2	800202.6	8	132.6	116.5	13.8	121.0	12.5	96.28%	Pass		ST-0826-CL-02A/B

MOISTURE-DENSITY TEST SUMMARY

EMCON

Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job No: 86078-004.000

Technician: JPN
Data Entry: JPN
Backcheck:

Date	Test No.	Lift No.	Northing	Easting	Probe Depth (inches)	Wet Density (Pcf)	Dry Density (Pcf)	Moisture Content (%)	Proctor Density (Pcf)	Optimum Moisture (%)	Percent Compaction	Pass/ Fail	Retest No.	Comments
8/26/97	126-30	12"	2001857.8	800260.4	8	129.9	111.1	16.9	121.0	12.5	91.82%	Pass		
8/26/97	126-31	12"	2001823.6	800328.3	8	130.2	111.0	17.3	121.0	12.5	91.74%	Pass		
8/26/97	126-32	12"	2001797.6	800384.9	8	128.8	110.8	16.2	121.0	12.5	91.57%	Pass		
8/26/97	126-33	12"	2001980.4	800169.0	8	133.4	115.5	15.5	121.0	12.5	95.45%	Pass		
8/27/97	127-1	12"	2001950.1	800229.3	8	132.5	116.0	14.1	121.0	12.5	95.87%	Pass		
8/27/97	127-2	12"	2001918.6	800290.1	8	130.7	114.7	13.9	121.0	12.5	94.79%	Pass		
8/27/97	127-3	12"	2001881.9	800361.9	8	134.8	117.1	15.1	121.0	12.5	96.78%	Pass		
8/27/97	127-4	12"	2001973.2	800316.2	8	135.3	119.5	13.2	121.0	12.5	98.76%	Pass		
8/27/97	127-5	12"	2001931.5	800391.1	8	133.3	116.9	14.0	121.0	12.5	96.61%	Pass		
8/27/97	127-6	12"	2001984.5	800377.0	8	133.0	117.3	13.3	121.0	12.5	96.94%	Pass		
9/9/97	109-1	12"	2002258.8	800139.1	8	132.2	113.7	16.2	121.0	12.5	93.97%	Pass	8-7	
9/9/97	109-2	12"	2002249.0	800134.0	8	128.4	109.9	16.8	121.0	12.5	90.83%	Pass	8-7	'10' S, 5' W
9/9/97	109-3	12"	2002249.0	800144.0	8	121.9	109.7	16.6	121.0	12.5	90.66%	Pass	8-7	10' S, 5' E
9/9/97	109-4	12"	2002269.0	800139.0	8	132.4	113.1	17.1	121.0	12.5	93.47%	Pass	8-7	'10' N

Sub- Appendix C.4

Shelby Tube Sample Laboratory Test Results

EMCON
1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

SHELBY TUBE SOIL SAMPLE LOCATIONS

CLIENT:	Winnebago Reclamation Service	DATE:	October 27th - 1997
PROJECT:	Pagel Landfill CQA	TECHNICIAN:	JPN
PR. NO.:	86078-004.000	PAGE:	1 of 1

Date of Sampling	Sample Number	Shelby Tube I.D.	Troxler NDG Test Location I.D.	Northing	Easting	Permeability (cm/sec)
8/4/97	1	ST-0804-CL-01B	5 - 7	2001564.50	799982.50	4.1×10^{-7}
8/4/97	2	ST-0804-CL-02A	5 - 8	2001699.86	799855.13	2.67×10^{-7}
8/22/97	3	ST-0822-CL-01A	6 - 5	2002082.17	799781.83	1.1×10^{-7}
8/26/97	4	ST-0826-CL-01A	126 - 2	2001632.12	800299.40	2.47×10^{-7}
8/26/97	5	ST-0826-CL-02A	126 - 29	2001891.21	800202.60	2.42×10^{-7}

Sub- Appendix C.5

Clay Liner Thickness Verification

EMCON
1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

CLAY BARRIER DEPTH PROBE SAMPLES

CLIENT:	Winnebago Reclamation Service	DATE:	August 27th - 1997
PROJECT:	Pagel Landfill CQA	TECHNICIAN:	JPN
PR. NO.:	86078-004.000	PAGE:	1 of 1

Point No.	Northing	Easting	Probe Depth (feet)	Comments
5	2001250.0	800200.0	1.4	
9	2001250.0	800400.0	1.3	
42	2001450.0	799800.0	1.2	
46	2001450.0	800000.0	1.2	
50	2001450.0	800200.0	1.3	
54	2001450.0	800400.0	1.3	
106	2001650.0	799800.0	1.0	
110	2001685.0	800000.0	1.4	35' North of 110
114	2001660.0	800200.0	1.3	10' North of 114
118	2001650.0	800400.0	1.3	
174	2001850.0	799800.0	1.3	
178	2001850.0	800000.0	1.0	
182	2001850.0	800200.0	1.3	
186	2001850.0	800400.0	1.3	
241	2002050.0	799600.0	1.2	
245	2002050.0	799800.0	1.3	
249	2002050.0	800000.0	1.3	
253	2002050.0	800200.0	1.4	
257	2002050.0	800400.0	1.1	
311	2002250.0	799800.0	1.3	
315	2002250.0	800000.0	1.3	
319	2002250.0	800200.0	1.3	
323	2002250.0	800375.0	1.2	25' West of 323

APPENDIX D

APPENDIX D

GEOSYNTHETIC CONFORMANCE TESTING INFORMATION

Sub-Appendices

D.1 Polyethylene Resin Conformance Testing
D.2 Geomembrane Roll Conformance Testing
D.3 Geosynthetics Inventory

Sub- Appendix D.1

Polyethylene Resin Conformance Testing

PHILLIPS CHEMICAL COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY
BOX 792 • PHONE: 713 475-3666
PASADENA, TEXAS 77501-0792

PHILLIPS PLASTICS RESINS
Houston Chemical Complex

May 09, 1997

JHV# 9343-97

FAX: 702-566-4745

Serrot Corporation
125 Cassia Way
Henderson, NV 89014

Doug Wells

This letter will certify that the Marlex* resin shown below, as supplied by Phillips Chemical Company, conforms to our manufacturing specification.

Type:	K203
Lot Number:	8170408
P.O. Number:	27521
Date Shipped:	05/08/97
Package:	PSPX 2119
Quantity:	176350 LBS.
HLMI Flow Rate,ASTM D1238:	15.2 G/10 MIN
Density, ASTM D1505:	.922 G/CC
Melt Index, ASTM D1238:	.17 G/10 MIN

J. H. Vaden
Quality Assurance Manager

For COA questions call Sharon Robinette, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC
S. A. Hurd

PHILLIPS CHEMICAL COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY
BOX 792 • PHONE. 713 475-3666
PASADENA, TEXAS 77501-0792

PHILLIPS PLASTICS RESINS
Houston Chemical Complex

June 11, 1997

JHV# 11589-97

FAX: 702-566-4745

Serrot Corporation
125 Cassia Way
Henderson, NV 89014

Doug Wells

This letter will certify that the Marlex* resin shown below, as supplied by Phillips Chemical Company, conforms to our manufacturing specification.

Type:	X203
Lot Number:	8170683
P.O. Number:	27521
Date Shipped:	06/10/97
Package:	PSPX 6713
Quantity:	172700 LBS.
HLMI Flow Rate,ASTM D1238:	16.6 G/10 MIN
Density, ASTM D1505:	.924 G/CC
Melt Index, ASTM D1238:	.17 G/10 MIN

J. H. Vaden
Quality Assurance Manager

For COA questions call Sharon Robinette, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC
S. A. Hurd

PHILLIPS CHEMICAL COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY
BOX 792 • PHONE: 713 475-3666
PASADENA, TEXAS 77501-0792

PHILLIPS PLASTICS RESINS
Houston Chemical Complex

June 11, 1997

JHV# 11588-97

FAX: 702-566-4745

Serrot Corporation
125 Cassia Way
Henderson, NV 89014

Doug Wells

This letter will certify that the Marlex* resin shown below, as supplied by Phillips Chemical Company, conforms to our manufacturing specification.

Type:	K203
Lot Number:	8170681
P.O. Number:	27521
Date Shipped:	06/10/97
Package:	PSPX 6767
Quantity:	171000 LBS.
HLMI Flow Rate,ASTM D1238:	16.3 G/10 MIN
Density, ASTM D1505:	.922 G/CC
Melt Index, ASTM D1238:	.18 G/10 MIN

J. H. Vaden
Quality Assurance Manager

For COA questions call Sharon Robinette, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC
S. A. Hurd

PHILLIPS CHEMICAL COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY
BOX 792 • PHONE: 713 475-3666
PASADENA, TEXAS 77501-0792

PHILLIPS PLASTICS RESINS
Houston Chemical Complex

July 23, 1997

JHV# 14314-97

FAX: 702-566-4745

Serrot Corporation
125 Cassia Way
Henderson, NV 89014

Doug Wells

This letter will certify that the Marlex* resin shown below, as supplied by Phillips Chemical Company, conforms to our manufacturing specification.

Type:	K203
Lot Number:	8170699
P.O. Number:	27091
Date Shipped:	07/22/97
Package:	ACFX 36152
Quantity:	179400 LBS.
HLMI Flow Rate,ASTM D1238:	13.6 G/10 MIN
Density, ASTM D1505:	.923 G/CC
Melt Index, ASTM D1238:	.160 G/10 MIN

J. H. Vaden
Quality Assurance Manager

For COA questions call Sharon Robinette, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC
S. A. Hurd

Sub- Appendix D.2

Geomembrane Roll Conformance Testing

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703258	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170683	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/1/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	58	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	210.0	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	657.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	42.6	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	101.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.62	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.159	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.60	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703259	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170683	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/2/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	57	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	198.0	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	642.6	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	42.6	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	101.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.62	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.159	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.17	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703260	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170683	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/2/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60.1	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	58	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	210.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	632.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	42.6	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	101.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.62	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.159	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.17	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

JERI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703262	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170683	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/2/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	58	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	203.0	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	621.0	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	44.6	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	94.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.51	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.159	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.17	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703290	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170683	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/4/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	58	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	207.0	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	641.3	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	44.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	135.8	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.39	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.937	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.148	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.16	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703291	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170683	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/4/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60.7	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	59	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	206.5	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	630.3	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	44.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	122.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.39	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.937	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.148	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.16	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703301	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170683	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/5/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	60	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	202.5	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	629.1	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	43.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	119.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.50	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.936	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.11	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703318	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 60 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/6/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	60.2	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	58	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	212.8	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	650.9	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	43.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	107.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.43	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.168	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Ri Johnson

RI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703324	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/7/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	160.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	648.5	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	97.8	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.929	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.164	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.04	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703325	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/7/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	162.5	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	660.7 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	97.8	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.929	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.164	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.04	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703326	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/7/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	161.5	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	648.3 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	97.8	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.929	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.164	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.04	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703327	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/7/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	159.9	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	651.5 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.0	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	96.5	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.929	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.164	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.04	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703328	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/7/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	164.7	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	662.7 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.0	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	96.5	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.929	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.164	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703334	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/7/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	161.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	647.6 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	86.2	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.47	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.170	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703335	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/7/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.6	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	37	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	167.7	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	669.4 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	84.6	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.47	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.170	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703336	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	37	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	168.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	661.7 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	84.6	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.47	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.170	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703337	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.1	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	37	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	167.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	664.0 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.2	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	80.2	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.40	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.927	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.153	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703338	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.2	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	37	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	165.9	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	664.7 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.2	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	80.2	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.40	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.927	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.153	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703339	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	172.8	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	687.3 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs.	79.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.40	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.927	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.153	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703340	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	161.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	656.3 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	79.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.40	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.927	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.153	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703341	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	165.2	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	654.4 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	86.6	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.40	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.927	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.153	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703342	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	157.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	627.9 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	86.6	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.40	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.927	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.153	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703343	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	153.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	625.6 ←	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.0	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	93.2	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.40	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.927	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.153	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.18	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/8/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703345	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	162.7	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	653.9	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	95.5	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.56	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

IERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703346	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	160.7	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	640.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	95.5	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.56	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

'ERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703347	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	154.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	623.7	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	93.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.56	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

'ERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703348	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	156.2	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	630.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	93.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.56	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Keri Johnson

KERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703349	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	159.9	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	645.0	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.4	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	98.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

JHERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703350	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/8/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	163.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	651.7	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.4	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	98.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

JERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703351	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	160.8	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	639.5	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	94.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

JERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703352	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	165.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	658.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	94.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.54	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Eri Johnson

ERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703353	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.8	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	162.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	662.3	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.6	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	95.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.49	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.160	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

JERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703354	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	155.9	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	649.6	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.6	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	95.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.49	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.160	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

JERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703356	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	155.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	629.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.6	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	84.8	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.49	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.160	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

JERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703357	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170681	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	159.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	640.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.1	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	80.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.48	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.160	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

HERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703358	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	157.2	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	639.0	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	34.1	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	80.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.48	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.160	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Keri Johnson

'ERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703359	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	154.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	639.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.4	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	87.7	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.48	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.160	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

HERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703360	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	160.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	644.9	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.4	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	87.7	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.48	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.938	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.160	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703361	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	161.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	659.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	95.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.47	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.931	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.167	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.29	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Heri Johnson

HERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703362	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	155.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	634.5	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	95.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.47	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.931	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.167	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.29	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Heri Johnson

HERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703363	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	162.8	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	659.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.0	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	93.2	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.47	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.931	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.167	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.29	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Heri Johnson

HERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703364	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	161.5	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	649.0	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.0	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	93.2	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.47	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.931	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.167	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.29	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

HERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703366	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	156.2	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	656.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	31.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	90.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.48	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.931	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.167	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.29	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

HERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703367	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	159.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	659.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	31.2	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	81.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.48	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.931	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.167	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.29	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Geri Johnson

'ERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703368	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/9/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	160.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	665.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	31.2	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	81.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.48	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.931	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.167	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.29	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

JERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703369	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/10/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.5	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	159.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	655.6	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	30.4	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	73.2	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.50	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.934	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.141	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.12	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Jeri Johnson

'ERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703378	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.7	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	217.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	969.6	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.3	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	91.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.49	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.930	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.131	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.12	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/11/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703379	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.6	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	217.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	969.6	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.3	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	91.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.49	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.930	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.131	ASTM D1238
mensional Stability:	Resin Batch	± 3.0% max	-0.12	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/11/97
ALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703380	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.6	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	217.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	969.6	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.3	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	91.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.49	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.930	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.131	ASTM D1238
ensional Stability:	Resin Batch	± 3.0% max	-0.12	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/11/97
C 'TY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703381	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	214.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	1,015.5	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	91.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.61	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.930	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.131	ASTM D1238
nensional Stability:	Resin Batch	± 3.0% max	-0.15	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
LITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703382	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	214.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	1,015.5	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	91.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.61	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.930	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.131	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.15	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703383	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.1	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	220.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	946.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	29.3	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	79.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.61	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.930	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.131	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.15	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703384	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi-	220.6	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	946.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	29.3	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	79.1	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.61	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.930	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.131	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.15	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703385	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	209.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	888.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	76.5	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703386	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/11/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	209.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	888.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	76.5	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703387	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	211.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	910.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.1	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	81.7	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703388	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	211.4	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	910.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.1	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	81.7	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
.mensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

"HERI JOHNSON DATE: 8/14/97
.LITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703389	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	214.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	958.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	74.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
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GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703390	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	41.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	214.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	958.4	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.8	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	74.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON / DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703391	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.6	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	40	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	200.0	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	902.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	80.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703392	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	208.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	952.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	80.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.44	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.932	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.129	ASTM D1238
imensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

HERI JOHNSON DATE: 8/14/97
LITY CONTROL LABORATORY SUPERVISOR

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GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703393	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.1	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi-	201.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	903.5	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	93.6	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703394	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.1	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	201.1	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	903.5	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.9	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	93.6	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
.mensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
LITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703395	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.2	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	38	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	207.8	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	950.0	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.2	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	96.7	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703396	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.2	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	207.8	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	950.0	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.2	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	96.7	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.57	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
nensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

ERI JOHNSON DATE: 8/14/97
LITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703397	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	197.9	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	884.1	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	92.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.45	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703398	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.2	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	197.9	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	884.1	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	28.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	92.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.45	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
nensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

HERI JOHNSON DATE: 8/14/97
LITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703399	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi.	201.0	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	894.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	104.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.45	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
nensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

HERI JOHNSON DATE: 8/14/97
LITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703400	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE SMOOTH 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170699	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/12/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.3	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	201.0	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	780%	894.8	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	27.5	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	104.4	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.45	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.939	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.128	ASTM D1238
nensional Stability:	Resin Batch	± 3.0% max	-0.41	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

SHERI JOHNSON DATE: 8/14/97
LITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703658	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170408	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/27/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.4	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	149.9	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	602.1	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	33.7	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	88.9	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.54	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.937	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.154	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	0.05	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Ri Johnson

RI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703687	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170408	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/29/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.8	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	149.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	629.0	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.1	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	84.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.41	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.935	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

RI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

SERROT
CORPORATION
GEOMEMBRANE LINING SYSTEMS

CERTIFICATE OF QUALITY ASSURANCE

ROLL#:	3703688	**PROJECT NAME:**	Pagel L.F.
MATERIAL:	LLDPE TEXTURED 40 MIL	**LOCATION:**	Rockford, IL
LOT/BLEND:	8170408	**SALES ORDER #:**	7286
MANUFAC. DATE:	8/29/97		

TEST	FREQUENCY	SPECIFICATIONS	TEST RESULTS	TEST METHOD
Average Thickness:	Every Roll	40 mils	40.6	ASTM D1593
Minimum Thickness:	Every Roll	36 mils	39	ASTM D1593
Tensile Strength at Break:	25,000 SqFt	94 ppi	152.3	ASTM D638
Elongation at Break: (2.0" gauge length)	25,000 SqFt	300%	636.2	ASTM D638
Tear Resistance:	50,000 SqFt	12 lbs	32.1	ASTM D1004
Puncture Resistance:	50,000 SqFt	45 lbs	84.3	FTMS 101C, (2065)
Carbon Black Content:	100,000 SqFt	2 - 3%	2.41	ASTM D1603
Density (min):	100,000 SqFt	0.920 g/cm³	0.935	ASTM D792
Melt Flow Index:	Resin Batch	< 1.0 g/10 minutes	0.155	ASTM D1238
Dimensional Stability:	Resin Batch	± 3.0% max	-0.22	ASTM D1204
Environmental Stress Crack:	Resin Batch	1,500 hours	> 1,500 hours	ASTM D1693
Low Temp. Brittleness:	Resin Batch	-107° F	-107° F	ASTM D746

CERTIFIED BY:

Sheri Johnson

RI JOHNSON DATE: 10/24/97
QUALITY CONTROL LABORATORY SUPERVISOR

Sub- Appendix D.3

Geosynthetics Inventory

GEOSYNTHETICS INVENTORY

EMCON

Date: 10 - 24 - 97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Manufacturer: Serrot Corporation
Material: LLDPE
Data Entry: JPN
Backcheck:

DATE	ROLL NUMBER	LOT NUMBER	LENGTH (ft)	WIDTH (ft)	AREA (sq ft)	QA ID	QC CERTS RECEIVED	CONFORMANCE SAMPLE		COMMENTS
								SENT	RESULTS OK	
8/11/97	3703324	8170681	625	22.5	14062.5	1	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703325	8170681	625	22.5	14062.5	2	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703326	8170681	625	22.5	14062.5	3	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703327	8170681	625	22.5	14062.5	4	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703328	8170681	625	22.5	14062.5	5	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703334	8170681	625	22.5	14062.5	6	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703335	8170681	625	22.5	14062.5	7	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703336	8170681	625	22.5	14062.5	8	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703337	8170681	625	22.5	14062.5	9	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703338	8170681	625	22.5	14062.5	10	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703339	8170681	625	22.5	14062.5	11	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703340	8170681	625	22.5	14062.5	12	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703341	8170681	625	22.5	14062.5	13	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703342	8170681	625	22.5	14062.5	14	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703343	8170681	625	22.5	14062.5	15	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703345	8170681	625	22.5	14062.5	17	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703346	8170681	625	22.5	14062.5	18	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703347	8170681	625	22.5	14062.5	19	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703348	8170681	625	22.5	14062.5	20	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703349	8170681	625	22.5	14062.5	21	x	NA	NA	LLDPE, 40 mil textured

GEOSYNTHETICS INVENTORY

EMCON

Date: 10 - 24 - 97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Manufacturer: Serrot Corporation
Material: LLDPE
Data Entry: JPN
Backcheck:

DATE	ROLL NUMBER	LOT NUMBER	LENGTH (ft)	WIDTH (ft)	AREA (sq ft)	QA ID	QC CERTS RECEIVED	CONFORMANCE SAMPLE		COMMENTS
								SENT	RESULTS OK	
8/11/97	3703350	8170681	625	22.5	14062.5	22	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703351	8170681	625	22.5	14062.5	23	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703352	8170681	625	22.5	14062.5	24	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703353	8170681	625	22.5	14062.5	25	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703354	8170681	625	22.5	14062.5	26	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703356	8170681	625	22.5	14062.5	27	x	NA	NA	LLDPE, 40 mil textured
8/11/97	3703357	8170681	625	22.5	14062.5	28	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703378	8170699	720	22.75	16380.0	29	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703379	8170699	320	22.75	7280.0	30	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703380	8170699	720	22.75	16380.0	31	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703381	8170699	720	22.75	16380.0	32	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703382	8170699	720	22.75	16380.0	33	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703383	8170699	720	22.75	16380.0	34	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703384	8170699	720	22.75	16380.0	35	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703385	8170699	720	22.75	16380.0	36	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703386	8170699	720	22.75	16380.0	37	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703387	8170699	720	22.75	16380.0	38	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703388	8170699	720	22.75	16380.0	39	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703389	8170699	720	22.75	16380.0	40	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703390	8170699	720	22.75	16380.0	41	x	NA	NA	LLDPE, 40 mil smooth

GEOSYNTHETICS INVENTORY

EMCON

Date: 10 - 24 - 97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Manufacturer: Serrot Corporation
Material: LLDPE
Data Entry: JPN
Backcheck:

DATE	ROLL NUMBER	LOT NUMBER	LENGTH (ft)	WIDTH (ft)	AREA (sq ft)	QA ID	QC CERTS RECEIVED	CONFORMANCE SAMPLE		COMMENTS
								SENT	RESULTS OK	
8/22/97	3703391	8170699	720	22.75	16380.0	42	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703392	8170699	720	22.75	16380.0	43	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703393	8170699	720	22.75	16380.0	44	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703394	8170699	720	22.75	16380.0	45	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703395	8170699	720	22.75	16380.0	46	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703396	8170699	720	22.75	16380.0	47	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703397	8170699	720	22.75	16380.0	48	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703398	8170699	330	22.75	7507.5	49	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703399	8170699	720	22.75	16380.0	50	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703400	8170699	720	22.75	16380.0	51	x	NA	NA	LLDPE, 40 mil smooth
8/22/97	3703358	8170699	625	22.5	14062.5	52	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703359	8170699	625	22.5	14062.5	53	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703360	8170699	625	22.5	14062.5	54	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703361	8170699	625	22.5	14062.5	55	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703362	8170699	625	22.5	14062.5	56	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703363	8170699	625	22.5	14062.5	57	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703364	8170699	625	22.5	14062.5	58	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703366	8170699	625	22.5	14062.5	59	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703367	8170699	625	22.5	14062.5	60	x	NA	NA	LLDPE, 40 mil textured
8/22/97	3703368	8170699	625	22.5	14062.5	61	x	NA	NA	LLDPE, 40 mil textured

GEOSYNTHETICS INVENTORY

EMCON

Date: 10 - 24 - 97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Manufacturer: Serrot Corporation
Material: LLDPE
Data Entry: JPN
Backcheck:

DATE	ROLL NUMBER	LOT NUMBER	LENGTH (ft)	WIDTH (ft)	AREA (sq ft)	QA ID	QC CERTS RECEIVED	CONFORMANCE SAMPLE		COMMENTS
								SENT	RESULTS OK	
8/22/97	3703369	8170699	625	22.5	14062.5	62	x	NA	NA	LLDPE, 40 mil textured
9/12/97	3703688	8170408	625	22.5	14062.5	63	x	NA	NA	LLDPE, 40 mil textured
9/12/97	3703687	8170408	625	22.5	14062.5	64	x	NA	NA	LLDPE, 40 mil textured
9/12/97	3703658	8170408	625	22.5	14062.5	65	x	NA	NA	LLDPE, 40 mil textured
9/12/97	3703260	8170683	625	22.5	14062.5	66	x	NA	NA	LLDPE, 60 mil textured
8/11/97	3703318	8170681	625	22.5	14062.5	16	x	NA	NA	LLDPE, 60 mil textured
9/12/97	3703258	8170683	625	22.5	14062.5	67	x	NA	NA	LLDPE, 60 mil textured
9/12/97	3703301	8170683	625	22.5	14062.5	68	x	NA	NA	LLDPE, 60 mil textured
9/12/97	3703262	8170683	625	22.5	14062.5	69	x	NA	NA	LLDPE, 60 mil textured
9/12/97	3703290	8170683	625	22.5	14062.5	70	x	NA	NA	LLDPE, 60 mil textured
9/12/97	3703291	8170683	625	22.5	14062.5	71	x	NA	NA	LLDPE, 60 mil textured
TOTAL MATERIAL RECEIVED:			**1033768**	**ft^2**		*Smooth:*	*358768*		*Textured:*	*675000*

APPENDIX E

APPENDIX E

GEOSYNTHETIC INSTALLATION DATA

Sub-Appendices

E.1 Subgrade Acceptance Forms
E.2 Panel Placement Forms
E.3 Field Tensiometer Calibration Certificate
E.4 Trial Weld Qualification Test Forms
E.5 Panel Seaming Forms
E.6 Pressurized Air Channel Test Results
E.7 Destructive Sampling
- **E.7.1** Destructive Sample Log
- **E.7.2** Destructive Sample Laboratory Results
  - **E.7.2.1** Peel Testing Results
  - **E.7.2.2** Shear Testing Results

E.8 Geomembrane Repair Log

Sub- Appendix E.1

Subgrade Acceptance Forms

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp. do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 1-10 as an acceptable surface on which to install.

Vicente Vital	Vicente V. Figueroa	Super.
Name	Signature	Title

8/25/97
Date

Certificate Accepted By:

Keith Howard		Proj Eng
Name	Signature	Title

8/25/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 11-27 as an acceptable surface on which to install.

Vicente Vital	Vicente V. Figueroa	Super.
Name	Signature	Title

8/26/97
Date

Certificate Accepted By:

Keith Howard		Proj Eng.
Name	Signature	Title

8/26/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp. do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 28 - 41 as an acceptable surface on which to install.

Vicente Vital	Vicente V. Figueroa	Superintendant
Name	Signature	Title

8/27/97
Date

Certificate Accepted By:

Keith Howard		Proj Eng.
Name	Signature	Title

8/27/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp. do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 42-48 as an acceptable surface on which to install.

Vicente Vital	Vicente V. Figueroa	Superintendent
Name	Signature	Title

8/28/97
Date

Certificate Accepted By:

Kevin Howard		Proj Eng.
Name	Signature	Title

8/28/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp. do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 49 -70 as an acceptable surface on which to install.

Vicente Vital	Vicente V. Figueroa	Superintendent
Name	Signature	Title

8/29/97
Date

Certificate Accepted By:

Keith Howard		Proj Eng
Name	Signature	Title

8/29/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T.H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of SERROT CORP. do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 71-76 as an acceptable surface on which to install.

Name	Signature	Title
Vicente Vidal	Vicente V. Figueroa	Supt.

9/3/97
Date

Certificate Accepted By:

Name	Signature	Title
Keith Howard		Proj Eng.

9/3/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp. do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 77 - 97, 99 as an acceptable surface on which to install.

Vicente Vital	Vicente V. Figueroa	Super.
Name	Signature	Title

9/4/97
Date

Certificate Accepted By:

Kent Howard		Proj Eng
Name	Signature	Title

9/4/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T.H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp. do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 98 as an acceptable surface on which to install.

Name	Signature	Title
Vicente Vital	Vicente V. Figueroa	Superintendent

9/5/97
Date

Certificate Accepted By:

Name	Signature	Title
Keith Howard		Res Eng.

9/5/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 104-108 as an acceptable surface on which to install.

Name	Signature	Title
Vicente Vilal	Vicente V. Figueroa	Super.

9/10/97
Date

Certificate Accepted By:

Name	Signature	Title
Keith Howard		Proj Eng

9/10/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T.H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot Corp do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 109 - 130 as an acceptable surface on which to install.

Vicente Vifal	Vicente V. Figueroa	Super.
Name	Signature	Title

9/11/97
Date

Certificate Accepted By:

Keith Howard		Proj Eng.
Name	Signature	Title

9/11/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 131 - 147 as an acceptable surface on which to install.

Name	Signature	Title
Vicente Vital	Vicente V. Figueroa	Super.

9/12/97
Date

Certificate Accepted By:

Name	Signature	Title
Keith Howard		Proj. Eng

9/12/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T.H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 148-161 as an acceptable surface on which to install.

Name	Signature	Title
Vicente Vital	Vicente V. Figueroa	Superintendent.

9/16/97
Date

Certificate Accepted By:

Name	Signature	Title
Keith Howard		Proj Eng

9/16/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T. H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 164 - 170 as an acceptable surface on which to install.

Name	Signature	Title
Vicente Vital	Vicente V. Figueroa	Super.

9/17/97
Date

Certificate Accepted By:

Name	Signature	Title
Keith Howard		Proj Eng

9/17/97
Date

Certificate of Acceptance
of Soil Subgrade by Geosynthetics Installer

Installer	Serrot	Location	Pagel Landfill
		Project #	86078-004.000
Authorized Representative	T.H.	Owner	Winnebago Reclamation Service, Inc.

I, the undersigned, a duly authorized representative of Serrot do hereby accept the Soil Subgrade surface covered by geomembrane panel(s) 171-172 as an acceptable surface on which to install.

Name	Signature	Title
Vicente Vital	Vicente V. Figueroa	Super.

9-22-97
Date

Certificate Accepted By:

Name	Signature	Title
Keith Howard		Proj Eng.

9/23/97
Date

Sub- Appendix E.2

Panel Placement Forms

DATE:	10 - 22 - 97	INSTALLER:	Serrot Corporation
CLIENT:	WINNEBAGO RECLAMATION SERVICE	MATERIAL:	LLDPE
PROJECT:	PAGEL LANDFILL CQA	DATA ENTRY:	JPN
JOB#:	86078-004.000	BACKCHECK:	

EMCON

LINER DEPLOYMENT FORM

DATE	TIME	PANEL NUMBER	ROLL NUMBER	LOCATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8/25/97	8:50 A	1	3703346	S. Slope E. End	300	21.5	6450.0	KH	Textured
8/25/97	9:26 A	2	3703346	S. Slope E. End	301	21.5	6471.5	KH	Textured
8/25/97	9:51 A	3	3703362	S. Slope E. End	300	21.5	6450.0	KH	Textured
8/25/97	11:50A	4	3703362	S. Slope E. End	301	21.5	6471.5	KH	Textured
8/25/97	1:15 P	5	3703366	S. Slope E. End	300	21.5	6450.0	KH	Textured
8/25/97	2:15 P	6	3703366	S. Slope E. End	299	21.5	6428.5	KH	Textured
8/25/97	2:55 P	7	3703348	S. Slope E. End	300	21.5	6450.0	KH	Textured
8/25/97	3:30 P	8	3703348	S. Slope E. End	301	21.5	6471.5	KH	Textured
8/25/97	4:30 P	9	3703345	S. Slope E. End	301	21.5	6471.5	KH	Textured
8/25/97	4:52P	10	3703345	S. Slope E. End	303	21.5	6514.5	KH	Textured
8/26/97	7:30A	11	3703368	S. Slope	308	21.5	6622.0	KH	Textured
8/26/97	8:25A	12	3703368	S. Slope	316	21.5	6794.0	KH	Textured
8/26/97	8:35A	13	3703347	S. Slope	319	21.5	6858.5	KH	Textured
8/26/97	8:50A	14	3703347	S. Slope	320	21.5	6880.0	KH	Textured
8/26/97	9:20A	15	3703357	S. Slope	320	21.5	6880.0	KH	Textured
8/26/97	9:50A	16	3703357	S. Slope	312	21.5	6708.0	KH	Textured
8/26/97	10:30A	27	3703348	S. Slope	22	21.5	473.0	KH	Textured
8/26/97	10:20A	17	3703367	S. Slope	307	21.5	6600.5	KH	Textured
8/26/97	11:20A	18	3703367	S. Slope	311	21.5	6686.5	KH	Textured
8/26/97	1:55P	19	3703369	S. Slope	312	21.5	6708.0	KH	Textured
8/26/97	2:13P	20	3703369	S. Slope	310	21.5	6665.0	KH	Textured
8/26/97	3:30P	21	3703363	S. Slope	308	21.5	6622.0	KH	Textured
8/26/97	4:00P	22	3703363	S. Slope	302	21.5	6493.0	KH	Textured
8/26/97	4:12P	23	3703364	S. Slope	271	21.5	5826.5	KH	Textured
8/26/97	4:42P	24	3703364	S. Slope	219	21.5	4708.5	KH	Textured
8/26/97	5:05P	25	3703364	S. Slope	58	21.5	1247.0	KH	Textured
8/26/97	5:20P	26	3703361	S. Slope	105	21.5	2257.5	KH	Textured
8/27/97	8:15A	28	3703361	S. Slope	350	21.5	7525.0	KH	Textured

DATE: 10 - 22 - 97
CLIENT: WINNEBAGO RECLAMATION SERVICE
PROJECT: PAGEL LANDFILL CQA
JOB#: 86078-004 000

EMCON

INSTALLER: Serrot Corporation
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

LINER DEPLOYMENT FORM

DATE	TIME	PANEL NUMBER	ROLL NUMBER	LOCATION	LENGTH	WIDTH	AREA	INSPECTOR	[illegible]
8/27/97	8:30A	29	3703360	S. Slope	350	21.5	7525.0	KH	Textured
8/27/97	9:00A	30	3703360	S. Slope	278	21.5	5977.0	KH	Textured
8/27/97	9:30A	31	3703361	S. Slope	78	21.5	1677.0	KH	Textured
8/27/97	9:42A	32	3703356	S. Slope	356	21.5	7654.0	KH	Textured
8/27/97	10:00A	33	3703356	S. Slope	278	21.5	5977.0	KH	Textured
8/27/97	10:30A	34	3703353	S. Slope	90	21.5	1935.0	KH	Textured
8/27/97	10:45A	35	3703353	S. Slope	360	21.5	7740.0	KH	Textured
8/27/97	12:05P	36	3703350	S. Slope	360	21.5	7740.0	KH	Textured
8/27/97	4:00P	37	3703350	S. Slope	104	21.5	2236.0	KH	Textured
8/27/97	4:20P	38	3703350	S. Slope	47	21.5	1010.5	KH	Textured
8/27/97	4:30P	39	3703350	S. Slope	18	7.5	135.0	KH	Textured
8/27/97	6:08P	40	3703327	S. Slope	257	21.5	5525.5	KH	Textured
8/27/97	6:25P	41	3703327	S. Slope	226	21.5	4859.0	KH	Textured
8/28/97	7:25A	42	3703351	South Slope East Side	213	21.5	4579.5	KH	Textured
8/28/97	7:40A	43	3703351	South Slope East Side	155	21.5	3332.5	KH	Textured
8/28/97	8:10A	44	3703351	South Slope East Side	99	21.5	2128.5	KH	Textured
8/28/97	8:30A	45	3703351	South Slope East Side	90	21.5	1935.0	KH	Textured
8/28/97	9:30A	46	3703351	South Slope East Side	62	21.5	1333.0	KH	Textured
8/28/97	9:40A	47	3703351	South Slope East Side	23	12.0	276.0	KH	Textured
8/28/97	9:50A	48	3703351	South Slope East Side	23	21.5	494.5	KH	Textured
8/29/97	8:02A	49	3703389	Top	312	21.5	6708.0	JN	Smooth
8/29/97	9:30A	50	3703389	Top	128	21.5	2752.0	JN	Smooth
8/29/97	9:50A	52	3703397	Top	164	21.5	3526.0	JN	Smooth
8/29/97	10:05A	53	3703397	Top	142	21.5	3053.0	JN	Smooth
8/29/97	9:40A	51	3703389	Top	115	21.5	2472.5	JN	Smooth
8/29/97	10:20A	54	3703397	Top	143	21.5	3074.5	JN	Smooth
8/29/97	10:40A	55	3703397	Top	95	21.5	2042.5	JN	Smooth
8/29/97	10:55A	56	3703397	Top	48	21.5	1032.0	JN	Smooth

DATE:	10 - 22 - 97
CLIENT:	WINNEBAGO RECLAMATION SERVICE
PROJECT:	PAGEL LANDFILL CQA
JOB#:	86078-004.000

EMCON

INSTALLER:	Serrot Corporation
MATERIAL:	LLDPE
DATA ENTRY:	JPN
BACKCHECK:	

LINER DEPLOYMENT FORM

DATE	TIME	PANEL NUMBER	ROLL NUMBER	SLOPE LOCATION	LENGTH	WIDTH	AREA	OBSERVER	COMMENTS
8/29/97	11:00A	57	3703397	Top	20	21.5	430.0	JN	Smooth
8/29/97	11:38A	58	3703393	Top	322	21.5	6923.0	JN	Smooth
8/29/97	11:55A	59	3703393	Top	315	21.5	6772.5	JN	Smooth
8/29/97	12:18P	60	3703387	Top	305	21.5	6557.5	JN	Smooth
8/29/97	1:52P	61	3703387	Top	300	21.5	6450.0	JN	Smooth
8/29/97	2:10P	62	3703385	Top	460	21.5	9890.0	JN	Smooth
8/29/97	2:30P	63	3703385	Top	173	21.5	3719.5	JN	Smooth
8/29/97	2:50P	64	3703399	Top	441	21.5	9481.5	JN	Smooth
8/29/97	3:00P	65	3703399	Top	277	21.5	5955.5	JN	Smooth
8/29/97	3:10P	66	3703386	Top	337	21.5	7245.5	JN	Smooth
8/29/97	3:20P	67	3703399	Top	108	21.5	2322.0	JN	Smooth
8/29/97	3:30P	68	3703386	Top	395	21.5	8492.5	JN	Smooth
8/29/97	5:25P	69	3703386	Top	436	21.5	9374.0	JN	Smooth
8/29/97	5:30P	70	3703386	Top	45	21.5	967.5	JN	Smooth
9/3/97	8:30A	71	3703343	Slope (SW)	319	21.5	6858.5	KH	Textured
9/3/97	9:05A	72	3703359	Slope (SW)	301	21.5	6471.5	KH	Textured
9/3/97	9:45A	73	3703359	Slope (SW)	261	21.5	5611.5	KH	Textured
9/3/97	10:30A	74	3703343	Slope (SW)	219	21.5	4708.5	KH	Textured
9/3/97	10:45A	75	3703343	Slope (SW)	80	21.5	1720.0	KH	Textured
9/3/97	11:20A	99	3703359	Slope (SW)	94	21.5	2021.0	KH	Textured
9/4/97	8:16A	76	3703349	SW Slope	316	21.5	6794.0	KH	Textured
9/4/97	8:25A	77	3703349	SW Slope	245	21.5	5267.5	KH	Textured
9/4/97	8:40A	78	3703339	SW Slope	73	21.5	1569.5	KH	Textured
9/4/97	8:35A	79	3703339	SW Slope	322	21.5	6923.0	KH	Textured
9/4/97	9:00A	80	3703339	SW Slope	237	21.5	5095.5	KH	Textured
9/4/97	9:35A	81	3703336	SW Slope	87	21.5	1870.5	KH	Textured
9/4/97	9:45A	82	3703336	SW Slope	325	21.5	6987.5	KH	Textured
9/4/97	10:00A	83	3703336	SW Slope	178	21.5	3827.0	KH	Textured

DATE: 10 - 22 - 97
CLIENT: WINNEBAGO RECLAMATION SERVICE
PROJECT: PAGEL LANDFILL CQA
JOB#: 86078-004.000

EMCON

INSTALLER: Serrot Corporation
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

LINER DEPLOYMENT FORM

DATE	TIME	PANEL NUMBER	ROLL NUMBER	LOCATION	Length	Width	Area	OBSERVER	Comments
9/4/97	10:05A	84	3703354	SW Slope	149	21.5	3203.5	KH	Textured
9/4/97	10:15A	85	3703354	SW Slope	327	21.5	7030.5	KH	Textured
9/4/97	11:30A	86	3703324	SW Slope	318	21.5	6837.0	KH	Textured
9/4/97	11:55A	87	3703324	SW Slope	300	21.5	6450.0	KH	Textured
9/4/97	2:15P	88	3703384	Top	402	21.5	8643.0	KH	Smooth
9/4/97	2:45P	89	3703384	Top	331	21.5	7116.5	KH	Smooth
9/4/97	3:00P	90	3703382	Top	62	21.5	1333.0	KH	Smooth
9/4/97	3:20P	91	3703382	Top	377	21.5	8105.5	KH	Smooth
9/4/97	3:36P	92	3703382	Top	260	21.5	5590.0	KH	Smooth
9/4/97	3:45P	93	3703396	Top	94	21.5	2021.0	KH	Smooth
9/4/97	3:40P	94	3703396	Top	329	21.5	7073.5	KH	Smooth
9/4/97	4:00P	95	3703396	Top	291	21.5	6256.5	KH	Smooth
9/4/97	4:25P	96	3703394	Top	14	21.5	301.0	KH	Smooth
9/4/97	4:30P	97	3703394	Top	292	21.5	6278.0	KH	Smooth
9/5/97	8:30A	98	3703338	NW Slope	296	21.5	6364.0	KH	Textured
9/6/97	10:55A	100	3703338	W. Slope	138	21.5	2967.0	JN	Textured
9/6/97	11:08A	101	3703338	W. Slope	98	21.5	2107.0	JN	Textured
9/6/97	11:22A	102	3703338	W. Slope	56	21.5	1204.0	JN	Textured
9/6/97	11:40A	103	3703338	W. Slope	20	21.5	430.0	JN	Textured
9/10/97	8:30A	104	3703340	N. Slope	338	21.5	7267.0	KH	Textured
9/10/97	8:50A	105	3703352	N. Slope	298	21.5	6407.0	KH	Textured
9/10/97	9:20A	106	3703352	N. Slope	281	21.5	6041.5	KH	Textured
9/10/97	9:35A	107	3703337	N. Slope	251	21.5	5396.5	KH	Textured
9/10/97	10:55A	108	3703337	N. Slope	220	21.5	4730.0	KH	Textured
9/11/97	6:35A	109	3703325	N.E. Slope	190	21.5	4085.0	KH	Textured
9/11/97	6:50A	110	3703325	N.E. Slope	160	21.5	3440.0	KH	Textured
9/11/97	7:10A	111	3703325	N.E. Slope	127	21.5	2730.5	KH	Textured
9/11/97	7:30A	112	3703327	N.E. Slope	90	21.5	1935.0	KH	Textured

DATE:	10 - 22 - 97
CLIENT:	WINNEBAGO RECLAMATION SERVICE
PROJECT:	PAGEL LANDFILL CQA
JOB#:	86078-004.000

EMCON

INSTALLER:	Serrot Corporation
MATERIAL:	LLDPE
DATA ENTRY:	JPN
BACKCHECK:	

LINER DEPLOYMENT FORM

DATE	TIME	PANEL NUMBER	ROLL NUMBER	LOCATION	LENGTH	WIDTH	AREA	OBSERVER	COMMENTS
9/11/97	7:40A	113	3703337	N.E. Slope	51	21.5	1096.5	KH	Textured
9/11/97	7:45A	114	3703325	N.E. Slope	15	21.5	322.5	KH	Textured
9/11/97	8:15A	115	3703342	N.E. Slope	266	21.5	5719.0	KH	Textured
9/11/97	8:35A	116	3703342	N.E. Slope	245	21.5	5267.5	KH	Textured
9/11/97	9:05A	117	3703340	N.E. Slope	223	21.5	4794.5	KH	Textured
9/11/97	9:25A	118	3703358	N.E. Slope	202	21.5	4343.0	KH	Textured
9/11/97	10:10A	119	3703358	N.E. Slope	175	21.5	3762.5	KH	Textured
9/11/97	10:30A	120	3703358	N.E. Slope	130	21.5	2795.0	KH	Textured
9/11/97	11:00A	121	3703325	N.E. Slope	91	21.5	1956.5	KH	Textured
9/11/97	1:15P	122	3703342	N.E. Slope	110	21.5	2365.0	KH	Textured
9/11/97	1:30P	123	3703342	N.E. Slope	74	21.5	1591.0	KH	Textured
9/11/97	1:45P	124	3703340	N.E. Slope	39	21.5	838.5	KH	Textured
9/11/97	2:00P	125	3703340	N.E. Slope	9	21.5	193.5	KH	Textured
9/11/97	2:05P	126	3703326	N.E. Slope	35	21.5	752.5	KH	Textured
9/11/97	3:00P	127	3703326	N.E. Slope	342	21.5	7353.0	KH	Textured
9/11/97	3:25P	128	3703341	N. Slope	342	21.5	7353.0	KH	Textured
9/11/97	4:00P	129	3703341	N. Slope	292	21.5	6278.0	KH	Textured
9/11/97	4:00P	130	3703326	N. Slope	47	21.5	1010.5	KH	Textured
9/12/97	8:20A	131	3703328	N. Slope	343	21.5	7374.5	KH	Textured
9/12/97	8:25A	132	3703328	N. Slope	756	21.5	16254.0	KH	Textured
9/12/97	8:30A	133	3703334	N. Slope	95	21.5	2042.5	KH	Textured
9/12/97	8:35A	134	3703334	N. Slope	356	21.5	7654.0	KH	Textured
9/12/97	8:55A	135	3703335	N. Slope	358	21.5	7697.0	KH	Textured
9/12/97	1:10P	136	3703335	N. Slope	340	21.5	7310.0	KH	Textured
9/12/97	1:50P	137	3703326	N. Slope	17	21.5	365.5	KH	Textured
9/12/97	3:45P	138	3703391	Top	262	21.5	5633.0	KH	Smooth
9/12/97	3:50P	139	3703391	Top	247	21.5	5310.5	KH	Smooth
9/12/97	4:00P	140	3703391	Top	220	21.5	4730.0	KH	Smooth

DATE: 10 - 22 - 97
CLIENT: WINNEBAGO RECLAMATION SERVICE
PROJECT: PAGEL LANDFILL CQA
JOB#: 86078-004.000

EMCON

INSTALLER: Serrot Corporation
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

LINER DEPLOYMENT FORM

DATE	TIME	PANEL NUMBER	ROLL NUMBER	LOCATION	LENGTH (FT)	WIDTH (FT)	AREA (SF)	OBSERVER	COMMENTS
9/12/97	4:15P	141	3703394	Top	198	21.5	4257.0	KH	Smooth
9/12/97	4:35P	142	3703394	Top	134	21.5	2881.0	KH	Smooth
9/12/97	4:45P	143	3703394	Top	99	21.5	2128.5	KH	Smooth
9/12/97	5:15P	144	3703394	Top	51	21.5	1096.5	KH	Smooth
9/12/97	6:00P	145	3703391	Top	22	10.5	231.0	KH	Smooth
9/14/97	10:30A	146	3703334	Top	12	21.5	258.0	KH	Smooth
9/14/97	11:00A	147	3703391	Top	11	21.5	236.5	KH	Smooth
9/16/97	11:58A	148	3703658	N. Slope	338	21.5	7267.0	JN	Textured
9/16/97	12:28P	149	3703687	N. Slope	370	21.5	7955.0	JN	Textured
9/16/97	1:25P	150	3703687	N. Slope	290	21.5	6235.0	JN	Textured
9/16/97	1:45P	151	3703658	N. Slope	80	21.5	1720.0	JN	Textured
9/16/97	2:18P	152	3703688	N. Slope	366	21.5	7869.0	JN	Textured
9/16/97	2:52P	153	3703368	N. Slope	267	21.5	5740.5	JN	Textured
9/16/97	3:05P	154	3703358	N. Slope	67	21.5	1440.5	JN	Textured
9/16/97	3:15P	155	3703358	N. Slope	30	21.5	645.0	JN	Textured
9/16/97	3:25P	156	3703301	N. Slope	365	21.5	7847.5	JN	60 mil Textured
9/16/97	4:37P	157	3703290	N. Slope	365	21.5	7847.5	JN	60 mil Textured
9/16/97	5:15P	158	3703258	N. Slope	363	21.5	7804.5	JN	60 mil Textured
9/16/97	5:44P	159	3703258	N. Slope	159	21.5	3418.5	JN	60 mil Textured
9/16/97	6:27P	160	3703290	N. Slope	153	21.5	3289.5	JN	60 mil Textured
9/16/97	6:23P	162	3703291	N. Slope	347	21.5	7460.5	JN	60 mil Textured
9/16/97	6:42P	163	3703262	N. Slope	347	21.5	7460.5	JN	60 mil Textured
9/16/97	6:31P	161	3703291	N. Slope	48	21.5	1032.0	JN	60 mil Textured
9/17/97	2:39P	164	3703259	N. Slope	330	21.5	7095.0	JN	60 mil Textured
9/17/97	2:44P	165	3703259	N. Slope	206	21.5	4429.0	JN	60 mil Textured
9/17/97	3:10P	166	3703262	N. Slope	121	21.5	2601.5	JN	60 mil Textured
9/17/97	3:39P	167	3703260	N. Slope	318	21.5	6837.0	JN	60 mil Textured
9/17/97	4:09P	168	3703260	N. Slope	206	21.5	4429.0	JN	60 mil Textured

DATE:	10 - 22 - 97	INSTALLER:	Serrot Corporation
CLIENT:	WINNEBAGO RECLAMATION SERVICE	MATERIAL:	LLDPE
PROJECT:	PAGEL LANDFILL CQA	DATA ENTRY:	JPN
JOB#:	86078-004.000	BACKCHECK:	

EMCON

LINER DEPLOYMENT FORM

DATE	TIME	PANEL NUMBER	ROLL NUMBER	LOCATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9/17/97	5:57P	169	3703291	N. Slope	88	21.5	1892.0	JN	60 mil Textured
9/17/97	6:30P	170	3703291	N. Slope	15	21.5	322.5	JN	60 mil Textured
9/23/97	8:36A	171	3703318	N. Slope	157	21.5	3375.5	JN	60 mil Textured
9/23/97	9:39A	172	3703354	N. Slope	110	21.5	2365.0	JN	60 mil Textured
TOTAL LINER PLACED (ft^2):			799195	Smooth:	188721.5			Textured:	610473.5

Sub- Appendix E.3

Field Tensiometer Calibration Certificate

MATEK GEO PRODUCTS

Calibration Report

Issued To:	Serrot Corporation	Date:	May 14, 1997
	125 Cassia Way	Control #	97051401
	Henderson, NV 89014		
Your Unit #	ST-033		

Equipment Calibrate	Portable Tensiometer	Model	Tekometer
Equipment Mfg:	Matek Geo Products	Serial #:	9507
Load Cell Mfg:	Artech	Serial #:	132062
Load Indicator Mfg:	Laurel	Serial #:	951104-2

LOAD

Applied LBS Force	Display Reading	Deviation % Error	Calibration Equipment Data	
			Equip. Mfg.	Laurel
50	50	0	Load Cell Mfg. / Interface	Serial # B94756
100	100	0	Calibration Date	02/14/97
200	200	0	Date Due	02/14/98
300	300	0	Calibrated By	Micro Precision
400	400	0	Procedure #	1073
500	500	0	N.I.S.T.	731/243669

CALIBRATION SETTINGS

Lo In	-.00004	Hi In	.03120
Lo Rd	00000	Hi Rd	01000

Ambient Temperatur 70 - 72 F

SPEED

Rate:in/mi	2					
Time	Travel Inches	Deviation % Error	Travel Inches	Deviation % Error	Travel Inches	Deviation % Error
1 min	2.0	0.0				

Date Calibrated: May 14, 1997 Cycle: 12 mos.

Matek Geo Products certifies that this instrument was calibrated against standards traceable to N.I.S.T. per ANZI/NCSL Z-540. (Formerly MIL-STD-45662A

Quality Control Technician

Sub- Appendix E.4

Trial Weld Qualification Test Forms

TRIAL WELD TEST FORM

EMCON

Date:	10 - 30 - 97	Installer:	Serrot Corporation
Client:	Winnebago Reclamation Service	Material:	LLDPE
Project:	Pagel Landfill CQA	Data Input:	KAH
Job #:	86078-004.000	Backcheck:	JPN

DATE	TIME	AMB. TEMP	SAMPLE ID	SEAMER ID	MACHINE ID	FUSION SPEED	FUSION TEMP	EXTRUSION BARREL	EXTRUSION PREHEAT	PEEL (ppi) INSIDE	PEEL (ppi) OUTSIDE		SHEAR (ppi)	QA ID	COMMENTS
8/25/97	8:30A	68	1	JR	079	4.5	410	96	97	97	97	96	107/104	KH	
8/25/97	1:15P	78	2	JR	079	4.7	410	90	90	87	89	97	92/95	KH	
8/25/97	2:00P	79	3	JR	091	5.0	400	87	84	87	88	83	87/91	KH	
8/25/97	3:00P	80	4	JR	004	5.0	385	94	83	80	89	87	96/91	KH	
8/26/97	7:28A	65	5	JR	079	4.7	410	95	88	89	89	95	92/92	KH	
8/26/97	7:45A	65	6	MC	004	5.4	395	89	87	87	86	87	91/91	KH	
8/26/97	10:20A	78	7	JR	079	4.7	410	85	89	89	85	89	89/85	KH	
8/26/97	1:40P	82	8	DN	114	5.0	370	83	85	88	88	83	87/85	KH	
8/26/97	1:45P	80	9	MC	091	4.8	410	81	84	79	80	80	82/88	KH	
8/26/97	2:40P	80	10	JR	079	4.7	410	81	81	82	85	80	85/85	KH	
8/27/97	7:34A	67	11	JR	079	4.3	410	93	85	86	86	84	91/91	JN	
8/27/97	7:40A	67	12	DN	114	5.0	370	93	86	86	88	86	90/90	JN	
8/27/97	7:50A	67	13	MC	114	5.0	370	87	83	87	82	80	81/83	JN	
8/27/97	2:30P	75	14	DN	114	5.0	370	74	79	86	75	74	86/83	KH	
8/27/97	3:30P	75	15	JR	2014	250	180	100	78	83			86/87 83	KH	Ext.
8/27/97	6:45P	75	16	JT	079	4.3	410	90	94	93	95	92	92/92	KH	
8/28/97	8:00A	68	17	DN	114	5.0	370	96	94	97	99	98	106/107	KH	
8/28/97	8:30A	70	18	JR	2014	250	180	90	91	89			85/91 89	KH	
8/28/97	11:30A	80	19	JT	037	240	240	85	90	84			82/96 100	KH	
8/28/97	1:45P	82	20	DN	114	5.0	370	84	83	87	76	82	96/96 97	KH	
8/28/97	2:07P	82	21	JR	2014	250	180	90	83	85			95/82 90	KH	

TRIAL WELD TEST FORM

EMCON

Date: 10 - 30 - 97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	TIME	AMB. TEMP	SAMPLE ID	SEAMER ID	MACHINE ID	FUSION SPEED	FUSION TEMP	PEEL (ppi) INSIDE	PEEL (ppi) OUTSIDE		SHEAR (ppi)	QA ID	COMMENTS
						EXTRUSION BARREL	EXTRUSION PREHEAT						
8/28/97	5:00P	75	22	JT	037	240	240	74	78	84	86/87	KH	
											87		
8/29/97	7:30A	69	23	DN	114	5.0	370	100	101	97	106/106	KH	Text to Text
								97	102	96	99		
8/29/97	7:50A	69	24	JR	2014	250	180	107	97	92	102/101	KH	
											95		
8/29/97	9:10A	72	25	DN	114	5.0	370	73	87	80	83/80	KH	Smooth to Smooth
								77	81	80	77		
8/29/97	9:45A	73	26	MC	079	4004.3	400	75	72	77	75/86	KH	
								74	72	76	76		
8/29/97	10:33A	74	27	JA	091	4.6	410	81	72	74	77/74	KH	
								73	81	78	77		
8/29/97	1:50P	76	28	JR	079	4.3	390	73	71	69	71/71	KH	Smooth to Smooth
								72	70	65	78		
8/29/97	2:30P	76	29	DN	114	5.0	370	73	79	72	76/80	KH	
								77	79	75	75		
8/29/97	4:00P	75	30	JR	079	4.5	390	69	80	79	79/84	KH	Text to Smooth
								70	79	75	77		
8/29/97	5:00P	75	31	JA	091	5.0	385	62	72	71	80/75	KH	
								72	73	74	77		
8/30/97	8:00A	67	32	JT	037	240	240	92	95	99	92/102	KH	
											101		
8/30/97	8:00A	67	33	JR	2014	250	180	80	82	79	85/85	KH	Smooth to Smooth
											89		
8/30/97	8:30A	67	34	JR	2014	250	180	81	81	77	92/93	KH	Text to Smooth
											86		
8/31/97	9:30A	68	35	JR	2014	250	180	76	79	76	78/74	KH	
											82		
8/31/97	2:35P	82	36	JR	2014	250	180	70	72	70	88/79	KH	
											78		
8/31/97	3:00P	82	37	JT	037	240	240	70	72	70	88/79	KH	
											78		
9/2/97	7:45A	65	38	JR	2014	250	180	83	76	91	99/97	KH	
											101		
9/2/97	8:45A	65	39	DN	114	5.0	370	73	82	78	92/95	KH	
								74	79	76	93		
9/2/97	2:00P	70	40	JT	037	240	240	70	70	69	81/81	KH	
											82		
9/3/97	8:00A	60	41	JT	037	240	240	108	98	105	115/113	KH	
											115		
9/3/97	8:55A	62	42	JR	079	410	4.5	101	102	102	117/107	KH	
								104	99	103	106		

TRIAL WELD TEST FORM

EMCON

Date:	10 - 30 - 97	Installer:	Serrot Corporation
Client:	Winnebago Reclamation Service	Material:	LLDPE
Project:	Pagel Landfill CQA	Data Input:	KAH
Job #:	86078-004.000	Backcheck:	JPN

DATE	TIME	AMB. TEMP	SAMPLE ID	SEAMER ID	MACHINE ID	FUSION SPEED	FUSION TEMP	EXTRUSION BARREL	EXTRUSION PREHEAT	PEEL (ppi) INSIDE	PEEL (ppi)	PEEL (ppi) OUTSIDE	SHEAR (ppi)	QA ID	COMMENTS
9/3/97	9:30A	62	43	DN	114	5.0	370	93 95	102 95	95 94	97/99 100	KH	
9/3/97	1:30P	68	44	JT	037	240	240	101	105	109	98/99 92	KH	
9/3/97	1:55P	68	45	JR	2014	240	180	88	90	89	101/99 99	KH	
9/4/97	7:40A	52	46	JR	079	4.5	410	96	96	95	96/105 95	KH	
9/4/97	8:00A	55	47	DN	114	5.0	370	93 99	96 100	83 92	90/90 93	KH	Text to Text
9/4/97	9:30A	63	48	EP	2014	240	180	93	90	92	96/95 96	KH	
9/4/97	1:47P	70	49	DN	114	5.0	370	82 82	82 84	84 81	87/84 87	KH	Text to Text
9/4/97	1:50P	71	50	JT	091	5.2	385	82 83	86 89	81 89	86/80 81	KH	Text to Text
9/4/97	2:15P	71	51	JR	079	4.5	410	70 75	77 77	81 73	89/91 89	KH	
9/4/97	4:30P	72	52	JT	091	5.2	385	71 71	74 70	72 73	76/71 72	KH	Smooth to Smooth
9/4/97	5:30P	71	53	JR	079	4.5	395	76 73	75 74	79 76	83/95 83	KH	Smooth to Smooth
9/4/97	5:40P	71	54	DN	114	5.0	370	79 74	77 79	75 78	81/82 86	KH	Smooth to Smooth
9/5/97	8:16A	58	55	JR	091	5.2	385	81 79	77 76	81 81	83/78 76	KH	
9/5/97	8:40A	59	56	DN	114	5.0	370	103 104	106 100	94 103	108/107 107	KH	
9/5/97	9:30A	60	57	CP	2014	240	180	75	82	84	87/87 88	KH	
9/5/97	9:40A	60	58	JT	037	240	240	79	72	73	99/101 94	KH	
9/5/97	11:07A	63	59	JR	091	5.2	385	79 81	79 77	73 74	78/79 74	KH	
9/5/97	1:13P	70	60	CP	2014	240	180	79	70	72	75/83 82	KH	
9/5/97	1:30P	70	61	JT	037	240	240	82	89	83	87/93 90	KH	
9/6/97	8:09A	69	62	JR	2014	250	180	85	91	88	87/98 101	DF	40 mil - 40 mil
9/6/97	8:30A	70	63	JT	037	240	240	85	86	87	110/108 107	DF	40 mil - 40 mil

TRIAL WELD TEST FORM

EMCON

Date: 10 - 30 - 97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	TIME	AMB. TEMP	SAMPLE ID	SEAMER ID	MACHINE ID	FUSION SPEED	FUSION TEMP	EXTRUSION BARREL	EXTRUSION PREHEAT	PEEL (pli) INSIDE	PEEL (pli) OUTSIDE		SHEAR (ppi)	QA ID	COMMENTS
9/6/97	10:35A	79	64	JR	091	5.2	385	93 89	97 96	96 91	100/100 96	JN	40 mil - 40 mil
9/6/97	11:50A	80	65	DN	114	5.0	370	89 91	89 87	87 85	94/90 92	JN	40 mil - 40 mil
9/6/97	1:30P	82	66	JT	037	240	240	90	88	88	96/96 92	JN	40 mil - 40 mil
9/6/97	2:20P	81	67	JR	2014	250	180	85	81	83	85/84 86	JN	40 mil - 40 mil
9/9/97	8:30A	62	68	JR	2014	250	180	99	96	95	107/105 103	KH	
9/10/97	8:00A	60	69	JR	2014	250	140	87	87	97	105/98 101	KH	
9/10/97	9:05A	60	70	JR	091	5.2	385	103 110	106 103	105 105	105/113 110	KH	
9/10/97	9:30A	60	71	DN	114	5.0	370	101 92	96 104	106 106	115/102 107	KH	
9/11/97	6:50A	54	72	JR	091	5.2	385	108 112	104 111	113 112	121/121 114	KH	
9/11/97	6:55A	54	73	DN	114	5.0	370	106 112	108 107	105 102	125/123 127	KH	
9/11/97	1:50P	70	74	JR	114	5.0	370	85 86	82 89	88 87	94/95 92	KH	
9/11/97	3:54P	70	75	DN	091	5.2	385	82 82	88 87	85 85	87/92 86	KH	
9/11/97	3:20P	70	76	JT	037	240	240	85	82	78	88/90 86	KH	
9/12/97	8:40A	63	77	JR	091	5.2	385	94 96	93 89	99 100	96/96 96	KH	Text to Text
9/12/97	9:45A	70	78	JT	037	240	240	85	92	96	87/90 98	KH	
9/12/97	10:53A	72	79	DN	079	5.0	410	94 98	99 98	94 100	99/99 103	KH	Text to Text
9/12/97	2:30P	75	80	JR	091	5.2	385	82 71	78 76	68 72	70/68 71	KH	Smooth to Smooth
9/12/97	3:25P	75	81	DN	079	5.0	410	73 71	74 72	85 86	85/82 78	KH	Smooth to Smooth
9/12/97	6:30P	70	82	JR	091	5.2	385	78 77	77 78	87 75	91/92 91	KH	Text to Smooth
9/13/97	8:55A	68	83	JT	037	240	180	95	82	111	106/106 109	KH	
9/13/97	10:41A	72	84	JR	2014	250	180	93	92	92	86/85 85	KH	

TRIAL WELD TEST FORM

EMCON

Date:	10 - 30 - 97	Installer:	Serrot Corporation
Client:	Winnebago Reclamation Service	Material:	LLDPE
Project:	Pagel Landfill CQA	Data Input:	KAH
Job #:	86078-004.000	Backcheck:	JPN

DATE	TIME	AMB. TEMP	SAMPLE ID	SEAMER ID	MACHINE ID	FUSION SPEED	FUSION TEMP	PEEL (ppi) INSIDE	PEEL (ppi) OUTSIDE		SHEAR (ppi)	QA ID	COMMENTS
						EXTRUSION BARREL	EXTRUSION PREHEAT						
9/13/97	6:30P	70	85	CP	2014	240	180	73	80	81	78/77	KH	
											76		
9/13/97	6:50P	70	86	JT	037	240	180	74	75	72	70/74	KH	
											76		
9/14/97	7:45A	65	87	JT	037	240	240	86	89	78	87/87	JN	
											86		
9/14/97	7:40A	65	88	JR	2014	240	180	77	84	77	86/85	JN	
											83		
9/14/97	11:20A	70	89	JT	104	5.5	350	80	84	78	86/87	JN	Smooth to Textured
								77	85	80	86		
9/15/97	8:00A	68	90	JR	2014	240	180	81	83	87	82/80	KH	
											84		
9/15/97	8:00A	62	91	JR	2014	240	180	81	83	87	82/80	KH	
											84		
9/16/97	1:25P	70	92	JR	104	5.5	350	90	92	83	85/77	JN	40 mil to 40 mil
								89	87	86	80		
9/16/97	2:00P	72	93	BS	091	5.0	385	77	80	79	85/80	JN	40 mil to 40 mil
								82	78	81	79		
9/16/97	4:27P	73	94	JV	114	5.2	370	96	87	95	90/90	JN	60 mil to 40 mil
								88	92	84	91		
9/16/97	4:27P	73	95	JR	104	5.5	350	112	93	110	111/119	JN	60 mil to 60 mil
								106	108	108	119		
9/16/97	6:25P	72	96	JV	114	4.7	410	113	111	115	123/122	JN	60 mil to 60 mil
								112	111	110	122		
9/16/97	6:10P	72	97	CM	091	5.2	410	108	117	111	111/115	JN	60 mil to 60 mil
								105	109	110	114		
9/17/97	2:45P	68	98	JR	104	5.5	435	107	106	111	119/116	JN	60 mil to 60 mil
								105	109	111	114		
9/17/97	4:45P	69	99	JT	114	4.5	420	108	106	108	128/140	JN	60 mil to 60 mil
								109	111	111	130		
9/17/97	7:00P	69	100	JT	114	4.7	405	78	77	79	74/80	JN	40 mil to 40 mil
								77	76	77	77		
9/18/97	11:15A	67	101	JT	091	4.5	385	94	88	100	99/101	JN	40 mil txt to 40 mil txt
								97	100	102	104		
9/18/97	1:57P	69	102	EP	091	4.5	395	84	85	82	84/84	JN	40 mil txt to 40 mil smooth
								84	83	82	85		
9/18/97	2:47P	70	103	EP	104	4.7	397	84	81	79	83/82	JN	40 mil smooth to 60 mil txt
								81	82	81	82		
9/18/97	5:27P	70	104	JR	104	5.5	399	116	116	115	131/128	JN	60 mil txt to 60 mil txt
								113	123	119	131		
9/19/97	8:40A	63	105	JR	037	240	240	101	94	114	125/130	JN	
											128		

TRIAL WELD TEST FORM

EMCON

Date: 10 - 30 - 97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	TIME	AMB. TEMP	SAMPLE ID	SEAMER ID	MACHINE ID	FUSION SPEED	FUSION TEMP	EXTRUSION BARREL	EXTRUSION PREHEAT	PEEL (pli) INSIDE	PEEL (pli) OUTSIDE		SHEAR (pli)	QA ID	COMMENTS
9/20/97	8:00A	68	106	EP	2014	245	145	139	152	125	162/167	166		KH	
9/20/97	8:05A	68	107	JR	037	240	240	107	109	93	115/129	136		KH	
9/20/97	1:27P	74	108	EP	2014	245	145	87	89	96	89/94	91		KH	
9/20/97	3:10P	75	109	JR	037	240	240	128	124	115	144/155	151		KH	
9/20/97	3:15P	75	110	JT	037	240	240	128	121	130	169/144	156		KH	
9/21/97	8:10A	65	111	EP	2014	245	145	100	102	105	113/117	112		KH	
9/22/97	3:00P	72	112	EP	2014	245	185	78	84	86	88/81	86		JN	
9/22/97	12:30P	70	113	JT	037	240	240	85	83	86	89/88	84		JN	
9/23/97	8:56A	65	114	JR	104	5.5	399	138 134	141 144	134 154	160/163 160			JN	60 mil Text to 60 mil Text
9/23/97	1:53P	71	115	JR	2014	240	240	139	139	132	160/165	155		JN	

Sub- Appendix E.5

Panel Seaming Forms

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
8/25/97	10:18A	1/2	S. Slope	JR	0	300	300		KH	
8/25/97	10:58A	2/3	S. Slope	JR	0	302	302		KH	
8/25/97	1:18P	3/4	S. Slope	JR	0	299	299		KH	
8/25/97	2:15P	4/5	S. Slope	JR	0	301	301		KH	
8/25/97	2:47P	5/6	S. Slope	JA	0	300	300		KH	
8/25/97	3:15P	6/7	S. Slope	JR	0	298	298		KH	
8/25/97	3:46P	7/8	S. Slope	DN	0	302	302		KH	
8/25/97	5:22P	8/9	S. Slope	JR	0	301	301		KH	
8/25/97	6:20P	9/10	S. Slope	JR	0	301	301		KH	
8/26/97	7:48A	10/11	S. Slope	JR	0	306	306		KH	
8/26/97	8:45A	11/12	S. Slope	MC	0	310	310		KH	
8/26/97	9:45A	12/13	S. Slope	MC	0	318	318		KH	
8/26/97	10:30A	13/14	S. Slope	JR	0	320	320		KH	
8/26/97	11:00A	14/15	S. Slope	MC	0	320	320		KH	
8/26/97	11:40A	16/28	S. Slope	JR	0	22	22		KH	
8/26/97	11:55A	15/28	S. Slope	JR	0	20	20		KH	
8/26/97	11:59A	15/16	S. Slope	JR	0	300	300		KH	
8/26/97	1:50P	16/17	S. Slope	DN	16	305	305		KH	
8/26/97	1:40P	17/18	S. Slope	JR	0	309	309		KH	
8/26/97	2:52P	18/19	S. Slope	JR	0	312	312		KH	
8/26/97	3:00P	19/20	S. Slope	DN	0	312	312		KH	
8/26/97	4:04P	20/21	S. Slope	JR	0	308	308		KH	
8/26/97	4:22P	21/22	S. Slope	DN	0	308	308		KH	
8/26/97	5:12P	22/23	S. Slope	JR	0	296	296		KH	
8/26/97	5:31P	23/24	S. Slope	DN	0	246	246		KH	
8/26/97	6:17P	24/25	S. Slope	JR	0	85	85		KH	
8/26/97	6:05P	25/26	S. Slope	JR	0	22	22		KH	
8/26/97	6:23P	24/26	S. Slope	DN	0	106	106		KH	
8/27/97	8:53A	28/29	S. Slope	JR	0	347	347		KH	
8/27/97	8:40A	30/31	S. Slope	DN	0	22.5	22.5		KH	
8/27/97	10:05A	29/30	S. Slope	DN	0	278	278		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
8/27/97	10:07A	30/32	S. Slope	JR	0	278	278		KH	
8/27/97	10:50A	31/32	S. Slope	JR	0	78	78		KH	
8/27/97	10:51A	29/31	S. Slope	DN	0	78	78		KH	
8/27/97	11:17A	33/34	S. Slope	JR	0	22.5	22.5		KH	
8/27/97	11:37A	32/33	S. Slope	DN	0	278	278		KH	
8/27/97	11:40A	33/35	S. Slope	JR	0	278	278		KH	
8/27/97	12:22P	32/34	S. Slope	DN	0	90	90		KH	
8/27/97	12:20P	34/35	S. Slope	JR	0	90	90		KH	
8/27/97	2:47P	35/36	S. Slope	DN	0	360	360		KH	
8/27/97	4:49P	25/37	S. Slope	DN	0	30	30		KH	
8/27/97	4:55P	26/37	S. Slope	DN	0	103	103		KH	
8/27/97	5:20P	37/38	S. Slope	DN	0	75	75		KH	
8/27/97	5:40P	38/39	S. Slope	DN	0	18	18		KH	
8/27/97	6:26P	22/28	S. Slope	DN	0	26	26		KH	
8/27/97	6:30P	23/28	S. Slope	DN	0	56	56		KH	
8/27/97	6:42P	24/28	S. Slope	DN	0	58	58		KH	
8/27/97	6:53P	25/28	S. Slope	DN	0	60	60		KH	
8/27/97	7:00P	37/28	S. Slope	DN	0	60	60		KH	
8/27/97	7:07P	38/28	S. Slope	DN	0	60	60		KH	
8/27/97	7:14P	39/28	S. Slope	DN	0	10	10		KH	
8/27/97	7:05P	40/41	S. Slope	JT	0	242	242		KH	
8/28/97	8:08A	41/42	S. Slope	DN	0	209	209		KH	
8/28/97	9:13A	43/44	S. Slope	DN	0	117	117		KH	
8/28/97	9:46A	44/48	S. Slope	DN	0	22.5	22.5		KH	
8/28/97	9:52A	43/48	S. Slope	DN	0	23	23		KH	
8/28/97	10:04A	44/45	S. Slope	DN	0	80	80		KH	
8/28/97	10:17A	45/48	S. Slope	DN	0	23	23		KH	
8/28/97	10:36A	45/46	S. Slope	DN	0	77	77		KH	
8/28/97	11:27A	46/47	S. Slope	DN	0	46	46		KH	
8/28/97	2:08P	42/47	S. Slope	DN	0	40	40		KH	
8/28/97	2:14P	42/46	S. Slope	DN	0	29	29		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
8/28/97	2:19P	42/45	S. Slope	DN	0	37	37		KH	
8/28/97	2:24P	42/44	S. Slope	DN	0	37	37		KH	
8/28/97	2:29P	42/43	S. Slope	DN	0	37	37		KH	
8/28/97	3:22P	1/40	S. Slope	DN	0	37	37		KH	
8/28/97	3:27P	1/41	S. Slope	DN	0	37	37		KH	
8/28/97	3:32P	1/42	S. Slope	DN	0	37	37		KH	
8/28/97	3:37P	1/43	S. Slope	DN	0	32	32		KH	
8/29/97	9:48A	49/50	Top	DN	0	301	301		KH	
8/29/97	10:25A	51/52	Top	MC	0	20	20		KH	
8/29/97	10:35A	50/51	Top	MC	0	138	138		KH	
8/29/97	10:52A	50/52	Top	MC	0	118	118		KH	
8/29/97	10:45A	51/52	Top	JA	0	92	92		KH	
8/29/97	10:59A	52/53	Top	JA	0	118	118		KH	
8/29/97	10:48A	53/54	Top	DN	0	166	166		KH	
8/29/97	11:30A	54/55	Top	JA	0	119	119		KH	
8/29/97	11:17A	55/56	Top	MC	0	71	71		KH	
8/29/97	11:30A	56/57	Top	DN	0	24	24		KH	
8/29/97	11:50A	49/58	Top	MC	0	323	323		KH	
8/29/97	12:19P	58/59	Top	JA	0	320	320		KH	
8/29/97	12:25P	59/60	Top	DN	0	310	310		KH	
8/29/97	2:15P	60/61	Top	JR	0	299	299		KH	
8/29/97	2:38P	61/62	Top	JA	0	300	300		KH	
8/29/97	3:10P	63/65	Top	DN	0	22	22		KH	
8/29/97	3:25P	62/63	Top	DN	0	284	284		KH	
8/29/97	4:12P	62/65	Top	DN	0	171	171		KH	
8/29/97	4:50P	64/65	Top	DN	0	170	170		KH	
8/29/97	5:24P	64/63	Top	DN	0	286	286		KH	
8/29/97	5:20P	66/67	Top	JA	0	22	22		KH	
8/29/97	5:31P	64/66	Top	JA	0	344	344		KH	
8/29/97	6:08P	64/67	Top	JA	0	103	103		KH	
8/29/97	6:00P	68/70	Top	JR	0	22	22		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION		SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
					BEG.	END				
8/29/97	6:05P	66/70	Top	JR	0	48	48		KH	
8/29/97	6:13P	66/68	Top	JR	0	282	282		KH	
8/29/97	7:09P	67/68	Top	JR	0	112	112		KH	
8/29/97	6:05P	69/70	Top	DN	0	41	41		KH	
8/29/97	6:13P	68/69	Top	DN	0	385	385		KH	
8/29/97	4:10P	1/57	Top	JR	0	14	14		KH	
8/29/97	4:13P	1/56	Top	JR	0	6	6		KH	
8/29/97	4:15P	2/56	Top	JR	0	17	17		KH	
8/29/97	4:17P	2/55	Top	JR	0	5	5		KH	
8/29/97	4:18P	3/55	Top	JR	0	17	17		KH	
8/29/97	4:19P	3/54	Top	JR	0	5	5		KH	
8/29/97	4:21P	4/54	Top	JR	0	13	13		KH	
8/29/97	4:24P	4/53	Top	JR	0	5	5		KH	
8/29/97	4:25P	5/53	Top	JR	0	17	17		KH	
8/29/97	4:26P	5/52	Top	JR	0	3	3		KH	
8/29/97	4:27P	6/52	Top	JR	0	21	21		KH	
8/29/97	4:29P	6/50	Top	JR	0	3	3		KH	
8/29/97	4:40P	8/49	Top	JR	0	21	21		KH	
8/29/97	4:43P	9/58	Top	JR	0	22	22		KH	
8/29/97	4:48P	10/59	Top	JR	0	22	22		KH	
8/29/97	4:55P	11/60	Top	JR	0	22	22		KH	
8/29/97	4:59P	12/61	Top	JR	0	22	22		KH	
9/2/97	10:35A	62/13	Top	DN	0	22.5	22.5		KH	
9/2/97	10:39A	63/14	Top	DN	0	22.5	22.5		KH	
9/2/97	10:42A	64/15	Top	DN	0	22.5	22.5		KH	
9/2/97	11:00A	67/16	Top	DN	0	22.5	22.5		KH	
9/2/97	11:05A	68/17	Top	DN	0	22.5	22.5		KH	
9/2/97	11:09A	69/18	Top	DN	0	22.5	22.5		KH	
9/3/97	10:14A	71/72	SW Slope	JR	0	322	322		KH	
9/3/97	10:15A	72/73	SW Slope	DN	0	280	280		KH	
9/3/97	11:36A	73/74	SW Slope	JR	0	241	241		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/3/97	12:00P	75/99	SW Slope	DN	0	22.5	22.5		KH	
9/3/97	1:00P	74/75	SW Slope	DN	0	103	103		KH	
9/3/97	1:20P	74/99	SW Slope	DN	0	94	94		KH	
9/3/97	2:19P	36/72	SW Slope	DN	0	43	43		KH	
9/3/97	2:25P	36/73	SW Slope	DN	0	45	45		KH	
9/3/97	2:32P	36/74	SW Slope	DN	0	44	44		KH	
9/3/97	2:39P	36/75	SW Slope	DN	0	45	45		KH	
9/4/97	8:30A	71/76	SW Slope	JR	0	316	316		KH	
9/4/97	8:59A	77/78	SW Slope	DN	0	22.5	22.5		KH	
9/4/97	9:12A	76/77	SW Slope	DN	0	244	244		KH	
9/4/97	9:58A	77/79	SW Slope	JR	0	246	246		KH	
9/4/97	9:55A	76/78	SW Slope	DN	0	71	71		KH	
9/4/97	10:32A	78/79	SW Slope	JR	0	75	75		KH	
9/4/97	10:32A	80/81	SW Slope	DN	0	22.5	22.5		KH	
9/4/97	11:14A	79/80	SW Slope	DN	0	236	236		KH	
9/4/97	2:24P	80/82	SW Slope	DN	0	237	237		KH	
9/4/97	2:17P	83/84	SW Slope	JT	0	22.5	22.5		KH	
9/4/97	2:39P	82/83	SW Slope	JT	0	177	177		KH	
9/4/97	2:34P	83/85	SW Slope	JR	0	178	178		KH	
9/4/97	11:55A	79/81	SW Slope	DN	0	87	87		KH	
9/4/97	2:58P	84/85	SW Slope	JR	0	149	149		KH	
9/4/97	3:00P	82/84	SW Slope	JT	0	148	148		KH	
9/4/97	3:25P	81/82	SW Slope	DN	0	87	87		KH	
9/4/97	4:10P	86/87	SW Slope	DN	0	309	309		KH	
9/4/97	4:10P	85/86	SW Slope	JR	0	327	327		KH	
9/4/97	4:50P	69/88	Top	JT	0	408	408		KH	
9/4/97	5:48P	89/90	Top	DN	0	22.5	22.5		KH	
9/4/97	5:56P	90/91	Top	DN	0	57	57		KH	
9/4/97	6:02P	89/91	Top	DN	0	331	331		KH	
9/4/97	5:57P	88/90	Top	JR	0	66	66		KH	
9/4/97	6:03P	88/89	Top	JR	0	330	330		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/4/97	6:15P	92/93	Top	JT	0	22.5	22.5		KH	
9/4/97	6:33P	91/92	Top	JT	0	268	268		KH	
9/4/97	7:09P	91/93	Top	JT	0	98	98		KH	
9/4/97	7:10P	92/94	Top	DN	0	251	251		KH	
9/4/97	7:10P	94/95	Top	JR	0	301	301		KH	
9/4/97	7:50P	93/94	Top	DN	0	90	90		KH	
9/4/97	7:30P	95/97	Top	JT	0	280	280		KH	
9/4/97	8:00P	95/96	Top	JR	0	22.5	22.5		KH	
9/4/97	8:05P	94/96	Top	JR	0	16	16		KH	
9/4/97	8:10P	96/97	Top	JT	0	12	12		KH	
9/5/97	9:08A	94/95	Top	JR	0	301	301		KH	Replaced weld of 9/4
9/5/97	10:05A	94/96	Top	JR	0	16	16		KH	Replaced weld of 9/4
9/5/97	9:57A	87/98	West Slope	DN	0	306	306		KH	
9/5/97	10:15A	95/96	Top	JR	0	22.5	22.5		KH	Replaced weld of 9/4
9/5/97	10:26A	96/97	Top	JR	0	12	12		KH	Replaced weld of 9/4
9/5/97	1:10P	19/88	TopTie-In	JR	0	22.5	22.5		KH	
9/5/97	1:18P	20/89	TopTie-In	JR	0	23	23		KH	
9/5/97	1:26P	21/91	TopTie-In	JR	0	22.5	22.5		KH	
9/5/97	2:00P	22/91	TopTie-In	JR	0	9	9		KH	
9/5/97	2:04P	92/22	TopTie-In	JR	0	7	7		KH	
9/5/97	2:10P	28/92	TopTie-In	JR	0	20	20		KH	
9/5/97	2:17P	29/94	TopTie-In	JR	0	18	18		KH	
9/5/97	2:42P	30/95	TopTie-In	JR	0	21	21		KH	
9/5/97	3:00P	32/97	TopTie-In	JR	0	14	14		KH	
9/5/97	3:07P	33/97	TopTie-In	JR	0	8	8		KH	
9/6/97	11:30A	100/101	W-Slope	JR	0	120	120		DF	
9/6/97	11:50A	75-99/100	W-Slope	JR	0	156	156		DF	
9/6/97	12:15P	101/102	W-Slope	DN	0	78	78		DF	
9/6/97	12:20P	102/103	W-Slope	JR	0	40	40		DF	
9/6/97	2:40P	36/100	W-Slope	DN	0	42.5	42.5		DF	
9/6/97	2:48P	36/101	W-Slope	DN	0	44	44		DF	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/6/97	2:55P	36/102	W-Slope	DN	0	45	45		DF	
9/6/97	3:05P	36/103	W-Slope	DN	0	40	40		DF	
9/10/97	9:30A	104/105	NW Slope	JR	0	300	300		KH	
9/10/97	9:56A	105/106	NW Slope	DN	0	297	297		KH	
9/10/97	10:23A	106/107	NW Slope	JR	0	265	265		KH	
9/10/97	11:18A	107/108	NW Slope	DN	0	236	236		KH	
9/10/97	1:35P	98/104	NW Slope	DN	0	14	14		KH	
9/10/97	1:42P	98/105	NW Slope	DN	0	22	22		KH	
9/11/97	7:05A	108/109	NW Slope	JR	0	204	204		KH	
9/11/97	7:13A	109/110	NW Slope	DN	0	175	175		KH	
9/11/97	7:57A	110/111	NW Slope	JR	0	145	145		KH	
9/11/97	8:19A	111/112	NW Slope	DN	0	108	108		KH	
9/11/97	8:39A	112/113	NW Slope	DN	0	71	71		KH	
9/11/97	9:00A	113/114	NW Slope	JR	0	30	30		KH	
9/11/97	9:14A	115/116	NW Slope	JR	0	257	257		KH	
9/11/97	9:55A	98/115	NW Slope	DN	0	274	274		KH	
9/11/97	10:50A	116/117	NW Slope	JR	0	233	233		KH	
9/11/97	10:54A	117/118	NW Slope	JR	0	212	212		KH	
9/11/97	12:01P	118/119	NW Slope	DN	0	192	192		KH	
9/11/97	12:08P	106/115	NW Slope	JR	0	28	28		KH	
9/11/97	12:05P	119/120	NW Slope	DN	0	158	158		KH	
9/11/97	12:05P	107/116	NW Slope	JR	0	28	28		KH	
9/11/97	12:09P	107/117	NW Slope	JR	0	7	7		KH	
9/11/97	12:12P	108/117	NW Slope	JR	0	22	22		KH	
9/11/97	12:15P	108/118	NW Slope	JR	0	17	17		KH	
9/11/97	12:17P	109/118	NW Slope	JR	0	13	13		KH	
9/11/97	12:19P	109/119	NW Slope	JR	0	7	7		KH	
9/11/97	12:21P	110/119	NW Slope	JR	0	5	5		KH	
9/11/97	12:22P	110/120	NW Slope	JR	0	29	29		KH	
9/11/97	3:00P	121/122	NW Slope	JR	0	81	81		KH	
9/11/97	2:13P	121/126	NW Slope	JR	0	22.5	22.5		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/11/97	3:15P	122/126	NW Slope	JR	0	32	32		KH	
9/11/97	2:40P	120/126	NW Slope	JR	0	37	37		KH	
9/11/97	2:30P	120/121	NW Slope	JR	0	101	101		KH	
9/11/97	4:45P	122/123	NW Slope	JR	0	87	87		KH	
9/11/97	4:05P	123/124	NW Slope	JR	0	60	60		KH	
9/11/97	4:21P	124/125	NW Slope	JR	0	18	18		KH	
9/11/97	4:28P	114/125	NW Slope	JR	0	13	13		KH	
9/11/97	4:50P	104/127	NW Slope	DN	0	338	338		KH	
9/11/97	5:44P	127/128	NW Slope	JR	0	345	345		KH	
9/11/97	5:07P	111/121	NW Slope	JR	0	30	30		KH	
9/11/97	5:14P	111/122	NW Slope	JR	0	4	4		KH	
9/11/97	5:15P	112/122	NW Slope	JR	0	26	26		KH	
9/11/97	5:18P	112/123	NW Slope	JR	0	10	10		KH	
9/11/97	5:20P	113/123	NW Slope	JR	0	20	20		KH	
9/11/97	5:22P	113/124	NW Slope	JR	0	16	16		KH	
9/11/97	5:24P	114/124	NW Slope	JR	0	13	13		KH	
9/11/97	6:00P	128/129	NW Slope	DN	0	291	291		KH	
9/11/97	6:50P	129/130	NW Slope	DN	0	22	22		KH	
9/11/97	6:55P	128/130	NW Slope	DN	0	48	48		KH	
9/12/97	9:04A	129/131	N Slope	JR	0	293	293		KH	
9/12/97	9:43A	130/131	N Slope	JR	0	45	45		KH	
9/12/97	10:44A	131/132	N Slope	JR	0	254	254		KH	
9/12/97	11:15A	131/133	N Slope	JR	0	93	93		KH	
9/12/97	10:15A	132/133	N Slope	JR	0	22.5	22.5		KH	
9/12/97	11:20A	132/134	N Slope	DN	0	257	257		KH	
9/12/97	11:47A	133/134	N Slope	DN	0	96	96		KH	
9/12/97	12:52P	134/135	N Slope	JR	0	358	358		KH	
9/12/97	1:44P	135/136	N Slope	DN	0	340	340		KH	
9/12/97	1:52P	136/137	N Slope	JR	0	22.5	22.5		KH	
9/12/97	2:38P	135/137	N Slope	DN	0	17	17		KH	
9/12/97	4:05P	97/138	Top	JR	0	270	270		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/12/97	4:145P	138/139	Top	DN	0	253	253		KH	
9/12/97	4:58P	139/140	Top	JR	0	225	225		KH	
9/12/97	5:02P	140/141	Top	DN	0	215	215		KH	
9/12/97	5:40P	141/142	Top	JR	0	175	175		KH	
9/12/97	5:45P	142/143	Top	DN	0	122	122		KH	
9/12/97	6:37P	143/144	Top	DN	0	76	76		KH	
9/12/97	7:05P	144/145	Top	DN	0	25	25		KH	
9/12/97	6:42P	33/138	Top - Tie In	JR	0	12	12		KH	
9/12/97	6:45P	35/138	Top - Tie In	JR	0	9	9		KH	
9/12/97	6:48P	35/139	Top - Tie In	JR	0	14	14		KH	
9/12/97	6:51P	36/139	Top - Tie In	JR	0	9	9		KH	
9/12/97	6:52P	36/140	Top - Tie In	JR	0	14	14		KH	
9/12/97	6:54P	71/140	Top - Tie In	JR	0	14	14		KH	
9/12/97	6:56P	71/141	Top - Tie In	JR	0	10	10		KH	
9/12/97	6:58P	76/141	Top - Tie In	JR	0	23	23		KH	
9/12/97	7:02P	77/142	Top - Tie In	JR	0	18	18		KH	
9/12/97	7:04P	79/142	Top - Tie In	JR	0	23	23		KH	
9/12/97	7:07P	80/142	Top - Tie In	JR	0	7	7		KH	
9/12/97	7:08P	80/143	Top - Tie In	JR	0	16	16		KH	
9/12/97	7:10P	82/143	Top - Tie In	JR	0	22	22		KH	
9/12/97	7:13P	83/144	Top - Tie In	JR	0	19	19		KH	
9/12/97	7:16P	85/144	Top - Tie In	JR	0	21	21		KH	
9/12/97	7:20P	87/145	Top - Tie In	JR	0	21	21		KH	
9/12/97	7:25P	104/145	Top - Tie In	JR	0	16	16		KH	
9/12/97	7:30P	127/145	Top - Tie In	JR	0	6	6		KH	
9/12/97	7:34P	127/144	Top - Tie In	JR	0	17	17		KH	
9/12/97	7:36P	128/144	Top - Tie In	JR	0	9	9		KH	
9/12/97	7:39P	128/143	Top - Tie In	JR	0	13	13		KH	
9/14/97	11:30A	140/147	Top/ N Slope	JT	0	22	22		JN	
9/14/97	11:53A	139/147	Top/ N Slope	JT	0	15	15		JN	
9/14/97	11:59A	141/147	Top/ N Slope	JT	0	6	6		JN	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/14/97	12:06P	143/146	Top/ N Slope	JT	0	11	11		JN	
9/14/97	12:08P	142/146	Top/ N Slope	JT	0	13	13		JN	
9/14/97	12:11P	142/131	Top/ N Slope	JT	0	13	13		JN	
9/14/97	12:14P	141/131	Top/ N Slope	JT	0	6	6		JN	
9/14/97	12:18P	114/132	Top/ N Slope	JT	0	17	17		JN	
9/14/97	12:20P	147/132	Top/ N Slope	JT	0	5	5		JN	
9/14/97	12:21P	147/134	Top/ N Slope	JT	0	18	18		JN	
9/14/97	12:24P	139/135	Top/ N Slope	JT	0	18	18		JN	
9/15/97	1:36P	148/149	N Slope	JR	0	335	335		KH	
9/15/97	2:42P	149/150	N Slope	BS	0	290	290		KH	
9/15/97	3:35P	149/151	N Slope	BS	0	80	80		KH	
9/15/97	2:50P	150/151	N Slope	JR	0	22.5	22.5		KH	
9/15/97	3:05P	150/152	N Slope	JR	0	290	290		KH	
9/15/97	3:39P	151/152	N Slope	JR	0	80	80		KH	
9/15/97	3:50P	153/154	N Slope	BS	0	22.5	22.5		KH	
9/15/97	4:13P	154/155	N Slope	JR	0	22.5	22.5		KH	
9/15/97	4:25P	152/153	N Slope	BS	0	265	265		KH	
9/15/97	5:06P	152/155	N Slope	BS	0	67	67		KH	
9/15/97	5:18P	152/154	N Slope	BS	0	29	29		KH	
9/15/97	4:15P	153/156	N Slope	JV	0	268	268		KH	
9/15/97	5:13P	154/156	N Slope	JV	0	67	67		KH	
9/15/97	5:17P	155/156	N Slope	JV	0	30	30		KH	
9/15/97	5:00P	156/157	N Slope	JR	0	365	365		KH	
9/16/97	6:15P	157/158	N Slope	JR	0	365	365		KH	
9/16/97	7:05P	159/160	N Slope	JV	0	22.5	22.5		KH	
9/16/97	7:27P	160/161	N Slope	JR	0	22.5	22.5		KH	
9/16/97	7:15P	158/159	N Slope	JV	0	159	159		KH	
9/16/97	7:46P	158/160	N Slope	JV	0	153	153		KH	
9/16/97	8:12P	158/161	N Slope	JV	0	48	48		KH	
9/16/97	7:32P	159/162	N Slope	BS	0	159	159		KH	
9/16/97	7:59P	160/162	N Slope	BS	0	65	65		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/16/97	7:47P	162/163	N Slope	JR	0	347	347		KH	
9/17/97	4:05P	163/164	N Slope	JR	0	333	333		KH	
9/17/97	5:07P	165/166	N Slope	JR	0	22.5	22.5		KH	
9/17/97	5:20P	164/165	N Slope	JT	0	202	202		KH	
9/17/97	6:00P	164/166	N Slope	JT	0	125	125		KH	
9/17/97	6:00P	165/167	N Slope	JR	0	209	209		KH	
9/17/97	6:29P	166/167	N Slope	JR	0	117	117		KH	
9/17/97	6:36P	168/169	N Slope	JT	0	22.5	22.5		KH	
9/17/97	6:40P	168/170	N Slope	JV	0	22.5	22.5		KH	
9/17/97	7:00P	167/170	N Slope	JR	0	15	15		KH	
9/17/97	7:04P	167/168	N Slope	JR	0	206	206		KH	
9/17/97	7:42P	167/169	N Slope	JR	0	88	88		KH	
9/18/97	2:04P	97/149	N Slope - Tie In	EP	0	6	6		KH	
9/18/97	2:05P	96/149	N Slope - Tie In	EP	0	17	17		KH	
9/18/97	2:08P	96/150	N Slope - Tie In	EP	0	6	6		KH	
9/18/97	2:10P	94/150	N Slope - Tie In	EP	0	16	16		KH	
9/18/97	2:13P	94/152	N Slope - Tie In	EP	0	5	5		KH	
9/18/97	2:14P	93/152	N Slope - Tie In	EP	0	18	18		KH	
9/18/97	2:21P	91/153	N Slope - Tie In	EP	0	22	22		KH	
9/18/97	3:13P	91/156	N Slope - Tie In	EP	0	9	9		KH	
9/18/97	3:14P	90/156	N Slope - Tie In	EP	0	14	14		KH	
9/18/97	3:16P	90/157	N Slope - Tie In	EP	0	11	11		KH	
9/18/97	3:18P	88/157	N Slope - Tie In	EP	0	11	11		KH	
9/18/97	3:20P	88/158	N Slope - Tie In	EP	0	13	13		KH	
9/18/97	3:24P	69/158	N Slope - Tie In	EP	0	11	11		KH	
9/18/97	3:27P	69/159	N Slope - Tie In	EP	0	20	20		KH	
9/18/97	3:29P	69/162	N Slope - Tie In	EP	0	5	5		KH	
9/18/97	3:30P	70/162	N Slope - Tie In	EP	0	16	16		KH	
9/18/97	3:33P	70/163	N Slope - Tie In	EP	0	8	8		KH	
9/18/97	3:35P	66/163	N Slope - Tie In	EP	0	14	14		KH	
9/18/97	3:38P	66/164	N Slope - Tie In	EP	0	11	11		KH	

PANEL SEAMING FORM

EMCON

Date: 10-27-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE	START TIME	SEAM ID	LOCATION	SEAMER INITIALS	STATION BEG.	STATION END	SEAM LENGTH	CARRY OVER	QA ID	COMMENTS
9/18/97	3:39P	64/164	N Slope - Tie In	EP	0	12	12		KH	
9/18/97	3:41P	64/165	N Slope - Tie In	EP	0	12	12		KH	
9/18/97	3:43P	63/165	N Slope - Tie In	EP	0	10	10		KH	
9/18/97	3:45P	63/167	N Slope - Tie In	EP	0	13	13		KH	
9/18/97	3:47P	62/167	N Slope - Tie In	EP	0	11	11		KH	
9/18/97	3:49P	62/170	N Slope - Tie In	EP	0	13	13		KH	
9/18/97	5:39P	160/162	N Slope	JR	65	153	88		KH	
9/18/97	5:53P	161/162	N Slope	JR	0	189	159		KH	
9/18/97	1:04P	136/148	N Slope	JR	0	340	340		KH	
9/18/97	2:12P	137/148	N Slope	JR	0	17	17		KH	
9/18/97	2:25P	135/136	N Slope	JR	0	340	340		KH	
9/18/97	3:15P	135/137	N Slope	JR	0	17	17		KH	
9/23/97	9:23A	168/171	N Slope	JR	26	157	131		JN	
9/23/97	9:59A	171/172	N Slope	JR	0	22.5	22.5		JN	
9/23/97	10:04A	168/172	N Slope	JR	0	48	48		JN	
9/23/97	10:12A	169/172	N Slope	JR	0	62	62		JN	
9/23/97	11:04A	168/171	N Slope	JR	0	26	26		JN	
Total Seam Length:							**39,757**	**ft**		

Sub- Appendix E.6

Pressurized Air Channel Test Results

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW	QA OBSVR.
			BEG.	END	PRESSURE		TIME		P/F	P/F	ID	ID
					BEG	END	BEG	END				
8/27/97	2 - 3	S. Slope	0	138	32	30	1:40	1:49	P		RS	JN
8/27/97	3 - 4	S. Slope	0	299	31	30	1:42	1:49	P		RS	JN
8/27/97	4 - 5	S. Slope	0	301	30	28	1:44	1:50	P		RS	JN
8/27/97	5 - 6	S. Slope	0	300	32	30	2:55	3:00	P		RS	JN
8/27/97	2 - 3	S. Slope	138	150	32	32	1:54	1:59	P		RS	JN
8/27/97	2 - 3	S. Slope	150	282	32	30	1:55	2:00	P		RS	JN
8/27/97	2 - 3	S. Slope	282	302	32	27	2:06	2:11	F		RS	JN
8/27/97	6 - 7	S. Slope	242	298	32	31	2:13	2:18	P		RS	JN
8/27/97	6 - 7	S. Slope	188	218	32	31	2:34	2:39	P		RS	JN
8/27/97	6 - 7	S. Slope	218	242	32	32	2:42	2:47	P		RS	JN
8/27/97	6 - 7	S. Slope	0	188	31	31	2:45	2:50	P		RS	JN
8/27/97	7 - 8	S. Slope	0	62	30	29	3:23	3:28	P		RS	JN
8/27/97	8 - 9	S. Slope	0	301	32	32	3:05	3:13	P		RS	JN
8/27/97	9 - 10	S. Slope	0	301	32	30	3:13	3:18	P		RS	JN
8/27/97	7 - 8	S. Slope	62	302	32	31	3:33	3:38	P		RS	JN
8/27/97	10 - 11	S. Slope	52	143	32	32	3:45	3:50	P		RS	JN
8/27/97	10 - 11	S. Slope	0	52	32	30	3:44	3:49	P		RS	JN
8/27/97	10 - 11	S. Slope	143	306	32	30	3:57	4:02	P		RS	JN
8/27/97	11 - 12	S. Slope	137	310	32	30	3:59	4:04	P		RS	JN
8/27/97	11 - 12	S. Slope	0	137	32	32	4:01	4:06	P		RS	JN
8/27/97	12 - 13	S. Slope	166	233	32	30	4:11	4:16	P		RS	JN
8/27/97	12 - 13	S. Slope	0	166	32	30	4:16	4:21	P		RS	JN
8/27/97	12 - 13	S. Slope	166	170	32	30	4:22	4:30	P		RS	JN
8/27/97	12 - 13	S. Slope	233	241	32	30	4:30	4:35	P		RS	JN
8/27/97	12 - 13	S. Slope	241	318	32	30	4:40	4:45	P		RS	JN
8/27/97	13 - 14	S. Slope	273	320	32	30	7:03	7:08	P		RS	JN
8/27/97	13 - 14	S. Slope	232	273	32	30	7:13	7:18	P		RS	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
8/27/97	14 - 15	S. Slope	284	320	32	31	7:20	7:25	P		RS	JN
8/27/97	14 - 15	S. Slope	207	284	32	31	7:20	7:25	P		RS	JN
8/27/97	13 - 14	S. Slope	184	232	32	30	7:30	7:35	P		RS	JN
8/27/97	14 - 15	S. Slope	107	207	32	31	7:32	7:37	P		RS	JN
8/27/97	14 - 15	S. Slope	15	107	32	30	7:33	7:38	P		RS	JN
8/27/97	13 - 14	S. Slope	160	184	32	30	7:43	7:48	P		RS	JN
8/27/97	13 - 14	S. Slope	0	160	32	30	7:45	7:50	P		RS	JN
8/28/97	16 - 27	S. Slope	0	25	33	31	9:13	9:18	P		Jose	JN
8/28/97	15 - 16	S. Slope	0	275	32	32	9:12	9:17	P		Jose	JN
8/28/97	17 - 27	S. Slope	0	25	32	30	9:11	9:16	P		Jose	JN
8/28/97	16 - 17	S. Slope	0	20	32	30	9:14	9:19	P		Jose	JN
8/28/97	16 - 17	S. Slope	20	290	32	30	9:14	9:19	P		Jose	JN
8/28/97	14 - 15	S. Slope	0	15	32	28	9:25	9:30	P		Jose	JN
8/28/97	14 - 15	S. Slope	300	320	32	30	9:41	9:46	P		Jose	JN
8/28/97	15 - 16	S. Slope	275	300	30	30	9:48	9:53	P		Jose	JN
8/28/97	16 - 17	S. Slope	290	305	32	30	9:47	9:52	P		Jose	JN
8/28/97	20 - 21	S. Slope	0	145	32	30	9:58	10:03	P		Jose	JN
8/28/97	20 - 21	S. Slope	145	308	32	30	9:59	10:04	P		Jose	JN
8/28/97	19 - 20	S. Slope	0	312	32	30	10:14	10:19	P		Jose	JN
8/28/97	18 - 19	S. Slope	0	312	32	30	10:13	10:18	P		Jose	JN
8/28/97	17 - 18	S. Slope	0	309	32	30	10:13	10:18	P		Jose	JN
8/28/97	21 - 22	S. Slope	0	308	32	30	10:15	10:20	P		Jose	JN
8/28/97	22 - 28	S. Slope	0	26	30	28	3:50	3:55	P		Jose	JN
8/28/97	22 - 23	S. Slope	0	296	32	30	10:36	10:41	P		Jose	JN
8/28/97	23 - 28	S. Slope	0	56	30	30	10:37	10:42	P		Jose	JN
8/28/97	23 - 24	S. Slope	0	246	30	30	10:39	10:44	P		Jose	JN
8/28/97	24 - 28	S. Slope	0	58	30	30	10:39	10:44	P		Jose	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
8/28/97	24 - 25	S. Slope	0	85	32	30	11:00	11:05	P		Jose	JN
8/28/97	25 - 28	S. Slope	0	60	30	30	11:00	11:05	P		Jose	JN
8/28/97	25 - 37	S. Slope	0	30	30	30	11:01	11:06	P		Jose	JN
8/28/97	28 - 37	S. Slope	0	60	30	30	11:01	11:06	P		Jose	JN
8/28/97	24 - 26	S. Slope	0	106	30	28	11:12	11:17	P		Jose	JN
8/28/97	26 - 37	S. Slope	0	103	30	29	11:13	11:18	P		Jose	JN
8/28/97	37 - 38	S. Slope	0	75	30	28	11:17	11:22	P		Jose	JN
8/28/97	38 - 39	S. Slope	0	18	30	28	11:23	11:28	P		Jose	JN
8/28/97	39 - 28	S. Slope	0	10	30	28	11:27	11:33	P		Jose	JN
8/28/97	25 - 26	S. Slope	0	10	32	32	12:16	12:21	P		RS	JN
8/28/97	25 - 26	S. Slope	10	22	32	31	12:17	12:22	P		RS	JN
8/28/97	28 - 39	S. Slope	0	10	32	32	1:58	2:03	P		RS	JN
8/28/97	28 - 38	S. Slope	0	60	32	30	12:33	12:38	P		RS	JN
8/28/97	29 - 30	S. Slope	260	End	32	30	2:01	2:06	P		RS	JN
8/28/97	30 - 31	S. Slope	0	23	32	30	2:02	2:07	P		RS	JN
8/28/97	29 - 31	S. Slope	0	10	32	30	2:05	2:11	P		RS	JN
8/28/97	29 - 31	S. Slope	10	End	32	32	2:09	2:14	P		RS	JN
8/28/97	31 - 32	S. Slope	0	78	32	30	2:15	2:10	P		RS	JN
8/28/97	29 - 30	S. Slope	0	260	32	32	2:14	2:19	P		RS	JN
8/28/97	32 - 34	S. Slope	0	90	32	30	2:26	2:31	P		RS	JN
8/28/97	32 - 33	S. Slope	0	278	32	30	2:27	2:32	P		RS	JN
8/28/97	33 - 34	S. Slope	0	23	32	32	2:37	2:42	P		RS	JN
8/28/97	30 - 32	S. Slope	250	End	32	32	2:35	2:40	P		RS	JN
8/28/97	30 - 32	S. Slope	0	250	32	32	2:42	2:47	P		RS	JN
8/28/97	34 - 35	S. Slope	0	90	32	30	2:48	2:53	P		RS	JN
8/28/97	33 - 35	S. Slope	216	End	32	32	2:49	2:54	P		RS	JN
8/28/97	33 - 35	S. Slope	158	216	32	30	2:52	2:57	P		RS	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW	QA OBSVR.
			BEG.	END	PRESSURE		TIME		P/F	P/F	ID	ID
					BEG	END	BEG	END				
8/28/97	33 - 35	S. Slope	0	158	32	30	3:00	3:05	P		RS	JN
8/28/97	35 - 36	S. Slope	131	End	32	30	3:03	3:08	P		RS	JN
8/28/97	35 - 36	S. Slope	0	131	32	31	3:10	3:15	P		RS	JN
8/28/97	28 - 29	S. Slope	0	347	32	30	4:11	3:16	P		RS	JN
8/29/97	1 - 40	S. Slope	0	37	30	28	8:48	8:53	P		RS	KH
8/29/97	1 - 41	S. Slope	0	37	33	31	8:49	8:54	P		RS	KH
8/29/97	40 - 41	S. Slope	0	242	32	30	8:50	8:55	P		RS	KH
8/29/97	41 - 42	S. Slope	0	209	33	31	8:54	8:59	P		RS	KH
8/29/97	1 - 42	S. Slope	0	37	32	30	8:55	9:00	P		RS	KH
8/29/97	42 - 43	S. Slope	0	9	33	31	9:11	9:16	P		RS	KH
8/29/97	42 - 43	S. Slope	9	20	31	30	9:12	9:17	P		RS	KH
8/29/97	1 - 43	S. Slope	0	32	32	30	9:10	9:15	P		RS	KH
8/29/97	42 - 44	S. Slope	0	8	31	30	9:40	9:45	P		RS	KH
8/29/97	42 - 44	S. Slope	8	20	32	30	9:41	9:46	P		RS	KH
8/29/97	42 - 44	S. Slope	20	37	32	30	9:42	9:47	P		RS	KH
8/29/97	43 - 44	S. Slope	0	117	32	30	9:38	9:43	P		RS	KH
8/29/97	42 - 45	S. Slope	25	37	32	31	9:45	9:50	P		RS	KH
8/29/97	44 - 45	S. Slope	0	80	30	28	10:00	10:05	P		RS	KH
8/29/97	45 - 46	S. Slope	0	77	32	30	10:07	10:12	P		RS	KH
8/29/97	42 - 46	S. Slope	0	10	32	30	10:08	10:13	P		RS	KH
8/29/97	42 - 46	S. Slope	10	25	31	30	10:26	10:31	P		RS	KH
8/29/97	42 - 46	S. Slope	25	29	31	29	10:10	10:15	P		RS	KH
8/29/97	42 - 47	S. Slope	7	15	30	30	10:11	10:16	P		RS	KH
8/29/97	46 - 47	S. Slope	0	46	32	30	10:11	10:16	P		RS	KH
8/29/97	42 - 47	S. Slope	15	40	32	31	10:20	10:25	P		RS	KH
8/29/97	44 - 45	S. Slope	0	80	32	30	10:24	10:29	P		RS	KH
8/29/97	45 - 48	S. Slope	0	23	32	30	10:25	10:30	P		RS	KH

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
8/29/97	56 - 57	Top	0	24	31	30	2:14	2:19	P		RS	KH
8/29/97	55 - 56	Top	0	60	32	30	2:15	2:20	P		RS	KH
8/29/97	55 - 56	Top	60	71	32	30	2:15	2:20	P		RS	KH
8/29/97	54 - 55	Top	0	42	32	30	2:18	2:23	P		RS	KH
8/29/97	54 - 55	Top	42	52	32	32	2:17	2:22	P		RS	KH
8/29/97	54 - 55	Top	52	72	32	30	2:16	2:21	P		RS	KH
8/29/97	54 - 55	Top	72	119	31	30	2:27	2:32	P		RS	KH
8/29/97	53 - 54	Top	0	166	32	32	2:29	2:34	P		RS	KH
8/29/97	52 - 53	Top	0	68	32	30	2:31	2:36	P		RS	KH
8/29/97	52 - 53	Top	68	110	32	30	2:30	2:35	P		RS	KH
8/29/97	52 - 53	Top	110	118	30	29	2:30	2:35	P		RS	KH
8/29/97	51 - 52	Top	6	22	30	30	2:44	2:49	P		RS	KH
8/29/97	51 - 53	Top	0	92	32	30	2:40	2:45	P		RS	KH
8/29/97	50 - 51	Top	0	138	30	30	2:44	2:49	P		RS	KH
8/29/97	50 - 52	Top	0	118	30	30	2:43	2:48	P		RS	KH
8/29/97	49 - 50	Top	0	301	32	30	2:52	2:57	P		RS	KH
8/29/97	49 - 58	Top	235	323	32	30	4:16	4:21	P		RS	KH
8/29/97	58 - 59	Top	307	320	32	32	4:17	4:22	P		RS	KH
8/29/97	59 - 60	Top	90	310	32	30	4:17	4:22	P		RS	KH
8/29/97	60 - 61	Top	0	299	32	30	4:19	4:24	P		RS	KH
8/29/97	61 - 62	Top	240	300	32	30	4:20	4:25	P		RS	KH
8/29/97	58 - 59	Top	258	307	32	30	4:31	4:26	P		RS	KH
8/29/97	58 - 59	Top	145	253	32	30	4:32	4:37	P		RS	KH
8/29/97	58 - 59	Top	87	145	32	30	5:09	5:14	P		RS	KH
8/29/97	58 - 59	Top	65	87	32	30	5:10	5:15	P		RS	KH
8/29/97	58 - 59	Top	51	65	32	30	5:11	5:16	P		RS	KH
8/29/97	58 - 59	Top	19	46	32	30	5:21	5:26	P		RS	KH

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
8/29/97	58 - 59	Top	11	19	32	30	5:21	5:26	P		RS	KH
8/29/97	59 - 60	Top	0	53	32	30	5:31	5:30	P		RS	KH
8/29/97	59 - 60	Top	53	65	32	30	5:32	5:37	P		RS	KH
8/29/97	59 - 60	Top	65	90	32	30	5:33	5:38	P		RS	KH
8/29/97	61 - 62	Top	0	101	32	30	5:38	5:43	P		RS	KH
8/29/97	61 - 62	Top	101	248	32	30	5:40	5:45	P		RS	KH
8/29/97	49 - 58	Top	3	44	32	30	5:20	5:25	P		RS	KH
8/29/97	49 - 58	Top	44	62	32	30	5:19	5:24	P		RS	KH
8/29/97	49 - 58	Top	62	124	32	30	5:08	5:13	P		RS	KH
8/29/97	49 - 58	Top	124	144	32	30	5:07	5:12	P		RS	KH
8/29/97	49 - 58	Top	153	197	32	30	5:02	5:07	P		RS	KH
8/29/97	49 - 58	Top	197	210	32	30	5:00	5:05	P		RS	KH
8/29/97	49 - 58	Top	210	222	32	30	4:50	4:55	P		RS	KH
8/29/97	1 - 57	Top	0	14	32	30	6:37	6:42	P		RS	KH
8/29/97	2 - 56	Top	0	17	32	30	6:37	6:42	P		RS	KH
8/29/97	8 - 49	Top	0	21	32	30	6:44	6:49	P		RS	KH
8/29/97	7 - 50	Top	0	3	32	30	6:45	6:50	P		RS	KH
8/29/97	3 - 55	Top	0	17	32	30	6:50	6:55	P		RS	KH
8/29/97	4 - 54	Top	0	11	32	30	6:50	6:55	P		RS	KH
8/29/97	5 - 53	Top	0	17	32	30	6:50	6:55	P		RS	KH
8/30/97	59 - 10	Top	0	10	32	30	7:56	8:01	P		RS	KH
8/30/97	60 - 11	Top	0	22	32	30	8;)9	8:14	P		RS	KH
8/30/97	61 - 12	Top	0	11	32	30	8:19	8:24	P		RS	KH
8/30/97	58 9	Top	0	15	32	32	8:35	8:40	P		RS	KH
8/31/97	66 - 67	Top	10	13	30	30	3:05	3:10	P		JA	KH
8/31/97	66 - 67	Top	13	22	30	30	3:05	3:10	P		JA	KH
8/31/97	64 - 67	Top	0	103	30	30	3:16	3:21	P		JA	KH

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
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Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
8/31/97	68 - 70	Top	0	22	30	30	3:50	3:55	P		JA	KH
8/31/97	66 - 70	Top	6	End	30	28	4:36	4:41	P		JA	KH
8/31/97	66 - 68	Top	0	101	30	30	3:30	3:35	P		JA	KH
8/31/97	66 - 68	Top	101	End	30	28	4:32	4:37	P		JA	KH
8/31/97	64 - 65	Top	0	170	30	30	3:35	3:40	P		JA	KH
8/31/97	63 - 64	Top	0	286	30	30	3:36	3:41	P		JA	KH
8/31/97	63 - 65	Top	0	23	30	30	3:36	3:41	P		JA	KH
8/31/97	62 - 65	Top	0	171	30	30	4:05	4:10	P		JA	KH
8/31/97	62 - 63	Top	0	187	30	30	3:49	3:54	P		JA	KH
8/31/97	68 - 69	Top	0	395	30	28	4:19	4:24	P		JA	KH
8/31/97	69 - 70	Top	0	41	30	30	4:15	4:20	P		JA	KH
8/31/97	67 - 68	Top	0	112	30	28	4:52	4:57	P		JA	KH
8/31/97	64 - 66	Top	0	344	30	28	4:46	4:51	P		JA	KH
8/31/97	62 - 63	Top	187	End	30	28	3:49	3:54	P		JA	KH
9/2/97	69 - 18	Top	0	23	32	32	1:19	1:24	P		JS	KH
9/2/97	68 - 17N	Top	0	23	32	31	1:23	1:28	P		JS	KH
9/2/97	68 - 17S	Top	0	23	32	32	1:30	1:35	P		JS	KH
9/2/97	67 - 16	Top	0	23	32	31	1:30	1:35	P		JS	KH
9/2/97	64 - 15	Top	0	23	32	30	1:31	1:36	P		JS	KH
9/2/97	63 - 14	Top	0	23	32	30	1:32	1:37	P		JS	KH
9/2/97	62 - 13	Top	0	23	32	30	1:47	1:52	P		JS	KH
9/3/97	36 - 72	SW Slope	0	43	30	28	3:16	3:21	P		RS	JN
9/3/97	71 - 72	SW Slope	0	322	30	28	3:16	3:21	P		RS	JN
9/3/97	72 - 73	SW Slope	0	146	30	28	4:55	5:00	P		RS	JN
9/3/97	72 - 73	SW Slope	146	280	30	28	4:40	4:45	P		RS	JN
9/3/97	73 - 36	SW Slope	0	45	30	28	3:40	3:45	P		RS	JN
9/3/97	73 - 74	SW Slope	5	241	30	28	3:41	3:46	P		RS	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW	QA OBSVR.
			BEG.	END	PRESSURE		TIME		P/F	P/F	ID	ID
					BEG	END	BEG	END				
9/3/97	36 - 74	SW Slope	10	44	30	29	4:02	4:07	P		RS	JN
9/3/97	74 - 75	SW Slope	0	59	30	28	4:02	4:07	P		RS	JN
9/3/97	74 - 75	SW Slope	65	73	30	30	4:20	4:25	P		RS	JN
9/3/97	74 - 75	SW Slope	89	103	30	29	4:32	4:37	P		RS	JN
9/3/97	36 - 75	SW Slope	0	45	30	28	4:10	4:15	P		RS	JN
9/3/97	74 - 76	SW Slope	0	94	30	28	4:22	4:27	P		RS	JN
9/3/97	75 - 76	SW Slope	0	23	30	29	4:22	4:27	P		RS	JN
9/3/97	74 - 75	SW Slope	73	89	30	30	4:30	4:35	P		RS	JN
9/5/97	71 - 76	W Slope	0	21	30	28	12:58	1:02	P		JA	JN
9/5/97	77 - 79	W Slope	0	113	30	28	1:17	1:22	P		JA	JN
9/5/97	71 - 76	W Slope	21	74	30	28	1:19	1:24	P		JA	JN
9/5/97	77 - 79	W Slope	113	130	30	28	1:37	1:42	P		JA	JN
9/5/97	77 - 79	W Slope	130	246	30	28	1:34	1:39	P		JA	JN
9/5/97	79 - 80	W Slope	0	125	30	30	1:42	1:47	P		JA	JN
9/5/97	79 - 80	W Slope	125	147	30	28	1:41	1:46	P		JA	JN
9/5/97	79 - 80	W Slope	147	236	30	28	1:50	1:55	P		JA	JN
9/5/97	77 - 78	W Slope	0	23	30	29	2:03	2:08	P		JA	JN
9/5/97	78 - 79	W Slope	0	75	30	29	2:20	2:25	P		JA	JN
9/5/97	76 - 78	W Slope	0	71	30	28	2:21	2:26	P		JA	JN
9/5/97	71 - 76	W Slope	74	226	30	29	2:23	2:28	P		JA	JN
9/5/97	71 - 76	W Slope	226	296	30	28	2:33	2:38	P		JA	JN
9/5/97	79 - 81	W Slope	0	53	30	30	2:43	2:48	P		JA	JN
9/5/97	80 - 81	W Slope	0	23	30	28	2:44	2:49	P		JA	JN
9/5/97	81 - 82	W Slope	0	37	30	29	2:46	2:51	P		JA	JN
9/5/97	81 - 82	W Slope	37	87	30	30	2:47	2:52	P		JA	JN
9/5/97	80 - 82	W Slope	0	212	30	28	2:49	2:54	P		JA	JN
9/5/97	80 - 82	W Slope	212	237	30	29	2:54	2:59	P		JA	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
9/5/97	79 - 81	W Slope	61	87	30	28	2:56	3:01	P		JA	JN
9/5/97	82 - 84	W Slope	0	107	30	28	3:04	3:09	P		JA	JN
9/5/97	82 - 83	W Slope	0	177	30	28	3:06	3:11	P		JA	JN
9/5/97	83 - 84	W Slope	0	23	32	31	3:33	3:38	P		JA	JN
9/5/97	82 - 84	W Slope	107	148	32	30	3:35	3:40	P		JA	JN
9/5/97	83 - 85	W Slope	0	178	32	31	3:37	3:42	P		JA	JN
9/5/97	84 - 85	W Slope	0	149	32	30	3:35	3:40	P		JA	JN
9/5/97	69 - 88	Top	0	15	30	28	9:26	9:31	P		JA	JN
9/5/97	69 - 88	Top	15	208	30	29	10:06	10:11	P		JA	JN
9/5/97	88 - 89	Top	0	330	30	28	9:30	9:35	P		JA	JN
9/5/97	88 - 90	Top	0	66	30	28	9:39	9:44	P		JA	JN
9/5/97	89 - 90	Top	0	23	30	29	9:45	9:50	P		JA	JN
9/5/97	90 - 91	Top	0	57	30	29	9:56	10:01	P		JA	JN
9/5/97	89 - 91	Top	0	331	30	28	9:57	10:02	P		JA	JN
9/5/97	92 - 93	Top	0	23	30	28	10:10	10:15	P		JA	JN
9/5/97	91 - 92	Top	0	268	30	30	10:09	10:14	P		JA	JN
9/5/97	91 - 93	Top	0	98	30	28	10:10	10:15	P		JA	JN
9/5/97	92 - 94	Top	0	251	30	28	10:20	10:25	P		JA	JN
9/5/97	93 - 94	Top	0	90	30	28	10:14	10:19	P		JA	JN
9/5/97	69 - 88	Top	208	300	30	28	10:23	10:28	P		JA	JN
9/5/97	69 - 88	Top	300	408	30	28	10:25	10:30	P		JA	JN
9/5/97	94 - 95	Top	59	109	30	28	10:29	10:34	P		JA	JN
9/5/97	94 - 95	Top	109	216	30	28	10:33	10:38	P		JA	JN
9/5/97	95 - 97	Top	0	10	30	29	10:51	10:56	P		JA	JN
9/5/97	95 - 97	Top	10	280	30	29	10:37	10:42	P		JA	JN
9/5/97	95 - 97	Top	205	280	30	28	10:41	10:46	P		JA	JN
9/5/97	94 - 95	Top	257	301	30	29	11:04	11:09	P		JA	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
9/5/97	94 - 95	Top	216	257	30	30	11:45	11:50	P		JA	JN
9/5/97	96 - 97	Top	0	12	30	28	11:12	11:17	P		JA	JN
9/5/97	94 - 95	Top	0	59	30	30	11:14	11:19	P		JA	JN
9/5/97	95 - 96	Top	0	10	30	28	11:30	11:35	P		JA	JN
9/5/97	95 - 96	Top	10	22	30	30	11:32	11:37	P		JA	JN
9/5/97	76 - 77	W Slope	0	244	30	29	11:58	12:03	P		JA	JN
9/5/97	85 - 86	Top	0	327	32	30	3:51	3:56	P		JA	JN
9/5/97	86 - 87	Top	0	309	32	30	3:53	3:58	P		JA	JN
9/5/97	87 - 98	Top	0	306	31	29	3:55	4:00	P		JA	JN
9/5/97	33 - 97	Tie - In	0	8	30	30	5:08	5:13	P		JA	JN
9/5/97	32 - 97	Tie - In	0	14	32	30	5:15	5:20	P		JA	JN
9/5/97	32 - 95	Tie - In	0	5	30	29	5:17	5:22	P		JA	JN
9/5/97	30 - 95	Tie - In	0	21	30	28	5:05	5:10	P		JA	JN
9/5/97	29 - 94	Tie - In	0	18	30	28	5:05	5:10	P		JA	JN
9/5/97	28 - 92	Tie - In	0	20	30	28	5:04	5:09	P		JA	JN
9/5/97	22 - 92	Tie - In	0	7	30	28	5:17	5:22	P		JA	JN
9/5/97	21 - 91	Tie - In	0	22	30	29	5:20	5:25	P		JA	JN
9/5/97	20 - 89	Tie - In	0	23	30	28	5:27	5:32	P		JA	JN
9/5/97	22 - 91	Tie - In	0	9	30	28	5:17	5:22	P		JA	JN
9/5/97	19 - 88	Tie - In	0	10	30	28	5:28	5:33	P		JA	JN
9/5/97	19 - 88	Tie - In	10	12	30	28	5:30	5:35	P		JA	JN
9/5/97	22 - 92	Tie - In	0	7	32	31	5:25	5:30	P		JA	JN
9/6/97	75 - 100	W Slope	0	62	32	30	1:59	2:04	P		RS	JN
9/6/97	100 - 101	W Slope	0	120	32	32	1:59	2:04	P		RS	JN
9/6/97	99 - 100	W Slope	0	42	32	30	2:08	2:13	P		RS	JN
9/6/97	99 - 100	W Slope	42	94	32	30	2:31	2:36	P		RS	JN
9/6/97	101 - 102	W Slope	0	78	32	32	2:06	2:11	P		RS	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
9/6/97	102 - 103	W Slope	0	34	32	30	2:25	2:31	P		RS	JN
9/6/97	36 - 101	W Slope	0	44	30	28	4:23	4:28	P		JA	JN
9/6/97	36 - 100	W Slope	0	43	30	28	4:24	4:29	P		JA	JN
9/6/97	36 - 102	W Slope	0	20	30	28	3:43	3:48	P		JA	JN
9/6/97	36 - 102	W Slope	20	45	30	29	3:44	3:49	P		JA	JN
9/6/97	36 - 103	W Slope	0	40	30	30	3:44	3:49	P		JA	JN
9/13/97	105 - 98	N Slope	0	22	32	30	8:48	8:53	P		RS	JN
9/13/97	104 - 105	N Slope	0	300	32	30	8:50	8:55	P		RS	JN
9/13/97	105 - 106	N Slope	0	297	32	30	8:52	8:57	P		RS	JN
9/13/97	98 - 115	N Slope	20	20	32	32	8:56	9:01	P		RS	JN
9/13/97	115 - 106	N Slope	0	28	32	30	8:56	9:01	P		RS	JN
9/13/97	98 - 104	N Slope	0	14	32	30	8:58	9:03	P		RS	JN
9/13/97	98 - 115	N Slope	0	274	32	30	9:05	9:10	P		RS	JN
9/13/97	115 - 116	N Slope	0	257	32	30	9:10	9:15	P		RS	JN
9/13/97	107 - 116	N Slope	0	28	30	29	9:12	9:17	P		RS	JN
9/13/97	106 - 107	N Slope	0	265	32	32	9:13	9:18	P		RS	JN
9/13/97	116 - 117	N Slope	0	233	32	32	9:15	9:20	P		RS	JN
9/13/97	107 - 117	N Slope	0	7	32	30	9:21	9:26	P		RS	JN
9/13/97	108 - 117	N Slope	0	22	32	30	9:21	9:26	P		RS	JN
9/13/97	107 - 108	N Slope	0	236	32	30	9:21	9:26	P		RS	JN
9/13/97	108 - 118	N Slope	0	17	32	30	9:25	9:30	P		RS	JN
9/13/97	117 - 118	N Slope	0	212	32	30	9:25	9:30	P		RS	JN
9/13/97	108 - 109	N Slope	0	204	32	30	9:31	9:36	P		RS	JN
9/13/97	109 - 118	N Slope	0	13	32	32	9:31	9:36	P		RS	JN
9/13/97	118 - 119	N Slope	0	192	32	31	9:33	9:38	P		RS	JN
9/13/97	109 - 119	N Slope	0	7	32	31	9:33	9:38	P		RS	JN
9/13/97	109 - 110	N Slope	0	175	32	30	9:36	9:41	P		RS	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
9/13/97	110 - 120	N Slope	0	29	32	31	9:42	9:47	P		RS	JN
9/13/97	119 - 120	N Slope	0	158	32	32	9:42	9:47	P		RS	JN
9/13/97	119 - 110	N Slope	0	5	32	30	9:43	9:43	P		RS	JN
9/13/97	120 - 121	N Slope	0	101	32	30	9:46	9:51	P		RS	JN
9/13/97	110 - 111	N Slope	0	9	32	31	9:46	9:51	P		RS	JN
9/13/97	110 - 111	N Slope	9	145	32	31	9:51	9:56	P		RS	KH
9/13/97	121 - 122	N Slope	0	12	32	32	10:05	10:10	P		RS	KH
9/13/97	121 - 122	N Slope	12	81	30	28	10:05	10:10	P		RS	KH
9/13/97	111 - 112	N Slope	0	108	30	29	10:05	10:10	P		RS	KH
9/13/97	112 - 122	N Slope	0	26	32	30	10:05	10:10	P		RS	KH
9/13/97	122 - 123	N Slope	0	87	32	30	10:07	10:12	P		RS	KH
9/13/97	111 - 121	N Slope	0	30	32	30	10:28	10:33	P		RS	KH
9/13/97	112 - 123	N Slope	0	10	32	30	10:29	10:34	P		RS	KH
9/13/97	112 - 113	N Slope	0	71	32	30	10:30	10:35	P		RS	KH
9/13/97	113 - 123	N Slope	0	20	32	30	10:30	10:35	P		RS	KH
9/13/97	123 - 124	N Slope	0	60	32	30	10:31	10:36	P		RS	KH
9/13/97	113 - 124	N Slope	0	16	32	30	10:34	10:39	P		RS	KH
9/13/97	113 - 114	N Slope	0	30	32	30	11:04	11:09	P		RS	KH
9/13/97	114 - 124	N Slope	0	13	32	30	10:38	10:43	P		RS	KH
9/13/97	124 - 125	N Slope	0	18	30	30	10:41	10:46	P		RS	KH
9/13/97	114 - 125	N Slope	0	13	30	29	10:41	10:46	P		RS	KH
9/13/97	121 - 126	N Slope	0	23	32	30	10:46	10:51	P		RS	KH
9/13/97	122 - 126	N Slope	0	32	32	30	10:46	10:51	P		RS	KH
9/13/97	120 - 126	N Slope	0	37	30	30	10:51	10:56	P		RS	KH
9/13/97	104 - 145	N Slope	0	16	30	30	11:38	11:43	P		RS	KH
9/13/97	104 - 127	N Slope	20	20	30	30	11:38	11:43	P		RS	KH
9/13/97	104 - 127	N Slope	0	338	30	28	11:47	11:52	P		RS	KH

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW	QA OBSVR.
			BEG.	END	PRESSURE		TIME		P/F	P/F	ID	ID
					BEG	END	BEG	END				
9/13/97	127 - 145	N Slope	0	6	30	30	11:38	11:43	P		RS	KH
9/13/97	144 - 127	N Slope	0	17	30	29	11:42	11:47	P		RS	KH
9/13/97	128 - 144	N Slope	0	9	30	30	11:50	11:55	P		RS	KH
9/13/97	127 - 128	N Slope	0	345	30	28	11:50	11:55	P		RS	KH
9/13/97	128 - 143	N Slope	0	13	32	30	11:52	11:57	P		RS	JN
9/13/97	128 - 129	N Slope	0	291	32	31	11:54	11:59	P		RS	JN
9/13/97	129 - 131	N Slope	0	18	30	28	11:59	12:04	P		RS	JN
9/13/97	129 - 131	N Slope	18	293	32	30	11:59	12:04	P		RS	JN
9/13/97	131 - 132	N Slope	0	153	32	30	12:13	12:18	P		RS	JN
9/13/97	131 - 132	N Slope	153	168	32	30	4:00	4:05	P		RS	JN
9/13/97	132 - 134	N Slope	9	257	32	30	12:37	12:42	P		RS	JN
9/13/97	134 - 135	N Slope	0	114	30	29	2:16	2:21	P		RS	JN
9/13/97	134 - 135	N Slope	114	358	30	30	2:35	2:40	P		RS	JN
9/13/97	131 - 132	N Slope	168	254	30	29	3:43	3:48	P		RS	JN
9/13/97	129 - 130	N Slope	0	23	30	28	3:08	3:13	P		RS	JN
9/13/97	128 - 130	N Slope	0	48	30	28	3:08	3:13	P		RS	JN
9/13/97	130 - 131	N Slope	0	45	30	29	3:10	0:00	P		RS	JN
9/13/97	131 - 133	N Slope	34	93	30	28	3:10	3:15	P		RS	JN
9/13/97	131 - 133	N Slope	0	34	30	28	3:12	3:17	P		RS	JN
9/13/97	132 - 133	N Slope	0	10	30	30	3:16	3:21	P		RS	JN
9/13/97	132 - 133	N Slope	10	23	30	29	3:25	3:30	P		RS	JN
9/13/97	133 - 134	N Slope	0	96	30	28	3:29	3:34	P		RS	JN
9/13/97	87 - 145	N Slope	0	21	32	30	4:37	4:42	P		RS	JN
9/13/97	143 - 144	N Slope	0	76	30	29	4:52	4:57	P		RS	JN
9/13/97	85 - 144	N Slope	0	21	30	28	4:55	5:00	P		RS	JN
9/13/97	83 - 144	N Slope	0	19	30	28	5:00	5:05	P		RS	JN
9/13/97	80 - 143	N Slope	0	16	30	28	5:10	5:15	P		RS	JN

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
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Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW	QA OBSVR.
			BEG.	END	PRESSURE		TIME		P/F	P/F	ID	ID
					BEG	END	BEG	END				
9/13/97	82 - 143	N Slope	0	22	30	28	5:17	5:22	P		RS	JN
9/13/97	79 - 142	N Slope	0	23	30	28	5:51	5:56	P		RS	JN
9/13/97	141 - 142	N Slope	0	175	30	28	5:53	5:58	P		RS	JN
9/13/97	77 - 142	N Slope	0	18	30	28	5:54	5:59	P		RS	JN
9/13/97	76 - 141	N Slope	0	23	30	28	5:55	6:00	P		RS	JN
9/13/97	71 - 141	N Slope	0	10	30	28	6:06	6:11	P		RS	JN
9/13/97	71 - 140	N Slope	0	14	30	29	6:22	6:27	P		RS	JN
9/13/97	36 - 140	N Slope	0	14	30	29	6:30	6:35	P		RS	JN
9/13/97	36 - 139	N Slope	0	9	30	28	6:31	6:36	P		RS	JN
9/13/97	35 - 139	N Slope	0	14	30	28	6:50	6:55	P		RS	JN
9/13/97	35 - 138	N Slope	0	9	30	28	6:50	6:55	P		RS	JN
9/13/97	33 - 138	N Slope	0	12	30	28	6:54	6:59	P		RS	JN
9/13/97	139 - 140	N Slope	0	40	30	29	7:05	7:10	P		RS	JN
9/13/97	97 - 138	N Slope	0	270	30	28	7:13	7:18	P		RS	JN
9/13/97	139 - 140	N Slope	40	78	30	28	7:25	7:30	P		RS	JN
9/13/97	139 - 140	N Slope	78	225	30	28	7:37	7:42	P		RS	JN
9/15/97	143 - 146	Top	0	11	30	28	8:30	8:35	P		JA	KH
9/15/97	142 - 146	Top	0	13	30	28	8:30	8:35	P		JA	KH
9/15/97	142 - 131	Top	0	13	32	30	8:31	8:36	P		JA	KH
9/15/97	131 - 141	Top	0	6	32	30	8:31	8:36	P		JA	KH
9/15/97	132 - 141	Top	0	17	31	29	8:39	8:44	P		JA	KH
9/15/97	141 - 147	Top	0	6	30	28	8:39	8:44	P		JA	KH
9/15/97	140 - 147	Top	0	8	32	30	8:40	8:45	P		JA	KH
9/15/97	140 - 147	Top	8	17	30	28	8:48	8:53	P		JA	KH
9/15/97	140 - 147	Top	17	22	32	30	8:48	8:53	P		JA	KH
9/15/97	132 - 147	Top	0	5	32	30	8:40	8:45	P		JA	KH
9/15/97	139 - 147	Top	0	15	30	28	8:48	8:53	P		JA	KH

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW	QA OBSVR.
			BEG.	END	PRESSURE		TIME		P/F	P/F	ID	ID
					BEG	END	BEG	END				
9/18/97	148 - 149	N Slope	0	355	30	28	3:20	3:25	P		JT	KH
9/18/97	152 - 153	N Slope	0	265	31	30	3:34	3:34	P		JT	KH
9/18/97	150 - 152	N Slope	0	279	30	28	3:30	3:35	P		JT	KH
9/18/97	149 - 150	N Slope	0	281	30	28	3:30	3:35	P		JT	KH
9/18/97	156 - 157	N Slope	0	365	32	31	3:32	3:37	P		JT	KH
9/18/97	153 - 156	N Slope	0	268	32	30	3:43	3:48	P		JT	KH
9/18/97	157 - 158	N Slope	0	244	30	28	3:52	3:57	P		JT	KH
9/18/97	158 - 159	N Slope	0	159	30	30	3:52	3:57	P		JT	KH
9/18/97	159 - 162	N Slope	0	159	30	30	3:53	3:58	P		JT	KH
9/18/97	162 - 163	N Slope	0	150	30	28	4:15	4:20	P		JT	KH
9/18/97	163 - 164	N Slope	0	197	30	30	4:35	4:40	P		JT	KH
9/18/97	164 - 165	N Slope	0	202	32	30	4:16	4:21	P		JT	KH
9/18/97	165 - 167	N Slope	0	209	30	30	4:45	4:50	P		JT	KH
9/18/97	167 - 168	N Slope	0	206	32	31	4:47	4:52	P		JT	KH
9/18/97	168 - 170	N Slope	0	23	30	30	4:27	4:32	P		JT	KH
9/18/97	167 - 170	N Slope	0	15	30	30	4:51	4:32	P		JT	KH
9/18/97	168 - 169	N Slope	0	23	30	30	4:51	4:56	P		JT	KH
9/18/97	167 - 169	N Slope	0	88	31	31	4:51	4:56	P		JT	KH
9/18/97	166 - 167	N Slope	0	117	32	30	4:52	4:57	P		JT	KH
9/18/97	165 - 166	N Slope	0	23	30	30	4:52	4:57	P		JT	KH
9/18/97	163 - 164	N Slope	197	217	30	30	5:19	5:24	P		JT	KH
9/18/97	163 - 164	N Slope	217	250	32	32	5:45	5:50	P		JT	KH
9/18/97	162 - 163	N Slope	150	167	32	31	5:10	5:15	P		JT	KH
9/18/97	162 - 163	N Slope	167	180	32	32	5:45	5:50	P		JT	KH
9/18/97	159 - 160	N Slope	0	10	30	30	5:08	5:13	P		JT	KH
9/18/97	160 - 162	N Slope	0	33	30	30	5:08	5:13	P		JT	KH
9/18/97	163 - 164	N Slope	250	280	30	30	5:56	6:01	P		JT	KH

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW	QA OBSVR.
			BEG.	END	PRESSURE		TIME					
					BEG	END	BEG	END	P/F	P/F	ID	ID
9/18/97	163 - 164	N Slope	280	301	31	30	5:56	6:01	P		JT	KH
9/18/97	158 - 160	N Slope	0	159	32	30	6:14	6:19	P		JT	KH
9/18/97	160 - 162	N Slope	33	60	32	30	5:47	5:52	P		JT	KH
9/18/97	163 - 164	N Slope	301	310	30	28	5:57	6:02	P		JT	KH
9/18/97	163 - 164	N Slope	310	333	30	30	5:57	6:02	P		JT	KH
9/18/97	158 - 161	N Slope	0	48	30	30	6:14	6:19	P		JT	KH
9/18/97	160 - 161	N Slope	0	23	30	30	6:14	6:19	P		JT	KH
9/18/97	136 - 148	N Slope	0	60	30	29	9:25	9:30	P		JT	KH
9/18/97	136 - 148	N Slope	68	86	30	28	9:15	9:20	P		JT	KH
9/18/97	136 - 148	N Slope	99	132	30	28	8:40	8:45	P		JT	KH
9/18/97	136 - 148	N Slope	139	177	30	28	9:35	9:35	P		JT	KH
9/18/97	136 - 148	N Slope	183	193	30	28	9:46	9:51	P		JT	KH
9/18/97	136 - 148	N Slope	247	286	30	30	12:14	12:19	P		JT	KH
9/18/97	136 - 148	N Slope	291	311	30	28	12:10	12:15	P		JT	KH
9/18/97	136 - 148	N Slope	325	340	30	28	12:30	12:35	P		JT	KH
9/18/97	135 - 136	N Slope	36	144	30	30	8:32	8:37	P		JT	KH
9/18/97	135 - 136	N Slope	144	151	30	30	9:30	9:35	P		JT	KH
9/18/97	135 - 136	N Slope	155	212	32	30	8:50	8:55	P		JT	KH
9/18/97	135 - 136	N Slope	218	250	30	28	11:29	11:34	P		JT	KH
9/18/97	135 - 136	N Slope	267	314	30	29	12:07	12:12	P		JT	KH
9/18/97	135 - 136	N Slope	317	333	30	30	12:15	12:20	P		JT	KH
9/20/97	96 - 150	N Slope	0	6	30	30	10:09	10:14	P		JT	KH
9/20/97	96 - 149	N Slope	0	17	30	28	10:09	10:14	P		JT	KH
9/20/97	157 - 158	N Slope	244	287	30	30	11:05	11:10	P		JT	KH
9/20/97	157 - 158	N Slope	287	325	30	30	11:05	11:10	P		JT	KH
9/20/97	157 - 158	N Slope	325	365	30	28	11:22	11:27	P		JT	KH
9/20/97	160 - 162	N Slope	66	123	30	30	11:09	11:14	P		JT	KH

NONDESTRUCTIVE SEAM TEST LOG

Date: 11-3-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

EMCON

Installer: Serrot
Material: LLDPE
Data Input: KAH
Backcheck: JPN

DATE	SEAM NUMBER	SEAM LOCATION	STATION		AIR TESTING					VACUUM BOX	TEST CREW ID	QA OBSVR. ID
			BEG.	END	PRESSURE		TIME		P/F	P/F		
					BEG	END	BEG	END				
9/20/97	160 - 162	N Slope	129	153	30	30	11:17	11:22	P		JT	KH
9/20/97	161 - 162	N Slope	0	48	30	28	11:20	11:25	P		JT	KH
9/20/97	153 - 154	N Slope	0	23	30	28	11:45	11:50	P		JT	KH
9/20/97	154 - 156	N Slope	0	67	30	28	11:45	11:50	P		JT	KH
9/20/97	152 - 154	N Slope	0	67	30	28	11:45	11:50	P		JT	KH
9/20/97	154 - 155	N Slope	0	23	30	29	11:48	11:53	P		JT	KH
9/20/97	155 - 156	N Slope	0	30	30	28	11:45	11:53	P		JT	KH
9/20/97	150 - 151	N Slope	0	15	30	28	12:02	12:07	P		JT	KH
9/20/97	150 - 151	N Slope	15	23	30	28	12:02	12:07	P		JT	KH
9/20/97	150 - 152	N Slope	279	290	30	28	12:02	12:07	P		JT	KH
9/20/97	151 - 152	N Slope	0	80	30	28	12:02	12:07	P		JT	KH
9/20/97	149 - 151	N Slope	0	80	30	28	12:02	12:07	P		JT	KH
9/20/97	152 - 155	N Slope	0	29	30	28	12:06	12:11	P		JT	KH
9/20/97	136 - 137	N Slope	0	23	30	30	12:30	12:35	P		JT	KH
9/20/97	135 - 137	N Slope	0	7	30	30	12:30	12:35	P		JT	KH
9/23/97	168 - 171	N Slope	0	26	30	28	11:40	11:45	P		JT	KH
9/23/97	168 - 171	N Slope	26	42	30	30	11:40	11:45	P		JT	KH
9/23/97	168 - 171	N Slope	42	53	30	30	11:51	11:56	P		JT	KH
9/23/97	168 - 171	N Slope	53	157	31	31	11:51	11:56	P		JT	KH
9/23/97	171 - 172	N Slope	0	23	30	30	12:15	12:20	P		JT	KH
9/23/97	168 - 172	N Slope	0	48	31	31	12:28	12:33	P		JT	KH
9/23/97	169 - 172	N Slope	0	62	30	29	12:35	12:40	P		JT	KH

Sub- Appendix E.7

Destructive Sampling

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 1 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 1	8/29/97	2 - 3	South slope	JR	2014	P	P	KAH	
DS - 2	8/29/97	3 - 4	South slope	JR	2014	P	P	KAH	
DS - 3	8/29/97	5 - 6	South slope	JR	2014	P	P	KAH	
DS - 4	8/29/97	6 - 7	South slope	JR	2014	P	P	KAH	
DS - 5	8/29/97	8 - 9	South slope	JR	2014	P	P	KAH	
DS - 6	8/29/97	10 - 11	South slope	JR	2014	P	P	KAH	
DS - 7	8/29/97	11 - 12	South slope	JR	2014	P	P	KAH	
DS - 8	8/29/97	13 - 14	South slope	JR	2014	P	P	KAH	
DS - 9	8/29/97	14 - 15	South slope	JR	2014	P	P	KAH	
DS - 10	8/29/97	15 - 16	South slope	JR	2014	P	P	KAH	
DS - 11	8/29/97	19 - 20	South slope	JR	2014	P	P	KAH	
DS - 12	8/29/97	20 - 21	South slope	JR	2014	P	P	KAH	
DS - 13	8/29/97	21 - 22	South slope	JR	2014	P	P	KAH	
DS - 14	8/29/97	23 - 24	South slope	JT	037	P	P	KAH	
DS - 15	8/29/97	28 - 29	South slope	JT	037	P	P	KAH	

TOTAL SEAM LENGTH:

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 2 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 16	9/3/97	29 - 30	South slope	JT	037	P	P	KAH	
DS - 17	9/3/97	32 - 33	South slope	JT	037	P	P	KAH	
DS - 18	9/3/97	33 - 35	South slope	JT	037	P	P	KAH	
DS - 19	9/3/97	35 - 36	South slope	JT	037	P	P	KAH	
DS - 20	9/3/97	40 - 41	South slope	JR	2014	P	P	KAH	
DS - 21	9/3/97	41 - 42	South slope	JR	2014	P	F	KAH	Seam retested (21A-B), both passed
DS - 21A	9/6/97	41 - 42	South slope	JT	037	P	P	KAH	
DS - 21B	9/6/97	41 - 42	South slope	JT	037	P	P	KAH	
DS - 22	9/3/97	49 - 50	Crown	JR	2014	P	P	KAH	
DS - 23	9/3/97	53 - 54	Crown	JR	2014	P	P	KAH	
DS - 24	9/3/97	49 - 58	Crown	JR	2014	P	P	KAH	
DS - 25	9/3/97	58 - 59	Crown	JR	2014	P	P	KAH	
DS - 26	9/3/97	60 - 61	Crown	JT	037	P	P	KAH	
DS - 27	9/3/97	61 - 62	Crown	JT	037	P	P	KAH	
DS - 28	9/3/97	11-12-60-61	Crown	JR	2014	P	P	KAH	

TOTAL SEAM LENGTH:

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 3 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 29	9/3/97	9-58	Crown	JR	2014	P	P	KAH	
DS - 30	9/3/97	64-67	Crown	JT	037	P	P	KAH	
DS - 31	9/3/97	66-68	Crown	JT	037	P	P	KAH	
DS - 32	9/3/97	67-68	Crown	JT	037	P	P	KAH	
DS - 33	9/3/97	68-70	Crown	JT	037	P	P	KAH	
DS - 34	9/3/97	68-69	Crown	JT	037	P	P	KAH	
DS - 35	9/6/97	71-72	West Slope	JT	037	P	P	DRF	
DS - 36	9/6/97	72-73	West Slope	JT	037	P	P	DRF	
DS - 37	9/6/97	36-75	West Slope	JT	037	P	P	DRF	
DS - 38	9/6/97	71-76	West Slope	JT	037	P	P	KAH	
DS - 39	9/6/97	76-77	West Slope	JT	037	P	P	DRF	
DS - 40	9/6/97	77-79	West Slope	JT	037	P	P	DRF	
DS - 41	9/6/97	82-83	West Slope	JT	037	P	P	DRF	
DS - 42	9/6/97	84-85	West Slope	JT	037	P	P	DRF	
DS - 43	9/6/97	85-86	West Slope	JT	037	P	P	DRF	

TOTAL SEAM LENGTH:

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 4 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 44	9/6/97	69-88	Crown	CP	2014	P	P	DRF	
DS - 45	9/6/97	88-89	Crown	CP	2014	P	P	DRF	
DS - 46	9/6/97	89-91	Crown	CP	2014	P	P	DRF	
DS - 47	9/6/97	92-94	Crown	CP	2014	P	P	DRF	
DS - 48	9/6/97	95-97	Crown	CP	2014	P	P	DRF	
DS - 49	9/16/97	98-115	West Slope	JR	2014	P	P	DRF	
DS - 50	9/16/97	118-119	Northwest Slope	JT	037	P	P	DRF	
DS - 51	9/16/97	110-120	Northwest Slope	JR	2014	P	P	DRF	
DS - 52	9/16/97	110-111	Northwest Slope	JR	2014	P	P	DRF	
DS - 53	9/16/97	122-123	Northwest Slope	JT	037	P	P	DRF	
DS - 54	9/16/97	107-108	Northwest Slope	JR	2014	P	P	DRF	
DS - 55	9/16/97	106-107	Northwest Slope	JR	2014	P	P	DRF	
DS - 56	9/16/97	104-105	North Slope	JR	2014	P	P	DRF	
DS - 57	9/16/97	116-117	West Slope	JT	037	P	P	DRF	
DS - 58	9/16/97	104-127	North Slope	JR	2014	P	P	DRF	

TOTAL SEAM LENGTH:

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 5 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 59	9/16/97	127-128	North Slope	JR	2014	P	P	DRF	
DS - 60	9/16/97	129-131	North Slope	JT	037	P	P	DRF	
DS - 61	9/16/97	131-132	North Slope	JR	2014	P	P	DRF	
DS - 62	9/16/97	132-134	North Slope	JR	2014	P	P	DRF	
DS - 63	9/22/97	135-136	North Slope	JR	037	P	P	KAH	
DS - 64	9/16/97	97-138	Crown	JR	2014	P	P	KAH	
DS - 65	9/22/97	148-149	North Slope	JR	037	P	P	JPN	
DS - 66	9/16/97	141-142	Crown	JR	2014	P	P	KAH	
DS - 67	9/20/97	149-150	North Slope	JR	037	P	P	KAH	
DS - 68	9/22/97	151-152	North Slope	JR	037	P	P	KAH	
DS - 69	9/20/97	153-156	North Slope	EP	2014	P	P	KAH	
DS - 70	9/20/97	156-157	North Slope	EP	2014	P	P	KAH	
DS - 71	9/20/97	157-158	North Slope	JR	037	P	P	KAH	
DS - 72	9/20/97	158-160	North Slope	JR	037	P	P	KAH	
DS - 73	9/20/97	163-164	North Slope	JR	037	P	P	KAH	

TOTAL SEAM LENGTH:

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 6 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 74	9/20/97	162-163	North Slope	JR	037	P	P	KAH	
DS - 75	9/20/97	164-166	North Slope	JR	037	P	P	KAH	
DS - 76	9/20/97	165-167	North Slope	JR	037	P	P	JPN	
DS - 77	9/20/97	167-168	North Slope	JR	037	P	P	JPN	
DS - 79	9/24/97	168-171	North Slope	JR	2014	P	P	JPN	

TOTAL SEAM LENGTH:

Sub- Appendix E.7.1

Destructive Sample Log

Sub- Appendix E.7.2

Destructive Sample Laboratory Results

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 1 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 1	8/29/97	2 - 3	South slope	JR	2014	P	P	KAH	
DS - 2	8/29/97	3 - 4	South slope	JR	2014	P	P	KAH	
DS - 3	8/29/97	5 - 6	South slope	JR	2014	P	P	KAH	
DS - 4	8/29/97	6 - 7	South slope	JR	2014	P	P	KAH	
DS - 5	8/29/97	8 - 9	South slope	JR	2014	P	P	KAH	
DS - 6	8/29/97	10 - 11	South slope	JR	2014	P	P	KAH	
DS - 7	8/29/97	11 - 12	South slope	JR	2014	P	P	KAH	
DS - 8	8/29/97	13 - 14	South slope	JR	2014	P	P	KAH	
DS - 9	8/29/97	14 - 15	South slope	JR	2014	P	P	KAH	
DS - 10	8/29/97	15 - 16	South slope	JR	2014	P	P	KAH	
DS - 11	8/29/97	19 - 20	South slope	JR	2014	P	P	KAH	
DS - 12	8/29/97	20 - 21	South slope	JR	2014	P	P	KAH	
DS - 13	8/29/97	21 - 22	South slope	JR	2014	P	P	KAH	
DS - 14	8/29/97	23 - 24	South slope	JT	037	P	P	KAH	
DS - 15	8/29/97	28 - 29	South slope	JT	037	P	P	KAH	

TOTAL SEAM LENGTH:

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 2 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 16	9/3/97	29 - 30	South slope	JT	037	P	P	KAH	
DS - 17	9/3/97	32 - 33	South slope	JT	037	P	P	KAH	
DS - 18	9/3/97	33 - 35	South slope	JT	037	P	P	KAH	
DS - 19	9/3/97	35 - 36	South slope	JT	037	P	P	KAH	
DS - 20	9/3/97	40 - 41	South slope	JR	2014	P	P	KAH	
DS - 21	9/3/97	41 - 42	South slope	JR	2014	P	F	KAH	Seam retested (21A-B), both passed.
DS - 21A	9/6/97	41 - 42	South slope	JT	037	P	P	KAH	
DS - 21B	9/6/97	41 - 42	South slope	JT	037	P	P	KAH	
DS - 22	9/3/97	49 - 50	Crown	JR	2014	P	P	KAH	
DS - 23	9/3/97	53 - 54	Crown	JR	2014	P	P	KAH	
DS - 24	9/3/97	49 - 58	Crown	JR	2014	P	P	KAH	
DS - 25	9/3/97	58 - 59	Crown	JR	2014	P	P	KAH	
DS - 26	9/3/97	60 - 61	Crown	JT	037	P	P	KAH	
DS - 27	9/3/97	61 - 62	Crown	JT	037	P	P	KAH	
DS - 28	9/3/97	11-12-60-61	Crown	JR	2014	P	P	KAH	
TOTAL SEAM LENGTH:									

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 3 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 29	9/3/97	9-58	Crown	JR	2014	P	P	KAH	
DS - 30	9/3/97	64-67	Crown	JT	037	P	P	KAH	
DS - 31	9/3/97	66-68	Crown	JT	037	P	P	KAH	
DS - 32	9/3/97	67-68	Crown	JT	037	P	P	KAH	
DS - 33	9/3/97	68-70	Crown	JT	037	P	P	KAH	
DS - 34	9/3/97	68-69	Crown	JT	037	P	P	KAH	
DS - 35	9/6/97	71-72	West Slope	JT	037	P	P	DRF	
DS - 36	9/6/97	72-73	West Slope	JT	037	P	P	DRF	
DS - 37	9/6/97	36-75	West Slope	JT	037	P	P	DRF	
DS - 38	9/6/97	71-76	West Slope	JT	037	P	P	KAH	
DS - 39	9/6/97	76-77	West Slope	JT	037	P	P	DRF	
DS - 40	9/6/97	77-79	West Slope	JT	037	P	P	DRF	
DS - 41	9/6/97	82-83	West Slope	JT	037	P	P	DRF	
DS - 42	9/6/97	84-85	West Slope	JT	037	P	P	DRF	
DS - 43	9/6/97	85-86	West Slope	JT	037	P	P	DRF	
TOTAL SEAM LENGTH:									

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 4 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 44	9/6/97	69-88	Crown	CP	2014	P	P	DRF	
DS - 45	9/6/97	88-89	Crown	CP	2014	P	P	DRF	
DS - 46	9/6/97	89-91	Crown	CP	2014	P	P	DRF	
DS - 47	9/6/97	92-94	Crown	CP	2014	P	P	DRF	
DS - 48	9/6/97	95-97	Crown	CP	2014	P	P	DRF	
DS - 49	9/16/97	98-115	West Slope	JR	2014	P	P	DRF	
DS - 50	9/16/97	118-119	Northwest Slope	JT	037	P	P	DRF	
DS - 51	9/16/97	110-120	Northwest Slope	JR	2014	P	P	DRF	
DS - 52	9/16/97	110-111	Northwest Slope	JR	2014	P	P	DRF	
DS - 53	9/16/97	122-123	Northwest Slope	JT	037	P	P	DRF	
DS - 54	9/16/97	107-108	Northwest Slope	JR	2014	P	P	DRF	
DS - 55	9/16/97	106-107	Northwest Slope	JR	2014	P	P	DRF	
DS - 56	9/16/97	104-105	North Slope	JR	2014	P	P	DRF	
DS - 57	9/16/97	116-117	West Slope	JT	037	P	P	DRF	
DS - 58	9/16/97	104-127	North Slope	JR	2014	P	P	DRF	
TOTAL SEAM LENGTH:									

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

PAGE: 5 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 59	9/16/97	127-128	North Slope	JR	2014	P	P	DRF	
DS - 60	9/16/97	129-131	North Slope	JT	037	P	P	DRF	
DS - 61	9/16/97	131-132	North Slope	JR	2014	P	P	DRF	
DS - 62	9/16/97	132-134	North Slope	JR	2014	P	P	DRF	
DS - 63	9/22/97	135-136	North Slope	JR	037	P	P	KAH	
DS - 64	9/16/97	97-138	Crown	JR	2014	P	P	KAH	
DS - 65	9/22/97	148-149	North Slope	JR	037	P	P	JPN	
DS - 66	9/16/97	141-142	Crown	JR	2014	P	P	KAH	
DS - 67	9/20/97	149-150	North Slope	JR	037	P	P	KAH	
DS - 68	9/22/97	151-152	North Slope	JR	037	P	P	KAH	
DS - 69	9/20/97	153-156	North Slope	EP	2014	P	P	KAH	
DS - 70	9/20/97	156-157	North Slope	EP	2014	P	P	KAH	
DS - 71	9/20/97	157-158	North Slope	JR	037	P	P	KAH	
DS - 72	9/20/97	158-160	North Slope	JR	037	P	P	KAH	
DS - 73	9/20/97	163-164	North Slope	JR	037	P	P	KAH	

TOTAL SEAM LENGTH:

DESTRUCTIVE SAMPLE LOG

EMCON

DATE: 10 - 17 - 97
CLIENT: Winnebago Reclimation Service
PROJECT: Pagel Landfill CQA
JOB #: 86078-004.000

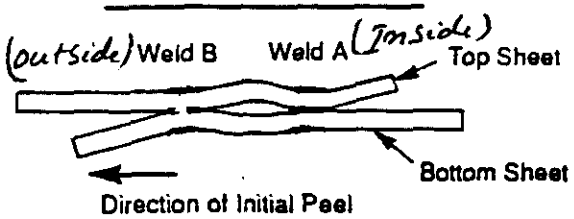
PAGE: 6 OF 6
MATERIAL: LLDPE
DATA ENTRY: JPN
BACKCHECK:

SAMPLE NUMBER	DATE SAMPLED	SEAM ID	LOCATION	SEAMER ID	MACHINE ID	FIELD P/F	LAB P/F	QA ID	SAMPLE REASON COMMENTS
DS - 74	9/20/97	162-163	North Slope	JR	037	P	P	KAH	
DS - 75	9/20/97	164-166	North Slope	JR	037	P	P	KAH	
DS - 76	9/20/97	165-167	North Slope	JR	037	P	P	JPN	
DS - 77	9/20/97	167-168	North Slope	JR	037	P	P	JPN	
DS - 79	9/24/97	168-171	North Slope	JR	2014	P	P	JPN	
TOTAL SEAM LENGTH:									

Sub- Appendix E.7.2.1

Peel Testing Results

Schematic of Untested Specimen



Types of Break	Locus-of-Break Code	Break Description	Classification[a]
	AD	Adhesion failure.	Non-FTB
	BRK	Break in sheeting. Break can be in either top or bottom sheet.	FTB
	SE1	Break at outer edge of seam. Break can be in either top or bottom sheet.	FTB
	SE2	Break at inner edge of seam through both sheets.	FTB
	AD-BRK	Break in first seam after some adhesion failure. Break can be in either the top or bottom sheet.	FTB

[a] FTB = Film - Tear Bond

NOT TO SCALE

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-1	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.03	SE1
2	NOMINAL	98.83	SE1
3		98.41	SE1
4		98.98	SE1
5		97.97	SE1

Average Load (Pounds) 98.04

Sample No.:	DS-1	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	103.75	SE1
2	NOMINAL	102.67	SE1
3		102.92	SE1
4		103.15	SE1
5		103.67	SE1

Average Load (Pounds) 103.23

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-2	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.95	SE1
2	NOMINAL	100.25	SE1
3		98.30	SE1
4		97.32	SE1
5		100.32	SE1

Average Load (Pounds) 99.23

Sample No.:	DS-2	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.32	SE1
2	NOMINAL	97.80	SE1
3		97.02	SE1
4		98.72	SE1
5		99.30	SE1

Average Load (Pounds) 98.03

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-3	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.97	SE1
2	NOMINAL	94.00	SE1
3		92.22	SE1
4		93.95	SE1
5		92.25	SE1

Average Load (Pounds) 93.08

Sample No.:	DS-3	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.07	SE1
2	NOMINAL	89.00	SE1
3		91.92	SE1
4		92.15	SE1
5		92.07	SE1

Average Load (Pounds) 91.44

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-4	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.97	SE1
2	NOMINAL	94.92	SE1
3		95.62	SE1
4		95.72	SE1
5		94.52	SE1

Average Load (Pounds) 95.35

Sample No.:	DS-4	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.52	SE1
2	NOMINAL	93.77	SE1
3		93.85	SE1
4		92.65	SE1
5		92.97	SE1

Average Load (Pounds) 93.35

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-5	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.97	SE1
2	NOMINAL	99.92	SE1
3		100.05	SE1
4		98.62	SE1
5		99.57	SE1

Average Load (Pounds) 99.83

Sample No.:	DS-5	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.80	SE1
2	NOMINAL	100.22	SE1
3		99.87	SE1
4		99.25	SE1
5		98.77	SE1

Average Load (Pounds) 99.78

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-6	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.72	SE1
2	NOMINAL	99.70	SE1
3		100.30	SE1
4		99.15	SE1
5		99.40	SE1

Average Load (Pounds) 99.65

Sample No.:	DS-6	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.50	SE1
2	NOMINAL	96.62	SE1
3		97.15	SE1
4		97.10	SE1
5		95.70	SE1

Average Load (Pounds) 96.41

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-7	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.12	SE1
2	NOMINAL	96.85	SE1
3		97.87	SE1
4		97.75	SE1
5		97.70	SE1

Average Load (Pounds) 97.46

Sample No.:	DS-7	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.70	SE1
2	NOMINAL	93.75	SE1
3		94.42	SE1
4		93.20	SE1
5		93.97	SE1

Average Load (Pounds) 93.61

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-8	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.90	SE1
2	NOMINAL	100.65	SE1
3		98.00	SE1
4		97.87	SE1
5		97.55	SE1

Average Load (Pounds) 98.59

Sample No.:	DS-8	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.35	SE1
2	NOMINAL	96.77	SE1
3		98.55	SE1
4		96.62	SE1
5		97.35	SE1

Average Load (Pounds) 97.53

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-9	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	106.80	SE1
2	NOMINAL	106.37	SE1
3		105.95	SE1
4		102.52	SE1
5		106.22	SE1

Average Load (Pounds) 105.57

Sample No.:	DS-9	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	101.20	SE1
2	NOMINAL	98.00	SE1
3		102.15	SE1
4		102.15	SE1
5		101.67	SE1

Average Load (Pounds) 101.03

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-10	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	109.50	SE1
2	NOMINAL	107.62	SE1
3		105.65	SE1
4		108.92	SE1
5		107.42	SE1

Average Load (Pounds) 107.82

Sample No.:	DS-10	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	102.92	SE1
2	NOMINAL	102.10	SE1
3		102.67	SE1
4		102.57	SE1
5		99.97	SE1

Average Load (Pounds) 102.05

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-11	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.40	SE1
2	NOMINAL	95.85	SE1
3		95.42	SE1
4		97.72	SE1
5		95.62	SE1

Average Load (Pounds) 96.60

Sample No.:	DS-11	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.70	SE1
2	NOMINAL	93.47	SE1
3		93.35	SE1
4		94.97	BRK
5		94.55	SE1

Average Load (Pounds) 93.81

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-12	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.50	SE1
2	NOMINAL	95.30	SE1
3		97.05	SE1
4		95.62	SE1
5		95.42	SE1

Average Load (Pounds) 95.78

Sample No.:	DS-12	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.35	SE1
2	NOMINAL	94.40	SE1
3		95.40	SE1
4		95.15	SE1
5		95.22	SE1

Average Load (Pounds) 95.30

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-13	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.92	SE1
2	NOMINAL	100.57	SE1
3		100.12	SE1
4		98.22	SE1
5		96.57	SE1

Average Load (Pounds) 98.68

Sample No.:	DS-13	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.92	SE1
2	NOMINAL	94.32	SE1
3		94.47	SE1
4		94.82	SE1
5		95.42	SE1

Average Load (Pounds) 94.79

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-14	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.50	SE1
2	NOMINAL	100.97	SE1
3		101.07	SE1
4		100.35	SE1
5		100.22	SE1

Average Load (Pounds) 100.62

Sample No.:	DS-14	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.85	SE1
2	NOMINAL	95.17	SE1
3		98.00	SE1
4		97.62	SE1
5		97.92	SE1

Average Load (Pounds) 97.11

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-15	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	101.60	SE1
2	NOMINAL	102.17	SE1
3		98.20	SE1
4		99.57	SE1
5		98.52	SE1

Average Load (Pounds) 100.01

Sample No.:	DS-15	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.47	SE1
2	NOMINAL	99.27	SE1
3		97.80	SE1
4		99.92	SE1
5		98.85	SE1

Average Load (Pounds) 98.86

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-16	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.75	SE1
2	NOMINAL	96.17	SE1
3		97.95	SE1
4		97.77	SE1
5		97.27	SE1

Average Load (Pounds) 97.18

Sample No.:	DS-16	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.65	SE1
2	NOMINAL	95.10	SE1
3		93.42	SE1
4		96.10	SE1
5		92.27	SE1

Average Load (Pounds) 94.11

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-17	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	104.10	SE1
2	NOMINAL	102.17	SE1
3		103.62	SE1
4		104.27	SE1
5		104.22	SE1

Average Load (Pounds) 103.68

Sample No.:	DS-17	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	101.42	SE1
2	NOMINAL	100.62	SE1
3		100.60	SE1
4		97.12	SE1
5		102.30	SE1

Average Load (Pounds) 100.41

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-18	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	102.22	SE1
2	NOMINAL	103.47	SE1
3		103.37	SE1
4		104.32	SE1
5		101.90	SE1

Average Load (Pounds) 103.06

Sample No.:	DS-18	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.07	SE1
2	NOMINAL	99.30	SE1
3		100.97	SE1
4		99.40	SE1
5		98.32	SE1

Average Load (Pounds) 99.61

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-19	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	101.35	SE1
2	NOMINAL	101.82	SE1
3		102.55	SE1
4		100.90	SE1
5		99.72	SE1

Average Load (Pounds) 101.27

Sample No.:	DS-19	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.90	SE1
2	NOMINAL	101.45	SE1
3		99.42	SE1
4		100.82	SE1
5		99.10	SE1

Average Load (Pounds) 99.94

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-20	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.25	SE1
2	NOMINAL	94.72	SE1
3		94.75	SE1
4		94.80	SE1
5		93.27	SE1

Average Load (Pounds) 94.76

Sample No.:	DS-20	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.07	SE1
2	NOMINAL	92.57	SE1
3		92.95	SE1
4		95.00	SE1
5		94.30	SE1

Average Load (Pounds) 94.18

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-21	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	42.97	AD
2	NOMINAL	86.32	AD
3		95.42	SE1
4		98.95	AD-BRK 70% ADHESION FAILURE
5		70.67	AD-BRK 70% ADHESION FAILURE

Average Load (Pounds) 78.87

Sample No.:	DS-21	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.92	SE1
2	NOMINAL	96.57	SE1
3		88.27	AD
4		91.07	AD-BRK 10% ADHESION FAILURE
5		88.57	AD-BRK 10% ADHESION FAILURE

Average Load (Pounds) 92.08

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-21A	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.80	SE1
2	NOMINAL	92.37	SE1
3		94.32	SE1
4		92.65	SE1
5		94.20	SE1

Average Load (Pounds) 93.27

Sample No.:	DS-21A	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.20	SE1
2	NOMINAL	92.87	SE1
3		93.42	SE1
4		91.12	SE1
5		94.52	SE1

Average Load (Pounds) 93.23

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-21B	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.57	SE1
2	NOMINAL	93.17	SE1
3		93.22	SE1
4		91.70	SE1
5		94.97	SE1

Average Load (Pounds) 93.13

Sample No.:	DS-21B	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	90.40	SE1
2	NOMINAL	91.30	SE1
3		90.30	SE1
4		89.50	SE1
5		89.77	SE1

Average Load (Pounds) 90.25

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-22	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	80.92	SE1
2		82.02	SE1
3		80.55	SE1
4		78.65	SE1
5		80.57	SE1

Average Load (Pounds) 80.54

Sample No.:	DS-22	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	57.72	AD-BRK 10% ADHESION FAILURE
2		79.27	SE1
3		80.30	SE1
4		80.60	SE1
5		80.65	SE1

Average Load (Pounds) 75.71

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-23	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.042	80.10	SE1
2		78.87	SE1
3		81.37	SE1
4		80.62	SE1
5		80.65	SE1

Average Load (Pounds) 80.32

Sample No.:	DS-23	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.042	78.22	SE1
2		78.60	SE1
3		79.15	SE1
4		78.22	SE1
5		79.10	SE1

Average Load (Pounds) 78.66

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-24	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.048/.048	84.12	SE1
2		81.45	SE1
3		84.02	SE1
4		81.95	SE1
5		82.42	SE1

Average Load (Pounds) 82.79

Sample No.:	DS-24	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.048/.048	81.87	SE1
2		80.22	SE1
3		82.30	SE1
4		82.37	SE1
5		82.62	SE1

Average Load (Pounds) 81.88

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-25	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.045	82.57	SE1
2		83.35	SE1
3		83.67	SE1
4		82.82	SE1
5		80.72	SE1

Average Load (Pounds) 82.63

Sample No.:	DS-25	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.045	81.40	SE1
2		81.80	SE1
3		82.00	SE1
4		82.70	SE1
5		80.92	SE1

Average Load (Pounds) 81.76

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-26	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.046/.044	82.00	SE1
2		82.82	SE1
3		82.92	SE1
4		83.05	SE1
5		82.27	SE1

Average Load (Pounds) 82.61

Sample No.:	DS-26	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.046/.044	82.55	SE1
2		80.90	SE1
3		81.15	SE1
4		80.20	SE1
5		81.20	SE1

Average Load (Pounds) 81.20

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-27	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	87.92	SE1
2		87.42	SE1
3		89.37	SE1
4		89.68	SE1
5		84.02	SE1

Average Load (Pounds) 87.68

Sample No.:	DS-27	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	82.05	SE1
2		79.87	SE1
3		82.25	SE1
4		84.87	SE1
5		85.30	SE1

Average Load (Pounds) 82.87

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-28	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	LLDPE/TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	TOP .044 BOTTOM 40 ML	86.10	SE1
2	NOMINAL	88.75	SE1
3		76.62	AD-BRK 50% ADHESION FAILURE
4		86.35	SE1
5		87.35	SE1

Average Load (Pounds) 85.03

Sample No.:	DS-28	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	LLDPE/TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	TOP .044 BOTTOM 40 ML	83.22	SE1
2	NOMINAL	80.80	SE1
3		70.20	SE1
4		85.17	SE1
5		81.72	SE1

Average Load (Pounds) 80.22

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-29	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.045	82.00	SE1
2		79.90	SE1
3		80.55	SE1
4		81.35	SE1
5		78.92	SE1

Average Load (Pounds) 80.54

Sample No.:	DS-29	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.045	79.72	SE1
2		79.55	SE1
3		80.62	SE1
4		80.42	SE1
5		79.60	SE1

Average Load (Pounds) 79.98

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-30	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	81.75	SE1
2		82.05	SE1
3		80.55	SE1
4		81.75	SE1
5		80.90	SE1

Average Load (Pounds) 81.40

Sample No.:	DS-30	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	74.60	SE1
2		76.92	SE1
3		78.37	SE1
4		78.42	SE1
5		78.67	SE1

Average Load (Pounds) 77.40

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-31	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	84.70	SE1
2		87.05	SE1
3		84.70	SE1
4		83.50	SE1
5		85.95	SE1

Average Load (Pounds) 85.18

Sample No.:	DS-31	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	82.57	SE1
2		84.97	SE1
3		84.17	SE1
4		84.87	SE1
5		85.40	SE1

Average Load (Pounds) 84.40

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-32	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.044	83.05	SE1
2		83.17	SE1
3		83.02	SE1
4		81.00	SE1
5		80.65	SE1

Average Load (Pounds) 82.18

Sample No.:	DS-32	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.044	78.27	SE1
2		78.20	SE1
3		79.57	SE1
4		81.07	SE1
5		81.02	SE1

Average Load (Pounds) 79.63

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-33	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.041	73.12	SE1
2		76.82	SE1
3		73.32	SE1
4		74.12	SE1
5		75.07	SE1

Average Load (Pounds) 74.49

Sample No.:	DS-33	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.041	75.00	SE1
2		74.27	SE1
3		76.17	SE1
4		73.67	SE1
5		73.67	SE1

Average Load (Pounds) 74.56

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-34	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	84.56	SE1
2		85.00	SE1
3		83.50	SE1
4		84.12	SE1
5		83.35	SE1

Average Load (Pounds) 84.11

Sample No.:	DS-34	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	45.22	AD-BRK 40% ADHESION FAILURE
2		79.55	SE1
3		75.17	AD-BRK 10% ADHESION FAILURE
4		81.12	SE1
5		81.32	SE1

Average Load (Pounds) 72.48

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-35	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.07	SE1
2	NOMINAL	93.75	SE1
3		90.46	SE1
4		92.92	SE1
5		92.47	SE1

Average Load (Pounds) 92.53

Sample No.:	DS-35	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	86.30	SE1
2	NOMINAL	84.87	SE1
3		83.80	SE1
4		88.17	SE1
5		90.05	SE1

Average Load (Pounds) 86.64

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-36	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.35	SE1
2	NOMINAL	94.10	SE1
3		93.30	SE1
4		95.85	SE1
5		92.45	SE1

Average Load (Pounds) 93.81

Sample No.:	DS-36	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.97	SE1
2	NOMINAL	93.80	SE1
3		93.85	SE1
4		94.30	SE1
5		94.62	SE1

Average Load (Pounds) 93.91

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-37	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.05	SE1
2	NOMINAL	92.17	SE1
3		92.35	SE1
4		92.65	SE1
5		89.57	SE1

Average Load (Pounds) 91.76

Sample No.:	DS-37	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	89.22	SE1
2	NOMINAL	90.70	SE1
3		90.95	SE1
4		92.62	SE1
5		87.30	SE1

Average Load (Pounds) 90.16

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-38	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.37	SE1
2	NOMINAL	94.52	SE1
3		91.77	SE1
4		90.97	SE1
5		92.45	SE1

Average Load (Pounds) 92.42

Sample No.:	DS-38	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	90.35	SE1
2	NOMINAL	91.75	SE1
3		91.25	SE1
4		93.25	SE1
5		93.15	SE1

Average Load (Pounds) 91.95

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-39	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	91.92	SE1
2	NOMINAL	93.60	SE1
3		90.37	SE1
4		90.30	SE1
5		92.92	SE1

Average Load (Pounds) 91.82

Sample No.:	DS-39	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	89.87	SE1
2	NOMINAL	91.77	SE1
3		91.75	SE1
4		91.40	SE1
5		94.15	SE1

Average Load (Pounds) 91.79

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-40	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.02	SE1
2	NOMINAL	94.22	SE1
3		92.82	SE1
4		93.67	SE1
5		94.15	SE1

Average Load (Pounds) 93.78

Sample No.:	DS-40	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.42	SE1
2	NOMINAL	93.20	SE1
3		92.25	SE1
4		91.30	SE1
5		92.32	SE1

Average Load (Pounds) 92.30

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-41	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.37	SE1
2	NOMINAL	90.47	SE1
3		91.60	SE1
4		92.42	SE1
5		93.25	SE1

Average Load (Pounds) 92.22

Sample No.:	DS-41	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	91.97	SE1
2	NOMINAL	91.37	SE1
3		91.05	SE1
4		92.20	SE1
5		92.32	SE1

Average Load (Pounds) 91.78

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-42	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	90.62	SE1
2	NOMINAL	91.45	SE1
3		91.95	SE1
4		90.37	SE1
5		91.12	SE1

Average Load (Pounds) 91.10

Sample No.:	DS-42	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	88.05	SE1
2	NOMINAL	85.85	SE1
3		85.42	SE1
4		90.05	SE1
5		86.75	SE1

Average Load (Pounds) 87.22

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-43	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.92	SE1
2	NOMINAL	93.37	SE1
3		92.60	SE1
4		94.27	SE1
5		92.47	SE1

Average Load (Pounds) 93.13

Sample No.:	DS-43	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.55	SE1
2	NOMINAL	92.62	SE1
3		93.45	SE1
4		91.77	SE1
5		93.95	SE1

Average Load (Pounds) 92.87

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-44	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	75.00	SE1
2		74.77	SE1
3		75.40	SE1
4		74.87	SE1
5		74.77	SE1

Average Load (Pounds) 74.96

Sample No.:	DS-44	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	75.07	SE1
2		76.00	SE1
3		75.77	SE1
4		75.25	SE1
5		75.87	SE1

Average Load (Pounds) 75.59

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-45	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.045	71.00	SE1
2		71.70	SE1
3		71.17	SE1
4		70.32	SE1
5		71.30	SE1

Average Load (Pounds) 71.10

Sample No.:	DS-45	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.045	70.82	SE1
2		70.82	SE1
3		72.12	SE1
4		72.25	SE1
5		72.00	SE1

Average Load (Pounds) 71.60

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-46	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.046	69.75	SE1
2		72.87	SE1
3		72.55	SE1
4		71.57	SE1
5		72.00	SE1

Average Load (Pounds) 71.75

Sample No.:	DS-46	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.046	70.70	SE1
2		71.55	SE1
3		72.15	SE1
4		70.37	SE1
5		72.27	SE1

Average Load (Pounds) 71.41

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-47	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.044	79.30	SE1
2		75.27	SE1
3		76.52	SE1
4		75.55	SE1
5		75.82	SE1

Average Load (Pounds) 76.49

Sample No.:	DS-47	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.044	72.80	SE1
2		73.15	SE1
3		73.37	SE1
4		74.00	SE1
5		74.45	SE1

Average Load (Pounds) 73.55

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-48	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.042	75.50	SE1
2		74.67	SE1
3		73.50	SE1
4		75.07	SE1
5		75.02	SE1

Average Load (Pounds) 74.75

Sample No.:	DS-48	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.042	71.92	SE1
2		75.40	SE1
3		75.32	SE1
4		76.52	SE1
5		75.47	SE1

Average Load (Pounds) 74.93

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-49	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.02	SE1
2	NOMINAL	97.27	SE1
3		97.45	SE1
4		97.02	SE1
5		97.52	SE1

Average Load (Pounds) 96.66

Sample No.:	DS-49	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	91.60	SE1
2	NOMINAL	94.25	SE1
3		96.35	SE1
4		95.57	SE1
5		94.85	SE1

Average Load (Pounds) 94.52

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-50	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.55	SE1
2	NOMINAL	96.05	SE1
3		98.02	SE1
4		98.87	SE1
5		86.60	SE1

Average Load (Pounds) 94.42

Sample No.:	DS-50	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.10	SE1
2	NOMINAL	92.05	SE1
3		92.20	SE1
4		93.52	SE1
5		94.95	SE1

Average Load (Pounds) 92.96

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-51	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.47	SE1
2	NOMINAL	95.02	SE1
3		92.37	SE1
4		91.90	SE1
5		94.82	SE1

Average Load (Pounds) 94.52

Sample No.:	DS-51	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	91.75	SE1
2	NOMINAL	91.07	SE1
3		88.92	SE1
4		93.67	SE1
5		92.80	SE1

Average Load (Pounds) 91.64

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-52	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.07	SE1
2	NOMINAL	92.95	SE1
3		92.17	SE1
4		92.57	SE1
5		91.00	SE1

Average Load (Pounds) 92.15

Sample No.:	DS-52	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	89.02	SE1
2	NOMINAL	88.40	SE1
3		89.00	SE1
4		88.22	SE1
5		88.17	SE1

Average Load (Pounds) 88.56

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-53	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.27	SE1
2	NOMINAL	90.97	SE1
3		93.00	SE1
4		92.82	SE1
5		92.72	SE1

Average Load (Pounds) 92.56

Sample No.:	DS-53	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	90.20	SE1
2	NOMINAL	88.55	SE1
3		89.42	SE1
4		90.87	SE1
5		90.87	SE1

Average Load (Pounds) 89.98

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-54	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	102.37	SE1
2	NOMINAL	105.10	SE1
3		103.45	SE1
4		102.07	SE1
5		103.47	SE1

Average Load (Pounds) 103.29

Sample No.:	DS-54	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.45	SE1
2	NOMINAL	95.27	SE1
3		96.85	SE1
4		96.35	SE1
5		94.12	SE1

Average Load (Pounds) 95.81

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-55	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.70	SE1
2	NOMINAL	96.62	SE1
3		94.40	SE1
4		95.57	SE1
5		94.20	SE1

Average Load (Pounds) 95.10

Sample No.:	DS-55	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.34	SE1
2	NOMINAL	92.55	SE1
3		86.27	SE1
4		95.72	SE1
5		95.00	SE1

Average Load (Pounds) 92.38

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-56	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.32	SE1
2	NOMINAL	94.02	SE1
3		93.67	SE1
4		95.17	SE1
5		93.77	SE1

Average Load (Pounds) 94.39

Sample No.:	DS-56	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.27	SE1
2	NOMINAL	93.57	SE1
3		93.35	SE1
4		92.97	SE1
5		92.75	SE1

Average Load (Pounds) 93.18

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-57	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.20	SE1
2	NOMINAL	95.80	SE1
3		97.62	SE1
4		97.12	SE1
5		95.80	SE1

Average Load (Pounds) 96.51

Sample No.:	DS-57	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	89.37	SE1
2	NOMINAL	91.22	SE1
3		93.85	SE1
4		92.80	SE1
5		91.67	SE1

Average Load (Pounds) 91.78

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-58	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.17	SE1
2	NOMINAL	94.15	SE1
3		93.30	SE1
4		94.77	SE1
5		93.80	SE1

Average Load (Pounds) 94.04

Sample No.:	DS-58	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	89.80	SE1
2	NOMINAL	89.25	SE1
3		89.20	SE1
4		88.82	SE1
5		88.17	SE1

Average Load (Pounds) 89.05

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-59	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.47	SE1
2	NOMINAL	91.92	SE1
3		93.92	SE1
4		91.60	SE1
5		91.62	SE1

Average Load (Pounds) 92.71

Sample No.:	DS-59	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	88.17	SE1
2	NOMINAL	87.82	SE1
3		90.10	SE1
4		90.05	SE1
5		90.97	SE1

Average Load (Pounds) 89.42

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-60	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.35	SE1
2	NOMINAL	93.47	SE1
3		93.20	SE1
4		92.92	SE1
5		93.65	SE1

Average Load (Pounds) 93.12

Sample No.:	DS-60	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	90.82	SE1
2	NOMINAL	90.32	SE1
3		90.75	SE1
4		92.67	SE1
5		91.55	SE1

Average Load (Pounds) 91.22

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-61	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.90	SE1
2	NOMINAL	96.70	SE1
3		95.92	SE1
4		94.77	SE1
5		106.02	SE1

Average Load (Pounds) 98.26

Sample No.:	DS-61	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.92	SE1
2	NOMINAL	93.05	SE1
3		95.47	SE1
4		96.10	SE1
5		95.90	SE1

Average Load (Pounds) 94.89

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-62	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.80	SE1
2	NOMINAL	98.07	SE1
3		99.62	SE1
4		99.12	SE1
5		98.42	SE1

Average Load (Pounds) 98.81

Sample No.:	DS-62	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.77	SE1
2	NOMINAL	97.45	SE1
3		96.55	SE1
4		96.95	SE1
5		99.60	SE1

Average Load (Pounds) 97.66

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-63	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.40	SE1
2	NOMINAL	97.25	SE1
3		98.65	SE1
4		98.15	SE1
5		97.25	SE1

Average Load (Pounds) 98.14

Sample No.:	DS-63	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.80	SE1
2	NOMINAL	95.82	SE1
3		98.15	SE1
4		97.32	SE1
5		95.47	SE1

Average Load (Pounds) 96.71

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-22-97

LABORATORY TEST RESULTS

Sample No.:	DS-63	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	103.55	SE1
2	NOMINAL	103.22	SE1
3		92.47	AD-BRK 50% ADHESION FAILURE
4		104.65	SE1
5		109.10	SE1

Average Load (Pounds) 102.60

Sample No.:	DS-63	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.37	SE1
2	NOMINAL	98.37	SE1
3		98.25	SE1
4		99.17	SE1
5		99.90	SE1

Average Load (Pounds) 98.61

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-64	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.043	76.20	SE1
2		74.22	SE1
3		76.12	SE1
4		75.72	SE1
5		75.67	SE1

Average Load (Pounds) 75.59

Sample No.:	DS-64	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.043	74.47	SE1
2		73.17	SE1
3		72.30	SE1
4		75.37	SE1
5		74.97	SE1

Average Load (Pounds) 74.06

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-22-97

LABORATORY TEST RESULTS

Sample No.:	DS-65	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.77	SE1
2	NOMINAL	99.60	SE1
3		98.62	SE1
4		98.40	SE1
5		99.92	SE1

Average Load (Pounds) 98.86

Sample No.:	DS-65	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.90	SE1
2	NOMINAL	96.77	SE1
3		97.47	SE1
4		96.90	SE1
5		96.17	SE1

Average Load (Pounds) 96.84

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-66	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.044	70.72	SE1
2		70.87	SE1
3		71.07	SE1
4		71.30	SE1
5		70.20	SE1

Average Load (Pounds) 70.83

Sample No.:	DS-66	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.044	68.32	SE1
2		69.40	SE1
3		69.20	SE1
4		68.25	SE1
5		69.50	SE1

Average Load (Pounds) 68.93

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-67	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	101.22	SE1
2	NOMINAL	98.52	SE1
3		100.45	SE1
4		101.55	SE1
5		102.20	SE1

Average Load (Pounds) 100.79

Sample No.:	DS-67	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.47	SE1
2	NOMINAL	95.95	SE1
3		98.17	SE1
4		97.55	SE1
5		99.90	SE1

Average Load (Pounds) 98.21

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-22-97

LABORATORY TEST RESULTS

Sample No.:	DS-68	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.45	SE1
2	NOMINAL	98.47	SE1
3		99.25	SE1
4		97.45	SE1
5		98.22	SE1

Average Load (Pounds) 98.17

Sample No.:	DS-68	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.25	SE1
2	NOMINAL	95.10	SE1
3		94.42	SE1
4		96.50	SE1
5		95.75	SE1

Average Load (Pounds) 95.60

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-69	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			*Strain Rate:*	2 *in./min.*

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	TOP 60 ML BOTTOM 40 ML	99.60	SE1
2	NOMINAL	98.75	SE1
3		100.47	SE1
4		97.25	SE1
5		100.97	SE1

Average Load (Pounds) 99.41

Sample No.:	DS-69	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	TOP 60 ML BOTTOM 40 ML	107.15	SE1
2	NOMINAL	102.97	SE1
3		108.40	SE1
4		105.05	SE1
5		104.92	SE1

Average Load (Pounds) 105.70

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-70	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	125.62	SE1
2	NOMINAL	122.85	SE1
3		120.32	SE1
4		122.10	SE1
5		121.42	SE1

Average Load (Pounds) 122.46

Sample No.:	DS-70	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	116.85	SE1
2	NOMINAL	116.65	SE1
3		117.85	SE1
4		116.25	SE1
5		118.05	SE1

Average Load (Pounds) 117.13

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-71	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	123.62	SE1
2	NOMINAL	125.05	SE1
3		119.22	SE1
4		121.00	SE1
5		122.10	SE1

Average Load (Pounds) 122.20

Sample No.:	DS-71	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	119.70	SE1
2	NOMINAL	118.20	SE1
3		117.20	SE1
4		115.55	SE1
5		114.92	SE1

Average Load (Pounds) 117.11

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-72	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	126.75	SE1
2	NOMINAL	120.87	SE1
3		123.52	SE1
4		119.47	SE1
5		116.67	SE1

Average Load (Pounds) 121.46

Sample No.:	DS-72	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	117.40	SE1
2	NOMINAL	119.05	SE1
3		118.67	SE1
4		119.72	SE1
5		115.77	SE1

Average Load (Pounds) 118.12

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-73	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	126.90	SE1
2	NOMINAL	125.05	SE1
3		120.67	SE1
4		122.12	SE1
5		119.74	SE1

Average Load (Pounds) 122.90

Sample No.:	DS-73	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	116.27	SE1
2	NOMINAL	116.65	SE1
3		114.52	SE1
4		116.35	SE1
5		115.65	SE1

Average Load (Pounds) 115.89

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-74	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	125.50	SE1
2	NOMINAL	126.32	SE1
3		129.47	SE1
4		127.25	SE1
5		127.95	SE1

Average Load (Pounds) 127.30

Sample No.:	DS-74	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	120.65	SE1
2	NOMINAL	120.75	SE1
3		121.55	SE1
4		115.80	SE1
5		118.15	SE1

Average Load (Pounds) 119.38

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-75	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	128.82	SE1
2	NOMINAL	125.62	SE1
3		120.65	SE1
4		124.47	SE1
5		123.60	SE1

Average Load (Pounds) 124.63

Sample No.:	DS-75	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	121.47	SE1
2	NOMINAL	126.50	SE1
3		121.45	SE1
4		120.92	SE1
5		130.57	SE1

Average Load (Pounds) 124.18

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-76	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	120.60	SE1
2	NOMINAL	126.62	SE1
3		120.80	SE1
4		118.80	SE1
5		120.60	SE1

Average Load (Pounds) 121.48

Sample No.:	DS-76	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	120.00	SE1
2	NOMINAL	120.90	SE1
3		121.00	SE1
4		115.60	SE1
5		113.65	SE1

Average Load (Pounds) 118.23

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-77	(INSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	120.05	SE1
2	NOMINAL	121.87	SE1
3		111.17	SE1
4		114.35	SE1
5		119.55	SE1

Average Load (Pounds) 117.40

Sample No.:	DS-77	(OUTSIDE WELD)	Sample Size:	1" X 6"	
Seam No.:			Material:	TEXT LLDPE	
Seamed by:			Weld Type:	FUSION	
Date Seamed:			Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	125.42	SE1
2	NOMINAL	120.10	SE1
3		121.65	SE1
4		121.02	SE1
5		119.15	SE1

Average Load (Pounds) 121.47

EMCON
GEOMEMBRANE SEAM PEEL TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-24-97

LABORATORY TEST RESULTS

Sample No.:	DS-79	(INSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	130.07	SE1
2	NOMINAL	128.22	SE1
3		128.92	SE1
4		129.27	SE1
5		129.20	SE1

Average Load (Pounds) 129.14

Sample No.:	DS-79`	(OUTSIDE WELD)	Sample Size:	1" X 6"
Seam No.:			Material:	TEXT LLDPE
Seamed by:			Weld Type:	FUSION
Date Seamed:			Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	126.75	SE1
2	NOMINAL	126.25	SE1
3		126.15	SE1
4		125.80	SE1
5		126.42	SE1

Average Load (Pounds) 126.27

Sub- Appendix E.7.2.2

Shear Testing Results

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-1	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.07	STRETCHING IN BOTTOM SHEET
2	NOMINAL	100.00	STRETCHING IN BOTTOM SHEET
3		101.07	STRETCHING IN BOTTOM SHEET
4		100.47	STRETCHING IN BOTTOM SHEET
5		98.98	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 100.12

Sample No.:	DS-2	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.57	STRETCHING IN BOTTOM SHEET
2	NOMINAL	100.50	STRETCHING IN TOP SHEET
3		100.62	STRETCHING IN TOP SHEET
4		100.00	STRETCHING IN TOP SHEET
5		99.50	STRETCHING IN TOP SHEET

Average Load (Pounds) 100.04

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-3	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.45	STRETCHING IN BOTTOM SHEET
2	NOMINAL	93.90	STRETCHING IN BOTTOM SHEET
3		93.52	STRETCHING IN BOTTOM SHEET
4		93.62	STRETCHING IN BOTTOM SHEET
5		93.40	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 93.58

Sample No.:	DS-4	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.80	STRETCHING IN BOTTOM SHEET
2	NOMINAL	93.55	STRETCHING IN BOTTOM SHEET
3		94.52	STRETCHING IN BOTTOM SHEET
4		93.75	STRETCHING IN BOTTOM SHEET
5		95.22	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 94.57

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-5	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	102.47	STRETCHING IN TOP SHEET
2	NOMINAL	101.62	STRETCHING IN TOP SHEET
3		102.80	STRETCHING IN TOP SHEET
4		101.12	STRETCHING IN TOP SHEET
5		101.47	STRETCHING IN TOP SHEET

Average Load (Pounds) 101.90

Sample No.:	DS-6	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.67	STRETCHING IN TOP SHEET
2	NOMINAL	99.02	STRETCHING IN TOP SHEET
3		99.32	STRETCHING IN TOP SHEET
4		98.97	STRETCHING IN TOP SHEET
5		98.47	STRETCHING IN TOP SHEET

Average Load (Pounds) 98.89

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-7	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.17	STRETCHING IN BOTTOM SHEET
2	NOMINAL	94.15	STRETCHING IN BOTTOM SHEET
3		96.10	STRETCHING IN BOTTOM SHEET
4		95.62	STRETCHING IN BOTTOM SHEET
5		95.20	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 95.25

Sample No.:	DS-8	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.47	STRETCHING IN TOP SHEET
2	NOMINAL	99.65	STRETCHING IN BOTTOM SHEET
3		99.37	STRETCHING IN BOTTOM SHEET
4		99.17	STRETCHING IN BOTTOM SHEET
5		99.42	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 99.42

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-9	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	106.40	STRETCHING IN BOTTOM SHEET
2	NOMINAL	104.95	STRETCHING IN BOTTOM SHEET
3		105.15	STRETCHING IN BOTTOM SHEET
4		106.40	STRETCHING IN BOTTOM SHEET
5		105.02	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 105.58

Sample No.:	DS-10	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	109.45	STRETCHING IN BOTTOM SHEET
2	NOMINAL	108.35	STRETCHING IN BOTTOM SHEET
3		108.55	STRETCHING IN TOP SHEET
4		107.25	STRETCHING IN BOTTOM SHEET
5		109.30	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 108.58

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-11	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.05	STRETCHING IN BOTTOM SHEET
2	NOMINAL	94.17	STRETCHING IN BOTTOM SHEET
3		94.90	STRETCHING IN BOTTOM SHEET
4		94.10	STRETCHING IN BOTTOM SHEET
5		93.82	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 94.21

Sample No.:	DS-12	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.00	STRETCHING IN BOTTOM SHEET
2	NOMINAL	96.82	STRETCHING IN BOTTOM SHEET
3		97.17	STRETCHING IN BOTTOM SHEET
4		96.92	STRETCHING IN BOTTOM SHEET
5		94.82	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 96.35

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-13	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.25	STRETCHING IN BOTTOM SHEET
2	NOMINAL	97.47	STRETCHING IN BOTTOM SHEET
3		98.00	STRETCHING IN BOTTOM SHEET
4		97.72	STRETCHING IN BOTTOM SHEET
5		97.25	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 97.54

Sample No.:	DS-14	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.62	STRETCHING IN BOTTOM SHEET
2	NOMINAL	101.37	STRETCHING IN BOTTOM SHEET
3		100.75	STRETCHING IN BOTTOM SHEET
4		100.77	STRETCHING IN BOTTOM SHEET
5		99.12	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 100.53

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	8-29-97

LABORATORY TEST RESULTS

Sample No.:	DS-15	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.70	STRETCHING IN BOTTOM SHEET
2	NOMINAL	100.85	STRETCHING IN TOP SHEET
3		101.45	STRETCHING IN TOP SHEET
4		100.85	STRETCHING IN BOTTOM SHEET
5		99.32	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 100.23

Sample No.:		Sample Size:	
Seam No.:		Material:	
Seamed by:		Weld Type:	
Date Seamed:		Strain Rate:	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1			
2			
3			
4			
5			

Average Load (Pounds) 0.00

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-16	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.52	STRETCHING IN TOP SHEET
2	NOMINAL	94.05	STRETCHING IN TOP SHEET
3		92.60	STRETCHING IN TOP SHEET
4		93.67	STRETCHING IN TOP SHEET
5		93.57	STRETCHING IN TOP SHEET

Average Load (Pounds) 93.48

Sample No.:	DS-17	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.52	STRETCHING IN TOP SHEET
2	NOMINAL	101.25	STRETCHING IN BOTTOM SHEET
3		97.70	STRETCHING IN TOP SHEET
4		101.97	STRETCHING IN TOP SHEET
5		100.37	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 100.36

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-18	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	100.35	STRETCHING IN BOTTOM SHEET
2	NOMINAL	100.90	STRETCHING IN BOTTOM SHEET
3		100.97	STRETCHING IN BOTTOM SHEET
4		101.40	STRETCHING IN BOTTOM SHEET
5		100.50	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 100.82

Sample No.:	DS-19	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.32	STRETCHING IN TOP SHEET
2	NOMINAL	98.37	STRETCHING IN TOP SHEET
3		99.27	STRETCHING IN TOP SHEET
4		100.10	STRETCHING IN TOP SHEET
5		100.37	STRETCHING IN TOP SHEET

Average Load (Pounds) 99.49

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-20	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	98.80	STRETCHING IN BOTTOM SHEET
2	NOMINAL	98.80	STRETCHING IN BOTTOM SHEET
3		99.00	STRETCHING IN BOTTOM SHEET
4		98.70	STRETCHING IN BOTTOM SHEET
5		99.47	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 98.95

Sample No.:	DS-21	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.92	STRETCHING IN TOP SHEET
2	NOMINAL	99.57	STRETCHING IN TOP SHEET
3		100.32	STRETCHING IN TOP SHEET
4		99.82	STRETCHING IN TOP SHEET
5		100.05	STRETCHING IN TOP SHEET

Average Load (Pounds) 99.94

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-21A	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.10	STRETCHING IN TOP SHEET
2	NOMINAL	96.00	STRETCHING IN TOP SHEET
3		95.45	STRETCHING IN TOP SHEET
4		96.30	STRETCHING IN TOP SHEET
5		93.72	STRETCHING IN TOP SHEET

Average Load (Pounds) 95.51

Sample No.:	DS-21B	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.42	STRETCHING IN TOP SHEET
2	NOMINAL	94.77	STRETCHING IN TOP SHEET
3		94.65	STRETCHING IN TOP SHEET
4		93.32	STRETCHING IN TOP SHEET
5		94.67	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.37

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-22	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	83.75	STRETCHING IN TOP SHEET
2		84.00	STRETCHING IN TOP SHEET
3		85.18	STRETCHING IN TOP SHEET
4		86.25	STRETCHING IN TOP SHEET
5		86.12	STRETCHING IN TOP SHEET

Average Load (Pounds) 85.06

Sample No.:	DS-23	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.042	85.37	STRETCHING IN TOP SHEET
2		84.87	STRETCHING IN TOP SHEET
3		85.00	STRETCHING IN TOP SHEET
4		84.32	STRETCHING IN TOP SHEET
5		84.25	STRETCHING IN TOP SHEET

Average Load (Pounds) 84.76

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-24	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.048/.048	86.60	STRETCHING IN TOP SHEET
2		85.12	STRETCHING IN TOP SHEET
3		87.12	STRETCHING IN TOP SHEET
4		87.50	STRETCHING IN TOP SHEET
5		85.87	STRETCHING IN TOP SHEET

Average Load (Pounds) 86.44

Sample No.:	DS-25	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.045	87.56	STRETCHING IN TOP SHEET
2		87.12	STRETCHING IN TOP SHEET
3		87.12	STRETCHING IN TOP SHEET
4		88.42	STRETCHING IN TOP SHEET
5		85.68	STRETCHING IN TOP SHEET

Average Load (Pounds) 87.18

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-26	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.044	87.62	STRETCHING IN BOTTOM SHEET
2		87.62	STRETCHING IN BOTTOM SHEET
3		87.12	STRETCHING IN BOTTOM SHEET
4		86.93	STRETCHING IN BOTTOM SHEET
5		86.87	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 87.23

Sample No.:	DS-27	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	88.06	STRETCHING IN TOP SHEET
2		91.06	STRETCHING IN TOP SHEET
3		89.81	STRETCHING IN BOTTOM SHEET
4		88.52	STRETCHING IN BOTTOM SHEET
5		90.75	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 89.64

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-28	Sample Size:	1" X 8"
Seam No.:		Material:	LLDPE/TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	TOP .044 BOTTOM 40 ML	89.45	STRETCHING IN TOP SHEET
2	NOMINAL	89.05	STRETCHING IN TOP SHEET
3		89.50	STRETCHING IN TOP SHEET
4		88.92	STRETCHING IN TOP SHEET
5		87.67	STRETCHING IN TOP SHEET

Average Load (Pounds) 88.92

Sample No.:	DS-29	Sample Size:	1" X 8"
Seam No.:		Material:	LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.045	85.50	STRETCHING IN TOP SHEET
2		85.75	STRETCHING IN TOP SHEET
3		85.93	STRETCHING IN TOP SHEET
4		86.81	STRETCHING IN TOP SHEET
5		84.00	STRETCHING IN TOP SHEET

Average Load (Pounds) 85.60

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-30	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	83.87	STRETCHING IN TOP SHEET
2		85.56	STRETCHING IN TOP SHEET
3		87.00	STRETCHING IN TOP SHEET
4		86.75	STRETCHING IN TOP SHEET
5		84.87	STRETCHING IN TOP SHEET

Average Load (Pounds) 85.61

Sample No.:	DS-31	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.045	90.50	STRETCHING IN TOP SHEET
2		91.12	STRETCHING IN TOP SHEET
3		90.06	STRETCHING IN TOP SHEET
4		91.00	STRETCHING IN TOP SHEET
5		89.37	STRETCHING IN TOP SHEET

Average Load (Pounds) 90.41

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-32	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.044/.044	88.75	STRETCHING IN BOTTOM SHEET
2		89.25	STRETCHING IN BOTTOM SHEET
3		88.25	STRETCHING IN BOTTOM SHEET
4		88.43	STRETCHING IN BOTTOM SHEET
5		88.00	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 88.54

Sample No.:	DS-33	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.041	82.43	STRETCHING IN BOTTOM SHEET
2		80.43	STRETCHING IN BOTTOM SHEET
3		80.93	STRETCHING IN BOTTOM SHEET
4		81.56	STRETCHING IN BOTTOM SHEET
5		78.93	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 80.86

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-3-97

LABORATORY TEST RESULTS

Sample No.:	DS-34	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.046	85.75	STRETCHING IN BOTTOM SHEET
2		85.93	STRETCHING IN BOTTOM SHEET
3		85.87	STRETCHING IN BOTTOM SHEET
4		85.68	STRETCHING IN BOTTOM SHEET
5		86.31	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 85.91

Sample No.:		Sample Size:	
Seam No.:		Material:	
Seamed by:		Weld Type:	
Date Seamed:		Strain Rate:	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1			
2			
3			
4			
5			

Average Load (Pounds) 0.00

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-35	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.32	STRETCHING IN TOP SHEET
2	NOMINAL	93.17	STRETCHING IN TOP SHEET
3		94.07	STRETCHING IN BOTTOM SHEET
4		94.32	STRETCHING IN BOTTOM SHEET
5		92.87	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 93.55

Sample No.:	DS-36	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.70	STRETCHING IN TOP SHEET
2	NOMINAL	94.22	STRETCHING IN BOTTOM SHEET
3		94.20	STRETCHING IN BOTTOM SHEET
4		95.15	STRETCHING IN TOP SHEET
5		93.52	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.36

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-37	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.32	STRETCHING IN BOTTOM SHEET
2	NOMINAL	93.72	STRETCHING IN BOTTOM SHEET
3		93.10	STRETCHING IN TOP SHEET
4		93.45	STRETCHING IN TOP SHEET
5		92.30	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 93.18

Sample No.:	DS-38	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.50	STRETCHING IN TOP SHEET
2	NOMINAL	94.47	STRETCHING IN TOP SHEET
3		95.40	STRETCHING IN TOP SHEET
4		94.47	STRETCHING IN TOP SHEET
5		93.67	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.30

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-39	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.92	STRETCHING IN BOTTOM SHEET
2	NOMINAL	94.57	STRETCHING IN BOTTOM SHEET
3		93.37	STRETCHING IN BOTTOM SHEET
4		95.85	STRETCHING IN BOTTOM SHEET
5		93.67	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 94.28

Sample No.:	DS-40	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.35	STRETCHING IN TOP SHEET
2	NOMINAL	94.22	STRETCHING IN TOP SHEET
3		94.52	STRETCHING IN TOP SHEET
4		95.35	STRETCHING IN TOP SHEET
5		93.70	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.43

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-41	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.82	STRETCHING IN TOP SHEET
2	NOMINAL	93.27	STRETCHING IN TOP SHEET
3		93.65	STRETCHING IN TOP SHEET
4		92.65	STRETCHING IN TOP SHEET
5		92.10	STRETCHING IN TOP SHEET

Average Load (Pounds) 93.10

Sample No.:	DS-42	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	91.05	STRETCHING IN BOTTOM SHEET
2	NOMINAL	89.57	STRETCHING IN TOP SHEET
3		90.72	STRETCHING IN TOP SHEET
4		90.65	STRETCHING IN BOTTOM SHEET
5		89.45	STRETCHING IN TOP SHEET

Average Load (Pounds) 90.29

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-43	Sample Size:	1" X 8"	
Seam No.:		Material:	TEXT LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	92.07	STRETCHING IN BOTTOM SHEET
2	NOMINAL	91.92	STRETCHING IN BOTTOM SHEET
3		92.52	STRETCHING IN BOTTOM SHEET
4		92.65	STRETCHING IN TOP SHEET
5		91.62	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 92.16

Sample No.:	DS-44	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.045/.044	93.00	STRETCHING IN BOTTOM SHEET
2		93.50	STRETCHING IN TOP SHEET
3		91.45	STRETCHING IN BOTTOM SHEET
4		92.00	STRETCHING IN BOTTOM SHEET
5		90.00	STRETCHING IN TOP SHEET

Average Load (Pounds) 91.99

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-45	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.044	95.00	STRETCHING IN BOTTOM SHEET
2		95.63	STRETCHING IN BOTTOM SHEET
3		95.41	STRETCHING IN BOTTOM SHEET
4		95.00	STRETCHING IN BOTTOM SHEET
5		96.87	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 95.58

Sample No.:	DS-46	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.046	93.65	STRETCHING IN BOTTOM SHEET
2		94.87	STRETCHING IN TOP SHEET
3		95.21	STRETCHING IN TOP SHEET
4		94.63	STRETCHING IN TOP SHEET
5		95.60	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.79

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-6-97

LABORATORY TEST RESULTS

Sample No.:	DS-47	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.044	91.63	STRETCHING IN BOTTOM SHEET
2		91.25	STRETCHING IN BOTTOM SHEET
3		91.46	STRETCHING IN BOTTOM SHEET
4		92.00	STRETCHING IN BOTTOM SHEET
5		94.25	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 92.12

Sample No.:	DS-48	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.042	95.64	STRETCHING IN TOP SHEET
2		95.12	STRETCHING IN TOP SHEET
3		96.00	STRETCHING IN TOP SHEET
4		95.91	STRETCHING IN TOP SHEET
5		95.21	STRETCHING IN TOP SHEET

Average Load (Pounds) 95.58

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-49	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	102.30	STRETCHING IN BOTTOM SHEET
2	NOMINAL	101.87	STRETCHING IN BOTTOM SHEET
3		100.45	STRETCHING IN TOP SHEET
4		101.05	STRETCHING IN TOP SHEET
5		100.72	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 101.28

Sample No.:	DS-50	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.47	STRETCHING IN BOTTOM SHEET
2	NOMINAL	99.45	STRETCHING IN TOP SHEET
3		99.70	STRETCHING IN BOTTOM SHEET
4		98.72	STRETCHING IN BOTTOM SHEET
5		98.75	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 99.22

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-51	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.15	STRETCHING IN TOP SHEET
2	NOMINAL	95.60	STRETCHING IN TOP SHEET
3		94.85	STRETCHING IN TOP SHEET
4		94.80	STRETCHING IN TOP SHEET
5		93.07	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.49

Sample No.:	DS-52	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	91.75	STRETCHING IN BOTTOM SHEET
2	NOMINAL	92.62	STRETCHING IN BOTTOM SHEET
3		91.92	STRETCHING IN BOTTOM SHEET
4		90.95	STRETCHING IN BOTTOM SHEET
5		91.62	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 91.77

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-53	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.25	STRETCHING IN BOTTOM SHEET
2	NOMINAL	94.05	STRETCHING IN BOTTOM SHEET
3		93.35	STRETCHING IN BOTTOM SHEET
4		93.90	STRETCHING IN BOTTOM SHEET
5		93.62	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 93.83

Sample No.:	DS-54	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	103.10	STRETCHING IN BOTTOM SHEET
2	NOMINAL	104.15	STRETCHING IN TOP SHEET
3		103.70	STRETCHING IN BOTTOM SHEET
4		104.37	STRETCHING IN TOP SHEET
5		103.27	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 103.72

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-55	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	99.02	STRETCHING IN TOP SHEET
2	NOMINAL	98.92	STRETCHING IN TOP SHEET
3		99.40	STRETCHING IN TOP SHEET
4		98.55	STRETCHING IN TOP SHEET
5		98.45	STRETCHING IN TOP SHEET

Average Load (Pounds) 98.87

Sample No.:	DS-56	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.97	STRETCHING IN TOP SHEET
2	NOMINAL	94.15	STRETCHING IN TOP SHEET
3		94.27	STRETCHING IN TOP SHEET
4		93.80	STRETCHING IN TOP SHEET
5		94.62	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.36

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-57	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.65	STRETCHING IN TOP SHEET
2	NOMINAL	97.35	STRETCHING IN BOTTOM SHEET
3		97.00	STRETCHING IN TOP SHEET
4		96.25	STRETCHING IN BOTTOM SHEET
5		96.56	STRETCHING IN TOP SHEET

Average Load (Pounds) 96.76

Sample No.:	DS-58	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.80	STRETCHING IN TOP SHEET
2	NOMINAL	94.47	STRETCHING IN BOTTOM SHEET
3		95.22	STRETCHING IN BOTTOM SHEET
4		94.90	STRETCHING IN TOP SHEET
5		93.25	STRETCHING IN TOP SHEET

Average Load (Pounds) 94.73

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-59	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	94.35	STRETCHING IN BOTTOM SHEET
2	NOMINAL	93.97	STRETCHING IN TOP SHEET
3		94.82	STRETCHING IN BOTTOM SHEET
4		93.77	STRETCHING IN BOTTOM SHEET
5		93.15	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 94.01

Sample No.:	DS-60	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	93.45	STRETCHING IN BOTTOM SHEET
2	NOMINAL	93.55	STRETCHING IN BOTTOM SHEET
3		93.40	STRETCHING IN BOTTOM SHEET
4		94.47	STRETCHING IN BOTTOM SHEET
5		93.57	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 93.69

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-61	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	96.87	STRETCHING IN BOTTOM SHEET
2	NOMINAL	95.00	STRETCHING IN BOTTOM SHEET
3		95.50	STRETCHING IN BOTTOM SHEET
4		96.50	STRETCHING IN TOP SHEET
5		96.52	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 96.08

Sample No.:	DS-62	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	95.87	STRETCHING IN TOP SHEET
2	NOMINAL	96.67	STRETCHING IN TOP SHEET
3		95.62	STRETCHING IN TOP SHEET
4		96.07	STRETCHING IN TOP SHEET
5		99.12	STRETCHING IN TOP SHEET

Average Load (Pounds) 96.67

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-63	Sample Size:	1" X 8"	
Seam No.:		Material:	TEXT LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.80	STRETCHING IN BOTTOM SHEET
2	NOMINAL	97.15	STRETCHING IN BOTTOM SHEET
3		96.72	STRETCHING IN BOTTOM SHEET
4		97.25	STRETCHING IN TOP SHEET
5		99.82	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 97.75

Sample No.:	DS-64	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.043/.043	76.00	STRETCHING IN BOTTOM SHEET
2		74.92	STRETCHING IN BOTTOM SHEET
3		74.72	STRETCHING IN BOTTOM SHEET
4		75.95	STRETCHING IN BOTTOM SHEET
5		74.72	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 75.26

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-22-97

LABORATORY TEST RESULTS

Sample No.:	DS-63	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	109.07	STRETCHING IN BOTTOM SHEET
2	NOMINAL	111.32	STRETCHING IN BOTTOM SHEET
3		110.75	STRETCHING IN BOTTOM SHEET
4		109.67	STRETCHING IN BOTTOM SHEET
5		110.97	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 110.36

Sample No.:	DS-65	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.90	STRETCHING IN TOP SHEET
2	NOMINAL	98.32	STRETCHING IN TOP SHEET
3		98.52	STRETCHING IN TOP SHEET
4		99.15	STRETCHING IN TOP SHEET
5		97.15	STRETCHING IN TOP SHEET

Average Load (Pounds) 98.21

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-16-97

LABORATORY TEST RESULTS

Sample No.:	DS-66	Sample Size:	1" X 8"	
Seam No.:		Material:	LLDPE	
Seamed by:		Weld Type:	FUSION	
Date Seamed:		Strain Rate:	2	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	.041/.044	68.80	STRETCHING IN TOP SHEET
2		69.65	STRETCHING IN TOP SHEET
3		70.20	STRETCHING IN TOP SHEET
4		69.60	STRETCHING IN TOP SHEET
5		68.80	STRETCHING IN TOP SHEET

Average Load (Pounds) 69.41

Sample No.:		Sample Size:	
Seam No.:		Material:	
Seamed by:		Weld Type:	
Date Seamed:		Strain Rate:	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1			
2			
3			
4			
5			

Average Load (Pounds) 0.00

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-22-97

LABORATORY TEST RESULTS

Sample No.:	DS-68	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	97.80	STRETCHING IN TOP SHEET
2	NOMINAL	96.57	STRETCHING IN TOP SHEET
3		96.55	STRETCHING IN TOP SHEET
4		96.22	STRETCHING IN TOP SHEET
5		97.62	STRETCHING IN TOP SHEET

Average Load (Pounds) 96.95

Sample No.:		Sample Size:	
Seam No.:		Material:	
Seamed by:		Weld Type:	
Date Seamed:		Strain Rate:	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1			
2			
3			
4			
5			

Average Load (Pounds) 0.00

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-67	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	40 ML	101.10	STRETCHING IN BOTTOM SHEET
2	NOMINAL	98.17	STRETCHING IN BOTTOM SHEET
3		100.30	STRETCHING IN TOP SHEET
4		100.27	STRETCHING IN BOTTOM SHEET
5		101.40	STRETCHING IN TOP SHEET

Average Load (Pounds) 100.25

Sample No.:	DS-69	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	TOP 60 ML BOTTOM 40 ML	98.02	STRETCHING IN BOTTOM SHEET
2	NOMINAL	98.57	STRETCHING IN BOTTOM SHEET
3		98.97	STRETCHING IN BOTTOM SHEET
4		97.72	STRETCHING IN BOTTOM SHEET
5		99.17	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 98.49

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-70	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	130.77	STRETCHING IN TOP SHEET
2	NOMINAL	129.50	STRETCHING IN TOP SHEET
3		131.27	STRETCHING IN TOP SHEET
4		131.82	STRETCHING IN TOP SHEET
5		130.80	STRETCHING IN TOP SHEET

Average Load (Pounds) 130.83

Sample No.:	DS-71	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	131.85	STRETCHING IN BOTTOM SHEET
2	NOMINAL	130.75	STRETCHING IN BOTTOM SHEET
3		131.22	STRETCHING IN BOTTOM SHEET
4		131.15	STRETCHING IN BOTTOM SHEET
5		132.25	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 131.44

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-72	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	131.07	STRETCHING IN TOP SHEET
2	NOMINAL	131.15	STRETCHING IN TOP SHEET
3		129.77	STRETCHING IN TOP SHEET
4		130.90	STRETCHING IN TOP SHEET
5		131.50	STRETCHING IN TOP SHEET

Average Load (Pounds) 130.88

Sample No.:	DS-73	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	130.60	STRETCHING IN TOP SHEET
2	NOMINAL	129.85	STRETCHING IN TOP SHEET
3		129.00	STRETCHING IN TOP SHEET
4		131.15	STRETCHING IN TOP SHEET
5		131.07	STRETCHING IN TOP SHEET

Average Load (Pounds) 130.33

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-74	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	131.42	STRETCHING IN BOTTOM SHEET
2	NOMINAL	130.95	STRETCHING IN BOTTOM SHEET
3		131.20	STRETCHING IN BOTTOM SHEET
4		130.85	STRETCHING IN BOTTOM SHEET
5		130.92	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 131.07

Sample No.:	DS-75	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	140.00	STRETCHING IN BOTTOM SHEET
2	NOMINAL	136.77	STRETCHING IN BOTTOM SHEET
3		135.70	STRETCHING IN TOP SHEET
4		138.35	STRETCHING IN BOTTOM SHEET
5		133.47	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 136.86

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-20-97

LABORATORY TEST RESULTS

Sample No.:	DS-76	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	133.45	STRETCHING IN BOTTOM SHEET
2	NOMINAL	132.52	STRETCHING IN TOP SHEET
3		131.77	STRETCHING IN BOTTOM SHEET
4		132.70	STRETCHING IN BOTTOM SHEET
5		133.60	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 132.81

Sample No.:	DS-77	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	129.07	STRETCHING IN BOTTOM SHEET
2	NOMINAL	129.25	STRETCHING IN BOTTOM SHEET
3		129.55	STRETCHING IN BOTTOM SHEET
4		130.15	STRETCHING IN BOTTOM SHEET
5		130.40	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 129.68

EMCON
GEOMEMBRANE SEAM SHEAR TEST REPORT

Assigned by:	K.H.	Project No.:	86078.004.000
Tested by:	K.H.	Client:	PAGEL LANDFILL
Checked by:	R.S.A.	Project:	EMCON ILL.
		Date Tested:	9-24-97

LABORATORY TEST RESULTS

Sample No.:	DS-79	Sample Size:	1" X 8"
Seam No.:		Material:	TEXT LLDPE
Seamed by:		Weld Type:	FUSION
Date Seamed:		Strain Rate:	2 in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1	60 ML	136.52	STRETCHING IN BOTTOM SHEET
2	NOMINAL	135.30	STRETCHING IN TOP SHEET
3		134.60	STRETCHING IN BOTTOM SHEET
4		134.77	STRETCHING IN BOTTOM SHEET
5		135.72	STRETCHING IN BOTTOM SHEET

Average Load (Pounds) 135.38

Sample No.:		Sample Size:	
Seam No.:		Material:	
Seamed by:		Weld Type:	
Date Seamed:		Strain Rate:	in./min.

Specimen No.	Thickness (inches)	Maximum Load (pounds)	Remarks
1			
2			
3			
4			
5			

Average Load (Pounds) 0.00

Sub- Appendix E.8

Geomembrane Repair Log

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
8/27/97	1	2/3		130' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	
8/27/97	2	2/3		120' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-1
8/27/97	3	2/3		18' on Seam	Patch	2	2	JR	2014	8/29	JA	KH	
8/27/97	4	2/3		49" on Seam	Patch	3	2	JR	2014	8/29	JA	KH	
8/27/97	5	3/4		207' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-2
8/27/97	6	6/7		242' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	
8/27/97	7	6/7		218' on Seam	Patch	3	2	JR	2014	8/29	JA	KH	
8/27/97	8	6/7		188' on Seam	Patch	5	4	JR	2014	8/29	JA	KH	
8/27/97	9	5/6		98' on Seam	Patch	6	2	JR	2014	8/28	JA	KH	DS-3
8/27/97	10	8/9		143' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-5
8/27/97	11	8/9		269' on Seam	Patch	2	1	JR	2014	8/29	JA	KH	
8/27/97	12	7/8		274' on Seam	Patch	1	1	JR	2014	8/29	JA	KH	
8/27/97	13	7/8		185' on Seam	Patch	1	1	JR	2014	8/28	JA	KH	
8/27/97	14	6/7		60' on Seam	Patch	6	2	JR	2014	8/28	JA	KH	DS-4
8/27/97	15	7/8		62' on Seam	Patch	1	1	JR	2014	8/28	JA	KH	
8/27/97	16		3	20' on Panel 8' East	Patch	1	1	JR	2014	8/29	JA	KH	
8/27/97	17	10/11		110' on Seam	Patch	6	2	JR	2014	8/28	JA	KH	DS-6
8/27/97	18	10/11		143' on Seam	Patch	1	1	JR	2014	8/28	JA	KH	
8/27/97	19		10	25' on Panel 1' West	Patch	1	1	JR	2014	8/28	JA	KH	
8/27/97	20		9	2' on Panel 1' East	Patch	1	1	JR	2014	8/28	JA	KH	
8/27/97	21	11/12		205' on Panel	Patch	6	2	JR	2014	8/29	JA	KH	DS-7
8/27/97	22	12/13		20' on Panel	Patch	3	1	JR	2014	8/29	JA	KH	
8/27/97	23	10/11		52' on Seam	Patch	1	1	JR	2014	8/28	JA	KH	
8/28/97	24		13	25' on Panel 5' East	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	25	14/15		24' on Seam	Patch	2	1	JR	2014	8/29	JA	KH	
8/28/97	26	14/15		80' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-9
8/28/97	27	14/15		107' on Seam	Patch	4	2	JR	2014	8/29	JA	KH	
8/28/97	28	13/14		160' on Seam	Patch	4	3	JR	2014	8/28	JA	KH	
8/28/97	29	13/14		184' on Seam	Patch	8	4	JR	2014	8/28	JA	KH	
8/28/97	30	12/13		166' on Seam	Patch	3	2	JR	2014	8/28	JA	KH	
8/28/97	31	12/13		170' on Seam	Patch	6	3	JR	2014	8/28	JA	KH	
8/28/97	32		13	155' on Panel 3' West	Patch	4	1	JR	2014	8/28	JA	KH	

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
8/28/97	33	13/14		225' on Seam	Patch	20	2	JR	2014	8/28	JA	KH	DS-8
8/28/97	34	14/15		195' on Seam	Patch	4	2	JT	037	8/28	JA	KH	
8/28/97	35	14/15		207' on Seam	Patch	2	1	JT	037	8/28	JA	KH	
8/28/97	36	12/13		233' on Seam	Patch	2	1	JT	037	8/29	JA	KH	
8/28/97	37	12/13		241' on Seam	Patch	1	1	JT	037	8/29	JA	KH	
8/28/97	38	14/15		15' on Seam	Patch	2	1	JT	037	8/29	JA	KH	
8/28/97	39		16/17/27	Int	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	40		17/18/27	Int	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	41	16/17		20' on Seam	Patch	4	2	JT	037	8/29	JA	KH	
8/28/97	42		23/24/28	Int	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	43		24/25/28	Int	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	44		25/26/37	Int	Patch	3	2	JT	037	8/29	JA	KH	
8/28/97	45		24/25/26	Int	Patch	3	2	JT	037	8/29	JA	KH	
8/28/97	46		25/28/37	Int	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	47	25/26		10' on Seam	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	48	23/24		164' on Seam	Patch	6	3	JT	037	8/29	JA	KH	DS-14
8/28/97	49	14/15		284' on Seam	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	50	14/15		296' on Seam	Patch	8	2	JR	2014	8/29	JA	KH	
8/28/97	51	13/14		273' on Seam	Patch	2	2	JR	2014	8/29	JA	KH	
8/28/97	52	12/13		306' on Seam	Patch	2	2	JR	2014	8/29	JA	KH	
8/28/97	53	12/13		311' on Seam	Patch	2	2	JR	2014	8/29	JA	KH	
8/28/97	54	10/11		278' on Seam	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	55		25/28/37	274' on Panel 8' West	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	56		25/28/37	279' on Panel 8' West	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	57		25/28/37	284' on Panel 8' West	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	58		25/28/37	292' on Panel 8' West	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	59	15/16		275' on Seam	Patch	2	2	JR	2014	8/29	JA	KH	
8/28/97	60	15/16		285' on Seam	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	61	16/17		290' on Seam	Patch	3	2	JR	2014	8/29	JA	KH	
8/28/97	62		28/37/38	Int	Patch	3	2	JT	037	8/29	JA	KH	
8/28/97	63	14/19		20' on Seam	Patch	4	2	JT	037	8/29	JA	KH	
8/28/97	64		28/38/39	Int	Patch	2	2	JT	037	8/29	JA	KH	

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
8/28/97	65	15/16		178' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-10
8/28/97	66	19/20		174' on Seam	Patch	6	2	JR	2014	8/28	JA	KH	DS-11
8/28/97	67	28/29		312' on Seam	Patch	6	2	JT	037	8/29	JA	KH	DS-15
8/28/97	68		29/30/31	Int	Patch	3	2	JT	037	8/29	JA	KH	
8/28/97	69	29/31		10' on Seam	Patch	7	4	JT	037	8/29	JA	KH	
8/28/97	70		24	90' on Panel 8' East	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	71	17/18		109' on Seam	Patch	1	1	JR	2014	8/29	JA	KH	
8/28/97	72		22/23/28	Int & Along 22/28	Patch	10	2	JR	2014	8/29	JA	KH	
8/28/97	73	28/29		25' on Seam	Patch	2	1	JR	2014	8/29	JA	KH	
8/28/97	74	30/32		250' on Seam	Patch	1	1	JR	037	8/29	JA	KH	
8/28/97	75	29/30		260' on Seam	Patch	2	1	JT	037	8/29	JA	KH	
8/28/97	76	29/30		241' on Seam	Patch	6	2	JT	037	8/29	JA	KH	DS-16
8/28/97	77		30/31/32	Int	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	78	28/29		238' on Seam	Patch	1	1	JT	037	8/29	JA	KH	
8/28/97	79	20/21		97' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-12
8/28/97	80	21/22		245' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-13
8/28/97	81		32/33/34	Int	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	82		33/34/35	Int & Patch	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	83	33/35		167' on Seam	Patch	8	2	JT	037	8/29	JA	KH	DS-18
8/28/97	84	33/35		216' on Seam	Patch	2	2	JT	037	8/29	JA	KH	
8/28/97	85	35/36		131' on Seam	Patch	2	2	JT	037	9/6	JA	DF	
8/28/97	86	32/33		167' on Seam	Patch	6	2	JT	037	8/29	JA	KH	DS-17
8/28/97	87	35/36		65' on Seam	Patch	6	2	JR	2014	8/29	JA	KH	DS-19
8/30/97	88		1/41/40	Int	Patch	3	2	JT	037	9/2	JA	KH	
8/30/97	89		1/41/42	Int	Patch	3	2	JT	037	9/2	JA	KH	
8/30/97	90		1/42/43	Int	Patch	3	2	JT	037	9/2	JA	KH	
8/30/97	91	42/43		9' on Seam	Patch	8	2	JT	037	9/2	JA	KH	
8/30/97	92	42/43		16' on Seam	Patch	2	1	JT	037	9/2	JA	KH	
8/30/97	93	1/43		30' on Seam 10' West	Patch	12	3	JT	037	9/2	JA	KH	
8/30/97	94	1/43		34' on Seam	Patch	2	1	JT	037	9/2	JA	KH	
8/30/97	95		42/43/44	Int	Patch	2	1	JT	037	9/2	JA	KH	
8/30/97	96	42/44		5' on Seam	Patch	2	1	JT	037	9/2	JA	KH	

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
8/30/97	97	42/44		15' on Seam	Patch	3	2	JT	037	9/2	JA	KH	
8/30/97	98		3/4/54	Int	Patch	2	2	JR	2014	9/2	JA	KH	
8/30/97	99		3/54/55	Int	Patch	4	2	JR	2014	9/2	JA	KH	
8/30/97	100	3/54		Seam	Bead	2		JR	2014	9/2	JA	KH	
8/30/97	101	2/55		Seam	Bead	3		JR	2014	9/2	JA	KH	
8/30/97	102		2/55/56	Int	Patch	2	2	JR	2014	9/2	JA	KH	
8/30/97	103		2	2' on Panel Middle	Patch	1	1	JR	2014	9/2	JA	KH	
8/30/97	104		1/2/56	Int	Patch	2	2	JR	2014	9/2	JA	KH	
8/30/97	105		1/56/57	Int	Patch	2	2	JR	2014	9/2	JA	KH	
8/30/97	106		4/5/53/54	Int from 4/5 East	Patch	14	2	JR	2014	9/2	JA	KH	
8/30/97	107		5/6/52/53	Int	Patch	5	2	JR	2014	9/2	JA	KH	
8/30/97	108	52/53		110' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/30/97	109		6/7/50/52	Int	Patch	4	2	JR	2014	9/2	JA	KH	
8/31/97	110		50	5' from S End 2'East	Patch	3	2	JR	2014	9/2	JA	KH	
8/31/97	111		7/8/49/50	Int	Patch	6	3	JR	2014	9/2	JA	KH	
8/31/97	112	49/58		222' on Seam	Patch	1	1	JR	2014	9/2	JA	KH	
8/31/97	113	49/58		223'-228' on Seam	Bead	5		JR	2014	9/2	JA	KH	
8/31/97	114	49/58		231' on Seam	Patch	7	3	JR	2014	9/2	JA	KH	
8/31/97	115	49/58		213' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	116	49/58		197' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	117	49/58		146' on Seam	Patch	5	2	JR	2014	9/2	JA	KH	DS-24
8/31/97	118	49/58		147'-151' on Seam	Bead	3		JR	2014	9/2	JA	KH	
8/31/97	119	49/58		152' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	120	49/58		127' on Seam	Patch	4	2	JR	2014	9/2	JA	KH	
8/31/97	121	49/58		65' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	122	49/58		44' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	123	58/59		50' on Seam	Patch	7	2	JR	2014	9/2	JA	KH	
8/31/97	124	58/59		20' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	125	58/59		10' on Seam	Patch	4	2	JR	2014	9/2	JA	KH	
8/31/97	126	58/59		66' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	127	59/60		53' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	128	59/60		65' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
8/31/97	129	59/60		90' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	130	58/59		88' on Seam	Patch	3	3	JR	2014	9/2	JA	KH	
8/31/97	131	58/59		97' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	132	58/59		145' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	133	58/59		257' on Seam	Patch	7	2	JR	2014	9/2	JA	KH	DS-25
8/31/97	134	52/53		68' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	135	54/55		42' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	136	54/55		52' on Seam	Patch	3	2	JR	2014	9/2	JA	KH	
8/31/97	137	54/55		72' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	138	55/56		60' on Seam	Patch	4	2	JR	2014	9/2	JA	KH	
8/31/97	139	53/54		50' on Seam	Patch	6	2	JR	2014	9/2	JA	KH	DS-23
8/31/97	140	52/53		110' on Seam	Patch	4	2	JR	2014	9/2	JA	KH	
8/31/97	141	49/50		200' on Seam	Patch	6	2	JR	2014	9/2	JA	KH	DS-22
8/31/97	142		50/51/52	Int	Patch	3	2	JR	2014	9/2	JA	KH	
8/31/97	143		51/52/53	Int	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	144	61/62		250' on Seam	Patch	6	2	JT	037	9/2	JA	KH	DS-27
8/31/97	145	61/62		240' on Seam	Patch	3	2	JT	037	9/2	JA	KH	
8/31/97	146	61/62		96' on Seam	Patch	2	2	JT	037	9/2	JA	KH	
8/31/97	147	61/62		101' on Seam	Patch	2	2	JT	037	9/2	JA	KH	
8/31/97	148	60/61		110' on Seam	Patch	6	2	JT	037	9/2	JA	KH	DS-26
8/31/97	149		62/63/65	Int	Patch	3	3	JT	037	9/2	JA	KH	
8/31/97	150		63/64/65	Int + To East	Patch	7	3	JT	037	9/2	JA	KH	
8/31/97	151	63/64		75' on Seam	Patch	6	2	JT	037	9/2	JA	KH	
8/31/97	152		8/9/49/58	Int	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	153	9/58		7' on Seam	Patch	4	2	JR	2014	9/2	JA	KH	DS-29
8/31/97	154		9/10/58/59	Int + East	Patch	9	5	JR	2014	9/2	JA	KH	
8/31/97	155		10/11/59/60	Int + East	Patch	15	7	JR	2014	9/2	JA	KH	
8/31/97	156	11/60		10' on Seam	Patch	6	2	Jr	2014	9/2	JA	KH	
8/31/97	157		11/12/60/61	Int + South	Patch	10	6	JR	2014	9/2	JA	KH	DS-28
8/31/97	158	66/68		90' on Seam	Patch	6	2	JT	037	9/2	JA	KH	DS-31
8/31/97	159		60	8' From End 2' West	Patch	2	2	JR	2014	9/2	JA	KH	
8/31/97	160	68/69		105' on Seam	Patch	6	2	JT	037	9/2	JA	KH	DS-34

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
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Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
8/31/97	161		68/69/70	Int	Patch	3	2	JT	037	9/2	JA	KH	
8/31/97	162	68/70		12' on Seam	Patch	6	2	JT	037	9/2	JA	KH	DS-33
8/31/97	163		66/68/70	Int	Patch	3	2	JT	037	9/2	JA	KH	
8/31/97	164	66/70		5' on Seam +3'BD	Patch	2	2	JT	037	9/2	JA	KH	
8/31/97	165	62/63		187' on Seam	Patch	3	2	JR	2014	9/2	JA	KH	
8/31/97	166	64/67		80' on Seam	Patch	6	2	JT	037	9/2	JA	KH	DS-30
8/31/97	167	67/68		50' on Seam	Patch	6	2	JT	037	9/2	JA	KH	DS-32
8/31/97	168		66/67/68	Int	Patch	6	2	JT	037	9/2	JA	KH	
8/31/97	169		64/66/67	Int + 66/67 Seam	Patch	16	3	JR	2014	9/2	JA	KH	
9/2/97	170	40/41		56' on Seam	Patch	6	2	JR	2014	9/2	JA	KH	DS-20
9/2/97	171	41/42		80' on Seam	Patch	6	2	JR	2014	9/2	JA	KH	DS-21
9/2/97	172		42/45/44	Int + 42/45	Patch	20	2	JR	2014	9/2	JA	KH	
9/2/97	173		42/45/46	Int	Patch	4	2	JR	2014	9/2	JA	KH	
9/2/97	174	42/46		8' on Seam	Patch	3	3	JR	2014	9/2	JA	KH	
9/2/97	175	42/46		22' on Seam	Patch	3	2	JR	2014	9/2	JA	KH	
9/2/97	176		42/46/47	Int + 42/47	Patch	8	2	JR	2014	9/2	JA	KH	
9/2/97	177	42/47		19' on Seam	Patch	5	2	JR	2014	9/2	JA	KH	
9/2/97	178		44/45/48	Int	Patch	2	2	JR	2014	9/2	JA	KH	
9/2/97	179		43/44/48	Int	Patch	5	2	JR	2014	9/2	JA	KH	
9/2/97	180	1/43		137' on Seam	Patch	1	1	JR	2014	9/2	JA	KH	
9/2/97	181	1/43		150' on Seam	Patch	1	1	JR	2014	9/2	JA	KH	
9/2/97	182	2/3		282' on Seam	Patch	5	2	JR	2014	9/2	JA	KH	
9/2/97	183	2/3		291' on Seam	Patch	6	2	JR	2014	9/2	JA	KH	
9/2/97	184			Int	Patch	4	2	JR	2014	9/2	JA	KH	
9/2/97	185	27/18		Seam	Bead	4		JR	2014	9/2	JA	KH	
9/2/97	186			Int	Patch	4	2	JR	2014	9/2	JA	KH	
9/2/97	187			Int	Patch	4	3	JR	2014	9/2	JA	KH	
9/2/97	188	16/27		Seam	Bead	4		JR	2014	9/2	JA	KH	
9/2/97	189			Int	Patch	3	3	JR	2014	9/2	JA	KH	
9/2/97	190			Int	Patch	4	3	JR	2014	9/2	JA	KH	
9/2/97	191			Int	Patch	3	3	JR	2014	9/2	JA	KH	
9/2/97	192		13/14/62/63	Int	Patch	5	3	JR	2014	9/2	JA	KH	

GEOMEMBRANE REPAIR LOG

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Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/2/97	193		12/13/61/62	Int	Patch	12	2	JR	2014	9/2	JA	KH	
9/2/97	194	12/61		8' on Seam	Patch	2	2	JR	2014	9/2	JA	KH	
9/4/97	195		36/72/73	Int	Patch	4	2	EP	2014	9/6	JA	DF	
9/4/97	196		36/33/74	Int - 73/74	Patch	5	2	EP	2014	9/6	JA	DF	
9/4/97	197		36/73/74	Int - 36/74	Patch	10	2	EP	2014	9/6	JA	DF	
9/4/97	198		74/75/36	Int	Patch	4	2	EP	2014	9/6	JA	DF	
9/5/97	199	72/73		228' on Seam	Patch	2	2	JT	037	9/6	JA	DF	
9/5/97	200	72/73		146' on Seam	Patch	2	2	JT	037	9/6	JA	DF	
9/5/97	201	72/73		109' on Seam	Patch	2	2	JT	037	9/6	JA	DF	
9/5/97	202		72	195' on Panel 9'S	Patch	5	4	JT	037	9/6	JA	DF	
9/5/97	203		74/75/99	Int	Patch	3	2	JT	037	9/6	JA	DF	
9/5/97	204	74/75		89' on Seam	Patch	5	4	JT	037	9/7	JA	DF	
9/5/97	205	74/75		73' on Seam	Patch	2	2	JT	037	9/7	JA	DF	
9/5/97	206	74/75		63' on Seam	Patch	6	3	JT	037	9/6	JA	DF	
9/5/97	207		74	50' on Panel 4' S	Patch	7	2	JT	037	9/6	JA	DF	
9/5/97	208	69/88		15' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	209		88/89/90	Int	Patch	6	2	CP	2014	9/6	JA	DF	
9/5/97	210		89/90/91	Int	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	211		91/92/93	Int	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	212		92/93/94	Int	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	213	71/72		66' on Seam	Patch	6	2	JT	037	9/6	JA	DF	DS-35
9/5/97	214	72/73		122' on Seam	Patch	6	2	JT	037	9/6	JA	DF	DS-36
9/5/97	215	36/75		9' on Seam	Patch	6	2	JT	037	9/6	JA	DF	DS-37
9/5/97	216	94/95		59' on Seam	Patch	4	2	CP	2014	9/6	JA	DF	
9/5/97	217	94/95		109' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	218	94/95		216' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	219	91/92		134' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	220	94/95		257' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	221	95/97		237' on Seam	Patch	6	2	CP	2014	9/6	JA	DF	DS-48
9/5/97	222	69/88		208' on Seam	Patch	4	2	CP	2014	9/6	JA	DF	
9/5/97	223		69	200' on Panel 4' E	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	224	69/88		300' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	

GEOMEMBRANE REPAIR LOG

EMCON

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DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/5/97	225	95/97		205' on Seam	Patch	4	2	CP	2014	9/6	JA	DF	
9/5/97	226	95/97		195' on Seam	Patch	3	2	CP	2014	9/6	JA	DF	
9/5/97	227	88/89		268' on Seam	Patch	6	2	CP	2014	9/6	JA	DF	DS-45
9/5/97	228	69/88		112' on Seam	Patch	6	2	CP	2014	9/6	JA	DF	DS-44
9/5/97	229	89/91		30' on Seam	Patch	6	2	CP	2014	9/6	JA	DF	DS-46
9/5/97	230	92/94		26' on Seam	Patch	6	2	CP	2014	9/6	JA	DF	DS-47
9/5/97	231	71/76		21' on Seam	Patch	1	1	JT	037	9/6	JA	DF	
9/5/97	232	71/76		74' on Seam	Patch	5	2	JT	037	9/6	JA	DF	
9/5/97	233	71/76		221' on Seam	Patch	2	2	JT	037	9/9	JA	KH	
9/5/97	234	71/76		240' on Seam	Patch	6	2	JT	037	9/5	JA	KH	DS-38
9/5/97	235	71/76		296' on Seam	Patch	30	2	JT	037	9/6	JA	DF	
9/5/97	236	76/77		94' on Seam	Patch	6	2	JT	037	9/6	JA	DF	DS-39
9/5/97	237	71/76		226' on Seam	Patch	12	2	JT	037	9/9	JA	KH	
9/5/97	238		71	302' on Panel 16' S	Patch	2	2	JT	037	9/6	JA	DF	
9/5/97	239		95/96/97	Int	Patch	3	2	CP	2014	9/6	JA	DF	
9/5/97	240		94/95/96	Int + 94/95	Patch	21	2	CP	2014	9/6	JA	DF	
9/5/97	241	95/96		8' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	242	95/97		10' on Seam	Patch	2	2	CP	2014	9/6	JA	DF	
9/5/97	243	71/76		280' on Seam	Patch	4	2	JT	037	9/6	JA	DF	
9/5/97	244		76/77/78	Int	Patch	3	3	JT	037	9/6	JA	DF	
9/5/97	245		77/78/79	Int	Patch	4	2	JT	037	9/6	JA	DF	
9/5/97	246		79/80/81	Int	Patch	2	2	JT	037	9/6	JA	DF	
9/5/97	247	79/80		231' on Seam	Patch	8	3	JT	037	9/6	JA	DF	
9/5/97	248		80/81/82	Int	Patch	3	2	JT	037	9/6	JA	DF	
9/6/97	249	35/36		127' on Seam	Patch	2	2	JR	2014	9/6	JA	DF	
9/6/97	250		83/84/85	Int	Patch	2	2	JT	037	9/6	JA	DF	
9/6/97	251	83/84		3' on Seam	Patch	4	2	JT	037	9/6	JA	DF	
9/6/97	252	83/84		15' on Seam	Patch	4	2	JT	037	9/6	JA	DF	
9/6/97	253		82/83/84	Int	Patch	6	2	JT	037	9/6	JA	DF	
9/6/97	254	84/85		52' on Seam	Patch	6	2	JT	037	9/6	JA	DF	DS-42
9/6/97	255	82/84		107' on Seam	Patch	10	2	JT	037	9/6	JA	DF	
9/6/97	256	81/82		37' on Seam	Patch	3	3	JT	037	9/6	JA	DF	

GEOMEMBRANE REPAIR LOG

EMCON

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DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/6/97	257	81/82		68' on Seam	Patch	9	4	JT	037	9/6	JA	DF	
9/6/97	258	80/82		212' on Seam	Patch	6	2	JT	037	9/6	JA	DF	
9/6/97	259		36/72/73	Int	Patch	4	2	JR	2014	9/6	JA	DF	
9/6/97	260		74/75/99	Int	Patch	3	2	JT	037	9/6	JA	DF	
9/6/97	261	99/100		119' on Seam	Patch	2	2	JR	2017	9/6	JA	DF	
9/6/97	262	77/79		113' on Seam	Patch	6	2	JT	037	9/6	JA	DF	
9/6/97	263	77/79		130' on Seam	Patch	7	3	JT	037	9/6	JA	DF	
9/6/97	264	77/79		155' on Seam	Patch	6	3	JT	037	9/6	JA	DF	DS-40
9/6/97	265	77/79		191' on Seam	Patch	16	3	JT	037	9/6	JA	DF	
9/6/97	266	71/72		260' on Seam	Patch	2	2	JT	037	9/6	JA	DF	
9/6/97	267	82/83		89' on Seam	Patch	5	3	JT	037	9/6	JA	DF	DS-41
9/6/97	268	79/80		125' on Seam	Patch	4	3	JT	037	9/6	JA	DF	
9/6/97	269	79/80		147' on Seam	Patch	7	4	JT	037	9/6	JA	DF	Well Boot
9/6/97	270	85/86		115' on Seam	Patch	5	2	JT	037	9/6	JA	DF	DS-43
9/6/97	271		32/33/97	Int	Patch	3	2	JT	037	9/7	JA	DF	
9/6/97	272		32/95/97	Int	Patch	14	3	JT	037	9/7	JA	DF	
9/6/97	273		30/32/95	Int	Patch	3	2	JT	037	9/7	JA	DF	
9/6/97	274		30	2' S 10' E	Patch	2	2	JT	037	9/7	JA	DF	
9/6/97	275		29/30/94/95	Int	Patch	6	4	JT	037	9/7	JA	DF	
9/6/97	276		94	1' N 19' E	Patch	2	2	JT	037	9/7	JA	DF	
9/6/97	277		28/29/94	Int	Patch	4	2	JT	037	9/7	JA	DF	
9/6/97	278		28/29/92/94	Int	Patch	9	2	JT	037	9/7	JA	DF	
9/6/97	279	28/92		10' on Seam	Patch	3	2	JT	037	9/7	JA	DF	
9/6/97	280		22/28/92	Int	Patch	3	2	JT	037	9/7	JA	DF	
9/6/97	281		22/91/92	Int	Patch	3	3	JT	037	9/7	JA	DF	
9/6/97	282		21/22/91	Int	Patch	5	4	JT	037	9/7	JA	DF	
9/6/97	283		91	8' E 2' N	Patch	2	2	JR	2014	9/7	JA	DF	
9/6/97	284		91	12' E 3' N	Patch	2	2	JR	2014	9/7	JA	DF	
9/6/97	285		20/21/89/91	Int	Patch	6	3	JR	2014	9/7	JA	DF	
9/6/97	286	20/89		6' on Seam	Patch	3	2	JR	2014	9/7	JA	DF	
9/6/97	287	20/89		11' on Seam	Patch	3	2	JR	2014	9/7	JA	DF	
9/6/97	288		19/20/88/89	Int	Patch	16	8	JR	2014	9/7	JA	DF	

GEOMEMBRANE REPAIR LOG

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						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/6/97	289		18/19/69/88	Int	Patch	6	2	JR	2014	9/7	JA	DF	
9/6/97	290	69/88		405' on Seam	Patch	2	2	JR	2014	9/7	JA	DF	
9/6/97	291		69	190' S 3' E	Patch	4	2	JR	2014	9/7	JA	DF	
9/6/97	292		69	197' S 4' E	Patch	3	2	JT	037	9/7	JA	DF	
9/6/97	293		75/99/100	Int	Patch	4	2	JR	2014	9/7	JA	DF	
9/6/97	294	99/100		47' on Seam	Patch	3	2	JR	2014	9/7	JA	DF	
9/6/97	295		36/100/101	Int	Patch	5	4	JR	2014	9/7	JA	DF	
9/6/97	296		36/101/102	Int	Patch	5	3	JR	2014	9/7	JA	DF	
9/6/97	297	36/102		23' on Seam	Patch	4	3	JR	2014	9/7	JA	DF	
9/6/97	298		36/102/103	Int	Patch	4	2	JR	2014	9/7	JA	DF	
9/6/97	299		36/75/100	Int	Patch	6	4	JT	037	9/7	JA	DF	
9/6/97	300	36/101		12' on Seam	Patch	2	2	JR	2014	9/7	JA	DF	
9/9/97	301	71/76		221' on Seam	Patch	5		JR	2014	9/9	JR	KH	
9/9/97	302	36/103		32' on Seam	Patch	4	2	JR	2014	9/9	JR	KH	
9/9/97	303	81/82		68' on Seam	Patch	20	2	JR	2014	9/9	JR	KH	
9/9/97	304		34	13' S 6' W	Patch	2	2	JR	2014	9/9	JR	KH	
9/9/97	305		34	17' S 4' W	Patch	6	2	JR	2014	9/9	JR	KH	
9/11/97	306	41/42		64' on Seam	Patch	6	2	JT	037	9/11	JT	KH	DS-21A
9/11/97	307	41/42		70' - 80' on Seam	Bead	10		JT	037	9/11	JT	KH	
9/11/97	308	41/42		86' - 96' on Seam	Bead	10		JT	037	9/11	JT	KH	
9/11/97	309	41/42		96' on Seam	Patch	6	2	JT	037	9/11	JT	KH	DS-21B
9/13/97	310		98/105/106/115	Int	Patch	13	5	JT	037	9/13	JA	DF	
9/13/97	311	98/115		14' on Seam	Patch	3	3	JR	037	9/13	JA	DF	
9/13/97	312		98/105/106	Int	Patch	4	4	JT	2014	9/13	JA	DF	
9/13/97	313		104/105/98	Int	Patch	5	4	JT	037	9/13	JA	DF	
9/13/97	314		106/107/115/116	Int	Patch	5	4	JT	037	9/13	JA	DF	
9/13/97	315		107/116/117	Int	Patch	4	2	JT	037	9/13	JA	DF	
9/13/97	316		107/108/117	Int	Patch	2	2	JT	037	9/13	JA	DF	
9/13/97	317		108/117/118	Int	Patch	3	2	JT	037	9/13	JA	DF	
9/13/97	318		108/109/118	Int	Patch	3	2	JR	2014	9/13	JA	DF	
9/13/97	319		109/118/119	Int	Patch	2	2	JR	2014	9/13	JA	DF	
9/13/97	320		109/110/119	Int	Patch	3	2	JR	2014	9/13	JA	DF	

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/13/97	321	98/115		106' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-49
9/13/97	322	116/117		98' on Seam	Patch	6	2	JT	037	9/14	JA	DF	DS-57
9/13/97	323	118/119		110' on Seam	Patch	6	2	JT	037	9/14	JA	DF	DS-50
9/13/97	324		120/121/126	Int	Patch	3	3	JT	037	9/14	JA	DF	
9/13/97	325		121/122/126	Int	Patch	4	3	JT	037	9/14	JA	DF	
9/13/97	326		123	58' on Panel 1' N	Patch	2	2	JT	037	9/14	JA	DF	
9/13/97	327	122/123		21' on Seam	Patch	6	2	JT	037	9/14	JA	DF	DS-53
9/13/97	328		114/124/125	Int	Patch	3	3	JT	037	9/14	JA	DF	
9/13/97	329		113/114/124	Int	Patch	4	2	JT	037	9/14	JA	DF	
9/13/97	330		113/123/124	Int	Patch	3	2	JT	037	9/14	JA	DF	
9/13/97	331		112/113/123	Int	Patch	2	2	JT	037	9/14	JA	DF	
9/13/97	332		112/122/123	Int	Patch	3	2	JT	037	9/14	JA	DF	
9/13/97	333	121/122		12' on Seam	Patch	3	2	JR	2014	9/14	JA	DF	
9/13/97	334		111/112/122	Int	Patch	3	2	JR	2014	9/14	JA	DF	
9/13/97	335		111/121/122	Int	Patch	3	2	JR	2014	9/14	JA	DF	
9/13/97	336	110/111		9' on Seam	Patch	2	2	JR	2014	9/14	JA	DF	
9/13/97	337	110/111		32' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-52
9/13/97	338		110/111/120/121	Int	Patch	7	3	JR	2014	9/14	JA	DF	
9/13/97	339	110/120		2' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-51
9/13/97	340		110/119/120	Int	Patch	2	2	JR	2014	9/14	JA	DF	
9/13/97	341	107/108		116' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-54
9/13/97	342	106/107		100' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-55
9/13/97	343	104/105		215' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-56
9/13/97	344		128/129/130	Int	Patch	2	2	JT	037	9/14	JA	DF	
9/13/97	345		129/130/131	Int	Patch	2	2	JT	037	9/14	JA	DF	
9/13/97	346	129/131		203' on Seam	Patch	6	2	JT	037	9/14	JA	DF	DS-60
9/13/97	347	131/133		34'on Seam	Patch	10	2	JT	037	9/14	JA	DF	
9/13/97	348		132/133/134	Int	Patch	12	2	JT	037	9/14	JA	DF	
9/13/97	349	132/133		10' on Seam	Patch	3	3	JR	2014	9/14	JA	DF	
9/13/97	350		131/132/133	Int	Patch	8	4	JT	037	9/14	JA	DF	
9/13/97	351	131/132		168' on Seam	Patch	8	4	JT	037	9/14	JA	DF	
9/13/97	352	131/132		153' on Seam	Patch	3	2	JT	037	9/14	JA	DF	

GEOMEMBRANE REPAIR LOG

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Data Entry: KAH
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DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/13/97	353	132/134		120' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-62
9/13/97	354	134/135		114' on Seam	Patch	10	1	JR	2014	9/14	JA	DF	
9/13/97	355	131/132		72' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-61
9/13/97	356	129/131		18' on Seam	Patch	1	1	JR	2014	9/14	JA	DF	
9/13/97	563	104/127		100' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-58
9/13/97	564	127/128		178' on Seam	Patch	6	2	JR	2014	9/14	JA	DF	DS-59
9/15/97	357	97/138		211' on Seam	Patch	6	3	JR	2014	9/15	JT	KH	DS-64
9/15/97	358		33/97/138	Int	Patch	10	6	JR	2014	9/15	JT	KH	
9/15/97	359		33/35/138	Int	Patch	4	2	JR	2014	9/15	JT	KH	
9/15/97	360		35/138/139	Int	Patch	3	3	JR	2014	9/15	JT	KH	
9/15/97	361		35/36/139	Int	Patch	7	3	JR	2014	9/15	JT	KH	
9/15/97	362	138/139		0' on Seam	Bead	32		JR	2014	9/15	JT	KH	
9/15/97	363	138/139		32' on Seam	Patch	6	2	JR	2014	9/15	JT	KH	
9/15/97	364	138/139		38' on Seam	Bead	14		JR	2014	9/15	JT	KH	
9/15/97	365	138/139		52' on Seam	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	366	138/139		54' on Seam	Bead	5	2	JR	2014	9/15	JT	KH	
9/15/97	367	138/139		59' on Seam	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	368	138/139		117' on Seam	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	369	138/139		196' on Seam	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	370	139/140		40' on Seam	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	371	139/140		78' on Seam	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	372	139/140		212' on Seam	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	373	36/139/140	36/139/140	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	374		36/72/71/140	Int	Patch	5	3	JR	2014	9/15	JT	KH	
9/15/97	375	140/141		5' to 102' on Seam	Bead	97		JR	2014	9/15	JT	KH	
9/15/97	376	140/141		102' on Seam	Patch	5	2	JR	2014	9/15	JT	KH	
9/15/97	377	140/141		107' to 204' on Seam	Bead	97		JR	2014	9/15	JT	KH	
9/15/97	378		71/140/141	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	379		71/76/141	Int	Patch	3	3	JR	2014	9/15	JT	KH	
9/15/97	380	141/142		78' on Seam	Patch	6	3	JR	2014	9/15	JT	KH	DS-66
9/15/97	381	141/142		172' on Seam	Patch	3	3	JR	2014	9/15	JT	KH	
9/15/97	382	77/142		16' on Seam	Patch	3	3	JR	2014	9/15	JT	KH	

GEOMEMBRANE REPAIR LOG

EMCON

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						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/15/97	383	77/142		18' on Seam	Bead	4		JR	2014	9/15	JT	KH	
9/15/97	384		76/77/141	Int	Patch	3	3	JR	2014	9/15	JT	KH	
9/15/97	385		77/79/142	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	386		79	11' on Panel 15' E	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	387		79/80/142	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	388	80/142		2' on Seam	Bead	5		JR	2014	9/15	JT	KH	
9/15/97	389	142/143		0' on Seam	Bead	38		JR	2014	9/15	JT	KH	
9/15/97	390	142/143		38' on Seam	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	391	142/143		40' on Seam	Bead	14		JR	2014	9/15	JT	KH	
9/15/97	392	142/143		54' on Seam	Patch	3	3	JR	2014	9/15	JT	KH	
9/15/97	393	142/143		57' on Seam	Bead	57		JR	2014	9/15	JT	KH	
9/15/97	394	142/143		114' on Seam	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	395		80/142/143	Int	Patch	3	3	JR	2014	9/15	JT	KH	
9/15/97	396		80/82/143	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	397		128/143/144	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	398	143/144		0' on Seam	Bead	76		JR	2014	9/15	JT	KH	
9/15/97	399		82/83/143/144	Int	Patch	8	6	JR	2014	9/15	JT	KH	
9/15/97	400		83/85/144	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	401		127/128/144	Int	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	402		127/144/145	Int	Patch	5	2	JR	2014	9/15	JT	KH	
9/15/97	403	144/145		4' on Seam	Bead	20		JT	037	9/15	JT	KH	
9/15/97	404		85/86/144/145	Int	Patch	4	3	JT	037	9/15	JT	KH	
9/15/97	405		104/127/145	Int	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	406		86	1' on Panel 3' E	Patch	3	2	JT	037	9/15	JT	KH	
9/15/97	407		86/87/104/145	Int	Patch	4	2	JT	037	9/15	JT	KH	
9/15/97	408		139	60' on Panel 3' W	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	409		128/143/146	Int	Patch	4	3	JR	2014	9/15	JT	KH	
9/15/97	410		142/143/146	Int	Patch	5	4	JR	2014	9/15	JT	KH	
9/15/97	411		131/142/146	Int	Patch	5	2	JR	2014	9/15	JT	KH	
9/15/97	412	128/146		0' on Seam	Bead	12		JR	2014	9/15	JT	KH	
9/15/97	413	129/146		0' on Seam	Bead	23		JR	2014	9/15	JT	KH	
9/15/97	414	131/146		0' on Seam	Bead	12		JR	2014	9/15	JT	KH	

GEOMEMBRANE REPAIR LOG

EMCON

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DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/15/97	415		131/141/142	Int	Patch	4	4	JR	2014	9/15	JT	KH	
9/15/97	416		131/132/141	Int	Patch	5	2	JR	2014	9/15	JT	KH	
9/15/97	417	87/104		0' on Seam	Bead	9		JR	2014	9/15	JT	KH	
9/15/97	418		87/98/104	Int		5	5	JR	2014	9/15	JT	KH	
9/15/97	419		140/141/147	Int		7	4	JR	2014	9/15	JT	KH	
9/15/97	420	140/147		5' on Seam		4	3	JR	2014	9/15	JT	KH	
9/15/97	421		132/134/141/147	Int		8	3	JR	2014	9/15	JT	KH	
9/15/97	422	134/147		14' on Seam		4	3	JR	2014	9/15	JT	KH	
9/15/97	423		139/147/134/135	Int	Patch	5	3	JR	2014	9/15	JT	KH	
9/15/97	424	140/147		16' on Seam	Patch	3	2	JR	2014	9/15	JT	KH	
9/15/97	425		139/140/147	Int	Patch	5	3	JR	2014	9/15	JT	KH	
9/15/97	426		142	87' on Panel 8' W	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	427		142	14' on Panel 8' E	Patch	2	2	JR	2014	9/15	JT	KH	
9/15/97	428	97/138		211' on Seam	Patch	6	2	JR	2014	9/15	JA	KH	DS-64
9/15/97	429		143/146/128	Int	Patch	4	2	JR	2014	9/15	JA	KH	
9/15/97	430		142/143/146	Int	Patch	6	4	JR	2014	9/15	JA	KH	
9/15/97	431		131/142/146	Int	Patch	6	2	JR	2014	9/15	JA	KH	
9/15/97	432		131/141/142	Int	Patch	4	4	JR	2014	9/15	JA	KH	
9/15/97	433		131/132/141	Int	Patch	5	2	JR	2014	9/15	JA	KH	
9/19/97	434		167/168/170	Int	Patch	3	2	JR	037	9/19	JT	JN	
9/19/97	435	167/168		75' on Seam	Patch	6	3	JR	037	9/19	JT	JN	DS-77
9/19/97	436	162/163		150' on Seam	Patch	5	3	JR	037	9/20	JT	KH	
9/19/97	437	162/163		167' on Seam	Patch	6	3	JR	037	9/20	JT	KH	DS-74
9/19/97	438	162/163		180' on Seam	Patch	4	3	JR	037	9/20	JT	KH	
9/19/97	439		159/160/162	Int	Patch	3	3	JR	037	9/20	JT	KH	
9/19/97	440	163/164		197' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/19/97	441		164/165/166	Int	Patch	3	2	JR	037	9/20	JT	KH	
9/19/97	442	163/164		178' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/19/97	443	165/167		200' on Seam	Patch	7	3	JR	037	9/19	JT	JN	DS-76
9/19/97	444		165/166/167	Int	Patch	3	2	JR	037	9/19	JT	JN	
9/19/97	445		167/168/169	Int	Patch	2	2	JR	037	9/19	JT	JN	
9/19/97	446	164/166		25' on Seam	Patch	6	3	JR	037	9/20	JT	KH	DS-75

GEOMEMBRANE REPAIR LOG

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						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/19/97	447	163/164		217' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/19/97	448	163/164		250' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/19/97	449	163/164		280' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/19/97	450	163/164		301' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/19/97	451	163/164		310' on Seam	Patch	5	3	JR	037	9/20	JT	KH	DS-73
9/19/97	452	160/162		33' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/19/97	453		158/159/160	Int	Patch	3	3	JR	037	9/20	JT	KH	
9/19/97	454	158/160		5' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/19/97	565	148/149		50' on Seam	Patch	6	2	JR	037	9/19	JT	JN	DS-65
9/20/97	455	135/136		0' on Seam	Patch	38	2	JR	037	9/20	JT	KH	
9/20/97	456	136/148		86' on Seam	Patch	14	2	JR	037	9/20	JT	KH	
9/20/97	457	136/148		132' on Seam	Patch	8	2	EP	2014	9/21	JT	KH	
9/20/97	458	135/136		144' on Seam	Patch	4	2	JR	037	9/20	JT	KH	
9/20/97	459	135/136		151' on Seam	Patch	6	2	JR	037	9/20	JT	KH	
9/20/97	460	136/148		177' on Seam	Patch	7	2	JR	037	9/20	JT	KH	
9/20/97	461	136/148		193' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	462	136/148		194' on Seam	Bead	10		JR	037	9/20	JT	KH	
9/20/97	463	136/148		203' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/20/97	464	136/148		206' on Seam	Bead	8		JR	037	9/20	JT	KH	
9/20/97	465	136/148		214' on Seam	Patch	7	2	JR	037	9/20	JT	KH	
9/20/97	466	136/148		221' on Seam	Bead	10		JR	037	9/20	JT	KH	
9/20/97	467	136/148		231' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/20/97	468	136/148		234' on Seam	Bead	10		JR	037	9/20	JT	KH	
9/20/97	469	136/148		244' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/20/97	470	135/136		212' on Seam	Patch	7	2	JR	037	9/20	JT	KH	
9/20/97	471	135/136		250' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/20/97	472	135/136		253' on Seam	Bead	2		JR	037	9/20	JT	KH	
9/20/97	473	135/136		255' on Seam	Patch	4	2	JR	037	9/20	JT	KH	
9/20/97	474	135/136		259' on Seam	Bead	8		JR	037	9/20	JT	KH	
9/20/97	475	135/136		267' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	476	135/136		278' on Seam	Patch	6	2	JR	037	9/20	JT	KH	DS-63
9/20/97	477	135/136		314' on Seam	Patch	4	2	JR	037	9/20	JT	KH	

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DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/20/97	478	136/148		286' on Seam	Patch	6	2	JR	037	9/20	JT	KH	
9/20/97	479	136/148		302' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	480	136/148		311' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/20/97	481	136/148		314' on Seam	Bead	3		JR	037	9/20	JT	KH	
9/20/97	482	136/148		317' on Seam	Patch	11	2	JR	037	9/20	JT	KH	
9/20/97	483	64/164		0' on Seam	Bead	9		EP	2014	9/21	JT	KH	
9/20/97	484		64/66/164	Int	Patch	2	2	EP	2014	9/21	JT	KH	
9/20/97	485	66/164		0' on Seam	Bead	9		EP	2014	9/21	JT	KH	
9/20/97	486		66/163/164	Int	Patch	2	2	EP	2014	9/21	JT	KH	
9/20/97	487	163/164		0' on Seam	Patch	3	2	EP	2014	9/21	JT	KH	
9/20/97	488	66/163		0' on Seam	Bead	12		EP	2014	9/21	JT	KH	
9/20/97	489	70/163		0' on Seam	Bead	6		EP	2014	9/21	JT	KH	
9/20/97	490	70/162		0' on Seam	Bead	6		EP	2014	9/21	JT	KH	
9/20/97	491	69/162		0' on Seam	Bead	3		EP	2014	9/21	JT	KH	
9/20/97	492	69/159		0' on Seam	Bead	13		EP	2014	9/21	JT	KH	
9/20/97	493	69/158		0' on Seam	Bead	9		EP	2014	9/21	JT	KH	
9/20/97	494		66/70/163	Int	Patch	3	2	EP	2014	9/21	JT	KH	
9/20/97	495		70/162/163	Int	Patch	5	2	EP	2014	9/21	JT	KH	
9/20/97	496		69/70/162	Int	Patch	7	2	EP	2014	9/21	JT	KH	
9/20/97	497		69/159/162	Int	Patch	2	2	EP	2014	9/21	JT	KH	
9/20/97	498	69/159		9' on Seam	Patch	2	2	EP	2014	9/21	JT	KH	
9/20/97	499		69/158/159	Int	Patch	8	2	EP	2014	9/21	KH	KH	
9/20/97	500	88/158		0' on Seam	Bead	12		EP	2014	9/21	KH	KH	
9/20/97	501	88/157		0' on Seam	Bead	8		EP	2014	9/21	KH	KH	
9/20/97	502	90/157		0' on Seam	Bead	6		EP	2014	9/21	KH	KH	
9/20/97	503	69/88		Last 3' on Seam	Patch	2	2	EP	2014	9/21	KH	KH	
9/20/97	504		69/88/158	Int	Patch	3	2	EP	2014	9/21	KH	KH	
9/20/97	505		88/157/158	Int	Patch	3	2	EP	2014	9/21	KH	KH	
9/20/97	506		88/90/157	Int	Patch	3	2	EP	2014	9/21	KH	KH	
9/20/97	507	149/150		190' on Seam	Patch	6	2	JR	037	9/20	KH	KH	DS-67
9/20/97	508		90/91/136	Int	Patch	4	3	EP	2014	9/21	KH	KH	
9/20/97	509		91/156/153	Int	Patch	7	4	EP	2014	9/21	KH	KH	

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/20/97	510	91/156		0' on Seam	Bead	5		EP	2014	9/21	KH	KH	
9/20/97	511	91/153		0' on Seam	Bead	9		EP	2014	9/21	KH	KH	
9/20/97	512	91/153		7' on Seam	Patch	2	2	EP	2014	9/21	KH	KH	
9/20/97	513		91/92/152/153	Int	Patch	10	4	EP	2014	9/21	KH	KH	
9/20/97	514		149/150/151	Int	Patch	10	2	JR	037	9/20	KH	KH	
9/20/97	515	150/151		5' on Seam	Patch	5	2	JR	037	9/20	KH	KH	
9/20/97	516		150/151/152	Int	Patch	4	2	JR	037	9/20	KH	KH	
9/20/97	517		136/137/148	Int	Patch	4	2	JR	037	9/20	KH	KH	
9/20/97	518		152	300' on Panel 10' E	Patch	2	2	JR	037	9/20	KH	KH	
9/20/97	519	151/152		30' on Seam	Patch	7	3	JR	037	9/20	KH	KH	DS-68
9/20/97	520			Int	Patch	2	2	JR	037	9/20	KH	KH	
9/20/97	521		153/154/156	Int	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	522		154/155/156	Int	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	523		152/154/155	Int	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	524	150/152		279' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	525	93/153		0' on Seam	Bead	10		EP	2014	9/21	JT	KH	
9/20/97	526	93/153		0' on Seam	Bead	3		EP	2014	9/21	JT	KH	
9/20/97	527	93/153		3' on Seam	Patch	3	3	EP	2014	9/21	JT	KH	
9/20/97	528		93/94/152	Int	Patch	5	3	EP	2014	9/21	JT	KH	
9/20/97	529	93/152		0' on Seam	Bead	3		EP	2014	9/21	JT	KH	
9/20/97	530		94/150/152	Int	Patch	6	2	EP	2014	9/21	JT	KH	
9/20/97	531	94/190		0' on Seam	Bead	11		EP	2014	9/21	JT	KH	
9/20/97	532		94/96/150	Int	Patch	6	2	EP	2014	9/21	JT	KH	
9/20/97	533	96/150		0' on Seam	Bead	3		EP	2014	9/21	JT	KH	
9/20/97	534		96/149/150	Int	Patch	3	3	EP	2014	9/21	JT	KH	
9/20/97	535	96/149		0' on Seam	Bend	10		EP	2014	9/21	JT	KH	
9/20/97	536	96/149		7' on Seam	Patch	4	3	EP	2014	9/21	JT	KH	
9/20/97	537		96/97/149	Int	Patch	2	2	EP	2014	9/21	JT	KH	
9/20/97	538	157/158		250' on Seam	Patch	6	2	JR	037	9/20	JT	KH	DS-71
9/20/97	539	157/158		287' on Seam	Patch	3	2	JR	037	9/20	JT	KH	
9/20/97	540	157/158		325' on Seam	Patch	3	3	JR	037	9/20	JT	KH	
9/20/97	541		158/160/161	Int	Patch	3	2	JR	037	9/20	JT	KH	

GEOMEMBRANE REPAIR LOG

EMCON

Date: 10-27-97
Client: Winnebago Reclamation Service
Project: Pagel Landfill CQA
Job #: 86078-004.000

Installer: Serrot Corporation
Material: LLDPE
Data Entry: KAH
Backcheck: JPN

DATE REPAIRED	REPAIR NUMBER	SEAM ID	PANEL(S)	LOCATION	REPAIR TYPE	REPAIR SIZE (ft)		REPAIR CREW		REPAIR TESTING			COMMENTS
						LENGTH	WIDTH	TECH. ID	MACHINE	DATE	TECH. ID	QA ID	
9/20/97	542		160/161/162	Int	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	543	160/162		123' on Seam	Patch	8	2	JR	037	9/20	JT	KH	
9/20/97	544	158/160		74' on Seam	Patch	6	2	JR	037	9/20	JT	KH	DS-72
9/20/97	545	160/162		60' on Seam	Patch	8	3	JR	037	9/20	JT	KH	
9/20/97	546		158/159/160	Int	Patch	3	3	JR	037	9/20	JT	KH	
9/20/97	547	158/160		5' on Seam	Patch	2	2	JR	037	9/20	JT	KH	
9/20/97	548		97/138/148/149	Int	Patch	20	4	EP	2014	9/21	JT	KH	
9/20/97	549		135/136/138/148	Int	Patch	24	2	EP	2014	9/21	JT	KH	
9/20/97	550		152	45' on Panel (Mid)	Patch	3	2	EP	2014	9/21	JT	KH	
9/20/97	551	153/156		90' on Seam	Patch	6	2	EP	2014	9/21	JT	KH	DS-69
9/20/97	552	156/157		125' on Seam	Patch	6	2	EP	2014	9/21	JT	KH	DS-70
9/21/97	553	62/170		0' on Seam	Bead	8		EP	2014	9/21	JT	KH	
9/21/97	554		62/167/170	Int	Patch	8	2	EP	2014	9/21	JT	KH	
9/21/97	555	62/167		0' on Seam	Bead	9		EP	2014	9/21	JT	KH	
9/21/97	556		62/63/167	Int	Patch	2	2	EP	2014	9/21	JT	KH	
9/21/97	557	65/167		0' on Seam	Bead	9		EP	2014	9/21	JT	KH	
9/21/97	558		65/165/167	Int	Patch	5	3	EP	2014	9/21	JT	KH	
9/21/97	559	65/63		0' on Seam	Bead	7		EP	2014	9/21	JT	KH	
9/21/97	560		65/64/165	Int	Patch	2	2	EP	2014	9/21	JT	KH	
9/21/97	561	64/165		0' on Seam	Bead	9		EP	2014	9/21	JT	KH	
9/21/97	562		64/164/165	Int	Patch	2	2	EP	2014	9/21	JT	KH	
9/23/97	566	168/171		26' on Seam	Patch	12	4	JR	2014	9/23	JT	JN	
9/23/97	567	168/171		42' on Seam	Patch	4	3	JR	2014	9/23	JT	JN	
9/23/97	568	168/171		53' on Seam	Patch	7	3	JR	2014	9/23	JT	JN	DS-79
9/23/97	569		168/171/172	Int	Patch	7	3	JR	2014	9/23	JT	JN	
9/23/97	570		168/169/172	Int	Patch	3	3	JR	2014	9/23	JT	JN	
9/23/97	571		135/136/137	Int	Patch	9	3	JR	2014	9/23	JT	JN	
Total Repair Dimensions (ft):						**3128**	**1152**						

APPENDIX F

APPENDIX F

DRAINAGE LAYER TESTING INFORMATION

Sub-Appendices

F.1 Granular Drainage Layer Laboratory Test Results
F.2 *Granular Drainage Layer Thickness Verification*
F.3 Geocomposite Drainage Layer Conformance Data

Sub- Appendix F.1

Granular Drainage Layer Laboratory Test Results

TSC
TESTING SERVICE CORPORATION

CORPORATE OFFICE:
360 S. Main Place, Carol Stream, IL 60188-2404
630.462.2600 • Fax 630.653.2988

LOCAL OFFICE:
457 E. Gundersen Drive, Carol Stream, IL 60188-2492
630.653.3920 • Fax 630.653.2726

February 5, 1998

Mr. Tom Hilbert
NRG Technologies, Inc.
8403 Lindenwood Road
Rockford, Illinois 61109

Re: Laboratory Testing
TSC Jon L-44,285

Dear Mr. Hilbert:

On a separate sheet is a gradation for a stone sample you submitted to our office. You also asked us to perform a hydraulic conductivity analysis. Hydraulic conductivity determinations using the typical laboratory technique (constant head permeameter) were not possible due to the coarse grained characteristic of the material.

Alternatively, the hydraulic conductivity was estimated from the following equation that is based on Poiseuille's law, k (cm/sec) = $C_1*(D_{10})^2$, where C_1 is a constant which varies from about 100 to 150, and D_{10} *is the particle size at the 10 percent passing point on the grain size graph as discussed in Soil* Mechanics in Engineering Practice (Terzaghi and Peck, 1967). The value for the constant, C_1, was arbitrarily chosen as 125. This equation is applicable only to materials which have a uniformity coefficient (C_u) of less than 2 and D_{10} is in mm. C_u for this sample is 1.23. The hyraulic conductivity is calculated as follows:

$$k = C_1 D_{10}^2 = 125 \times (11.5^2) = 1.65 \times 10^{+4} \text{ cm/sec}$$

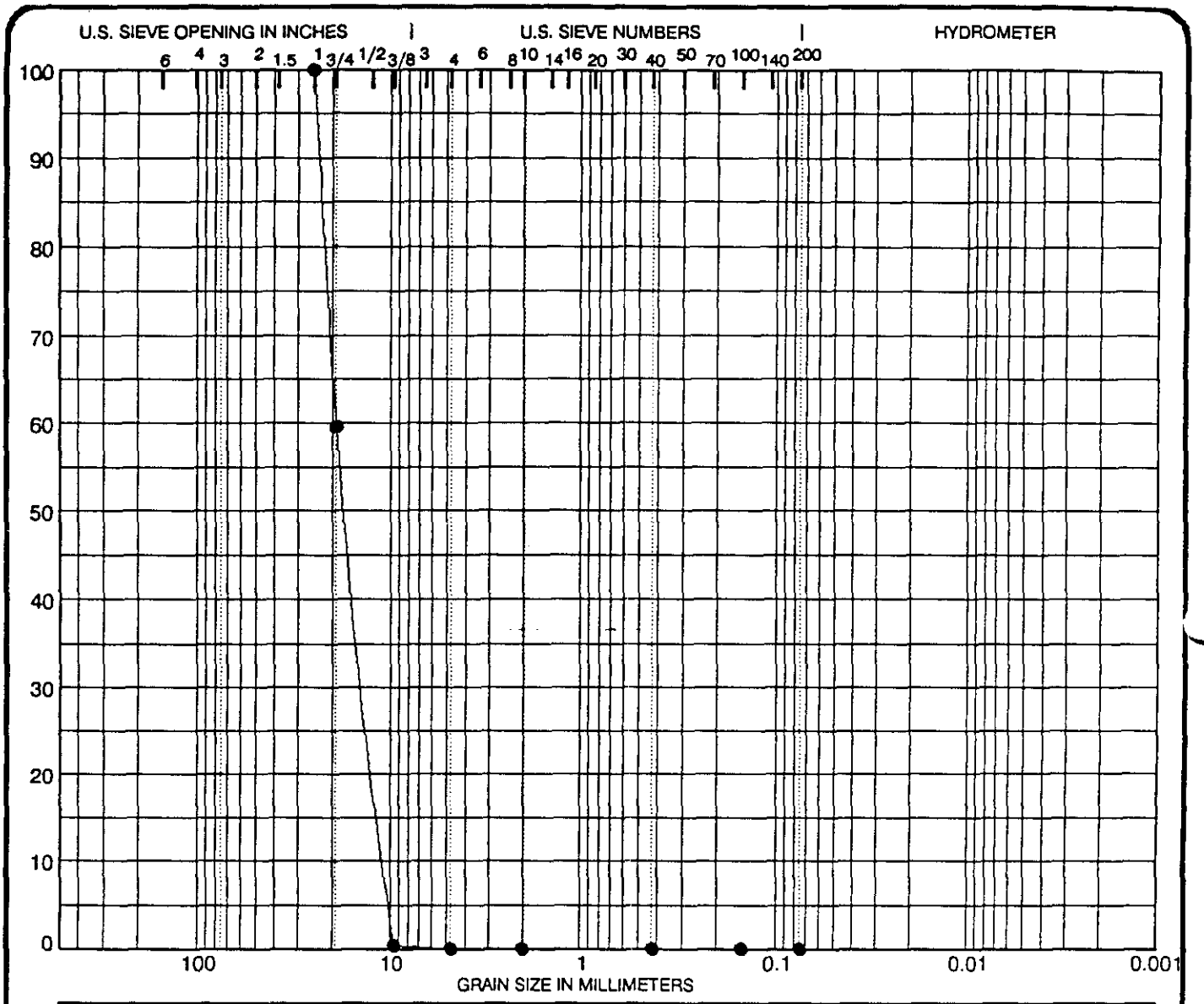
It was a pleasure to assist you on this project. Please call if you have any questions or require additional information.

Respectfully submitted,

TESTING SERVICE CORPORATION

Larry Lockwald
Laboratory Manager

LL:cn
Enc. 1 page



COBBLES	GRAVEL		SAND			ASTM D 422
	coarse	fine	coarse	medium	fine	

SPECIMEN IDENTIFICATION	SIEVE	% PASS	SPECIFIED PERCENT PASSING
Bucket Sample supplied by NRG Technologies	3"	100	
	2"	100	
	1-1/2"	100	
	1"	100	
NOTES :	3/4"	60	
Calc'd Permeability k = 1.65X10+04 cm/sec	3/8"	1	
	#4	0	
	#10	0	
	#40	0	
	#100	0	
	#200	0	

PROJECT NRG Technologies, Inc. -
LOCATION Rockford, Illinois

JOB NO. L - 44,285
DATE February 4, 1998

1

GRADATION SHEET

Testing Service Corporation
CAROL STREAM

AIRPORT PIT 1997
FINAL SIEVE ANALYSIS REPORT
CA-7&11 (B-GRAVEL)

SIEVE SIZE ▶	1 1/2"	1"	3/4"	1/2"	3/8"	#4
CA-7 SPEC ▶	100	90-100	----	30-60	----	0-10
CA-11 SPEC ▶	100	100	84-100	30-60	----	0-12
DATE						
4/25	100.0	100.0	76.9	27.9	4.2	0.2
4/28	100.0	100.0	83.5	35.2	6.0	0.2
4/29	100.0	99.8	80.3	32.5	5.8	0.2
4/30	100.0	99.6	80.6	35.6	5.3	0.1
4/30 #2	100.0	99.8	81.4	35.1	7.0	0.2
5/1	100.0	99.7	80.9	33.3	5.3	0.3
5/2	100.0	99.8	77.6	28.6	4.2	0.2
5/5	100.0	100.0	84.0	38.6	6.6	0.5
5/6	100.0	99.7	82.4	35.4	6.2	0.2
5/8	100.0	99.6	77.5	29.3	4.7	0.1
5/12	100.0	99.3	81.1	34.9	6.3	0.1
5/13	100.0	99.8	79.6	31.8	5.8	0.1
6/10	100.0	99.3	79.8	35.9	9.2	0.3
6/17	100.0	100.0	78.5	34.4	8.8	0.2
6/17	100.0	99.7	80.5	41.2	13.6	0.2
6/20	100.0	99.4	82.6	40.8	11.1	0.1
6/23	100.0	99.8	81.6	42.5	16.7	0.2
6/24	100.0	99.6	79.4	34.1	7.9	0.1
6/25	100.0	100.0	84.1	44.8	14.2	0.2
6/27	100.0	99.6	82.7	40.5	9.7	0.1
7/1	100.0	97.5	76.3	32.2	7.8	1.9
7/3	100.0	99.4	77.8	33.3	8.4	0.1
7/7	100.0	99.4	81.5	43.9	17.2	0.3
7/10	100.0	99.6	76.7	31.8	7.1	0.2
7/11	100.0	99.8	78.2	33.7	8.5	0.2
7/14	100.0	99.8	82.1	39.6	15.3	0.1
7/16	100.0	99.8	84.3	46.5	21.5	0.3
7/17	100.0	99.4	81.5	38.5	13.1	0.2
7/18	100.0	99.6	83.8	44.3	19.0	0.2
7/22	100.0	99.4	81.3	34.1	7.8	0.1
7/23	100.0	100.0	82.5	40.7	12.7	0.2
7/25	100.0	99.6	83.2	43.8	18.1	0.2
7/29	100.0	99.1	77.8	34.5	8.7	0.2
7/31	100.0	100.0	79.0	31.7	7.3	0.3
8/4	100.0	99.5	76.9	32.7	9.7	0.3
8/6	100.0	99.6	76.9	33.5	9.0	0.1
8/12	100.0	99.4	78.3	33.6	8.3	0.2
9/15	100.0	99.6	77.7	34.6	10.5	0.2
9/10	100.0	99.4	76.6	31.9	7.1	0.2
9/10	100.0	99.5	81.7	39.4	11.1	0.2

AIRPORT PIT 1997
FINAL SIEVE ANALYSIS REPORT
CA-7&11 (B-GRAVEL)

SIEVE SIZE ►	1 1/2"	1"	3/4"	1/2"	3/8"	#4
CA-7 SPEC ►	100	90-100	-----	30-60	---	0-10
CA-11 SPEC ►	100	100	84-100	30-60	----	0-12
DATE						
9/11	100.0	99.5	79.9	37.2	10.4	0.2
9/12	100.0	99.8	77.9	34.9	9.6	0.2
9/15	100.0	99.6	84.4	44.8	17.3	0.2
9/17	100.0	99.6	79.9	35.4	8.3	0.2
9/18	100.0	99.3	77.2	33.7	9.2	0.2
9/19	100.0	99.5	80.2	38.9	10.3	0.3
9/22	100.0	99.4	79.9	37.6	12.1	0.2
9/23	100.0	99.3	82.4	40.9	15.8	0.2
9/24	100.0	99.4	83.1	40.0	12.2	0.1
9/25	100.0	99.1	80.6	40.1	13.4	0.2
9/29	100.0	99.5	80.4	36.5	9.9	0.4
9/30	100.0	99.6	82.4	43.6	17.3	0.1
10/1	100.0	99.8	83.3	45.2	19.4	0.3
10/3	100.0	99.4	78.3	36.3	11.9	0.2
10/7	100.0	99.8	81.7	40.8	12.8	0.3
10/9	100.0	99.7	83.6	45.4	18.7	0.2
10/13	100.0	99.1	76.2	32.4	9.8	0.4
10/16	100.0	98.9	76.8	32.8	8.6	0.1
10/20	100.0	99.2	82.7	43.0	16.1	0.2
10/22	100.0	99.8	81.7	41.3	14.4	0.2
10/23	100.0	99.8	78.6	33.6	8.2	0.1
10/28	100.0	99.6	77.1	35.1	8.9	0.2
10/29	100.0	98.9	80.4	40.3	11.9	0.3
10/30	100.0	100.0	97.2	36.9	9.3	0.3
10/31	100.0	98.9	80.4	40.3	11.9	0.3
11/3	100.0	99.8	80.0	36.4	9.0	0.1
11/5	100.0	99.6	82.9	46.2	17.1	0.2
11/7	100.0	99.7	71.1	31.3	7.6	0.2
AVERAGE	100.0	99.6	80.4	37.2	10.7	0.2
STD DEVIATION	0.0	0.4	3.3	4.6	4.2	0.2

Sub- Appendix F.2

Granular Drainage Layer Thickness Verification

EMCON
1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

GRANULAR DRAINAGE LAYER DEPTH PROBE SAMPLES

CLIENT:	Winnebago Reclamation Service	DATE:	September 29th - 1997
PROJECT:	Pagel Landfill CQA	TECHNICIAN:	JPN
PR. NO.:	86078-004.000	PAGE:	1 of 1

Point No.	Northing	Easting	Depth of Stone Drainage Layer (inches)	Comments
54	2001450.0	800390.0	9.0	10' West of Point 54
110	2001650.0	800000.0	8.0	
114	2001650.0	800200.0	8.0	
118	2001650.0	800400.0	9.0	
178	2001850.0	800000.0	8.0	
182	2001850.0	800200.0	8.0	
186	2001850.0	800400.0	NA[1]	75' East of Liner Boundary

Notes: 1. Point 186 fell approximately 75' east of the actual limit of 1997 liner construction.

Sub- Appendix F.3

Geocomposite Drainage Layer Conformance Data

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255
Fax 770 • 961 • 8239

December 15, 1997

Serrot Corporation
125 Cassia Way
Henderson, NV 89015-2708

Reference:	TENSAR ORDER NUMBER:	TES 0648
	PURCHASE ORDER NUMBER:	27743-7286
	BILL OF LADING NUMBER:	TMP14709, 14730, 14738, 14783, 14801, 14803, 16253

SOLD TO:
Serrot Corporation
125 Cassia Way
Henderson, NV 89015-2708

SHIP TO:
Serrot Corporation
Pagel Landfill
8403 Lindenwood Road
Rockford, IL 61109

This is to certify that DC4025E66AA2 geotextile composite as manufactured by The Tensar Corporation for the project referenced above meets the characteristics and properties per the enclosed specification sheet dated November 14, 1997. The referenced product has been manufactured and tested in accordance with The Tensar Corporation Quality Assurance Program. Quality control test data is enclosed.

Further, The Tensar Corporation DC4205E66AA2 does not exceed 2% by weight of reclaimed polymer added to the resin during manufacturing.

Sincerely,

Thomas N. Dobras, P. E.
Quality Assurance Manager

THE TENSAR CORPORATION GEOCOMPOSITE DC4205 - DOUBLE-SIDED WITH TG600 GEOTEXTILES

Geocomposite DC4205 shall consist of Tensar NS1405 geonet bonded on both sides to 6 oz. non-woven polypropylene geotextiles (continuous filament). The geocomposite shall have a high compressive strength in order to ensure maximum flow capacity under high confining pressures. The bonding process shall not introduce adhesives or other foreign products. The geocomposite shall be resistant to all forms of biological or chemical degradation normally encountered in a soil environment. The geocomposite shall be made from the geonet and geotextile products whose property requirements are listed below. The resin used in the production of the geonet shall be a minimum 97% virgin polyethylene with a melt flow range between 0.1 to 1.0 grams/10 min (per ASTM D1238) and a density range of 0.932 to 0.963 grams/cc (per ASTM D792 or D1505). The geocomposite is delivered to the job site in roll form with each roll having unique identification and QA traceability.

PROPERTY	APPROVED TEST METHODS	UNITS	VALUE	SPECIFICATION[1]	TEST FREQUENCY
QA CERTIFIED TEST PARAMETERS					
GEOTEXTILE PROPERTIES					
· Grab Tensile Strength	ASTM D 4632	N (lbs)	712 (160)	MARV	Per ASTM D4759
· AOS	ASTM D 4751	mm (US Std. Sieve)	0.25 (60)	MARV	
· Mass/Unit Area	ASTM D 5261 (or ASTM D 3776)	g/m^2 (oz/sy)	203 (6.0)	MARV	
· Water Permeability	ASTM D 4491	cm/sec	0.3	MARV	
· Water Flow Rate	ASTM D 4491	$m^3/sec/m^2$ (gpm/ft^2)	0.09 (135)	MARV	
· U.V. Resistanace	ASTM D 4355	%	70		
CORE NET PROPERTIES (97% minimum virgin polyethylene resin with 2-3% carbon black)					
· MD Ultimate Tensile Strength	ASTM D 5035	kN/m (ppi)	8.4 (48)	MARV	50,000 SF
· Thickness	ASTM D 5199	mm (in)	5.0 (200)	MARV	
· Carbon Black	ASTM D 4218 (OR ASTM D 1603)	(% weight)	(2.0)	MARV	
FINISHED GEOCOMPOSITE PROPERTIES					
· Peel Adhesion	ASTM F 904 (modified)[2]	g/in	454	MARV	50,000 SF
· Transmissivity[3] *normal pressure = 15000psf; i=1.0*	ASTM D 4716 *metal plate/composite/metal plate*	m^2/sec (E-04)	1.0	MARV	200,000 SF (or per project req.)
· Geotextile overlap at edges and unbonded area		mm (in)	75 (3.0)	minimum	Each roll
· Roll Length		m (ft)	68.6 (225)	minimum	
· Roll Width		m (ft)	4.0 (13.0)	minimum	
PRODUCT INFORMATION					
· Roll Weight		kg (lbs)	370 (815)	typical	N/A
· Roll Diameter		m (in)	0.8 (31)	typical	
· Core I.D.		mm (in)	100 (4)	nominal	
Packaging and Labeling					
· Black polyethylene bag secured with nylon ties. Bag thickness		mm (mils)	0.12 (5.0)	nominal	
· Labeling: Product code,geotextile type, roll dimensions, finished product Lot and roll number.					

Notes

[1] *MARV is defined as the one-sided 97.5% confidence limit obtained through long-term production data* (mean - 2*standard deviation). It represents the minimum allowable sample roll average for each specific test.

[2] Peel adhesion ASTM F 904: 2 inch wide strip. Reported value per specimen is average of 5 highest peaks.

[3] Transmissivity: Results reported by Tensar are based on standard index test conditions. Actual performance is dependent upon site specific conditions. Please contact Tensar Corporation for site specific transmissivity testing.

The Tensar Corporation
1210 Citizens Parkway
Morrow, Georgia 30260
1-800-845-4453

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date: 07-AUG-97

------ Packing List ------

40000-HQ
Bill SERROT CORPORATION
To: SERROT CORPORATION
125 CASSIA WAY

HENDERSON,NV 89015-2708
United States

40000-PAGEL
Ship SERROT CORPORATION
To: PAGEL LF
8403 LINDENWOOD RD.

ROCKFORD,IL 61109
United States

Customer PO: 27743-7286
Customer contact:

Shipment Number: TMP-14709 T4
Sales Order Number: TES-648

Line	Item Code	Description
1	DC4205E66AA2	13.5FTx225FT NS1405/ETI TG-600 (6-OZ PP) 2-SIDED DN4 DRAINAGE COMP PS-200 IND/454 AVG/OVERLAP 3 INCH/UNBONDED 3 INCH

86343	A002	3,150 SF
86343	A006	3,107 SF
86343	A008	3,038 SF
86343	A067	3,060 SF
86343	A068	3,138 SF
86343	A069	3,024 SF
86343	A073	3,015 SF
86343	A075	3,082 SF
86343	A076	3,150 SF
86343	A078	3,024 SF
86343	A079	3,091 SF
86343	A080	3,127 SF
86343	A081	3,026 SF
86343	A083	3,093 SF
86343	A118	3,128 SF
86343	A121	3,128 SF

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date:

------ Packing List ------

Bill To:

Ship To:

Customer PO:
Customer contact:

Shipment Number:
Sales Order Number:

Line	Item Code		Description
	86343	A124	3,128 SF
	86343	A139	3,105 SF
	86343	A140	3,082 SF
	86343	A141	3,093 SF
	86343	A143	3,105 SF
	86343	A144	3,082 SF
	86343	A161	3,105 SF
	86343	A164	3,127 SF
	86343	A169	3,161 SF
	86343	A175	2,224 SF
	86343	A176	3,037 SF
			82,630

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date: 08-AUG-97

------ Packing List ------

	40000-HQ		40000-PAGEL
Bill	SERROT CORPORATION	Ship	SERROT CORPORATION
To:	SERROT CORPORATION	To:	PAGEL LF
	125 CASSIA WAY		8403 LINDENWOOD RD.
	HENDERSON,NV 89015-2708		ROCKFORD,IL 61109
	United States		United States

Customer PO: 27743-7286
Customer contact:

Shipment Number: TMP-14736 T4
Sales Order Number: TES-648

Line	Item Code	Description
1	DC4205E66AA2	13.5FTx225FT NS1405/ETI TG-600 (6-OZ PP) 2-SIDED DN4 DRAINAGE COMP PS-200 IND/454 AVG/OVERLAP 3 INCH/UNBONDED 3 INCH

86343	A180	3,035 SF
86343	A184	3,015 SF
86343	A185	3,060 SF
86343	A214	3,087 SF
86343	A215	3,066 SF
86343	A216	3,064 SF
86343	A224	3,060 SF
86343	A225	3,066 SF
86343	A228	3,015 SF
86343	A231	2,949 SF
86343	A232	3,037 SF
86343	A235	3,057 SF
86343	A242	2,329 SF
86343	A277	3,098 SF
86343	A330	3,116 SF
86343	A331	3,105 SF

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date:

------ Packing List ------

Bill To:

Ship To:

Customer PO:
Customer contact:

Shipment Number:
Sales Order Number:

Line	Item Code		Description
	86343	A332	3,138 SF
	86343	A333	3,060 SF
	86343	A335	3,150 SF
	86343	A336	3,195 SF
	86343	A337	3,082 SF
	86343	A338	3,082 SF
	86343	A339	3,127 SF
	H201		3,105 SF
	H30		3,150 SF
	H38		3,150 SF
	H39		3,195 SF
			82,593

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539 Date: 08-AUG-97

------ Packing List ------

	40000-HQ		40000-PAGEL
Bill	SERROT CORPORATION	Ship	SERROT CORPORATION
To:	SERROT CORPORATION	To:	PAGEL LF
	125 CASSIA WAY		8403 LINDENWOOD RD.
	HENDERSON,NV 89015-2708		ROCKFORD,IL 61109
	United States		United States

Customer PO: 27743-7286
Customer contact:

Shipment Number: TMP-14738 T4
Sales Order Number: TES-648

Line	Item Code	Description
1	DC4205E66AA2	13.5FTx225FT NS1405/ETI TG-600 (6-OZ PP) 2-SIDED DN4 DRAINAGE COMP PS-200 IND/454 AVG/OVERLAP 3 INCH/UNBONDED 3 INCH

86343	A323	3,127 SF
86343	A324	3,105 SF
H26		3,127 SF
H27		3,150 SF
H28		3,037 SF
H29		3,127 SF
H34		3,150 SF
H35		3,150 SF
H37		3,127 SF
H40		3,082 SF
H41		3,127 SF
H42		3,127 SF
H43		3,127 SF
H49		3,150 SF
H50		3,150 SF
H51		3,150 SF

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date:

------ Packing List ------

Bill To:

Ship To:

Customer PO:
Customer contact:

Shipment Number:
Sales Order Number:

Line	Item Code	Description
	H52	3,150 SF
	H53	3,127 SF
	H54	2,170 SF
	H55	3,082 SF
	H56	3,105 SF
	H57	3,127 SF
	H58	3,105 SF
	H73	3,105 SF
	H75	3,105 SF
	H87	3,060 SF
	H88	3,082 SF
		83,231

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539 Date: 11-AUG-97

------ Packing List ------

	40000-HQ		40000-PAGEL
Bill	SERROT CORPORATION	Ship	SERROT CORPORATION
To:	SERROT CORPORATION	To:	PAGEL LF
	125 CASSIA WAY		8403 LINDENWOOD RD.
	HENDERSON,NV 89015-2708		ROCKFORD,IL 61109
	United States		United States

Customer PO: 27743-7286
Customer contact:

Shipment Number: TMP-14783 T4
Sales Order Number: TES-648

Line	Item Code	Description
1	DC4205E66AA2	13.5FTx225FT NS1405/ETI TG-600 (6-OZ PP) 2-SIDED DN4 DRAINAGE COMP PS-200 IND/454 AVG/OVERLAP 3 INCH/UNBONDED 3 INCH

86343	A004	3,094 SF
86343	A177	3,058 SF
86343	A181	3,089 SF
86343	A182	3,101 SF
86343	A221	3,132 SF
86343	A233	3,037 SF
86343	A238	3,127 SF
86343	A256	2,884 SF
86343	A257	2,816 SF
86343	A258	3,078 SF
86343	A259	3,127 SF
86343	A291	3,110 SF
86343	A334	2,154 SF
86343	A340	3,127 SF
86343	A341	3,127 SF
H147		3,103 SF

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date:

------ Packing List ------

Bill
To:

Ship
To:

Customer PO:
Customer contact:

Shipment Number:
Sales Order Number:

Line	Item Code	Description
	H148	3,164 SF
	H149	3,047 SF
	H150	3,105 SF
	H195	3,172 SF
	H199	3,125 SF
	H239	3,047 SF
	H257	3,116 SF
	H264	3,132 SF
	H267	3,127 SF
	H277	3,138 SF
	H280	3,227 SF

		82,564

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date: 12-AUG-97

------ Packing List ------

Bill To:	40000-HQ SERROT CORPORATION SERROT CORPORATION 125 CASSIA WAY HENDERSON,NV 89015-2708 United States	Ship To:	40000-PAGEL SERROT CORPORATION PAGEL LF 8403 LINDENWOOD RD. ROCKFORD,IL 61109 United States

Customer PO: 27743-7286
Customer contact:

Shipment Number: TMP-14801 T4
Sales Order Number: TES-648

Line	Item Code	Description
1	DC4205E66AA2	13.5FTx225FT NS1405/ETI TG-600 (6-OZ PP) 2-SIDED DN4 DRAINAGE COMP PS-200 IND/454 AVG/OVERLAP 3 INCH/UNBONDED 3 INCH

86343	A071	3,093 SF
86343	A082	3,071 SF
86343	A091	3,037 SF
86343	A117	3,128 SF
86343	A119	3,128 SF
86343	A120	3,128 SF
86343	A122	3,105 SF
86343	A123	3,128 SF
86343	A125	3,128 SF
86343	A126	3,128 SF
86343	A131	3,060 SF
86343	A133	3,127 SF
86343	A134	3,082 SF
86343	A135	3,082 SF
86343	A136	3,071 SF
86343	A145	3,058 SF

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date:

------ Packing List ------

Bill
To:

Ship
To:

Customer PO:
Customer contact:

Shipment Number:
Sales Order Number:

Line	Item Code		Description
	86343	A146	3,127 SF
	86343	A153	3,060 SF
	86343	A167	3,134 SF
	86343	A170	3,098 SF
	86343	A171	2,754 SF
	86343	A172	3,024 SF
	86343	A173	3,127 SF
	86343	A174	3,111 SF
	86343	A262	3,105 SF
	86343	A263	3,139 SF
	86343	A264	3,206 SF
			83,439

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date: 12-AUG-97

------ Packing List ------

Bill To:	40000-HQ SERROT CORPORATION SERROT CORPORATION 125 CASSIA WAY HENDERSON,NV 89015-2708 United States	Ship To:	40000-PAGEL SERROT CORPORATION PAGEL LF 8403 LINDENWOOD RD. ROCKFORD,IL 61109 United States

Customer PO: 27743-7286
Customer contact:

Shipment Number: TMP-14803 T4
Sales Order Number: TES-648

Line	Item Code	Description
1	DC4205E66AA2	13.5FTx225FT NS1405/ETI TG-600 (6-OZ PP) 2-SIDED DN4 DRAINAGE COMP PS-200 IND/454 AVG/OVERLAP 3 INCH/UNBONDED 3 INCH

86343	A087	3,037 SF
86343	A089	3,048 SF
86343	A090	3,042 SF
86343	A092	3,150 SF
86343	A093	3,060 SF
86343	A094	3,062 SF
86343	A095	3,093 SF
86343	A096	3,138 SF
86343	A097	3,026 SF
86343	A099	3,087 SF
86343	A100	3,071 SF
86343	A101	3,083 SF
86343	A102	3,128 SF
86343	A103	3,128 SF
86343	A104	3,105 SF
86343	A105	3,105 SF

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date:

------ Packing List ------

Bill
To:

Ship
To:

Customer PO:
Customer contact:

Shipment Number:
Sales Order Number:

Line	Item Code		Description
	86343	A106	3,128 SF
	86343	A127	3,128 SF
	86343	A128	3,128 SF
	86343	A132	3,060 SF
	86343	A137	3,048 SF
	86343	A142	3,071 SF
	86343	A147	3,150 SF
	86343	A148	3,015 SF
	86343	A149	3,105 SF
	86343	A155	3,150 SF
	86343	A168	3,051 SF
			83,397

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539 Date: 19-SEP-97

------ Packing List ------

	40000-HQ		40000-PAGEL
Bill	SERROT CORPORATION	Ship	SERROT CORPORATION
To:	SERROT CORPORATION	To:	PAGEL LF
	125 CASSIA WAY		8403 LINDENWOOD RD.
	HENDERSON,NV 89015-2708		ROCKFORD,IL 61109
	United States		United States

Customer PO: 27743-7286
Customer contact:

Shipment Number: TMP-16253 T4
Sales Order Number: TES-648

Line	Item Code	Description
1	DC4205E66AA2	13.5FTx225FT NS1405/ETI TG-600 (6-OZ PP) 2-SIDED DN4 DRAINAGE COMP PS-200 IND/454 AVG/OVERLAP 3 INCH/UNBONDED 3 INCH
	H8455	3,150 SF
	H8456	3,015 SF
	H8460	3,017 SF
	H8462	3,105 SF
	H8463	2,970 SF
	H8464	3,060 SF
	H8467	2,992 SF
	H8468	3,060 SF
	H8469	3,060 SF
	H8471	3,004 SF
	H8472	3,082 SF
	H8881	3,100 SF
	H8882	3,146 SF
	H8883	3,172 SF
	H8884	3,022 SF
	H8885	3,087 SF

Tensar Environmental Systems
1108 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x539

Date:

------ Packing List ------

Bill To:

Ship To:

Customer PO:
Customer contact:

Shipment Number:
Sales Order Number:

Line	Item Code	Description
	H8886	3,179 SF
	H8888	3,067 SF
	H8889	3,107 SF
	H8890	3,168 SF
	H8891	3,172 SF
	H8892	3,015 SF
	H8893	3,049 SF
	H8894	3,103 SF
	H8895	3,161 SF
	H8897	3,094 SF
	H8898	3,105 SF
		83,262

DCN QA-DCQC-CERT
REV NO 4
REV DATE 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
H29	1	H26	56314-D032	56314-D034	5025365	5025327	1036.0	887.0
	2	H27	56314-D032		5025365	5025327		
	3	H28	56323-A019	56323-A025	5025365	5025327		
	4	H29	56323-A019		5025365	5025327		
H49	5	H30	56323-A019		5025365	5025327	1199.0	1101.0
	6	H34	56323-A019		5025365	5025327		
	7	H35	E53	E55	5025362	5025326		
	8	H37	E51	E52	5025362	5025326		
	9	H38	E51		5025362	5025326		
	10	H39	E51		5025364	5025324		
	11	H40	E57	E58	5025364	5025324		
	12	H41	E57		5025364	5025324		
	13	H42	E57		5025364	5025324		
	14	H43	E57		5025364	5025324		
	15	H49	E58		5025363	5025325		
H60	16	H50	E58		5025363	5025325	1192.0	615.7
	17	H51	E58		5025363	5025325		
	18	H52	E64	E64	5025363	5025325		
	19	H53	E64		5025363	5025325		
	20	H54	E64		5025363	5025325		

DCN QA-DCQC-CERT
REV. NO. 4
REV. DATE 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
	21	H55	E60	E61	5025335	5025311		
	22	H56	E60		5025335	5025311		
	23	H57	E60		5025335	5025311		
	24	H58	E60		5025335	5025311		
H75	25	H73	56323-A001	56323-A025	5025322	5025315	785.0	547.0
	26	H75	E76		5025322	5025315		
H93	27	H87	56323-A004	56323-A025	5025319	5025318	641.0	829.0
	28	H88	56323-A004		5025319	5025318		
H150	29	H147	56323-A018		5025340	5025969	1442.7	761.9
	30	H148	56323-A018		5025976	5025969		
	31	H149	56323-A028	56323-A028	5025976	5025986		
	32	H150	56323-A028		5025976	5025986		
H195	33	H195	E137	E137	5025343	5025975	1151.6	623.6
H210	34	H199	E109	E110	5025983	5025981	1036.9	641.2
	35	H201	E144	E146	5025983	5025981		
H240	36	H239	E162	E164	5021101	5025966	1528.1	1345.1
H270	37	H257	E170	E170	5025964	5025978	1356.5	966.4
	38	H264	E176	E176	5025964	5025970		
	39	H267	E177	E179	5025960	5025977		
H285	40	H277	E158	E158	5025961	5025959	1348.2	742.3

DCN QA-DCQC-CERT
REV NO 4
REV DATE: 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
	41	H280	E178	E179	5025965	5025959		
H8461	42	H8455	E5490	E5491	7011322	7011321	1425.7	863.4
	43	H8456	E5485	E5485	7011322	7011269		
	44	H8460	E5484		7011313	7011269		
H8476	45	H8462	E5484		7011313	7011269	1349.5	907.7
	46	H8463	E5486	E5488	7011313	7011307		
	47	H8464	E5486		7011313	7011307		
	48	H8467	E5473	E5475	7011331	7011307		
	49	H8468	E5473		7011331	7011307		
	50	H8469	E5473		7011331	7011307		
	51	H8471	E5482	E5482	7011331	7011276		
	52	H8472	E5482		7011331	7011276		
H8888	53	H8881	E5961	E5962	7011291	7011289	1441.4	544.7
	54	H8882	E5961		7011291	7011289		
	55	H8883	E5961		7011291	7011289		
	56	H8884	E5963	E5965	7011291	7011289		
	57	H8885	E5963		7011291	7011326		
	58	H8886	E5963		7011292	7011326		
	59	H8888	E5960	E5962	7011292	7011326		
H8904	60	H8889	E5960		7011292	7011326	1064.8	455.5

DCN CQC-CERT
REV NO 4
REV DATE: 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Product Code DC4205E66AA2
Customer Name Serrot
Project Name Pagel Landfill

Bill of Lading Number TMP 14709, 14730, 14736, 14783, 14801, 14803, 16253
Sales Order Number TES0648
Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
	61	H8890	E5960		7011292	7011326		
	62	H8891	E5960		7011292	7011326		
	63	H8892	E5971	E5971	7011292	7011326		
	64	H8893	E5971		7011292	7011309		
	65	H8894	E5971		7011328	7011309		
	66	H8895	E5971		7011328	7011309		
	67	H8897	E5957	E5959	7011328	7011309		
	68	H8898	E5957		7011328	7011309		
86343-A007	69	86343-A002	56314-B059	56314-B060	5019539	5020564	2187.0	1563.0
	70	86343-A004	56306-A051	56306-A052	5019536	5019534		
	71	86343-A006	56306-A051		5019536	5019534		
86343-A019	72	86343-A008	56323-A025	56323-A025	5019536	5019534	2601.0	1363.0
86343-A067	73	86343-A067	56345-A006	56345-A007	5020503	5020498	2492.6	2385.1
86343-A085	74	86343-A068	56345-A006		5020503	5020498	1238.0	1645.0
	75	86343-A069	56345-A003		5020503	5020498		
	76	86343-A071	56345-A003		5020503	5020498		
	77	86343-A073	56345-A007		5020503	5020498		
	78	86343-A075	56345-A007		5020483	5020500		
	79	86343-A076	56345-A007		5020483	5020500		
	80	86343-A078	56345-A008	56345-A010	5020483	5020500		

DCN QA-QCQC-CERT
REV NO 4
REV DATE 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
	81	86343-A079	56345-A008		5020483	5020500		
	82	86343-A080	56345-A008		5020483	5020500		
	83	86343-A081	56345-A004	56345-A007	5020483	5020500		
	84	86343-A082	56345-A004		5020483	5020500		
	85	86343-A083	56345-A004		5020646	5020490		
86343-A103	86	86343-A087	56314-D003	56314-D004	5020646	5020490	1067.0	793.0
	87	86343-A089	56346-B010	56346-B010	5020646	5020490		
	88	86343-A090	56346-B010		5020646	5020490		
	89	86343-A091	56346-B010		5020497	5020484		
	90	86343-A092	56346-B010		5020497	5020484		
	91	86343-A093	56346-B004	56346-B004	5020497	5020484		
	92	86343-A094	56346-B004		5020497	5020484		
	93	86343-A095	56346-B004		5020497	5020484		
	94	86343-A096	56346-B004		5020497	5020484		
	95	86343-A097	56346-B009	56346-B010	5020497	5020484		
	96	86343-A099	56346-B009		5020501	5020504		
	97	86343-A100	56346-B009		5020501	5020504		
	98	86343-A101	56346-B008		5020501	5020504		
	99	86343-A102	56346-B008		5020501	5020504		
	100	86343-A103	56346-B008		5020501	5020504		

DCN: QC-CERT
REV NO 4
REV. DATE: 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Product Code DC4205E66AA2
Customer Name Serrot
Project Name Pagel Landfill

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253
Sales Order Number TES0648
Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
86343-A118	101	86343-A104	56346-B008		5020501	5020504	565.0	982.0
	102	86343-A105	56346-B013	56346-B014	5020501	5020504		
	103	86343-A106	56346-B013		5020501	5020504		
	104	86343-A117	56346-B005	56346-B007	5020492	5020489		
	105	86343-A118	56346-B005		5020492	5020489		
86343-A132	106	86343-A119	56346-B005		5020492	5020489	1438.0	1492.0
	107	86343-A120	56346-B005		5020492	5020489		
	108	86343-A121	56346-B018	56346-B019	5020492	5020489		
	109	86343-A122	56346-B018		5020492	5020489		
	110	86343-A123	56346-B018		5020492	5020489		
	111	86343-A124	56346-B018		5020495	5020494		
	112	86343-A125	56346-B021	56346-B022	5020495	5020494		
	113	86343-A126	56346-B021		5020495	5020494		
	114	86343-A127	56346-B021		5020495	5020494		
	115	86343-A128	56346-B021		5020495	5020494		
	116	86343-A131	56306-E012	56303-E013	5020495	5020494		
	117	86343-A132	56346-B023	56346-B022	5020495	5020506		
86343-A153	118	86343-A133	56346-B023		5020495	5020506	1338.0	1541.0
	119	86343-A134	56346-B023		5020495	5020506		
	120	86343-A135	56346-B023		5020495	5020506		

DCN QA-DCQC-CERT
REV NO 4
REV DATE 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
	121	86343-A136	56346-B024		5020495	5020506		
	122	86343-A137	56346-B024		5020495	5020506		
	123	86343-A139	56346-B024		5020515	5020493		
	124	86343-A140	56346-B022		5020515	5020493		
	125	86343-A141	56346-B022		5020515	5020493		
	126	86343-A142	56346-B022		5020515	5020493		
	127	86343-A143	56346-B022		5020515	5020493		
	128	86343-A144	56346-B020		5020515	5020493		
	129	86343-A145	56346-B020		5020515	5020493		
	130	86343-A146	56346-B020		5020515	5020493		
	131	86343-A147	56346-B020		5020509	5020507		
	132	86343-A148	56346-B019	56346-B019	5020509	5020507		
	133	86343-A149	56346-B019		5020509	5020507		
	134	86343-A153	56303-B006	56303-B007	5020509	5020507		
86343-A164	135	86343-A155	56303-B006		5020505	5019602	1384.0	927.2
	136	86343-A161	56314-B058	56314-B058	5020505	5019602		
	137	86343-A164	56346-B017	56346-B019	5020508	5019600		
86343-A172	138	86343-A167	56346-B017		5020508	5019600	1855.0	1089.0
	139	86343-A168	56314-D021	56314-D022	5020508	5019600		
	140	86343-A169	56314-D021		5020508	5019600		

Date Prep :/15/97

DCN. QA-DCQC-CERT
REV. NO. 4
REV DATE 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	*Roll Count*	*Production* Roll Number	*Core Net* Roll Number	*QC Core Net* Sample Roll Number	*Primary (Top)* Geotextile Roll No.	*Secondary (Bottom)* Geotextile Roll No.	*MD Peel-ASTM F904* (g/in) Top	Bottom
	141	86343-A170	56314-D021		5020508	5019600		
	142	86343-A171	56314-D021		5020508	5019600		
	143	86343-A172	56310-A016	56310-A016	5020514	5025347		
86343-A187	144	86343-A173	56310-A016		5020514	5025347	2328.0	1317.0
	145	86343-A174	56310-A016		5020514	5025347		
	146	86343-A175	56310-A016		5020514	5025347		
	147	86343-A176	56346-B015	56346-B016	5020516	5025347		
	148	86343-A177	56346-B015		5020516	5025347		
	149	86343-A180	56346-B002	56346-B004	5020516	5025339		
	150	86343-A181	56346-B002		5020516	5025339		
	151	86343-A182	56346-B002		5020516	5025339		
	152	86343-A184	56346-B001		5020525	5025339		
	153	86343-A185	56346-B001		5020525	5025339		
86343-A223	154	86343-A214	56314-D001	56314-D001	5020531	5020534	1880.6	1496.8
	155	86343-A215	56314-D001		5020531	5020534		
	156	86343-A216	56306-A027	56306-A028	5020531	5020534		
	157	86343-A221	56306-A026		5020526	5020532		
86343-A238	158	86343-A224	56306-A020	56306-A022	5020526	5020532	1105.0	1744.0
	159	86343-A225	56306-A020		5020533	5020532		
	160	86343-A228	56306-A022		5020533	5020538		

TES0648.XLS

DCN: QA-QCQC-CERT
REV. NO. 4
REV DATE: 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
	161	86343-A231	56295-A001	56295-A001	5020533	5020538		
	162	86343-A232	56295-A001		5020520	5020538		
	163	86343-A233	56295-A001		5020520	5020538		
	164	86343-A235	56306-E011	56306-E013	5020520	5020580		
	165	86343-A238	56306-E011		5020520	5020580		
86343-A243	166	86343-A242	56306-A050	56306-A052	5019538	5020528	1838.0	1703.0
86343-A258	167	86343-A256	56306-A009	56306-A010	5019643	5019513	1219.0	1198.0
	168	86343-A257	56306-A033	56306-A034	5019643	5020535		
	169	86343-A258	56306-A033		5019643	5020535		
86343-A273	170	86343-A259	56306-A033		5019643	5020535	1504.2	1308.3
	171	86343-A262	56306-A029	56306-A031	5019646	5020535		
	172	86343-A263	56306-A029		5019646	5020535		
	173	86343-A264	56306-A029		5019646	5020535		
86343-A288	174	86343-A277	56314-B038	56314-B040	5020541	5020537	1114.0	1620.9
86343-A303	175	86343-A291	56314-B042	56314-B043	5020549	5020552	1142.0	1393.2
86343-A329	176	86343-A323	56314-B036	56314-B037	5020555	5020554	1673.0	1583.0
	177	86343-A324	56314-B036		5020555	5020554		
	178	86343-A330	56314-B014	56314-B016	5020482	5020591		
	179	86343-A331	56314-B014		5020482	5020591		
	180	86343-A332	56314-B014		5020482	5020591		

DCN QA-QCQC-CERT
REV NO. 4
REV. DATE 11/12/97

The Tensar Corporation Quality Control Test Data

Product Type: Drainage Net Composite

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code DC4205E66AA2

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

			Material QC				Finished Product	
QC Sample Roll Number	Roll Count	Production Roll Number	Core Net Roll Number	QC Core Net Sample Roll Number	Primary (Top) Geotextile Roll No.	Secondary (Bottom) Geotextile Roll No.	MD Peel-ASTM F904 (g/in) Top	MD Peel-ASTM F904 (g/in) Bottom
	181	86343-A333	56314-B015		5020482	5020591		
	182	86343-A334	56314-B015		5020482	5019621		
	183	86343-A335	56314-B015		5020482	5019621		
	184	86343-A336	56314-B015		5020482	5019621		
	185	86343-A337	56314-B007	56314-B007	5020482	5019621		
	186	86343-A338	56314-B007		5020482	5019621		
	187	86343-A339	56314-B007		5020482	5019621		
	188	86343-A340	56314-B007		5020482	5019621		
	189	86343-A341	56314-B008	56314-B010	5020482	5019621		

Thomas N. Dobras

Thomas N. Dobras, P. E.

Quality Assuance Manager

Dec. 16, 1997

Date

DCN: GA-NSQC-CERT
REV NO. 3
REV DATE 08/07/96

The Tensar Corporation Quality Control Test Data

Product Type: Core Net for Composite Production

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code NS140565

Customer Name Serrot

Sales Order Number TES0648

Project Name Pagel Landfill

Purchase Order Number 27743-7286

	Raw Material QC Testing		Finished Product QC Testing			
QC Core Net Sample Roll Number	Resin Lot Number	Carbon Black (%)	Ultimate Tensile Strength (kN/m) MD	Ultimate Tensile Strength (kN/m) XMD	Mass/Area (kg/m^2)	Thickness (mm)
		ASTM D4218	ASTM D5035	ASTM D5035	ASTM D5261-92	ASTM D5199
E52	P09351	2.60	10.43	2.90	0.867	5.42
E55	P09351	3.16	9.05	3.16	0.841	5.42
E58	P09351	2.22	10.33	2.71	0.865	5.50
E61	P09351	2.39	10.80	3.40	0.874	5.47
E64	P09351	2.47	9.60	3.00	0.855	5.41
E76	P09351	2.37	9.30	3.90	0.857	5.52
E110	P09351	2.87	10.47	3.41	0.908	5.34
E137	C60928M04A	2.90	11.04	3.54	0.898	5.44
E146	C60928M04A	2.56	10.14	2.73	0.832	5.33
E158	C60928M04A	2.59	10.32	3.18	0.898	5.43
E164	C60928M04A	2.91	9.99	3.04	0.851	5.38
E170	C60928M04A	2.95	10.74	3.12	0.908	5.47
E176	C60928M04A	2.47	10.40	3.01	0.874	5.41
E179	C60928M04A	2.48	10.90	2.89	0.883	5.45
E5475	H7JA42	2.45	10.39	2.89	0.809	5.51
E5482	H7JA42	2.52	9.73	3.15	0.799	5.61

DCN: QA-NSQC-CERT
REV NO. 3
REV DATE 08/07/96

The Tensar Corporation Quality Control Test Data

Product Type: Core Net for Composite Production

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code NS140565

Customer Name *Serrot*

Sales Order Number TES0648

Project Name Pagel Landfill

Purchase Order Number 27743-7286

	Raw Material QC Testing		Finished Product QC Testing			
QC Core Net Sample Roll Number	Resin Lot Number	Carbon Black (%)	Ultimate Tensile Strength (kN/m) MD	Ultimate Tensile Strength (kN/m) XMD	Mass/Area (kg/m^2)	Thickness (mm)
		ASTM D4218	ASTM D5035	ASTM D5035	ASTM D5261-92	ASTM D5199
E5485	H7JA42	2.60	10.23	3.13	0.830	5.60
E5488	H7JA42	2.51	10.09	2.89	0.802	5.55
E5491	H7JA42	2.46	10.49	3.17	0.830	5.60
E5959	H7GR43	2.81	10.38	3.19	0.812	5.48
E5962	H7GR43	2.77	10.30	3.00	0.823	5.54
E5965	H7GR43	2.74	10.30	3.00	0.818	5.55
E5971	H7GR43	2.62	9.83	3.30	0.838	5.66
56295-A001	C60905M05A	2.53	10.80	3.64	0.903	5.57
56303-B007	P09351	2.42	10.20	3.66	0.870	5.56
56306-A010	C60906M03A	2.64	9.90	3.46	0.857	5.47
56306A022	C60906M03A	2.75	10.07	3.73	0.843	5.46
56306-A028	C60906M03A	2.86	10.40	3.42	0.897	5.62
56306-A031	C60906M03A	2.87	10.50	3.66	0.880	5.59
56306-A034	C60906M03A	2.74	9.90	4.26	0.882	5.60
56306-A052	C60906M03A	2.78	9.76	3.05	0.851	5.52
56306-E013	C60906M03A	2.72	10.20	3.53	0.855	5.56

DCN: QA-NSQC-CERT
REV. NO 3
REV. DATE 08/07/96

The Tensar Corporation Quality Control Test Data

Product Type: Core Net for Composite Production

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code NS140565

Customer Name Serrot

Sales Order Number TES0648

Project Name Pagel Landfill

Purchase Order Number 27743-7286

	Raw Material QC Testing		Finished Product QC Testing			
QC Core Net Sample Roll Number	Resin Lot Number	Carbon Black (%)	Ultimate Tensile Strength (kN/m) MD	Ultimate Tensile Strength (kN/m) XMD	Mass/Area (kg/m^2)	Thickness (mm)
		ASTM D4218	ASTM D5035	ASTM D5035	ASTM D5261-92	ASTM D5199
56310-A016	P09434	2.41	11.12	3.49	0.868	5.51
56314-B007	C60927M05A	2.57	10.10	3.20	0.868	5.56
56314-B010	C60927M05A	2.60	10.30	3.70	0.870	5.55
56314-B016	C60927M05A	2.75	9.81	2.91	0.837	5.50
56314-B037	C60927M05A	2.45	10.50	3.70	0.859	5.54
56314-B040	C60927M05A	2.57	10.90	3.50	0.857	5.53
56314-B043	C60927M05A	2.38	10.40	3.40	0.849	5.48
56314-B058	C60927M05A	2.76	10.59	3.03	0.874	5.49
56314-B060	C60927M05A	2.86	11.14	3.36	0.880	5.53
56314-D001	C60927M05A	2.09	10.06	3.52	0.859	5.51
56314-D004	C60927M05A	2.39	9.98	3.19	0.847	5.53
56314-D022	C60927M05A	2.47	10.72	3.21	0.882	5.50
56314-D034	C60927M05A	2.43	10.04	3.18	0.853	5.52
56323-A025	P09351	2.10	9.09	3.34	0.855	5.47
56323-A028	P09351	2.48	9.29	2.90	0.840	5.43
56345-A007	P09351	2.51	10.99	3.98	0.854	5.45

DCN: QA-NSQC-CERT
REV. NO. 3
REV. DATE: 08/07/96

The Tensar Corporation Quality Control Test Data

Product Type: Core Net for Composite Production

Bill of Lading Number TMP 14709, 14730, 14738, 14783, 14801, 14803, 16253

Product Code NS140565

Customer Name Serrot

Project Name Pagel Landfill

Sales Order Number TES0648

Purchase Order Number 27743-7286

	Raw Material QC Testing		Finished Product QC Testing			
QC Core Net Sample Roll Number	Resin Lot Number	Carbon Black (%)	Ultimate Tensile Strength (kN/m) MD	Ultimate Tensile Strength (kN/m) XMD	Mass/Area (kg/m^2)	Thickness (mm)
		ASTM D4218	ASTM D5035	ASTM D5035	ASTM D5261-92	ASTM D5199
56345-A010	P09351	2.20	11.24	3.51	0.869	5.37
56346-B004	C60927M04A	2.48	10.40	3.50	0.859	5.41
56346-B007	C60927M04A	2.51	10.50	3.70	0.861	5.48
56346-B010	C60927M04A	2.45	10.00	3.70	0.856	5.37
56346-B014	C60927M04A	2.43	10.30	3.50	0.860	5.34
56346-B016	C60927M04A	2.33	10.35	4.00	0.862	5.41
56346-B019	C60927M04A	2.45	11.15	4.36	0.894	5.46
56346-B022	C60927M04A	2.42	11.18	4.33	0.878	5.48

Thomas N. Dobras

Thomas N. Dobras, P. E.
Quality Assurance Manager

Dec. 16, 1997
Date

N

1 kg/m^2 = 0.2048 lbs/ft^2

TES0648.XLS

The Tensar Corporation Quality Assurance

FLOW AND TRANSMISSIVITY DATA

Boundary Conditions: Plate / Neoprene / Sample - Liner / Plate

TEST NO.: 1414-1419 PRODUCT: DC4205E66AA2

RIG NO.: 1 PROJECT: Serrot - Pagel Landfill

DATE: 4/3/97 0:00 TEST METHOD ASTM D4716

LOT NUMBER	ROLL NUMBER	LOAD (kpsf)	HYD GRAD	FLOW gpm/ft width	TRANSMISSIVITY gpm/ft width	TRANSMISSIVITY ($x10^{-4}m^2$/sec)	TRANSMISSIVITY ($x10^{-3}ft^2$/sec)
H150	H150	2.00	1.00	3.319	3.319	6.870	7.394
		15.00	1.00	1.016	1.016	2.104	2.264
H195	H195	2.00	1.00	3.151	3.151	6.523	7.022
		15.00	1.00	1.300	1.300	2.691	2.896
H225	H225	2.00	1.00	2.717	2.717	5.625	6.055
		15.00	1.00	0.958	0.958	1.983	2.134
H255	H255	2.00	1.00	2.820	2.820	5.837	6.282
		15.00	1.00	1.267	1.267	2.623	2.823
H285	H285	2.00	1.00	2.799	2.799	5.793	6.236
		15.00	1.00	1.049	1.049	2.171	2.337
H302	H302	2.00	1.00	2.525	2.525	5.230	5.627
		15.00	1.00	0.925	0.925	1.915	2.061

Thomas N. Dobras, P.E.
Quality Assurance Manager

Dec. 16, 1997
Date

The Tensar Corporation Quality Assurance

FLOW AND TRANSMISSIVITY DATA

Boundary Conditions: Plate / Sample / Plate

TEST NO.: 4025 PRODUCT: DC4205E66AA2

RIG NO.: 1 PROJECT: Serrot-Pagel Landfill

DATE: 12/12/97 0:00 TEST METHOD ASTM D4716

LOT NUMBER	ROLL NUMBER	LOAD (kpsf)	HYD GRAD	FLOW gpm/ft width	TRANSMISSIVITY gpm/ft width	TRANSMISSIVITY ($x10^{-4}m^2/sec$)	TRANSMISSIVITY ($x10^{-3}ft^2/sec$)
H8461	H8461	2.00	1.00	4.717	4.717	9.764	10.510
		15.00	1.00	3.363	3.363	6.962	7.494
H7476	H8476	2.00	1.00	3.788	3.788	7.841	8.440
		15.00	10.00	1.889	0.189	0.391	0.421

Thomas N. Dobras, P.E.
Quality Assurance Manager

Dec. 16, 1997
Date

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255
Fax 770 • 961 • 8239

Date Tested: 10/7/96
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Solvay

Resin Type: HDIG

Resin Lot Number: C60905M05A

Railcar Number: ELTX 3043

Melt Flow Index (g/10 min.): ASTM D1238

Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.877	0.871	0.893	0.872
MFI:	0.876	0.872	0.872	0.868
Density:	0.955	0.958	0.958	0.957
Density:	0.958	0.957	0.958	0.958

Compartment:	B1	B2	B3	B4
MFI:	0.887	0.853	0.858	0.849
MFI:	0.843	0.859	0.854	0.852
Density:	0.958	0.957	0.958	0.957
Density:	0.957	0.957	0.957	0.958

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Authorization

RESIN.XLS

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255
Fax 770 • 961 • 8239

Date Tested: 10/2/96
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Solvay

Resin Type: HDIG A60
Resin Lot Number: C60906M03A
Railcar Number: ELTX 3012

Melt Flow Index (g/10 min.): ASTM D1238
Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.871	0.859	0.883	0.878
MFI:	0.887	0.880	0.887	0.876
Density:	0.954	0.956	0.955	0.954
Density:	0.954	0.956	0.955	0.952

Compartment:	B1	B2	B3	B4
MFI:	0.892	0.858	0.859	0.878
MFI:	0.862	0.855	0.853	0.865
Density:	0.953	0.952	0.954	0.952
Density:	0.953	0.953	0.954	0.954

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Authorization

RESIN.XLS

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255
Fax 770 • 961 • 8239

Date Tested: 11/16/96
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Solvay

Resin Type: HDIG A60

Resin Lot Number: C60927M04A

Railcar Number: ELTX 3385

Melt Flow Index (g/10 min.): ASTM D1238

Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.828	0.802	0.829	0.875
MFI:	0.826	0.820	0.804	0.806
Density:	0.956	0.956	0.957	0.958
Density:	0.956	0.956	0.957	0.957

Compartment:	B1	B2	B3	B4
MFI:	0.835	0.863	0.825	0.824
MFI:	0.795	0.794	0.806	0.796
Density:	0.957	0.956	0.956	0.956
Density:	0.959	0.956	0.955	0.957

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Thomas R Dobbs
Authorization

RESIN.XLS

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
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Fax 770 • 961 • 8239

Date Tested: 11/16/96
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Solvay

Resin Type: HDIG A60

Resin Lot Number: C60927M05A

Railcar Number: ELTX 3415

Melt Flow Index (g/10 min.): ASTM D1238

Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.735	0.738	0.720	0.741
MFI:	0.693	0.753	0.706	0.680
Density:	0.950	0.949	0.949	0.949
Density:	0.949	0.949	0.950	0.950

Compartment:	B1	B2	B3	B4
MFI:	0.738	0.738	0.741	0.758
MFI:	0.711	0.698	0.663	0.726
Density:	0.949	0.948	0.957	0.956
Density:	0.949	0.956	0.956	0.955

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Authorization

RESIN.XLS

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255
Fax 770 • 961 • 8239

Date Tested: 11/16/96
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Solvay

Resin Type: HDIG

Resin Lot Number: C60928M04A

Railcar Number: ELTX 3385

Melt Flow Index (g/10 min.): ASTM D1238

Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.653	0.632	0.668	0.642
MFI:	0.647	0.650	0.671	0.643
Density:	0.956	0.956	0.957	0.958
Density:	0.956	0.956	0.957	0.957

Compartment:	B1	B2	B3	B4
MFI:	0.680	0.651	0.622	0.650
MFI:	0.692	0.643	0.639	0.636
Density:	0.957	0.956	0.956	0.956
Density:	0.959	0.956	0.955	0.957

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Authorization

RESIN.XLS

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255

Date Tested: 7/22/97
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Signature

Resin Type: HDIG

Resin Lot Number: H7GR43

Railcar Number: ACF

Melt Flow Index (g/10 min.): ASTM D1238

Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.658	0.642	0.649	0.640
MFI:	0.649	0.658	0.658	0.649
Density:	0.968	0.960	0.970	0.971
Density:	0.968	0.963	0.972	0.969

Compartment:	B1	B2	B3	B4
MFI:	0.661	0.651	0.640	0.653
MFI:	0.641	0.643	0.665	0.658
Density:	0.939	0.939	0.938	0.941
Density:	0.941	0.939	0.936	0.940

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Authorization

Tensar

Date Tested: 7/17/97
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Signature

Resin Type: HDIG

Resin Lot Number: H7JA42

Railcar Number: NPCX 7030

Melt Flow Index (g/10 min.): ASTM D1238

Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.658	0.642	0.649	0.640
MFI:	0.649	0.658	0.658	0.649
Density:	0.968	0.960	0.970	0.971
Density:	0.968	0.963	0.972	0.969

Compartment:	B1	B2	B3	B4
MFI:	0.661	0.651	0.640	0.653
MFI:	0.641	0.643	0.665	0.658
Density:	0.939	0.939	0.938	0.941
Density:	0.941	0.939	0.936	0.940

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Authorization

RESIN.XLS

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255
Fax 770 • 961 • 8239

Date Tested: 11/1/96
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Southern Polmer

Resin Type: HDIG SPO 107A
Resin Lot Number: P09434
Railcar Number: PSPX 6409

Melt Flow Index (g/10 min.): ASTM D1238
Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.527	0.539	0.536	0.532
MFI:	0.505	0.536	0.545	0.539
Density:	0.959	0.960	0.959	0.959
Density:	0.959	0.960	0.959	0.959

Compartment:	B1	B2	B3	B4
MFI:	0.513	0.536	0.530	0.536
MFI:	0.529	0.534	0.542	0.537
Density:	0.959	0.959	0.958	0.959
Density:	0.959	0.958	0.958	0.959

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

David Hall
Authorization

RESTM.XLS

Tensar

The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel. 770 • 968 • 3255
Fax 770 • 960 • 1734

Date Tested: 10/2/96
Tested By: Monica

T1	T2	T3	T4
B1	B2	B3	B4

RailCar Compartments

Resin Certification Report

Vendor: Southern Polmer

Resin Type: HDIG

Resin Lot Number: P09351

Railcar Number: AFPX 945622

Melt Flow Index (g/10 min.): ASTM D1238

Density (g/cc): ASTM D792

Compartment:	T1	T2	T3	T4
MFI:	0.653	0.658	0.643	0.674
MFI:	0.663	0.660	0.660	0.666
Density:	0.955	0.958	0.958	0.958
Density:	0.959	0.958	0.958	0.959

Compartment:	B1	B2	B3	B4
MFI:	0.674	0.659	0.649	0.659
MFI:	0.671	0.670	0.667	0.676
Density:	0.958	0.959	0.957	0.959
Density:	0.959	0.959	0.959	0.958

DCN:	QA-RMQC-CERT
Revision No.:	1
Revision Date:	9/27/96

Dave Hall
Authorization

RESIN.XLS

5019493-
5019717

Evergreen Technologies

September 13, 1996

Tensar Corporation
1210 Citizens Parkway
Morrow, GA 30260

Subj: TG600 Geotextile Certificate of Compliance

Ref: Order 1169 & 1170, PO # 6-9221

Dear Sir/Madam:

This letter certifies that TG600, shipped FOB Evergreen, Alabama, manufactured by Evergreen Technologies, meets or exceeds the minimum requirements listed below and was shipped from Lot # 60039.

PROPERTY	TEST PROCEDURE	VALUE(1)		
Weight	ASTM D 5261	6		oz/yd2
Thickness	ASTM D 5199	70	*	Mil
Grab Strength	ASTM D 4632	150		lbs
Grab Elongation	ASTM D 4632	50		%
Tear Strength	ASTM D 4533	60		lbs
Mullen Burst	ASTM D 3786	250		psi
Puncture Resistance	ASTM D 4833	75		lbs
A.O.S.	ASTM D 4751	.250	*	mm
		(60)	*	US Std Sieve
Permittivity	ASTM D 4491	1.8	*	1/sec
Water Permeability	ASTM D 4491	0.3	*	cm/sec
Water Flow Rate	ASTM D 4491	135	*	gpm/sq ft
U.V. Resistance (500 hours)	ASTM D 4355	70		%

(1) Values in weaker principle direction. Unless noted otherwise, these values represent minimum average roll values (i.e. test results from any sampled roll in a lot, tested in accordance with ASTM D 4759-88 shall meet or exceed the minimum values listed).

* Determined at the time of manufacturing, storage and handling conditions which differ from those found in ASTM D 4873-88 may influence these properties.

Unless noted otherwise, this certification is based on testing conducted by Evergreen Technologies Quality Assurance & Quality Control testing laboratories at the time of manufacturing. Evergreen Technologies issues this letter of certification to indicate our commitment to providing our customers with a quality product which will meet or exceed the minimum average roll values in accordance with the applicable American Society for Testing and Materials (ASTM) test method.

Sincerely,

Manoj Tyagi MC

Manoj Tyagi
QA Manager

200 Miller Sellers Drive ● Evergreen, Alabama 36401 ● Tel. 334.578.9003 ● Fax 334.578.6141
A subsidiary of The Tensar Corporation

09/13/96

PRODUCT GRADE: TG 600
LOT NUMBER: 60039
COLOR: BLACK
ROLL DIM.: 15ft 5in x 1860ft

EVERGREEN TECHNOLOGIES INC.
MQA/MQC LABORATORY
EVERGREEN, ALABAMA

TEST ROLLS LOT SUMMARY

REVIEWED BY:
QA Margaret Cooper
ENGINEER

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (KV) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5019493	08/15/96	6.2	166.9	121.4	182.0	53.8	287.1	80.1	73.6	82.6			0.325		
5019495	08/16/96	6.3	193.7	120.6	194.7	58.6	306.4								
5019497	08/16/96	6.5	187.5	118.2	206.9	58.8	320.9	80.9							
5019499	08/16/96	6.8	186.8	122.6	210.3	54.1	319.0								
5019501	08/16/96	6.4	171.8	115.9	199.4	56.8	314.0								
5019502	08/16/96	6.4	174.0	132.7	210.4	60.3	297.1	86.7	83.9	92.2	81	2.10	0.901	157.4	0.235
5019503	08/16/96	6.5	186.5	137.9	205.4	59.6	305.7								
5019504	08/16/96	6.4	170.3	138.0	198.5	62.8	306.3								
5019505	08/16/96	6.2	182.8	155.8	206.1	64.0	288.1								
5019506	08/16/96	6.3	181.4	158.4	203.3	64.3	293.6								
5019508	08/16/96	6.2	174.8	139.5	211.8	65.5	309.4	81.7	92.7	94.9	76				
5019509	08/16/96	6.2	176.8	153.7	207.4	66.1	292.2								
5019511	08/16/96	6.2	167.7	129.2	206.2	58.8	289.7								
5019512	08/16/96	6.6	176.2	131.4	217.4	59.7	322.5								
>5019513	08/16/96	6.2	172.5	136.6	206.1	60.3	295.7								
5019514	08/16/96	6.2	173.6	152.0	212.2	64.2	291.0								
5019515	08/16/96	6.6	161.1	114.7	210.8	57.6	312.7	89.0	81.1	99.0	85		0.387		0.236
5019518	08/16/96	6.6	192.6	176.9	210.3	66.3	303.5								
5019520	08/16/96	6.5	176.8	157.7	206.1	56.7	306.1								
5019522	08/17/96	6.7	176.5	137.0	206.5	62.3	330.0	89.6	82.6	95.6	84				
5019524	08/17/96	6.4	173.0	128.8	212.6	57.6	307.7								
5019526	08/17/96	6.8	176.7	144.3	210.7	66.7	326.5								
5019527	08/17/96	6.5	180.3	165.4	201.7	60.4	325.5	97.4	80.5	96.7	72		0.335		
5019528	08/17/96	6.6	168.2	131.2	198.7	56.5	311.7								
5019530	08/17/96	6.6	158.8	129.8	204.3	54.2	300.7								
5019532	08/17/96	6.4	175.3	158.4	210.0	55.1	314.7								
>5019534	08/17/96	6.3	169.1	141.3	200.2	61.6	300.5								
5019535	08/17/96	6.6	170.7	154.2	204.1	61.8	312.9								
>5019537	08/17/96	6.4	171.7	137.0	208.0	58.2		99.1	88.5	96.6	80				

LOT NUMBER: 60039

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5019540	08/17/96	6.4	163.8	129.5	206.0	60.0	305.0	83.4	78.2	92.5	85	1.90	0.397	142.3	0.249
5019542	08/17/96	6.5	179.0	152.3	203.6	59.8	316.1								
5019544	08/17/96	6.7	179.1	166.3	196.2	63.6	324.4								
5019546	08/18/96	6.7	166.6	143.5	211.1	60.2	324.6								
5019548	08/18/96	6.2	179.7	163.0	209.4	68.1	293.9	85.6	89.6	97.5	84				
5019549	08/18/96	6.4	173.0	147.3	197.3	52.0	299.1								
5019551	08/18/96	6.3	160.0	134.1	202.1	55.0	301.8								
5019552	08/18/96	6.5	158.3	147.6	206.8	67.4	310.1								
5019554	08/18/96	6.3	163.6	141.0	194.5	58.8	300.0								
5019556	08/18/96	6.4	168.9	131.3	206.4	57.3	313.8								
5019557	08/18/96	6.4	162.2	135.0	195.8	54.7		88.6	73.2	85.3	76	1.86	0.324	138.9	
5019558	08/18/96	6.4	168.7	141.8	204.5	56.7	314.6								
5019561	08/18/96	6.3	157.6	163.0	200.0	60.4	285.7								
5019563	08/18/96	6.6	169.4	160.3	203.1	60.8	308.6	78.2	80.5	88.1	75				
5019565	08/18/96	6.3	178.1	169.3	203.1	68.1	279.7								
5019566	08/18/96	6.4	173.9	160.4	200.8	51.7	283.3								
5019568	08/18/96	6.3	170.3	155.8	207.2	61.9	298.4								
5019569	08/18/96	6.2	158.4	131.7	202.4	58.3	287.6	83.9	72.6	85.9	81	1.93	0.423	144.7	
5019571	08/18/96	6.4	180.8	174.3	201.9	62.1	303.7								0.217
5019573	08/18/96	6.2	167.1	167.2	205.5	60.3	288.4								
5019575	08/19/96	6.4	171.0	165.6	201.9	55.4	318.0								
5019576	08/19/96	6.2	169.9	140.9	205.7	52.1	294.5	90.3	73.2	97.1	82				
5019578	08/19/96	6.3	174.6	155.2	195.3	58.2	286.5								
5019580	08/19/96	6.4	161.2	134.0	202.7	50.4	303.3								
5019582	08/19/96	6.5	157.1	149.5	207.0	56.0	303.1								
5019583	08/19/96	6.3	152.0	132.3	205.1	50.4	301.0	78.1	73.6	91.9			0.376		
5019585	08/19/96	6.5	162.9	127.6	202.5	50.5	309.2	84.8	66.9	86.4	84		0.337		
5019587	08/19/96	6.6	155.4	124.8	194.8	50.2	310.1								
5019588	08/19/96	7.0	159.3	126.0	207.8	50.6	314.4								
5019590	08/19/96	6.9	154.0	124.2	195.3	50.3	315.9								
5019591	08/19/96	7.0	171.8	130.0	200.5	52.3	327.0	81.2	86.3	88.8	84				
5019594	08/19/96	6.6	165.0	128.5	197.7	51.7	315.2								
5019595	08/19/96	6.7	163.6	120.3	191.7	51.0	331.6								
5019596	08/19/96	6.5	158.8	122.3	193.9	51.5	311.9	82.9							
5019598	08/19/96	6.3	162.2	124.7	195.9	50.9	303.0	79.7							
5019608	08/21/96	6.5	167.2	130.3	184.6	59.8	319.9	86.5	78.5	90.2	83		0.335		0.247
5019609	08/21/96	6.5	168.7	129.6	186.4	59.7	322.5								

LOT NUMBER: 60039

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5019612	08/21/96	6.4	160.3	124.3	188.6	58.3	312.4								
5019613	08/21/96	6.8	166.9	140.4	190.4	67.1	315.0								
5019614	08/21/96	6.5	151.7	138.1	187.2	61.6	280.6								
5019615	08/21/96	6.4	164.3	139.1	199.9	61.3	298.0	88.3	76.4	90.2	80		0.300		0.237
5019616	08/21/96	6.6	169.7	148.8	217.0	64.2	286.9								
5019620	08/21/96	6.3	160.4	147.3	180.0	60.6	289.9	85.0	76.6	93.7	75				
5019622	08/21/96	6.9	167.4	144.9	189.5	66.6	312.7								
5019623	08/21/96	6.5	169.3	146.2	187.6	59.8	296.5	102.0	91.7	106.1	83		0.340		0.202
5019624	08/21/96	6.9	158.0	130.2	198.0	60.5	325.5								
5019625	08/21/96	6.5	173.2	156.0	205.1	69.2	303.3								
5019627	08/21/96	6.5	160.7	130.2	197.2	70.7	294.4								
5019629	08/22/96	6.6	183.7	168.8	198.6	67.1	310.6	89.8	86.0	95.0	76				
5019631	08/22/96	6.8	175.8	164.8	200.9	66.3	316.5								
5019633	08/22/96	6.6	180.7	152.1	212.6	62.8	305.3								
5019635	08/22/96	6.4	185.3	152.1	213.3	64.9	286.5								
5019636	08/22/96	6.5	179.7	157.3	216.5	64.9	310.3	87.8	94.9	95.1	70				0.150
5019638	08/22/96	6.3	169.0	143.8	204.3	59.9	305.1								
5019641	08/22/96	6.4	173.2	159.2	194.0	59.8	286.8								
5019642	08/22/96	6.8	159.8	141.3	191.4	63.8		85.4	77.4	93.1	70				
5019643	08/22/96	7.0	181.0	127.6	213.9	60.9	314.9								
5019644	08/22/96	6.9	196.2	140.4	211.1	63.6	339.6	105.5	89.2	101.5	87	1.91	0.386	143.2	0.223
5019646	08/22/96	6.5	169.7	149.4	207.4	60.7	299.0								
5019648	08/23/96	6.7	177.9	156.9	220.9	71.1	300.3	88.1	85.3	94.6	77				
5019650	08/23/96	6.8	187.8	160.8	207.2	66.6	316.0								
5019652	08/23/96	6.5	162.6	126.0	198.9	51.3	307.9	89.1	81.3	91.7	82		0.311		
5019653	08/23/96	7.0	185.6	126.1	226.2	55.8	320.8								0.221
5019654	08/23/96	6.8	181.1	126.8	235.6	57.8	335.4	94.2	113.0	95.9	85				
5019656	08/23/96	6.8	174.7	122.8	206.1	52.5	331.7								
5019657	08/23/96	6.7	164.2	122.2	200.9	52.3	319.1	96.7	102.7	98.0					
5019659	08/23/96	6.6	182.1	132.3	211.2	53.3	324.6								
5019661	08/23/96	6.5	178.7	120.4	203.3	52.0	314.8								
5019662	08/23/96	6.7	189.6	116.0	207.2	53.0	319.4	80.7	77.3	84.9	83		0.355		0.240
5019664	08/23/96	6.8	168.8	118.2	206.6	53.9	318.3								
5019665	08/23/96	6.3	178.9	118.4	210.2	53.0	306.3								
5019667	08/24/96	6.8	168.6	116.2	198.1	51.1	334.3								
5019669	08/23/96	6.7	162.5	122.4	204.4	50.7	305.1	84.4	97.3	91.0	86				
5019670	08/24/96	6.7	173.3	117.8	199.0	[illegible]	325.4								

LOT NUMBER: 60039

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5019672	08/24/96	7.0	177.0	120.5	225.8	54.9	326.9								
5019673	08/24/96	7.0	171.3	130.7	218.5	54.3	315.2								
5019674	08/24/96	6.8	167.5	134.0	204.7	52.5	304.4	94.1	93.4	97.5	94	1.83	0.403	136.8	0.216
5019676	08/24/96	6.9	183.0	123.9	218.1	53.0	325.3								
5019677	08/24/96	6.6	183.9	135.6	198.7	55.7	312.8	81.1	88.7	100.0	82				
5019680	08/24/96	6.7	164.0	123.9	195.4	55.1	332.7	78.4	92.9	98.2					
5019682	08/24/96	7.0	174.4	121.9	219.3	52.8	315.7	89.5	81.9	92.5	92		0.368		0.207
5019683	08/24/96	7.0	176.5	121.6	228.4	51.3	327.4								
5019684	08/24/96	7.0	176.3	122.3	221.5	52.2	324.9								
5019685	08/25/96	7.2	173.8	118.3	217.9	51.3	330.6								
5019686	08/25/96	7.0	173.0	119.3	228.5	50.9	336.5	90.3	86.7	89.8	86				
5019689	08/25/96	6.5	172.9	119.0	209.8	52.3	303.7								
5019690	08/25/96	6.4	176.6	134.7	213.7	55.8	311.0	89.5	78.9	88.7	85				0.212
5019692	08/25/96	6.6	173.5	134.0	221.7	57.3	303.0								
5019694	08/25/96	6.4	182.9	136.8	213.1	56.1	296.8	85.7	75.8	89.0	82				
5019697	08/25/96	6.6	175.8	132.0	216.2	54.8	318.2	82.7	78.1	87.6					
5019699	08/25/96	6.5	169.3	133.0	209.5	52.0	309.9	86.1							
5019700	08/25/96	6.6	189.7	127.5	222.1	54.5	317.0	84.3	77.5	94.8	82	1.82	0.364	135.8	0.204
5019701	08/25/96	6.5	169.3	122.0	221.7	55.6	297.7	87.3							
5019703	08/25/96	6.5	186.4	130.5	230.2	56.7	313.2								
5019705	08/26/96	6.5	179.7	123.3	215.5	56.2	302.0								
5019707	08/26/96	6.8	173.3	129.4	216.8	57.8	324.8	86.3	77.4	86.2	86				
5019709	08/26/96	6.4	171.4	127.7	212.4	52.8	306.6								
5019710	08/26/96	6.6	179.8	127.8	220.5	56.8	318.8								
5019711	08/26/96	6.3	172.0	122.8	209.0	54.6	308.0	93.3	72.7	91.3	70	1.80	0.431	135.0	0.191
5019713	08/26/96	6.5	181.6	139.9	219.9	57.4	306.5								
5019715	08/26/96	6.6	177.5	131.3	213.4	53.5	307.5								
5019717	08/26/96	7.8	232.4	167.4	279.8	62.4	375.9								
	AVERAGE =	6.6	172.6	137.5	206.7	57.9	310.0	87.2	83.1	92.9	81	1.89	0.389	141.8	0.218
	STD. DEVIATION =	0.2	10.4	15.3	12.1	5.2	14.3	6.2	9.2	5.0	5	0.10	0.129	7.3	0.025

Evergreen Technologies

October 23, 1996

Tensar Corporation
1210 Citizens Parkway
Morrow, GA 30260

Subj: TG600 Geotextile Certificate of Compliance

Ref: Order 1232 & 1233, PO # 6-9272

Dear Sir/Madam:

This letter certifies that TG600, shipped FOB Evergreen, Alabama, manufactured by Evergreen Technologies, meets or exceeds the minimum requirements listed below and was shipped from Lot # 60045.

PROPERTY	TEST PROCEDURE	VALUE(1)		
Weight	ASTM D 5261	6		oz/yd2
Thickness	ASTM D 5199	70	*	Mil
Grab Strength	ASTM D 4632	150		lbs
Grab Elongation	ASTM D 4632	50		%
Tear Strength	ASTM D 4533	60		lbs
Mullen Burst	ASTM D 3786	250		psi
Puncture Resistance	ASTM D 4833	80		lbs
A.O.S.	ASTM D 4751	.250	*	mm
		(60)	*	US Std Sieve
Permittivity	ASTM D 4491	1.8	-	1/sec
Water Permeability	ASTM D 4491	0.3	*	cm/sec
Water Flow Rate	ASTM D 4491	135	*	gpm/sq ft
U.V. Resistance (500 hours)	ASTM D 4355	70		%

(1) Values in weaker principle direction. Unless noted otherwise, these values represent minimum average roll values (i.e. test results from any sampled roll in a lot, tested in accordance with ASTM D 4759-88 shall meet or exceed the minimum values listed).

* Determined at the time of manufacturing, storage and handling conditions which differ from those found in ASTM D 4873-88 may influence these properties.

Unless noted otherwise, this certification is based on testing conducted by Evergreen Technologies Quality Assurance & Quality Control testing laboratories at the time of manufacturing. Evergreen Technologies issues this letter of certification to indicate our commitment to providing our customers with a quality product which will meet or exceed the minimum average roll values in accordance with the applicable American Society for Testing and Materials (ASTM) test method.

Sincerely,

Manoj Tyagi
QA Manager

200 Miller Sellers Drive ● Evergreen, Alabama 36401 ● Tel. 334.578.9003 ● Fax 334.578.6141
A subsidiary of The Tensar Corporation

10/09/96

PRODUCT GRADE: TG 600
LOT NUMBER: 60045
COLOR: BLACK
ROLL DIM.: 15ft 5in x 1860ft

EVERGREEN TECHNOLOGIES INC.
MQA/MQC LABORATORY
EVERGREEN, ALABAMA

REVIEWED BY:
QA Margaret Cooper
ENGINEER

TEST ROLLS LOT SUMMARY

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5020480	09/05/96	6.8	194.5	167.8	214.2	71.3	293.6	92.8	88.1	98.9	83				
5020482	09/05/96	6.9	202.1	169.8	230.6	72.1	306.3								
5020484	09/05/96	6.8	193.4	161.7	216.6	68.2	319.4	91.2	82.6	102.1	76	1.95	0.356	146.0	
5020485	09/05/96	6.4	174.8	149.8	221.7	68.9	284.9								
5020486	09/05/96	6.5	196.3	158.0	216.9	72.5	304.3								
5020487	09/05/96	6.6	187.8	155.8	221.1	71.9	302.0								
5020488	09/05/96	6.8	190.6	164.7	219.6	69.0	304.0								
5020489	09/05/96	6.6	187.5	159.0	213.3	69.6	303.8	87.9	77.8	98.6	76				
5020490	09/06/96	6.6	171.0	147.4	198.6	63.8	299.8								
5020491	09/06/96	6.5	170.6	153.4	203.7	68.9	301.9								
5020492	09/06/96	6.5	172.6	157.0	218.9	65.6	283.6								
5020493	09/06/96	6.6	154.8	151.4	217.0	59.7	290.1								
5020494	09/06/96	6.4	165.4	157.6	208.5	65.2	279.9								
5020495	09/06/96	6.5	155.4	158.9	204.2	65.4	279.3								
5020496	09/06/96	6.4	177.9	152.5	215.3	63.2	279.9	84.4	72.7	93.2	78				
5020498	09/06/96	6.5	161.8	151.0	212.5	63.6	285.6	83.6							
5020500	09/06/96	6.5	178.8	157.2	205.4	62.0	285.2								
5020502	09/06/96	6.3	164.0	151.1	199.1	63.8	277.3	88.1	77.0	102.3	86				
5020504	09/06/96	6.5	161.8	146.2	196.0	60.5	292.2								
5020505	09/06/96	6.8	163.0	151.7	221.6	66.7	295.2								
5020507	09/06/96	6.7	161.6	159.7	207.5	64.5	285.0								
5020508	09/06/96	6.6	180.7	169.3	236.2	71.7	276.9	87.9	79.0	10.4	81		0.305		0.250
5020509	09/06/96	6.6	170.2	161.0	220.8	66.4	276.2								
5020510	09/06/96	6.8	165.3	153.0	219.0	64.5	289.2								
5020511	09/06/96	6.6	171.8	158.3	195.4	59.1	286.8								
5020512	09/06/96	6.6	171.3	166.1	220.8	67.4	289.3	78.2	81.6	105.2	71				
5020513	09/07/96	6.5	174.5	160.3	200.1	68.7	273.1								
5020514	09/07/96	6.9	177.5	161.2	230.2	67.6	295.8	84.4							
5020515	09/07/96	6.9	163.1	154.3	225.8	70.4	291.9	88.9							
5020516	09/07/96	6.9	171.9	163.5	217.1	74.6	290.2								

LOT NUMBER: 60045

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5020517	09/07/96	6.4	162.6	166.2	210.1	72.0	269.3								
5020518	09/07/96	6.6	167.5	167.8	218.2	73.8	279.9								
5020519	09/07/96	6.8	165.6	157.5	219.8	69.4	293.5								
5020520	09/07/96	6.8	176.3	156.9	222.8	68.5	288.7	77.9	86.2	101.6	83				
5020522	09/07/96	6.4	160.8	158.6	221.2	66.1	272.8	79.8							
5020524	09/07/96	6.6	168.7	152.8	202.7	60.4	277.5								
5020526	09/07/96	6.8	156.1	155.4	208.0	60.2	286.5	80.5	79.2	98.7	85				
5020531	09/07/96	7.1	174.0	171.3	227.9	66.5	285.1								
5020532	09/07/96	6.9	163.7	178.0	226.9	64.1	281.2	78.8	80.6	110.4	83		0.344		
5020533	09/07/96	7.2	166.7	174.3	234.3	69.4	280.2	82.0							
5020534	09/07/96	7.5	178.9	175.6	243.9	74.8	287.6	89.0							
5020536	09/08/96	7.7	195.6	158.8	235.7	64.2	325.1	96.0	97.2	113.1	94				
5020537	09/08/96	7.6	192.6	166.6	246.1	71.3	304.7	82.1	96.9						
5020538	09/08/96	6.8	176.5	165.1	229.1	69.0	278.5	81.0							
5020539	09/08/96	7.2	182.8	172.5	232.0	68.7	293.4	86.7	86.2						
5020541	09/08/96	6.7	171.2	160.1	218.9	69.8	274.8	85.2	86.9	106.4	89				
5020542	09/08/96	6.8	191.0	174.3	214.4	72.4	274.2								
5020546	09/08/96	6.9	173.7	160.9	213.7	69.3	279.6								
5020549	09/08/96	6.8	177.8	164.3	221.6	73.5	279.2	85.8	81.3	107.0	89				
5020551	09/08/96	7.2	186.5	169.9	222.0	70.3	278.9								
5020553	09/08/96	6.9	190.2	164.7	239.0	77.5	282.6								
5020555	09/08/96	6.7	170.6	153.8	218.8	69.3	275.6								
5020559	09/08/96	7.2	178.9	167.3	232.6	71.8	292.9	84.2	100.4	103.9	88		0.407		
5020563	09/09/96	7.3	186.5	182.4	205.1	66.7	307.3								
5020564	09/09/96	6.9	180.2	150.5	229.3	60.4	312.9	96.7	79.2	96.7	91	1.96	0.458	146.3	0.150
5020566	09/09/96	6.8	183.6	164.2	224.2	57.4	295.0								
5020567	09/09/96	6.6	173.1	156.5	220.3	62.0	290.5								
5020569	09/09/96	6.4	160.9	146.7	219.0	61.6	286.6								
5020571	09/09/96	7.0	174.8	156.3	213.4	69.3	293.2	89.5	77.4	103.1	83	2.06	0.363	153.8	0.248
5020572	09/10/96	6.4	171.2	148.8	206.8	69.4	274.6								
5020573	09/10/96	6.5	183.4	159.3	215.5	69.9	297.9	83.1	89.5	95.0	92	2.18	0.492	163.1	
5020576	09/10/96	6.5	167.2	154.8	211.5	69.3	288.0								
5020579	09/10/96	6.5	171.3	160.7	203.9	64.8	282.2	87.9	76.8	91.6	89				
5020581	09/10/96	6.7	163.2	149.9	209.8	68.1	311.5								
5020583	09/10/96	6.5	160.6	157.6	212.6	69.3	277.0	77.6	71.2	90.1	84	1.84	0.373	137.4	
5020584	09/10/96	6.4	154.6	163.3	205.3	71.3	267.9								
5020586	09/10/96	6.4	161.3	160.9	202.3	7[illegible].8	266.8								

LOT NUMBER: 60045

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5020589	09/10/96	6.7	166.5	165.2	207.0	72.1	283.2	81.8	76.0	93.7	82				
5020590	09/11/96	6.7	166.5	165.8	214.8	74.6	283.7								
5020591	09/11/96	6.6	174.0	168.4	204.3	69.8	270.4								
5020593	09/11/96	6.6	156.7	150.3	202.4	70.8	276.0								
5020594	09/11/96	6.6	161.2	157.2	206.6	75.1	279.6								
5020595	09/11/96	7.0	183.2	169.7	220.7	74.8	301.6								
5020596	09/11/96	6.6	167.8	155.7	213.2	68.3	274.4	83.8	92.9	102.2	87		0.332		
5020598	09/11/96	7.0	183.2	162.3	234.3	73.6	283.1								
5020599	09/11/96	6.8	175.8	169.2	202.0	71.6	289.4								
5020600	09/11/96	6.8	176.8	159.1	214.5	65.7	290.1								
5020602	09/11/96	6.8	169.2	151.3	213.3	67.1	289.1								
5020603	09/11/96	6.9	176.6	158.3	218.5	66.5	279.6	81.1	83.0	101.1	83				
5020604	09/11/96	6.8	176.7	161.9	213.6	68.8	291.3								
5020606	09/11/96	7.1	183.3	161.9	224.4	70.1	303.8								
5020607	09/11/96	6.5	182.9	166.3	204.0	68.8	268.8								
5020608	09/11/96	6.8	177.3	158.3	216.7	69.7	289.7								
5020609	09/11/96	6.7	176.2	165.7	206.3	69.5	281.4	84.0	82.8	101.7	89		0.398		
5020611	09/11/96	6.7	171.7	174.8	213.0	72.1	284.1	76.6							
5020613	09/11/96	6.8	177.7	170.2	222.2	71.4	285.4	85.6							
5020615	09/12/96	6.6	176.1	174.3	212.0	70.8	280.1	81.9							
5020619	09/12/96	6.9	174.4	164.2	226.9	71.3	305.0	80.2							
5020624	09/12/96	6.5	172.7	157.8	205.7	72.8	268.2	82.9	77.4	94.2	86				
5020625	09/12/96	6.5	183.0	166.5	206.6	73.6	271.8								
5020629	09/12/96	6.7	184.6	160.5	216.0	76.7	289.9	80.6	85.3	102.5			0.370		
5020632	09/13/96	6.8	184.5	163.9	210.6	72.3	307.8	86.6	84.6	95.9	93				
5020637	09/13/96	7.6	188.2	187.9	228.8	84.1	331.3								
5020640	09/13/96	7.3	194.4	169.9	228.4	82.3	316.0								
5020641	09/13/96	6.8	192.6	170.1	223.5	73.1	294.8	99.4	91.8	108.0	96	2.13	0.487	159.0	
5020642	09/13/96	7.4	190.0	167.6	232.1	75.1	341.7								
5020643	09/13/96	7.0	192.2	172.5	242.3	77.8	298.0								
5020645	09/13/96	7.1	190.9	175.3	226.6	71.8	310.1	106.8	88.0	108.9	98				0.250
5020648	09/13/96	6.5	181.3	162.8	223.4	70.9	310.2								
5020650	09/13/96	6.6	168.7	162.7	218.8	74.9	302.8								0.250
5020652	09/13/96	6.4	173.4	166.8	203.3	75.5	287.1								
5020653	09/13/96	6.8	177.5	181.5	215.4	81.3	296.5	85.8	80.7	105.1	85	2.16	0.395	161.3	
5020654	09/13/96	7.1	199.2	188.3	217.6	81.3	296.1								
5020655	09/13/96	6.9	190.9	188.4	224.9	79.6	294.9								

LOT NUMBER: 60045

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5020657	09/13/96	6.8	179.6	173.3	210.8	78.1	297.6								
5020659	09/14/96	6.7	166.3	170.6	204.8	78.3	292.9								
5020660	09/14/96	6.4	167.5	170.8	197.7	75.0	282.6	92.0	91.5	110.3	91				
5020661	09/14/96	6.5	173.6	174.7	212.7	82.3	272.5								
5020662	09/14/96	6.8	186.3	170.8	209.3	77.9	284.2								
5020664	09/14/96	6.8	171.4	166.8	216.9	82.5	282.5								
5020666	09/14/96	6.8	193.7	167.8	217.2	69.5	301.3								
5020668	09/14/96	9.2	251.8	162.9	287.6	79.8	394.7								
AVERAGE =		6.8	176.4	163.3	217.3	70.3	290.2	85.6	83.8	98.4	85	2.04	0.391	152.4	0.230
STD. DEVIATION =		0.4	12.9	8.9	12.5	5.5	16.8	6.2	7.1	17.6	6	0.13	0.058	9.5	0.045

Evergreen Technologies

October 7, 1996

Tensar Corporation
1210 Citizens Parkway
Morrow, GA 30260

Subj: TG650 Geotextile Certificate of Compliance

Ref: Order # 1207 , PO # 6-9191

Dear Sir/Madam:

This letter certifies that TG650, shipped FOB Evergreen, Alabama, manufactured by Evergreen Technologies, meets or exceeds the minimum requirements listed below and was shipped from Lot's 60038 & 60049.

PROPERTY	TEST PROCEDURE	VALUE(1)		
Weight	ASTM D 5261	7		oz/yd2
Thickness	ASTM D 5199	80	*	Mil
Grab Strength	ASTM D 4632	180		lbs
Grab Elongation	ASTM D 4632	50		%
Tear Strength	ASTM D 4533	70		lbs
Mullen Burst	ASTM D 3786	350		psi
Puncture Resistance	ASTM D 4833	90		lbs
A.O.S.	ASTM D 4751	.212	*	mm
		(70)	*	US Std Sieve
Permittivity	ASTM D 4491	1.6	*	1/sec
Water Permeability	ASTM D 4491	0.3	*	cm/sec
Water Flow Rate	ASTM D 4491	120	*	gpm/sq ft
U.V. Resistance (500 hours)	ASTM D 4355	70		%

(1) Values in weaker principle direction. Unless noted otherwise, these values represent minimum average roll values (i.e. test results from any sampled roll in a lot, tested in accordance with ASTM D 4759-88 shall meet or exceed the minimum values listed).

* Determined at the time of manufacturing, storage and handling conditions which differ from those found in ASTM D 4873-88 may influence these properties.

Unless noted otherwise, this certification is based on testing conducted by Evergreen Technologies Quality Assurance & Quality Control testing laboratories at the time of manufacturing. Evergreen Technologies issues this letter of certification to indicate our commitment to providing our customers with a quality product which will meet or exceed the minimum average roll values in accordance with the applicable American Society for Testing and Materials (ASTM) test method.

Sincerely,

Manoj Tyagi
QA Manager

200 Miller Sellers Drive • Evergreen, Alabama 36401 • Tel. 334.578.9003 • Fax 334.578.6141
A subsidiary of The Tensar Corporation

10/04/96

PRODUCT GRADE: TG 650

LOT NUMBER: 60049

COLOR: BLACK

ROLL DIM.: 15ft 5in x 1400ft

EVERGREEN TECHNOLOGIES INC.

MQA/MQC LABORATORY

EVERGREEN, ALABAMA

REVIEWED BY:

QA Margaret Cooper

ENGINEER

TEST ROLLS LOT SUMMARY

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5021018	09/25/96	8.8	237.3	[illegible]	271.2	60.4	408.3	114.3	93.6	119.1	105				
5021019	09/25/96	8.1	219.7	[illegible]	261.2	61.8	396.4								
5021022	09/25/96	8.8	275.9	[illegible]	269.4	73.3	386.9								
5021025	09/26/96	8.1	244.5	[illegible]	242.8	67.3	367.9								
5021028	09/26/96	7.4	236.9	[illegible]	229.2	68.8	337.0	106.1	91.6	104.0	92	1.78	0.385	133.1	0.209
5021031	09/26/96	7.6	220.1	158.2	235.4	65.0	345.6								
5021033	09/26/96	7.3	208.1	150.6	225.0	62.3	337.1								
5021034	09/26/96	8.1	231.3	166.8	242.5	65.2	352.4								
5021035	09/26/96	8.0						101.5	102.7	91.8	87				
5021038	09/26/96	7.7	218.3	163.5	282.6	60.8	398.1	121.4	99.8	116.7					
5021045	09/27/96	7.7	232.7	180.9	248.7	68.8	340.6								
5021049	09/27/96	7.4	232.3	164.7	260.3	66.1	344.5								
5021050	09/27/96	7.6	227.2	166.9	263.7	69.2	361.5								
5021051	09/27/96	7.6	205.9	154.9	249.5	61.3	371.2	96.7	88.7	105.8	93	1.62	0.331	121.2	0.210
5021052	09/27/96	7.4	212.6	160.3	248.7	65.3	353.1								
5021054	09/27/96	7.1	234.7	163.4	238.6	64.1	353.9								
5021055	09/27/96	7.7	230.2	165.0	265.4	66.0	367.6								
5021056	09/27/96	7.5	223.5	161.0	230.6	64.6	348.9	107.3	92.9	105.6	97				
5021058	09/27/96	7.8	209.3	166.1	253.4	62.0	357.8								
5021059	09/27/96	8.2	236.4	181.1	262.2	67.3	376.4								
5021060	09/27/96	7.7	245.1	157.1	257.2	67.3	356.5	109.9	102.3	114.6	105	1.78	0.451	133.1	
5021061	09/27/96	8.1	227.0	159.5	250.8	60.0	373.7								
5021063	09/28/96	8.1	209.7	148.5	250.8	59.5	376.1								
5021064	09/28/96	7.7	214.0	149.6	240.9	57.3	373.9								
5021066	09/28/96	7.6	220.3	156.9	240.2	58.3	368.4								
5021068	09/28/96	7.6	213.2	159.2	249.7	62.6	354.4	118.9	95.5	105.5	112				
5021070	09/28/96	8.0	217.3	166.1	247.6	61.2	363.2								
5021072	09/28/96	8.1	226.4	[illegible]	271.6	74.8	348.7						0.363		
5021075	09/28/96	7.4	209.5	[illegible]	250.7	68.9	330.8								
5021076	09/28/96	7.7	208.1	[illegible]	278.[illegible]	71.5	339.8								

LOT NUMBER: 60049

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5021077	09/28/96	7.9	220.4	165.9	274.2	65.2	369.9								
5021079	09/28/96	8.1	225.8	158.4	284.2	58.2	345.9								
5021080	09/28/96	8.0	220.8	158.1	280.7	62.4	328.3								
5021081	09/28/96	8.0	230.6	165.0	287.7	63.6	332.8	113.0	99.1	123.2	106	1.70	0.452	127.2	
5021082	09/28/96	8.2	226.9	159.8	265.8	63.4	332.8								
5021083	09/28/96	8.5	226.9	153.3	282.5	67.3	335.0								
5021084	09/29/96	8.1	227.5	164.3	287.6	63.3	327.9								
5021085	09/29/96	8.0	228.1	167.5	267.9	64.3	328.1								
5021087	09/29/96	8.1	228.0	160.3	278.7	64.3	328.0	115.5	103.4	122.6	105				
5021089	09/29/96	8.1	220.7	163.9	289.3	63.1	316.5								
5021090	09/29/96	8.1	210.9	166.2	279.9	63.6	324.7								
5021095	09/29/96	9.4	239.4	184.9	301.5	74.3	336.7								
5021098	09/29/96	8.4	221.2	163.9	279.6	70.9	319.5								
5021102	09/30/96	8.7	219.9	158.6	299.8	61.3	335.3	115.1	84.8	119.2	110				0.192
5021103	09/30/96	8.8	230.9	160.9	286.0	59.1	338.8								
5021104	09/30/96	8.6	218.3	156.1	279.7	60.6	352.4								
5021106	09/30/96	8.4	227.3	161.4	291.6	61.8	330.6								
5021107	09/30/96	8.8	244.6	175.7	311.0	64.2	349.7								
5021123	09/30/96	8.3	237.1	193.5	304.9	67.8	322.9								
5021137	09/30/96	9.3	236.1	185.5	291.3	68.4	338.5								
5021142	09/30/96	8.8	250.9	189.8	305.6	69.9	341.3	110.0							
5021151	09/30/96	8.9	258.5	195.[illegible]	292.3	69.9	345.5	100.7	111.9	134.4	106		0.328		
5021155	10/01/96	9.1	286.0	1[illegible]	313.2	66.3	360.2	117.8	109.5						
5021157	10/01/96	9.2	264.8	1[illegible]	314.9	67.4	351.9								
5021158	10/01/96	9.3	271.0	1[illegible]	319.0	65.3	353.5								
5021159	10/01/96	9.0	274.9	1[illegible]	307.2	65.0	349.7	116.4	109.2	127.7	101				
5021160	10/01/96	9.3	260.4	185.[illegible]	313.0	67.2	358.1								
	AVERAGE =	8.2	231.0	167.4	271.5	65.0	350.8	111.0	98.9	114.6	101	1.72	0.385	128.7	0.204
	STD. DEVIATION =	0.6	18.4	11.7	24.8	4.0	20.2	7.3	8.2	11.6	7	0.08	0.056	5.7	0.010

Evergreen Technologies

January 9, 1997

Tensar Corporation
1210 Citizens Parkway
Morrow, GA 30260

Subj: TG600 Geotextile Certificate of Compliance

Ref: Order 1296, PO # 7-9004

Dear Sir/Madam:

This letter certifies that TG600, shipped FOB Evergreen, Alabama, manufactured by Evergreen Technologies, meets or exceeds the minimum requirements listed below and was shipped from Lot # 60068.

PROPERTY	TEST PROCEDURE	VALUE(1)		
Weight	ASTM D 5261	6		oz/yd2
Thickness	ASTM D 5199	70	*	Mil
Grab Strength	ASTM D 4632	150		lbs
Grab Elongation	ASTM D 4632	50		%
Tear Strength	ASTM D 4533	60		lbs
Mullen Burst	ASTM D 3786	250		psi
Puncture Resistance	ASTM D 4833	80		lbs
A.O.S.	ASTM D 4751	.250	*	mm
		(60)	*	US Std Sieve
Permittivity	ASTM D 4491	1.8	*	1/sec
Water Permeability	ASTM D 4491	0.3	*	cm/sec
Water Flow Rate	ASTM D 4491	135	*	gpm/sq ft
U.V. Resistance (500 hours)	ASTM D 4355	70		%

(1) Values in weaker principle direction. Unless noted otherwise, these values represent minimum average roll values (i.e. test results from any sampled roll in a lot, tested in accordance with ASTM D 4759-88 shall meet or exceed the minimum values listed).

* Determined at the time of manufacturing, storage and handling conditions which differ from those found in ASTM D 4873-88 may influence these properties.

Unless noted otherwise, this certification is based on testing conducted by Evergreen Technologies Quality Assurance & Quality Control testing laboratories at the time of manufacturing. Evergreen Technologies issues this letter of certification to indicate our commitment to providing our customers with a quality product which will meet or exceed the minimum average roll values in accordance with the applicable American Society for Testing and Materials (ASTM) test method.

Sincerely,

Manoj Tyagi
QA Manager

200 Miller Sellers Drive ● Evergreen, Alabama 36401 ● Tel. 334.578.9003 ● Fax 334.578.6141
A subsidiary of The Tensar Corporation

12/16/96

PRODUCT GRADE: TG 600
LOT NUMBER: 60068
COLOR: BLACK
ROLL DIM.: 15ft 4in x 1860ft

EVERGREEN TECHNOLOGIES INC.
MQA/MQC LABORATORY
EVERGREEN, ALABAMA

TEST ROLLS LOT SUMMARY

REVIEWED BY:
QA Margaret Cooper
ENGINEER

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5025308	12/04/96	6.5	192.2	126.8	234.6	51.8	360.5	100.9	111.4	117.0	84				
5025309	12/04/96	6.3	192.3	130.5	225.4	51.8	328.4								
> 5025311	12/04/96	6.5	178.7	139.3	225.7	54.8	360.0	104.2	81.3	101.0	84		0.360		0.238
5025312	12/04/96	6.6	204.6	145.3	235.3	53.3	364.7								
5025313	12/05/96	6.6	212.0	133.3	243.7	51.8	368.8	113.0	94.0	100.8	83				
5025314	12/05/96	6.4	217.3	139.2	244.9	52.4	365.5								
> 5025315	12/05/96	6.7	214.2	141.3	233.1	54.6	363.1								
5025316	12/05/96	6.6	201.3	130.1	228.1	56.3	375.2								
5025317	12/05/96	6.6	202.1	134.1	233.2	58.3	368.0								
> 5025318	12/05/96	6.6	196.0	131.7	232.9	55.8	360.9	102.6	88.5	114.5	79				
> 5025319	12/05/96	6.5	198.5	124.1	225.7	58.2	364.0								
5025320	12/05/96	6.3	190.4	133.4	221.3	52.8	343.9								
5025321	12/05/96	6.3	203.9	133.8	231.2	57.3	346.9	95.2	90.1	98.3	76				
> 5025322	12/05/96	6.2	192.9	131.8	223.9	54.3	346.9								
5025323	12/05/96	6.6	192.9	129.4	221.7	59.8	369.6								
> 5025324	12/05/96	6.3	193.9	132.7	229.6	56.2	349.5	87.1	80.5	100.0	70				
> 5025325	12/05/96	6.4	193.9	132.7	229.6	56.2	342.1	89.3	96.4	107.2	72				
> 5025326	12/05/96	6.6	206.6	133.5	236.1	53.3	342.1	101.6	101.8	102.7	83		0.300		0.250
> 5025327	12/05/96	6.4	197.4	132.5	215.7	50.1	352.3								
5025328	12/05/96	6.2	183.6	129.8	217.8	52.4	327.4	86.8	106.7	113.9	76				
5025329	12/05/96	6.3	174.9	130.2	218.4	56.8	331.3								
5025330	12/05/96	6.2	174.6	128.6	202.7	52.1	340.2	91.8	103.6	108.0	77				
5025332	12/05/96	6.1	180.4	133.4	204.6	52.0	319.6	91.8	100.2	113.5	74				
5025333	12/05/96	6.4	187.1	136.7	218.6	51.0	340.8								
> 5025335	12/05/96	6.4	180.6	139.8	216.8	55.5	345.4	87.3	84.0	101.6	77				
5025336	12/05/96	6.3	186.5	136.2	229.9	56.3	343.8								
5025337	12/06/96	6.2	184.0	143.9	229.4	56.7	316.2	98.7	93.3	93.9	75				
> 5025339	12/06/96	6.8	190.1	138.5	231.5	58.3	360.8	92.5	93.7	100.1	80				
> 5025340	12/06/96	6.4	187.0	140.8	225.9	56.8	350.7								
5025341	12/06/96	6.7	196.5	146.7	247.6	63.2	346.5	91.1	86.5	93.9	79				

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR ASTM D4533 CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	HYDRAULIC TESTS ASTM D4491 PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5025342	12/06/96	6.6	194.9	139.7	217.3	55.1	344.7								
> 5025343	12/06/96	6.6	198.0	139.6	241.4	56.6	346.0	95.0	80.8	105.3	72				
5025344	12/06/96	6.8	205.0	148.2	239.2	52.8	363.7	102.9	92.3	106.4	75				
5025345	12/06/96	6.6	192.2	139.0	225.6	55.0	353.9								
> 5025347	12/06/96	6.4	214.6	136.6	253.8	58.3	343.1	94.4	93.2	113.8	75				
5025350	12/06/96	6.7	181.5	127.8	227.1	52.3	345.5	95.3	104.6	108.8	73		0.300		0.250
5025351	12/06/96	6.4	170.0	134.1	224.9	54.0	333.9								
5025352	12/06/96	6.5	173.4	134.5	215.0	58.4	330.8	91.5	100.3	110.8	76				
5025353	12/06/96	6.5	177.7	133.3	211.5	52.1	344.4								
5025354	12/06/96	6.9	198.5	135.0	225.8	55.1	353.3								
5025355	12/06/96	6.5	175.3	136.6	239.1	59.6	326.7	85.0	110.0	126.9	80				
5025356	12/06/96	6.9	195.4	134.0	222.3	53.3	346.2								
5025358	12/06/96	6.3	170.6	137.7	215.1	55.9	316.8	90.2	75.3	93.2	78		0.300		
5025360	12/07/96	6.7	200.3	137.3	227.7	51.0	342.5	91.3	92.1	98.7	76				
5025361	12/07/96	6.7	199.4	135.3	223.0	50.8	349.9								
> 5025362	12/07/96	6.6	186.3	136.8	238.9	50.9	335.3	108.6	85.7	105.1	81				
> 5025363	12/07/96	7.1	199.1	140.2	241.5	57.3	360.8								
> 5025364	12/07/96	7.0	189.1	135.8	230.5	49.5	347.9	98.8	86.5	97.2	77				0.250
> 5025365	12/07/96	6.8	188.3	141.2	235.9	55.5	347.5								
5025370	12/09/96	6.9	219.6	135.3	227.0	54.8	323.2	100.9	100.6	103.1	79				
AVERAGE =		6.5	192.7	135.6	228.0	54.8	347.0	95.7	93.6	105.2	77	0.00	0.315	0.0	0.247
STD. DEVIATION =		0.2	12.2	5.0	10.4	2.9	14.4	7.1	9.6	8.1	3	0.00	0.030	0.0	0.006

Evergreen Technologies

January 10, 1997

Tensar Corporation
1210 Citizens Parkway
Morrow, GA 30260

Subj: TG600 Geotextile Certificate of Compliance

Ref: Order 1299, PO # 7-9004

Dear Sir/Madam:

This letter certifies that TG600, shipped FOB Evergreen, Alabama, manufactured by Evergreen Technologies, meets or exceeds the minimum requirements listed below and was shipped from Lot # ~~60049 &~~ 60071.

PROPERTY	TEST PROCEDURE	VALUE(1)		
Weight	ASTM D 5261	6		oz/yd2
Thickness	ASTM D 5199	70	*	Mil
Grab Strength	ASTM D 4632	150		lbs
Grab Elongation	ASTM D 4632	50		%
Tear Strength	ASTM D 4533	60		lbs
Mullen Burst	ASTM D 3786	250		psi
Puncture Resistance	ASTM D 4833	80		lbs
A.O.S. (2)	ASTM D 4751	.250	*	mm
		(60)	*	US Std Sieve
Permittivity	ASTM D 4491	1.8	*	1/sec
Water Permeability	ASTM D 4491	0.3	*	cm/sec
Water Flow Rate	ASTM D 4491	135	*	gpm/sq ft
U.V. Resistance (500 hours)	ASTM D 4355	70		%

(1) Values in weaker principle direction. Unless noted otherwise, these values represent minimum average roll values (i.e. test results from any sampled roll in a lot, tested in accordance with ASTM D 4759-88 shall meet or exceed the minimum values listed).

(2) Smaller sieve size number represents the maximum average roll value.

* Determined at the time of manufacturing, storage and handling conditions which differ from those found in ASTM D 4873-88 may influence these properties.

Unless noted otherwise, this certification is based on testing conducted by Evergreen Technologies Quality Assurance & Quality Control testing laboratories at the time of manufacturing. Evergreen Technologies issues this letter of certification to indicate our commitment to providing our customers with a quality product which will meet or exceed the minimum average roll values in accordance with the applicable American Society for Testing and Materials (ASTM) test method.

Sincerely,

Manoj Tyagi
QA Manager

200 Miller Sellers Drive ● Evergreen, Alabama 36401 ● Tel. 334.578.9003 ● Fax 334.578.6141
A subsidiary of The Tensar Corporation

01/13/97

PRODUCT GRADE: TG 600
LOT NUMBER: 60071
COLOR: BLACK
ROLL DIM.: 15ft 5in x 1860ft

EVERGREEN TECHNOLOGIES INC.

MQA/MQC LABORATORY
EVERGREEN, ALABAMA

REVIEWED BY:
QA Margaret Cooper
ENGINEER

TEST ROLLS LOT SUMMARY

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
5025959	12/18/96	6.4	184.8	144.3	223.6	58.8	323.7	92.3	79.7	89.7	80				0.210
5025960	12/18/96	6.5	174.8	138.9	221.7	54.9	325.6								
5025961	12/18/96	6.4	199.1	144.8	225.6	52.4	327.5	91.1	94.0	97.0	77		0.300		
5025963	12/18/96	6.7	176.0	143.2	218.4	94.7	366.0	96.6	74.0	90.4					
5025964	12/18/96	7.0	195.3	135.3	241.5	52.0	362.8	104.5	92.0	97.0	85				
5025965	12/18/96	6.9	184.1	143.1	257.9	51.9	361.5	95.9	84.8	102.2					
5025966	12/18/96	6.5	190.9	136.7	243.0	54.3	337.9								
5025967	12/18/96	6.9	186.0	134.7	233.5	50.8	353.4	97.8	90.2	96.4	86				
5025968	12/18/96	6.5	193.8	149.8	251.5	54.2	333.2	93.1	89.9	95.0	75				
5025969	12/19/96	6.6	177.7	133.3	251.3	58.4	361.7								
5025970	12/19/96	6.8	194.2	143.9	250.7	59.6	353.3	89.9	86.1	90.0	80				
5025971	12/19/96	6.9	199.3	148.8	253.5	64.0	334.4								
5025972	12/19/96	7.0	195.7	151.3	252.0	62.2	347.2	100.2	84.3	89.1	90		0.300		0.193
5025973	12/19/96	6.7	204.6	152.3	254.0	64.1	341.9								
5025975	12/20/96	7.2	196.2	149.7	288.5	66.3	370.7	114.7	87.1	90.1	95				
5025976	12/20/96	6.7	184.5	157.7	256.9	58.3	339.6								
5025977	12/20/96	6.8	183.3	133.8	255.2	58.3	334.4								
5025978	12/20/96	6.8	189.4	141.8	264.0	55.9	335.9	100.0	91.7	97.5	88				
5025979	12/20/96	6.4	195.5	107.3	251.9	52.5	332.5								
5025980	12/20/96	6.8	200.0	142.2	258.6	53.9	334.9								
5025981	12/20/96	6.7	188.8	147.1	258.1	55.2	347.5	94.9	75.4	90.5	75				
5025982	12/20/96	7.2	192.7	131.0	276.1	59.8	360.6								
5025983	12/20/96	6.6	192.4	141.4	238.7	51.1	342.3								
5025984	12/20/96	7.0	192.3	138.8	257.0	57.2	351.3	94.1	81.7	89.5	77				0.180
5025985	12/20/96	7.0	199.8	137.5	253.7	53.7	343.8	91.4							
5025986	12/20/96	6.9	180.6	135.5	243.5	52.5	345.7	92.9							
AVERAGE =		6.8	190.5	140.9	249.2	58.0	345.0	96.6	85.4	93.4	82	0.00	0.300	0.0	0.194
STD. DEVIATION =		0.2	7.9	9.6	16.0	8.6	13.2	6.4	6.3	4.3	6	0.00	0.000	0.0	0.015

15/97

PRODUCT GRADE: TG 600
LOT NUMBER: 70071
COLOR: BLACK
ROLL DIM.: 15ft 4in x 1860ft

EVERGREEN T NOLOGIES IN(
MQA/MQC LABORATORY
EVERGREEN, ALABAMA

TEST ROLLS LOT SUMMARY

REVIEWED BY:
QA _____
ENGINEER _____

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
7011268	07/04/97	6.6	229.7	135.3	225.5	59.2	336.1	92.1	115.6	111.4	80		0.320		0.212
7011269	07/04/97	6.7	208.9	137.9	229.2	63.6	309.5								
7011270	07/04/97	6.7	203.3	145.1	238.7	57.8	298.6	88.4	96.5	117.6	82				
7011272	07/05/97	6.6	209.3	141.9	241.8	58.7	320.0								
7011273	07/05/97	6.5	192.4	139.5	221.2	54.8	298.2	88.4	108.9	108.6	80				
7011275	07/05/97	6.3	183.7	133.5	219.5	55.6	290.0								
7011276	07/05/97	6.8	184.5	165.7	235.4	73.9	275.3								
7011278	07/05/97	6.7	186.3	157.5	229.1	63.2	309.7								
7011280	07/05/97	6.5	170.6	165.5	216.8	67.9	265.7	80.7	86.0	106.6	83		0.361		
7011282	07/05/97	6.3	173.2	147.5	210.0	57.8	288.5								
7011283	07/05/97	6.5	179.5	144.3	221.7	59.2	301.1								
7011284	07/05/97	6.4	175.5	133.8	221.4	68.1	294.1	89.7	110.8	115.8	79				
7011287	07/05/97	6.5	197.5	150.8	240.1	61.0	299.5	87.8	112.3	110.7	77				
7011290	07/06/97	6.6	181.2	144.2	227.9	58.3	310.1	92.1	107.2	111.4	83				
7011291	07/06/97	6.4	199.7	141.9	236.6	56.4	311.0								
7011292	07/06/97	6.7	204.5	144.2	245.7	57.4	344.1	99.3	122.9	109.6	82				
7011294	07/06/97	6.4	188.3	144.9	210.7	62.3	332.2	94.7	107.0	96.0	84		0.352		0.209
7011297	07/06/97	6.5	191.9	158.3	232.4	69.5	316.9								
7011298	07/06/97	6.7	196.4	170.1	227.8	72.0	318.3	89.7	112.6	110.4	85				
7011299	07/06/97	6.6	204.4	152.1	214.4	68.0	286.1	88.9	106.4	105.2	82				
7011300	07/06/97	6.6	205.9	155.6	219.7	64.7	296.3								
7011302	07/06/97	6.6	191.7	152.1	224.7	69.5	301.4	92.9	113.4	118.4	83				
7011304	07/07/97	6.6	197.5	173.5	230.9	73.3	313.6								
7011305	07/07/97	6.5	199.2	150.7	226.0	67.2	294.6	95.6	110.4	112.5	83				
7011306	07/07/97	6.4	200.5	148.8	219.7	72.6	288.5	84.8	114.6	107.4	80				
7011307	07/07/97	6.6	205.8	149.2	231.8	69.7	304.4								
7011308	07/07/97	6.5	203.1	145.7	210.7	68.9	287.9	85.4	101.7	108.0	85		0.376		
7011311	07/07/97	6.6	221.8	152.8	228.0	71.6	293.1	93.5	102.4	100.3	88				
7011314	07/07/97	6.5	198.6	146.1	229.5	72.2	302.4	90.4	98.8	103.5	86				
7011317	07/07/97	6.2	194.9	138.1	207.3	65.3	288.2	87.7	108.4	105.1	80				
7011320	07/07/97	6.5	200.2	147.2	217.0	67.4	299.3	85.3	89.9	102.7	78				

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
7011324	07/08/97	6.5	195.2	146.3	219.9	68.6	290.8	89.9	111.9	104.4	81				
7011327	07/08/97	6.4	198.7	145.0	229.1	70.7	284.9	88.0	101.7	99.7	86		0.369		
7011330	07/08/97	6.5	191.0	136.5	204.6	65.9	273.5	88.1	106.7	96.4	83				
7011333	07/08/97	6.5	189.5	154.1	209.8	73.7	275.9	80.4	91.1	99.7	83				
7011337	07/08/97	6.3	178.7	147.3	205.5	71.1	255.9	77.3	97.0	96.2	84				
7011340	07/08/97	6.7	187.2	147.9	196.5	72.3	268.1	79.6	97.9	102.4	82		0.358		
7011343	07/08/97	6.4	185.3	153.8	200.9	73.7	266.1	78.5	96.8	100.4	83				
7011346	07/09/97	6.3	187.4	164.5	211.8	75.7	252.5	76.7	101.1	103.8	79				
7011349	07/09/97	6.6	186.7	158.6	204.9	79.0	248.3	74.6	92.9	104.8	85				
7011352	07/09/97	6.3	176.7	168.0	206.9	84.7	243.0	74.2	99.1	110.4	82		0.368		
7011355	07/09/97	6.6	199.3	168.1	210.8	70.8	270.5	81.0	88.6	108.5	84				
7011357	07/09/97	6.2	177.3	141.9	203.0	65.3	271.1	79.9	86.4	95.4	81				
	AVERAGE =	6.5	193.8	149.9	220.8	66.9	292.4	86.3	103.1	105.9	82	0.00	0.358	0.0	0.211
	STD. DEVIATION =	0.1	12.4	10.2	12.2	6.8	22.8	6.5	9.4	6.2	2	0.00	0.018	0.0	0.002

ROLL NO.	TEST DATE	WEIGHT ASTM D5261 (oz/yd2)	GRAB TENSILE/ELONGATION ASTM D4632 M.D. TENS. (lbs)	M.D. ELONG. (%)	C.D. TENS. (lbs)	C.D. ELONG. (%)	M. BURST ASTM D3786 (psi)	PUNCTURE RESISTANCE ASTM D4833 (lbs)	TRAP. TEAR ASTM D4533 MD (lbs)	TRAP. TEAR CD (lbs)	THICKNESS ASTM D5199 (mils)	HYDRAULIC TESTS ASTM D4491 PERMIT. (sec-1)	PERM. (Kv) (cm/sec)	WATER FLOW (gpm/ft2)	A.O.S. ASTM D4751 (mm)
7011324	07/08/97	6.5	195.2	146.3	219.9	68.6	290.8	89.9	111.9	104.4	81				
7011327	07/08/97	6.4	198.7	145.0	229.1	70.7	284.9	88.0	101.7	99.7	86		0.369		
7011330	07/08/97	6.5	191.0	136.5	204.6	65.9	273.5	88.1	106.7	96.4	83				
7011333	07/08/97	6.5	189.5	154.1	209.8	73.7	275.9	80.4	91.1	99.7	83				
7011337	07/08/97	6.3	178.7	147.3	205.5	71.1	255.9	77.3	97.0	96.2	84				
7011340	07/08/97	6.7	187.2	147.9	196.5	72.3	268.1	79.6	97.9	102.4	82		0.358		
7011343	07/08/97	6.4	185.3	153.8	200.9	73.7	266.1	78.5	96.8	100.4	83				
7011346	07/09/97	6.3	187.4	164.5	211.8	75.7	252.5	76.7	101.1	103.8	79				
7011349	07/09/97	6.6	186.7	158.6	204.9	79.0	248.3	74.6	92.9	104.8	85				
7011352	07/09/97	6.3	176.7	168.0	206.9	84.7	243.0	74.2	99.1	110.4	82		0.368		
7011355	07/09/97	6.6	199.3	168.1	210.8	70.8	270.5	81.0	88.6	108.5	84				
7011357	07/09/97	6.2	177.3	141.9	203.0	65.3	271.1	79.9	86.4	95.4	81				
AVERAGE =		6.5	193.8	149.9	220.8	66.9	292.4	86.3	103.1	105.9	82	0.00	0.358	0.0	0.211
STD. DEVIATION =		0.1	12.4	10.2	12.2	6.8	22.8	6.5	9.4	6.2	2	0.00	0.018	0.0	0.002

APPENDIX G

APPENDIX G

PROTECTIVE COVER INFORMATION

Sub-Appendices

G.1 Protective Cover Soils Laboratory Test Results (Direct Shear)
G.2 Protective Cover Soils Thickness Verification

Sub- Appendix G.1

Protective Cover Soils Laboratory Test Results (Direct Shear)

EMCON
Geotechnical Laboratory
210 Rt. 17A Sterling Forest
Tuxedo, New York 10987
Ph:(914)351-5100 Fax:(914)351-5199

LETTER OF TRANSMITTAL

Date	Job No.
8-22-97	86078.004.000
Attention: Daniel Feezor	
RE: Lab Testing	
Winnebago Reclamation Service	
Pagel Landfill	

TO EMCON
1414 South Fifth St., Suite 200
Springfield, IL 62692

WE ARE SENDING YOU ATTACHED: [ ] Samples [X] Test results # 5250

COPIES	DATE	NO.	DESCRIPTION
2	8-22-97		Direct Shear test report
			GS-01A and Geocomposite

THESE ARE TRANSMITTED as checked below:
[X] As requested [ ] Resubmit ___ copies for approval [ ]

Testing was performed in accordance with ASTM Standards and are based upon accepted industry standards.

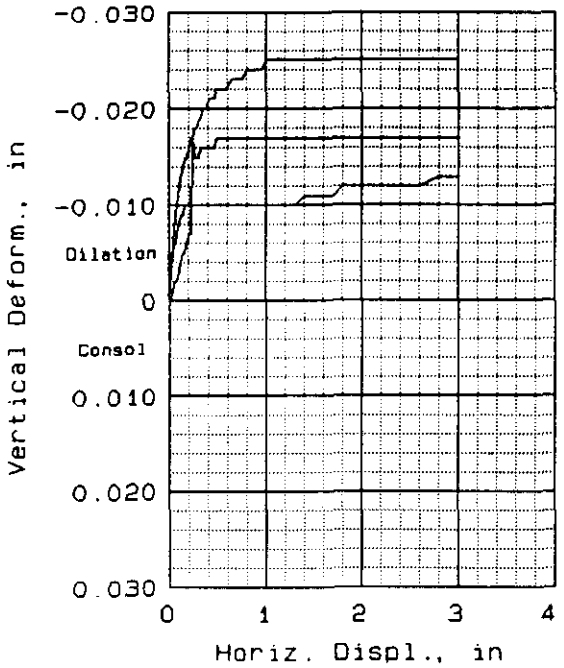
EMCON Laboratory neither accepts responsibility for nor makes claims to the final use and purpose of this material.

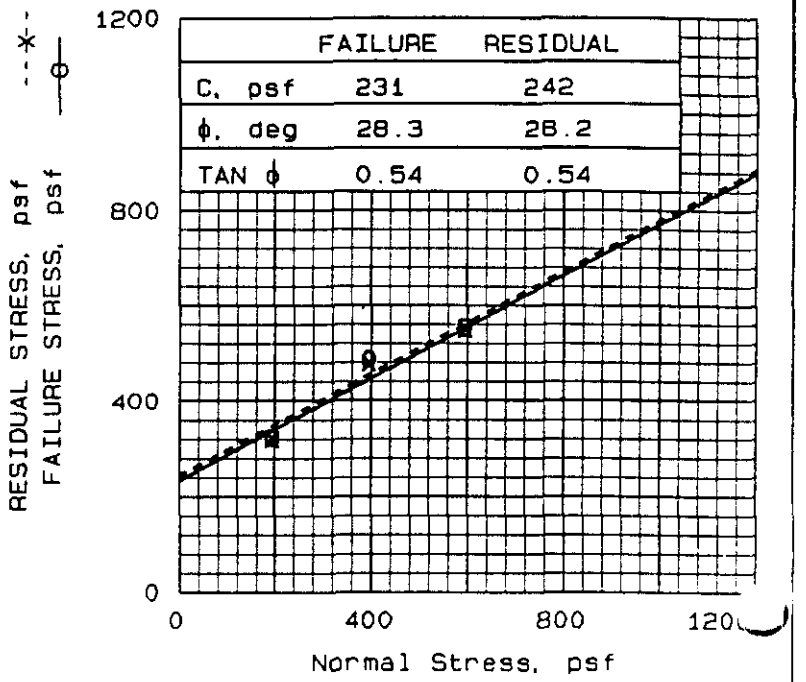
These documents must be considered proprietary information and should not be reproduced except in full, without the written approval of EMCON.

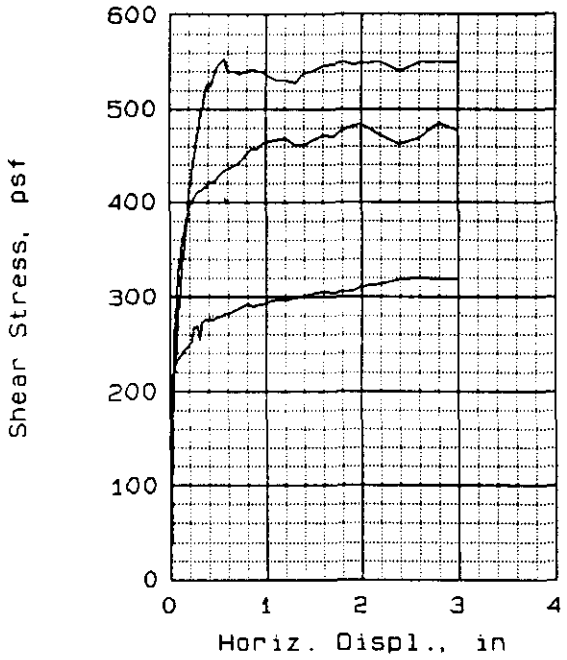
REMARKS If you have any questions, please call 914-351-5100.

COPY TO (2) copies SIGNED:
Copy to Nagesh Koragappa

EM\NY-GL\GEOSYNTH\TRANSGSY\PGL-5250.XLS







SAMPLE NO.:		1	2	3
INITIAL	WATER CONTENT, %	16.0	15.2	15.2
	DRY DENSITY, pcf	107.3	108.0	108.3
	SATURATION, %	80.4	78.0	78.5
	VOID RATIO	0.519	0.508	0.505
	SIDE LENGTH, in	11.82	11.82	11.82
	HEIGHT, in	3.00	3.00	3.00
AT TEST	WATER CONTENT, %	18.8	16.4	17.5
	DRY DENSITY, pcf	107.6	108.6	115.5
	SATURATION, %	95.6	85.3	111.5
	VOID RATIO	0.514	0.501	0.410
	SIDE LENGTH, in	11.82	11.82	11.82
	HEIGHT, in	2.99	2.99	2.81
NORMAL STRESS, psf		200	400	600
FAILURE STRESS, psf		321	485	553
DISPLACEMENT, in		2.60	2.80	0.55
RESIDUAL STRESS, psf		318	477	550
DISPLACEMENT, in		3.00	3.00	3.00
Strain rate, in/min		0.0400	0.0400	0.0400

SAMPLE TYPE: ASTM D5321
DESCRIPTION:

SPECIFIC GRAVITY= 2.61
REMARKS: GEOCOMP.CLAMP TO BOTT. METAL PLATE, CS-01A RECOMP. TOP BOX. TESTED W/WATER IN BOX. CONS./SATUR. TIME 2 HRS.
Fig. No.: EM\NY-GL

CLIENT: WINNEBAGO RECLAMATION SERVICE

PROJECT: PAGEL LANDFILL

SAMPLE LOCATION: CS-01A & GEOCOMPOSITE TENSAR R#H1947

PROJ. NO.: 86078.004 DATE: 8-18-97

DIRECT SHEAR TEST REPORT

EMCON

Specimen Parameters for Specimen No.1

Specimen Parameter	Initial	Consolidated	Final
t. moist soil and tare:	30.180		31.100
Wt. dry soil and tare:	26.020		26.170
Wt. of tare:	0.000		0.000
Weight, lbs:	30.180		
Side length, in:	11.820	11.820	
Area, in²:	139.712	139.712	
Height, in:	3.000	2.991	
Net decrease in height, in:		0.009	
% Moisture:	16.0	18.8	18.8
Wet density, pcf:	124.4	127.9	
Dry density, pcf:	107.3	107.6	
Void ratio:	0.5189	0.5143	
% Saturation:	80.4	95.6	

Test Readings Data for Specimen No.1

Deformation dial constant= 1 in per input unit
ctual loads entered
Normal Stress = 200 psf
Strain rate, in/min = 0.0400
FAILURE STRESS = 321 psf at reading no. 48
RESIDUAL STRESS = 318 psf at reading no. 50

No.	HORIZONTAL Dial Reading	HORIZONTAL Def. in	Load Dial Units	Load lbs	Shear Stress psf	VERTICAL Dial Reading	VERTICAL Def. in
0	0.0000	0.000	-10	0.0	0	0.0000	0.0000
1	0.0200	0.020	177	187.0	193	0.0000	0.0000
2	0.0400	0.040	204	214.0	221	0.0010	-0.0010
3	0.0600	0.060	214	224.0	231	0.0020	-0.0020
4	0.0800	0.080	216	226.0	233	0.0020	-0.0020
5	0.1000	0.100	220	230.0	237	0.0030	-0.0030
6	0.1200	0.120	222	232.0	239	0.0040	-0.0040
7	0.1400	0.140	226	236.0	243	0.0050	-0.0050
8	0.1600	0.160	228	238.0	245	0.0050	-0.0050
9	0.1800	0.180	230	240.0	247	0.0060	-0.0060
10	0.2000	0.200	233	243.0	250	0.0070	-0.0070
11	0.2200	0.220	235	245.0	253	0.0070	-0.0070
12	0.2400	0.240	250	260.0	268	0.0170	-0.0170
13	0.2600	0.260	251	261.0	269	0.0150	-0.0150
14	0.2800	0.280	252	262.0	270	0.0150	-0.0150
15	0.3000	0.300	236	246.0	254	0.0150	-0.0150
16	0.3200	0.320	255	265.0	273	0.0160	-0.0160
17	0.3400	0.340	257	267.0	275	0.0160	-0.0160
18	0.3600	0.360	258	268.0	276	0.0160	-0.0160
19	0.3800	0.380	257	267.0	275	0.0160	-0.0160
20	0.4000	0.400	258	268.0	276	0.0160	-0.0160
21	0.4200	0.420	258	268.0	276	0.0160	-0.0160
22	0.4400	0.440	258	268.0	276	0.0160	-0.0160
23	0.4600	0.460	259	269.0	277	0.0160	-0.0160
24	0.4800	0.480	261	271.0	279	0.0170	-0.0170
25	0.5000	0.500	261	271.0	279	0.0170	-0.0170

Specimen Parameters for Specimen No.2

Specimen Parameter	Initial	Consolidated	Final
t. moist soil and tare:	30.180		30.490
t. dry soil and tare:	26.200		26.200
Wt. of tare:	0.000		0.000
Weight, lbs:	30.180		
Side length, in:	11.820	11.820	
Area, in²:	139.712	139.712	
Height, in:	3.000	2.985	
Net decrease in height, in:		0.015	
% Moisture:	15.2	16.4	16.4
Wet density, pcf:	124.4	126.3	
Dry density, pcf:	108.0	108.6	
Void ratio:	0.5085	0.5009	
% Saturation:	78.0	85.3	

Test Readings Data for Specimen No.2

Deformation dial constant= 1 in per input unit
Actual loads entered
Normal Stress = 400 psf
Strain rate, in/min = 0.0400
FAILURE STRESS = 485 psf at reading no. 49
RESIDUAL STRESS = 477 psf at reading no. 50

No.	HORIZONTAL Dial Reading	HORIZONTAL Def. in	Load Dial Units	Load lbs	Shear Stress psf	VERTICAL Dial Reading	VERTICAL Def. in
0	0.0000	0.000	-43	0.0	0	0.0000	0.0000
1	0.0200	0.020	132	175.0	180	0.0040	-0.0040
2	0.0400	0.040	204	247.0	255	0.0060	-0.0060
3	0.0600	0.060	246	289.0	298	0.0090	-0.0090
4	0.0800	0.080	271	314.0	324	0.0100	-0.0100
5	0.1000	0.100	293	336.0	346	0.0120	-0.0120
6	0.1200	0.120	307	350.0	361	0.0130	-0.0130
7	0.1400	0.140	317	360.0	371	0.0140	-0.0140
8	0.1600	0.160	327	370.0	381	0.0150	-0.0150
9	0.1800	0.180	334	377.0	389	0.0150	-0.0150
10	0.2000	0.200	339	382.0	394	0.0160	-0.0160
11	0.2200	0.220	345	388.0	400	0.0170	-0.0170
12	0.2400	0.240	348	391.0	403	0.0170	-0.0170
13	0.2600	0.260	351	394.0	406	0.0180	-0.0180
14	0.2800	0.280	354	397.0	409	0.0180	-0.0180
15	0.3000	0.300	357	400.0	412	0.0190	-0.0190
16	0.3200	0.320	357	400.0	412	0.0190	-0.0190
17	0.3400	0.340	359	402.0	414	0.0200	-0.0200
18	0.3600	0.360	361	404.0	416	0.0200	-0.0200
19	0.3800	0.380	361	404.0	416	0.0200	-0.0200
20	0.4000	0.400	365	408.0	421	0.0210	-0.0210
21	0.4200	0.420	365	408.0	421	0.0210	-0.0210
22	0.4400	0.440	365	408.0	421	0.0210	-0.0210
23	0.4600	0.460	367	410.0	423	0.0210	-0.0210
24	0.4800	0.480	368	411.0	424	0.0220	-0.0220
	0.5000	0.500	372	415.0	428	0.0220	-0.0220

Test Readings Data for Specimen No. 2

No.	HORIZONTAL Dial Reading	HORIZONTAL Def. in	Load Dial Units	Load lbs	Shear Stress psf	VERTICAL Dial Reading	VERTICAL Def. in
26	0.5500	0.550	265	275.0	283	0.0170	-0.0170
27	0.6000	0.600	265	275.0	283	0.0170	-0.0170
28	0.6500	0.650	267	277.0	286	0.0170	-0.0170
29	0.7000	0.700	269	279.0	288	0.0170	-0.0170
30	0.7500	0.750	272	282.0	291	0.0170	-0.0170
31	0.8000	0.800	273	283.0	292	0.0170	-0.0170
32	0.8500	0.850	271	281.0	290	0.0170	-0.0170
33	0.9000	0.900	274	284.0	293	0.0170	-0.0170
34	0.9500	0.950	274	284.0	293	0.0170	-0.0170
35	1.0000	1.000	276	286.0	295	0.0170	-0.0170
36	1.1000	1.100	278	288.0	297	0.0170	-0.0170
37	1.2000	1.200	279	289.0	298	0.0170	-0.0170
38	1.3000	1.300	280	290.0	299	0.0170	-0.0170
39	1.4000	1.400	282	292.0	301	0.0170	-0.0170
40	1.5000	1.500	285	295.0	304	0.0170	-0.0170
41	1.6000	1.600	286	296.0	305	0.0170	-0.0170
42	1.7000	1.700	285	295.0	304	0.0170	-0.0170
43	1.8000	1.800	287	297.0	306	0.0170	-0.0170
44	1.9000	1.900	288	298.0	307	0.0170	-0.0170
45	2.0000	2.000	292	302.0	311	0.0170	-0.0170
46	2.2000	2.200	294	304.0	313	0.0170	-0.0170
47	2.4000	2.400	299	309.0	318	0.0170	-0.0170
48	2.6000	2.600	301	311.0	321	0.0170	-0.0170
49	2.8000	2.800	299	309.0	318	0.0170	-0.0170
50	3.0000	3.000	299	309.0	318	0.0170	-0.0170

Test Readings Data for Specimen No. 3

No.	HORIZONTAL Dial Reading	HORIZONTAL Def. in	Load Dial Units	Load lbs	Shear Stress psf	VERTICAL Dial Reading	VERTICAL Def. in
26	0.5500	0.550	377	420.0	433	0.0220	-0.0220
27	0.6000	0.600	379	422.0	435	0.0220	-0.0220
28	0.6500	0.650	383	426.0	439	0.0230	-0.0230
29	0.7000	0.700	385	428.0	441	0.0230	-0.0230
30	0.7500	0.750	390	433.0	446	0.0230	-0.0230
31	0.8000	0.800	395	438.0	451	0.0240	-0.0240
32	0.8500	0.850	400	443.0	457	0.0240	-0.0240
33	0.9000	0.900	401	444.0	458	0.0240	-0.0240
34	0.9500	0.950	406	449.0	463	0.0240	-0.0240
35	1.0000	1.000	408	451.0	465	0.0250	-0.0250
36	1.1000	1.100	410	453.0	467	0.0250	-0.0250
37	1.2000	1.200	412	455.0	469	0.0250	-0.0250
38	1.3000	1.300	404	447.0	461	0.0250	-0.0250
39	1.4000	1.400	404	447.0	461	0.0250	-0.0250
40	1.5000	1.500	411	454.0	468	0.0250	-0.0250
41	1.6000	1.600	415	458.0	472	0.0250	-0.0250
42	1.7000	1.700	414	457.0	471	0.0250	-0.0250
43	1.8000	1.800	420	463.0	477	0.0250	-0.0250
44	1.9000	1.900	425	468.0	482	0.0250	-0.0250
45	2.0000	2.000	426	469.0	483	0.0250	-0.0250
46	2.2000	2.200	415	458.0	472	0.0250	-0.0250
47	2.4000	2.400	405	448.0	462	0.0250	-0.0250
48	2.6000	2.600	412	455.0	469	0.0250	-0.0250
49	2.8000	2.800	428	471.0	485	0.0250	-0.0250
50	3.0000	3.000	420	463.0	477	0.0250	-0.0250

DIRECT SHEAR TEST 8-21-1997

Project and Sample Data

ate: 8-18-97
Client: WINNEBAGO RECLAMATION SERVICE
Project: PAGEL LANDFILL
Sample location: CS-01A & GEOCOMPOSITE TENSAR R#H1947
Sample description:
Remarks: GEOCOMP.CLAMP TO BOTT. METAL PLATE,CS-01A RECOMP.
TOP BOX. TESTED W/WATER IN BOX. CONS./SATUR. TIME 2 HRS.
Fig no.: EM\NY-GL 2nd page Fig no. (if applicable):
Type of sample: ASTM D5321
Specific gravity= 2.61 LL= PL= PI=

Specimen Parameters for Specimen No.3

Specimen Parameter	Initial	Consolidated	Final
Wt. moist soil and tare:	30.250		30.860
Wt. dry soil and tare:	26.260		26.260
t. of tare:	0.000		0.000
Weight, lbs:	30.250		
Side length, in:	11.820	11.820	
Area, in²:	139.712	139.712	
Height, in:	3.000	2.811	
Net decrease in height, in:		0.189	
% Moisture:	15.2	17.5	17.5
Wet density, pcf:	124.7	135.8	
ry density, pcf:	108.3	115.5	
oid ratio:	0.5050	0.4102	
% Saturation:	78.5	111.5	

Test Readings Data for Specimen No.3

Deformation dial constant= 1 in per input unit
Actual loads entered
ormal Stress = 600 psf
train rate, in/min = 0.0400
FAILURE STRESS = 553 psf at reading no. 26
RESIDUAL STRESS = 550 psf at reading no. 50

No.	HORIZONTAL Dial Reading	Def. in	Load Dial Units	Load lbs	Shear Stress psf	VERTICAL Dial Reading	Def. in
0	0.0000	0.000	48	0.0	0	0.0000	0.0000
1	0.0200	0.020	192	144.0	148	0.0030	-0.0030
2	0.0400	0.040	251	203.0	209	0.0050	-0.0050
3	0.0600	0.060	289	241.0	248	0.0060	-0.0060
4	0.0800	0.080	320	272.0	280	0.0070	-0.0070
5	0.1000	0.100	347	299.0	308	0.0080	-0.0080
6	0.1200	0.120	371	323.0	333	0.0090	-0.0090
7	0.1400	0.140	392	344.0	355	0.0090	-0.0090
8	0.1600	0.160	412	364.0	375	0.0100	-0.0100
9	0.1800	0.180	429	381.0	393	0.0100	-0.0100

Test Readings Data for Specimen No. 4

No.	HORIZONTAL Dial Reading	HORIZONTAL Def. in	Load Dial Units	Load lbs	Shear Stress psf	VERTICAL Dial Reading	VERTICAL Def. in
10	0.2000	0.200	447	399.0	411	0.0100	-0.0100
11	0.2200	0.220	462	414.0	427	0.0100	-0.0100
12	0.2400	0.240	477	429.0	442	0.0100	-0.0100
13	0.2600	0.260	492	444.0	458	0.0100	-0.0100
14	0.2800	0.280	504	456.0	470	0.0100	-0.0100
15	0.3000	0.300	517	469.0	483	0.0100	-0.0100
16	0.3200	0.320	530	482.0	497	0.0100	-0.0100
17	0.3400	0.340	537	489.0	504	0.0100	-0.0100
18	0.3600	0.360	549	501.0	516	0.0100	-0.0100
19	0.3800	0.380	558	510.0	526	0.0100	-0.0100
20	0.4000	0.400	560	512.0	528	0.0100	-0.0100
21	0.4200	0.420	556	508.0	524	0.0100	-0.0100
22	0.4400	0.440	563	515.0	531	0.0100	-0.0100
23	0.4600	0.460	570	522.0	538	0.0100	-0.0100
24	0.4800	0.480	575	527.0	543	0.0100	-0.0100
25	0.5000	0.500	579	531.0	547	0.0100	-0.0100
26	0.5500	0.550	585	537.0	553	0.0100	-0.0100
27	0.6000	0.600	571	523.0	539	0.0100	-0.0100
28	0.6500	0.650	571	523.0	539	0.0100	-0.0100
29	0.7000	0.700	569	521.0	537	0.0100	-0.0100
30	0.7500	0.750	570	522.0	538	0.0100	-0.0100
31	0.8000	0.800	572	524.0	540	0.0100	-0.0100
32	0.8500	0.850	574	526.0	542	0.0100	-0.0100
33	0.9000	0.900	571	523.0	539	0.0100	-0.0100
34	0.9500	0.950	571	523.0	539	0.0100	-0.0100
35	1.0000	1.000	568	520.0	536	0.0100	-0.0100
36	1.1000	1.100	563	515.0	531	0.0100	-0.0100
37	1.2000	1.200	562	514.0	530	0.0100	-0.0100
38	1.3000	1.300	560	512.0	528	0.0100	-0.0100
39	1.4000	1.400	570	522.0	538	0.0110	-0.0110
40	1.5000	1.500	573	525.0	541	0.0110	-0.0110
41	1.6000	1.600	578	530.0	546	0.0110	-0.0110
42	1.7000	1.700	579	531.0	547	0.0110	-0.0110
43	1.8000	1.800	582	534.0	550	0.0120	-0.0120
44	1.9000	1.900	579	531.0	547	0.0120	-0.0120
45	2.0000	2.000	581	533.0	549	0.0120	-0.0120
46	2.2000	2.200	582	534.0	550	0.0120	-0.0120
47	2.4000	2.400	572	524.0	540	0.0120	-0.0120
48	2.6000	2.600	582	534.0	550	0.0120	-0.0120
49	2.8000	2.800	582	534.0	550	0.0130	-0.0130
50	3.0000	3.000	582	534.0	550	0.0130	-0.0130

Sub- Appendix G.2

Protective Cover Soils Thickness Verification

EMCON
1414 South 5th Street, Suite 200
Springfield, Illinois 62703
Phone: (217) 492-9450
Fax: (217) 492-9453

COVER SOILS DEPTH PROBE SAMPLES

CLIENT:	Winnebago Reclamation Service	DATE:	September 29th - 1997
PROJECT:	Pagel Landfill CQA	TECHNICIAN:	JPN
PR. NO.:	86078-004.000	PAGE:	1 of 1

Point No.	Northing	Easting	Depth of Cover Soil (feet)	Depth of TopSoil (feet)	Comments
5	2001250.0	800200.0	2.5	0.5	
9	2001250.0	800400.0	2.5	0.5	
42	2001450.0	799800.0	2.5	0.5	
46	2001450.0	800000.0	2.5	0.5	
50	2001450.0	800200.0	2.5	0.5	
54	2001450.0	800390.0	2.6	0.5	10' West of Point 54
106	2001650.0	799800.0	2.5	0.5	
110	2001650.0	800000.0	2.6	0.5	
114	2001650.0	800200.0	2.9	0.5	
118	2001650.0	800400.0	2.8	0.5	
174	2001850.0	799800.0	2.5	0.5	
178	2001850.0	800000.0	2.6	0.5	
182	2001850.0	800200.0	2.5	0.5	
186	2001850.0	800400.0	NA[1]	NA[1]	75' East of Liner Boundary
241	2002050.0	799600.0	2.5	0.5	
245	2002050.0	799800.0	2.5	0.5	
249	2002050.0	800000.0	2.5	0.5	
253	2002050.0	800200.0	2.7	0.5	
257	2002050.0	800400.0	2.8	0.5	
311	2002250.0	799800.0	2.5	0.5	
315	2002250.0	800000.0	2.5	0.5	
319	2002250.0	800200.0	2.5	0.5	
323	2002250.0	800400.0	2.5	0.5	

Notes: 1. Point 186 fell approximately 75' east of the actual limit of 1997 liner construction.

APPENDIX H

APPENDIX H

DUAL LEACHATE AND GAS COLLECTION SYSTEM INFORMATION

Sub-Appendices

H.1 Dual Leachate and Gas Well Boring Logs
H.2 Dual Leachate and Gas Well Installation Reports
H.3 Gas Flare Information
H.4 Pump and Sensor Information

Sub- Appendix H.1

Dual Leachate and Gas Well Borings Logs

O.W.T.

TRUCTION COMPANY

WELL DRILLING/COMPLETION REPORT

Landfill Site: Dagel State: Ill.

Well Number/Name: EW 111 Elevation: -

Exact Location (coordinates): -

Date Spuded: 10-4-97 Date Completed: 10-8-97

Hole Size: 36" Total Depth: 130'

Length of Perforated Pipe: 107' Length of Solid Pipe: 23'

General Comments: well stubed 3' Above grade with a 2.5' bottom plug

Depth	Material Drilled	Comments
0-2	Cover	
2-4	"	
4-6	"	
6-10	Dirt, wood, plastic + MHI	
10-15	" " " "	
15-20	" " " "	
20-25	" " " "	
25-30	Rags, wire, " + " metal	Pd 6-96
30-35	" " " "	
35-40	" " " "	Pd 4-96
40-45	dirt, wood " "	
45-50	" " " "	
50-55	Sand, gravel, " + "	
55-60	" " " "	
60-65	Ash, Rags " "	Pd 2-94
65-70	Sludge, Leachate " "	
70-75	" " "	
75-80	" " "	
80-85	" " "	
85-90	" "	
90-95	" " wood twine	
95-100	" " " + plastic	
100-105		
105-110		
110-115		
115-120		
120-125		
125-130	" " + Sand.	Pd 4-89

SITE LOCATION Rockford Ill. DRILLING TIME _____
DATE 9-25-97 - 9-28-97
WELL NO. E-W 112 PAGE NO. 1

RECOVERY WELL BORING LOG

DEPTH	COMPOSITION	DEGREE OF DECOMPOSITION	MOISTURE	COMMENTS
0-5	Dirt + clay	Slight	Dry	Top trash 2'
5-10	" + HHT	"	"	
10-15	paper, wood + "	"	Damp	Pd 11-96
15-20	carpeting HHT + rags	"	"	
20-25	wood, plastic + "	"	"	
25-30	wood, dirt HHT + asb	"	Dry	Pd 4-96
30-35	gravel plastic + wood	"	"	
35-40	Auto parts HHT + wood	"	"	
40-45	wood, metal HHT + paper	"	"	
45-50	"	"	"	
50-55	Ash, rags wood + HHT	"	"	Pd 3-93
55-60	sludge, rags dirt + plastic	"	"	
60-65	"	moderate	Damp	
65-70	wood, sludge Leachate + plastic	High	wet	
70-75	"	"	"	
75-80	sand + "	"	"	
80-85	Leachate, sludge plastic + jars	"	"	
85-90	"	"	"	Pd 2-92
90-95	wood, metal plastics + HHT	"	"	
95-100	"	"	"	
100-105	Sludge + Leachate	"	"	
105-110	"	"	"	
110-115	"	"	"	
115-120	"	"	"	
120-125	"	"	"	

O.W.T.
TRUCTION COMPANY

WELL DRILLING/COMPLETION REPORT

Landfill Site: Pagel State: Ill

Well Number/Name: EW 121 Elevation: -

Exact Location (coordinates): -

Date Spuded: 10-8-97 Date Completed: 10-13-97

Hole Size: 36" Total Depth:

Length of Perforated Pipe: 91' Length of Solid Pipe: 23'

General Comments: Hit obstruction spud for over nday set well

Depth	Material Drilled	Comments
0-2	Cover + soil	Top trash 6'
2-4	"	
4-6	"	
6-10	HHT + plastic	
10-15	wood, wire + HHT	Pd 9-96
15-20	Construction waste	
20-25	" , Rags + HHT	
25-30	" , " " + plastic	9-94 Pd
30-35	" , wood , " " "	
35-40	dirt " " "	
40-45	" " " "	
45-50	" " " "	
50-55	" " " "	
55-60	" " " "	
60-65	" " " "	
65-70	sludge, leachate, plastic + wood	
70-75		
75-80		
80-85		
85-90		
90-95		
95-100		
100-105		
105-110		
110-115	obstruction	TD 111'
115-120		
120-125		

O.W.T.
ISTRUCTION COMPANY

WELL DRILLING/COMPLETION REPORT

Landfill Site: Page/ State: Ill.

Well Number/Name: EW ~~FB~~ 122 Elevation: _____

Exact Location (coordinates): –

Date Spuded: 9-29-97 Date Completed: 10-2-97

Hole Size: 36 Total Depth: 138'

Length of Perforated Pipe: 115' Length of Solid Pipe: 23'

General Comments: well stubed 3' Above grade with A 2' bottom plug

Depth	Material Drilled	Comments
0-2	Dirt + cover	Top Trash 6'
2-4	" , rags, metal + HHT	
4-6	wood, plastic + "	
6-10	" "	
10-15	" , dirt, rags, plastic + "	
15-20	" " " " "	
20-25	" " " "	PH - 896
25-30	" " " "	
30-35	" " " "	
35-40	" " " "	PH 1-96
40-45	Sludge, Leachate, wood + "	
45-50	" " " "	
50-55	" " " "	
55-60	" " + dirt	
60-65	Gravel, sand + sludge	
65-70	" " "	
70-75	Sludge, Leachate + dirt	
75-80	" , sand + gravel	
80-85	" " "	
85-90	sludge + plastic	
90-95	wood, plastic, sludge + Leachate	
95-100	" "	
100-105	" "	
105-110	Sand, sludge, plastic + HHT	
110-115	" " " "	
115-120	wood, " " + Leachate	
120-125	sludge, wire, plastic + wood	
125-130	" " " "	
130-138	" , gravel, Tires + sand	TD 138'

D.W.T.
RUCTION COMPANY

WELL DRILLING/COMPLETION REPORT

Landfill Site: Dage/ State: Ill

Well Number/Name: EW 131 Elevation: —

Exact Location (coordinates): —

Date Spuded: 10-14-97 Date Completed: 10-15-97

Hole Size: 36" Total Depth: 125'

Length of Perforated Pipe: 108' Length of Solid Pipe: 23'

General Comments: well stubed 6' Above grade.

Depth	Material Drilled	Comments
0-2	Dirt, plastic + HHT	Top fresh 6"
2-4	wood, " " + RAGS	
4-6	" " " "	PA 5-96
6-10	metal, wood, " "	
10-15	Tires, ash, metal, " + "	
15-20	" " "	
20-25	" " " "	
25-30	plastic, cloth, HHT + metal	
30-35	" " " "	
35-40	" " " "	
40-45	" wood + "	
45-50	" " " + ash	
50-55	dirt " " "	PA 9-93
55-60	sludge, leachate + HHT	
60-65	" " sand + "	
65-70	HHT, plastic, sludge + wood	PA 9-93
70-75	" " " "	
75-80	sand, metal, sludge + plastic	
80-85	" leachate " + HHT	
85-90	wood, sludge, leachate + plastic	
90-95	dirt, sludge + plastic	
95-100	HHT, " " + wood	PA 2-88
100-105	" " " "	
-110	wood, cardboard + leachate	
110-115	RAGS HHT, plastic + leachate	PA 4-83
115-120	Tire " + "	
120-125	sand, tire + leachate	TD 124'

O.W.T.
TRUCTION COMPANY

WELL DRILLING/COMPLETION REPORT

Landfill Site: Pagel State: Ill.

Well Number/Name: EW 132 Elevation: –

Exact Location (coordinates): –

Date Spuded: 10-15-97 Date Completed: 10-18-97

Hole Size: 36 Total Depth: 133'

Length of Perforated Pipe: 114' Length of Solid Pipe: 23'

General Comments: well stubed 6" above grade

Depth	Material Drilled	Comments
0-2	Dirt + sand	Top trash 2'
2-4	" "	
4-6	" "	
6-10	carpet, plastic + HHT	
10-15	wire, cags, " " + wood	
15-20	" " "	Pd 10-96
20-25	dirt, rocks " " "	
25-30	Rags " "	
30-35	metal " " "	
35-40	metal, dirt, " "	
40-45	" " "	
45-50	" " "	
50-55	" " "	
55-60	paper, cags " " "	
60-65	" " " " "	
65-70	dirt, gravel, plastic + ash	
70-75	" " " "	
75-80	plastic, wood, rubber + HHT	
80-85	sand, sludge + plastic	
85-90	leachate, " "	
90-95	" " "	
95-100	wood, sludge, leachate + rock	
100-105	sand, " " + gravel	
5-110	" " " "	
110-115	" " " "	
115-120	plastic, wood, " sludge + gravel	
120-125	Leachate, gravel + sludge	
125-130	" " "	
130-135	sand, Tire + sludge	TD 133'

O.W.T.
NSTRUCTION COMPANY

WELL DRILLING/COMPLETION REPORT

Landfill Site: Pagel State: Ill

Well Number/Name: EW 133 Elevation: –

Exact Location (coordinates): –

Date Spuded: 10-2-97 Date Completed: 10-4-97

Hole Size: 36 Total Depth: 126'

Length of Perforated Pipe: 103 Length of Solid Pipe: 23'

General Comments: well stubed 7' Above grade

Depth	Material Drilled	Comments
0-2	Cover + dirt	Top trash 3'
2-4	" "	
4-6	HHT	
6-10	" + plastic	
10-15	Auto parts + wood	
15-20	plastic, tires + HHT	DD 8-96
20-25	" rags + "	
25-30	" paper, dirt + HHT	DD 2-96
30-35	Rubber, wood + HHT	
35-40	wood, Ash + plastic	
40-45	HHT + "	
45-50	" "	
50-55	Ash, rags, wood + HHT	
55-60	dirt, plastics, rags + wood	
60-65	Rubber, sludge + wood	
65-70	Leachate + "	
70-75	" "	
75-80	" " wood + gravel	
80-85	" " + plastic	
85-90	"	
90-95		
95-100		
100-105		
105-110		
110-115		
115-120		
120-125	trees + sand	TD 126'

Sub- Appendix H.2

Dual Leachate and Gas Well Installation Reports

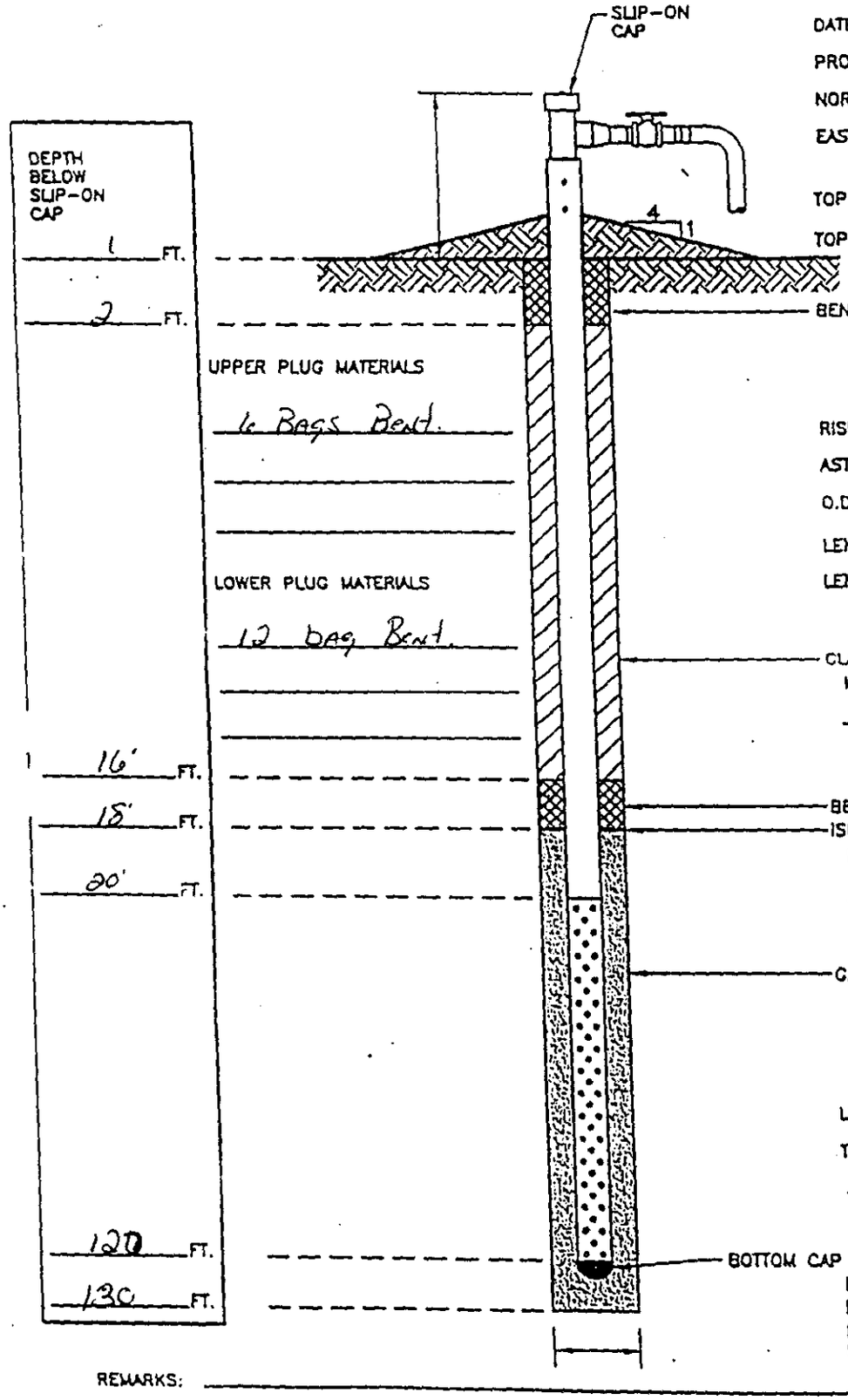
Sub- Appendix H.2

Dual Leachate and Gas Well Installation Reports

[illegible] EXTRACTION WELL INSTALLATION REPORT

WELL NO.: EW 111
DATE INSTALLED: 10-8-97
PROJECT NO.: 97080-D
NORTHING: -
EASTING: -

TOP OF WELL CAP EL. - FT.
TOP OF GROUND SURFACE EL. - FT.



RISER PIPE SCHEDULE: 10
ASTM DESIGNATION: -
O.D.: 8
LENGTH OF PERFORATED PIPE: 107 FT.
LENGTH OF SOLID PIPE: 23 FT.

CLAY BACKFILL MATERIALS: clay + topsoil

MATERIALS: -

LENGTH OF GRAVEL PACK: 110' FT.
TYPE OF GRAVEL PACK: 1" to 2" washed stone

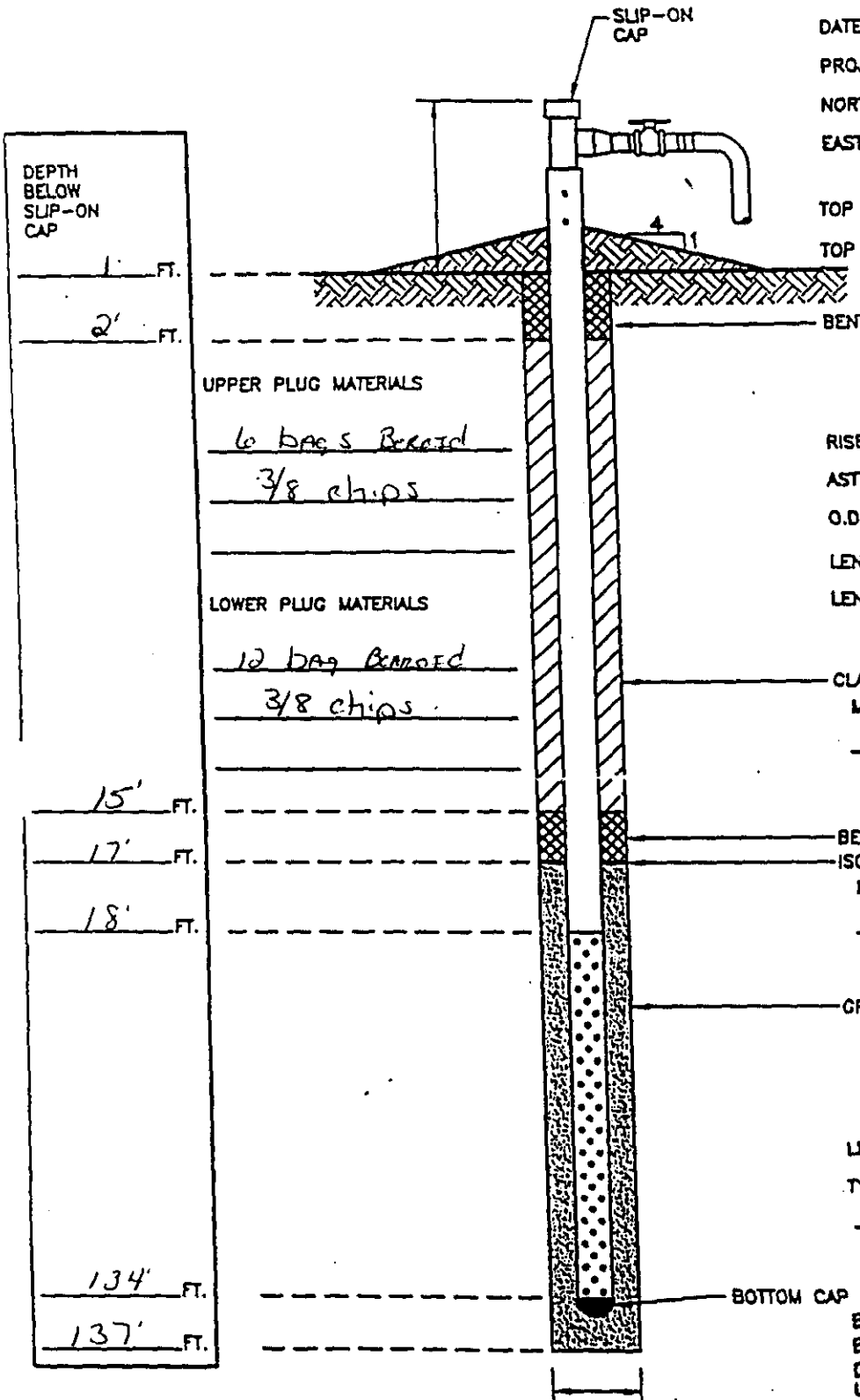
BORING DIA. 36 - IN.
BOTTOM OF BORING EL. - FT.
DEPTH OF BORING INTO UNDERLYING SOILS 2 FT.

REMARKS:

METHANE EXTRACTION WELL INSTALLATION REPORT

WELL NO.: EW 112
DATE INSTALLED: 9-27-97
PROJECT NO.: 97080-D
NORTHING: -
EASTING: -

TOP OF WELL CAP EL. - FT.
TOP OF GROUND SURFACE EL. - FT.



RISER PIPE SCHEDULE: 11
ASTM DESIGNATION: -
O.D.: 8
LENGTH OF PERFORATED PIPE: 116 FT.
LENGTH OF SOLID PIPE: 19 FT.

CLAY BACKFILL MATERIALS: Clay

ISOLATION LAYER MATERIALS: -

LENGTH OF GRAVEL PACK: 117' FT.
TYPE OF GRAVEL PACK: 1" to 3" washed stone

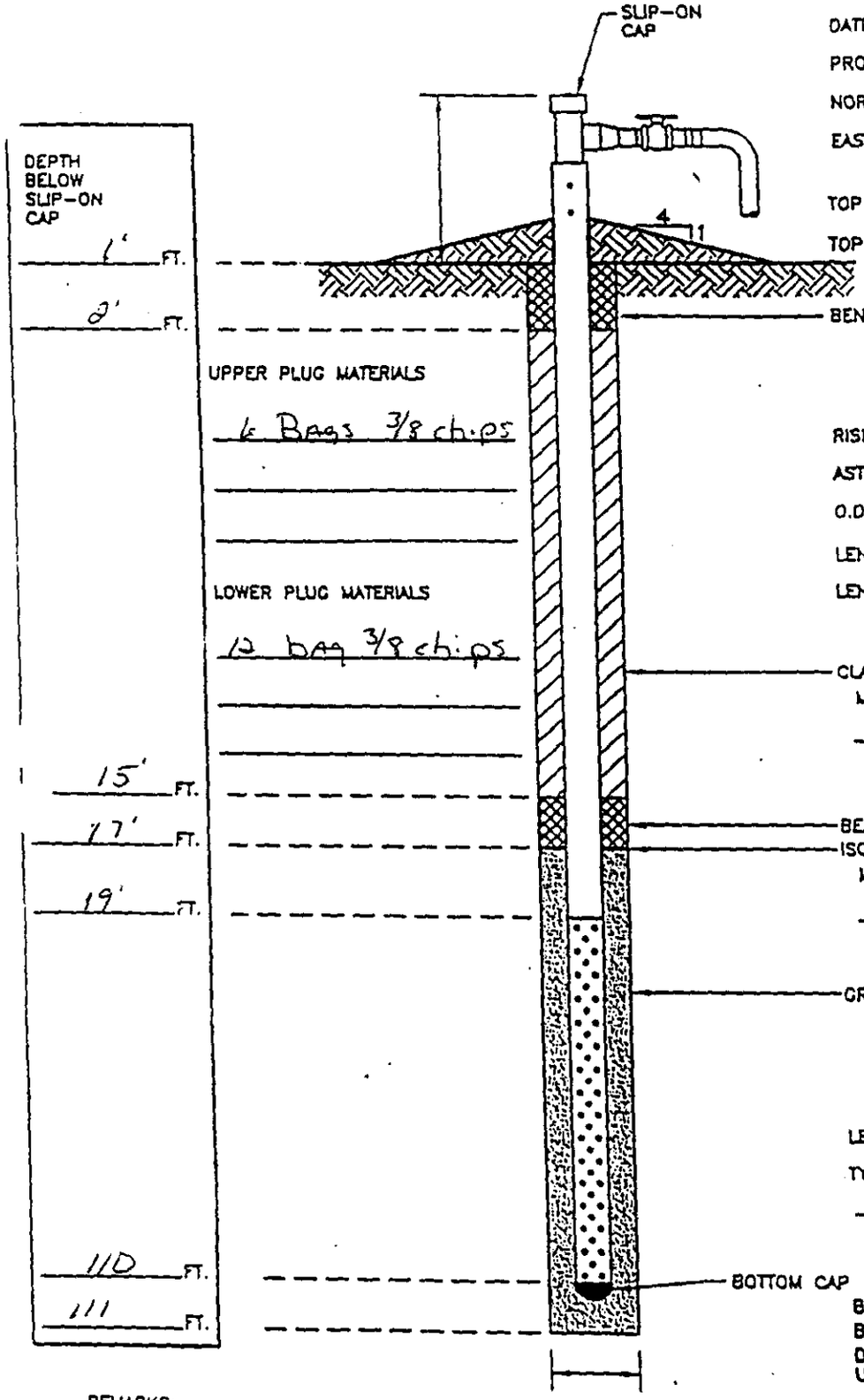
BORING DIA. 36" IN.
BOTTOM OF BORING EL. - FT.
DEPTH OF BORING INTO UNDERLYING SOILS 2' FT.

REMARKS: Lost 2' of Hole before we got pipe in - 2' bottom plug

METHANE EXTRACTION WELL INSTALLATION REPORT

WELL NO.: 121 EW
DATE INSTALLED: 10-13-97
PROJECT NO.: 97036-D
NORTHING: –
EASTING: –

TOP OF WELL CAP EL. – FT.
TOP OF GROUND SURFACE EL. – FT.



BENTONITE PLUG

RISER PIPE SCHEDULE: –
ASTM DESIGNATION: –
O.D.: 8
LENGTH OF PERFORATED PIPE: 91 FT.
LENGTH OF SOLID PIPE: 23 FT.

CLAY BACKFILL MATERIALS: Clay + Top Soil

BENTONITE PLUG
ISOLATION LAYER MATERIALS: –

GRAVEL PACK

LENGTH OF GRAVEL PACK: 93' FT.
TYPE OF GRAVEL PACK: 1" to 2" washed stone

BOTTOM CAP

BORING DIA. 36" IN.
BOTTOM OF BORING EL. _____ FT.
DEPTH OF BORING INTO UNDERLYING SOILS 0' FT.

REMARKS:

[illegible] EXTRACTION WELL INSTALLATION REPORT

WELL NO.: EW 122

DATE INSTALLED: 10-2-97

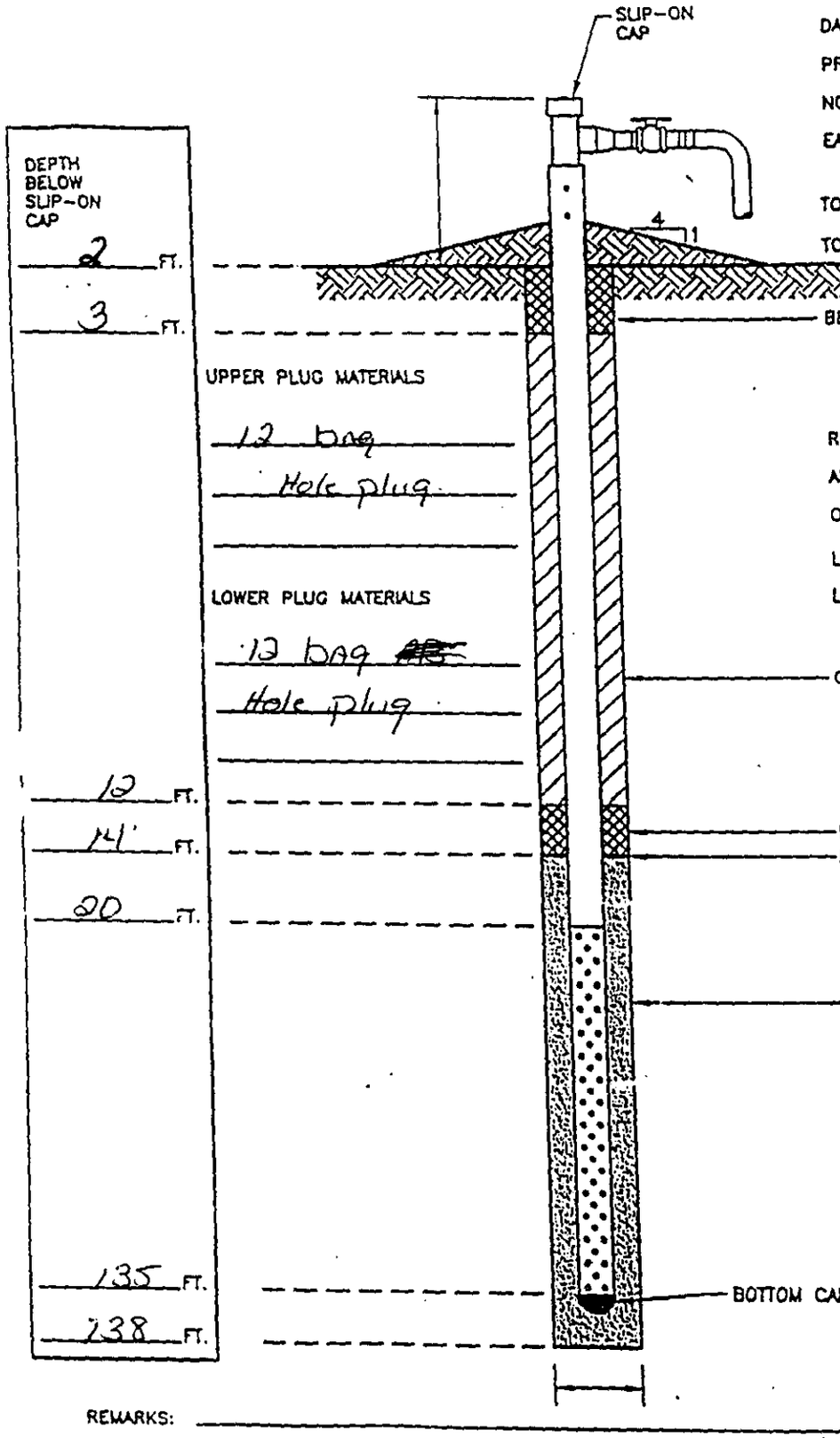
PROJECT NO.: 97080-D

NORTHING: -

EASTING: -

TOP OF WELL CAP EL. - FT.

TOP OF GROUND SURFACE EL. - FT.



RISER PIPE SCHEDULE: 40

ASTM DESIGNATION: -

O.D.: 6"

LENGTH OF PERFORATED PIPE: 115' FT.

LENGTH OF SOLID PIPE: 23' FT.

CLAY BACKFILL MATERIALS: 9' Top soil + clay

ISOLATION LAYER MATERIALS: -

LENGTH OF GRAVEL PACK: _____ FT.

TYPE OF GRAVEL PACK: _____

BORING DIA. 36 IN.

BOTTOM OF BORING EL. - FT.

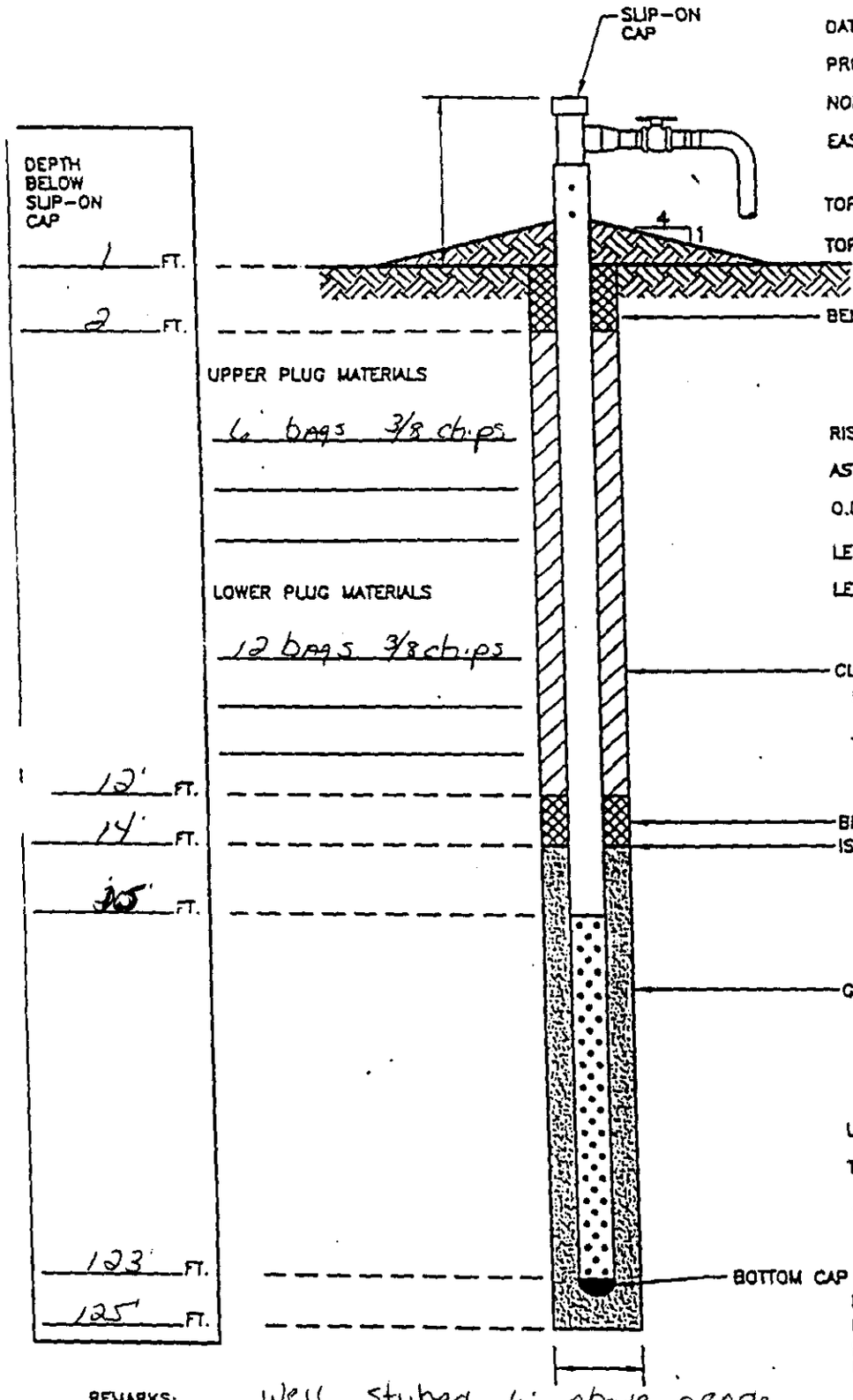
DEPTH OF BORING INTO UNDERLYING SOILS 1 FT.

REMARKS:

METHANE EXTRACTION WELL INSTALLATION REPORT

WELL NO.: EW 131
DATE INSTALLED: 10-15-97
PROJECT NO.: 97080-D
NORTHING: -
EASTING: -

TOP OF WELL CAP EL. — FT.
TOP OF GROUND SURFACE EL. — FT.



RISER PIPE SCHEDULE: 17
ASTM DESIGNATION: -
O.D.: 8
LENGTH OF PERFORATED PIPE: 108' FT.
LENGTH OF SOLID PIPE: 23' FT.

MATERIALS: clay + top soil

MATERIALS: —

LENGTH OF GRAVEL PACK: 110' FT.
TYPE OF GRAVEL PACK: 1" to 2" washed stone

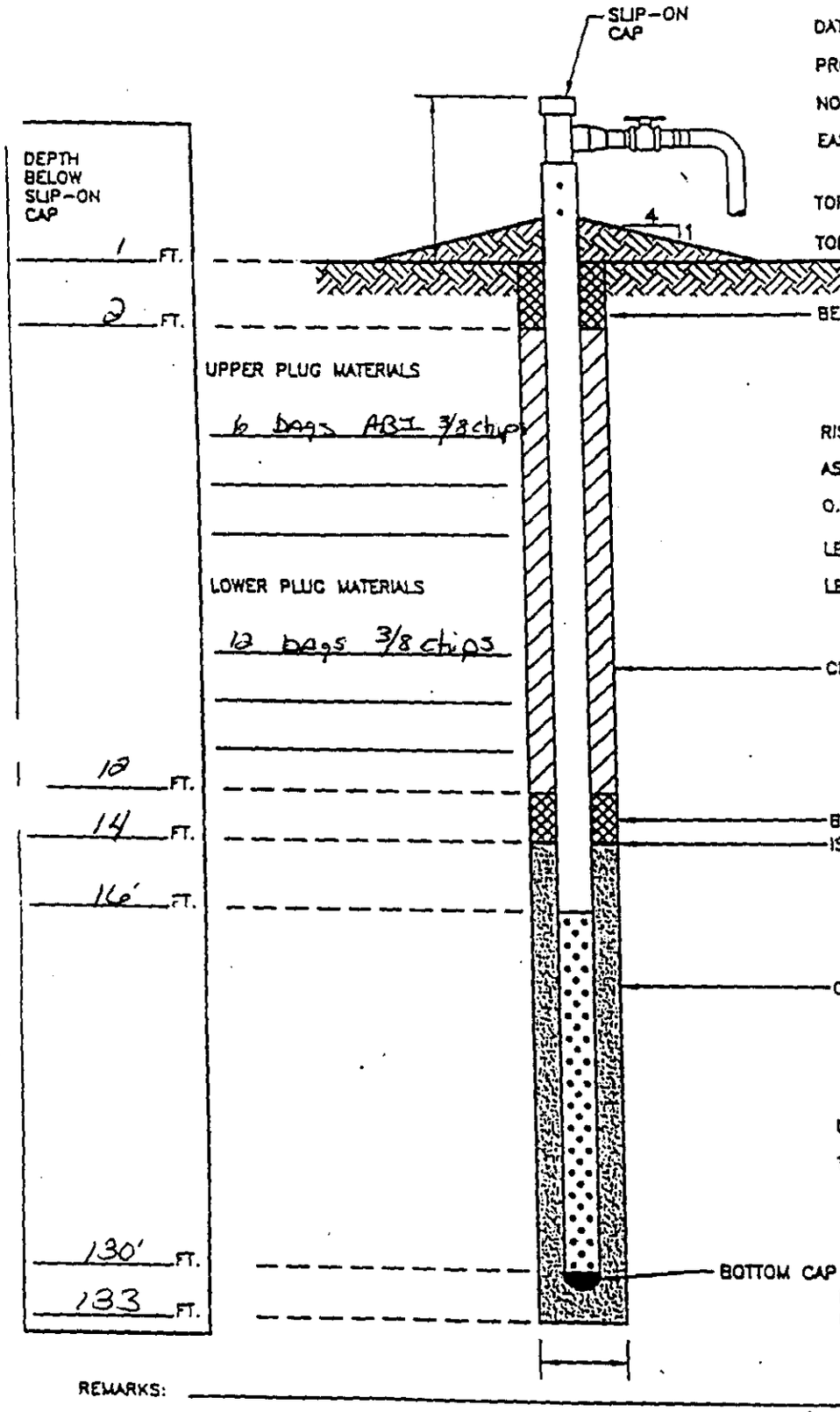
BORING DIA. 36" IN.
BOTTOM OF BORING EL. — FT.
DEPTH OF BORING INTO UNDERLYING SOILS 1 FT.

REMARKS: Well stubed 6" above grade

METHANE EXTRACTION WELL INSTALLATION REPORT

WELL NO.: EW 132
DATE INSTALLED: 10-18-97
PROJECT NO.: 97080-D
NORTHING: -
EASTING: -

TOP OF WELL CAP EL. ___ FT.
TOP OF GROUND SURFACE EL. ___ FT.



RISER PIPE SCHEDULE: 17
ASTM DESIGNATION: C
O.D.: 8
LENGTH OF PERFORATED PIPE: 14' FT.
LENGTH OF SOLID PIPE: 22' FT.

CLAY BACKFILL MATERIALS: Clay + Top soil

ISOLATION LAYER MATERIALS: —

LENGTH OF GRAVEL PACK: 116' FT.
TYPE OF GRAVEL PACK: 1" to 3" washed stone

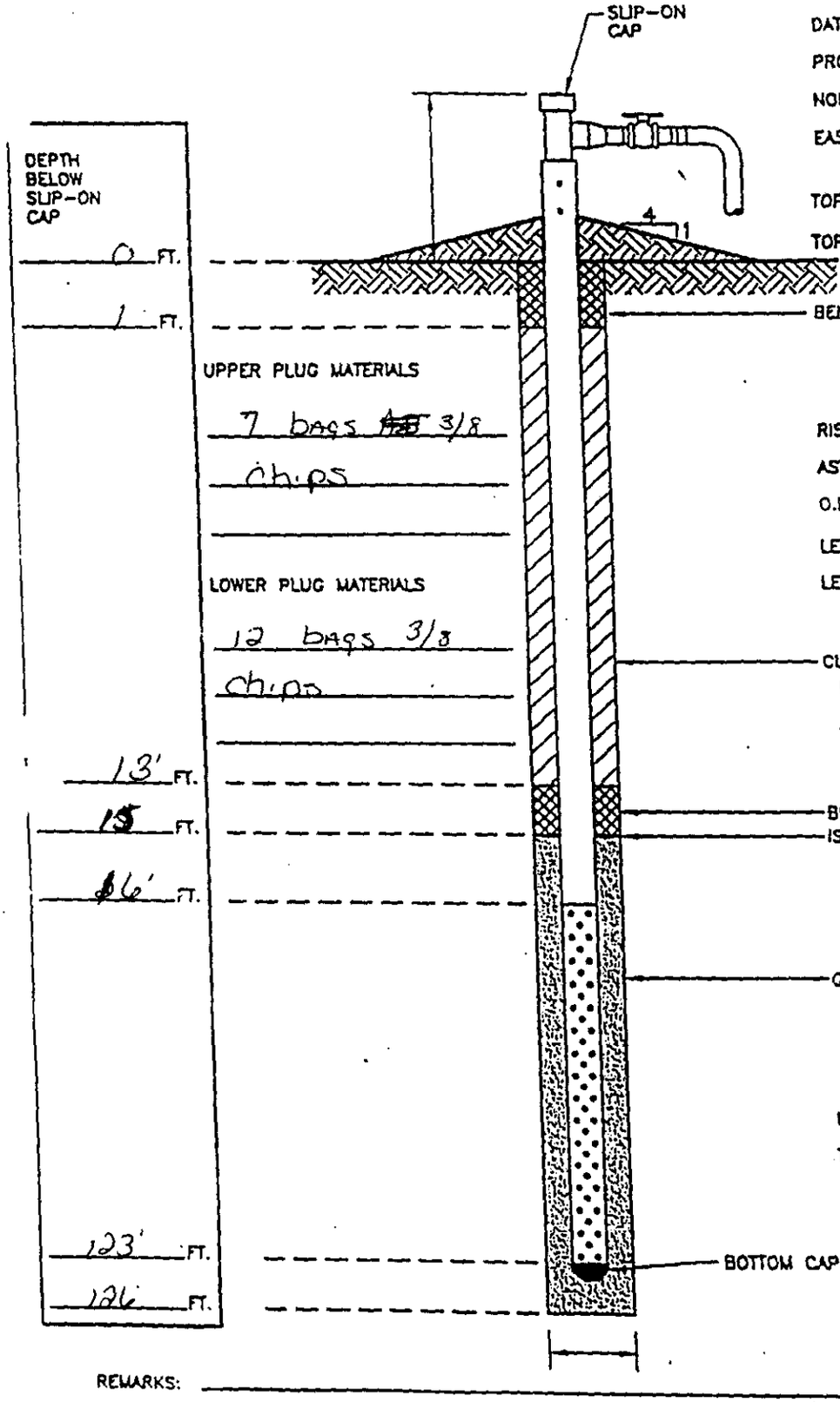
BORING DIA. 36" IN.
BOTTOM OF BORING EL. ___ FT.
DEPTH OF BORING INTO UNDERLYING SOILS 1 FT.

REMARKS:

EXTRACTION WELL INSTALLATION REPORT

WELL NO.: EW 133
DATE INSTALLED: 10-4-97
PROJECT NO.: 97080-D
NORTHING: –
EASTING: –

TOP OF WELL CAP EL. – FT.
TOP OF GROUND SURFACE EL. – FT.



RISER PIPE SCHEDULE: 17
ASTM DESIGNATION: –
O.D.: 6
LENGTH OF PERFORATED PIPE: 107 FT.
LENGTH OF SOLID PIPE: 23 FT.

CLAY BACKFILL MATERIALS: Clay + dirt mix

ISOLATION LAYER MATERIALS: –

LENGTH OF GRAVEL PACK: 109' FT.
TYPE OF GRAVEL PACK: 1" to 2" washed stone.

BORING DIA. 36 IN.
BOTTOM OF BORING EL. 0 FT.
DEPTH OF BORING INTO UNDERLYING SOILS 2 FT.

REMARKS:

Sub- Appendix H.3

Gas Flare Information

Thomas Hilbert
Environmental Engineer
Winnebago Reclamation
8403 Lindenwood Road
Rockford, IL 61109
(815) 874-4806
October 16, 1996

Mr. Dana White
Johnson Sales Corp.
1340 Enterprise Drive
Romeoville, IL 60446

Dear Dana:

Winnebago Reclamation Service accepts the cost estimate for the enclosed flare package presented in proposal No. P-608L01-Y, Addendum 4, dated 10-10-96. Specifically this proposal quotes a price of $130,000 for the materials listed in the above referenced proposal. Also enclosed is a copy of our credit references and a check for $13,000 which is 10% of the total order per the proposals standard conditions.

We would appreciate any efforts to expedite the delivery of the flare system and will make every effort on our part to help complete the delivery ahead of schedule. This letter may be referenced in lieu of a purchase order number. If you have any questions concerning this purchase or the work requested, please feel free to call.

Sincerely,

Thomas Hilbert

Enclosures: Credit References
Guarantee Check

FAX LEADER SHEET

Total Number of Pages Including This Page: 6

NAO, Inc.
1284 E. Sedgley Avenue
Philadelphia PA 19134-1590

Facsimile: (215) 743-3020 - 3018
Telephone: (215) 743-5300, Ext. 204
All USA & Canada

Date: 10/10/96

To: Foth & Van Dyke

Attention: Mr. Steve Gardner / Tom Hilbert - Winnebago

Fax: (414) 497-8516 815-874-4630

Reference: NAO Proposal No. P-608L01-Y, Addendum No. 4
Scope ID No. 95W082

Dear Gentlemen:

Enclosed find NAO Estimate Proposal No. EP-608L01-Y, Addendum No. ~~3~~ 4 per your request.

Should you have any questions or require additional information, please contact NAO, Inc.

Sincerely,

Carl Mishinski {km}

Carl Mishinski
Sales Applications

CJM/km
cc: Johnson Sales Corporation, Mr. Dana White, Phone (708) 759-4666, Fax (708) 759-4846

Foth & Van Dyke
NAO Proposal No. P-608L01-Y, Addendum No. 4

October 10, 1996

NEC™ (NAO Enclosed Combustor) Performance Characteristics:

Available Pressure	Minimal
Inlet Gas Temperature	100°F
Inlet Flow Rate	1,000 SCFM - MAX.
Gas Composition	38.8% CH_4, 28% CO_2, 30.3% N_2, 2.9% O_2 / Argon
Average Molecular Weight	28
Inlet Gas Net Heating Value	375 Btu/cf
Burner Pressure Drop	8"WC
Inlet FA Pressure Drop	3"WC
Operating Temperature	1,400 - 1,600°F
Maximum Unit Heat Release	22.5 MM Btu/Hr
Turn-Down	10:1
Residence Time	0.96 Second (Minimum)
Supplementary Fuel	None Required - Since Ample Energy in Landfill Gas
Destruction Efficiency	99+%
Burner Operating Noise Level	90 dB(A) @ 1 Meter
Pilot Gas	45 SCFH @ 10 PSIG (Nat. Gas - 1,000 Btu/cf)
Unit Dimensions	7' Dia. x 34' Tall (***Zone 0, Wind 100 MPH, Exp. C***)

Unit Price: F. O. B., Shipping Points (U. S. Dollars) Domestic Packed

NEC-7S and Controls	**$130,000.00***
Start-Up Assistance	Two (2) *Days On-site Recommended* ***Price*** *as per NAO Service Rates*

**Please submit your standard credit references so that we may expedite our credit review and maintain our quoted delivery schedule.*

Delivery Schedule:

Order Processing/Engineering Kick-Off	**1 Week**
General Arrangement Drawing Submittal	**3-4 Weeks**
Customer Drawing Approval	**1 Week (MUST BE HELD)**
Steel Detail Completion after Approval	**1 Week**
Order & Receipt of Materials	**1 Week**
Fabrication/Inspection/Prep - Shipment	**6-8 Weeks**

Note: *Please contact NAO, Inc., with details, if a quicker delivery is necessary.*

The prices listed include the following equipment:

Enclosed Combustor and Control Panel:

Vertical, Carbon Steel Combustion Chamber - **Base Ring** Mounted - One (1) Section
Component Base Skid - C.S. with Mounting Holes for Customer Foundation Attachment
Seismic Zone 0, Windspeed 100 MPH, Exposure Type C - 1/16" Corrosion Allowance
Insulated w/ Two (2) Layers of 1" Thk. Ceramic Blanket & Anchored by **Stainless Steel** Clips
Carbon Steel Blanket Rain Guard - *2" Wide Ring at Top of Chamber*
Automatic Combustion/Quench Air Damper(s) - **NEMA 4** Controls (Access Way)
Provisions for Future Addition of Supplementary Fuel - (Connection / Controller)
Multi-Head S.S. Burner Assembly with Flame Retainers
Burner / Pilot Site-Ports - Base Located
Two (2) - 90° Spaced 4" Sample-Ports - Stack Located - Capped
8" 150# ANSI Flanged Inlet
8" Inlet Valve Electric Actuated - Fail Closed - 120 VAC - NEMA 4
8" (10 3/4" OD) Wafer Style Inlet Flame Arrestor - 304 SS
Carbon Steel / 304 SS Burner Header
NEMA 4 UL Listed Control Panel 120 VAC/60 HZ/1 Ph
NEMA 7 Cast Iron Head Type Stack Located Type K Thermocouple & Extension Wire
Local Temperature Monitor (Display) / Controller
UV Flame Safeguard System & Scanner
Spark Ignited Pilot - NEMA 4 Solenoid Valve & NEMA 7 Local Transformer Housing
Flow Meter - Landfill Gas
Chart Recorder for Flow Meter
Booster Blower - 1000 SCFM @ 40"WC Boost 15 HP Hermetically Sealed Motor, Flanged
In/Out Motor Starter Control Box NEMA 4
Knock-Out Drum - NonCode, 8" In/Out 150# ANSI Flanged Connections, C.S.
The knockout drum provides protection against liquid carryover. The knockout drum is equipped with a baffle plate assembly, this is to help stop liquid carryover. At higher then design flow rates, due to the vapor stream velocity, the vapor stream may carry some liquid out of the knockout drum. The knockout drum, however, will be equipped with a high level control switch and a level sight gauge. The high level switch is interlocked with the Flame Safeguard System. The knockout drum is furnished with a 6" x 8" handway and manual drain.

Carbon Steel Surface Finish & Coating:

SSPC-SP6-63 Commercial Sandblast
One (1) Coat of Inorganic Zinc Rich Primer (2-3 Mils)

Start-Up or Training Service:

Start-up or training service will allow proper set-up and start-up of the components supplied by NAO, Inc. The rate for a technician does not include travel or on-site expenses. We expect on-site time will be Two (2) days, and is based on Eight (8) hours per day. If additional time on-site is required it will be charged as per NAO's standard service rates. If this option is purchased it must be placed on a separate purchase order.

If additional equipment is required, please contact NAO with details.

Exceptions & Notations:

01. Prices firm for **Thirty (30)** days from the proposal date & through order completion. All estimate proposals must be confirmed with a firm NAO bid. ***Validity is especially true for the start-up service quoted.***
02. The price listed does not include shipping costs.
03. All inspection must be performed prior to shipment from NAO, Inc./sub-vendors.
04. **NAO, Inc. has not included taxes or duties in the price listed.**
05. NAO's standard terms of payment for a previous customer are NET Thirty (30) Days. For orders over $25,000.00, the following progress payments are required, *pending credit review*. **10%** of order value upon order placement - Net Cash
    15% of order value upon drawing submittal - Net Cash
    35% of order value upon order of materials - Net Cash
    Balance upon shipment - Net 30 Days from Date of Invoice
    For first time customers please submit your credit references prior to your Purchase Order.
06. In the event an order must be cancelled the following charges apply:

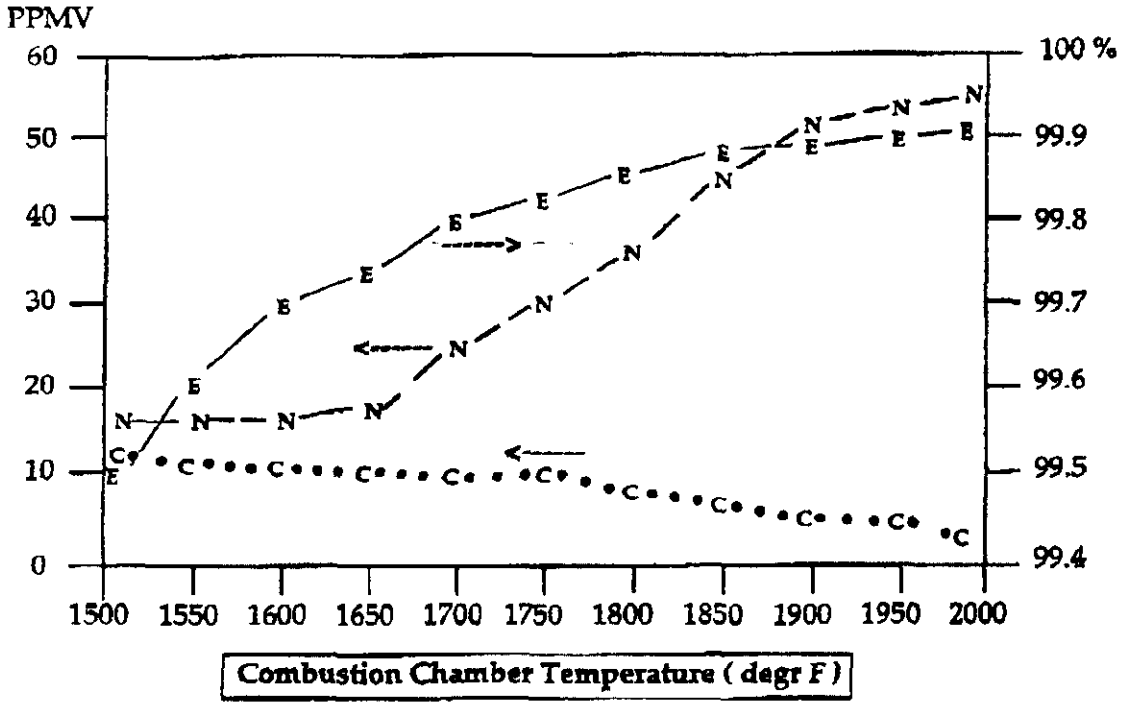
0-30 Days ARO	15% of Order Value
31-60 Days ARO	15% of Order Value plus Labor & Materials
61-90 Days ARO	15% of Order Value plus Labor & Materials

    These charges MUST be listed in the customers Purchase Order.
07. Field Erection is not included in our scope of supply.
08. *Non-Destructive testing is not included in our scope of supply.*
09. NAO's standard guarantee is for Twelve (12) months after start-up or Eighteen (18) months after purchase, whichever is first. The warranty includes the replacement of defective parts on an FOB, Phila. PA basis. Incidental/Consequential damages are not covered. The removal, installation and transportation of the parts are for the customers account.
10. The customer is solely responsible for identifying and defining all process and mechanical considerations which may effect the overall performance, reliability or operation of the equipment furnished By NAO, Inc.
11. ***Quality Assurance - NAO is ISO-9001 Certified!***
12. ***The price listed is based upon NAO, Inc. terms and conditions.***
13. ***If this proposal becomes an order, please address all correspondence (including purchase order and credit references, for new customers, to NAO, Inc., 1284 East Sedgley Avenue, Philadelphia PA 19134.***
14. NAO standard drawing submittal apply to this quote. One (1) sepia and Two (2) General Arrangement prints submitted for approval / final. Two (2) Operating / Maintenance Manuals submitted with final, approx. Two (2) weeks after shipment. Steel detail drawings will not be submitted since proprietary. Please advise if additional quantities are necessary.
15. Interconnecting piping, wiring, conduit and fittings are by others.
16. Advise if the seismic rating is adequate for the area in which the unit will be installed.
17. *Due to on-site & specific application conditions, final control adjustments cannot be performed at the factory. Fine tuning is* ***necessary*** *in the field, whether by an NAO service technician or by your personnel with assistance from an NAO technician.*
18. *Please note, NAO is basing the delivery schedule on items in our control. Some purchased items may have a slightly longer delivery schedule. In the event that these items, can be expedited, NAO will advise and pass the direct expediting fee on to the customer.*

Foth & Van Dyke
NAO Proposal No. P-608L01-Y, Addendum No. 4

October 10, 1996
5 of 5

Enclosed Combustor
Efficiency (E - %), NOx (N - PPMV) & CO (C - PPMV)
Estimated -- Performance & Emissions
Based on Actual NAO Testing Performed



Based on approximately 56% C1 & 44% CO2 Landfill Gas Vapors at Ambient Temperature
The Enclosed Combustor is designed to operate with approximately 170% Excess Air

Guaranteed Emission Levels will be slightly higher!

Sub- Appendix H.4

Pump and Sensor Information

STA-RITE®

OWNERS MANUAL

INSTALLATION AND OPERATING INSTRUCTIONS

U.S. Patent 5,133,639

Signature 2000

Series T Series J

Series H Series FW

4" SUBMERSIBLE PUMPS

Two and Three Wire

Single and Three Phase

1/2 through 10 H.P.

60 Hz

Record the following information from the motor and pump nameplates for future reference:

Pump Model No. STA-RITE ½ HP 15 GPM - L15P4CH-03

Pump Serial No. CODE# 11K97)

Motor Model No. 2345219404

Motor Serial No.

H.P. Volts/Hz/Ph ½ HP / 60 / 3

Rated Amp Draw 1.2 — 1.5

STA-RITE INDUSTRIES, INC., DELAVAN, WISCONSIN 53115

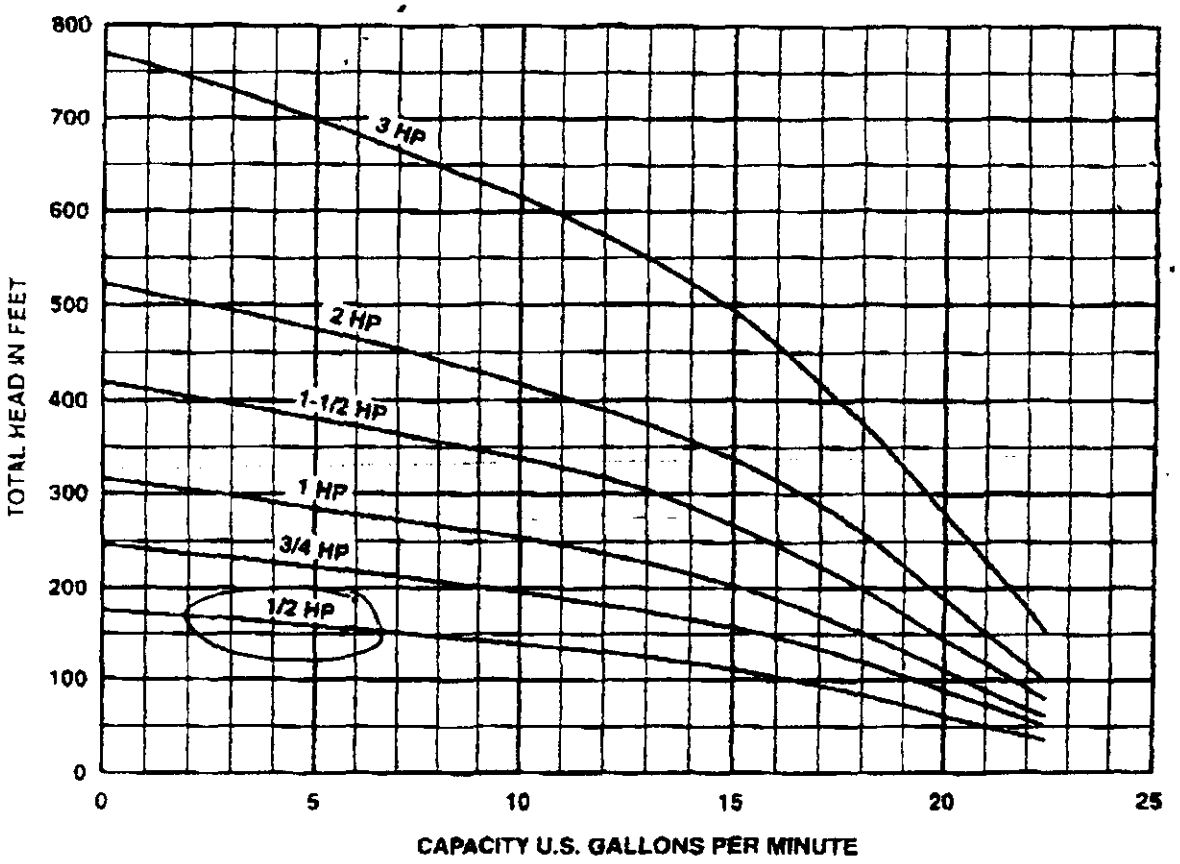
Printed in U.S.A. © 1996, Sta-Rite Industries, Inc.

S280 (Rev. 7/10/96)

ATTN: JEFF

Signature 2000 **SERIES H Stainless**

Pump Performance – 15 GPM



Tested and rated in accordance with Water Systems Council standards.

NOTE: Pumps installed with a CON-AIRE® tank require a 100 PSI relief valve. Pumps installed with a conventional tank require a 75 PSI relief valve. Relief valve must be capable of relieving entire flow of pump at relief pressure.

FROM:
LARRY HOPPS

STA-RITE

STA-RITE. Built On Commitment.

QUALIFIED PERSONNEL COMPLYING WITH
ALL GROUNDING AND CODE REQUIREMENTS.

THIS LABEL IDENTIFIES THE FRANKLIN SUBMERSIBLE MOTOR USED IN THIS WELL. PLEASE DISPLAY PROMINENTLY. A SUGGESTED LOCATION IS THE DISCONNECT BOX.

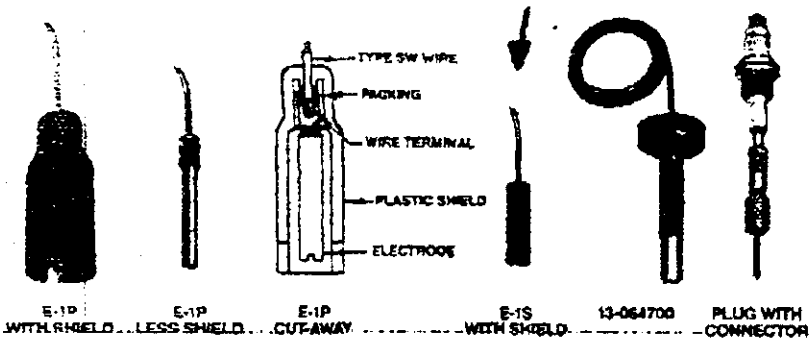
MODEL 2345219404 HP 1/2 KW .37 PH 3
VOLTS 460 RPM 3450 HZ 60
AMP 1.2 S.F.MAX. AMP 1.5
SF 1.6 KVA CODE N CONT. DUTY
MIN FLOW FT/SEC CSA CERTIFIED

Franklin Electric
Bluffton, Indiana 46714
MADE IN U.S.A. 155414101 REV. 7

ELECTRODE HOLDERS AND ELECTRODES

MagneTek

WIRE SUSPENSION ELECTRODES



WIRE CONNECTOR: This adapter is necessary to attach the Type SW suspension wire to the ¼-20 female electrode holder connections. One is required for each wire suspension electrode used with electrode plugs, and Type E and Type AE-2 holders. See pages 6 & 7.

CATALOG NUMBER
6013——C——BR

Material		LIST PRICE
Brass Old No. 12-038400	BR	$3.80
303 SS Old No. 12-043800	SS	$6.80

Wire suspension electrodes are designed for use in applications requiring long lengths, or where limited head room prevents installation of solid rod electrodes. They can be used with all holders except Type CE-2 & 3. Electrode Types E-1P and E-1S are for use in water and non-corrosive liquids. Type 13-064700 is designed for corrosive liquids and is available with a variety of rod materials. Types E-1P and E-1S electrodes with molded plastic shields can be used at temperatures up to 150°F and other electrodes up to 190°F.

Type E-1P-Shielded: This electrode is approximately 4" long and assembled in a molded plastic insulating shield 1 7/16" in diameter. Designed for general purpose use, it is ideal for elevated tanks, sewage pumping stations, and deep well installations.

Type E-1P — Less Shield: This electrode is intended for applications where space prevents the use of other electrodes and where vertical spacing between electrodes is 4" or more.

Type E-1S-Shielded: A 2" long electrode assembled in a molded plastic shield 9/16" in diameter. Ideal for use in submersible pump installations and other applications where little clearance is provided for installation.

Type 13-064700: This electrode is intended for corrosive liquids. It is 3" long made from a ½" diameter rod and available in any of the materials listed below. The type SW wire is attached at the factory and the connection is completely sealed with PVC and bonded to the insulation of the SW wire.

Type SW Suspension Wire: Designed to provide maximum strength and insulation, Type SW wire should always be used with B/W wire suspension electrodes to assure that a watertight seal is accomplished by the packing in the electrode. The wire is single conductor 18 gauge, 41 strand copper with 4/64" vinyl insulation.

CATALOG NUMBER
6013——SW——10

		LIST PRICE
Specify Length in Feet Old No. 01-130500		$0.80 per ft.

6013——W1

CATALOG SECTION

	ELECTRODE TYPE	ELECTRODE MATERIAL	OLD PART NO.	LIST PRICE
W1	E-1P With Shield	Brass	13-020600	[redacted]
W2	E-1P With Shield	303 Stainless	13-020700	[redacted]
W3	E-1P Less Shield	Brass	13-052700	[redacted]
W4	E-1P Less Shield	303 Stainless	13-052600	[redacted]
W5	E-1S With Shield	Brass	13-022000	[redacted]
W6	E-1S With Shield	303 Stainless	13-024300	[redacted]

These electrodes are field assembled and the required amount of Type SW wire must be ordered as a separate item. See above.

NOTE — When wire suspension electrodes are to be used with electrode plugs, or Type E or Type AE-2 electrode holders, wire connectors must also be ordered for each electrode. See above.

6013——W7——10

CATALOG SECTION

	ELECTRODE TYPE	ELECTRODE MATERIAL	OLD PART NO.	LIST PRICE
W7	13-064700 With SW Wire	316 Stainless	13-064702	[redacted]
W8	13-064700 With SW Wire	Monel	13-064703	[redacted]
W9	13-064700 With SW Wire	Nickel	13-064704	[redacted]
W10	13-064700 With SW Wire	Carpenter 20	13-064705	[redacted]
W11	13-064700 With SW Wire	Hastelloy B	13-064707	[redacted]
W12	13-064700 With SW Wire	Hastelloy C	13-064708	[redacted]
W13	13-064700 With SW Wire	Titanium	13-064709	[redacted]

	LIST PRICE
Type SW Wire Length In Feet	ADD $.80 per ft.

These electrodes come complete with the Type SW wire permanently attached to the electrode. Lengths must be specified when ordering.

APPENDIX I

APPENDIX I

REVISED STORMWATER DRAINAGE CALCULATIONS

Sub-Appendices

I.1 Perimeter Drainage Ditch Calculations
I.2 Pipe Drop Inlet Drainage Structure Calculations

Sub- Appendix I.1

Perimeter Drainage Ditch Calculations

COMPUTATION SHEET

PROJECT TITLE: Winnebago Reclamation Service, Inc. PROJECT NO: 86078-004.000

DESCRIPTION: Pagel Landfill Drainage As-Builts SHEET 1 OF 7

PREP. BY: DRF DATE: CHKD BY: DATE:

Ditch 1A $\frac{736 - 730}{230'}$ = 2.6% slope Z = 3:1 Q

b = 12'

d = 1.6

Q max = 196.11

Ditch 1B $\frac{730 - 722.5}{320}$ = 2.3% Z = 3:1

d = 2.0

b = 12.0

Q max = 298 cfs

Ditch 1C $\frac{722.5 - 716}{260}$ = 2.5% slope Z = 3:1

b = 12.0

d = 1.4

Q max = 141.59 cfs

Q Required = 89.08 cfs okay

Note: Ditch 1C Total is used for Ditch 1A, 1B & 1C, w/ a Q = 89.08 cfs

COMPUTATION SHEET

PROJECT TITLE: Winnebago Reclamation Services Inc. PROJECT NO: 86078-007.000
DESCRIPTION: Pagel Landfill Drainage As-Builts SHEET 2 OF 7
REP. BY: DRF DATE: CHKD BY: DATE:

Ditch 3: $\frac{730-726}{300} = 1.1\%$

$z = 3:1$
$d = 1.5$
$b = 12.0$
$Q_{max} = 95.68$ okay

$Q_{required} = 26.1$ cfs

Berm 4: North Berm Drains to Ditch 8 $\frac{748-742}{220} = 2.7\%$
Asphalt Road $n = 0.011$

$d = 1.0$
$z = 3.0$
$b = 16.0$ (actual Road)
$Q_{max} = 378.8$ cfs
$Q_{required} = 38$ cfs (from Ditch 8), conservative

South Berm Drains to Ditch 5 $\frac{748-745}{500} = 0.6\%$
Asphalt Road $n = 0.011$

$d = 1.0$
$z = 3.0$
$b = 16.0$ (actual Road
$Q_{max} = 178.5$ cfs
$Q_{required} = 59.8$ cfs (from Ditch 5, conservative)

COMPUTATION SHEET

PROJECT TITLE: Winnebago Reclamation Service, Inc. PROJECT NO: 86078-004.000

DESCRIPTION: Page 1 Landfill Drainage As-Builts SHEET 3 OF 7

PREP. BY: DRF DATE: CHKD BY: DATE:

Ditch 5 $\frac{722 - 715.5}{350} = 1.85\%$ slope $z = 3:1$

d = 1.5 ft
b = 12 ft
Q max = 135.7 cfs
Q required = 59.8 cfs

Outlet Ditch 1 $\frac{718 - 713}{380} = 1.3\%$ slope $z = 2:1$

d = 2.2 ft
b = 15 ft
Q max = 295.6 cfs
Q required = 233 cfs

Ditch 8 $\frac{730 - 723.5}{300} = 2.2\%$ $z = 3:1$

d = 1
b = 12
Q max = 60 cfs
Q required = 38 cfs

Ditch 9 $\frac{723.5 - 711.5}{300} = 4.0\%$ $z = 3:1$

d = 2
b = 12
Q max = 422 cfs
Q req = 68 cfs

EMCON

COMPUTATION SHEET

PROJECT TITLE: Winnebago Reclamation Service, Inc. PROJECT NO: 86078-004.00

DESCRIPTION: Pagel Landfill Drainage As-Builts SHEET 4 OF 7

PREP. BY: DRF DATE: CHKD BY: DATE:

Terrace T1 $\frac{848 - 844}{220}$ 1.8% $Z_1 = 3$ $Z_2 = 10$

b = 0

d = 2

Q_{max} = 115 cfs

Q required = 15 cfs

Terrace T3 $\frac{848 - 840}{250} = 3.2\%$ $Z_1 = 3$ $Z_2 = 10$

b = 0

d = 2

Q_{max} = 169 cfs

Q required = 15

Terrace T4 $\frac{850 - 840}{400} = 2.5\%$ $Z_1 = 3$ $Z_2 = 10$

b = 0

d = 2

Q_{max} = 143

Q required = 9.9

Terrace T5 $\frac{850 - 840}{500} = 2\%$ $Z_1 = 3$ $Z_2 = 10$

b = 0

d = 2

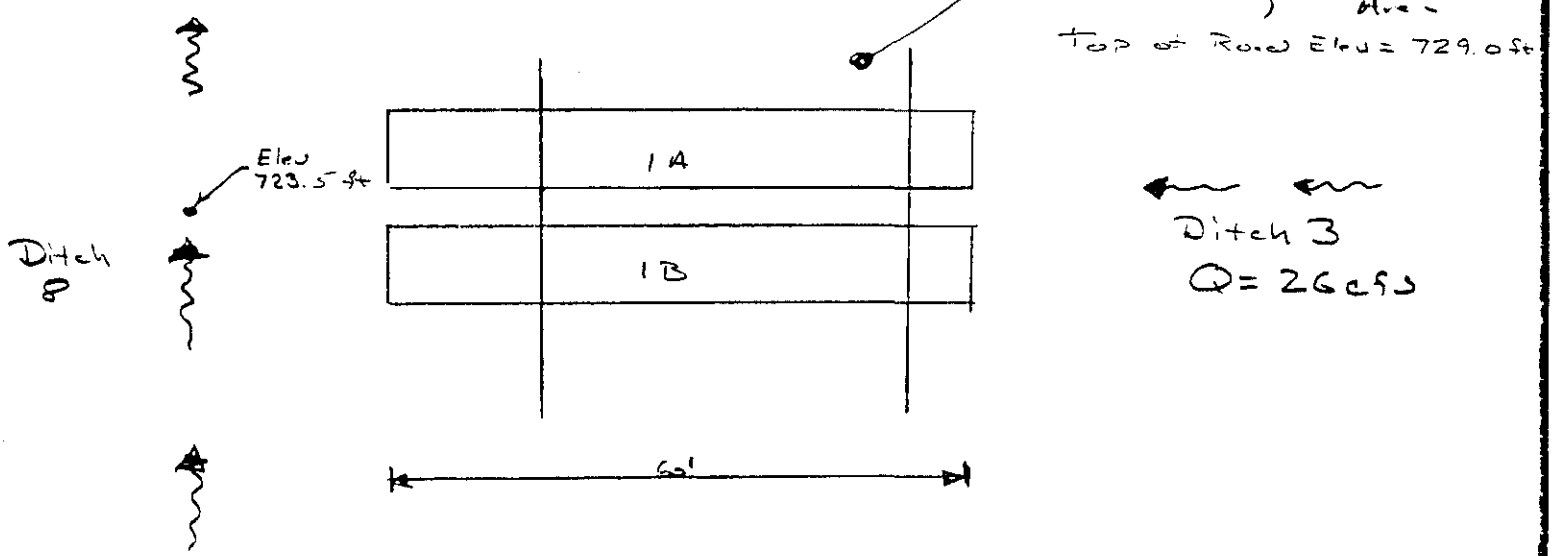
Q_{max} = 123

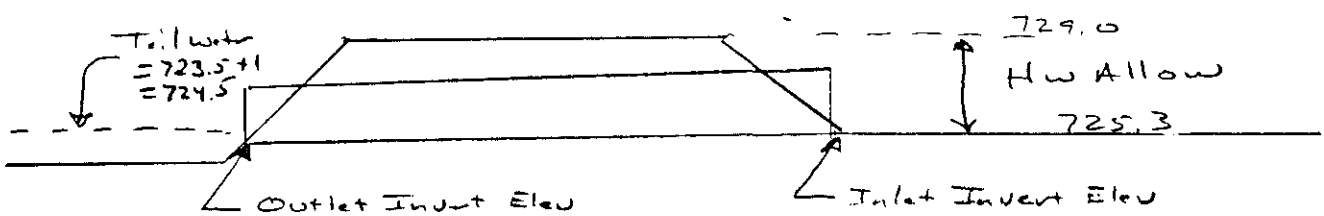
Q required = 20.8

COMPUTATION SHEET

PROJECT TITLE: Winnebago Reclamation Service, Inc. PROJECT NO: 86078-004.000
DESCRIPTION: Parcel Landfill Drainage As-Builts SHEET 5 OF 7
PREP. BY: _____ DATE: _____ CHKD BY: _____ DATE: _____

Culvert #1 As-Builts





Culvert	Inlet Invert Elev	Outlet Invert Elev
1A	725.27	724.36
1B	725.18	724.45

$$\text{Slope} = \frac{725.18 - 724.45}{60} = 1.2\%$$

Q_{needed} = 26 cfs, say 30 cfs

$Q_{Barrel} = \frac{30}{2} = 15$ cfs

$HW_{Allow} = 729.0 - 725.3 = 3.7$ ft

COMPUTATION SHEET

PROJECT TITLE: Winnebago Reclamation Service, Inc. PROJECT NO: 86078-004.000
DESCRIPTION: Pagel Landfill Drainage As-Builts SHEET 6 OF 7
REP. BY: _____ DATE: _____ CHKD BY: _____ DATE: _____

Check Inlet Control See Fig 5B.2

D = 36" (3.0 ft)

Entrance Type Projecting

Q = 15 cfs

$\frac{HW}{D} = 0.5$

HW = 0.5 (3.0 ft) = 1.5 ft

HW = 1.5 ft < HW allow 3.7 ft

okay

EMCON

Form DB001 09-JUL-9

COMPUTATION SHEET

PROJECT TITLE: Winnebago Reclamation Service, Inc. PROJECT NO: 86078-004.000
DESCRIPTION: Page 1 Landfill Drainage As-Builts SHEET 7 OF 7
REP. BY: _____ DATE: _____ CHKD BY: _____ DATE: _____

Check Outlet Control

$Q_{pipe} = 15$ cfs
$K_e = 0.9$ (projecting from fill)
Length = 60 ft

From figure 5B.4, $H = 0.4$ ft

Tw < Top of Culvert $h_o = \frac{d_c + D}{2}$ from fig 5C.1

$d_c = 1.2$ ft

$h_o = \frac{1.2 \text{ ft} + 3.0 \text{ ft}}{2} = 2.1$ ft

$HW = H + h_o - S_o L$
$= 0.4 + 2.1 - (0.012)(60)$
$- 0.72$

$HW = 1.78$ ft

$HW_{Allowable} = 3.7$ ft ∴ okay

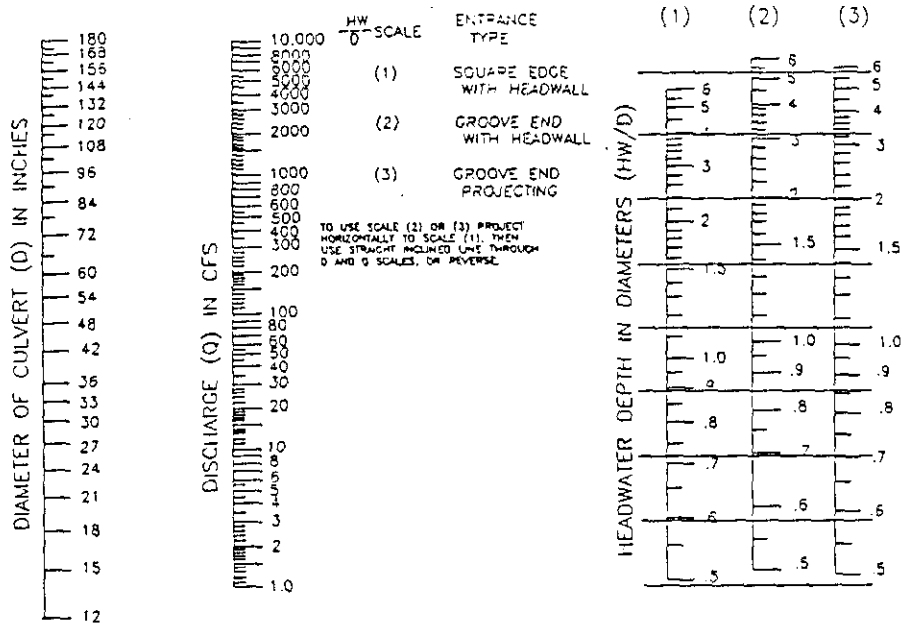
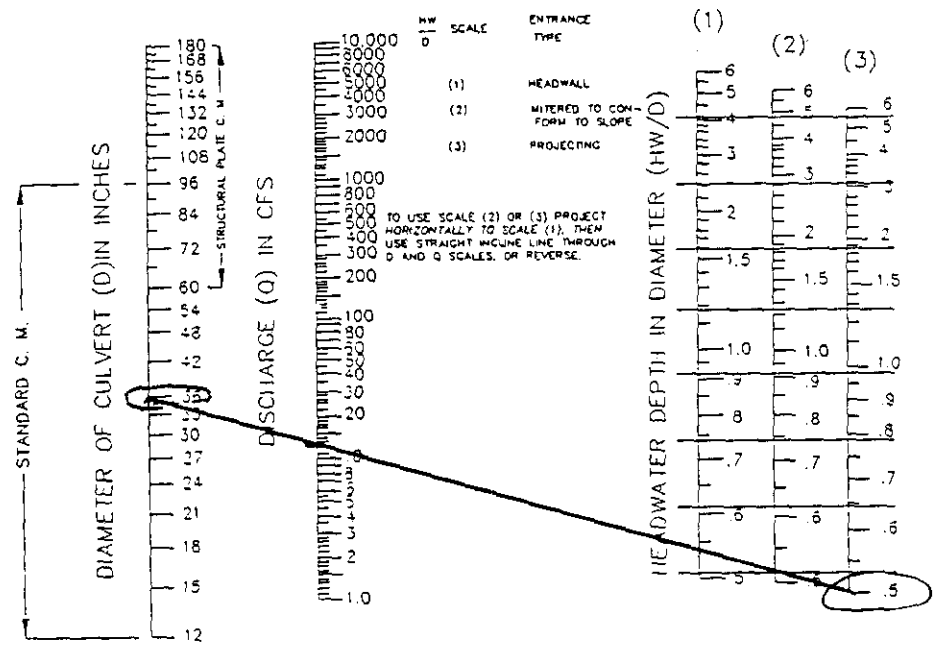


Figure 5B.1 Headwater depth for circular concrete pipe culverts with inlet control (after Federal Highway Administration, 1985).

Inlet Control



$\frac{HW}{D} = 0.5$

Figure 5B.2 Headwater depth for circular corrugated metal pipe culverts with inlet control (after Federal Highway Administration, 1985).

$D = 3.0$

$\frac{HW}{D} = 0.5$

$HW = 0.5(3.0) = 1.5$ ft

$HW_{allow} = 3.7$ ∴ Okay

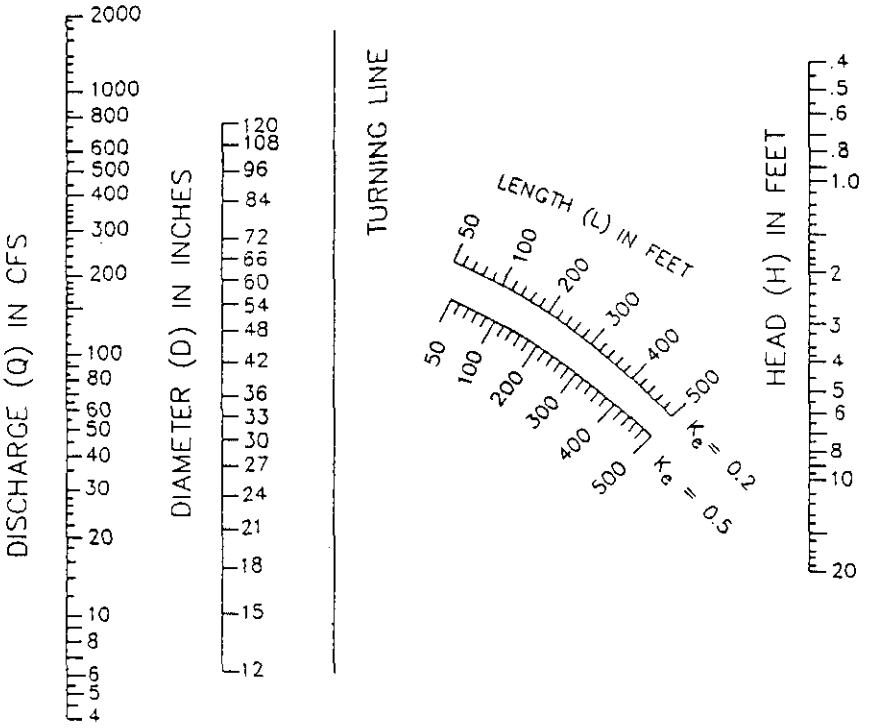


Figure 5B.3 Pipe full nomograph for concrete pipe culverts flowing full with $n = 0.012$ (after Federal Highway Administration, 1985).

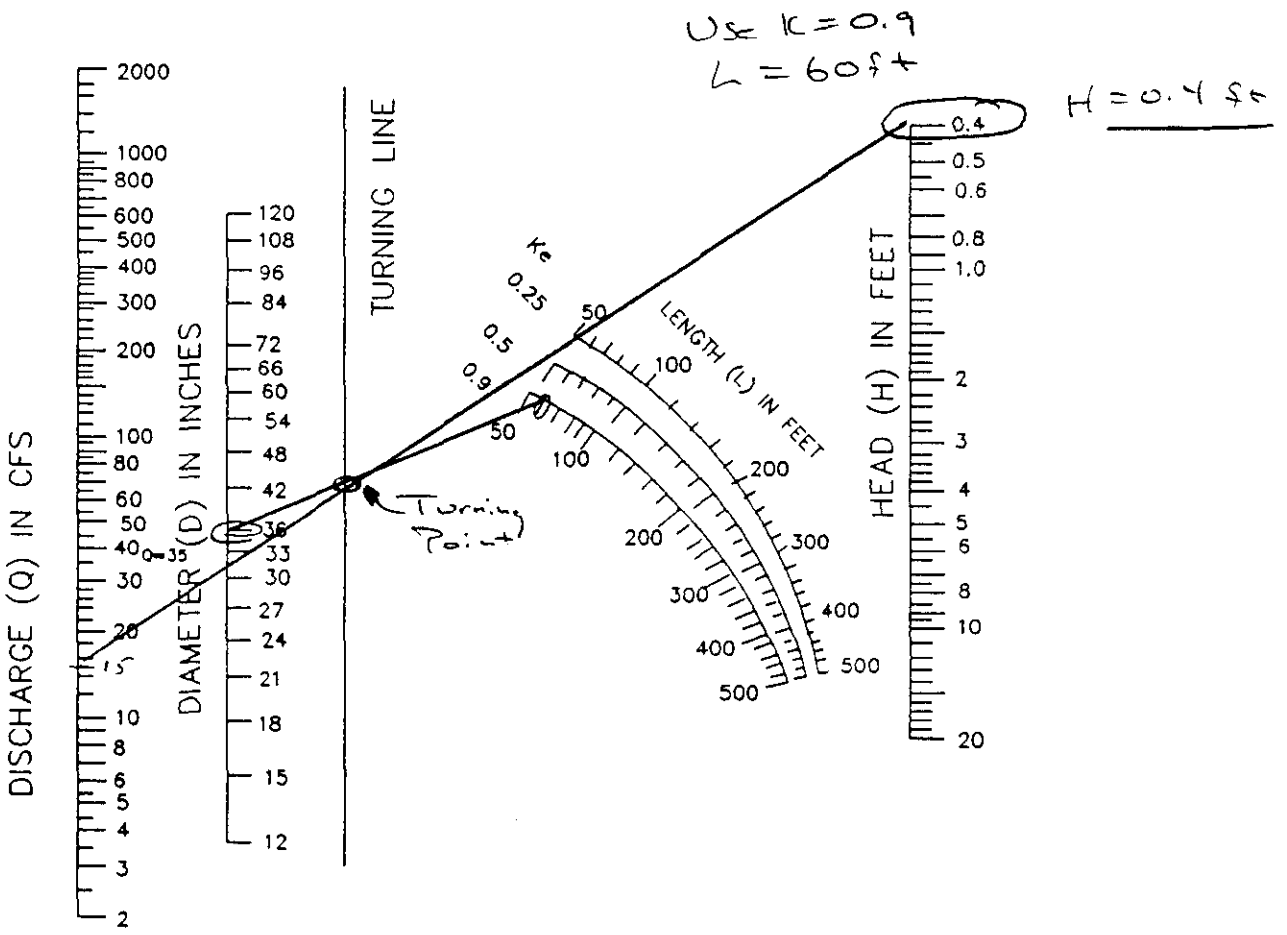


Figure 5B.4 Pipe full nomograph for corrugated metal pipe culverts flowing full with $n = 0.0024$ (after Federal Highway Administration, 1985).

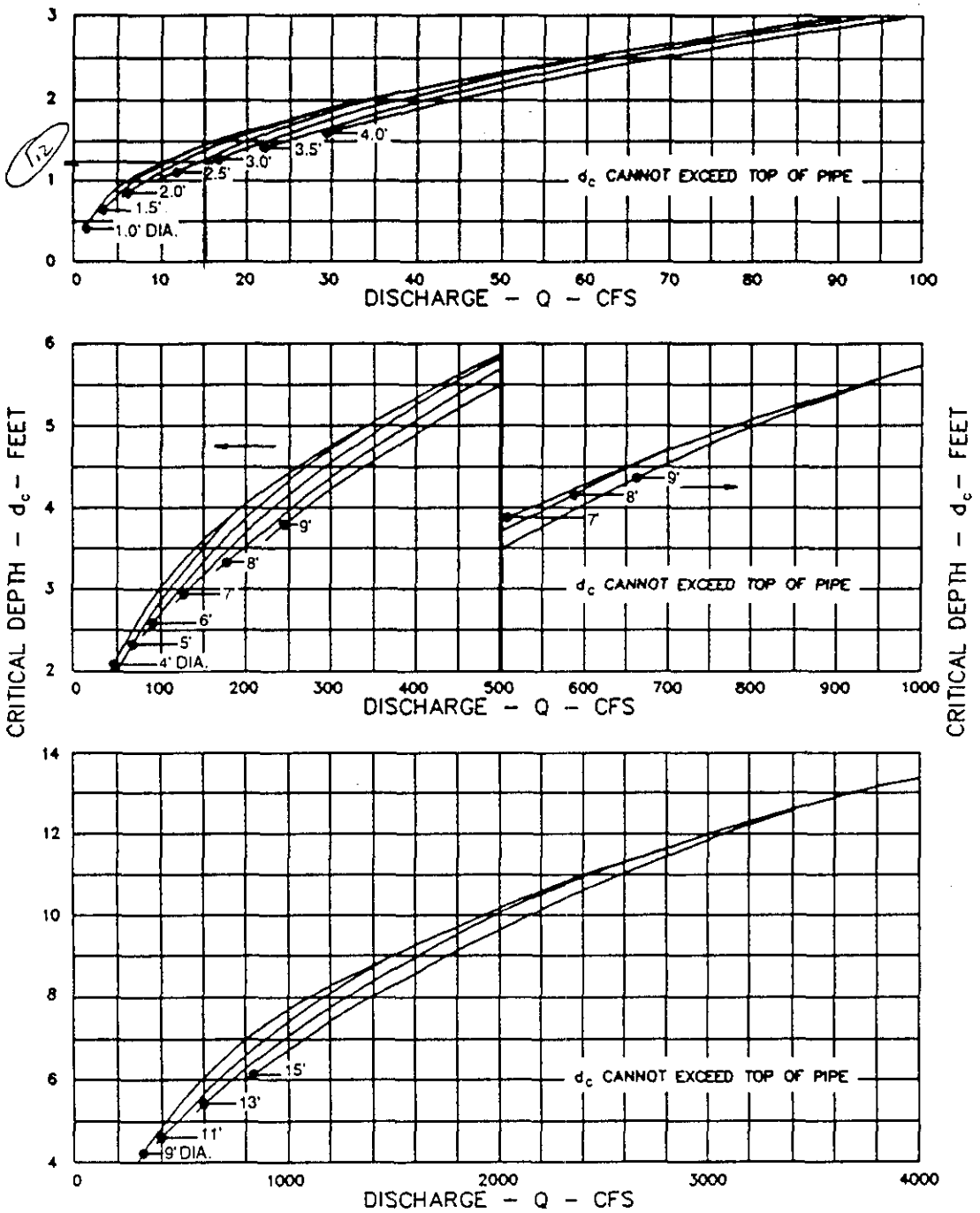


Figure 5C.1 Critical depth for circular pipe (after Federal Highway Administration, 1985).

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Ditch D1A As- Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	1.60	1.60
3	n assumed	0.0308	0.0374
4	n calc	0.0308	0.0374
5	channel slope	0.026	0.026
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	26.9	26.9
10	Wetd Perimeter	22.1	22.1
11	Hyd radius	1.2	1.2
12	Top width	21.6	21.6
13	Velocity fps	8.86	7.30
14	Discharge cfs	238.13	196.11
15	vR	10.77	8.87
16	vR metric	1.00	0.82

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service
Location: Rockford, Illinois
Ditch D1B As- Built

By: DRF

Open Channel Flow - Trapezoidal/Triangular Channel

	RETARDANCE	D	C
1	RETARDANCE	D	C
2	depth	2.00	2.00
3	n assumed	0.0292	0.0350
4	n calc	0.0292	0.0350
5	channel slope	0.023	0.023
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	36.0	36.0
10	Wetd Perimeter	24.6	24.6
11	Hyd radius	1.5	1.5
12	Top width	24.0	24.0
13	Velocity fps	9.93	8.29
14	Discharge cfs	357.66	298.39
15	vR	14.51	12.11
16	vR metric	1.35	1.12

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Ditch D1C As- Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	1.40	1.40
3	*n assumed*	0.0323	0.0398
4	n calc	0.0323	0.0398
5	channel slope	0.025	0.025
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	22.7	22.7
10	Wetd Perimeter	20.9	20.9
11	Hyd radius	1.1	1.1
12	Top width	20.4	20.4
13	Velocity fps	7.69	6.24
14	Discharge cfs	174.47	141.59
15	vR	8.37	6.79
16	vR metric	0.78	0.63

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service
Location: Rockford, Illinois
Ditch D3 As- Built

By: DRF

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	1.50	1.50
3	n assumed	0.0349	0.0443
4	n calc	0.0349	0.0443
5	channel slope	0.011	0.011
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	24.8	24.8
10	Wetd Perimeter	21.5	21.5
11	Hyd radius	1.2	1.2
12	Top width	21.0	21.0
13	Velocity fps	4.91	3.87
14	Discharge cfs	121.45	95.68
15	vR	5.65	4.45
16	vR metric	0.53	0.41

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Ditch 5 As- Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	1.50	1.50
3	n assumed	0.0327	0.0405
4	n calc	0.0327	0.0405
5	channel slope	0.019	0.019
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	24.8	24.8
10	Wetd Perimeter	21.5	21.5
11	Hyd radius	1.2	1.2
12	Top width	21.0	21.0
13	Velocity fps	6.79	5.48
14	Discharge cfs	168.10	135.73
15	vR	7.82	6.32
16	vR metric	0.73	0.59

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service
Location: Rockford, Illinois
Ditch 8 - As Built

By: DRF

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	1.00	1.00
3	n assumed	0.0372	0.0482
4	n calc	0.0372	0.0482
5	channel slope	0.022	0.022
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	15.0	15.0
10	Wetd Perimeter	18.3	18.3
11	Hyd radius	0.8	0.8
12	Top width	18.0	18.0
13	Velocity fps	5.18	4.00
14	Discharge cfs	77.77	60.02
15	vR	4.24	3.28
16	vR metric	0.39	0.30

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Ditch 8 - As Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	1.00	1.00
3	n assumed	0.0372	0.0482
4	n calc	0.0372	0.0482
5	channel slope	0.022	0.022
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	15.0	15.0
10	Wetd Perimeter	18.3	18.3
11	Hyd radius	0.8	0.8
12	Top width	18.0	18.0
13	Velocity fps	5.18	4.00
14	Discharge cfs	77.77	60.02
15	vR	4.24	3.28
16	vR metric	0.39	0.30

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Ditch 9 - As Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	2.00	2.00
3	n assumed	0.0276	0.0326
4	n calc	0.0276	0.0326
5	channel slope	0.040	0.040
6	bottom width	12	12
7	left sideslope	3	3
8	right sideslope	3	3
9	Area	36.0	36.0
10	Wetd Perimeter	24.6	24.6
11	Hyd radius	1.5	1.5
12	Top width	24.0	24.0
13	Velocity fps	13.86	11.74
14	Discharge cfs	499.01	422.48
15	vR	20.24	17.14
16	vR metric	1.88	1.59

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Outlet Ditch 1 - As Built

Open Channel Flow - Trapezoidal/Triangular Channel

	RETARDANCE	D	C
1	RETARDANCE	D	C
2	depth	2.20	2.20
3	n assumed	0.0293	0.0351
4	n calc	0.0293	0.0351
5	channel slope	0.013	0.013
6	bottom width	15	15
7	left sideslope	2	2
8	right sideslope	2	2
9	Area	42.7	42.7
10	Wetd Perimeter	24.8	24.8
11	Hyd radius	1.7	1.7
12	Top width	23.8	23.8
13	Velocity fps	8.30	6.92
14	Discharge cfs	354.06	295.55
15	vR	14.25	11.90
16	vR metric	1.32	1.11

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Terrace T1 - As Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	2.00	2.00
3	n assumed	0.0351	0.0445
4	n calc	0.0351	0.0445
5	channel slope	0.018	0.018
6	bottom width	0	0
7	left sideslope	3	3
8	right sideslope	10	10
9	Area	26.0	26.0
10	Wetd Perimeter	26.4	26.4
11	Hyd radius	1.0	1.0
12	Top width	26.0	26.0
13	Velocity fps	5.62	4.43
14	Discharge cfs	146.09	115.23
15	vR	5.53	4.36
16	vR metric	0.51	0.41

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Terrace T3 - As Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	2.00	2.00
3	n assumed	0.0326	0.0404
4	n calc	0.0326	0.0404
5	channel slope	0.032	0.032
6	bottom width	0	0
7	left sideslope	3	3
8	right sideslope	10	10
9	Area	26.0	26.0
10	Wetd Perimeter	26.4	26.4
11	Hyd radius	1.0	1.0
12	Top width	26.0	26.0
13	Velocity fps	8.07	6.51
14	Discharge cfs	209.73	169.24
15	vR	7.94	6.40
16	vR metric	0.74	0.60

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Terrace T4 - As Built

Open Channel Flow - Trapezoidal/Triangular Channel

	RETARDANCE	D	C
1	RETARDANCE	D	C
2	depth	2.00	2.00
3	n assumed	0.0337	0.0420
4	n calc	0.0337	0.0420
5	channel slope	0.025	0.025
6	bottom width	0	0
7	left sideslope	3	3
8	right sideslope	10	10
9	Area	26.0	26.0
10	Wetd Perimeter	26.4	26.4
11	Hyd radius	1.0	1.0
12	Top width	26.0	26.0
13	Velocity fps	6.90	5.53
14	Discharge cfs	179.33	143.89
15	vR	6.79	5.45
16	vR metric	0.63	0.51

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
Terrace T5 - As Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C
2	depth	2.00	2.00
3	n assumed	0.0346	0.0437
4	n calc	0.0346	0.0437
5	channel slope	0.020	0.020
6	bottom width	0	0
7	left sideslope	3	3
8	right sideslope	10	10
9	Area	26.0	26.0
10	Wetd Perimeter	26.4	26.4
11	Hyd radius	1.0	1.0
12	Top width	26.0	26.0
13	Velocity fps	6.01	4.76
14	Discharge cfs	156.22	123.69
15	vR	5.91	4.68
16	vR metric	0.55	0.43

Line 4 used only for vegetated channel.

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
North Berm As- Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	None	
2	depth	1.00	
3	n assumed	0.0110	
4	n calc	0.0110	Asphalt Road
5	channel slope	0.027	
6	bottom width	16	
7	left sideslope	3	
8	right sideslope	3	
9	Area	19.0	
10	Wetd Perimeter	22.3	
11	Hyd radius	0.9	
12	Top width	22.0	
13	Velocity fps	19.94	
14	Discharge cfs	378.77	
15	vR	16.97	
16	vR metric	1.58	

Project: Winnebago Reclamation Service By: DRF
Location: Rockford, Illinois
South Berm As- Built

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	*None*	
2	depth	1.00	
3	n assumed	0.0110	
4	n calc	0.0110	Asphalt Road
5	channel slope	0.006	
6	bottom width	16	
7	left sideslope	3	
8	right sideslope	3	
9	Area	19.0	
10	Wetd Perimeter	22.3	
11	Hyd radius	0.9	
12	Top width	22.0	
13	Velocity fps	9.40	
14	Discharge cfs	178.55	
15	vR	8.00	
16	vR metric	0.74	

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D1C			

Newly graded landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN Table 2-2	Area (ac)	Product of CN * Area
Clay Cap D	newly graded, no vegetation	94	5.0	470.0
Clay Cap D	Open space, poor condition Grass cover ~ 50%	87	5.0	433.3
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86		0.0
Use only one CN source per line		Totals	10.0	903.3

CN (weighted) = total product/total area CN = 91

	storm	
Frequency	25	yr
Rainfall, P (24-hour)	5.60	in
Runoff, Q	4.57	in

Vegetated landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN~ Table 2-2	Area acres	Product of CN * area
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86	10.0	858.3
Use only one CN source per line		Totals	10.0	858.3

CN (weighted) = total product/total area CN = 86

	storm	
Frequency	100	yr
Rainfall, P (24-hour)	7.36	in
Runoff, Q	5.71	in

Project:	Winnebago Reclamation Service	By:	#REF!	04-97
Location:	Rockford, Illinois	Checked:	#REF!	
	Ditch D1C			

1. Data:

Drainage area , Am	0.0156	mi^2
Time of concentration, Tc	0.000	hr
Rainfall distribution type (I, IA, II, III)	II	
Pond and swamp areas spread throughout watershed	0	%

2. Frequency	100	yr
3. Rainfall, P (24-hour)	7.36	in
4 Runoff curve number	86	
5. Initial abstraction, Ia	0.326	in
6. Compute Ia/P	0.044	
7. Unit peak discharge, Qu	1000	in/cms
8. Runoff, Q	5.71	in
9. Pond and swamp adjustment factor, Fp (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)	1	
10. Peak discharge, Qp (Where Qp = QuAmQFp)	89.08	cfs

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D3			

Newly graded landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN Table 2-2	Area (ac)	Product of CN * Area
Clay Cap D	newly graded, no vegetation	94	3.4	319.6
Clay Cap D	Open space, poor condition Grass cover ~ 50%	87	0.0	0.0
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	78	0.0	0.0
Use only one CN source per line		Totals	3.4	319.6

CN (weighted) = total product/total area CN = 94

	storm	
Frequency	25	yr
Rainfall, P (24-hour)	5.60	in
Runoff, Q	4.90	in

Vegetated landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN~ Table 2-2	Area acres	Product of CN * area
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	78	3.4	265.2
Use only one CN source per line		Totals	3.4	265.2

CN (weighted) = total product/total area CN = 78

	storm	
Frequency	100	yr
Rainfall, P (24-hour)	7.36	in
Runoff, Q	4.80	in

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D3			

Notes : Space for as many as two segments per flow type can be used for each worksheet

SHEET FLOW (Applicable to Tc only)	Segment ID				
1. Surface Description (table 3-1)		grass			
2. Manning's roughness coeff., n (table 3-1)		0.20			
3. Flow length, L (total L <= 50 ft)	ft	50.0			
4. Two-yr 24-hr rainfall, P2	in	3.11			
5. Land slope, s	ft/ft	0.40			
6. Tt = (0.007*(nL)^0.8)/((P2^0.5)*(s^0.4)) Compute Tt	hr	0.036		=	0.036

SHALLOW CONCENTRATED FLOW	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L	ft	284.0			
9. Watercourse slope, s	ft/ft	0.40			
10. Average velocity, V (figure 3-1)	ft/s	10.20			
11. Tt = L / (3600 * V) Compute Tt	hr	0.008		=	0.008

CHANNEL FLOW	Segment ID	D3			
12. Cross sectional flow area, a	ft^2	18.98			
13. Wetted perimeter, pw	ft	17.81			
14. Hydraulic radius, r = a/Pw Compute r	ft	1.07			
15. Channel slope, s	ft/ft	0.015			
16. Manning's roughness coeff., n		0.035			
17. V = (1.49 * (r^(2/3)) * (s^0.5))/n Compute V	ft/s	5.49			
18. Flow length, L	ft	415.0			
19. Tt = L / (3600 * V) Compute Tt	hr	0.021		=	0.021

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.065

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D3			

1. Data:

Drainage area , Am	0.0053	mi^2
Time of concentration, Tc	0.065	hr
Rainfall distribution type (I, IA, II, III)	II	
Pond and swamp areas spread throughout watershed	0	%
2. Frequency	25	yr
3. Rainfall, P (24-hour)	5.60	in
4 Runoff curve number	94	
5. Initial abstraction, Ia	0.128	in
6. Compute Ia/P	0.023	
7. Unit peak discharge, Qu	1000	in/cms
8. Runoff, Q	4.90	in
9. Pond and swamp adjustment factor, Fp (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)	1	
10. Peak discharge, Qp (Where Qp = QuAmQFp)	26.04	cfs

Project:	Winnebago Reclamation Service	By:	DRF 04-97
Location:	Rockford, Illinois	Checked:	
	Ditch D3		

Open Channel Flow - Trapezoidal/Triangular Channel

	RETARDANCE	D	C
1	RETARDANCE	D	C
2	depth	1.30	1.30
3	n assumed	0.0347	0.0439
4	n calc	0.0347	0.0439
5	channel slope	0.015	0.015
6	bottom width	12	12
7	left sideslope	2	2
8	right sideslope	2	2
9	Area	19.0	19.0
10	Wetd Perimeter	17.8	17.8
11	Hyd radius	1.1	1.1
12	Top width	17.2	17.2
13	Velocity fps	5.47	4.32
14	Discharge cfs	103.85	82.08
15	vR	5.83	4.61
16	vR metric	0.54	0.43
17	minimum discharge (cfs)=		26.04

Line 4 used only for vegetated channel.

Line 14 must be greater than or equal to minimum discharge.

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D5			

Newly graded landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN Table 2-2	Area (ac)	Product of CN * Area
Clay Cap D	newly graded, no vegetation	94	5.0	470.0
Clay Cap D	Open space, poor condition Grass cover ~ 50%	87	1.7	147.9
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86	0.0	0.0
Use only one CN source per line		Totals	6.7	617.9

CN (weighted) = total product/total area CN = 93

	storm	
Frequency	25	yr
Rainfall, P (24-hour)	5.60	in
Runoff, Q	4.79	in

Vegetated landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN~ Table 2-2	Area acres	Product of CN * area
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86	6.7	576.2
Use only one CN source per line		Totals	6.7	576.2

CN (weighted) = total product/total area CN = 86

	storm	
Frequency	100	yr
Rainfall, P (24-hour)	7.36	in
Runoff, Q	5.71	in

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D5			

Notes : Space for as many as two segments per flow type can be used for each worksheet

SHEET FLOW (Applicable to Tc only)	Segment ID				
1. Surface Description (table 3-1)		grass			
2. Manning's roughness coeff., n (table 3-1)		0.20			
3. Flow length, L (total L <= 50 ft)	ft	50.0			
4. Two-yr 24-hr rainfall, P2	in	3.11			
5. Land slope, s	ft/ft	0.40			
6. Tt = (0.007*(nL)^0.8)/((P2^0.5)*(s^0.4)) Compute Tt	hr	0.036		=	0.036

SHALLOW CONCENTRATED FLOW	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L	ft	270.0			
9. Watercourse slope, s	ft/ft	0.40			
10. Average velocity, V (figure 3-1)	ft/s	10.20			
11. Tt = L / (3600 * V) Compute Tt	hr	0.007		=	0.007

CHANNEL FLOW	Segment ID	D5			
12. Cross sectional flow area, a	ft^2	36.08			
13. Wetted perimeter, pw	ft	21.84			
14. Hydraulic radius, r = a/Pw Compute r	ft	1.65			
15. Channel slope, s	ft/ft	0.010			
16. Manning's roughness coeff., n		0.031			
17. V = (1.49 * (r^(2/3)) * (s^0.5))/n Compute V	ft/s	6.83			
18. Flow length, L	ft	487.0			
19. Tt = L / (3600 * V) Compute Tt	hr	0.020		=	0.020

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19)	hr	0.063

Project:	Winnebago Reclamation Service	By:	DRF 04-97
Location:	Rockford, Illinois	Checked:	
	Ditch D5		

1. Data:

Drainage area , Am	0.0105	mi^2
Time of concentration, Tc	0.063	hr
Rainfall distribution type (I, IA, II, III)	II	
Pond and swamp areas spread throughout watershed	0	%
2. Frequency	100	yr
3. Rainfall, P (24-hour)	7.36	in
4 Runoff curve number	86	
5. Initial abstraction, Ia	0.326	in
6. Compute Ia/P	0.044	
7. Unit peak discharge, Qu	1000	in/cms
8. Runoff, Q	5.71	in
9. Pond and swamp adjustment factor, Fp (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)	1	
10. Peak discharge, Qp (Where Qp = QuAmQFp)	59.80	cfs

Project:	Winnebago Reclamation Service	By:	DRF 04-97
Location:	Rockford, Illinois	Checked:	
	Ditch D5		

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C	
2	depth	2.20	2.20	
3	n assumed	0.0305	0.0371	
4	n calc	0.0305	0.0371	Line 4 used only for vegetated
5	channel slope	0.010	0.010	channel.
6	bottom width	12	12	
7	left sideslope	2	2	
8	right sideslope	2	2	
9	Area	36.1	36.1	
10	Wetd Perimeter	21.8	21.8	
11	Hyd radius	1.7	1.7	
12	Top width	20.8	20.8	
13	Velocity fps	6.81	5.60	
14	Discharge cfs	245.67	201.96	Line 14 must be greater than or
15	vR	11.25	9.25	equal to minimum discharge.
16	vR metric	1.05	0.86	
17	minimum discharge (cfs)=		59.80	

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D8			

Newly graded landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN Table 2-2	Area (ac)	Product of CN * Area
Clay Cap D	newly graded, no vegetation	94	4.2	394.8
Clay Cap D	Open space, poor condition Grass cover ~ 50%	87	0.0	0.0
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86	0.0	0.0
Use only one CN source per line		Totals	4.2	394.8

CN (weighted) = total product/total area CN = 94

	storm	
Frequency	25	yr
Rainfall, P (24-hour)	5.60	in
Runoff, Q	4.90	in

Vegetated landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN~ Table 2-2	Area acres	Product of CN * area
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86	4.2	361.2
Use only one CN source per line		Totals	4.2	361.2

CN (weighted) = total product/total area CN = 86

	storm	
Frequency	100	yr
Rainfall, P (24-hour)	7.36	in
Runoff, Q	5.71	in

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D8			

Notes : Space for as many as two segments per flow type can be used for each worksheet

SHEET FLOW (Applicable to Tc only)	Segment ID				
1. Surface Description (table 3-1)		grass			
2. Manning's roughness coeff., n (table 3-1)		0.20			
3. Flow length, L (total L <= 50 ft)	ft	50.0			
4. Two-yr 24-hr rainfall, P2	in	3.11			
5. Land slope, s	ft/ft	0.40			
6. Tt = (0.007*(nL)^0.8)/((P2^0.5)*(s^0.4)) Compute Tt	hr	0.036		=	0.036

SHALLOW CONCENTRATED FLOW	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L	ft	264.0			
9. Watercourse slope, s	ft/ft	0.40			
10. Average velocity, V (figure 3-1)	ft/s	1.61			
11. Tt = L / (3600 * V) Compute Tt	hr	0.046		=	0.046

CHANNEL FLOW	Segment ID	D8			
12. Cross sectional flow area, a	ft^2	17.28			
13. Wetted perimeter, pw	ft	17.37			
14. Hydraulic radius, r = a/Pw Compute r	ft	1.00			
15. Channel slope, s	ft/ft	0.015			
16. Manning's roughness coeff., n		0.036			
17. V = (1.49 * (r^(2/3)) * (s^0.5))/n Compute V	ft/s	5.08			
18. Flow length, L	ft	300.0			
19. Tt = L / (3600 * V) Compute Tt	hr	0.016		=	0.016

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr **0.098**

Project:	Winnebago Reclamation Service	By:	DRF 04-97
Location:	Rockford, Illinois	Checked:	
	Ditch D8		

1. Data:

Drainage area , Am	0.0066	mi^2
Time of concentration, Tc	0.098	hr
Rainfall distribution type (I, IA, II, III)	II	
Pond and swamp areas spread throughout watershed	0	%

2. Frequency	100	yr
3. Rainfall, P (24-hour)	7.36	in
4 Runoff curve number	86	
5. Initial abstraction, Ia	0.326	in
6. Compute Ia/P	0.044	
7. Unit peak discharge, Qu	1000	in/cms
8. Runoff, Q	5.71	in
9. Pond and swamp adjustment factor, Fp (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)	1	
10. Peak discharge, Qp (Where Qp = QuAmQFp)	37.49	cfs

Project:	Winnebago Reclamation Service	By:	DRF 04-97
Location:	Rockford, Illinois	Checked:	
	Ditch D8		

Open Channel Flow - Trapezoidal/Triangular Channel

1	RETARDANCE	D	C	
2	depth	1.20	1.20	
3	n assumed	0.0358	0.0457	
4	n calc	0.0358	0.0457	Line 4 used only for vegetated
5	channel slope	0.015	0.015	channel.
6	bottom width	12	12	
7	left sideslope	2	2	
8	right sideslope	2	2	
9	Area	17.3	17.3	
10	Wetd Perimeter	17.4	17.4	
11	Hyd radius	1.0	1.0	
12	Top width	16.8	16.8	
13	Velocity fps	5.07	3.97	
14	Discharge cfs	87.55	68.59	Line 14 must be greater than or
15	vR	5.04	3.95	equal to minimum discharge.
16	vR metric	0.47	0.37	
17	minimum discharge (cfs)=		37.49	

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois	Checked:		
	Ditch D9			

Newly graded landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN Table 2-2	Area (ac)	Product of CN * Area
Clay Cap D	newly graded, no vegetation	94	5.0	470.0
Clay Cap D	Open space, poor condition Grass cover ~ 50%	87	2.6	226.2
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86	0.0	0.0
Use only one CN source per line		Totals	7.6	696.2

CN (weighted) = total product/total area CN = 92

	storm	
Frequency	25	yr
Rainfall, P (24-hour)	5.60	in
Runoff, Q	4.68	in

Vegetated landfill

Soil name and hydrologic group	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN~ Table 2-2	Area acres	Product of CN * area
Vegetative Soil D	Open space, good condition Grass cover ~ 75%	86	7.6	653.6
Use only one CN source per line		Totals	7.6	653.6

CN (weighted) = total product/total area CN = 86

	storm	
Frequency	100	yr
Rainfall, P (24-hour)	7.36	in
Runoff, Q	5.71	in

Project:	Winnebago Reclamation Service	By:	DRF	04-97
Location:	Rockford, Illinois Ditch D9	Checked:		

Notes : Space for as many as two segments per flow type can be used for each worksheet

SHEET FLOW (Applicable to Tc only)	Segment ID				
1. Surface Description (table 3-1)		grass			
2. Manning's roughness coeff., n (table 3-1)		0.20			
3. Flow length, L (total L <= 50 ft)	ft	50.0			
4. Two-yr 24-hr rainfall, P2	in	3.11			
5. Land slope, s	ft/ft	0.40			
6. Tt = (0.007*(nL)^0.8)/((P2^0.5)*(s^0.4)) Compute Tt	hr	0.036		=	0.036

SHALLOW CONCENTRATED FLOW	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L	ft	264.0			
9. Watercourse slope, s	ft/ft	0.40			
10. Average velocity, V (figure 3-1)	ft/s	1.61			
11. Tt = L / (3600 * V) Compute Tt	hr	0.046		=	0.046

CHANNEL FLOW	Segment ID	D8	D9		
12. Cross sectional flow area, a	ft^2	17.28	14.00		
13. Wetted perimeter, pw	ft	17.37	16.47		
14. Hydraulic radius, r = a/Pw Compute r	ft	1.00	0.85		
15. Channel slope, s	ft/ft	0.015	0.03		
16. Manning's roughness coeff., n		0.036	0.03		
17. V = (1.49 * (r^(2/3)) * (s^0.5))/n Compute V	ft/s	5.08	6.89		
18. Flow length, L	ft	300.0	385.00		
19. Tt = L / (3600 * V) Compute Tt	hr	0.016	0.016	=	0.032

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19)	hr	0.114

Project:	Winnebago Reclamation Service	By:	DRF 04-97
Location:	Rockford, Illinois	Checked:	
	Ditch D9		

1. Data:

Drainage area , Am	0.0119	mi^2
Time of concentration, Tc	0.114	hr
Rainfall distribution type (I, IA, II, III)	II	
Pond and swamp areas spread throughout watershed	0	%

2. Frequency	100	yr
3. Rainfall, P (24-hour)	7.36	in
4 Runoff curve number	86	
5. Initial abstraction, Ia	0.326	in
6. Compute Ia/P	0.044	
7. Unit peak discharge, Qu	1000	in/cms
8. Runoff, Q	5.71	in
9. Pond and swamp adjustment factor, Fp (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)	1	
10. Peak discharge, Qp (Where Qp = QuAmQFp)	67.84	cfs

Project:	Winnebago Reclamation Service	By:	DRF 04-97
Location:	Rockford, Illinois	Checked:	
	Ditch D9		

Open Channel Flow - Trapezoidal/Triangular Channel

	RETARDANCE	D	C
1	RETARDANCE	D	C
2	depth	1.00	1.00
3	n assumed	0.0347	0.0439
4	n calc	0.0347	0.0439
5	channel slope	0.032	0.032
6	bottom width	12	12
7	left sideslope	2	2
8	right sideslope	2	2
9	Area	14.0	14.0
10	Wetd Perimeter	16.5	16.5
11	Hyd radius	0.8	0.8
12	Top width	16.0	16.0
13	Velocity fps	6.87	5.43
14	Discharge cfs	96.23	76.06
15	vR	5.84	4.62
16	vR metric	0.54	0.43
17	minimum discharge (cfs)=		67.84

Line 4 used only for vegetated channel.

Line 14 must be greater than or equal to minimum discharge.

Sub- Appendix I.2

Pipe Drop Inlet Drainage Structure Calculations

PIPE DROP INLET SPILLWAY DISCHARGE

Pagel Landfill PDI #1

RISER: El. Crest = 746.68 ft. ; Diameter = 36 in.

BARREL: El. Inlet Invert = 738.73 ft.
El. Outlet Invert = 734.99 ft.
Diameter = 36 in. ; Length = 60 ft.
Manning n = 0.012 C.M.P., n = 0.021 to 0.026
Concrete, n = 0.012 to 0.018

OUTLET CHANNEL : El. Channel Flow Surface = 734 ft.

STAGE ft.	WEIR FLOW	RISER ORIFICE	BARREL ORIFICE	PIPE FLOW	Q cfs
0.00	0.00	0.00	172.88	130.46	0.00
0.05	0.33	7.61	173.55	130.79	0.33
0.10	0.92	10.76	174.21	131.12	0.92
0.15	1.70	13.18	174.88	131.45	1.70
0.20	2.61	15.22	175.54	131.77	2.61
0.25	3.65	17.02	176.20	132.10	3.65
0.30	4.80	18.64	176.85	132.43	4.80
0.35	6.05	20.14	177.51	132.75	6.05
0.40	7.39	21.53	178.16	133.07	7.39
0.45	8.82	22.83	178.81	133.40	8.82
0.50	10.33	24.07	179.45	133.72	10.33
0.55	11.92	25.24	180.10	134.04	11.92
0.60	13.58	26.36	180.74	134.36	13.58
0.65	15.31	27.44	181.38	134.68	15.31
0.70	17.11	28.48	182.02	135.00	17.11
0.75	18.98	29.48	182.65	135.32	18.98
0.80	20.91	30.44	183.28	135.64	20.91
0.85	22.90	31.38	183.92	135.95	22.90
0.90	24.95	32.29	184.54	136.27	24.95
0.95	27.05	33.17	185.17	136.58	27.05
1.00	29.22	34.04	185.80	136.90	29.22
1.05	31.44	34.88	186.42	137.21	31.44
1.1	33.71	35.70	187.04	137.53	33.71
1.15	36.03	36.50	187.66	137.84	36.03
1.2	38.41	37.28	188.27	138.15	37.28
1.25	40.83	38.05	188.89	138.46	38.05
1.3	43.31	38.81	189.50	138.77	38.81
1.35	45.83	39.55	190.11	139.08	39.55
1.4	48.40	40.27	190.72	139.39	40.27
1.45	51.01	40.98	191.32	139.70	40.98

1.5	53.67	41.68	191.93	140.01	41.68
1.55	56.38	42.37	192.53	140.31	42.37
1.6	59.13	43.05	193.13	140.62	43.05
1.65	61.92	43.72	193.73	140.92	43.72
1.7	64.76	44.38	194.33	141.23	44.38
1.75	67.64	45.02	194.92	141.53	45.02
1.8	70.56	45.66	195.52	141.84	45.66
1.85	73.52	46.29	196.11	142.14	46.29
1.9	76.52	46.91	196.70	142.44	46.91
1.95	79.56	47.53	197.29	142.74	47.53
2.6	122.49	54.88	204.78	146.61	54.88

PIPE DROP INLET SPILLWAY DISCHARGE

Pagel Landfill PDI #2

RISER: El. Crest = 742.62 ft. ; Diameter = 36 in.

BARREL: El. Inlet Invert = 734.84 ft.
El. Outlet Invert = 727.81 ft.
Diameter = 36 in. ; Length = 65 ft.
Manning n = 0.012 C.M.P., n = 0.021 to 0.026
Concrete, n = 0.012 to 0.018

OUTLET CHANNEL : El. Channel Flow Surface = 727 ft.

STAGE ft.	WEIR FLOW	RISER ORIFICE	BARREL ORIFICE	PIPE FLOW	Q cfs
0.00	0.00	0.00	170.58	148.41	0.00
0.05	0.33	7.61	171.26	148.70	0.33
0.10	0.92	10.76	171.94	148.98	0.92
0.15	1.70	13.18	172.61	149.27	1.70
0.20	2.61	15.22	173.28	149.55	2.61
0.25	3.65	17.02	173.95	149.83	3.65
0.30	4.80	18.64	174.61	150.11	4.80
0.35	6.05	20.14	175.27	150.40	6.05
0.40	7.39	21.53	175.93	150.68	7.39
0.45	8.82	22.83	176.59	150.96	8.82
0.50	10.33	24.07	177.24	151.24	10.33
0.55	11.92	25.24	177.90	151.52	11.92
0.60	13.58	26.36	178.55	151.80	13.58
0.65	15.31	27.44	179.19	152.08	15.31
0.70	17.11	28.48	179.84	152.35	17.11
0.75	18.98	29.48	180.48	152.63	18.98
0.80	20.91	30.44	181.12	152.91	20.91
0.85	22.90	31.38	181.76	153.18	22.90
0.90	24.95	32.29	182.40	153.46	24.95
0.95	27.05	33.17	183.03	153.74	27.05
1.00	29.22	34.04	183.66	154.01	29.22
1.05	31.44	34.88	184.29	154.29	31.44
1.1	33.71	35.70	184.92	154.56	33.71
1.15	36.03	36.50	185.55	154.83	36.03
1.2	38.41	37.28	186.17	155.11	37.28
1.25	40.83	38.05	186.79	155.38	38.05
1.3	43.31	38.81	187.41	155.65	38.81
1.35	45.83	39.55	188.03	155.92	39.55
1.4	48.40	40.27	188.64	156.19	40.27
1.45	51.01	40.98	189.25	156.47	40.98

1.5	53.67	41.68	189.87	156.74	41.68
1.55	56.38	42.37	190.47	157.01	42.37
1.6	59.13	43.05	191.08	157.27	43.05
1.65	61.92	43.72	191.69	157.54	43.72
1.7	64.76	44.38	192.29	157.81	44.38
1.75	67.64	45.02	192.89	158.08	45.02
1.8	70.56	45.66	193.49	158.35	45.66
1.85	73.52	46.29	194.09	158.61	46.29
1.9	76.52	46.91	194.69	158.88	46.91
1.95	79.56	47.53	195.28	159.15	47.53
2.6	122.49	54.88	202.84	162.57	54.88

PIPE DROP INLET SPILLWAY DISCHARGE

Pagel Landfill PDI #3

RISER: El. Crest = 751.78 ft. ; Diameter = 36 in.

BARREL: El. Inlet Invert = 742.96 ft.
El. Outlet Invert = 717.9 ft.
Diameter = 36 in. ; Length = 30 ft.
Manning n = 0.012 C.M.P., n = 0.021 to 0.026
Concrete, n = 0.012 to 0.018

OUTLET CHANNEL : El. Channel Flow Surface = 717 ft.

STAGE ft.	WEIR FLOW	RISER ORIFICE	BARREL ORIFICE	PIPE FLOW	Q cfs
0.00	0.00	0.00	184.17	247.52	0.00
0.05	0.33	7.61	184.80	247.71	0.33
0.10	0.92	10.76	185.42	247.90	0.92
0.15	1.70	13.18	186.04	248.10	1.70
0.20	2.61	15.22	186.67	248.29	2.61
0.25	3.65	17.02	187.29	248.48	3.65
0.30	4.80	18.64	187.90	248.67	4.80
0.35	6.05	20.14	188.52	248.87	6.05
0.40	7.39	21.53	189.13	249.06	7.39
0.45	8.82	22.83	189.74	249.25	8.82
0.50	10.33	24.07	190.35	249.44	10.33
0.55	11.92	25.24	190.96	249.63	11.92
0.60	13.58	26.36	191.57	249.82	13.58
0.65	15.31	27.44	192.17	250.01	15.31
0.70	17.11	28.48	192.77	250.20	17.11
0.75	18.98	29.48	193.37	250.40	18.98
0.80	20.91	30.44	193.97	250.59	20.91
0.85	22.90	31.38	194.57	250.78	22.90
0.90	24.95	32.29	195.16	250.97	24.95
0.95	27.05	33.17	195.75	251.16	27.05
1.00	29.22	34.04	196.34	251.35	29.22
1.05	31.44	34.88	196.93	251.54	31.44
1.1	33.71	35.70	197.52	251.73	33.71
1.15	36.03	36.50	198.11	251.92	36.03
1.2	38.41	37.28	198.69	252.11	37.28
1.25	40.83	38.05	199.27	252.30	38.05
1.3	43.31	38.81	199.85	252.48	38.81
1.35	45.83	39.55	200.43	252.67	39.55
1.4	48.40	40.27	201.01	252.86	40.27

APPENDIX J

APPENDIX J

REDUCED COPY OF CONSTRUTION CETIFICATION DRAWINGS

Sub-Appendices (Drawing List)

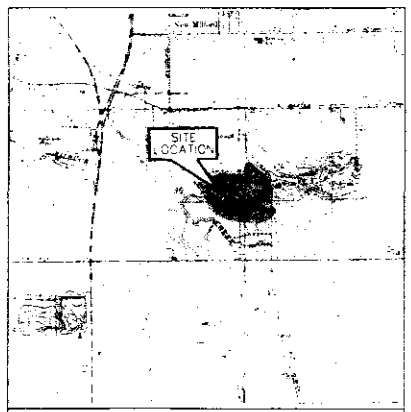
Drawing 0	Title Page
Drawing 1	General Site Features
Drawing 2	As Constructed Final Cover Topography and Drainage Plan
Drawing 3	Final Cover Thickness Grid
Drawing 4	Flexible Membrane Liner Panel Layout
Drawing 5	East - West Cross Section
Drawing 6	North - South Cross Section
Drawing 7	As Constructed Dual Leachate and Gas Collection System
Drawing 8	Final Cover System / Dual Leachate and Gas Collection System Details
Drawing 9	Dual Leachate and Gas Collection System Details II
Drawing 10	Stormwater Drainage Details
Drawing 11	Closure Certification Plat

AS-BUILT RECORD DRAWINGS
FINAL COVER CONSTRUCTION PLANS, WESTERN PORTION

PAGEL LANDFILL

ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

PREPARED FOR:
WINNEBAGO RECLAMATION SERVICE, INC.
ROCKFORD, IL 61109



LOCATION MAP

SOURCE: ROCKFORD SOUTH 7.5 MINUTE QUADRANGLE
SCALE: 1" = 2000'

FEBRUARY, 1998

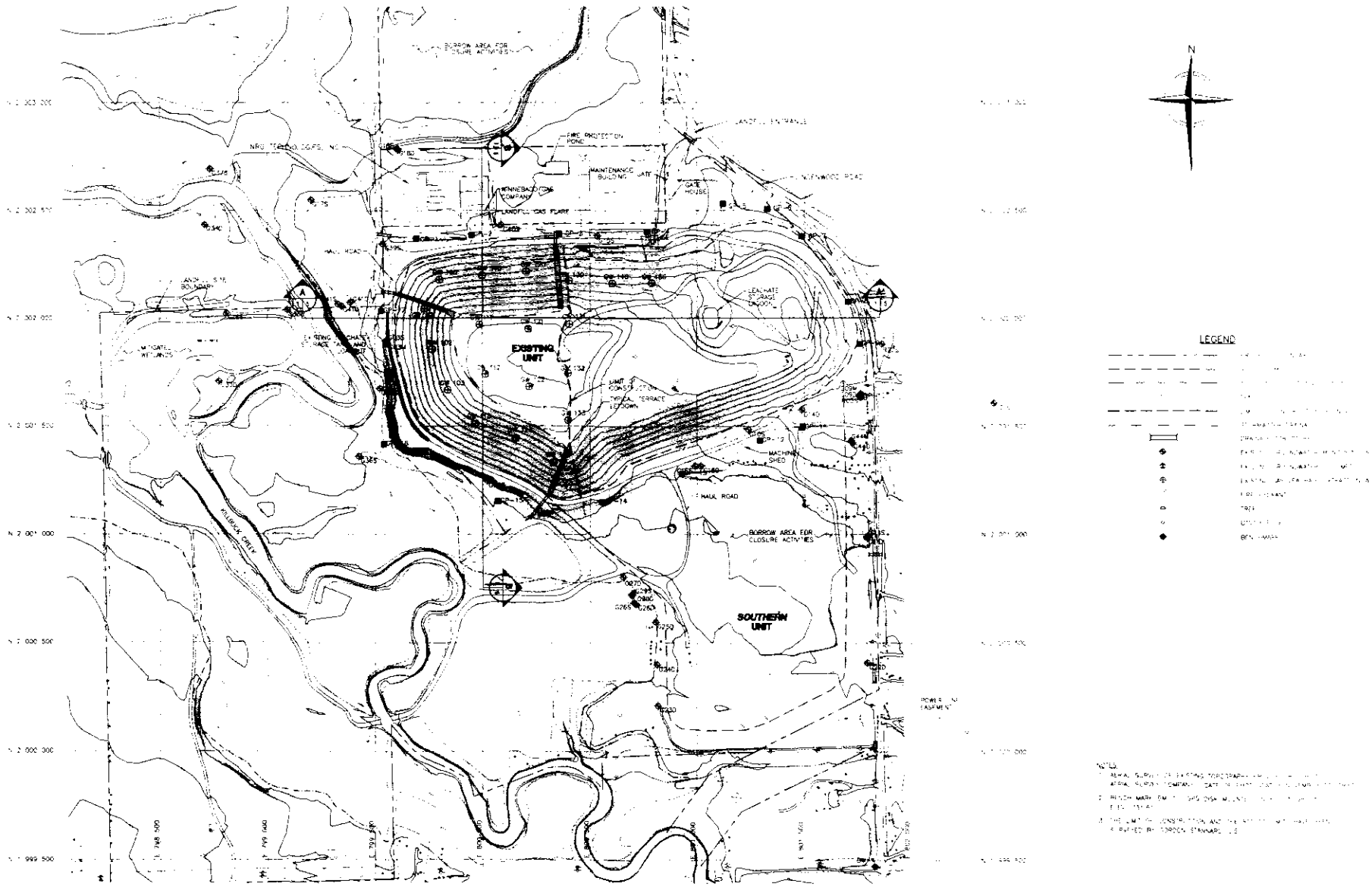
emcon

603 EAST DIEHL ROAD
SUITE 123
NAPERVILLE, ILLINOIS 60563
Tel: (630)505-9450
Fax: (630)505-9454

1414 SOUTH FIFTH STREET
SUITE 203
SPRINGFIELD, ILLINOIS 62703
Tel: (217)492-9450
Fax: (217)492-9453

INDEX OF DRAWINGS

1	GENERAL SITE FEATURES
2	AS CONSTRUCTED FINAL COVER TOPOGRAPHY AND DRAINAGE PLAN
3	FINAL COVER THICKNESS GRID
4	FLEXIBLE MEMBRANE LINER PANEL LAYOUT
5	EAST WEST CROSS SECTION
6	NORTH SOUTH CROSS SECTION
7	AS CONSTRUCTED DUAL LEACHATE AND GAS COLLECTION SYSTEM
8	FINAL COVER SYSTEM/ DUAL LEACHATE AND GAS COLLECTION SYSTEM DETAILS
9	DUAL LEACHATE AND GAS COLLECTION SYSTEM DETAILS
10	STORMWATER DRAINAGE DETAILS
11	CLOSURE CERTIFICATION PLAT



AS-BUILT RECORD DRAWINGS

SCALE IN FEET

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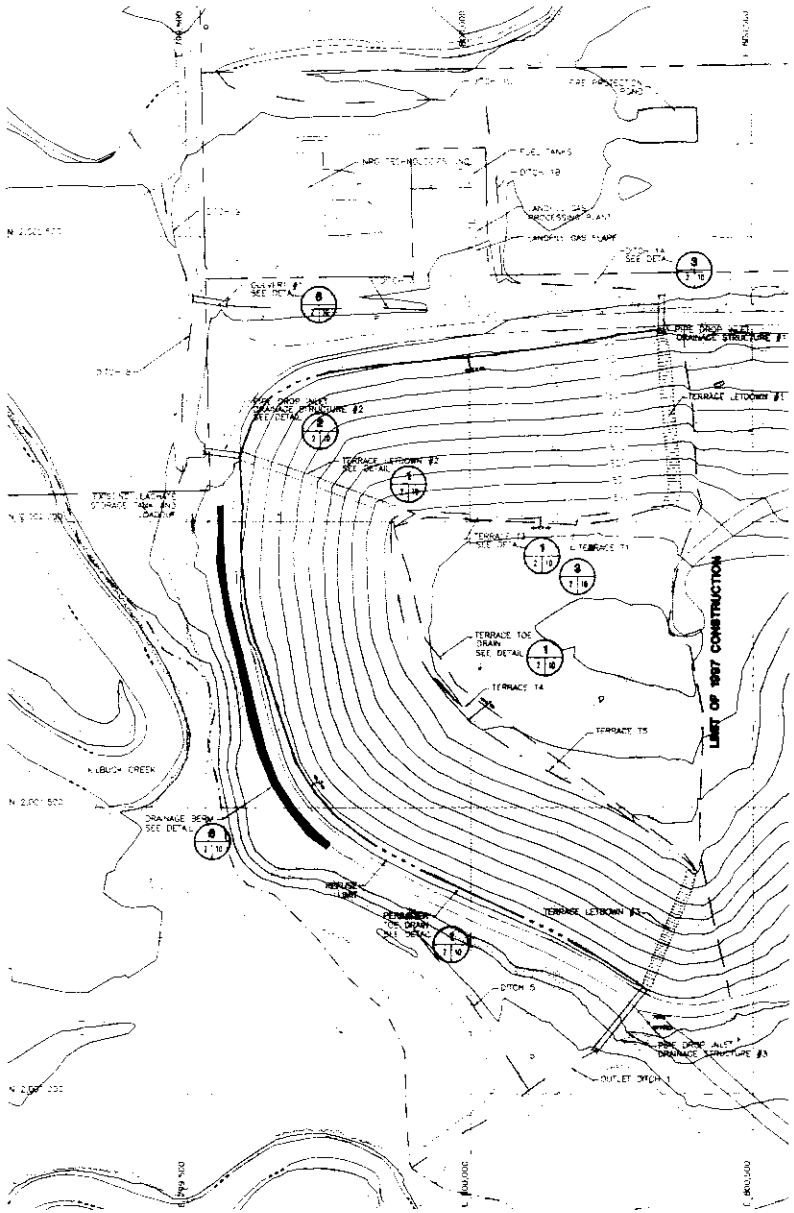
FINAL COVER CONSTRUCTION
WESTERN PORTION - HALF LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

GENERAL SITE FEATURES

1



LEGEND

- PROPERTY BOUNDARY
- RETAINING WALL
- TOE OF SLOPE
- FENCE
- LIMIT OF CONSTRUCTION
- STORMWATER DRAINAGE
- DRAINAGE DIRECTION
- EXISTING TRAFFIC SIGNAL
- EXISTING GAS LEACHATE WELL
- PROPOSED GAS LEACHATE WELL
- FIRE HYDRANT
- TREE
- UTILITY POLE
- BENCHMARK

NOTES:

1. AERIAL SURVEY OF EXISTING TOPOGRAPHY PERFORMED BY [illegible]. AERIAL SURVEY COMPANY: [illegible]. DATE OF PHOTOGRAPHY: [illegible].
2. ALL DRAINAGE STRUCTURES HAVE BEEN SURVEYED BY [illegible] STANDARDS.
3. ALL DRAINAGE STRUCTURES HAVE BEEN CONSTRUCTED TO CONVEY THE 25 YEAR, 24 HR STORM, AND PASS THE 100 YEAR, 24 HR FLOW.
4. THIS DRAWING REPRESENTS THE DRAINAGE FEATURES OF THE WESTERN PORTION OF THE EXISTING PAGE LANDFILL. [illegible] DETAILS ARE SHOWN.

AS-BUILT RECORD DRAWINGS

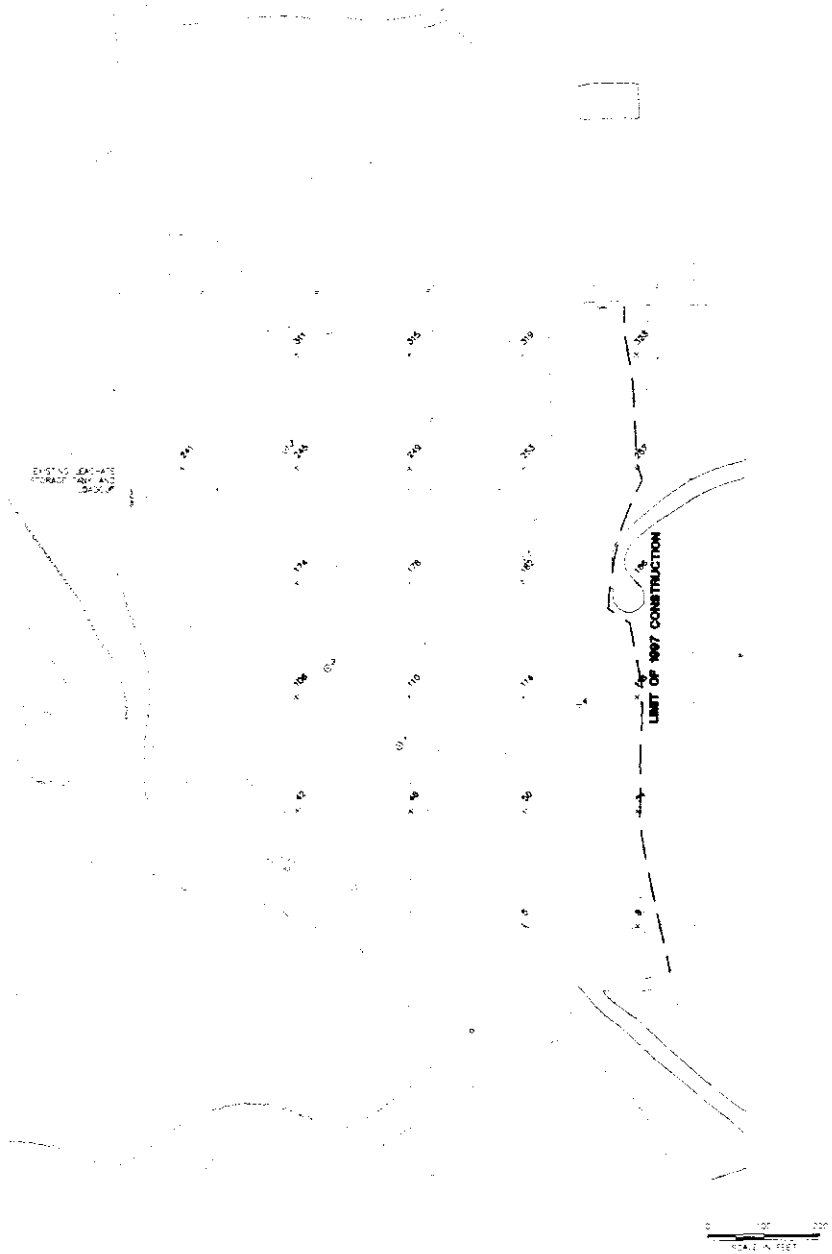
REV.	DATE	DESCRIPTION	DRAWN BY	DESIGN BY	CHK BY	APP'D BY

EMCON

FINAL COVER CONSTRUCTION
WESTERN PORTION - PAGE LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

AS CONSTRUCTED FINAL TOPOGRAPHY AND DRAINAGE PLAN

2



AS-BUILT ELEVATIONS

POINT NUMBER	NORTHING	EASTING	DEPTH OF CLAY (FEET)	DEPTH OF DRAINAGE LAYER (FEET)	DEPTH OF PROTECTIVE SOIL (FEET)	DEPTH OF TOPSOIL (FEET)	TOTAL LAND FILL COVER THICKNESS (FEET)	TOP OF FINAL COVER ELEVATION (FEET MSL)
5	200125[illegible]	820[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
9	200125[illegible]	820[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
42	200145[illegible]	799[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
46	200145[illegible]	820[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
50	200145[illegible]	820230.00	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
54	200145[illegible]	820[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
106	200165[illegible]	799[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
110	200165[illegible]	80[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
114	200165[illegible]	80[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
118	200165[illegible]	801[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
174	200185[illegible]	799[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
178	200185[illegible]	80[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
182	200185[illegible]	80[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
186	200185[illegible]	801[illegible]	[illegible]	GEONET	NA	NA	NA	[illegible]
241	200205[illegible]	799[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
245	200205[illegible]	799[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
249	200205[illegible]	80[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
253	200225[illegible]	80[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
257	200225[illegible]	80[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
311	200275[illegible]	799[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
315	200275[illegible]	820[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
319	200275[illegible]	8[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]
323	200275[illegible]	8[illegible]	[illegible]	GEONET	[illegible]	[illegible]	[illegible]	[illegible]

LEGEND

EXPLANATION

NOTES

AS-BUILT RECORD DRAWINGS

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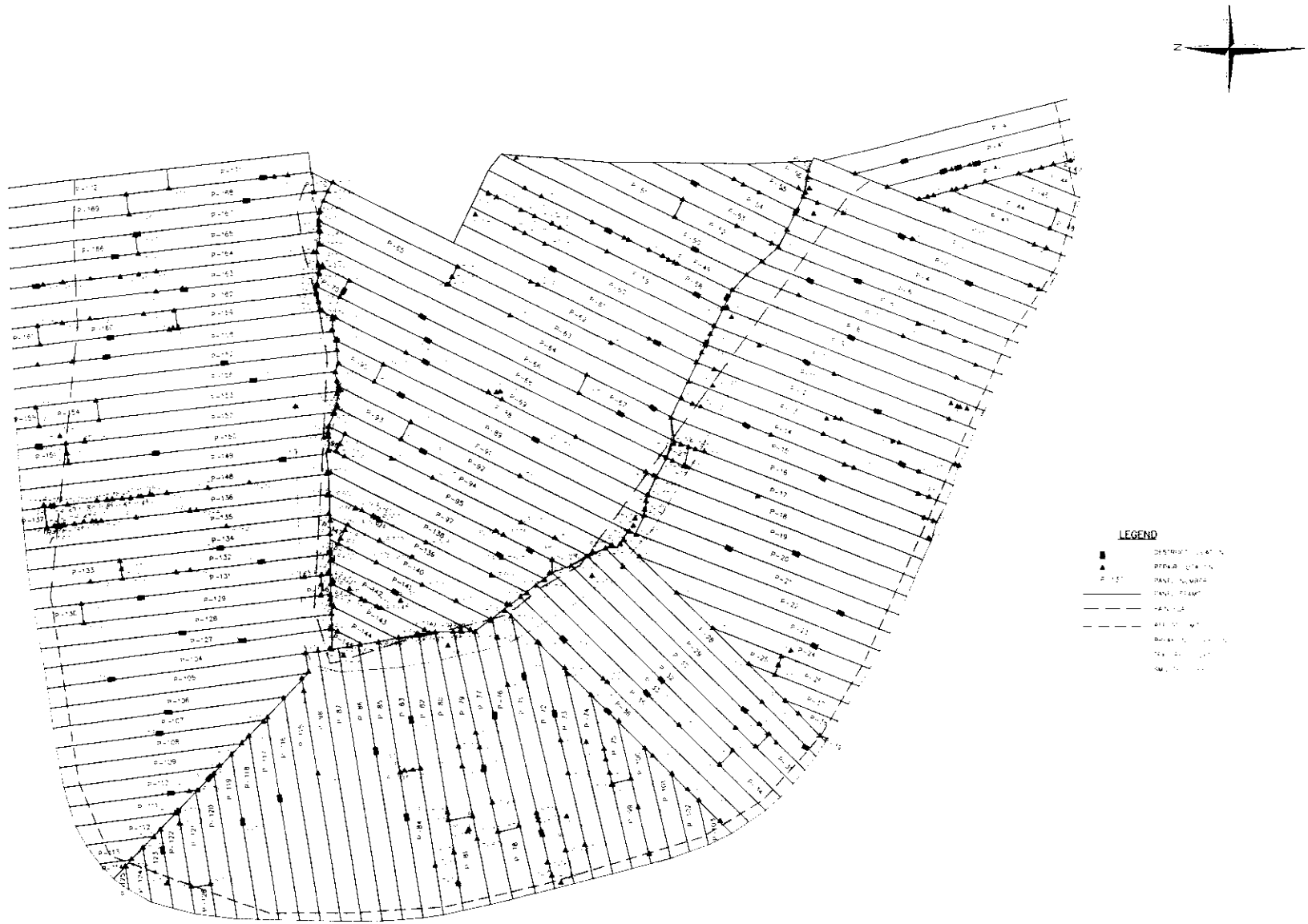
FINAL COVER CONSTRUCTION
WESTERN PORTION - PHASE I AREA
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

FINAL COVER THICKNESS GRID

3



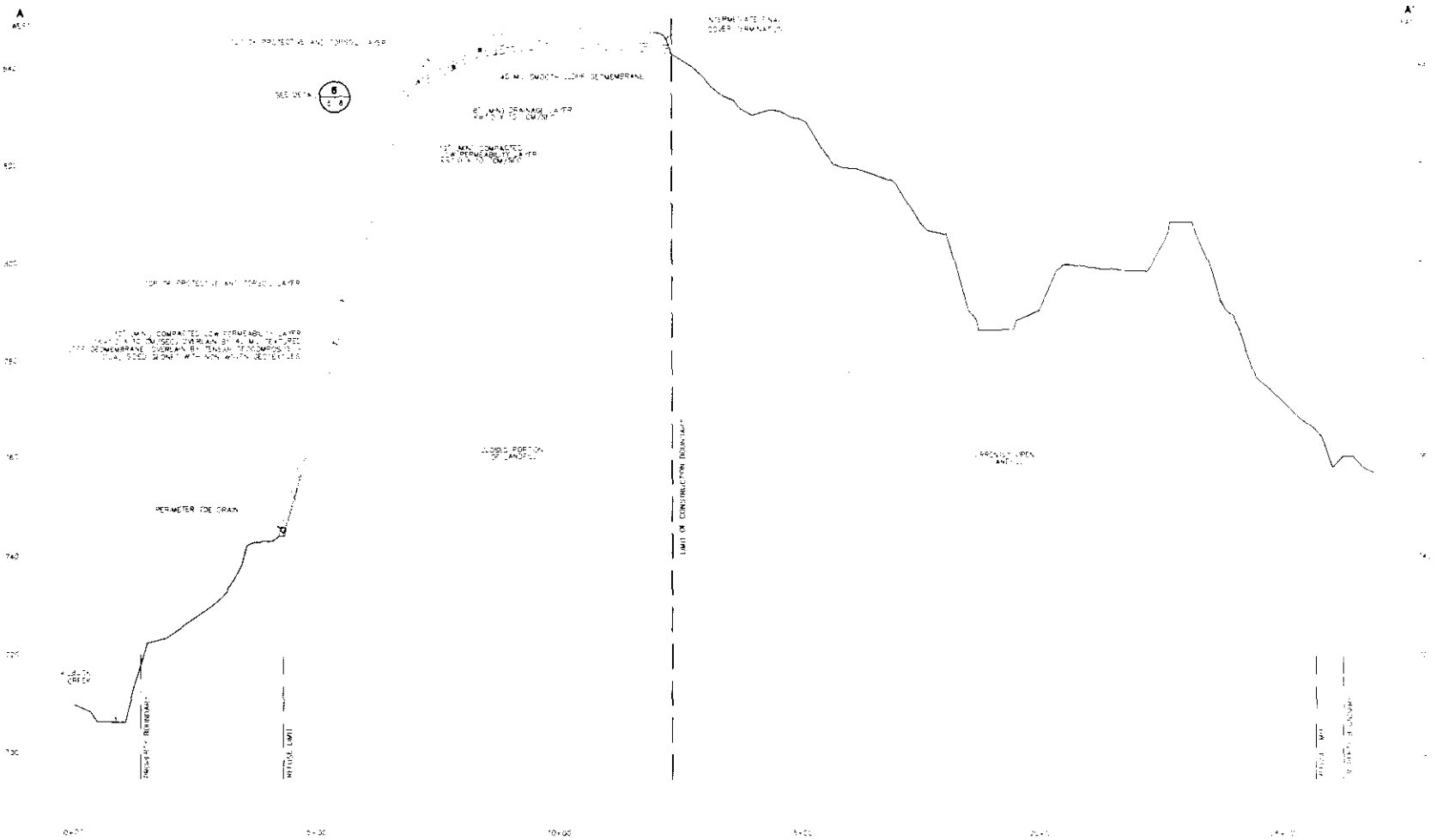
AS-BUILT RECORD DRAWINGS

EMCON

FINAL COVER CONSTRUCTION
WESTERN PORTION – PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

FLEXIBLE MEMBRANE
LINER PANEL LAYOUT

4



NOTE:
FOR CLARITY IN DEPICTING THE FEATURES OF THE LANDFILL, THE SECTION HAS BEEN INCREASED BY A FACTOR OF 10 IN THE VERTICAL SCALE

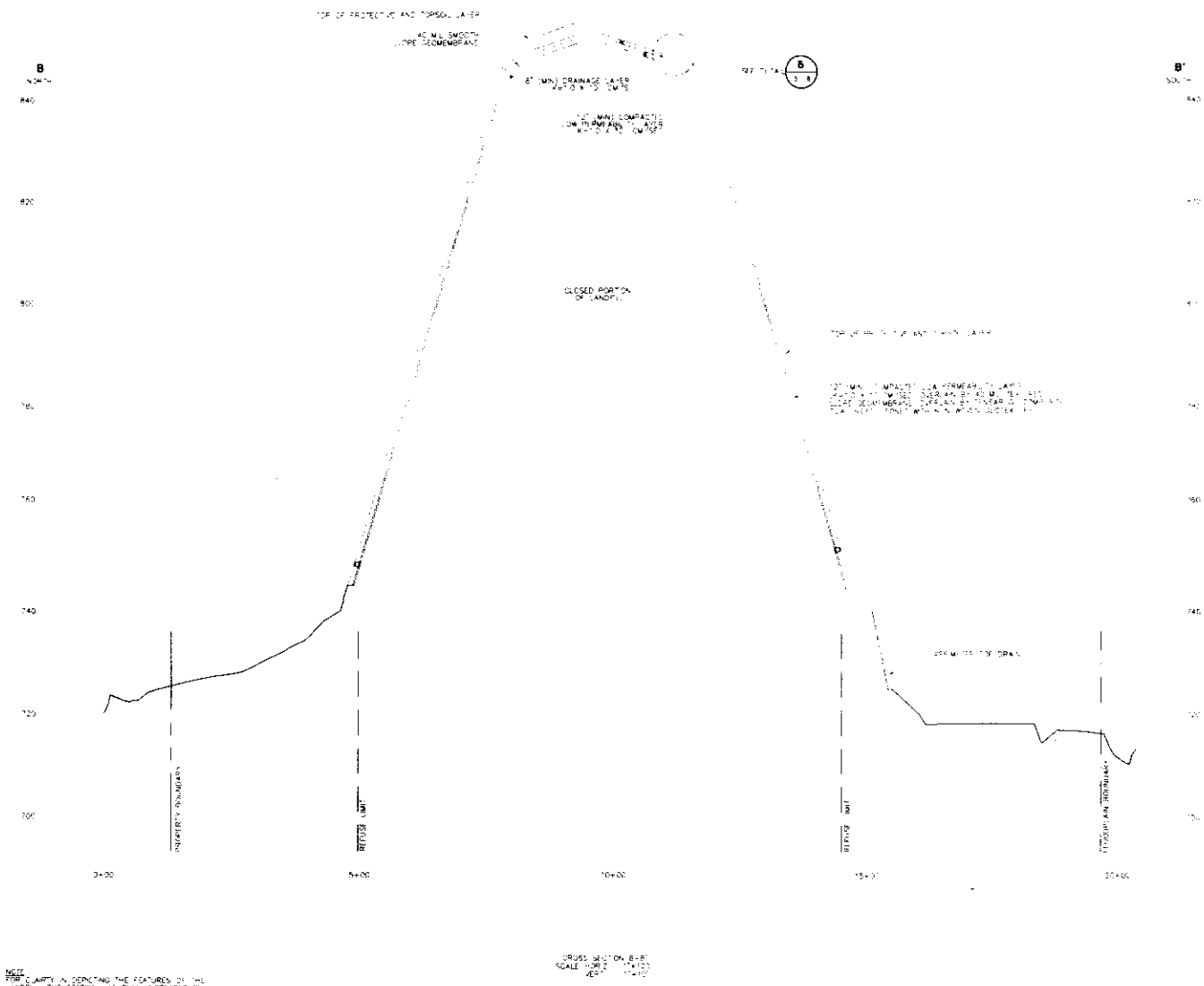
AS-BUILT RECORD DRAWINGS

EMCON

FINAL COVER CONSTRUCTION
WESTERN PORTION PASEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

CROSS SECTION A-A'

5



NOTE
FOR CLARITY IN DEPICTING THE FEATURES OF THE LANDFILL, THE SECTION HAS BEEN INCREASED BY A FACTOR OF 10 IN THE VERTICAL SCALE

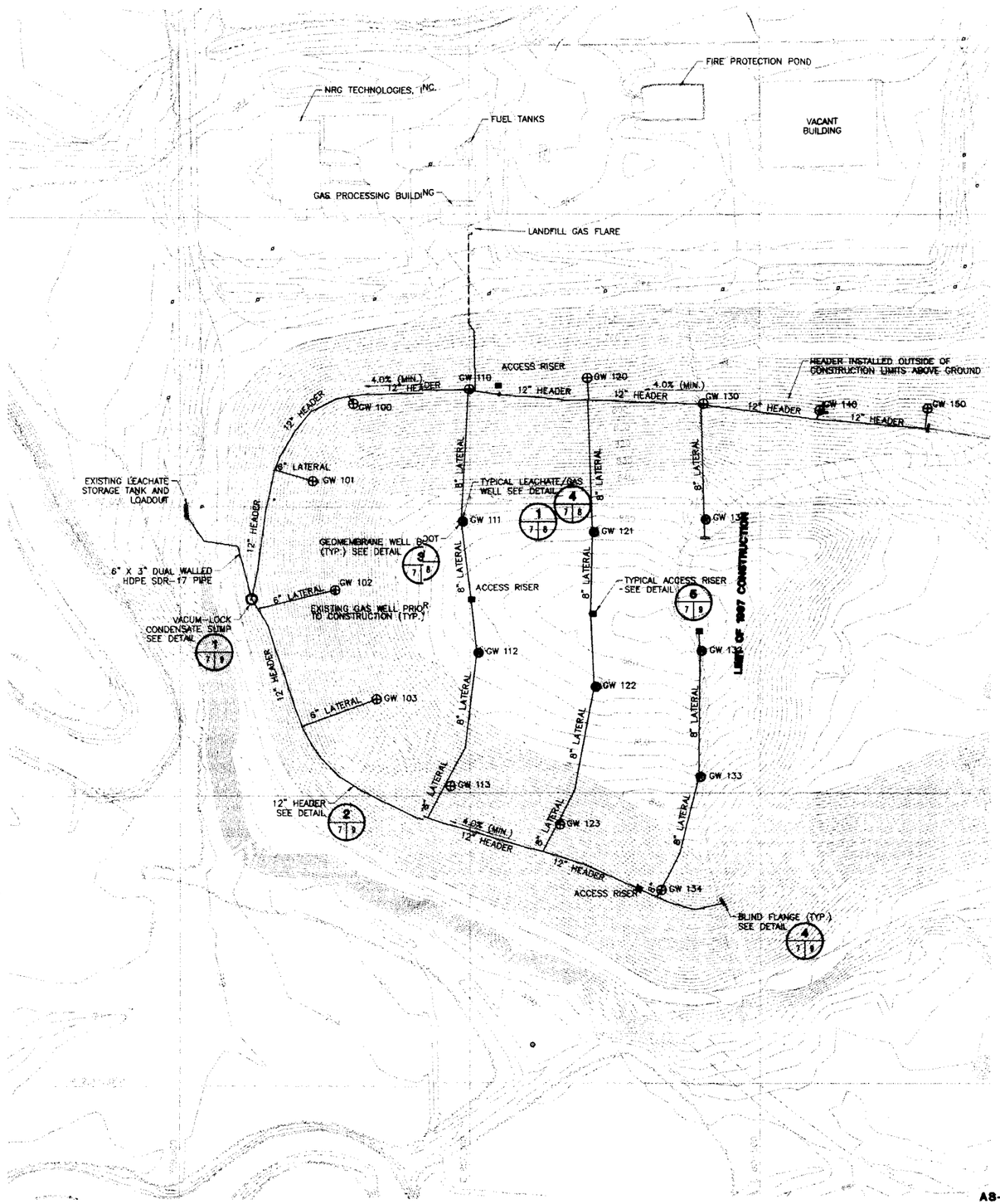
AS-BUILT RECORD DRAWINGS

emcon

FINAL COVER CONSTRUCTION
WESTERN PORTION PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

CROSS SECTION B-B'
NORTH-SOUTH CROSS SECTION

DRAWING NO.
6



N

LEGEND

- PROPERTY BOUNDARY
- FENCE
- LIMIT OF CONSTRUCTION BOUNDARY
- DUAL-GAS LEACHATE LINE
- BLIND FLANGE
- ACCESS RISER
- EXISTING GAS/LEACHATE WELL
- FIRE HYDRANT
- TREE
- UTILITY POLE

NOTES:

1. AERIAL SURVEY OF EXISTING TOPOGRAPHY PROVIDED BY CHICAGO AERIAL SURVEY COMPANY. DATE OF PHOTOGRAPHY NOVEMBER 11, 1997.
2. ALL AS-BUILT GAS AND LEACHATE SYSTEM HAS BEEN SURVEYED BY GORDON STANNARD, L.S.
3. ALL PIPING USED FOR GAS AND LEACHATE HEADERS AND LATERALS WAS HDPE SDR-17.

AS-BUILT RECORD DRAWINGS

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 02/20/98 — DWN BY RRM — DES BY DRF — CHK BY EML — APP BY DRF

emcon

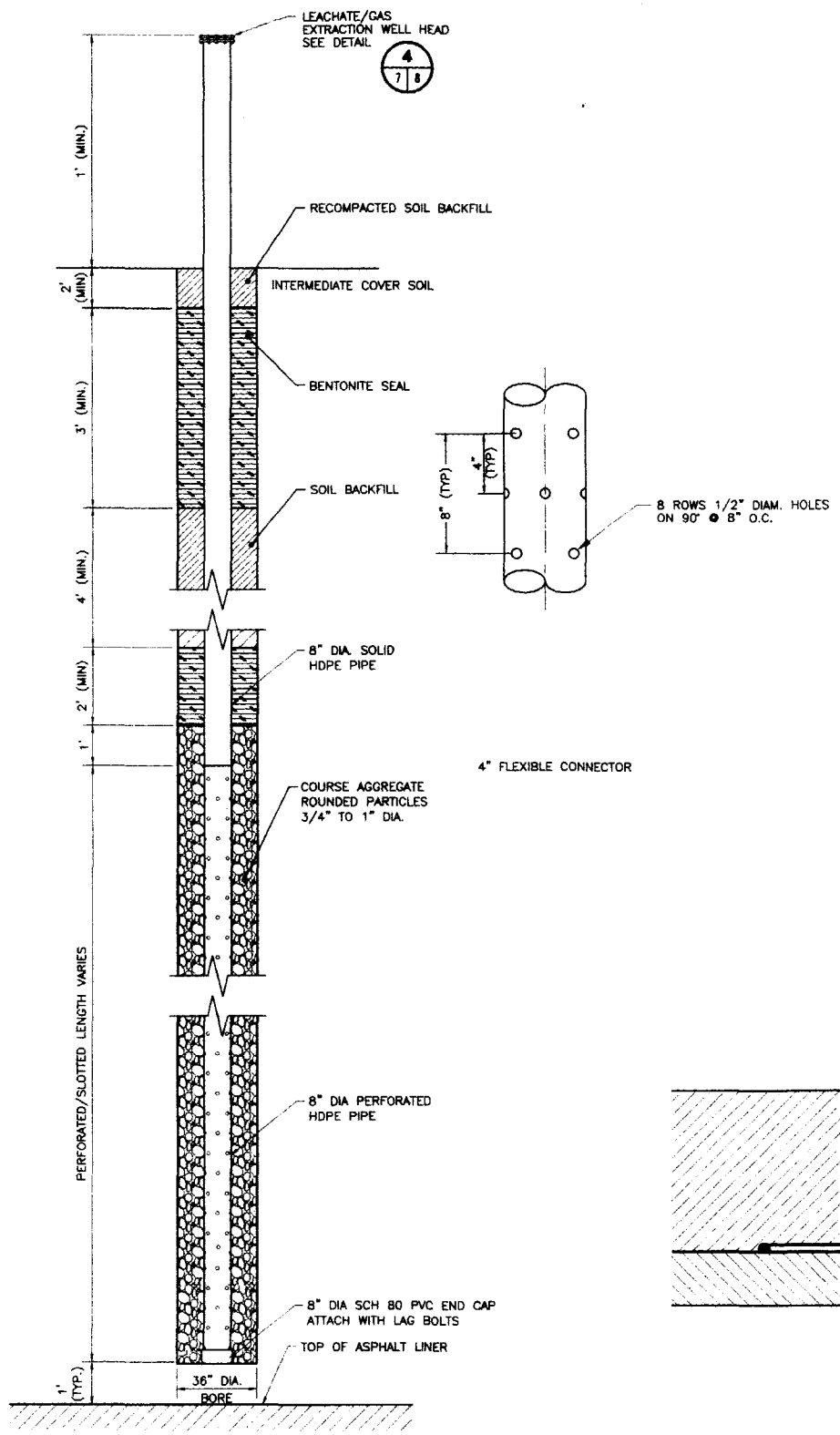
FINAL COVER CONSTRUCTION
WESTERN PORTION – PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

AS CONSTRUCTED DUAL LEACHATE AND GAS COLLECTION SYSTEM

DRAWING NO. 7

PROJECT NO. 86078-004.000

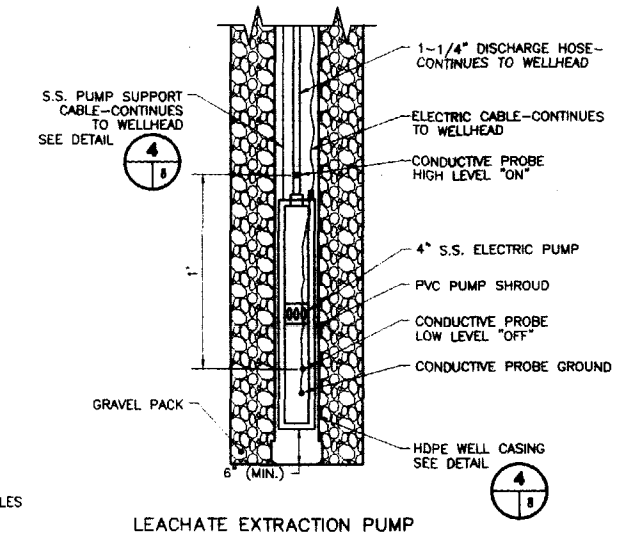
<Server unknown>/DATA C:\DRAWINGS\86078004\NAPAGL01.dwg Xrefs: SPPABM02, NAPABD01 Scale 1 = 1.00 DimScale: 1 = 100.00 Date: 1/14/98 Time: 1:45 PM Operator: <unknown>



LEACHATE/GAS EXTRACTION WELL

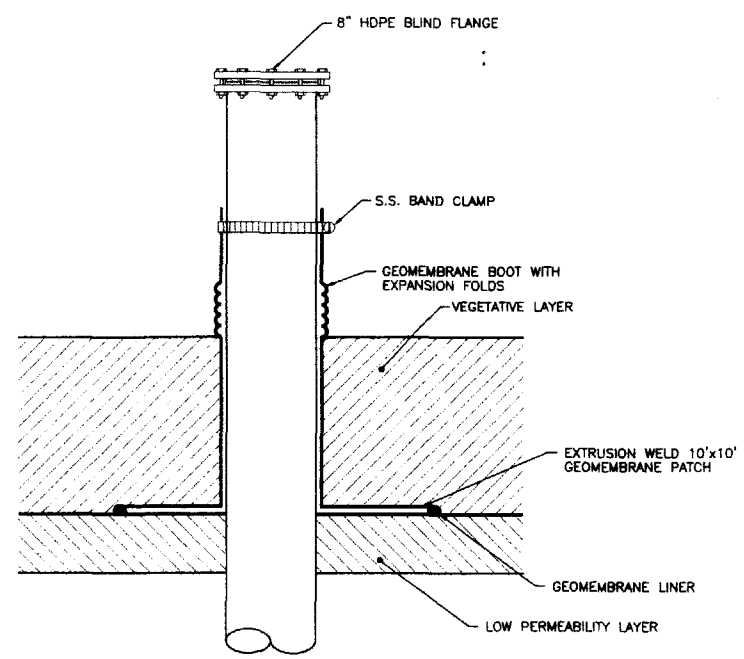
DETAIL 1/- 8
SCALE: NOT TO SCALE

AS-BUILT LEACHATE/GAS EXTRACTION WELL			
LEACHATE/GAS EXTRACTION WELL	DEPTH OF BORING	LENGTH OF PERFORATED PIPE	LENGTH OF SOLID PIPE
EW-111	129	107	23
EW-112	136	116	19
EW-121	110	91	23
EW-122	136	115	23
EW-131	124	108	23
EW-132	132	114	23
EW-133	126	107	23



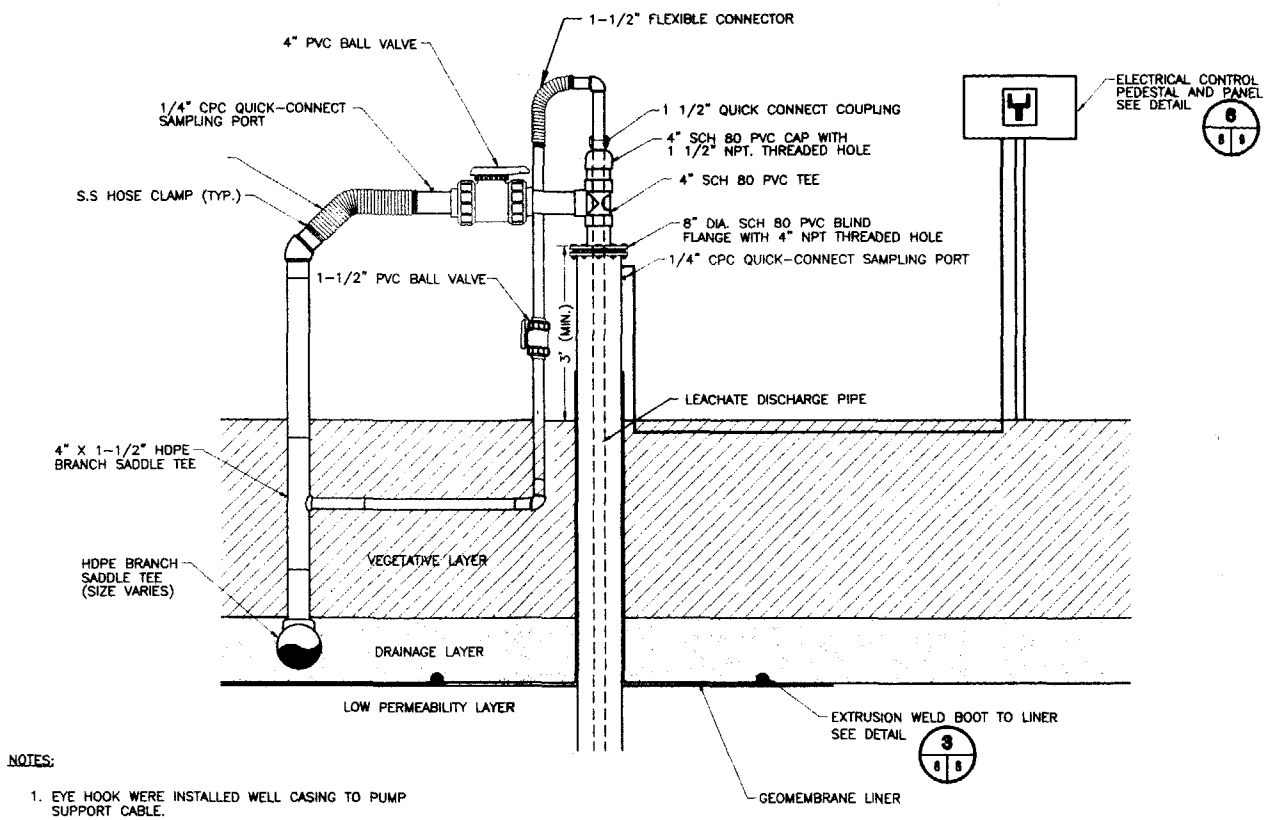
LEACHATE EXTRACTION PUMP

DETAIL 2/8
SCALE: NOT TO SCALE



GEOMEMBRANE WELL BOOT

DETAIL 3/7 8
SCALE: NOT TO SCALE

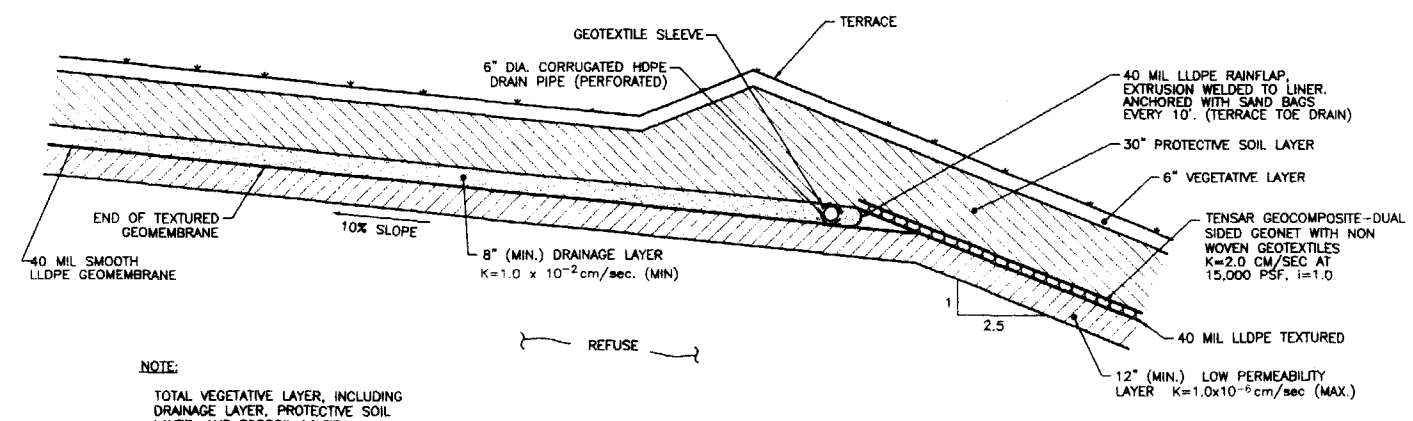


NOTES:

1. EYE HOOK WERE INSTALLED WELL CASING TO PUMP SUPPORT CABLE.
2. FOR WELLS DOWNSLOPE OF HEADER, GAS PIPING WAS SUPPORTED WITH SOIL SUCH THAT CONDENSATE DRAINS BACK TO WELLHEAD.

LEACHATE/GAS EXTRACTION WELL HEAD

DETAIL 4/7 8
SCALE: NOT TO SCALE



NOTE:

TOTAL VEGETATIVE LAYER, INCLUDING DRAINAGE LAYER, PROTECTIVE SOIL LAYER, AND TOPSOIL LAYER IS A MINIMUM 36" THICK.

FINAL COVER SYSTEM

DETAIL 5/5 8
SCALE: NOT TO SCALE

AS-BUILT RECORD DRAWINGS

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 02/20/98 DWN BY AMC DES BY DRF CHK BY EML APP BY DRF

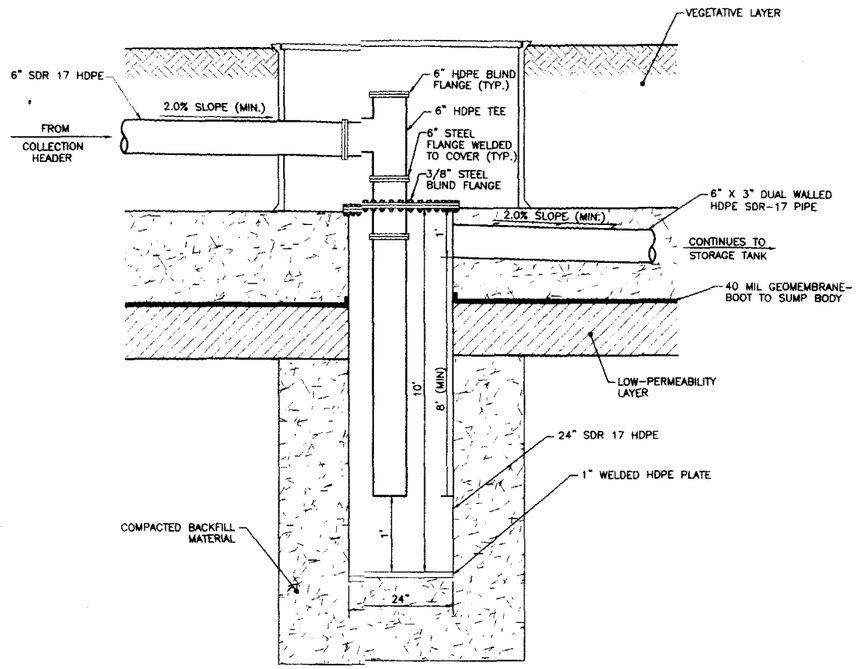
emcon

FINAL COVER CONSTRUCTION
WESTERN PORTION – PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

FINAL COVER SYSTEM / DUAL LEACHATE AND GAS COLLECTION SYSTEM DETAILS I

DRAWING NO. 8
PROJECT NO. 86078-004.000

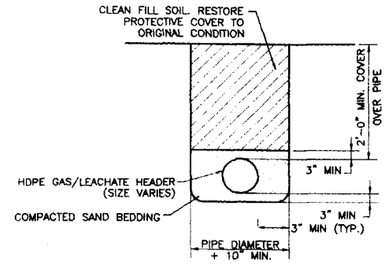
ONE-HALF INCH 1" 1/2" 0"
FILE: N:\DWG\86078004\NAP4D003.dwg Xrefs NAP4B001 Scale: 1 = 1.00 DimScale: 1 = 1.00 Date: 12/5/97 Time: 10:23 AM Operator: ACBB



VACUUM-LOCK CONDENSATE SUMP

DETAIL 1 (7|9)

SCALE: NOT TO SCALE



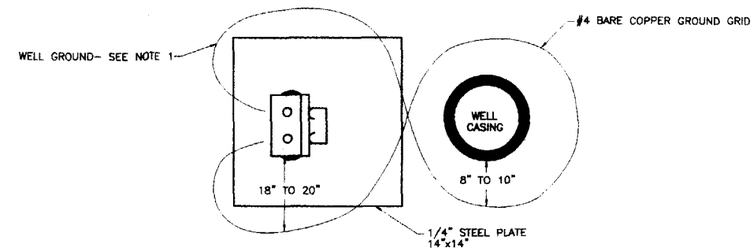
HEADER TRENCH

DETAIL 2 (7|9)

SCALE: NOT TO SCALE

NOTE:

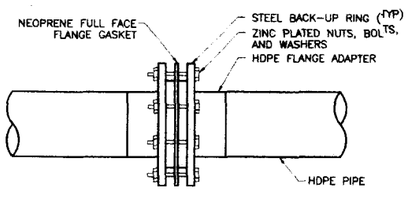
COMPACT SAND BEDDING AND BACKFILL WITH VIBRATORY PLATE OR EQUAL



PLAN VIEW

NOTE:

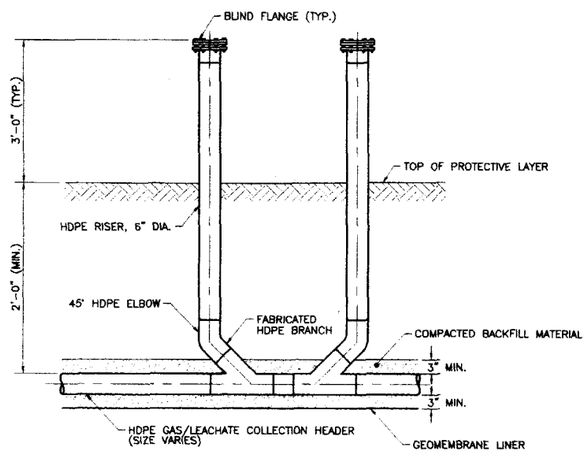
1. WELL GROUND GRID WAS DESIGNED FOR EQUI-POTENTIAL GROUNDING FOR PERSONAL PROTECTION. DID NOT INSTALL GROUND RODS DUE TO MEMBRANE AT APPROX. 36" DEPTH.
2. ALL ELECTRICAL DESIGN WAS PROVIDED BY MORSE ELECTRIC, INC. OF ROCKFORD, ILLINOIS.



TYPICAL FLANGE CONNECTION

DETAIL 3 (-|9)

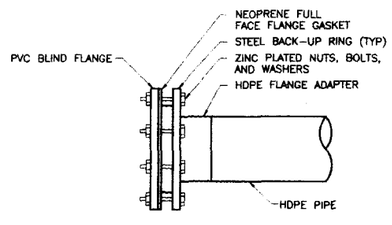
SCALE: NOT TO SCALE



HEADER ACCESS RISER

DETAIL 5 (7|9)

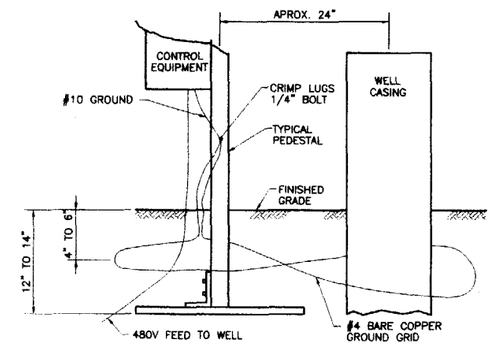
SCALE: NOT TO SCALE



TYPICAL BLIND FLANGE CONNECTION

DETAIL 4 (7|9)

SCALE: NOT TO SCALE



ELEVATION

WELL CASING AND ELECTRICAL CONTROL PEDESTAL PLACEMENT

DETAIL 6 (8|9)

SCALE: NOT TO SCALE

AS-BUILT RECORD DRAWINGS

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 02/20/98 — DWN BY AMC — DES BY DRF — CHK BY EML — APP BY DRF

EMCON

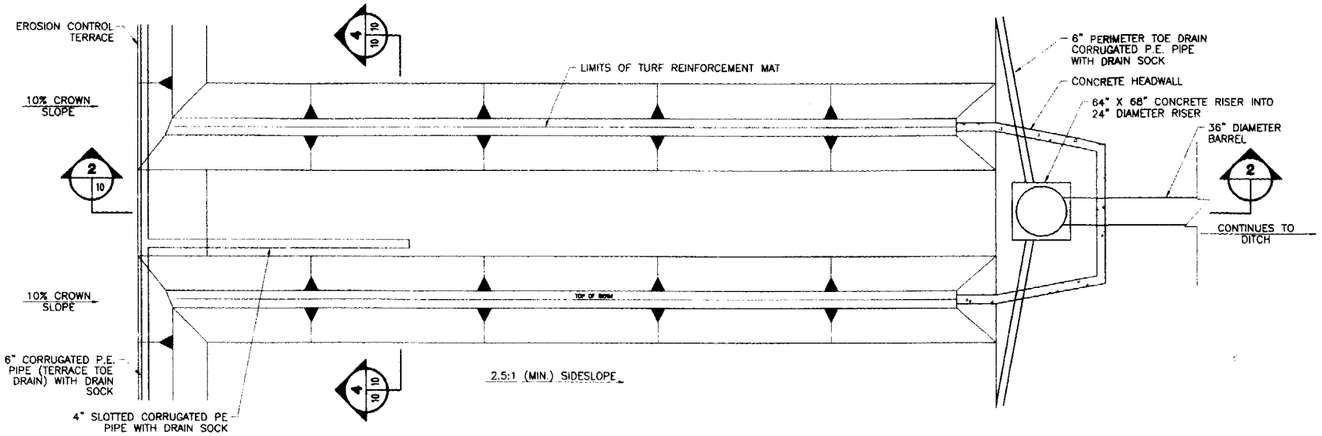
FINAL COVER CONSTRUCTION
WESTERN PORTION – PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

DUAL LEACHATE AND GAS COLLECTION SYSTEM DETAILS II

DRAWING NO. 9

PROJECT NO. 86078-004.000

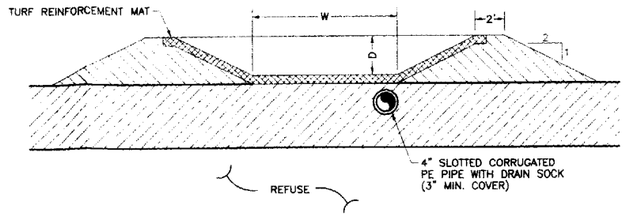
DWG-MAPERV2/DATA: N:\DWG\86078\004\MAP4\0204.dwg Xrefs: MAP4BR01 Scale: 1 = 1.00 DimScale: 1 = 1.00 Date: 12/5/97 Time: 10:27 AM Operator: ACHBB



TERRACE OUTLET

PLAN (1/10)

SCALE: NOT TO SCALE



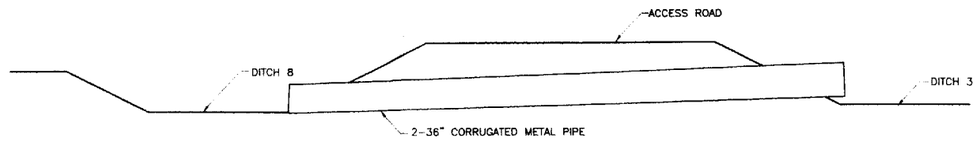
DIMENSION TABLE		
LETDOWN ID	W (feet min.)	D* (feet min.)
1	10	2.0
2	10	2.0
3	10	2.0

* INCLUDES FREEBOARD

TERRACE OUTLET

SECTION (4/10)

SCALE: NOT TO SCALE

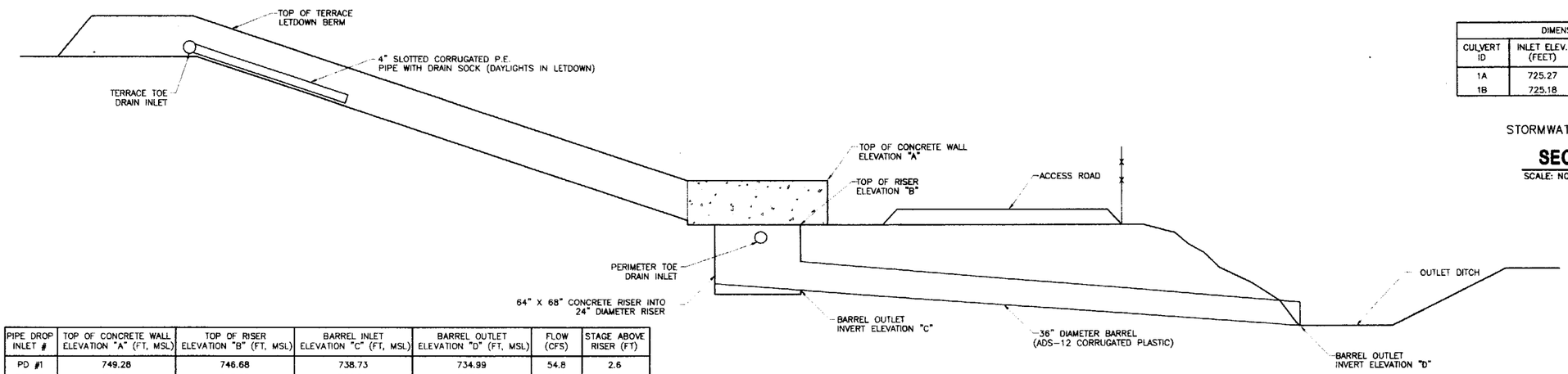


DIMENSION TABLE			
CULVERT ID	INLET ELEV. (FEET)	OUTLET ELEV. (FEET)	Q (NEEDED) (CFS)
1A	725.27	724.36	15
1B	725.18	724.45	15

STORMWATER CULVERT

SECTION (5/10)

SCALE: NOT TO SCALE

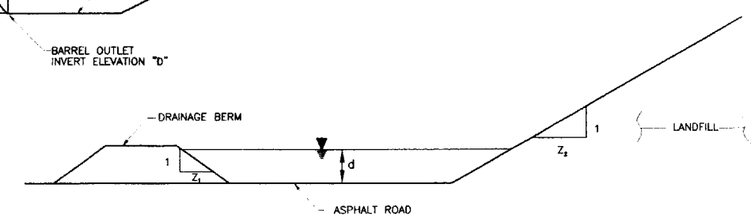


PIPE DROP INLET #	TOP OF CONCRETE WALL ELEVATION "A" (FT, MSL)	TOP OF RISER ELEVATION "B" (FT, MSL)	BARREL INLET ELEVATION "C" (FT, MSL)	BARREL OUTLET ELEVATION "D" (FT, MSL)	FLOW (CFS)	STAGE ABOVE RISER (FT)
PD #1	749.28	746.68	738.73	734.99	54.8	2.6
PD #2	745.21	742.62	734.84	727.81	54.9	2.6
PD #3	753.16	751.78	742.96	717.90	40.3	1.4

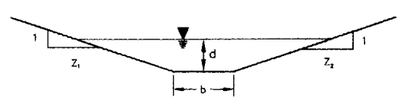
TERRACE OUTLET AND PIPE DROP INLET

ELEVATION (2/10)

SCALE: NOT TO SCALE



DIMENSION TABLE							
DRAINAGE DITCH ID	Q (NEEDED) (cfs)	d (feet min)	b (feet min)	Z_1 (max)	Z_2 (max)	SLOPE (% min.)
DITCH 1A	89.1	1.6	12.0	3	3	2.6
DITCH 1B	89.1	2.0	12.0	3	3	2.3
DITCH 1C	89.1	1.4	12.0	3	3	2.5
DITCH 3	26.0	1.5	12.0	3	3	1.1
DITCH 5	59.0	1.5	12.0	3	3	1.9
DITCH 8	38.0	1.0	12.0	3	3	2.2
DITCH 9	68.0	2.0	12.0	3	3	4.0
OUTLET DITCH 1	233.0	2.2	15.0	2	2	1.3
TERRACE T1	15.0	2.0	0.0	3	10	1.8
TERRACE T3	15.0	2.0	0.0	3	10	3.2
TERRACE T4	9.9	2.0	0.0	3	10	2.5
TERRACE T5	20.8	2.0	0.0	3	10	2.0



CROSS SECTION VIEWED DOWNSTREAM

STORMWATER DRAINAGE DITCH

SECTION (3/10)

SCALE: NOT TO SCALE

DIMENSION TABLE							
DRAINAGE DITCH ID	Q (NEEDED) (cfs)	d (feet min)	b (feet min)	Z_1 (max)	Z_2 (max)	SLOPE (% min.)
NORTH BERM	38.0	1.0	16.0	3	3	2.7
SOUTH BERM	59.8	1.0	16.0	3	3	0.6

STORMWATER DRAINAGE BERM

SECTION (6/10)

SCALE: NOT TO SCALE

AS-BUILT RECORD DRAWINGS

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 02/20/98 — DWN BY RRM — DES BY DRF — CHK BY EML — APP BY DRF

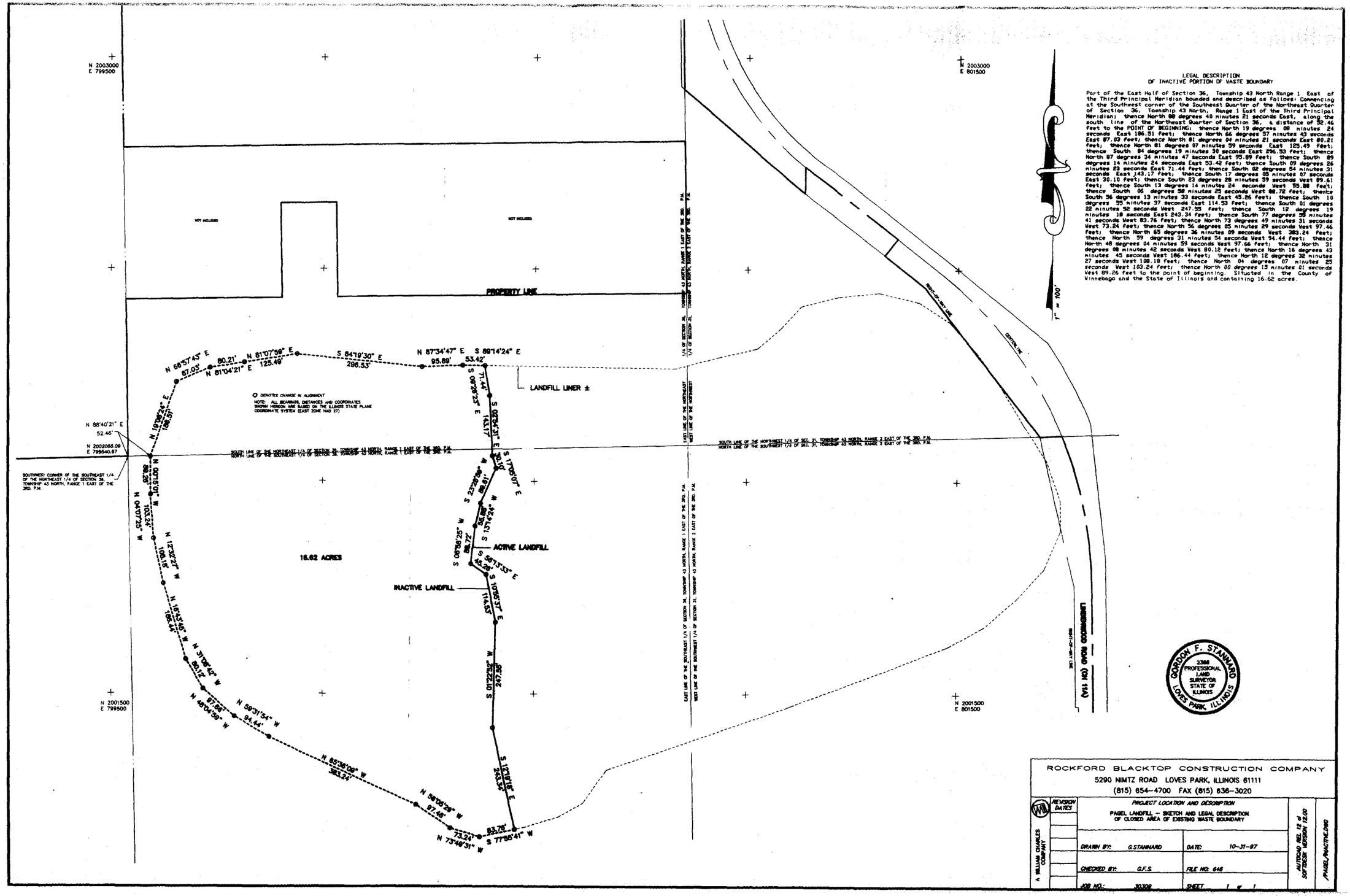
EMCON

FINAL COVER CONSTRUCTION
WESTERN PORTION – PAGEL LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

STORMWATER DRAINAGE DETAILS

DRAWING NO. 10

PROJECT NO. 86078-004.000



LEGAL DESCRIPTION
OF INACTIVE PORTION OF WASTE BOUNDARY

Part of the East Half of Section 36, Township 43 North Range 1 East of the Third Principal Meridian bounded and described as follows: Commencing at the Southwest corner of the Southeast Quarter of the Northeast Quarter of Section 36, Township 43 North, Range 1 East of the Third Principal Meridian; thence North 88 degrees 40 minutes 21 seconds East, along the south line of the Northeast Quarter of Section 36, a distance of 52.46 feet to the POINT OF BEGINNING; thence North 19 degrees 08 minutes 24 seconds East 186.51 feet; thence North 66 degrees 57 minutes 43 seconds East 87.03 feet; thence North 81 degrees 04 minutes 21 seconds East 80.21 feet; thence North 81 degrees 07 minutes 59 seconds East 125.49 feet; thence South 84 degrees 19 minutes 30 seconds East 296.53 feet; thence North 87 degrees 34 minutes 47 seconds East 95.89 feet; thence South 89 degrees 14 minutes 24 seconds East 53.42 feet; thence South 09 degrees 26 minutes 23 seconds East 71.44 feet; thence South 02 degrees 54 minutes 31 seconds East 143.17 feet; thence South 17 degrees 05 minutes 07 seconds East 30.19 feet; thence South 23 degrees 28 minutes 59 seconds West 89.61 feet; thence South 13 degrees 14 minutes 24 seconds West 55.88 feet; thence South 06 degrees 38 minutes 25 seconds West 86.72 feet; thence South 56 degrees 13 minutes 33 seconds East 45.26 feet; thence South 10 degrees 55 minutes 37 seconds East 114.53 feet; thence South 01 degrees 22 minutes 32 seconds West 247.85 feet; thence South 12 degrees 19 minutes 18 seconds East 243.34 feet; thence South 77 degrees 55 minutes 41 seconds West 83.76 feet; thence North 73 degrees 49 minutes 31 seconds West 73.24 feet; thence North 56 degrees 05 minutes 29 seconds West 97.46 feet; thence North 85 degrees 36 minutes 06 seconds West 383.24 feet; thence North 59 degrees 31 minutes 54 seconds West 94.44 feet; thence North 48 degrees 04 minutes 59 seconds West 97.66 feet; thence North 31 degrees 06 minutes 42 seconds West 80.12 feet; thence North 16 degrees 43 minutes 45 seconds West 186.44 feet; thence North 12 degrees 32 minutes 27 seconds West 108.10 feet; thence North 04 degrees 07 minutes 25 seconds West 103.24 feet; thence North 00 degrees 15 minutes 01 seconds West 89.26 feet to the point of beginning. Situated in the County of Winnebago and the State of Illinois and containing 16.62 acres.

ROCKFORD BLACKTOP CONSTRUCTION COMPANY
5290 NIMTZ ROAD LOVES PARK, ILLINOIS 61111
(815) 654-4700 FAX (815) 636-3020

A WILLIAMS CHARLES COMPANY

REVISION DATES

PROJECT LOCATION AND DESCRIPTION
PAGEL LANDFILL – SKETCH AND LEGAL DESCRIPTION OF CLOSED AREA OF EXISTING WASTE BOUNDARY

DRAWN BY:	G.STANNARD	DATE:	10-31-97
CHECKED BY:	G.F.S.	FILE NO:	646
JOB NO.:	30306	SHEET	1 of 1

AUTOCAD REL 12 of SOFTDESK VERSION 12.00

P:\AGEL/INACTIVE.DWG

Winnebago Reclamation Service, Inc.

Thomas Hilbert
Environmental Engineer
Rochelle Waste Disposal
8403 Lindenwood Rd.
Rockford, IL 61109
(815) 874-4806
February 19, 1998

Mr. Chris Leibman
Illinois Environmental Protection Agency
Permit Section, Bureau of Land
Division of Land Pollution Control
2200 Churchill Rd
Springfield, IL 62706

Recycling and waste disposal

4920 Forest Hills Road
Loves Park
Illinois 61111

P.O. Box 2071
Loves Park
Illinois 61130

815.654.5952
Fax 815.654.4717

Re: Permit No. 1991-138-LF
Site No. 2018080001
Log No. 1998-001

Application requesting renewal of site operating permit and approval of acceptance report for completion of closure on the western portion of the north unit.

Dear Chris:

Winnebago Reclamation Service (WRS) regrets the errors and omissions presented on the LPC-PA1 forms with the original application requesting renewal of the site operating permit. Enclosed is a new IEPA LPC-PA1 form properly signed and notarized.

The reduction in the closure cost estimate was included with the information submitted with the permit renewal since it was our original intention to submit an acceptance at the same time as the permit renewal application. However, the acceptance report was not fully complete prior to the filing deadline for renewal of the landfill operating permit and WRS was required to submit the permit renewal in advance of the acceptance report for closure of the western portion of the landfill. It was also our original intention to file the acceptance report as a separate permit application. However, after conferring with you it was agreed to submit the acceptance report as an addendum to the renewal application and as such the acceptance report is included with this submittal.

WRS appreciates receiving status reports for permit applications and would like to note that this has been a favorable addition to the review process for IEPA permit applications. We feel that the status reports help to expedite the overall time required to receive approval on our applications.

IV. COMPLETENESS REQUIREMENTS

The following items must be checked Yes, No or N/A. Each item will be reviewed by the log clerk. Blank items will result in rejection of the application. Please refer to the instructions for further guidance.

1.	Have all public notice letters (LPC-PA16) been mailed and are copies and supporting documentation enclosed?	X Yes	___ No	___ N/A
2. a.	Is the Siting Certification Form (LPC-PA8) completed and enclosed?	___ Yes	X No	___ N/A
b.	Is siting approval currently under litigation?	___ Yes	X No	___ N/A
3. a.	Is a closure, and if necessary a post closure, plan covering these activities being submitted, or	X Yes	___ No	___ N/A
b.	has one already been approved? (Provide permit number 1991-138-LF.)	X Yes	___ No	___ N/A
4. a.	For waste disposal sites only: Has any employee, owner, operator, officer or director of the owner or operator had a prior conduct certification denied, cancelled or revoked?	___ Yes	X No	___ N/A
b.	Have you included a demonstration of how you comply or intend to comply with 35 Ill. Adm. Code Part 745?	___ Yes	___ No	X N/A
5. a.	Is land ownership held in beneficial trust?	___ Yes	X No	___ N/A
b.	If yes, is a beneficial trust certification form (LPC-PA9) completed and enclosed?	___ Yes	___ No	X
6. a.	Does the application contain information or proposals regarding the hydrogeology; groundwater monitoring, modeling or classification; a groundwater impact assessment; or vadose zone monitoring for which you are requesting approval?	___ Yes	X No	___ N/A
b.	If yes, have you submitted a third (3rd) copy of the application (4 total) and supporting documents?			X N/A

V. SIGNATURES (Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable.)

All applications shall be signed by the person designated below or by a duly authorized representative of that person:

Corporation - By a principal executive officer of at least the level of vice-president.
Partnership or Sole Proprietorship - By a general partner or the proprietor, respectively.
Government - By either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above; and
2. is submitted with this application (a copy of a previously submitted authorization can be used).

I hereby affirm that all information contained in this Application is true and accurate to the best of my knowledge and belief.

Owner Signature: [signature] Title: Executive Vice President Date: 2-13-98

Owner FEIN or S.S. Number 338-36-5052

Operator Signature: [signature] Title: Executive Vice President Date: 2-13-98

Operator FEIN or S.S. Number 338-36-5052

Engineer Signature: [signature] Name: David S. Vladic, P.E. Date: 2/12/98

Engineer Address: EMCON
603 East Diehl Road
Suite 123
Naperville, IL 60563

Engineer Seal: DAVID S. VLADIC 062-051639 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Sally Lois Giamalva
"OFFICIAL SEAL"
SALLY LOIS GIAMALVA
Notary Public, State of Illinois
My Commission Expires 03\07\00

2-13-98
416427

Engineer Phone No.: (630) 505-9450

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and [illegible]

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

General Application for Permit (LPC-PA1)

is form must be used for any application for permit from the Bureau of Land, except for waste stream applications d applications for the composting of landscape waste only. One original and two (2) photocopies, or three (3) if plicable, of all permit application forms must be submitted. Attach the original and appropriate number of copies any necessary plans, specifications, reports, etc. to fully support and describe the activities or modifications ing proposed. If necessary, attach sufficient information to demonstrate compliance with all applicable RCRA quirements. Incomplete applications will be rejected. Please refer to the instructions for further guidance.

te: Permit applications which are to be hand-delivered to the Bureau of Land, Permit Section must be delivered to the 1240 North Ninth Street location between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

ease type or print legibly.

SITE IDENTIFICATION

me: Pagel Landfill Site # (IEPA): 2 0 1 8 0 8 0 0 0 1

ysi Site Location (street, road, etc.): 8403 Lindenwood Road

:y, Zip Code: Rockford 61109 County: Winnebago

isting DE/OP Permit Nos. (if applicable): 1972-24

. OWNER/OPERATOR IDENTIFICATION

	OWNER	OPERATOR
me:	Winnebago Reclamation Service, Inc.	Winnebago Reclamation Service, Inc.
ldress:	4920 Forest Hills Road	4920 Forest Hills Road
	Loves Park, IL 61111	Loves Park, IL 61111
ntact Name:	Gary L. Marzorati	Gary L. Marzorati
ione #:	(815) 654-4779	(815) 654-4779

I. PERMIT APPLICATION IDENTIFICATION

PE SUBMISSION/REVIEW PERIOD:

- _ New Landfill/180 days (35 IAC Part 813)
- _ Landfill Expansion/180 days (35 IAC Part 813)
- _ 1st Sign. Mod/90 days (35 IAC Part 814)
- _ Sign. Mod to Operate/90 days (35 IAC Part 813)
- _ Other Sign. Mod/90 days (35 IAC Part 813)
- X Renewal of Landfill/90 days (35 IAC Part 813)
- _ Developmental/90 days (35 IAC Part 807)
- _ Operating/45 days (35 IAC Part 807)
- _ Supplemental/90 days (35 IAC Part 807)
- _ Permit Transfer/90 days (35 IAC Part 807)
- _ Generic/90 days

TYPE FACILITY:

- X Landfill
- _ Land Treatment
- _ Transfer Station
- _ Treatment
- _ Storage
- _ Incinerator
- _ Composting
- _ Recycling/Reclamation
- _ Other (Specify)

TYPE WASTE:

- X General Municipal Refuse
- _ Hazardous
- X Special (Non-hazardous)
- _ Chemical Only (exc. putrescible)
- _ Inert Only (exc. chemical and putrescible)
- _ Used Oil
- _ Solvents
- _ Landscape/Yard Waste
- X Other (Specify) Demo Debris (incl Putrescible)

ESCRIPTION OF THIS PERMIT REQUEST: (Include a brief narrative description here.)

Renewal of Existing Permit

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms

L 532 1857

IV. COMPLETENESS REQUIREMENTS

The following items must be checked Yes, No or N/A. Each item will be reviewed by the log clerk. Blank items will result in rejection of the application. Please refer to the instructions for further guidance.

1.	Have all public notice letters (LPC-PA16) been mailed and are copies and supporting documentation enclosed?	X Yes	___ No ___ N/A
2. a.	Is the Siting Certification Form (LPC-PA8) completed and enclosed?	___ Yes	X No ___ N/A
b.	Is siting approval currently under litigation?	___ Yes	X No ___ N/A
3. a.	Is a closure, and if necessary a post closure, plan covering these activities being submitted, or	X Yes	___ No ___ N/A
b.	has one already been approved? (Provide permit number 1991-138-LF.)	X Yes	___ No ___ N/A
4. a.	For waste disposal sites only: Has any employee, owner, operator, officer or director of the owner or operator had a prior conduct certification denied, cancelled or revoked?	___ Yes	X No ___ N/A
b.	Have you included a demonstration of how you comply or intend to comply with 35 Ill. Adm. Code Part 745?	___ Yes	___ No X N/A
5. a.	Is land ownership held in beneficial trust?	___ Yes	X No ___ N/A
b.	If yes, is a beneficial trust certification form (LPC-PA9) completed and enclosed?	___ Yes	___ No X
6. a.	Does the application contain information or proposals regarding the hydrogeology; groundwater monitoring, modeling or classification; a groundwater impact assessment; or vadose zone monitoring for which you are requesting approval?	___ Yes	X No ___ N/A
b.	If yes, have you submitted a third (3rd) copy of the application (4 total) and supporting documents?		X N/A

V. SIGNATURES (Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable.)

All applications shall be signed by the person designated below or by a duly authorized representative of that person:

Corporation - By a principal executive officer of at least the level of vice-president.
Partnership or Sole Proprietorship - By a general partner or the proprietor, respectively.
Government - By either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above; and
2. is submitted with this application (a copy of a previously submitted authorization can be used).

I hereby affirm that all information contained in this Application is true and accurate to the best of my knowledge and belief.

Owner Signature: [signature] Title: Executive Vice President Date: 2-13-98

Owner FEIN or S.S. Number 338-36-5052

Operator Signature: [signature] Title: Executive Vice President Date: 2-13-98

Operator FEIN or S.S. Number 338-36-5052

Engineer Signature: [signature] Name: David S. Vladic, P.E. Date: 2/12/98

Engineer Address: EMCON
603 East Diehl Road
Suite 123
Naperville, IL 60563

Engineer Seal: DAVID S. VLADIC 062-051639 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Sally Lois Giamalva
"OFFICIAL SEAL"
SALLY LOIS GIAMALVA
Notary Public, State of Illinois
My Commission Expires 03\07\00
2-13-98
416427

Engineer Phone No.: (630) 505-9450

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Agency rules and guidelines.

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