

**CONSTRUCTION REPORT  
EAST LINED AREA PARTIAL CLOSURE**

**HIDDEN VALLEY LANDFILL**

**PIERCE COUNTY, WASHINGTON**

Prepared for  
Land Recovery, Inc.

March 8, 1999

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**Construction Report  
East Lined Area Partial Closure  
Hidden Valley Landfill  
Pierce County, Washington**

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

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## SUMMARY

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Partial Closure of the East Lined Area at the Hidden Valley Landfill was completed during the months of June, July, August, and September of 1998. The closure was accomplished in substantial conformance with the design as reviewed by the Tacoma-Pierce County Health Department (TPCHD) and Washington Department of Ecology (Ecology).

This report provides background information about the project and documents work was performed in accordance with the design intent and conditions of approval. The following paragraphs summarize the content and conclusions of this report.

Section 1 of the report provides an introduction describing project background, provides a description of the project, and summarizes the quality assurance work performed to document the construction.

Section 2 describes the organizations involved in the project and their responsibilities.

Section 3 describes the major closure components and briefly describes how each major component was constructed.

Sections 4 through 7 describe the construction quality assurance (CQA) work performed by EMCON documenting the project's compliance with the design intent and conditions of approval. Section 4 describes earthwork construction observation and testing, including test standards, and testing frequencies implemented by the CQA Organization. Section 4 also describes CQA work related to erosion and sediment control systems. Section 5 describes geosynthetics conformance testing, and construction observation and field testing for delivery and installation of geosynthetic components of the project. Section 6 describes CQA work related to landfill gas systems. Section 7 describes CQA related to piping systems. Section 8 describes written documentation of the quality assurance program.

Section 9 describes design modifications and modifications to the CQA program made during construction and justification for these design and CQA modifications.

Section 10 provides a statement of compliance by the CQA organization stating the East Lined Area Partial Closure (Closure Construction) was constructed in accordance with the design intent and conditions of approval.

In summary, a CQA program was implemented by EMCON during closure construction. This CQA program, which included observation and testing of the constructed closure components documents the work was completed in accordance with the design intent presented in the construction drawings and specifications. However, like any large construction project, this project was not completed without small construction phase variances to the specifications and/or drawings. These variances and their resolutions are described as appropriate in other sections of this report.

# **1 INTRODUCTION**

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## **1.1 Project Background**

EMCON was retained by Land Recovery, Inc., to design the East Lined Area Closure and implement a construction quality assurance (CQA) program during closure construction. Closure construction at the Hidden Valley Landfill in Pierce County, Washington, was completed during the months of June, July, August, September, and October of 1998. The work consisted of closing approximately 13 acres of the remaining 32 acres of active landfill area at the landfill.

Other services provided by EMCON included preparation of this construction report and attached record drawings. The purpose of this report is to document closure construction complies with the design intent and to obtain approval of the landfill closure from the Tacoma-Pierce County Health Department (TPCHD).

Closure construction was completed in compliance with applicable state and federal regulations for solid waste landfills, and in accordance with the construction drawings and specifications issued for the project.

## **1.2 Closure Description**

The approximate 11.43-acre closure area is shown on the record drawings. It covers the eastern end of the landfill and terminates into the north, east, and south perimeter road systems. A small portion of the closure area also ties into the previously closed Southwest and North areas. But, the majority of the closure was terminated where it will connect to future closure construction planned for 1999.

The final cover system consists of three cover types: Types 1, 2, and 3. Type 1 cover was placed on slopes with grades of 20 percent or less. Type 1 cover consists of the following listed from top to bottom: a 12-inch-thick topsoil layer, a non-woven geotextile, a 12-inch-thick drainage layer, and a composite barrier layer. The composite barrier layer consists of a 60-mil textured surface high density polyethylene (HDPE) geomembrane placed in direct contact with a 24-inch-thick layer of low-permeability soil. The low-permeability soil layer has an in-place hydraulic conductivity (permeability of less than or

equal to  $1.0 \times 10^{-7}$  cm/sec.) Soil with this permeability is described as Type A soil throughout this report.

Type 2 cover was installed on 3 horizontal to 1 vertical (3H:1V) slopes. Type 2 cover includes a 12-inch-thick topsoil layer, a non-woven geotextile, a 12-inch-thick drainage layer, and a composite barrier layer. The composite barrier layer consists of a 60-mil textured surface HDPE geomembrane placed in direct contact with a 6-inch-thick layer of low-permeability soil having an in-place permeability of  $1.0 \times 10^{-7}$  cm/sec (Type A soil). The 6-inch Type A soil layer covers an 18-inch-thick layer of low-permeability soil having in-place permeability of less than or equal to  $1.0 \times 10^{-4}$  cm/sec. Soil with a  $1.0 \times 10^{-4}$  cm/sec permeability is described as Type B soil throughout this report.

Type 3 cover was installed on 2H:1V slopes. This cover type includes a 10-inch-thick rip rap erosion protection layer, a non-woven needle punched drainage geocomposite, a 60-mil textured HDPE geomembrane, a geosynthetic clay liner and an 18-inch-thick low-permeability Type B soil layer.

In addition to the three final cover types, major components of the closure construction include the following:

- General earthwork to form the cover system subgrade configuration
- Vertical landfill gas (LFG) extraction wells
- LFG well-head assemblies, 4-inch-diameter solid wall HDPE piping laterals, and a 10-inch-diameter HDPE central header collection pipe
- A drainage pipe system constructed in the drainage layers consisting of 6-inch-deep troughs formed into the composite barrier layer, with 4-inch and 6-inch ADS perforated pipe placed over geomembrane in the troughs
- Stormwater diversion berms
- Stormwater drainage control structures constructed around the perimeter of closure areas consisting of geocomposite and rip rap lined ditches and culverts
- Grass seed mixture and straw mulch placed over topsoil layers
- Access roads



### 1.3 Construction Quality Assurance

A CQA program was implemented to monitor, test, verify and document construction was completed in accordance with the technical specifications and the design intent. The CQA Organization also provided design clarifications during construction as needed. The CQA program emphasized monitoring and testing of closure components related to the performance of the final cover system, and in particular the geomembrane and low-permeability soil layers which form the composite barrier system. This work generally included the following:

- Performed and documented field and laboratory soils testing for earthfill placement, Type A and B low-permeability soil layer placement, drainage layer placement and topsoil placement.
- Performed and documented geosynthetic materials conformance testing
- Reviewed the geosynthetic manufacture's material certifications
- Reviewed the geomembrane installer qualifications
- Monitored the geomembrane installer's quality control program
- Monitored geotextile and geocomposite installation operations
- Monitored geomembrane installer's seaming operations
- Reviewed welded geomembrane seam field and laboratory test results
- Performed and documented independent third party geomembrane seam testing
- Monitored and documented geomembrane repair operations
- Prepared the final geomembrane panel lay-out as-built drawing

The CQA organization also provided the following services:

- Monitored and documented vertical LFG extraction well construction
- Monitored and documented installation of LFG well-head assemblies, HDPE piping laterals, and HDPE central header collection pipe
- Monitored and documented installation of the drainage pipe system constructed in the drainage layers

- Monitored and documented stormwater diversion berms construction
- Monitored and documented stormwater drainage control structures constructed around the perimeter of closure areas
- Monitored and documented grass seed mixture and straw mulch installation over topsoil layers
- Monitored and documented access road construction
- Prepared record drawings to show as-built conditions of the closure construction

## **2 CONSTRUCTION PERSONNEL AND RESPONSIBILITIES**

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### **2.1 Land Recovery Incorporated (LRI)**

Land Recovery, Inc. (LRI), is the owner and operator of Hidden Valley Landfill. They are responsible for complying with federal and state regulations governing closure of the landfill and implementing the East Lined Area Partial Closure construction project.

LRI constructed all of the earthwork and gas piping required for the project.

### **2.2 EMCON**

EMCON was responsible for preparing the engineering design report, construction drawings, and technical specifications describing the scope of closure construction. EMCON also implemented a comprehensive CQA program during construction, provided field engineering services during construction, and prepared this final construction report.

### **2.3 Serrot Corporation**

The Serrot Corporation provided and installed the geosynthetic materials used in the closure project. These geosynthetic materials included: 60-mil HDPE liner, geosynthetic clay liner (GCL), drainage geocomposite, and the majority of the geotextile.

### **2.4 NW Lining Services**

NW Lining Services was responsible for providing and installing a portion of the separation geotextile between the drain rock and the erosion layer.

### **2.5 DBM Contractors, Inc.**

DBM Contractors, Inc., was responsible for the installation of the landfill gas extraction wells.

## **2.6 D.A. Berg, Inc.**

D.A. Berg, Inc., is a registered professional surveyor in the state of Washington and provided all control surveying and as-built surveys.

## **2.7 Corliss Sand and Gravel, Inc.**

Corliss Sand and Gravel, Inc., provided all earthwork materials for the project including, low-permeability soil, drainage rock, bedding sand and topsoil.

## **3 CONSTRUCTION DETAILS**

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### **3.1 Introduction**

This section generally describes major components of the closure construction and in some cases methods used to construct these components. Construction quality assurance work performed by EMCON to verify construction complied to specified requirements is described in Sections 4, 5, 6 and 7 of this report.

### **3.2 Earthfills**

Earthfills were placed at various locations and to various depths on the landfill surface to form the cover system subgrade. The earthfills included:

- Adding material to flatten the existing intermediate cover slopes to 3H:1V or flatter.
- Constructing the stormwater diversion berm along the east and south side of the closure area.

Where these earthfills were placed, the soil was hauled to the fill locations in trucks, graded with dozers, and then compacted with pad-foot compactors in loose lifts not exceeding 12 inches.

### **3.3 Type A Low-Permeability Soil Layer**

Type A low-permeability soil was constructed as part of the Type 1 and 2 cover systems. When placed as part of the Type 1 cover, it was placed in four uniform 6-inch-thick compacted lifts. When placed as part of the Type 2 cover it was placed in a single 6-inch compacted lift directly over Type B low-permeability soil. Soils used for the Type A cover were processed at a nearby location to be free of deleterious materials, debris, and organic matter, and had a maximum particle size of 1 inch. Grade control stakes were placed on a 50-foot grid pattern to control soil layer thickness. Soil was hauled to its point of placement in trucks, spread with dozers, moisture conditioned using water trucks,

and compacted using a pad-foot compactor. The surface of each lift was scarified by the pads on the compactor drums. Scarified surfaces established bonding between soil lifts.

Type A soil cover compaction was guided by a zone of acceptable compaction. The zone of acceptable compaction established a zone of soil moisture and density resulting in the required permeability, and established guidance for acceptance of field moisture and density testing. Field moisture and density testing was verified by actual permeability testing of the compacted soil.

### **3.4 Type B Low-Permeability Soil Layer**

The majority of the Type B low-permeability soil was in place prior to closure construction constructed as part of the Type 2 cover system. The minimum thickness of 18 inches was confirmed by excavating hand-auger holes into the existing soil cover layer to a depth of 18 inches. In areas where the cover soil was less than 18-inches thick, or in areas where fill had to be added to achieve a 3H:1V or flatter slope (in the Type 2 cover area), Type B low-permeability soil was added until the desired thickness was achieved. The Type B low-permeability soil was placed in uniform 6-inch-thick compacted lifts. Soils used for the Type B cover were processed at a nearby location to be free of deleterious materials, debris, and organic matter and had a maximum particle size of 6 inches. Grade control stakes were placed on a 50-foot grid pattern to control soil layer thickness. Soil was hauled to its point of placement in trucks, spread with dozers, moisture conditioned using water trucks, and compacted using a pad-foot compactor. The surface of each lift was scarified by the pads on the compactor drums. Scarified surfaces established bonding between soil lifts. Type B cover compaction was guided by a zone of acceptable compaction. The zone of acceptable compaction established a zone of soil moisture and density resulting in the required permeability, and established guidance for acceptance of field moisture and density testing. Field moisture and density testing was verified by actual permeability testing of the compacted soil.

### **3.5 Geomembrane**

Geomembrane used to construct Type 1, 2 and 3 covers systems was 60-mil-thick, double-sided textured HDPE manufactured by Serrot Corporation. It was delivered to the site in rolls. When unrolled, the geomembrane panel dimensions were approximately 22.5-feet wide by up to 525-feet long. The geomembrane was off-loaded using a Grade-All forklift and was stockpiled at a maximum height of two rolls.

During deployment, the geomembrane was moved into place using the Grade-All forklift, and then deployed by unrolling them into place. Panels were deployed down the slopes and adjusted into place as needed prior to welding the seams. The downhill ends of the panels were then anchored in an anchor trench along the north and west perimeters of the

closure area. Adjacent panels were overlapped a minimum of 4 inches and welded using a double-tracked fusion welding machine. Where the wedge welder could not be used, extrusion welding was used to weld the seams.

### **3.6 Drainage Layer**

Drainage layer materials were processed at a nearby aggregate processing site to meet the designed gradation and permeability requirements. Soils used for drainage layer was free of deleterious materials, debris, and organic matter and met the designed gradation and permeability requirements. Drainage layer material was placed in a single uniform 12-inch-thick lift over the geomembrane. Grade control stakes (platform stakes to protect geomembrane surface) were placed on a 50-foot (interval) grid pattern to control thickness of the drainage layer. Drainage rock was pushed into place using low-ground pressure (LGP) dozers or by use of a conveyor belt on a conveyor truck. For any given area, the material was placed on the lower elevation areas first and filled upward. When LGP dozers deployed the drain rock, the rock was pushed up or across the slope.

### **3.7 Geotextile**

A geotextile filter was installed above the drainage layer to separate topsoil from the drainage layer. These materials were deployed using methods similar to the geomembrane. The geotextile cushion seams were overlapped approximately 12 inches then sewn together.

### **3.8 Geocomposite**

A geocomposite was installed with the Type 3 cover system. It has a dual purpose: to provide adequate drainage of the soil cover system and to cushion the underlying geomembrane. It was installed by unrolling the panels with the long axis of the panel parallel to the slope, cutting them to fit the configuration of the cover system and then connecting the individual panels with plastic ties.

### **3.9 Geosynthetic Clay Liner**

A GCL was installed with the Type 3 cover system, below the access roadway and to form a diversion flap in the drainage layer. The GCL in the Type 3 cover system and access roadway replaces the Type A low-permeability cover soil in the composite barrier system. The GCL was selected to provide an equivalent material to the Type A low-permeability cover soil; however, could be installed through the ditch lines where compaction

equipment for low-permeability soil would not be effective, and over the existing access road to minimize the built-up thickness.

### **3.10 Rip Rap Erosion Protection**

Rip rap erosion protection was installed over the geocomposite for Type 3 cover systems. This material was chosen for its stability and to resist erosion.

### **3.11 Topsoil**

The topsoil layer for Type 1 and Type 2 cover systems was placed in a single uniform 12-inch-thick compacted lift over the geotextile. The soil was free of deleterious materials and debris. Grade control stakes (platform stakes to protect geotextile surface) were placed on a 50-foot (interval) grid pattern to control thickness of the topsoil layer. Soil was hauled into place using dump trucks which accessed the placement area on 36-inch-thick haul roads constructed over the geotextile. Soil was deployed, graded and compacted over the geotextile surface using LGP dozers and a truck conveyor system. The final surface of the topsoil layer was track walked with the dozer (up and down the slope) leaving crawler marks parallel to the contours to minimize surface erosion.

### **3.12 Vertical LFG Extraction Wells**

Nine vertical LFG extraction well borings were drilled through the waste mass using bucket auger drilling methods. Vertical LFG collection well casings were then constructed in the borings as shown on Details 1 and 2, Record Drawing 9. In addition to the 9 new wells, 11 existing well casings were extended to the designed finish grade of the landfill closure.

Wells logs describing drilling conditions are on file with EMCON. After completing well installations, well casings were temporarily capped to mitigate nuisance odors and potential worker exposure to landfill gas.

### **3.13 Landfill Gas Well-Head Assemblies, Laterals, and Header**

Landfill gas well heads, laterals, and headers were constructed after placement of the cover systems. The locations and details of this installation are shown on Record Drawing 5.



### **3.14 Drainage Pipe System**

An drainage pipe system was installed in the drainage layer to increase surface water percolation from this layer. By providing this added drainage, pore pressure in the drainage layer is reduced and this reduction in pore pressure reduces the potential for slope failure.

These drainage pipes consist of perforated piping placed in shallow troughs formed by a GCL flap extending into the drainage layer. The perforated pipes connect to solid wall piping that discharge to surface water drainage systems. Details of the drainage pipe system are shown on Record Drawing 3.

### **3.15 Stormwater Diversion Berm**

The stormwater diversion berm was constructed as part of the intermediate cover, below the HDPE liner system. The diversion berm was constructed by compacting the Type B soil in 6-inch horizontal lifts and then trimming the compacted soil to the designed ditch configuration. Details of the stormwater diversion berm are shown on Section B, Record Drawing 8.

### **3.16 Erosion Control Materials**

The topsoil was protected from erosion by hydroseeding the entire surface and use of a haybale dike approximately along the 550 elevation contour.

### **3.17 Stormwater Drainage Control Structures**

Stormwater drainage control structures include culverts and straw bale barriers. Details of these structures are shown on Record Drawing 8.

## 4 CONSTRUCTION QUALITY ASSURANCE FOR EARTHWORK

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### 4.1 Introduction

This section describes CQA procedures performed during construction of major earthwork components of the closure construction.

### 4.2 Earthwork Construction Testing

#### 4.2.1 Test Standards

The following test standards apply to CQA work performed for the landfill closure as called out in the CQA manual and the project technical specifications:

<u>Standard</u>	<u>Test Description</u>
ASTM D-698	Moisture-density relations of soils and soil-aggregate mixtures, using 5½-pound rammer and 12-inch-drop
ASTM D-1556	Density of soil in-place by the sand-cone method
ASTM D-1557	Moisture-density relations of soils and soil-aggregate mixtures, using 10-pound hammer and 18-inch-drop
ASTM D-422	Particle size analysis of soils
ASTM D-2922	Density of soil and soil-aggregate in-place by nuclear methods
ASTM D-3017	Moisture content of soil and soil-aggregate in-place by nuclear methods
ASTM D-2216	Laboratory determination of water (moisture) content of soil, rock, and soil-aggregate mixtures

<u>Standard</u>	<u>Test Description</u>
ASTM D-2434	Method of test for permeability of porous granular material
ASTM D-5084	Method of test for permeability of fine grained soils
ASTM D-4318	Atterberg Limits
ASTM D-1140	Amount of material in soils finer than the No. 200 sieve
ASTM D-2487	Classification of soils for engineering purposes
ASTM D-2217	Practice for wet preparation of soil samples for particle size analysis and determination of soil constants.
ASTM D-2488	Description and identification of soils (visual-manual procedure)
ASTM D-2937	Density of soils by drive cylinder method
WSDOT-605	Method of test for permeability of porous granular material

#### **4.2.2 Test Frequencies**

The CQA Manual listed soils tests and required frequencies of these tests for various cover soil layers and earthfills. The manual established a minimum number of tests. Extra testing was conducted whenever work or materials were suspect, marginal, or of poor quality. Any re-tests performed as a result of a failing test did not contribute to the total number of tests performed in satisfying the minimum test frequency.

The first three columns of Table 4-1 below summarize the types of soil materials tested during the project, tests required for each of these materials and the test frequencies. The fourth, fifth and sixth columns summarize the installed quantities of each material, number of tests required to meet the established test frequencies, and the actual number of tests performed.

Soil and laboratory test results described in this section are presented in Appendix B.

**Table 4-1  
Schedule of Soils Testing**

CQA MANUAL REQUIREMENTS			ACTUAL TESTING		
Material	Required Testing	Testing Frequency	Quantity	Number of Tests Required	Number of Actual Tests Performed
Low-Permeability Soil Layer Type A	Moisture-Density Relationship (D698, D1557)	1 per material type	—	1	1
Low-Permeability Soil Layer Type A (400 series NDT)	Nuclear Moisture-Density (D2922 D3017)	1 per 10,000 sf per 6-inch lift thickness	524,500 SF	52	78
Low-Permeability Soil Layer Type A	Visual classification (D2487 D2488)	Continual during excavation of stockpile handling	—	—	—
Low-Permeability Soil Layer Type A	Liquid limit/Plastic limit determination (D4318)	1 per material type and per 100,000 sf with min. of 1 per 6 inches of thickness	524,500 SF	5	7
Low-Permeability Soil Layer Type A	Gradation (D422)	1 per material type and per 100,000 sf with min. of 1 per 6-inches of thickness	524,500 SF	5	7
Low-Permeability Soil Layer Type A	Hydraulic Conductivity (D5084)	1 per material type and per 100,000 sf with min. of 1 per 6-inches of thickness	524,500 SF	5	7
Low-Permeability Soil Layer Type A	Thickness Verification	Horizontal survey point at base and top of layer grid, spacing on 100 ft. grid and at grade breaks.	524,500 SF	53	135
Low-Permeability Soil Layer Type B (1-300 series NDT)	Nuclear Moisture Density (D2922, D3017)	No frequency specified	—	None	106
Low-Permeability Soil Layer Type B	Visual Classification (D2487 D2488)	At undisturbed sample location or during excavation or stockpile	—	—	—
Low-Permeability Soil Layer Type B	Liquid limit/Plastic limit determination (D4318)	1 per 100,000 sf with min. of 1 per 18-inches of thickness	524,500 SF	5	3
Low-Permeability Soil Layer Type B	Gradation (D422)	1 per 100,000 sf with min. of 1 per 18-inches of thickness	524,500 SF	5	3
Low-Permeability Soil Layer Type B	Hydraulic Conductivity (D5084)	1 per 100,000 sf with min. of 1 per 18-inches of thickness	524,500 SF	5	6
Low-Permeability Soil Layer Type B	Thickness Verification	1 per 10,000 sf using soil auger and tape measure	524,500 SF	53	60
Drainage Layer	Visual Classification (D2487 D2488)	Continual during excavation or stockpile handling	—	—	—

CQA MANUAL REQUIREMENTS			ACTUAL TESTING		
Material	Required Testing	Testing Frequency	Quantity	Number of Tests Required	Number of Actual Tests Performed
Drainage Layer	Gradation (D422)	1 per 1,500 yd <sup>3</sup>	19,425 yd <sup>3</sup>	13	16
Drainage Layer	Hydraulic Conductivity (WSDOT 605)	1 per 5,000 yd <sup>3</sup>	19,425 yd <sup>3</sup>	4	15
Drainage Layer	Thickness Verification	1 each 10,000 sf; min. of 2 per acre	524,500	52	~ 500
Topsoil Layer	Visual Classification	Continual during excavation or stockpile handling	—	—	—
Topsoil Layer	Gradation (D422)	1 test per 1,500 yd <sup>3</sup>	19,426	13	0
Topsoil Layer	Hydraulic Conductivity (D5084)	1 per 5,000 yd <sup>3</sup>	19,426	4	1
Topsoil Layer	Thickness Verification	1 per acre; min. of 2 per acre	524,500 SF	13	~ 500
NOTE: NDT denotes Nuclear Density Test.					

#### 4.2.3 Soil Sample Numbering

The CQA Monitors recorded soil sample numbers in a master log maintained at the site continuously as soil samples were obtained. Information contained in the master log of test samples includes:

- Sample number
- Test(s) to be performed
- Date sampled
- CQA Monitor obtaining sample
- Location sampled
- Location of testing (site vs. off site)
- Date sample sent off site
- Date test results received
- Date testing completed at site
- Test results and remarks

#### 4.2.4 Soil Sample Tagging

The CQA Monitors assigned sample identifications for each soil sample. The sample tag was placed on the soil sample container immediately upon sampling and remained with the soil sample throughout processing. The tag contained the following information:

- Sample number

- Material type
- Project name and project number
- Sampling CQA Monitor
- Date sampled
- Test(s) to be performed

## 4.3 Field Moisture-Density Tests

### 4.3.1 Test Summaries and Numbering

CQA Monitors maintained summary data and a unique numbering system for field moisture-density tests performed by the nuclear moisture density method (ASTM D2922 and ASTM D3017). The summary was maintained in a data base which identified soil components, date tested, monitor performing the test, and a unique sequential sample number for each soil component. The following numbering sequence was used:

Existing Subgrade	0 - 99
1st Lift	100 - 199
2nd Lift	200 - 299
3rd Lift	300 - 399
4th Lift	400 - 499

No test number was repeated for a given soil component, and re-tests of failing tests were given a letter suffix along with the original test number (i.e., re-tests for a failing Test #201 would be #201A, #201B, etc.).

### 4.3.2 Test Locations

The intent of the field moisture and density testing program was to provide confidence earthwork materials and their installation complied with the technical specifications. To meet this intent, the CQA Monitors performed moisture/density tests of earthfills, Type A and B low-permeability soil layers and topsoil materials installed as part of the closure construction. Tests locations were randomly selected. But tests were taken at various elevations and spaced somewhat uniformly throughout the entire plan dimensions of the fill to assure a representative portion of the soil fill materials was tested. Moisture-density test locations were chosen without bias and additional testing was performed in suspect or marginal areas. During the work, test locations were plotted on a drawing by the CQA Monitor to verify no significant areas were untested.

## **4.4 Monitoring and Testing Requirements**

CQA work performed by the Monitors for various earthwork components of the construction are summarized in the following paragraphs. Each component had specific construction monitoring and testing requirements as defined in the technical specifications and/or CQA Manual. Soils testing described in this section was performed in accordance with the technical specifications and is presented in summary form in Appendix B.

### **4.4.1 Earthfills**

- Verified by observation construction staking was performed prior to work and survey control points were secured outside the work area.
- Verified by observation soils did not contain deleterious materials or desiccation cracks before placement of subsequent lifts or fill above it.
- Performed visual and manual soil classifications (ASTM D 2488) to verify material source was suitable for earthfills.
- Verified by observation earthfill materials were placed and compacted in 6- to 8-inch lifts.
- Performed 41 moisture-density tests to verify each lift was compacted to the minimum required relative compaction.

### **4.4.2 Type A and B Low-Permeability Soil Layer**

- Reviewed owner's work plan regarding material quality control, moisture conditioning, processing, and placement.
- Reviewed pre-construction test data, and zone of acceptable compaction generated for Type A and B cover soil prior to construction.
- Verified Type A and B cover soils were suitable by performing visual and manual soil classifications (ASTM D2488), #200 wash (ASTM D1140), and Atterberg limits testing (ASTM D4318) before work began and as it proceeded.
- Performed moisture-density relationship testing (ASTM D698 and ASTM D1557) to determine zone of acceptable compaction.

- Verified by observation construction staking was performed where required before work started and survey control points were secured outside the work area.
- Monitored moisture conditioning, aeration, processing, and clod removal before and during placement operations.
- Verified by observation surfaces between lifts were scarified and blended to adequately bond lifts.
- Performed 142 nuclear density (ASTM D2922) and moisture content tests (ASTM D3017) to verify Type A and B soil cover was moisture conditioned and compacted within the zone of acceptable compaction.
- Obtained 3- or 6-inch-diameter relatively undisturbed samples of the in-place Type A and B cover soil material by the drive-cylinder method (ASTM D2937). Performed seven permeability tests on the Type A soil and three permeability tests on the Type B soil.
- Verified by observation final surface of soil coming into contact with geomembrane was smooth drum rolled and was free of rocks, debris, or other irregularities that could damage or cause undue stress to the geomembrane.
- Verified by observation Type A and B cover soil was protected from desiccation and erosion until covered by geomembrane.
- Verified by observation any damage caused by desiccation cracks, heavy rains, and other sources was properly repaired before geomembrane placement.
- Coordinated with the Owner to perform low-permeability layer thickness verification surveys as placement and final surfacing operations progressed. Verified corrective actions indicated by verification surveys, as required.

#### **4.4.3 Drainage Layer**

- Verified drainage layer materials complied with material gradation requirements by performing 16 sieve analysis tests (ASTM D422).
- Verified drainage layer materials complied with permeability requirements by performing 15 falling-head permeability tests (WSDOT 605).



- Verified by observation underlying geosynthetic installations were not damaged during placement of drainage layer by monitoring drainage layer placement operations.
- Verified by observation drainage layer was placed in an up-slope direction.
- Verified drainage layer material thickness during placement operations by checking thickness against grade control stakes.

#### **4.4.4 Topsoil**

- Verified by observation underlying installation and drainage layer placement was completed and in accordance with the technical specifications prior to topsoil placement operations.
- Verified by observation construction staking was performed on a 50-foot grid pattern to control total layer thickness.
- Verified by observation of the control stakes topsoil was placed in a single uniform lift thickness and was placed in an up-slope direction.
- Verified by observation final surface of the topsoil was track walked with crawler dozer leaving track marks perpendicular to the slope.

#### **4.4.5 Culverts and Drains**

- Verified by observation and comparison with technical specifications culvert material complied with specified requirements.
- Verified by observation culverts were installed to the lines, grades, and dimensional cross-sections shown on the drawings with a tolerance of 0.1 foot vertical and 1.0 foot horizontal.
- Verified by observation compacted bedding surface was provided for the culvert pipe and the bedding material was conformed to the lower half perimeter of the culvert pipe.

#### **4.4.6 Ditches**

- Verified by observation construction staking was performed prior to work and survey control points were secured outside the work area.

- Verified ditches were constructed to the alignments, slopes, flow line elevations, and cross-sections shown on the drawings.
- Verified installation of rip rap and rock erosion protection complied with the drawings.

#### **4.4.7 Site Storm Sewerage Systems**

- Verified construction staking was performed to layout system alignments and locations of manholes, inlets, and catch basins. Verified construction staking provided bench mark off-sets with elevation secured outside the work area.
- Verified pipe, pipe couplings, inlets, manholes, and catch basins used to construct the site storm sewerage systems comply with product requirements of the technical specifications.
- Verified pipe trench was excavated in accordance with the dimensional cross-sections and design elevations shown on the drawings.
- Verified all pipes, inlets, manholes, and catch basins were installed in accordance with the dimensional cross-sections shown on the drawings, as described in the technical specifications, and at the correct invert elevations.

### **4.5 Construction Phase Problems and Resolutions**

#### **4.5.1 Reclamation of Interim Cover**

The existing grade was modified on the east side to receive more waste by stripping off the existing interim cover, stockpiling the interim cover, placing the waste, and then replacing the stockpiled interim cover. In the process of removing and replacing the interim cover, pieces of trash and larger rocks became mixed in with the interim cover. During compaction of the interim cover, the interim cover soil was carefully hand screened of this debris using manual labor. The material placement and hand screening was performed until the soil was considered by EMCON's CQA monitor to be in general conformance with the Type B low-permeability soil specifications.

In placing the Type A low-permeability soil, rock greater than 1 inch in diameter would occasionally dislodge from the underlying Type B low-permeability soil and become mixed with the Type A low-permeability soil. EMCON's CQA monitor was on site full time to observe the placement of the Type A low-permeability soil and direct the removal of this larger rock.

#### **4.5.2 Flattening Slopes**

Once the Type B low permeability soil was in place over the trash, survey indicated portions of the slopes had areas which were steeper than 3H:1V. These steeper portion of the slopes were filled using 6-inch compacted lifts of Type B low-permeability soil until a 3H:1V slope or flatter was achieved for the Type 2 cover areas. All filling was done under direction of the EMCON Engineer and tested by the CQA monitor.

#### **4.5.3 Drainage Layer Redesign**

The drainage layer design initially called for a minimum in-place permeability of 1 cm/sec. This required the drainage aggregate to consist of rounded gravel with little to no sand. Placing this aggregate proved to be problematic on the 3H:1V slopes as the material would tend to roll downslope and was difficult to maneuver in with LGP tracked equipment. It was decided that approximately one part sand would be added to five parts aggregate to increase the internal angle of friction of the aggregate. The addition of the sand, however, reduced the permeability of the drainage layer, requiring a maximum drainage length of 100 feet rather than the drainage length of 300 feet originally designed. To facilitate drainage, perforated, corrugated polyethylene pipe was placed within the drainage layer at a maximum spacing of 100 feet. These drainage pipes and a detail of this system are provided on the as-built drawings.

## 5 CONSTRUCTION QUALITY ASSURANCE FOR GEOSYNTHETICS

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### 5.1 General

Objectives of the geosynthetics CQA program were to assure proper construction techniques and procedures were used, and assure the project was completed in accordance with the project construction drawings and the technical specifications. By meeting these objectives, the CQA program identified and defined problems during construction, and corrected them before construction was completed.

This section describes CQA procedures performed for the installation of geosynthetic components. The following types of geosynthetics were utilized for this project:

- Textured 60-mil HDPE geomembrane
- Geocomposite
- Non-woven geotextile
- Geosynthetic clay liner

CQA for the geosynthetics installations was performed to verify materials delivered to the site met specified requirements and were installed in accordance with the design. To monitor compliance, EMCON reviewed the manufacture's quality control submittals, performed independent material conformance testing, monitored construction testing, performed independent construction testing, and visually monitored installations. Conformance testing refers to activities taking place before geosynthetics installation. Construction testing includes activities occurring during geosynthetics installation.

CQA conformance and construction testing was conducted in accordance with this CQA manual, and in accordance with the technical specifications.

## **5.2 Geosynthetic Clay Liner**

### **5.2.1 Manufacturers Quality Control Testing**

The GCL manufacturer performed quality control testing as specified in the technical specifications. The CQA Monitor reviewed the manufacturer's quality control tests and verified GCL met the requirements listed in the Technical Specifications.

### **5.2.2 Delivery**

During GCL delivery the CQA Monitor verified the following:

- Verified the GCL was shipped in rolls.
- Verified rolls were wrapped individually in relatively impermeable and opaque protective covers.
- Verified each roll was marked or tagged with the following information: manufacturer's name; product identification; lot and roll numbers; roll dimensions and weight.
- Verified rolls were stacked no more than four high.
- Verified rolls were stored on high level ground, elevated above ground surface and covered with a waterproof covering.
- Verified GCL was not damaged or exposed to excessive moisture during shipping.

### **5.2.3 Manufacturer Testing**

**Tests.** The GCL manufacturer provided manufacturer quality assurance/quality control (MQA/MQC) certification for all GCL delivered to the project. Table 5-1 lists the quantity of GCL delivered, conformance tests required, the required test frequency, and the number of conformance tests performed. Test results are as follows.

**Table 5-1**  
**GCL Conformance Test Summary**

Material Component	Square Footage Delivered	MQA/MQC Test Required	Required Test Frequency	Number of MQA/MQC Tests Required	Number of MQA/MQC Tests Performed
Bentonite Component of GCL	134,118	Moisture content	1 per 100 tons	1	1
Geotextile component of GCL	134,118	Grab strength	1 per 100,000 sf	2	25
Manufactured GCL	134,118	Mass per unit area	1 per 200,000 sf	1	25
Manufactured GCL	134,118	Mass per unit area	1 per 40,000 sf	4	
Manufactured GCL	134,118	Moisture content	1 per 40,000 sf	4	25
Manufactured GCL	134,118	Permeability	1 per lot	1	2
Manufactured GCL	134,118	Residual shear strength	1 series of tests for each interface including internal strength	1	1

#### 5.2.4 Subgrade Preparation

Prior to GCL installation, the CQA Monitor verified the following:

- The grades below the GCL were verified and accepted by the Contractor.
- Required documentation for constructed layers, if any, and subgrade preparation below the GCL were completed and accepted.
- Standing water was not present.
- The supporting surface had been rolled to provide a smooth surface and did not contain materials which could damage the GCL.

#### 5.2.5 Deployment and Installation

All installation of GCL was monitored continuously by the CQA Monitor. The CQA Monitor performed the following work during GCL deployment and installation:

- Verified equipment used to deploy GCL over soil did not cause excessive rutting of the subgrade, and the ruts were repaired.
- Verified deployed GCL panels did not have folds or excessive slack.
- Verified GCL on side-slopes was not deployed perpendicular to the direction of the slope unless the area requiring GCL lining was less than one roll width wide.

- Verified GCL was anchored and then unrolled working down to keep the material free from wrinkles and folds.
- Verified horizontal seams were not made on slopes greater than 10 percent.
- Verified bentonite in GCL was evenly distributed, and there were no thin spots, or other panel defects.
- Where defects were noted, recorded the defects and their repair.
- Verified that only panels which could be covered in 1 day were deployed and that panels were not placed during wet weather.
- Verified GCL was protected against wind damage, as required.
- Verified panels were joined by overlapping a minimum of 9 inches along the panel length.
- Verified the overlap was a minimum of 12 inches at ends of roll, and at end of all repair locations.
- Verified loose bentonite paste was applied between overlaps at a minimum rate of 4 ounces per linear foot of overlap.

The CQA Monitor visually inspected GCL for hydration by walking over the GCL to locate soft spots. There was no hydration of the GCL prior to it being covered with geomembrane.

## 5.3 Geomembrane

### 5.3.1 Delivery

Upon delivery of geomembrane, the CQA Monitor:

- Inspected geomembrane rolls for damage occurring during shipping and handling, identified damaged materials, and where required verified damaged materials were repaired or set aside.
- Verified the geomembrane was stored in accordance with the technical specifications and was protected from puncture, dirt, grease, water, moisture, mud, mechanical abrasions, excessive heat, direct sunlight, and other damage.

- Verified all manufacturing documentation required by the technical specifications was received and reviewed.
- Verified the geosynthetics receipt log form was completed for all geomembrane materials received (Appendix C-2).

### 5.3.2 Conformance Testing

**Tests.** One geomembrane sample was obtained from every 100,000 square feet of material supplied. Table 5-2 lists geomembrane type, the quantity delivered, number of resin batches per material, and the number of conformance tests performed. The material was sampled at the site by the CQA Monitors. The samples were forwarded to an independent testing laboratory for the following conformance tests:

- Density (ASTM D 792, Method A or ASTM D 1505).
- Carbon black content (ASTM D 1603).
- Carbon black dispersion (ASTM D 3015).
- Thickness (ASTM D 1603).
- Tensile properties (ASTM D 638).

**Table 5-2  
Geomembrane Conformance Test Summary**

Geomembrane Type	Square Footage Delivered	Number of Resins Batches	Number of Conformance Tests
60-mil textured (both sides) HDPE	698,625	2	6

Results of these tests are presented in Appendix C-2. The CQA Manager reviewed all conformance test results for conformance with the technical specifications. All material tested met the specified requirements.

**Sampling Procedure.** Samples were taken across the entire roll width and were 3 feet long. The CQA Monitor marked the machine direction and the manufacturer's roll identification number on the sample. The CQA Monitor also assigned a conformance test number to the sample and marked the sample with that number.

### 5.3.3 Geomembrane Installation

**Surface Preparation.** During installation the CQA Monitors verified by observation the low-permeability soil layer surfaces were prepared in accordance with the technical



specifications. Before geomembrane installation, the subgrade soil surface was inspected by the CQA Monitor and the Installer. The CQA Monitor verified the following:

- All lines and grades for soil surface had been verified by the contractor.
- The soil surface had been rolled and compacted to be free of surface irregularities, loose soil, and protrusions and did not have stones or other objects that could damage the geomembrane.
- The anchor trench dimensions had been checked and the trenches were free of sharp objects and stones.
- There were no excessively soft areas.
- The soil surface was not saturated and no standing water was present.
- The soil surface had not desiccated.
- All construction stakes had been removed and there was no debris, rocks, or any other objects in or on the soil surface.
- The Installer had certified in writing that the surface on which the geomembrane was installed was acceptable.

**Panel Placement.** Before installing any geomembrane, the Installer submitted panel layout shop drawings in accordance with the technical specifications. The drawings showed the proposed layout of the panels, including panel identification numbers, field seams, and any other details not conforming to the construction drawings.

The CQA Monitors maintained a separate panel layout drawing during construction showing panel numbers, destructive test locations, and large repair locations. This drawing is provided in Appendix C-2. Small repair locations and nondestructive testing was tabulated and shown in Appendix C-2.

During panel placement operations, the CQA Monitor performed the following work in accordance with the technical specifications and CQA manual:

- Recorded panel numbers and dimensions on a panel/seam log.
- Observed the panel surface as it was deployed and recorded panel defects and defect corrective actions (panel rejected, patch installed, extrudate placed over the defect, etc.) on a repair log, and verified by observation and testing that corrective actions were made.

- Verified equipment used during deployment operations did not damage the geomembrane.
- Verified equipment used on the geomembrane did not leak hydrocarbons onto the geomembrane.
- Verified the surface beneath the geomembrane had not deteriorated since previous acceptance. Verified no stones, construction debris, or other damaging items were beneath the geomembrane.
- Verified the geomembrane was not dragged across an abrasive surface. If the geomembrane was dragged across an abrasive surface, it was inspected for scratches and repaired or rejected, if necessary.
- Recorded weather conditions including temperature, wind speed, wind direction, and humidity. Verified the geomembrane was not deployed in the presence of excess moisture (fog, dew, mist, etc.). In addition, verified the geomembrane was not placed when the air temperature was less than 40°F, greater than 100°F, or when standing water or frost was on the ground.
- Verified crews working on the geomembrane did not smoke, wear shoes that could damage the geomembrane, or engage in activities that could damage the geomembrane.
- Verified methods used to deploy the geomembrane minimized wrinkles and panels were anchored to prevent movement by the wind. Verified the Installer corrected any geomembrane damage resulting from wind.
- Verified no more panels were deployed than could be seamed on the same day.

The CQA Monitor informed the Contractor, Installer, and the CQA Manager if any of the above conditions were not met and verified corrective actions were taken.

**Field Seaming.** Before the start of geomembrane seaming operations and during welding operations, each welder and welding apparatus was tested (trial weld) in accordance with the technical specifications. The CQA Monitor observed all welding operations and verified the Installer quantitatively tested each trial weld for peel adhesion (ASTM D413) and bonded seam strength (ASTM D3083). The trial weld samples were at least 2 feet long (3 feet for double wedge welding machines) and 12 inches wide, with the seam centered lengthwise. The results of the peel and shear tests were recorded on a trial weld log form. The trial welds had to meet specified requirements for peel and shear and the failures had to be either ductile or a film tearing bond (FTB) for a wedge weld. An FTB means the test specimen breaks outside of the seam bond in the parent material, but not in the seam. If at any time the CQA Monitor believed a welding apparatus was

not functioning properly, an additional trial weld was performed. If there were wide changes in temperature ( $\pm 30^{\circ}\text{F}$ ), humidity, or wind speed, additional trial welds were performed. Each trial weld was allowed to cool to ambient temperature before it was tested.

During seaming operations the CQA Monitor performed the following work in accordance with the technical specifications:

- Verified the Installer had the number of welding apparatuses and spare parts necessary to perform the work.
- Verified equipment used for seaming did not damage the geomembrane.
- Verified contact surfaces of the panels were clean, and free of dust, grease, dirt, debris, and moisture before welding.
- Verified seam grinding was completed less than 1 hour before seam welding, and the upper sheet was beveled (extrusion welding only).
- Verified seam overlap was at least 3 inches or in accordance with manufacturer's recommendations.
- Verified strips of geomembrane, wide enough and long enough to protect the hot wedge welder from running on the subgrade, were placed below the geomembrane.

#### **5.3.4 Construction Testing**

**Nondestructive Seam Testing.** The purpose of nondestructive geomembrane testing was to detect discontinuities or holes in the seams. Nondestructive geomembrane tests include vacuum and air pressure testing. Nondestructive testing was performed over the entire length of the seam.

It was the Installer's responsibility to perform nondestructive testing as part of his quality control (QC) program. The CQA Monitor's responsibility was to verify and document the Installer's QC testing complied with the technical specifications and to document seam defects and repairs. Documentation was made on panel/seam logs and repair logs which are presented in Appendix C-2.

During nondestructive testing, the CQA Monitor observed performance of the testing. If any areas failed, the CQA Monitor marked the area with a waterproof marker compatible with the geomembrane, informed the Installer of the required repairs, and recorded the repair area on the repair log.

**Destructive Seam Sampling Procedures and Field Testing.** Destructive seam samples were taken at intervals of at least one test per 500 lineal feet of geomembrane seam. However, additional samples were taken if the CQA Monitor suspected a seam did not meet specified requirements. Reasons for taking additional samples included:

- Wrinkling in seam area
- Excess crystallinity
- Suspect seaming equipment or techniques
- Weld contamination
- Insufficient overlap
- Adverse weather conditions
- Failing tests

The installer removed 12-inch-wide by 44-inch-long seam specimens with the seam centered lengthwise at locations identified by the CQA Monitor and field tested 1-inch-wide by 6-inch-long specimens from each end of the sample for peel and bonded seam strength before the remaining 42-inch samples were shipped off-site for laboratory testing. During sampling procedures the CQA Monitor performed the following work in accordance with the technical specifications:

- Observed sample cutting
- Marked each specimen and sample with an identifying number which contained the seam number, destructive sample test number, welder, date and time welded
- Recorded sample locations on the panel layout drawing and panel-seam logs
- Recorded sample locations, weather conditions, and reasons samples were taken (e.g., random sample, visual appearance, result of a previous failure, etc.) on the destructive seam test form

If one or both of the on-site 1-inch specimens failed in either peel or bonded seam strength, the Installer collected additional samples 10 feet in each direction from the point of the failed test. If the second test passed, the contractor capped the seam between the two passing test locations. If subsequent tests failed, the sampling and testing procedure was repeated until the length of the poor quality seam was established by passing test results.

The 42-inch-long sample was 12-inches wide, with the welded seam centered along the length of the sample. Samples were divided into three sections: One 12-inch-wide by 12-inch-long section for the Installer, one 12-inch-wide by 18-inch-long section for CQA laboratory, and one 12-inch-wide by 12-inch-long for the Owner to archive.

**Third Party Laboratory Testing.** All CQA destructive seam samples obtained for third party (CQA) testing were shipped to a testing laboratory to verify seam quality. The laboratory tested five specimens from each sample in peel and bonded seam strength. Minimum test values are presented in the technical specifications.

If the laboratory test failed in either peel or bonded seam strength, the Installer either reconstructed the entire seam, or collected additional samples at least 10 feet on either side of the failed sample for re-testing. This process was repeated until passing laboratory tests bracketed the failed seam section and the seam between the passing test specimens was repaired. Laboratory testing governed seam acceptance. In no case was field testing of repaired seams used for final acceptance.

### **5.3.5 Repairs**

Portions of geomembrane panels and seams that contained a flaw, a destructive test, nondestructive test cuts or holes, or failed destructive testing, were repaired in accordance with the technical specifications. The CQA Monitor located and recorded all repairs on the repair sheet log (Appendix C-2).

### **5.3.6 Wrinkles**

During placement of materials over the geomembrane, temperature changes, or creep due to equipment loading caused wrinkles to develop in the geomembrane. Wrinkles which could fold over were repaired by cutting out excess material. In no case was material placed over the geomembrane resulting in the geomembrane folding over on itself. The CQA Monitor notified the contractor if wrinkles were being covered by drain rock, and the contractor proceeded with corrective actions. The CQA Monitor documented corrective actions and the contractor removed the wrinkles and preventing damage to the geomembrane surface.

## **5.4 Geocomposite and Geotextile**

### **5.4.1 Delivery**

During delivery of geocomposites and geotextiles the CQA Monitor performed the following work:

- Verified equipment used to unload the rolls did not damage the material.

- Verified all manufacturer's documentation required by the technical specifications was received and reviewed.
- Verified by observation geocomposite and geotextile rolls were wrapped in impermeable and opaque protective covers in accordance with the technical specifications.
- Verified each roll was marked or tagged with the following information: manufacturer's name; project identification; lot number; roll number; roll dimensions. This information was entered on the geosynthetic receipt log (Appendix C-3 and C-4).
- Verified material was stored in a location protected from ultraviolet light exposure, precipitation, mud, dirt, dust, puncture, cutting, or any other damaging or deleterious conditions.

#### **5.4.2 Geocomposite Conformance Testing**

The CQA Monitor obtained geocomposite conformance test samples for every 100,000 square feet of material delivered to the site. Samples were taken across the entire roll width and were 3 feet long. The CQA Monitor marked the machine direction and the manufacturer's roll identification number on the sample. The CQA Monitor also assigned a conformance test number to the sample and marked the sample with that number.

Table 5-3 lists the quantity of geocomposite delivered to the site, the number of conformance tests required, and the number of conformance tests performed. Tests were performed separately on the geotextile and geonet portions of the material and tests were performed on the geocomposite as delivered to the site. The CQA Monitor forwarded samples of the geotextile portion of the geocomposite to the geosynthetic testing laboratory for the following conformance tests:

- Unit Weight (ASTM D3776)
- Grab Tensile Strength (ASTM D1682)
- Apparent Opening Size (ASTM D422)

The CQA Monitor also forwarded samples of the geonet portion of the geocomposite to the geosynthetic testing laboratory for the following conformance tests:

- Specific Gravity (ASTM D1505)
- Thickness (ASTM D1777)
- Percent Carbon Black (ASTM D1603)

The CQA Monitor forwarded samples of the geocomposite as delivered to the geosynthetic testing laboratory for ply adhesion (ASTM F904) testing.

**Table 5-3**  
**Geocomposite Conformance Test Summary**

	Square Footage Delivered	Number of Conformance Test Required	Number of Conformance Tests Performed
Geocomposite	173,140	2	2

The material met specified requirements and conformance test results are presented in Appendix C-3.

#### **5.4.3 Geotextile Conformance Testing**

**Tests.** The CQA Monitor obtained geotextile conformance test samples for every 100,000 square feet of material delivered to the site. Samples were taken across the entire roll width and were 3 feet long. The CQA Monitor marked the machine direction and the manufacturer's roll identification number on each sample. The CQA Monitor also assigned a conformance test number to the sample and marked the sample with that number.

Table 5-4 lists the quantity of geotextile delivered to the site, the number of conformance tests required, and the number of conformance tests performed. The CQA Monitor forwarded samples to the geosynthetic testing laboratory for the following conformance tests for the geotextile:

- Fabric Weight (ASTM D3776)
- Grab Tensile Strength (ASTM D4632)
- Mullen Burst Strength (ASTM D3786)
- Puncture Resistance (ASTM D4833)
- Permittivity (ASTM D4491)
- Trapezoidal Tear Strength (ASTM D4533)

**Table 5-4**  
**Geotextile Conformance Test Summary**

Geotextile Type	Square Footage Delivered	Number of Conformance Tests Required	Number of Conformance Tests Performed
Geotextile Filter	369,000	4	6

The material met specified requirements and conformance test results are presented in Appendix C-4.

#### **5.4.4 Geocomposite and Geotextile Installation**

**Surface Preparation.** Before geocomposite and geotextile installation, the CQA Monitor performed the following in accordance with the technical specifications:

- Verified all underlying lines and grades were verified by the Contractor and Installer.
- Verified soil or geomembrane surfaces did not contain stones that could damage the geocomposite or geotextile.
- Verified geomembrane had been placed and tested.

**Placement and Seaming.** During placement and seaming the CQA Monitor:

- Observed the geocomposite and geotextile as it was deployed and recorded defects and defect corrective actions (panel rejected, patch installed, etc.), and verified corrective actions were performed.
- Verified crews working on the geocomposite and geotextile did not smoke, wear shoes that could damage the materials, or engage in other activities that could damage the materials.
- Verified the geocomposite and geotextile was securely anchored and temporarily ballast to prevent movement by wind.
- On slopes greater than 20 percent, ensured the geocomposite and geotextile was securely anchored.



- Verified adjacent panels were overlapped and seamed in accordance with the technical specifications.
- Verified the geotextile was not exposed to direct sunlight for more than five days.
- Verified geotextile roll ends overlapped 6 inches as specified by manufacturer.
- Verified the panels were joined in accordance with the technical specifications or their revisions.
- Examined the geocomposite and geotextile after installation to ensure no potentially harmful foreign objects such as needles or rocks were present.

#### **5.4.5 Repairs**

Where repairs to geocomposite or geotextile were necessary the CQA Monitor observed the work to assure the following procedures were followed:

- Patching — used to repair large holes, tears, and large defects.
- Removal — used to replace areas with large defects where the preceding methods were not adequate.

Holes, tears, and defects were repaired in the following manner. Soil or other material which penetrated the defect was removed prior to repair. The defect was patched using the same type of geotextile or geocomposite, lyster into place, with the material overlapped 24 inches in all directions. Any tear, hole, or defect exceeding 10 percent of the roll width was removed and replaced.

### **5.5 Construction Phase Problems and Resolutions**

During construction, rock was generally placed on the geomembrane by pushing aggregate up or laterally. Placing rock above the stormwater control berm was difficult using this methodology because of the length of run required to push material from the northeast corner. Attempts to place rock above the berm from south to north on the east slope resulted in some wrinkling above the berm. One large wrinkle was required to be cut out and repaired using extrusion welding. Other, smaller wrinkles were supported on both sides with aggregate and left in place. The creation of wrinkles due to the placement of aggregate was mitigated by creating more points of access across the perimeter ditch for the LGP dozers such that aggregate could be pushed upward and using a truck mounted conveyor system to place the aggregate.

In one area south of the access road, a tire-width rut in the underlying low-permeability soil was noticed by observing a depression in the geomembrane. This area was repaired by cutting the geomembrane, folding it back, regrading the underlying low-permeability soil across the rut, and placing the geomembrane back over the area. The geomembrane flap cut was then repaired using extrusion welding.

Seam tests along the east side of panel 39 failed, possibly due to dust and/or moisture. It was decided to cap strip the entire length of this panel to mitigate the wedge welding problem in this area.

On the night of September 17, 1998, a storm blew one panel on the north slope that had been deployed but not yet welded to the bottom of the slope. Under supervision of the CQA monitor, the contractor was able to pull the panel back over the undamaged low-permeability soil liner and continue seaming the other panels.

## **6 CONSTRUCTION QUALITY ASSURANCE FOR PIPE**

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### **6.1 Introduction**

Perforated and solid polyvinyl chloride (PVC) pipe was utilized to construct the landfill gas system. Corrugated polyethylene pipe was used for site drainage improvements.

CQA objectives for the pipe installations were to verify that the pipe systems were installed in accordance with the design. The CQA program reviewed the Contractor's quality assurance control submittals, monitored construction testing, and monitored installations.

All construction testing was conducted in accordance with the project technical specifications.

### **6.2 Construction Monitoring**

The following sections list the work performed by the CQA Monitors for the PVC pipe delivery, handling, and installation.

#### **6.2.1 Delivery, Handling, and Storage**

- Verified chains, end hooks, cable slings, or any other devices that may scar the pipe were not used to handle the pipe.
- Verified pipe was not damaged during handling operations and that damaged pipe was separated from accepted pipe.
- Verified pipe out-of-roundness did not occur due to excessive stacking heights when the pipe was stored at the site.
- Verified pipe was not damaged by sharp rocks or excessive abrasion when the pipe was pulled into place during jointing, fusion welding, and installation operations.

### **6.2.2 Connections Installation**

The CQA Monitor verified all pipe connections were constructed in accordance with the project specifications and drawings.

### **6.3 Construction Phase Problems and Resolutions**

No construction problems were encountered during installation of pipe over the closure area.

## **7 CONSTRUCTION QUALITY ASSURANCE FOR LANDFILL GAS SYSTEMS**

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### **7.1 Introduction**

This section describes the CQA procedures implemented during installation of the landfill gas systems.

### **7.2 Landfill Gas Systems Quality Assurance**

#### **7.2.1 General**

The following sections list specific monitoring requirements for each component of the landfill gas system. The CQA program implemented included a review of the contractor's quality control submittal, and construction monitoring. Prior to construction, all contractor submittals were reviewed by the CQA Monitors. During installation materials were inspected to verify they complied with the submittals and project specifications. The CQA Monitor paid special attention to dimensions, materials, and constructed locations of materials. The following sections list specific monitoring performed for each component of the landfill gas system.

#### **7.2.2 Vertical Wells**

During construction of LFG vertical wells, the CQA Monitor:

- Verified project safety measures were reviewed and followed.
- Verified vertical PVC pipe casing was slotted or perforated properly.
- Verified non-restricted slip collar was functional.
- Verified pipe diameter and schedule.
- Verified contractor maintained vertical gas well boring log.

- Verified final boring depth.
- Verified pipe connection procedures were in compliance with specifications.
- Verified gravel backfill met specified gradation requirements.
- Verified bentonite backfill material was hydrated chips.
- Verified vertical casing was centered in the boring.
- Verified bentonite seals were constructed at proper intervals and elevations.
- Verified completed wells were capped to prevent free-venting of landfill gas.

### **7.2.3 Well Head and Header Pipe Installation**

During the installation of PVC pipe connections, the CQA Monitor:

- Verified materials used including, but not limited to the PVC pipe, fittings, flanges, couplings, solvent primer, and solvent cement met specified requirements.
- Verified pipe diameters and schedules.
- Inspected the pipe and fittings for interior cleanliness and damage prior to placing and joining in their final position.
- Verified all pipe cuts were made at right angles to the axis of the pipe, cuts were smoothed, beveled, and wiped clean.
- Verified exterior surfaces of all pipes and the interiors of all fittings were wiped clean prior to applying the joining materials.
- Verified contractor applied the primer and cement materials in a way that prevented excessive spillage.
- Verified solvent/cement, joints for the PVC pipe, and fittings were made in accord with the manufacturer's recommendations or ASTM D 2855.

## **7.3 Construction Phase Problems and Resolutions**

Deformation of the 4-inch pipe casing at well E28 occurred during installation near the slip joint. The deformation occurred approximately 2 inches below the 4-inch bell when

the pipe was formed. The bells from both the 4-inch and 3-inch PVC pipes were removed and a coupling was welded to each pipe to attach to the slip joint. Screws were placed into the 3-inch pipe below the reducer to insure the pipe would not slip apart during installation. The well casing was installed and backfilled to the designed depth with rock, bentonite, and clay.

## 8 DOCUMENTATION

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The quality assurance plan depended on thorough monitoring and documentation of construction activities. Therefore, the CQA Monitors documented quality assurance requirements were satisfied through observation, testing and documentation of these activities. Documentation consisted of daily record keeping, testing and installation reports, non-conformance reports (if necessary), progress reports, photographic records, design and specification revisions, and this construction report.

### 8.1 Daily Recordkeeping

At a minimum, daily records were kept consisting of a daily record of construction progress, daily construction report, observation and test data sheets, and, non-conformance/corrective measure reports.

The daily field report summarized ongoing construction and discussions with the Contractor and was prepared by the CQA Monitors. At a minimum, the report included the following:

- Date, project name, project number, and location
- A unique number for cross-referencing and document control
- Weather data
- A description of all ongoing construction for the day in the area of the monitor's responsibility
- An inventory of equipment utilized by the contractor
- Items of discussion and names of parties involved in discussions
- A brief description of tests and observations, identified as passing or failing, or, in the event of failure, a re-test
- Areas of non-conformance/corrective actions, if any



- Summary of materials received and quality documentation
- Follow-up information on previously reported problems or deficiencies
- Record of any site visitors

The daily reports for this project are included in Appendix F.

Observation and test data sheets included the following information, as appropriate for the form being used.

- Date, project name, and location
- A unique number for cross-referencing and document control
- Weather data, as applicable
- A reduced scale site plan showing sample and test locations
- Test equipment calibrations, if applicable
- A summary of test results identified as passing, failing, or, in the event of a failed test, re-test
- Completed calculations

The observation and test data sheets for earthwork are included in Appendix B and for geosynthetics are included in Appendix C.

## 8.2 Photographs

Construction activities were photographed. Photographs included any significant problems encountered and actions taken to correct these problems. Construction photographs are on file at the EMCON office in Bothell, Washington.

## **9 MODIFICATIONS DURING CONSTRUCTION**

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### **9.1 Introduction**

This section describes design modifications and CQA modifications made during construction. Minor design modifications not substantially affecting the design are not discussed, but are shown on the record drawings as are the major modifications described in this section.

### **9.2 Additional Earthfill Type 2 Cover Slope**

Additional earthfill was placed along the top of the existing slope in order to meet the required 3H:1V subgrade slope for a Type 2 cover. This resulted in additional testing of Type B low-permeability soil and general earthfill in 6-inch compacted lifts, as shown in Appendix B.

### **9.3 Stormwater Control Berm**

The stormwater control berm design was modified to be constructed of Type B low-permeability soil rather than Type A low-permeability soil, and a GCL was added above the Type B to provide a low-permeability barrier layer over the berm. This is shown on Section B, Drawing 8 of the as-built drawings provided in Appendix A.

### **9.4 Access Roadway**

GCL was used in place of clay on the access roadway along the north slope. The Engineer obtained approval from TPCHD on September 8, 1998, for this modification. This area of the GCL is shown in Appendix C-1.

### **9.5 Perimeter Ditch**

The concrete channel proposed to bring drainage around the leachate pump risers was not constructed.

## 9.6 Modified Drainage Layer Permeability and Gradation

Sand was mixed with the drainage stone to provide additional stability. The hydraulic conductivity stated in specification Section 02225 was 1 cm/s. Test results conducted at the site indicated a hydraulic conductivity on the order of  $10^{-1}$  cm/s. The Engineer reviewed these results and added drainage piping to the design due to the lower hydraulic conductivity test results of the drainage stone with sand mixed in. The locations of the drainage pipes is shown on the record drawings.

The drainage layer grain size was changed to the following:

Sieve Size	Previous Percent Passing	Modified Percent Passing
1-inch	100	100
3/8-inch	20-60	20-30
U.S. No. 4	4-40	4-10
U.S. No. 200	0-3	0-3

## 9.7 Modified Type A and B Cover Soil Permeability

The hydraulic conductivity of the low-permeability soil for Type A was changed from being less than or equal to  $4.7 \times 10^{-6}$  cm/s to  $1.0 \times 10^{-6}$  cm/s, and for Type B from being less than or equal to  $5.4 \times 10^{-4}$  cm/s to  $1.0 \times 10^{-4}$  cm/s.

## 9.8 Modifications to Construction Quality Assurance and Quality Control Testing

During construction limited modifications were made to construction testing frequencies and test methods as described in the following paragraphs.

### 9.8.1 Engineered Fill (Earthfill)

The engineered fill for miscellaneous structures was changed from minimum of 95 percent of the maximum dry density and zero to plus four percent of optimum moisture content to being within the zone of acceptable compaction as determined by pre-construction testing.

### 9.8.2 GCL

Properties for the geotextile component of the GCL were modified as follows:

Test	Test Designation	Previous Requirement	Modified Requirement
Mass Per Unit Area	ASTM D 3776	5 oz/yd <sup>2</sup>	6 oz/yd <sup>2</sup>
Grab Strength	ASTM D 4632	> 50 lbs	(Deleted)
AOS	--	<0.250 mm	(Deleted)

Manufacturer's quality control testing frequency for the geotextile component of the GCL was modified as follows:

Test	Previous Testing Frequency	Modified Testing Frequency
Mass Per Unit Area	1 per 10,000 yd <sup>2</sup>	1 per 200,000 ft <sup>2</sup>
Grab Strength	1 per 10,000 yd <sup>2</sup>	1 per 200,000 ft <sup>2</sup>

### 9.8.3 Geomembrane Interface Shear Testing

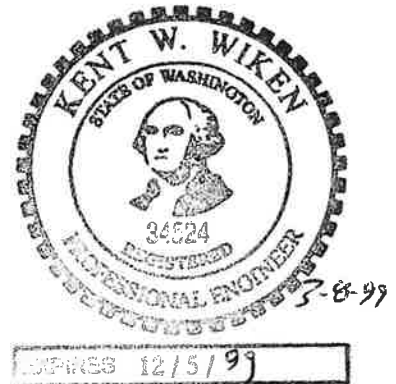
Interface shear testing (ASTM D 5321) of the textured HDPE geomembrane for the Type 2 and Type 3 cover systems was added to the manufacturer's testing requirements. The Type 2 cover requirement was 140 psi shear at 200 psi normal pressure. The Type 3 cover requirement was 70 psi at 100 psi normal pressure.

## 10 STATEMENT OF COMPLIANCE

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The construction activities described in this report were observed by the Project Engineer and Construction Quality Assurance Monitors from EMCON. Based on direct observations made by EMCON personnel, materials testing, other laboratory testing, and other construction documentation described in this report, EMCON concludes the Hidden Valley Landfill, East Lined Area Partial Closure was constructed in a workman-like manner and in accordance with the intended design.

EMCON



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Kent W. Wiken , P.E.  
Senior Project Engineer

## LIMITATIONS

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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.

**APPENDIX A**  
**RECORD DRAWINGS**



# EAST LINED AREA PARTIAL CLOSURE

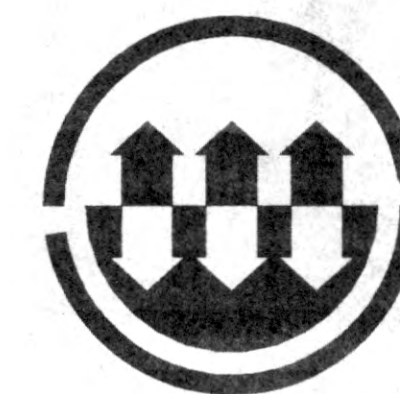
## HIDDEN VALLEY LANDFILL

### PIERCE COUNTY, WASHINGTON

PREPARED FOR

**LAND RECOVERY, INCORPORATED**

P.O.Box 73057 Puyallup, Wa. 98373 (253) 847-7555

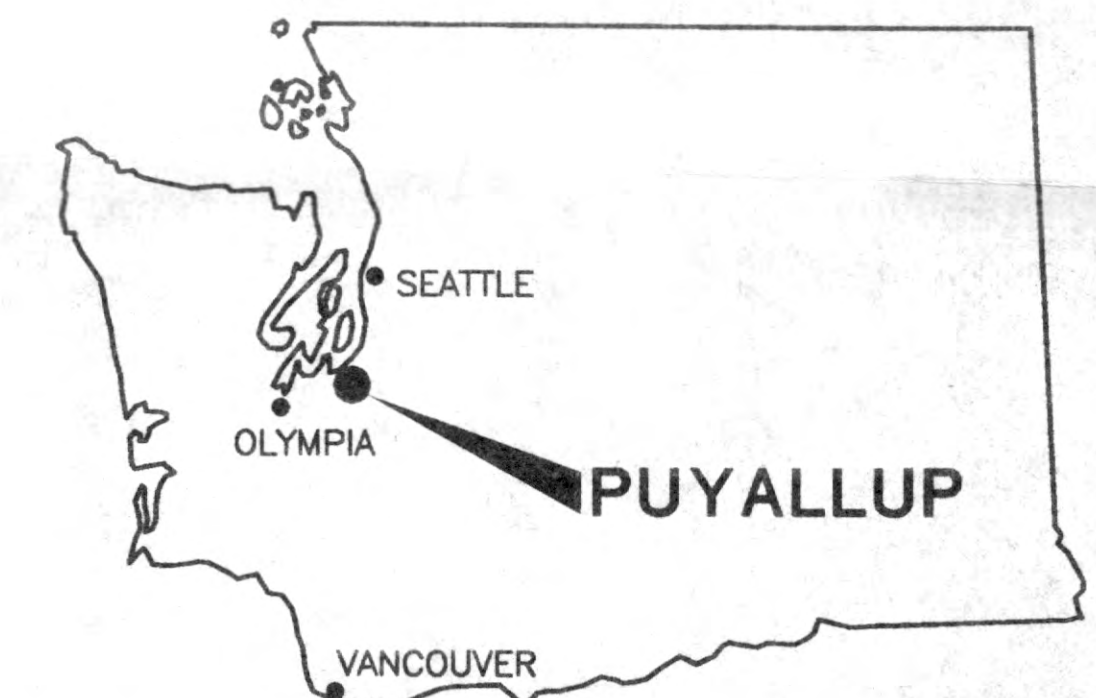


PREPARED BY

**Emcon**

(425) 485-5000

18912 North Creek Parkway Suite 200 Bothell, WA. 98011



**LOCATION MAP**

STATE OF WASHINGTON

#### ABBREVIATIONS

APPROX.	APPROXIMATE
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
CPEP	CORRUGATED POLYETHYLENE PIPE
Ø OR DIA	DIAMETER
DEG	DEGREE
DI	DUCTILE IRON
DWG	DRAWING
EL	ELEVATION
EXIST	EXISTING
EQUIV	EQUIVALENT
FL	FLOWLINE
FT	FEET
HDPE	HIGH DENSITY POLYETHYLENE
I.E.	INVERT ELEVATION
HP	HIGH POINT
L.F.	LINEAL FEET
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PVC	POLYVINYL CHLORIDE PIPE
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
SCH	SCHEDULE
SDR	STANDARD DIMENSION RATIO
THRD	THREADED
TYP	TYPICAL
W/	WITH
W/O	WITHOUT

#### LEGEND

	NATIVE OR EXISTING MATERIAL
	COMPACTED NATIVE MATERIAL
	3/4" - 0" CRUSHED ROCK
	BEDDING SAND
	TYPE 1 FINAL COVER
	TYPE 2 FINAL COVER
	TYPE 3 FINAL COVER
	LOW PERMEABILITY SOIL, TYPE A
	PAVEMENT SECTION
	RIPRAP 3"-6"
	WASTE
	STRUCTURAL FILL

	EXISTING DITCH LINE
	LIMIT OF DRAINAGE SUB-BASIN
	DOWN SLOPE PIPE OR CULVERT
	EXISTING STORM DRAIN
	EXISTING CONTOUR
	INSTALLED
	DITCH LINE
	LIMIT OF DRAINAGE SUB-BASIN
	LIMIT OF EAST LINED AREA PARTIAL CLOSURE
	EAST LINED AREA PARTIAL CLOSURE BOUNDARY
	STRAW BALE BARRIER
	ELECTRIC POWER (AREAL)
	PROPOSED FINAL CONTOUR
	LIMIT OF EXISTING BOTTOM LINER
	PERIMETER DRAINAGE DITCH
	LIMIT OF FINAL COVER TYPE
	LIMIT PARTIAL CLOSURE
	SPOT ELEVATION SYMBOL
	MANHOLE
	LIGHT POLE
	POWER POLE
	STORM DRAIN CATCH BASIN
	FIRE HYDRANT

#### DRAWING INDEX

DRAWING NUMBER	TITLE AND DESCRIPTION	LATEST REVISION NUMBER	LATEST REVISION DATE
	COVER SHEET	0	3/99
1	SITE PLAN	0	3/99
2	FINAL COVER GRADING PLAN	0	3/99
3	DRAINAGE PLAN	0	3/99
4	PERIMETER DITCH PROFILES	0	3/99
5	GAS WELL LAYOUT	0	3/99
6	COVER DETAILS & SECTIONS	0	3/99
7	COVER DETAIL & SECTIONS	0	3/99
8	DRAINAGE DETAIL & SECTIONS	0	3/99
9	GAS SYSTEM DETAILS & SECTION	0	3/99

#### SYMBOLS:

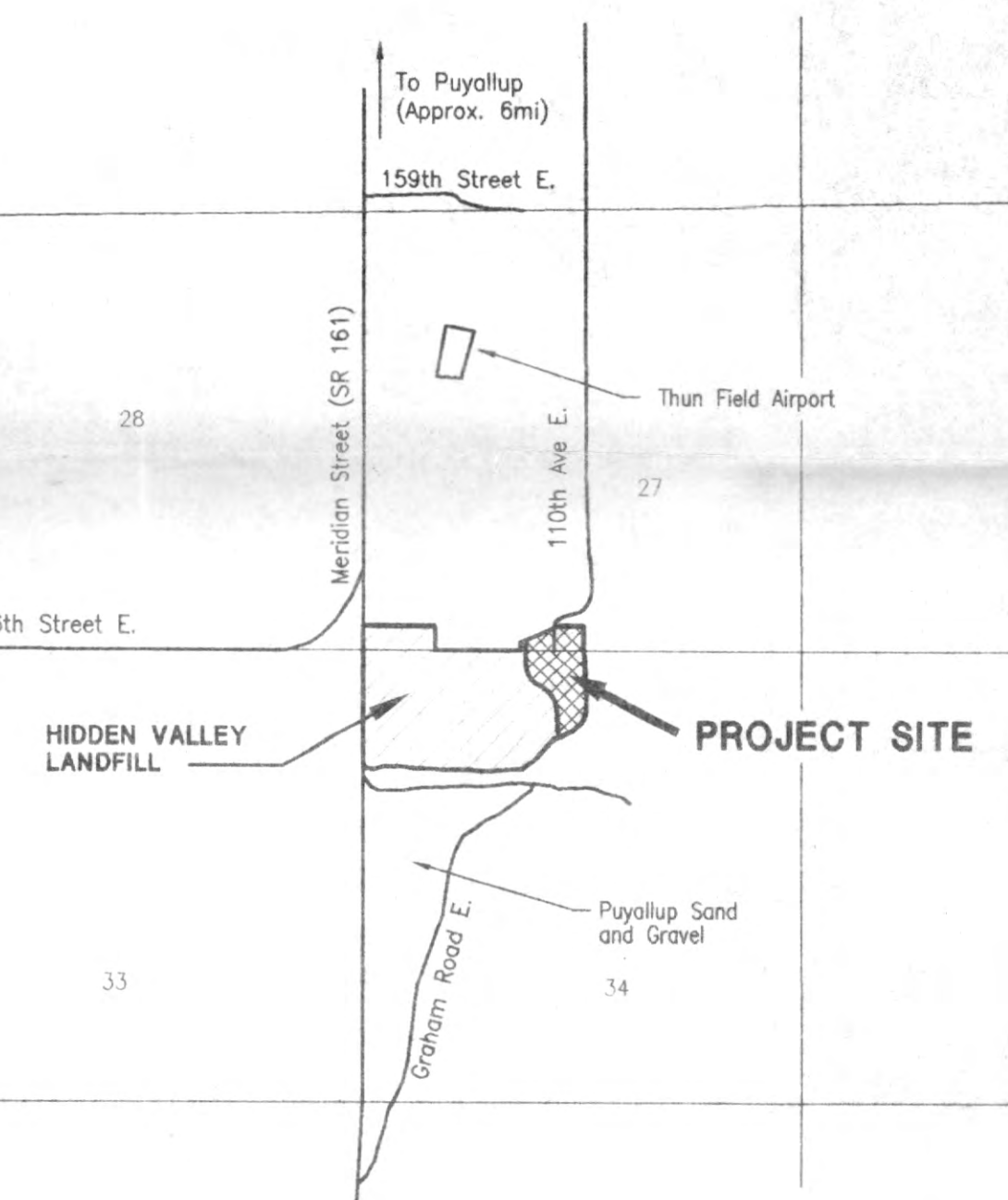
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	DRAWING NUMBER ON WHICH SECTION APPEARS
	DRAWING NUMBER ON WHICH SECTION IS CUT

#### DETAIL

	DETAIL NUMBER
	DRAWING NUMBER ON WHICH DETAIL APPEARS
	DRAWING NUMBER ON WHICH DETAIL IS REFERENCED

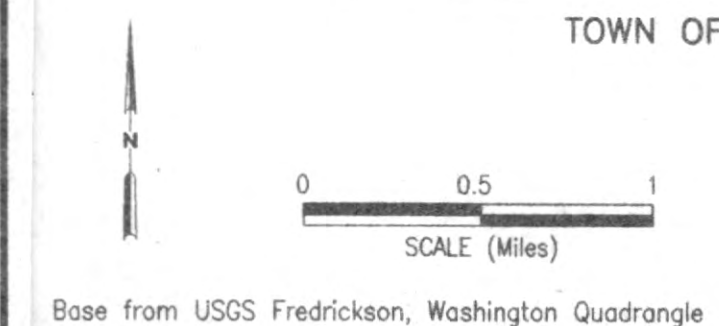
#### RECORD DRAWINGS

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#### PROJECT VICINITY

TOWN OF PUYALLUP



**SITE ADDRESS:**  
17925 Meridian Street  
Puyallup, Wa. 98373

APPROVED:

PROJECT ENGINEER

PROJECT MANAGER

3-5-99  
DATE

3-5-99  
DATE

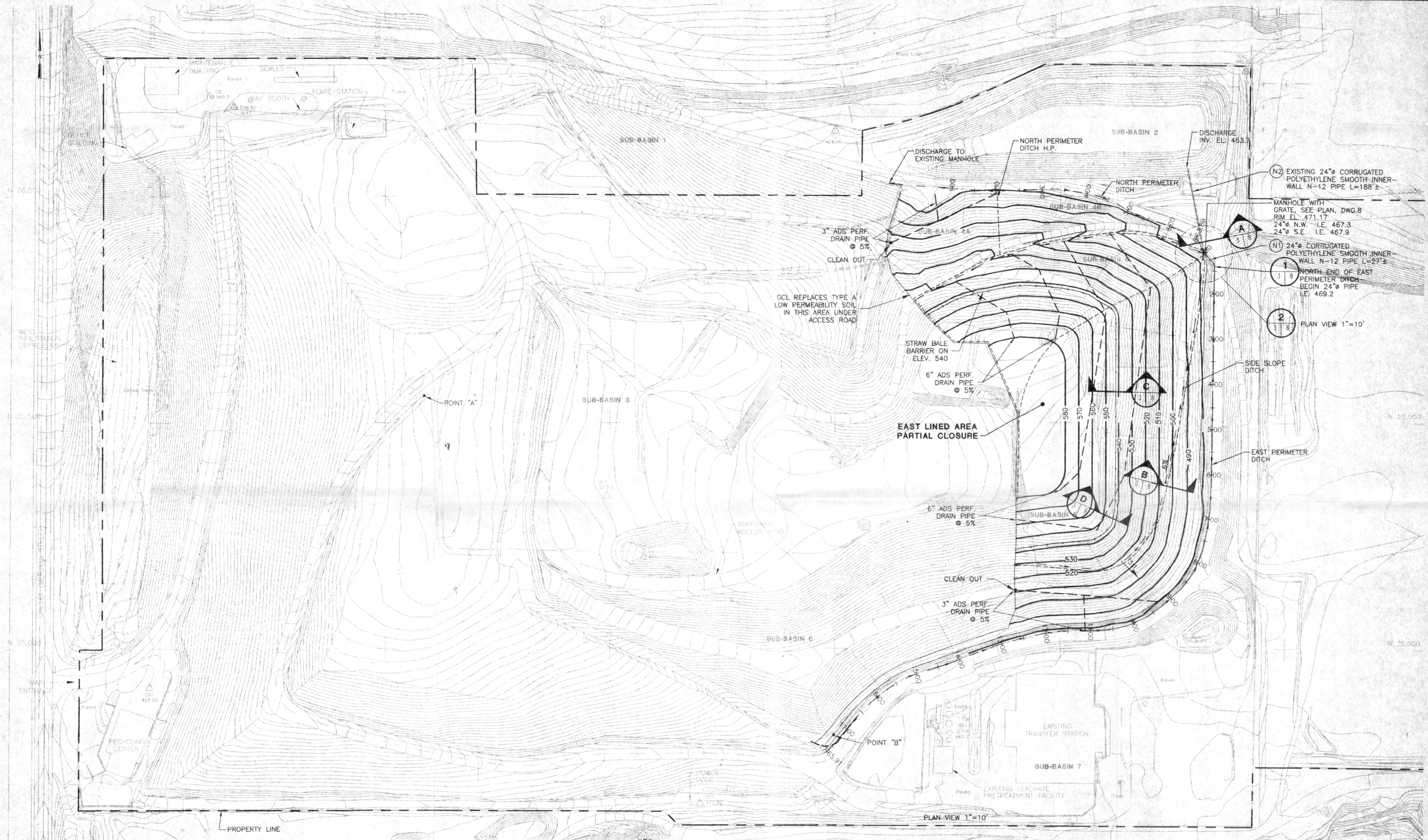






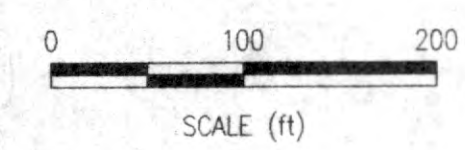






- (N2) EXISTING 24" CORRUGATED POLYETHYLENE SMOOTH INNER-WALL N=12 PIPE L=188'±
- MANHOLE WITH GRATE, SEE PLAN, DWG. 8 RIM EL. 471.17 24" N.W. I.E. 467.3 24" S.E. I.E. 467.9
- (N1) 24" CORRUGATED POLYETHYLENE SMOOTH INNER-WALL N=12 PIPE L=27'±
- (1) NORTH END OF EAST PERIMETER DITCH BEGIN 24" PIPE I.E. 469.2
- (2) PLAN VIEW 1"=10'

Topography prepared by photogrammetric methods by: NIES Mapping Group, Inc. Date of Aerial: 1-9-98.

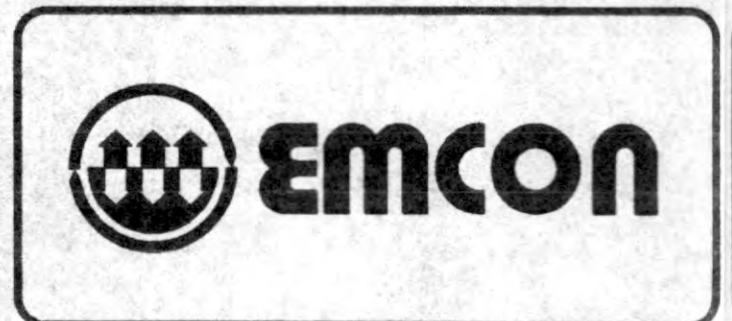


NOTE: FOR PERIMETER DITCH FLOW LINE ELEVATION, SEE PROFILE, DWG. 4.

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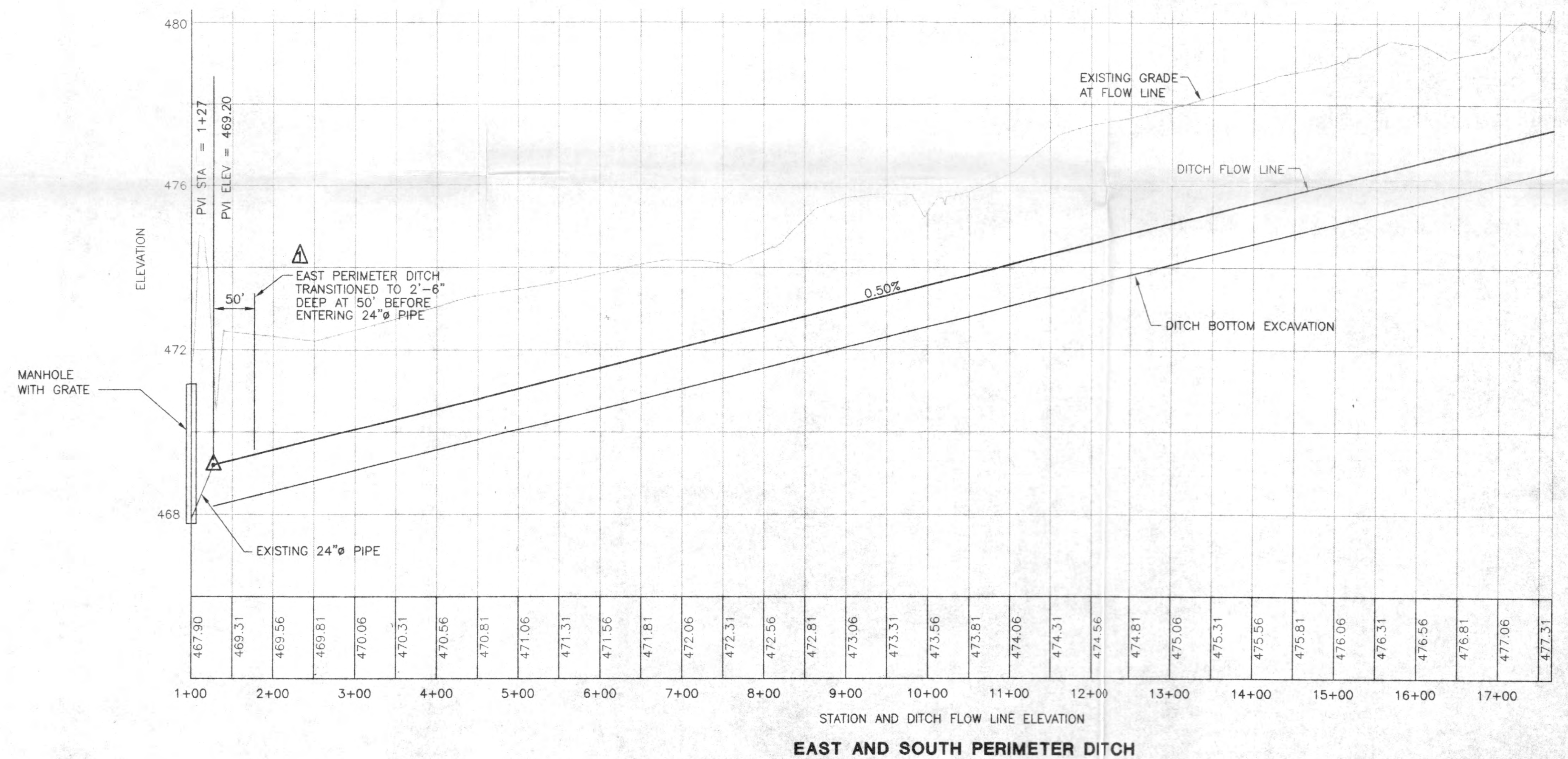
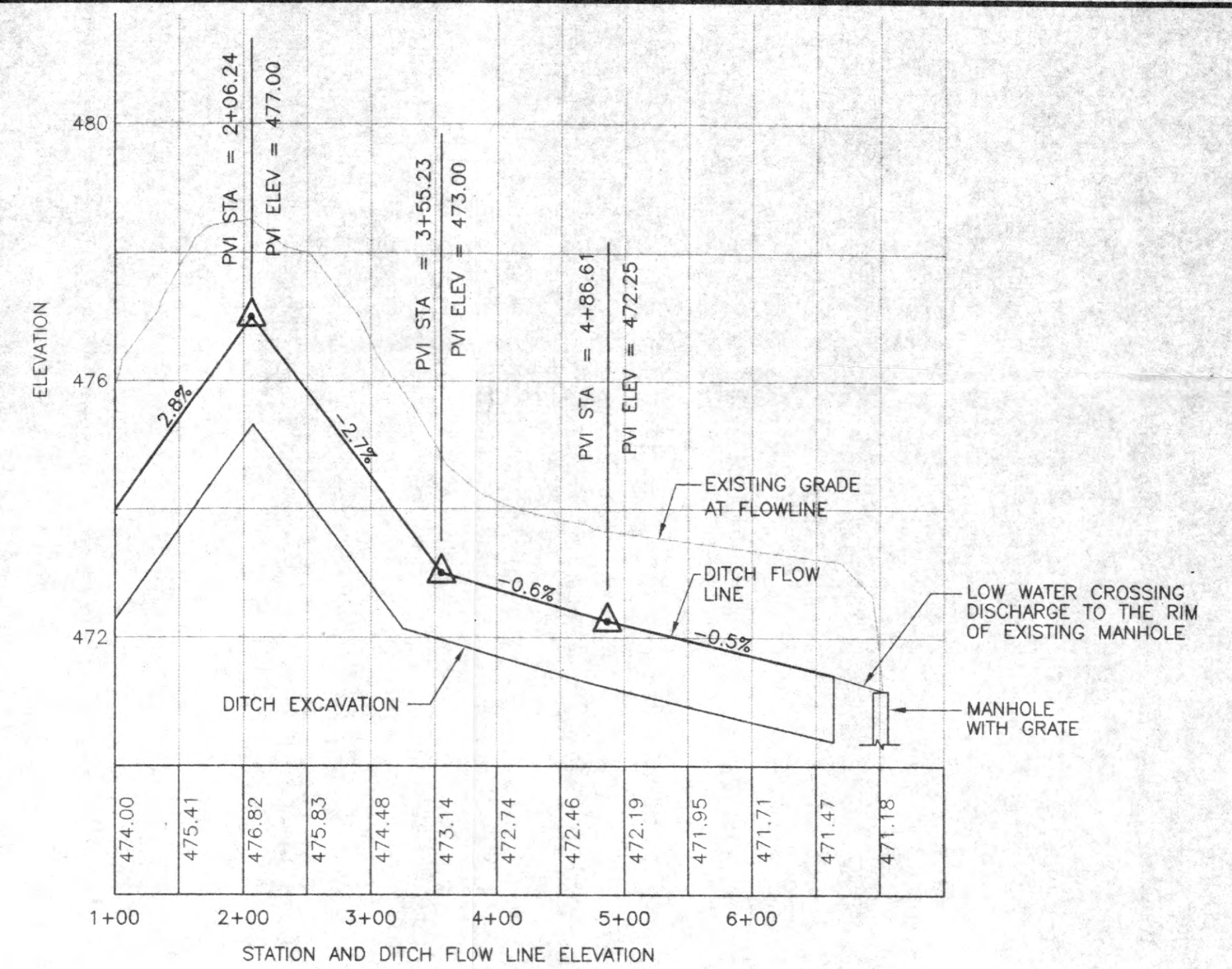
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LAND RECOVERY, INC  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON  
  
EAST LINED AREA PARTIAL CLOSURE  
DRAINAGE PLAN

DRAWING NO.  
**3**  
PROJECT NO.  
40202-005.061





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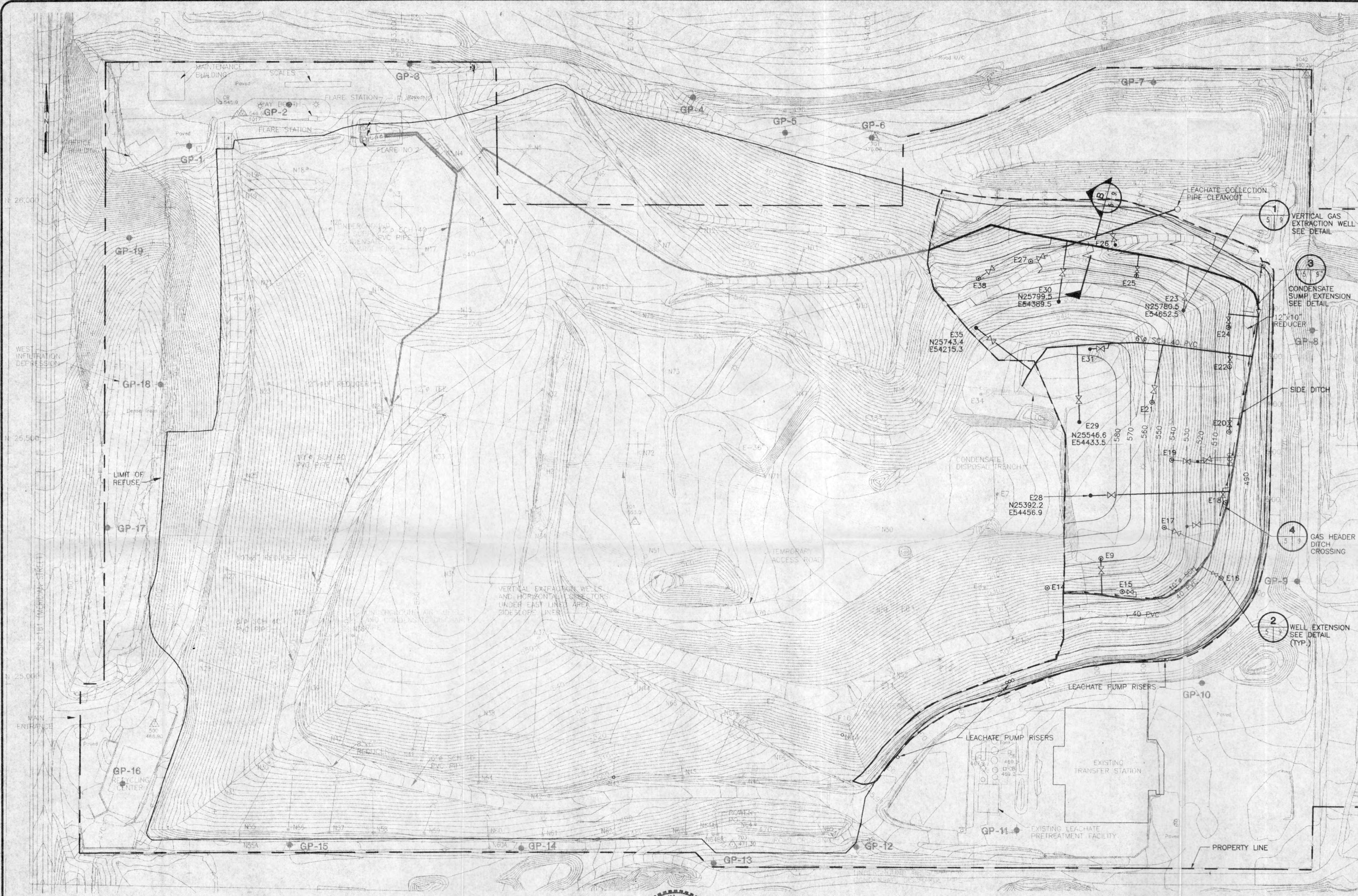


LAND RECOVERY INC.  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON

**EAST LINED AREA PARTIAL CLOSURE  
PERIMETER DITCH PROFILES**

DRAWING NO.  
**4**  
PROJECT NO.  
202-005.061

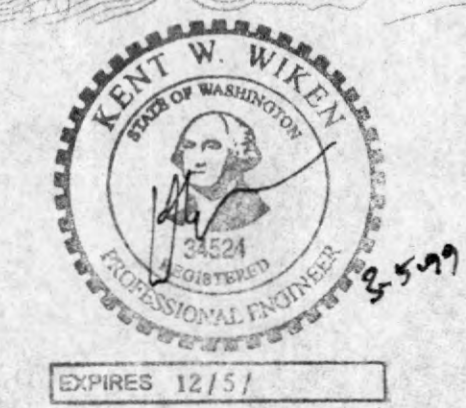
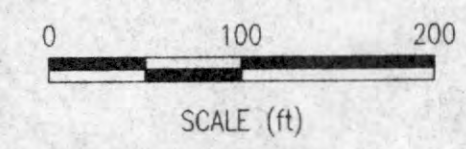




- LEGEND:**
- PREVIOUSLY EXISTING:**
- GP-1 Gas Probe
  - Vertical Extraction Well Buried Under Liner
  - Vertical Extraction Well Aboveground Header Pipe
  - Underground Header Pipe
  - Condensate Sump
  - Control Valve
  - Header Pipe Road Crossing
  - Aboveground Header Pipe Replacement
  - Reducer
  - Condensate Recirculation Lines
- CONSTRUCTED:**
- Vertical Extraction Well for East Lined Area Partial Closure
  - Extension of Existing Vertical Extraction Well for East Lined Area Partial Closure
  - 10" Ø Header Pipe
  - 6" Ø Header Pipe
  - 3" Ø Header Pipe
  - Control Valve
  - Limit of East Lined Area Partial Closure

Topography prepared by photogrammetric methods by:  
NIES Mapping Group, Inc. Date of Aerial: 1-9-98.

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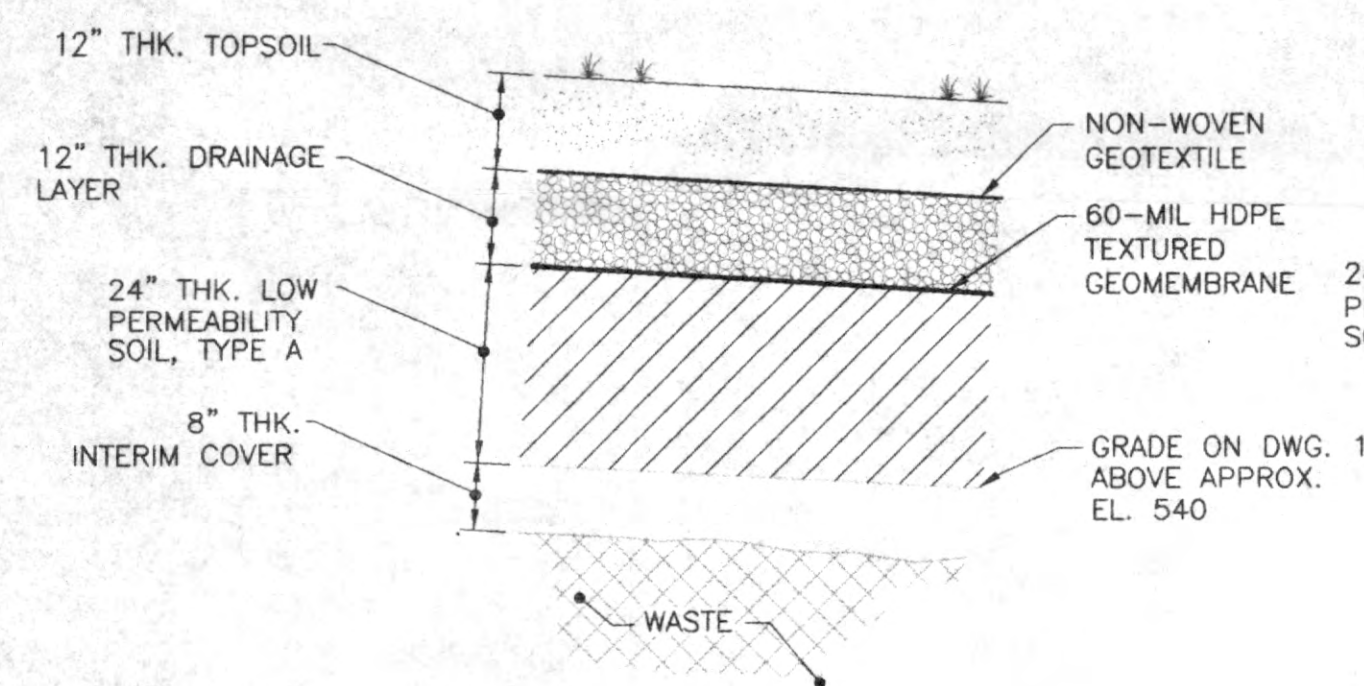


LAND RECOVERY, INC  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON

**EAST LINED AREA PARTIAL CLOSURE  
GAS WELL LAYOUT**

DRAWING NO.  
**5**  
PROJECT NO.  
40202-005.061

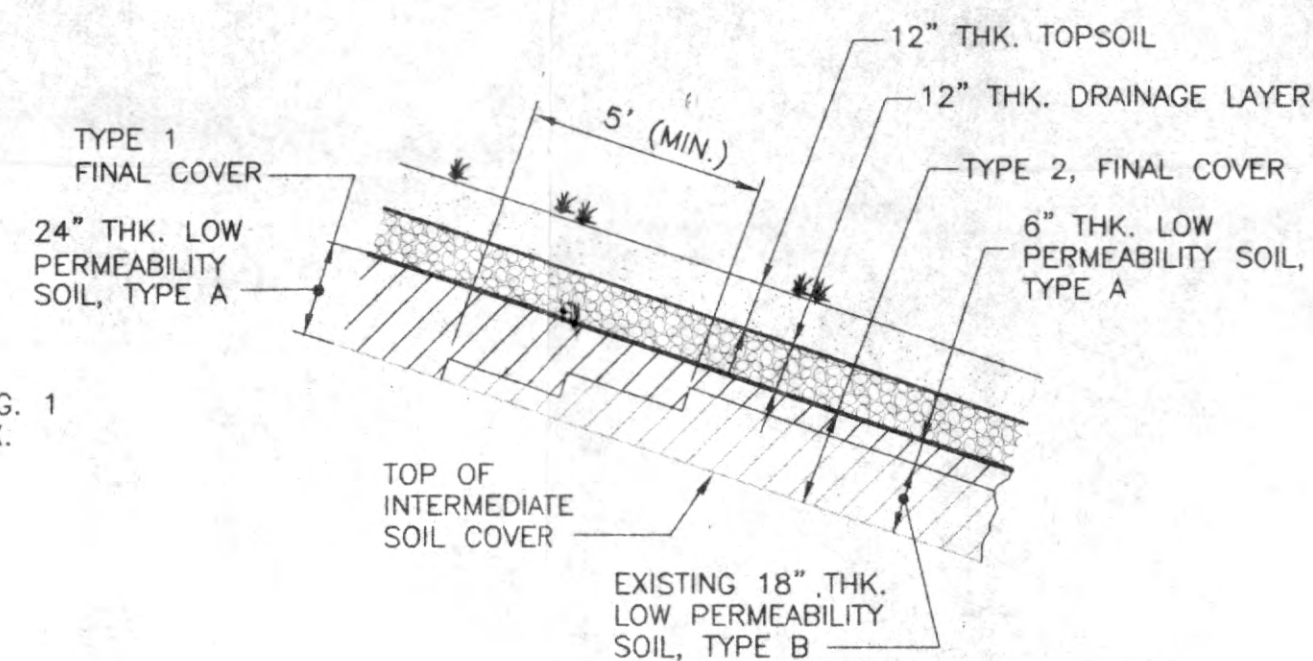
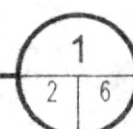




TYPE 1 FINAL COVER

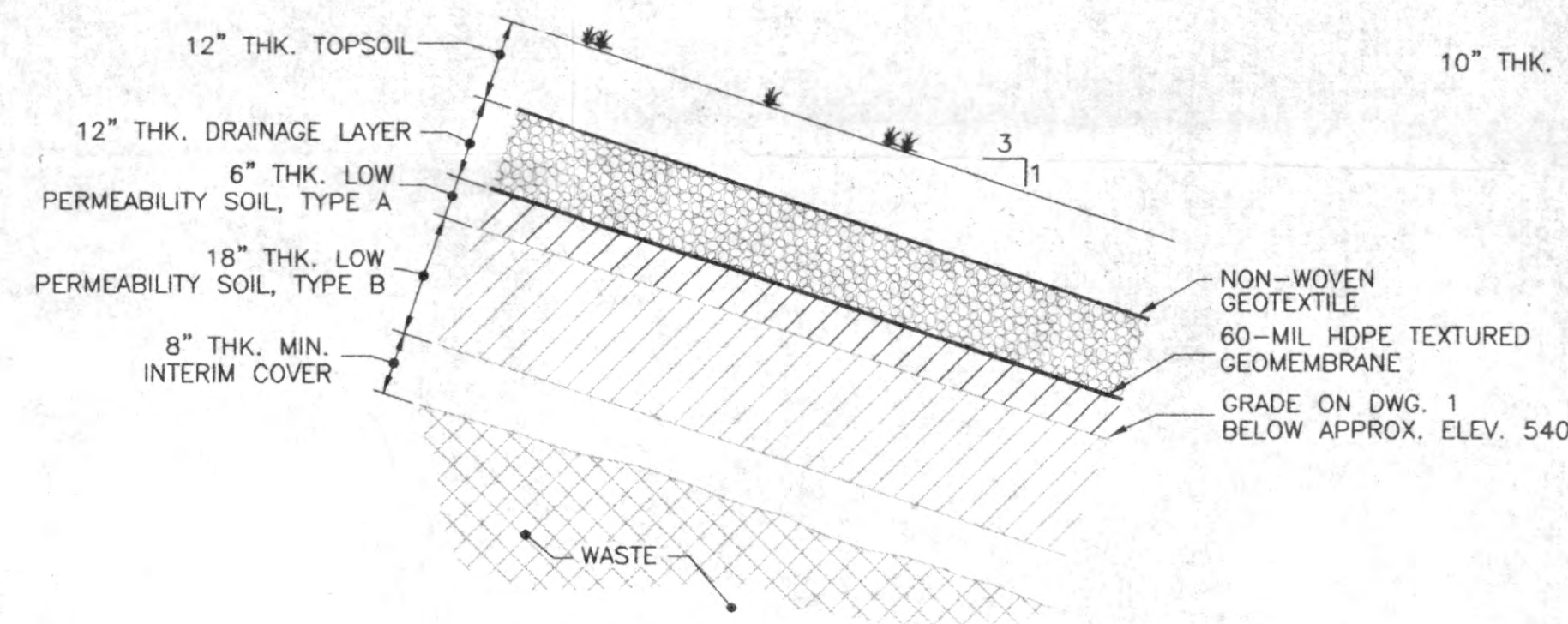
DETAIL

SCALE: 1" = 2'



TRANSITION BETWEEN TYPE 1 AND TYPE 2 FINAL COVER

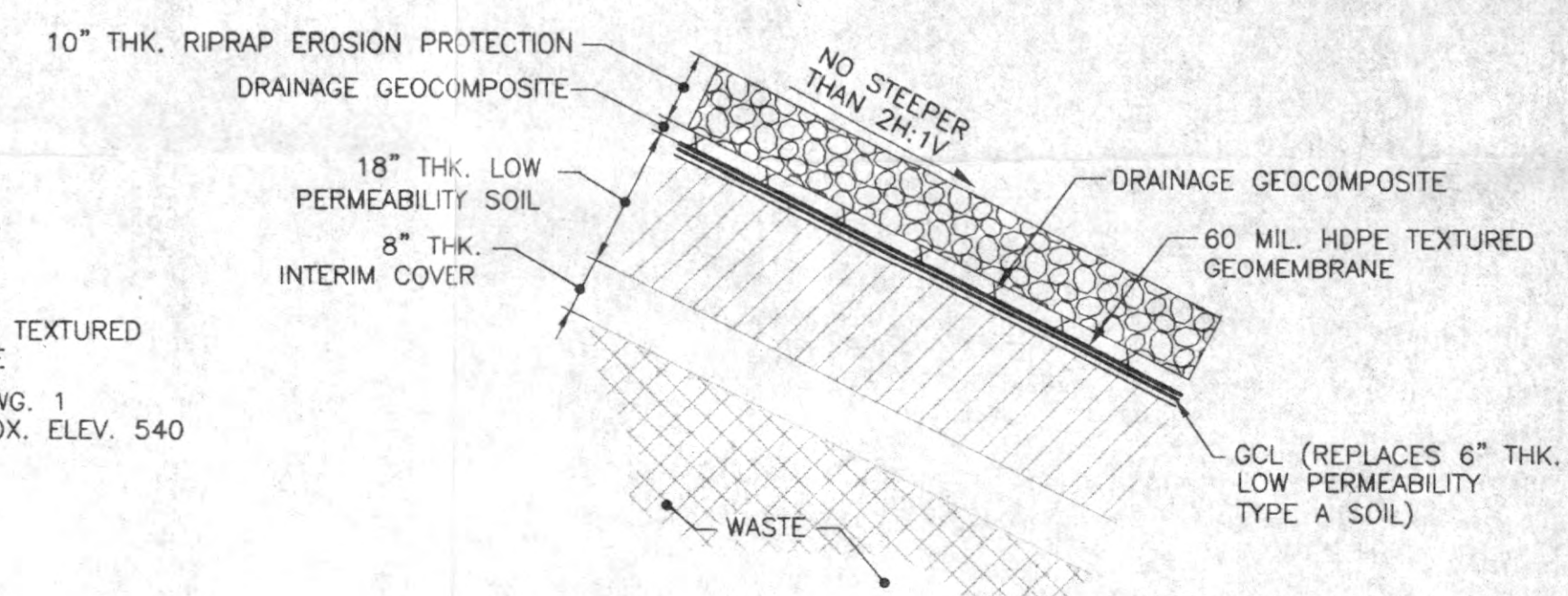
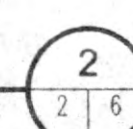
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TYPE 2 FINAL COVER

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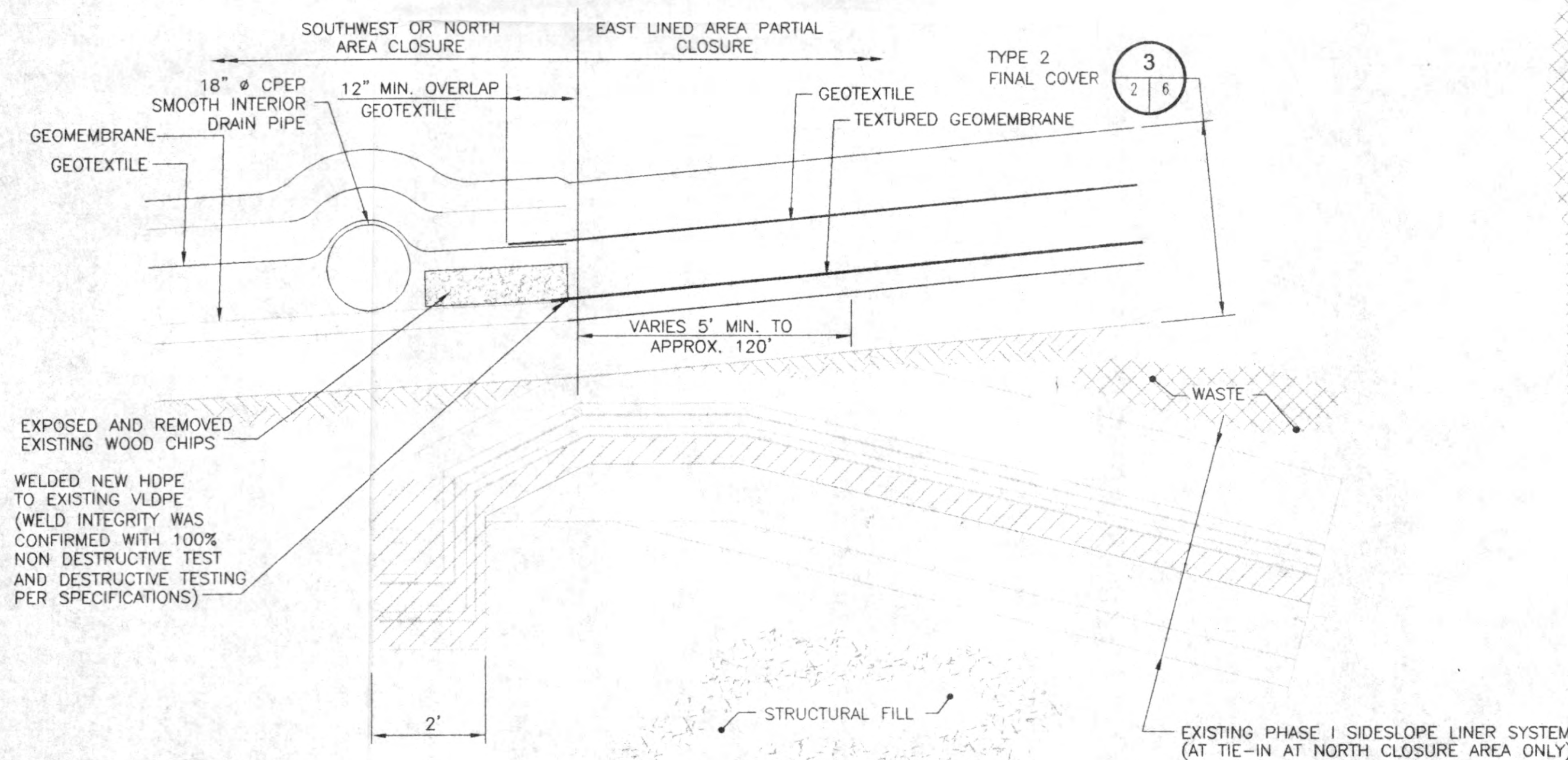
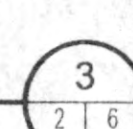
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TYPE 3 FINAL COVER

DETAIL

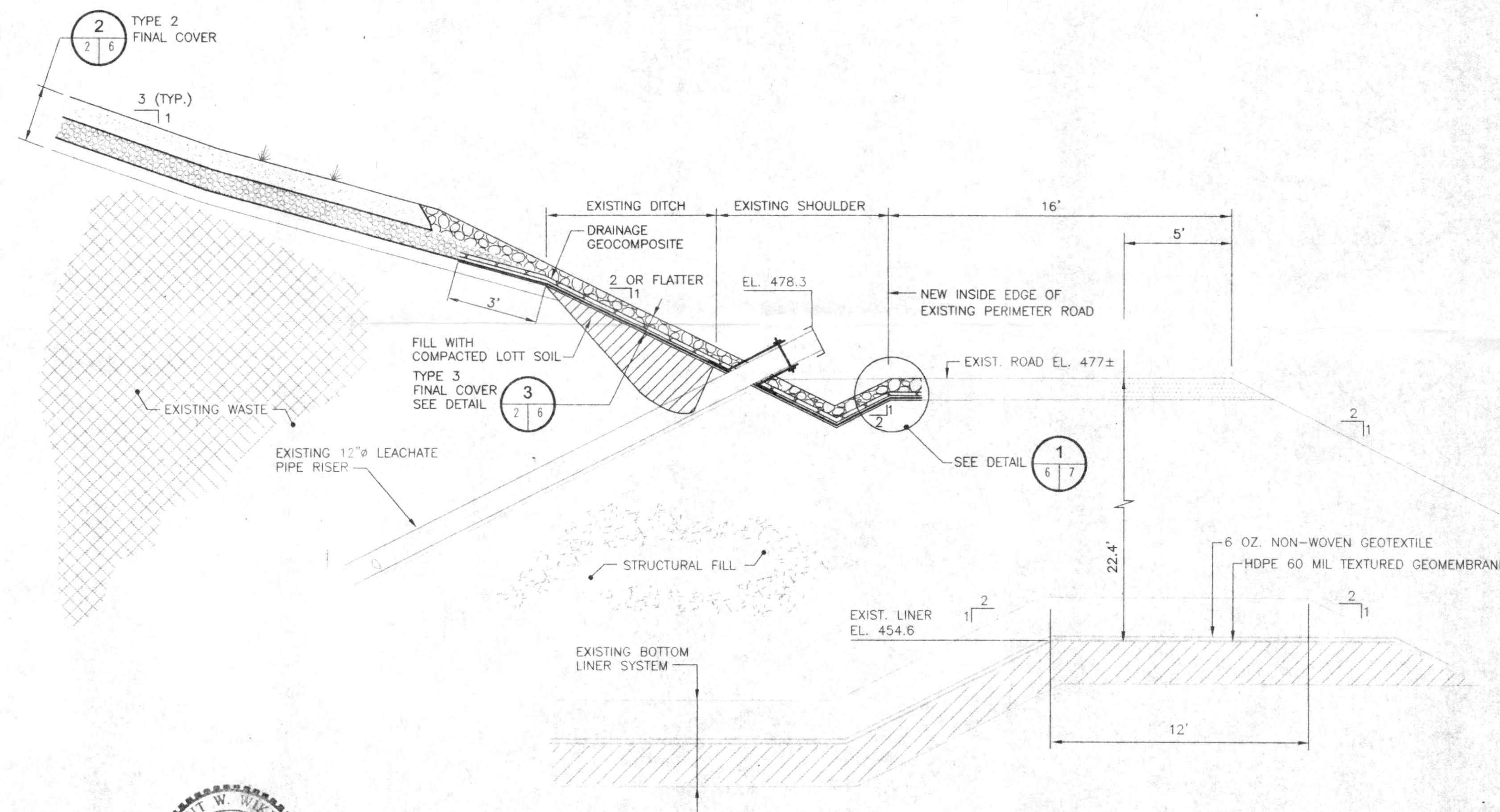
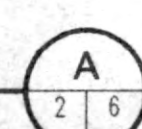
SCALE: 1" = 2'



TIE-IN TO SOUTHWEST AND NORTH CLOSURE AREA

SECTION

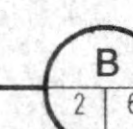
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COVER TRANSITION

SECTION

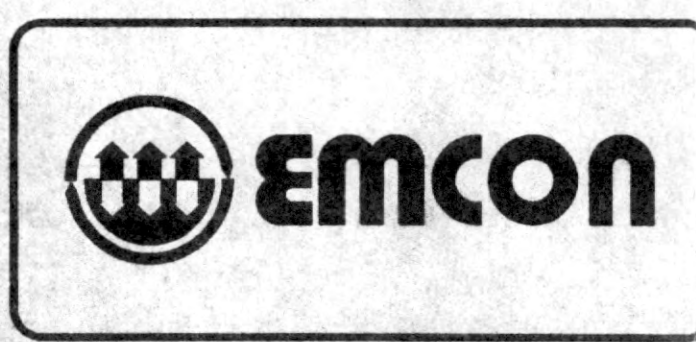
SCALE: 1" = 4'



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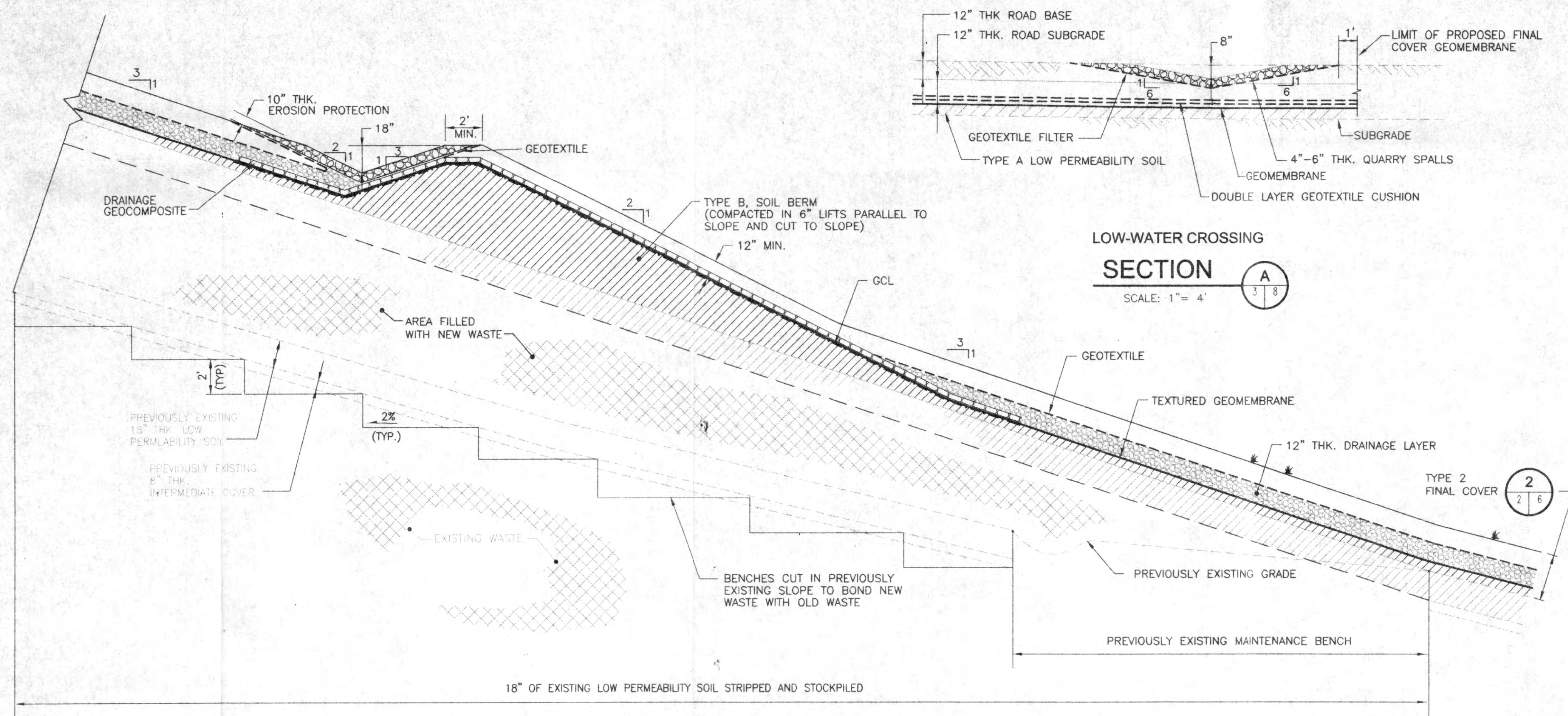
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1	3/98	MLP	DES BY	I.S.	CHK BY	KWW



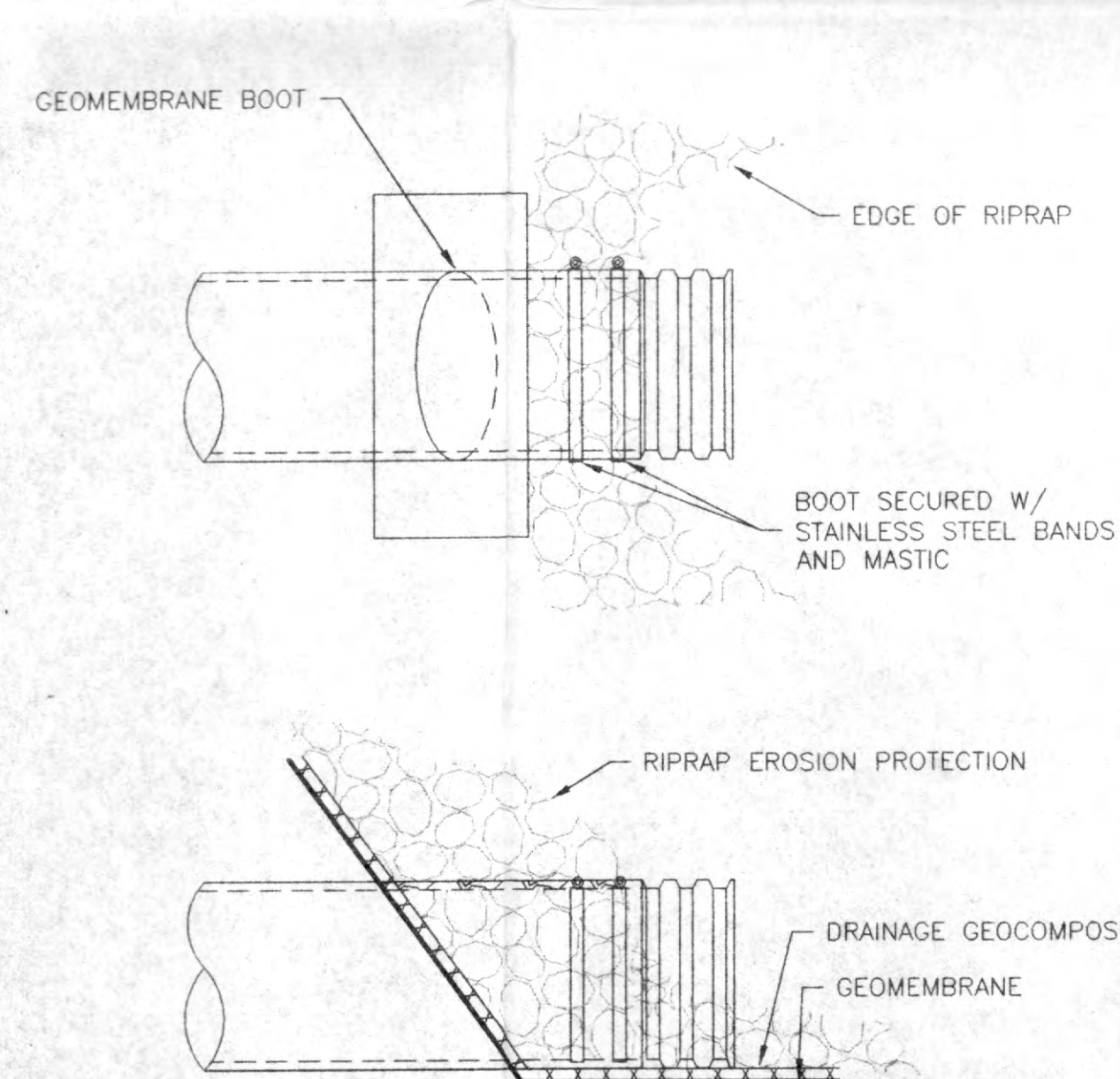
LAND RECOVERY, INC.  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON  
EAST LINED AREA PARTIAL CLOSURE  
COVER DETAILS & SECTIONS

DRAWING NO.  
**6**  
PROJECT NO.  
40202-005.061

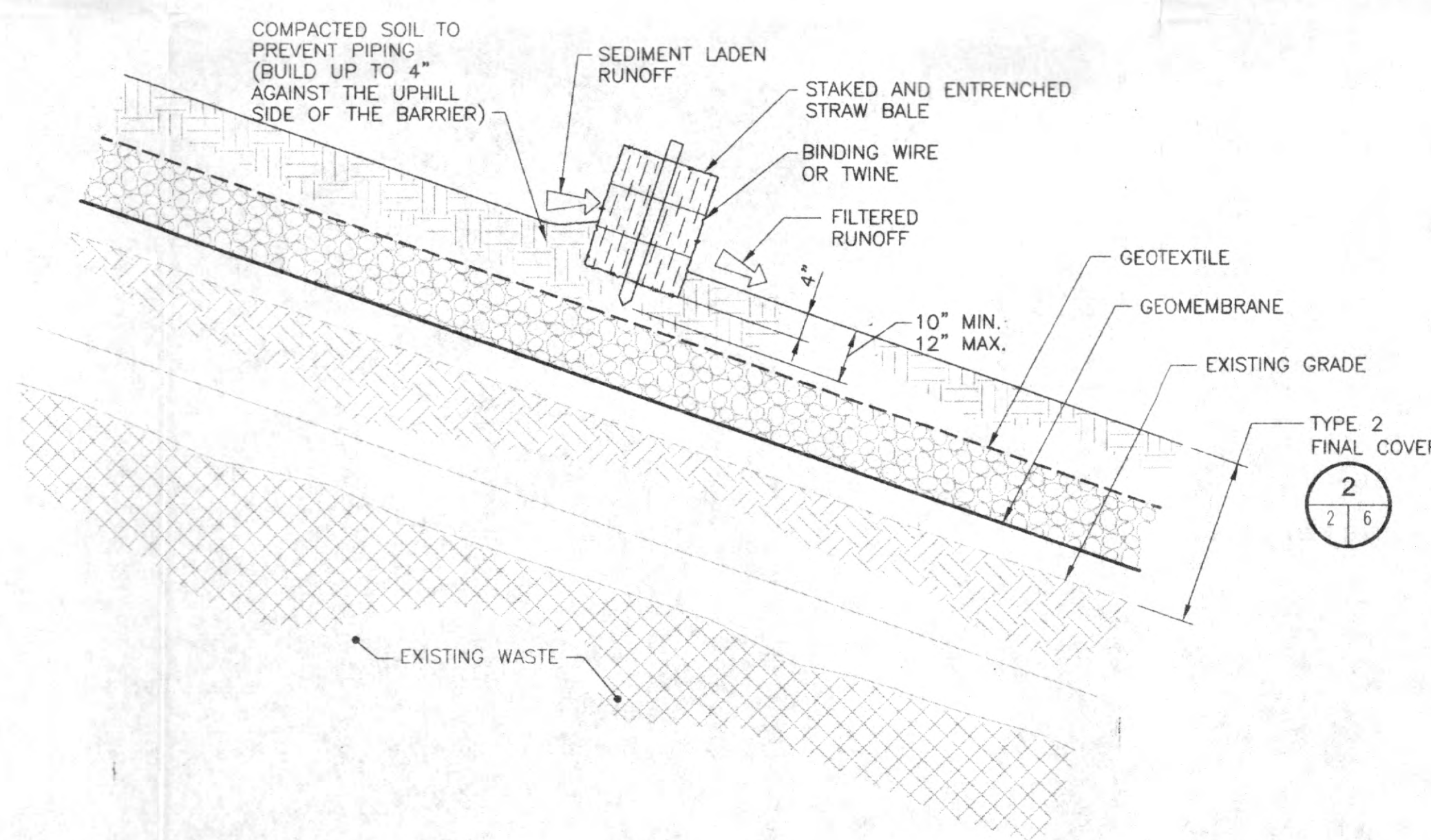




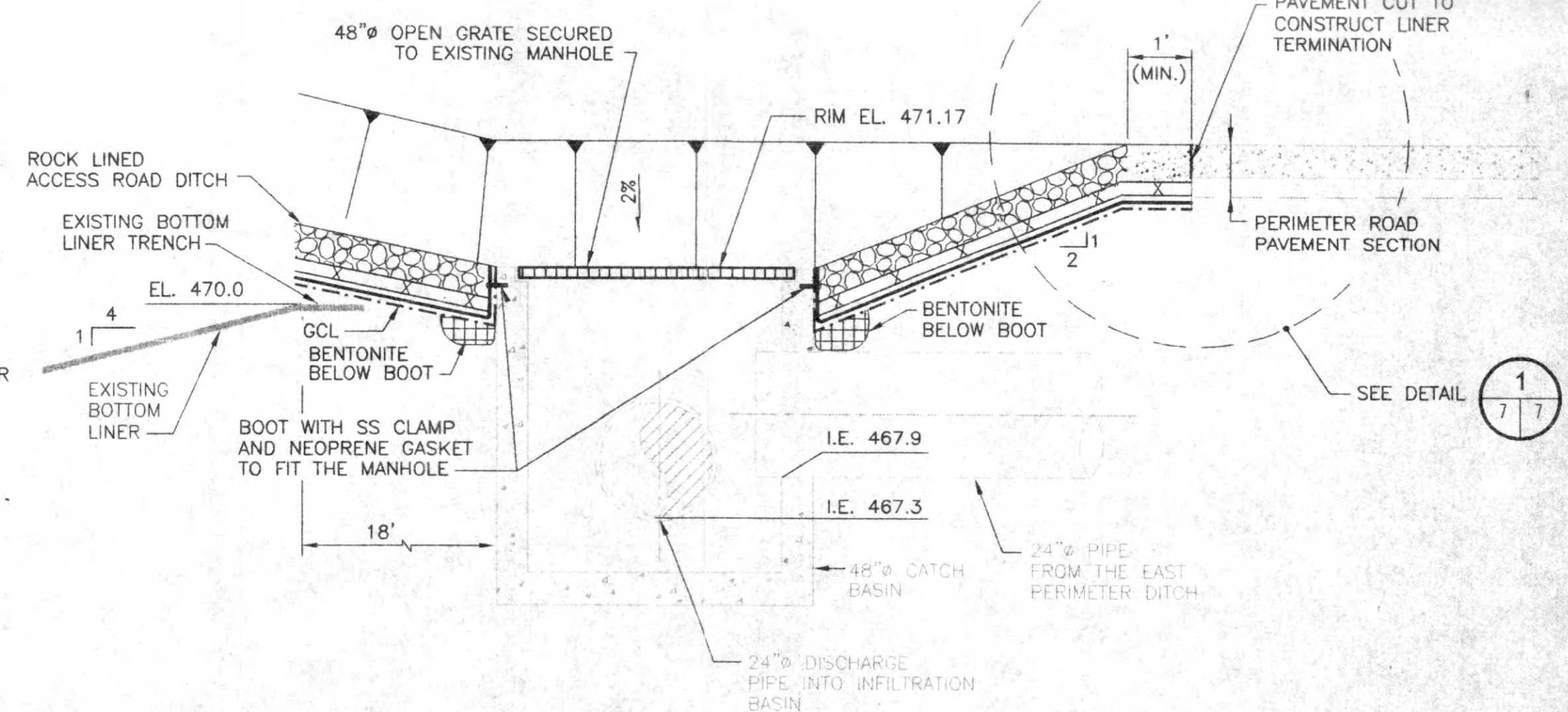
**SECTION B**  
SCALE: 1" = 4'



**DEBRIS BARRIER DETAIL 1**  
N.T.S.



**STRAW BALE BARRIER INSTALLATION SECTION C**  
N.T.S.



**GRATE INSTALLATION AND SIDE SLOPE CONSTRUCTION AT EXIST. MANHOLE**

**SECTION D**  
SCALE: 1" = 2'

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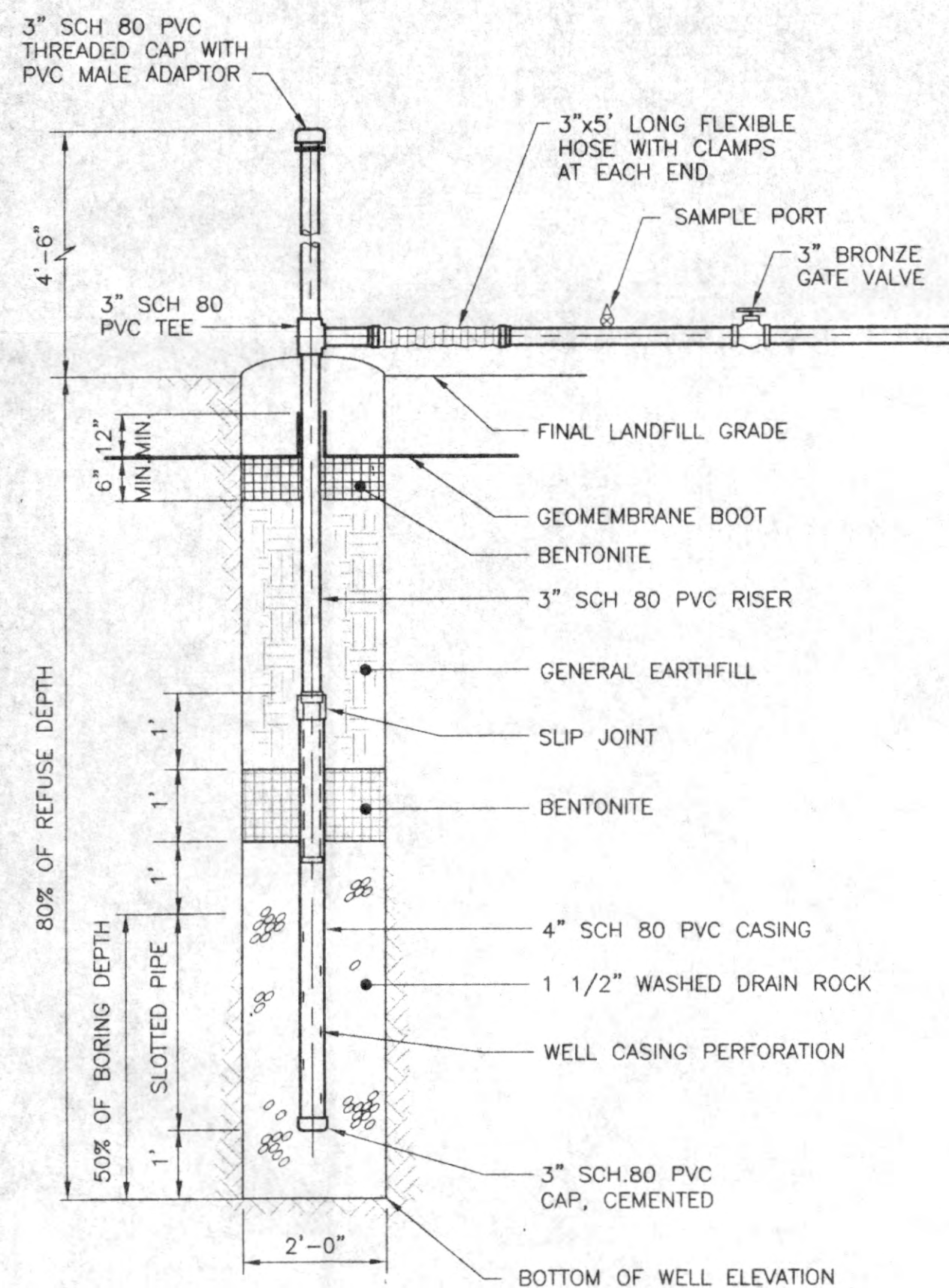
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1	2/98	MLP			KWW	KWW
2		I.S.			KWW	KWW



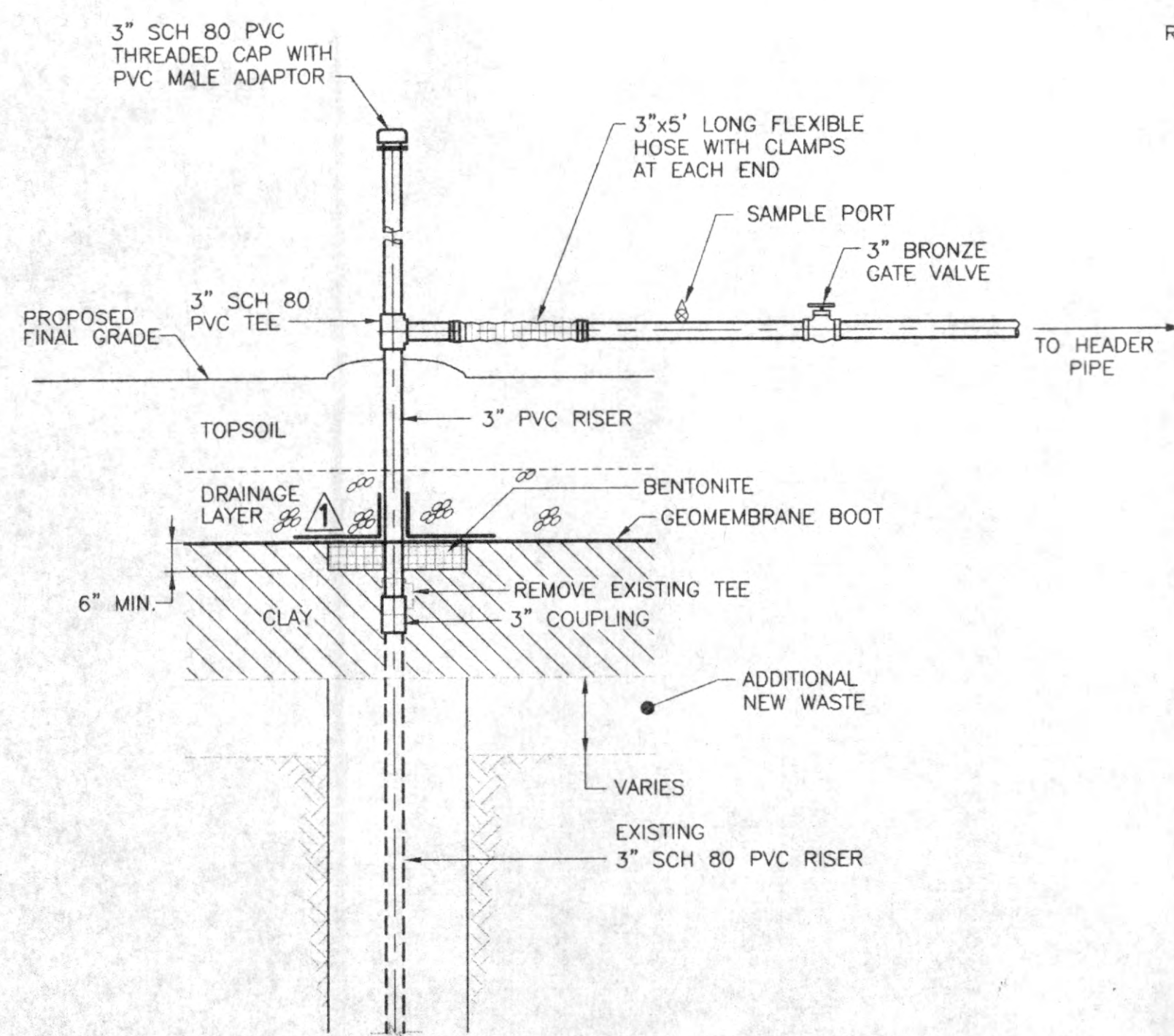
LAND RECOVERY, INC.  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON  
EAST LINED AREA PARTIAL CLOSURE  
DRAINAGE DETAIL & SECTIONS

DRAWING NO.  
**8**  
PROJECT NO.  
40202-005.061

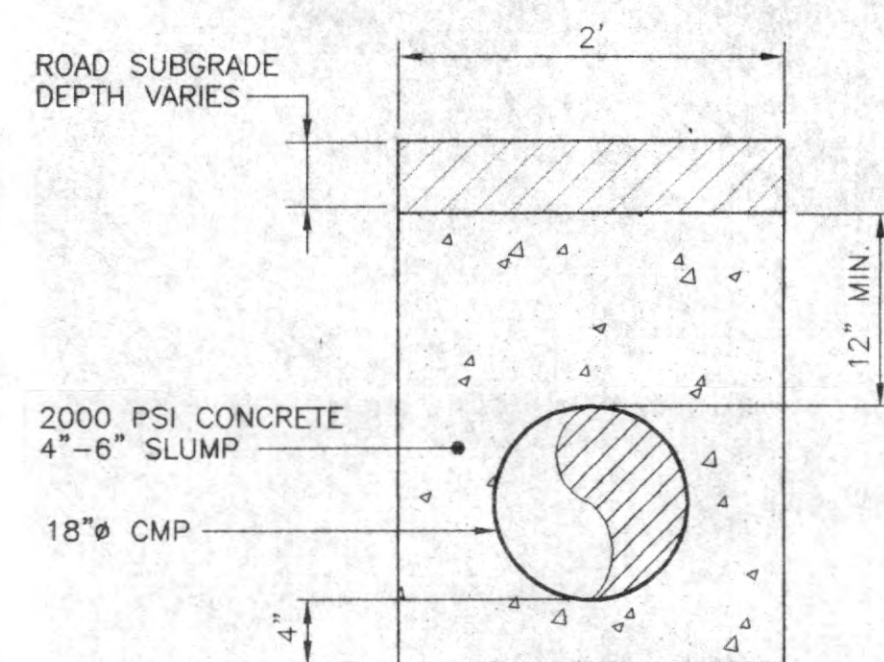




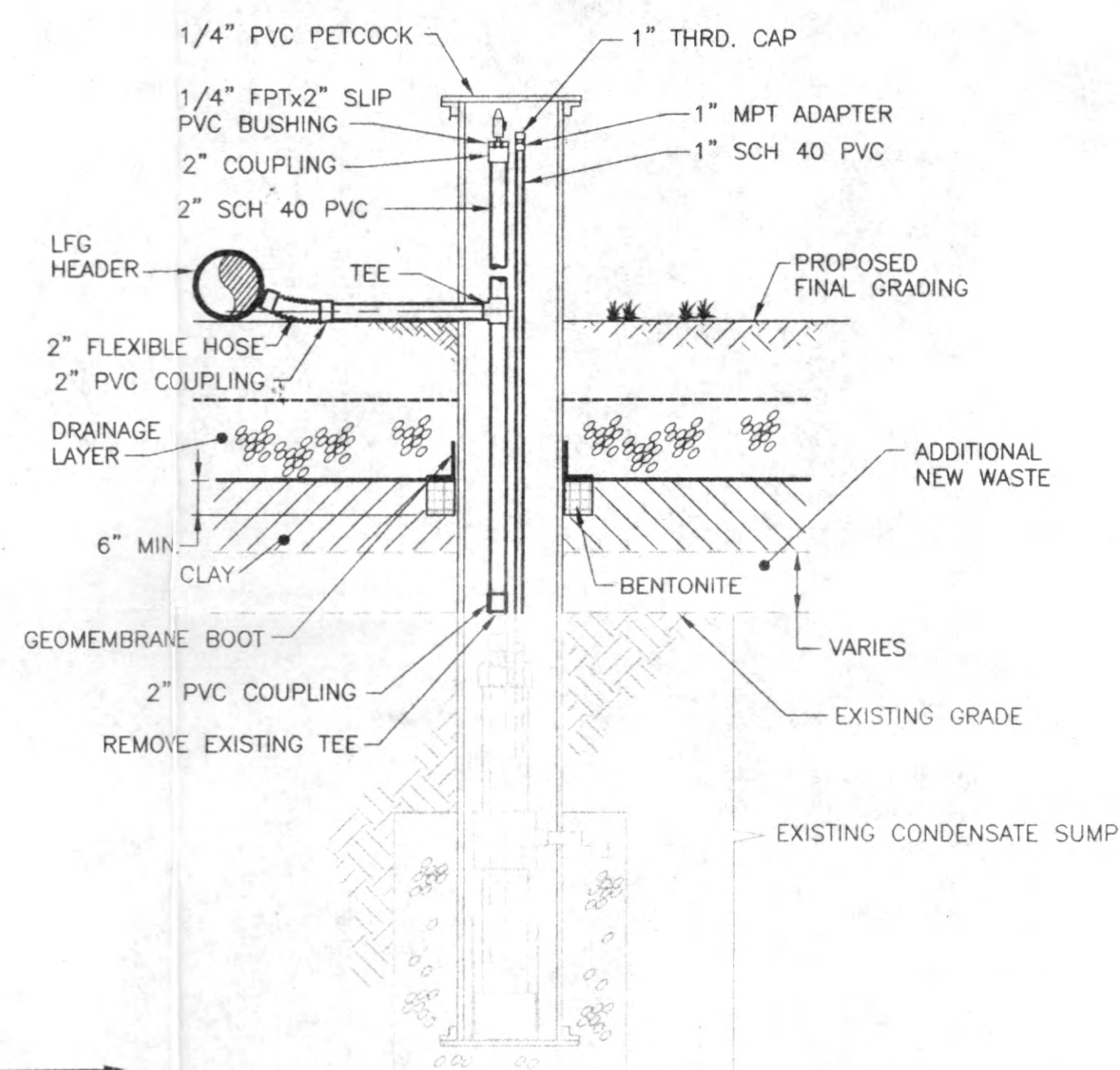
VERTICAL GAS EXTRACTION WELL (TYP.)  
DETAIL 1  
N.T.S.



WELL EXTENSION  
DETAIL 2  
N.T.S.



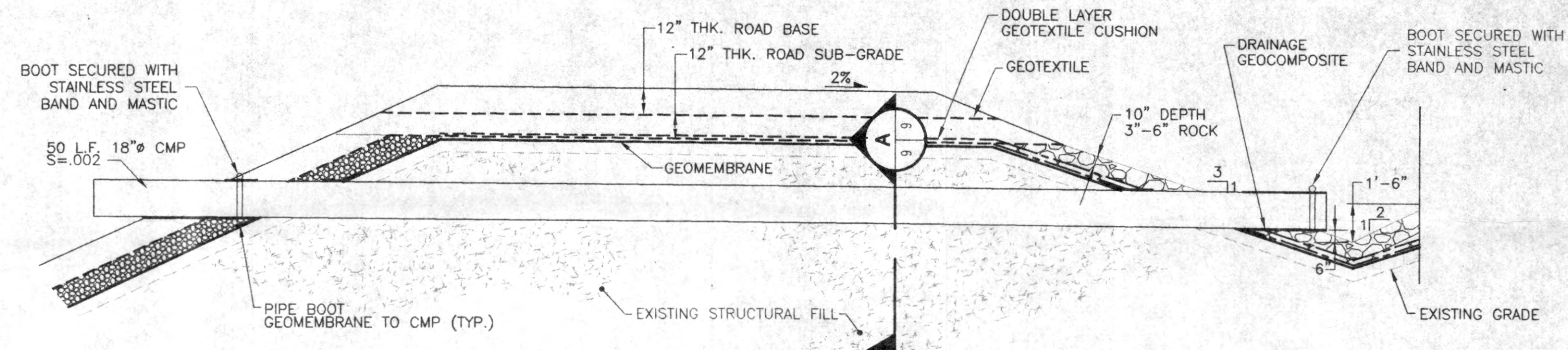
GAS HEADER CULVERT  
SECTION A  
SCALE: 1" = 1'



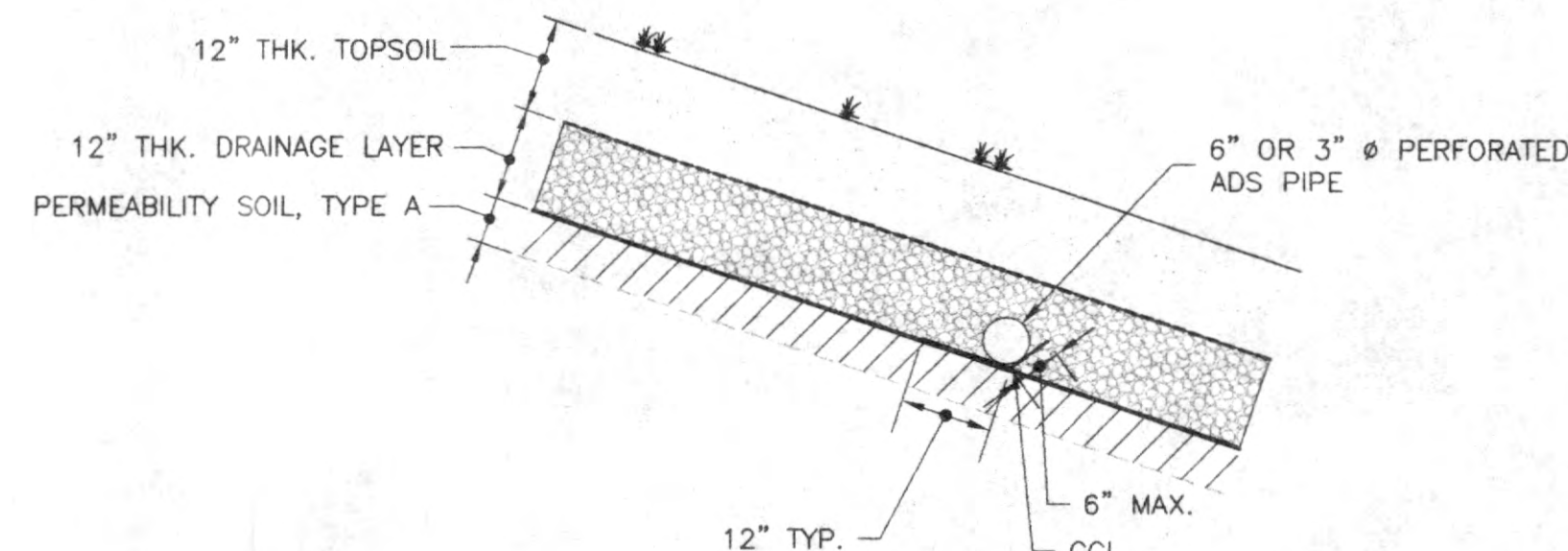
CONDENSATE DRAIN EXTENSION  
DETAIL 3  
SCALE: 1" = 2'



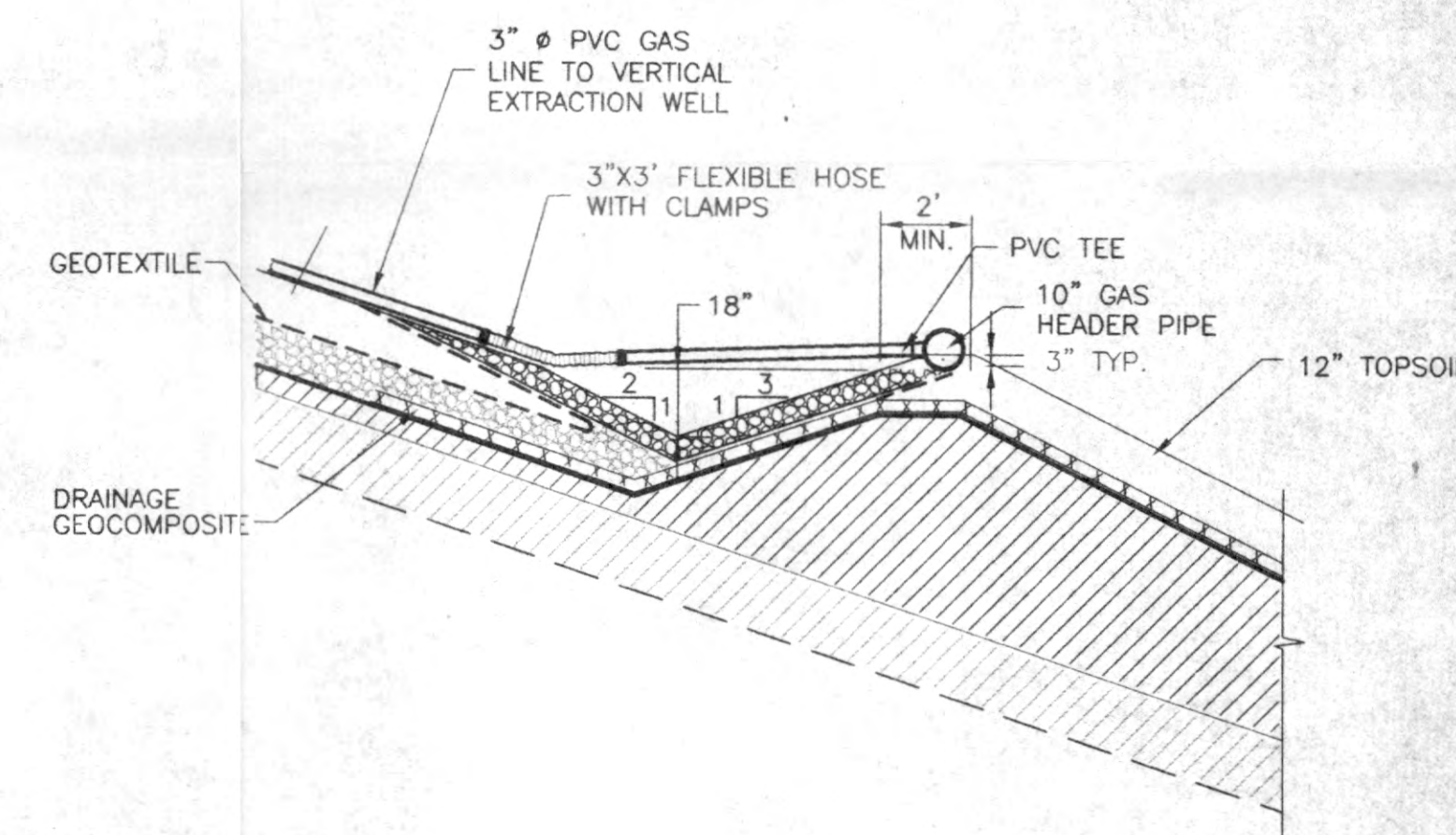
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GAS HEADER CULVERT  
SECTION B  
SCALE: 1" = 4'



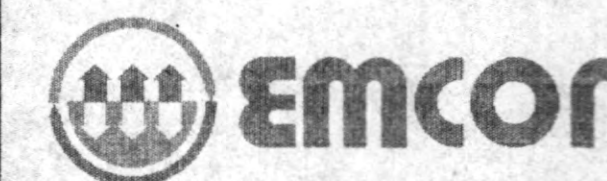
DRAIN PIPE DETAIL  
DETAIL D  
SCALE: 1" = 2'



GAS HEADER DITCH CROSSING  
DETAIL 4  
SCALE: 1" = 4'

GAS EXTRACTION WELL INSTALLATION SCHEDULE				
WELL NUMBER	NORTHING	EASTING	BOTTOM OF WELL ELEVATION (FT)	APPROX. WELL DEPTH FROM DESIGN FINAL GRADE (FT)
E23	25,780.5	54,652.5	469	59
E26	EXISTING	EXISTING	467	38
E28	25,392.2	54,456.9	479	102
E29	25,546.6	54,433.5	480	105
E30	25,799.5	54,389.5	476	66
E31	EXISTING	EXISTING	478	96
E35	25,743.4	54,215.3	484	58

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
0	3/99	RECORD DRAWING	BB	I.S.	KWW	KWW
1	3/98	DATE OF ISSUE	DWN BY	DES BY	CHK BY	APP BY



LAND RECOVERY, INC.  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON  
EAST LINED AREA PARTIAL CLOSURE  
GAS SYSTEM DETAILS & SECTION

DRAWING NO.  
9  
PROJECT NO.  
40202-005.061



**APPENDIX B**  
**SUMMARY OF EARTHWORK TEST DATA**

## **APPENDIX B**

### **EARTHWORK TESTING**

#### **B-1 LOW PERMEABILITY SOIL AND EARTHFILL**

##### **B-1a Test Location Drawings:**

B-1 Existing Type B Low Permeability Soil Thickness Verification

B-2 Existing Top of Type B Low Permeability Soil

B-3 Nuclear Moisture and Density Tests Additional Low Permeability  
Soil First Lift

B-4 Nuclear Moisture and Density Tests Additional Low Permeability  
Soil Second Lift

B-5 Nuclear Moisture and Density Tests Additional Low Permeability  
Soil Third Lift

B-6 Nuclear Moisture and Density Tests Additional Low Permeability  
Soil Top 6" Lift

B-1b Summary of Nuclear Moisture/Density Tests

B-1c Reference Moisture/Density Curves

B-1d Permeability Test Data

B-1e Liquid Limit/Plastic Limit and Gradations

B-1f Thickness Verification

#### **B-2 DRAINAGE LAYER**

B-2a Permeability Test Data

B-2b Gradation

#### **B-3 TOPSOIL**

B-3a Permeability Test Data

**B-1**  
**LOW PERMEABILITY SOIL AND EARTHFILL**

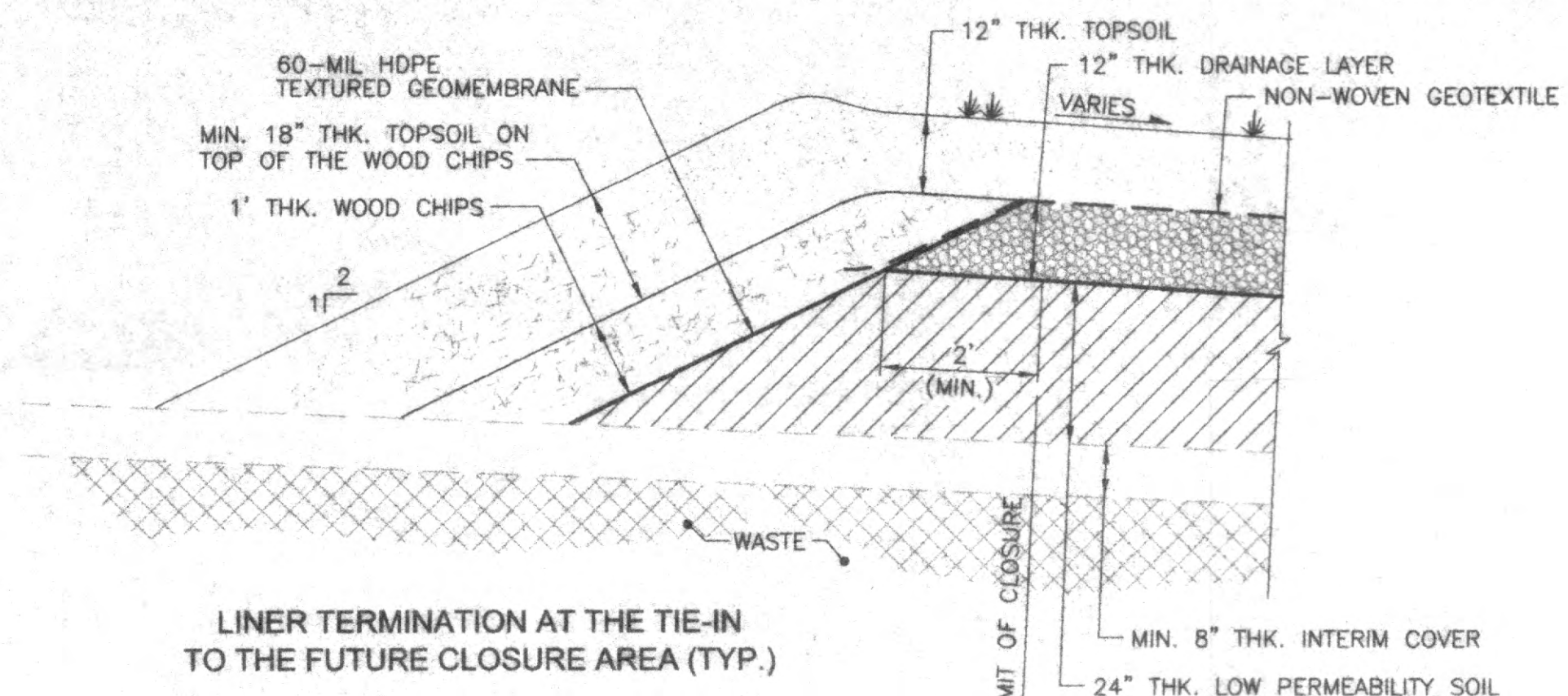
**B-1a**  
**Test Locations**  
**Drawing:**

- B-1 Existing Type B Low Permeability Soil Thickness Verification
- B-2 Existing Top of Type B Low Permeability Soil
- B-3 Nuclear Moisture and Density Tests Additional Low Permeability Soil First Lift
- B-4 Nuclear Moisture and Density Tests Additional Low Permeability Soil Second Lift
- B-5 Nuclear Moisture and Density Tests Additional Low Permeability Soil Third Lift
- B-6 Nuclear Moisture and Density Tests Additional Low Permeability Soil Top 6" Lift



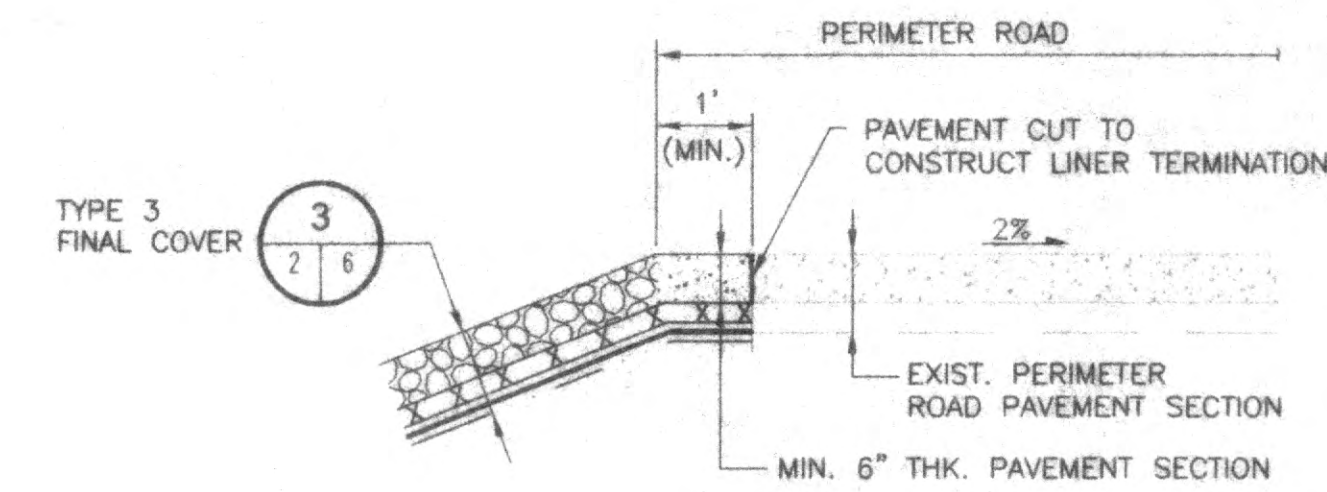




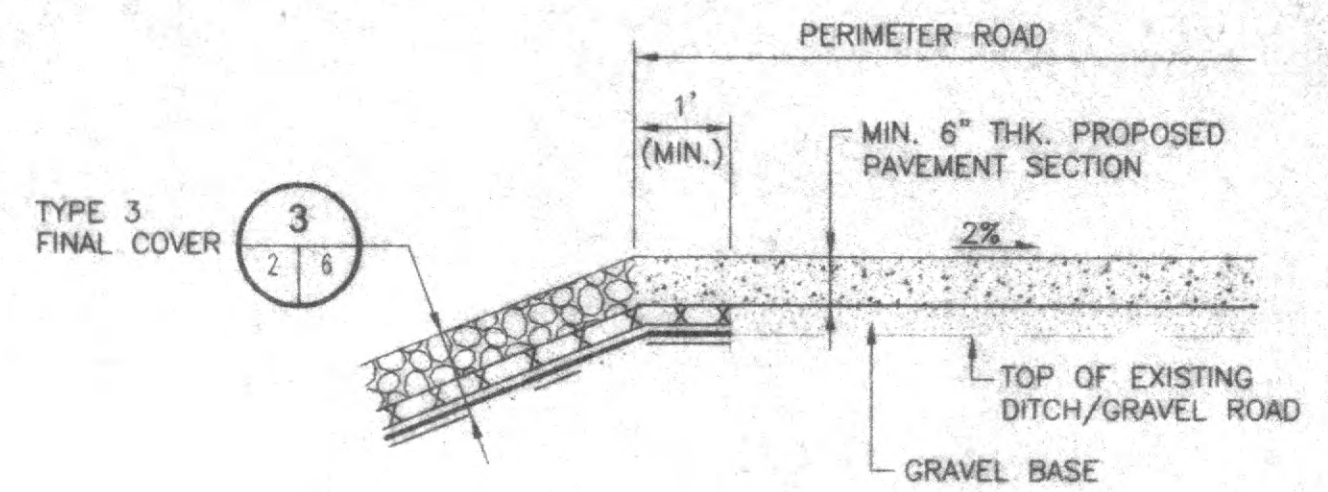


LINER TERMINATION AT THE TIE-IN TO THE FUTURE CLOSURE AREA (TYP.)

SECTION A  
SCALE: 1" = 2'



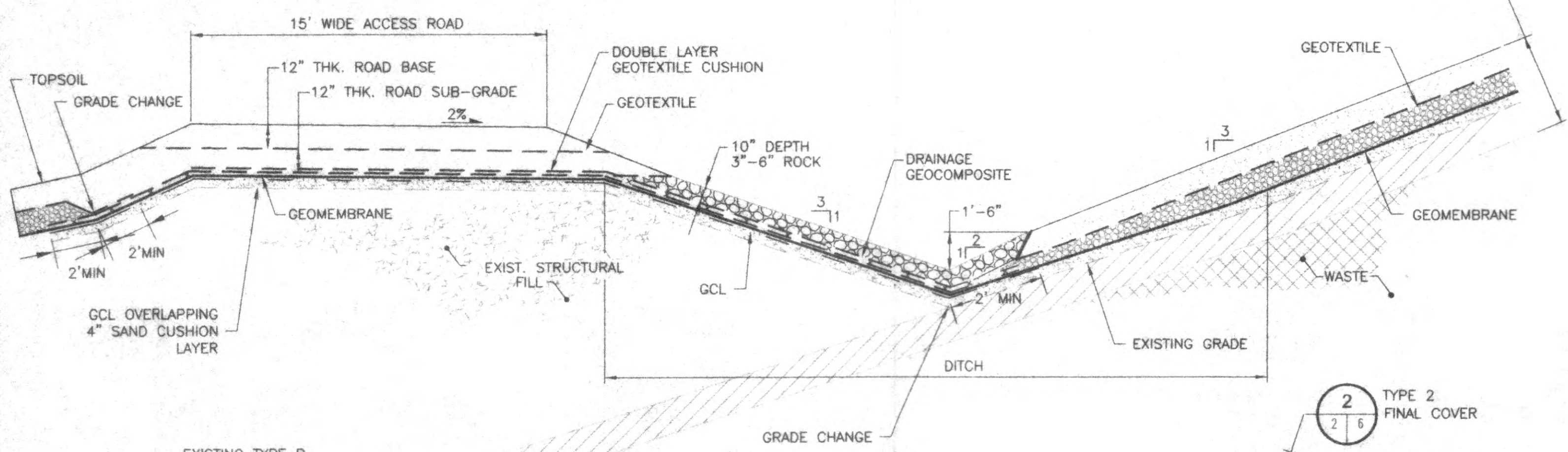
SOUTH / EAST PERIMETER ROAD



NORTH PERIMETER ROAD

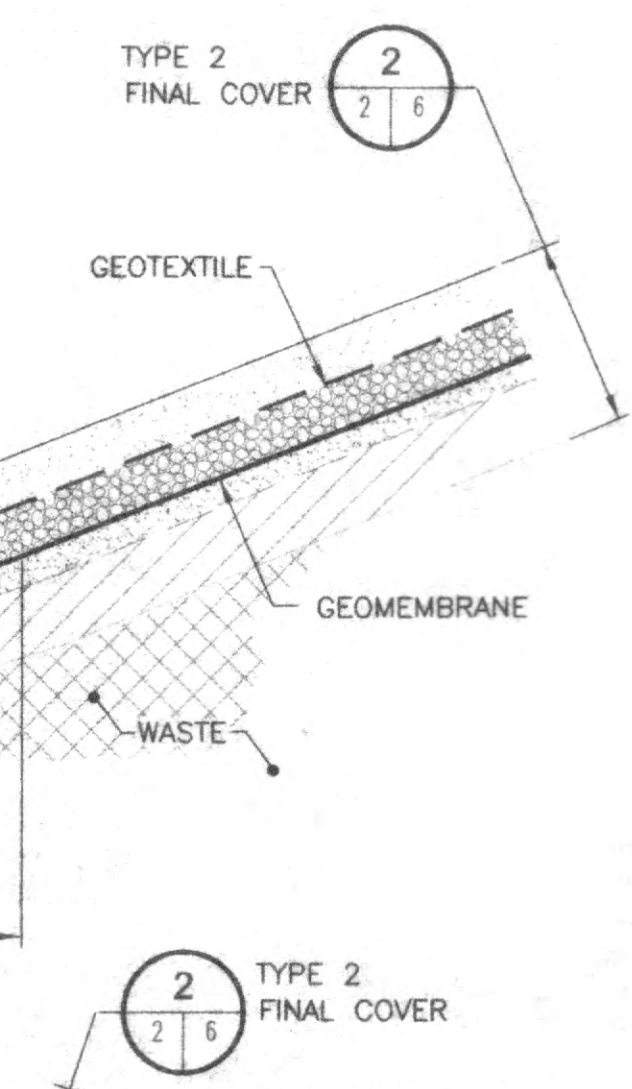
FINAL COVER TERMINATION

DETAIL 1  
SCALE: 1" = 2'



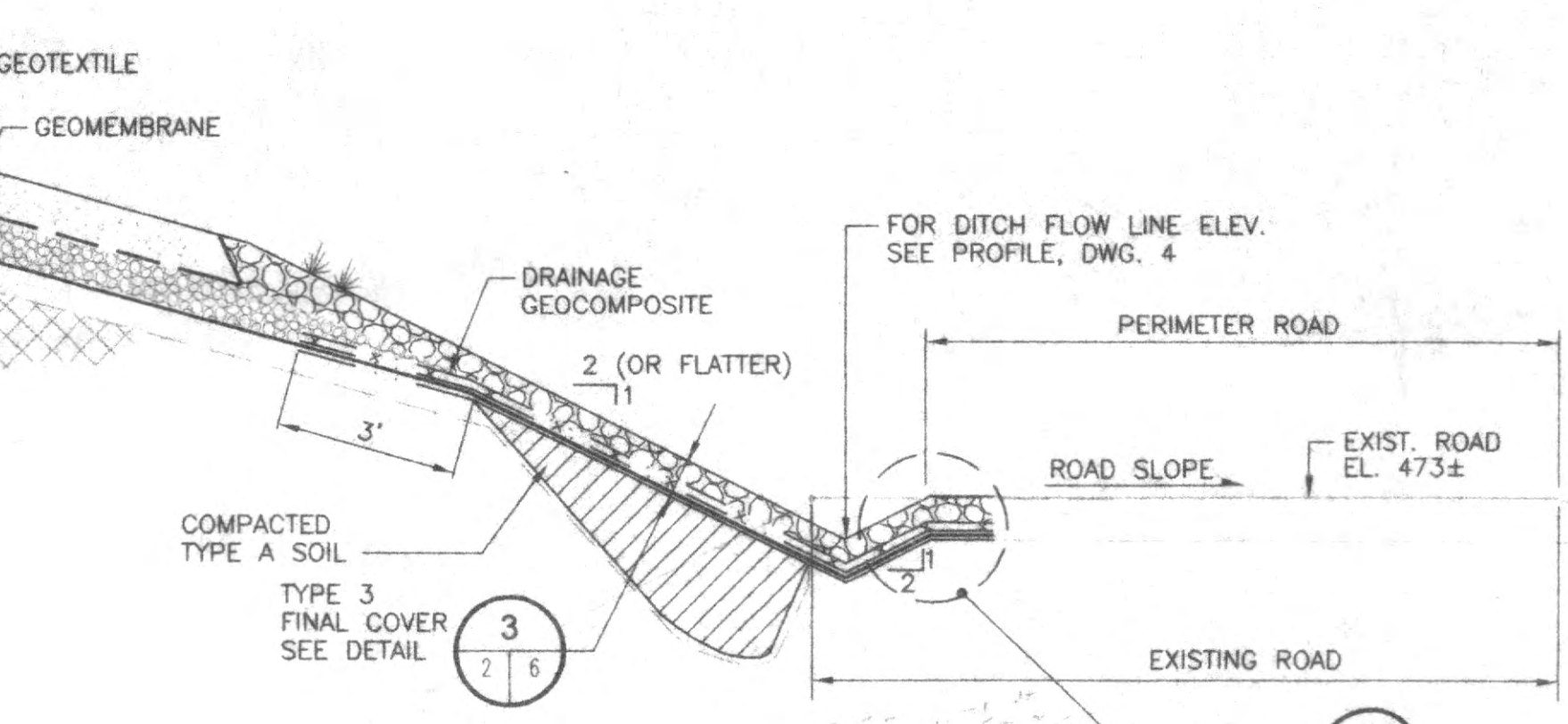
ACCESS ROAD AND ROAD SIDE DITCH

SECTION B  
SCALE: 1" = 4'



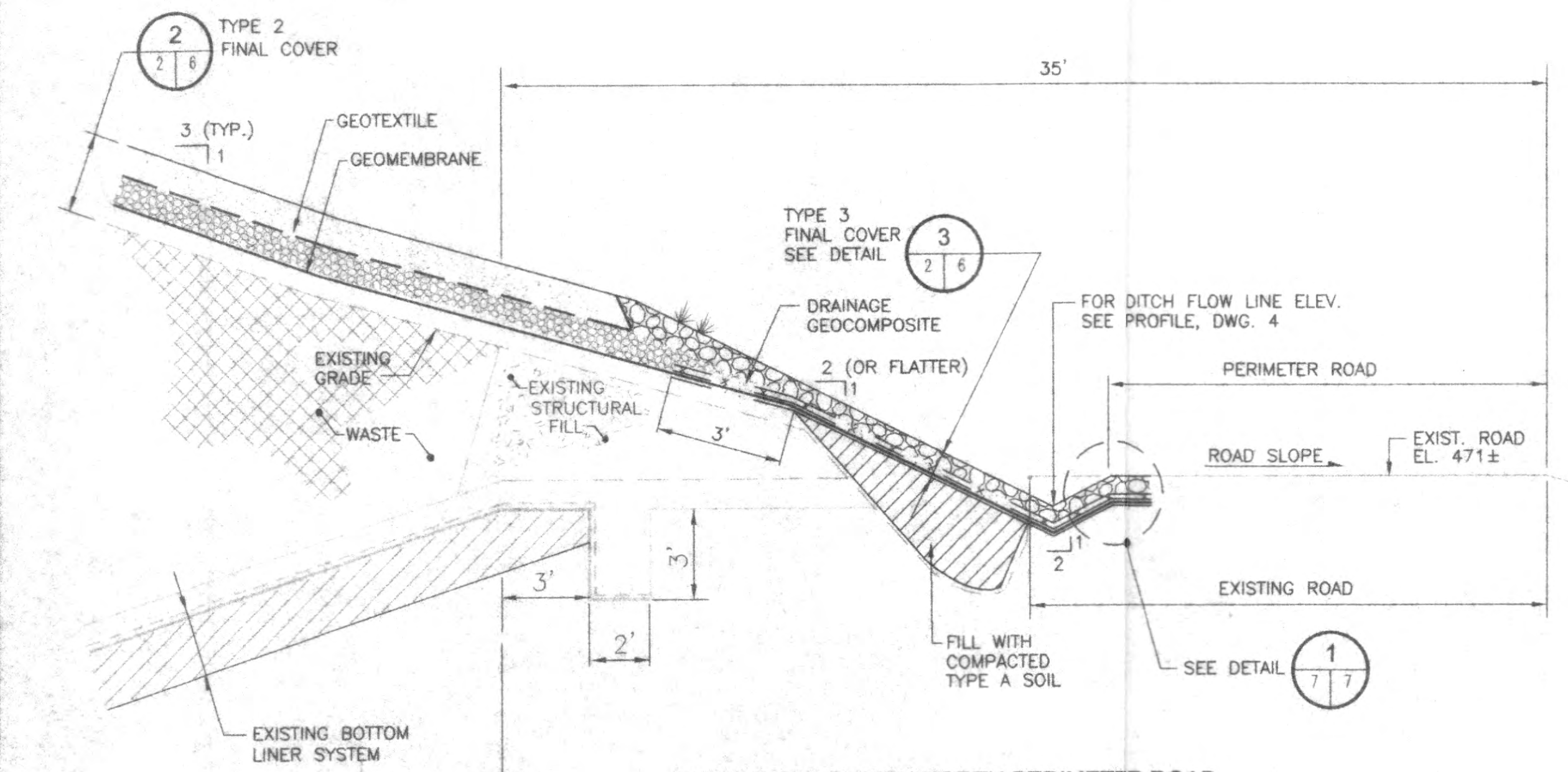
TYPICAL TIE-IN WITH NORTH PERIMETER ROAD

SECTION C  
SCALE: 1" = 4'



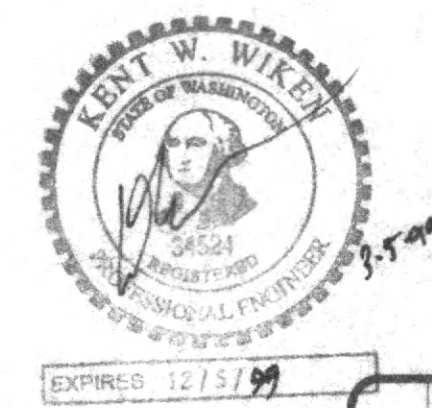
TYPICAL TIE-IN WITH SOUTH & EAST PERIMETER ROAD

SECTION D  
SCALE: 1" = 4'



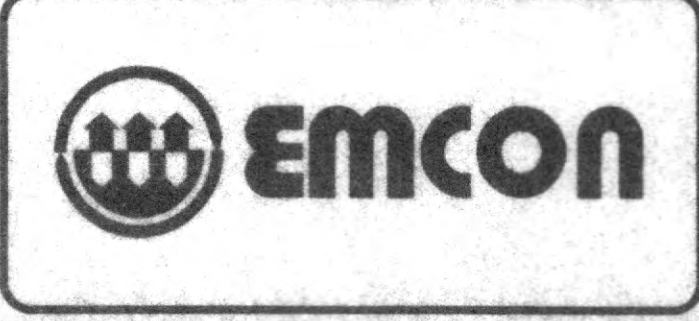
TYPICAL TIE-IN WITH NORTH PERIMETER ROAD

SECTION C  
SCALE: 1" = 4'



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REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
0	3/99	RECORD DRAWING	BB	I.S.	KWW	KWW
1	3/98	MLP		I.S.	KWW	KWW



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COVER DETAILS & SECTIONS

DRAWING NO.  
**7**  
PROJECT NO.  
40202-005.061

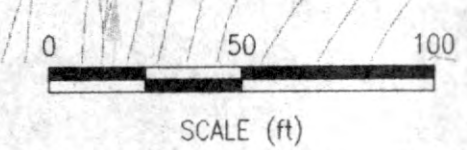
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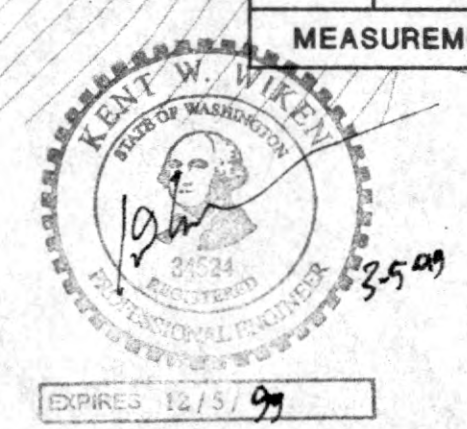
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Topography prepared by photogrammetric methods by:  
NIES Mapping Group, Inc. Date of Aerial: 1-9-98.

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OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.



- LEGEND:**
- - - DITCH LINE
  - - - LIMIT OF EAST LINED AREA
  - - - PARTIAL CLOSURE
  - - - EAST LINED AREA DAYLIGHT LINE
  - MOISTURE/DENSITY



TEST		TYPE B		TEST		TYPE B		TEST		TYPE B	
PIT		SOIL THICKNESS		PIT		SOIL THICKNESS		PIT		SOIL THICKNESS	
1		>20"		16		>18"		31		>20"	
2		>18"		17		>18"		32		>18"	
3		>20"		18		>20"		33		>21"	
4		>20"		19		>20"		34		>20"	
5		>20"		20		>18"		35		>20"	
6		>22"		21		>22"		36		>20"	
7		>18"		22		>21"		37		>18"	
8		>23"		23		20"		38		>20"	
9		>20"		24		18"		39		>18"	
10		>24"		25		18"		40		18"	
11		>18"		26		>20"		41		18"	
12		>18"		27		18"		42		>21"	
13		>18"		28		18"		43		>23"	
14		>18"		29		>20"		44		>22"	
15		>18"		30		18"		45		>19"	
46		>19"						56		>22"	
47		>22"						57		>23"	
48		18"						58		>24"	
49		18"						59		>22"	
50		>21"						60		>18"	
51		>23"									
52		>21"									
53		18"									
54		18"									
55		>18"									

MEASUREMENTS TAKEN 8/16/98

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
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DATE OF ISSUE			DWN BY		CHK BY	
3/99			APS		KWW	
			DES BY		APP BY	
			DGM		KWW	

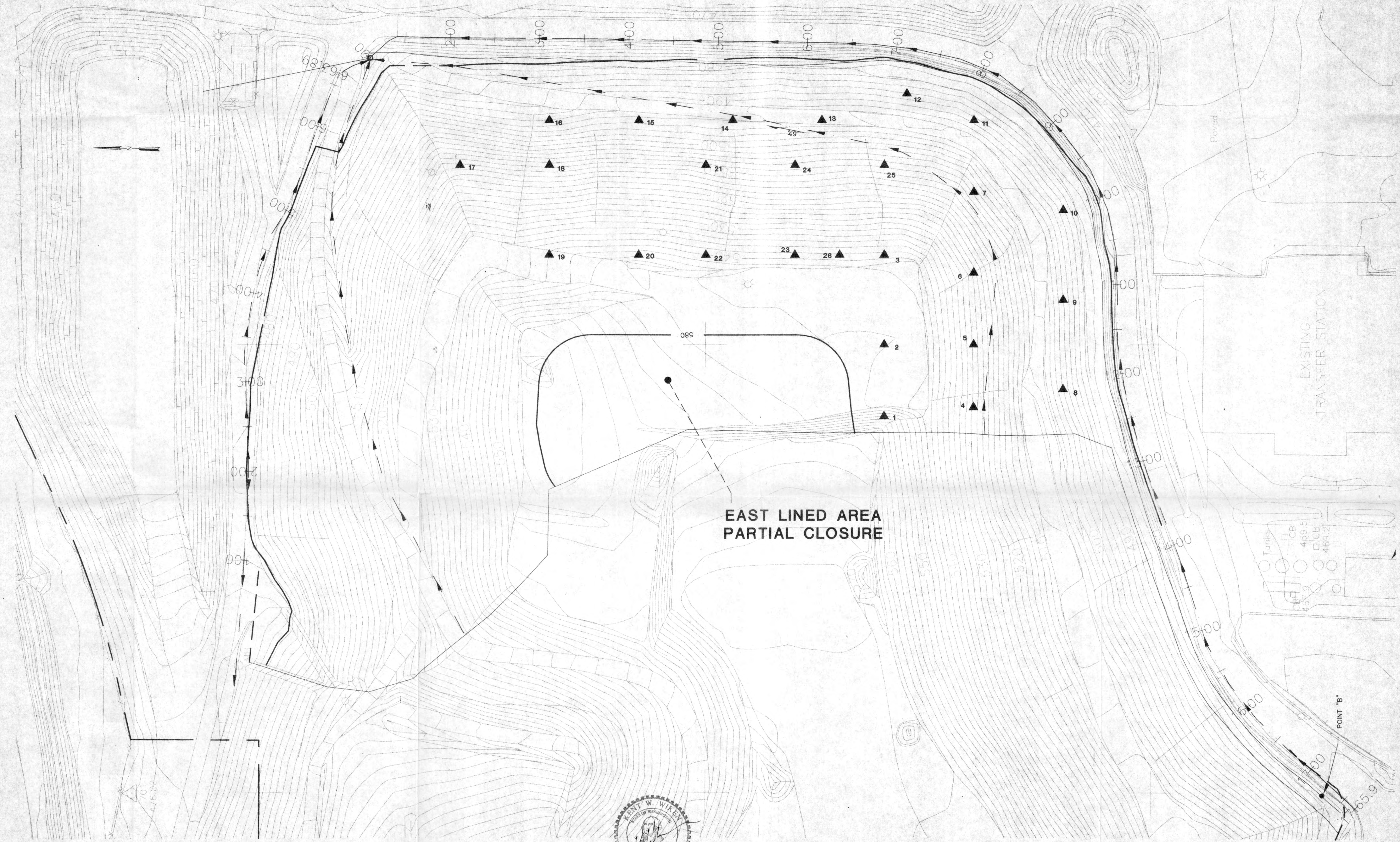


LAND RECOVERY, INC.  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON  
EXISTING TYPE B  
LOW PERMEABILITY SOIL  
THICKNESS VERIFICATION

DRAWING NO.  
**B-1**  
PROJECT NO.  
40202-005.061

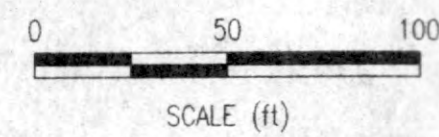


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Topography prepared by photogrammetric methods by:  
NIES Mapping Group, Inc. Date of Aerial: 1-9-98.

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OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.



- PROPOSED  
DITCH LINE  
LIMIT OF EAST LINED AREA  
PARTIAL CLOSURE  
▲ MOISTURE/DENSITY TEST LOCATION
- EXPIRES 12/5/99

REV	DATE	DESCRIPTION	RLB	DMG	WGG	KWW
0	3/99	RECORD DRAWINGS				
1	9/98	MLP				
2		IS.WYK				

DATE OF ISSUE: 9/98  
DWN BY: MLP  
DES BY: IS.WYK  
CHK BY: KWW  
APP BY: KWW



LAND RECOVERY, INC.  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON  
NUCLEAR MOISTURE & DENSITY TESTS  
EXISTING TOP OF TYPE B  
LOW PERMEABILITY SOIL

DRAWING NO.  
B-2  
PROJECT NO.  
40202-005.061















**B-1b**  
**Summary of Nuclear Moisture/Density Tests**



**TABLE B-1b**  
**SUMMARY OF**  
**NUCLEAR MOISTURE & DENSITY TESTS**

Project: East Lined Area Partial Closure, Hidden Valley Landfill													Prepared By: Glenn Heath			
Project No.: 40202-005.060													Reviewed By: <i>kw</i>			
Owner: L.R.I.													Tested By: Glenn Heath			
Test No.	Date	Material Used	Test Location	Lift No.	Test Depth (in)	Field Moist. (%)	Dry Density (PCF)	Reference Curve		Relative Compaction %	Specified Compaction %	Pass / Fail	Test Assign.			
								D. D. (PCF)	% Moisture							
1	7/17/98	Corlis Type A	S Slope, N 25300 @ E 54420	SG	8"	29.6	89.2	104.5	20.5	85	Within Zone	Pass				
2	7/17/98	Corlis Type A	S Slope, N 25300 @ E 54500	SG	8"	30.8	87.9	104.5	20.5	84	Within Zone	Pass				
3	7/17/98	Corlis Type A	S Slope, N 25300 @ E 54600	SG	8"	28.2	92.1	104.5	20.5	88	Within Zone	Pass				
4	7/17/98	Corlis Type A	S Slope, N 25200 @ E 54430	SG	8"	23.1	98.9	104.5	20.5	95	Within Zone	Pass				
5	7/17/98	Corlis Type A	S Slope, N 25200 @ E 54500	SG	8"	23.6	98.2	104.5	20.5	94	Within Zone	Pass				
6	7/17/98	Corlis Type A	S Slope, N 25200 @ E 54580	SG	8"	22.1	100.7	104.5	20.5	96	Within Zone	Pass				
7	7/17/98	Corlis Type A	S Slope, N 25200 @ E 54670	SG	8"	24.7	98.3	104.5	20.5	94	Within Zone	Pass				
8	7/17/98	Corlis Type A	S Slope, N 25100 @ E 54450	SG	8"	26.2	94.6	104.5	20.5	91	Within Zone	Pass				
9	7/17/98	Corlis Type A	S Slope, N 25100 @ E 54550	SG	8"	28.0	90.7	104.5	20.5	87	Within Zone	Pass				
10	7/17/98	Corlis Type A	S Slope, N 25100 @ E 54650	SG	8"	25.6	96.1	104.5	20.5	92	Within Zone	Pass				
11	7/17/98	Corlis Type A	E Slope, N 25200 @ E 54750	SG	8"	25.9	97.0	104.5	20.5	93	Within Zone	Pass				
12	7/17/98	Corlis Type A	E Slope, N 25275 @ E 54780	SG	8"	26.4	94.3	104.5	20.5	90	Within Zone	Pass				
13	7/17/98	Corlis Type A	E Slope, N 25370 @ E 54750	SG	8"	27.2	95.0	104.5	20.5	91	Within Zone	Pass				
14	7/17/98	Corlis Type A	E Slope, N 25470 @ E 54750	SG	8"	26.6	94.8	104.5	20.5	91	Within Zone	Pass				
15	7/17/98	Corlis Type A	E Slope, N 25575 @ E 54750	SG	8"	22.8	100.9	104.5	20.5	97	Within Zone	Pass				
16	7/17/98	Corlis Type A	E Slope, N 25675 @ E 54750	SG	8"	22.7	102.0	104.5	20.5	98	Within Zone	Pass				
17	7/17/98	Corlis Type A	E Slope N 25775 @ E 54700	SG	8"	23.1	101.0	104.5	20.5	97	Within Zone	Pass				
18	7/17/98	Corlis Type A	E Slope, N 25675 @ E 54700	SG	8"	27.0	94.3	104.5	20.5	90	Within Zone	Pass				
19	7/17/98	Corlis Type A	E Slope, N 25675 @ E 54600	SG	8"	12.2	103.7	104.5	20.5	99	Within Zone	Fail				
20	7/17/98	Corlis Type A	E Slope, N 25575 @ E 54600	SG	8"	11.3	119.7	104.5	20.5	115	Within Zone	Fail				
21	7/17/98	Corlis Type A	E Slope, N 25500 @ E 54700	SG	8"	24.9	96.4	104.5	20.5	92	Within Zone	Pass				
22	7/17/98	Corlis Type A	E Slope, N 25500 @ E 54600	SG	8"	25.5	96.0	104.5	20.5	92	Within Zone	Pass				
23	7/17/98	Corlis Type A	E Slope, N 25400 @ E 54600	SG	8"	25.9	96.3	104.5	20.5	92	Within Zone	Pass				
24	7/17/98	Corlis Type A	E Slope, N 25400 @ E 54700	SG	8"	27.6	93.8	104.5	20.5	90	Within Zone	Pass				
25	7/17/98	Corlis Type A	E Slope, N 25300 @ E 54700	SG	8"	26.1	94.0	104.5	20.5	90	Within Zone	Pass				
26	7/17/98	Corlis Type A	E Slope, N 25350 @ E 54600	SG	8"	28.0	93.3	104.5	20.5	89	Within Zone	Pass				



TABLE B-1b  
SUMMARY OF  
NUCLEAR MOISTURE & DENSITY TESTS

Project: East Lined Area Partial Closure, Hidden Valley Landfill														Prepared By: Glenn Heath			
Project No.: 40202-005.060														Reviewed By: <i>Kuo</i>			
Owner: L.R.I.														Tested By: Glenn Heath			
Test No.	Date	Material Used	Test Location	Lift No.	Test Depth (in)	Field Moist. (%)	Dry Density (PCF)	Reference Curve		Relative Compaction %	Specified Compaction %	Pass / Fail	Test Assign.				
								D. D. (PCF)	% Moisture								
101	8/4/98	Corliss Type A	Top, N 25375 @ E 54430	1	6"	21.8	102.7	104.5	20.5	98	Within Zone	Pass					
102	8/4/98	Corliss Type A	Top, N 25500 @ E 54435	1	6"	27.7	94.1	104.5	20.5	90	Within Zone	Pass					
103	8/4/98	Corliss Type A	Top, N 25620 @ E 54400	1	6"	26.8	95.1	104.5	20.5	91	Within Zone	Pass					
104	8/4/98	Corliss Type A	Top, N 25600 @ E 54460	1	6"	27.8	94.8	104.5	20.5	91	Within Zone	Pass					
105	8/4/98	Corliss Type A	Top, N 25500 @ E 54470	1	6"	27.9	94.4	104.5	20.5	90	Within Zone	Pass					
106	8/4/98	Corliss Type A	Top, N 25390 @ E 54480	1	6"	38.7*	82.1	104.5	20.5	79	Within Zone	Fail					
106R	8/7/98	Corliss Type A	Top SE Corner, N 25390 @ E 54480	1	6"	26.7	94.3	104.5	20.5	90	Within Zone	Pass					
107	8/7/98	Corliss Type A	South Slope, N 25175 @ E 54420	1	6"	27.3	95.3	104.5	20.5	91	Within Zone	Pass					
108	8/7/98	Corliss Type A	South Slope, N 25175 @ E 54500	1	6"	26.6	92.7	104.5	20.5	89	Within Zone	Pass					
109	8/7/98	Corliss Type A	South Slope, N 25175 @ E 54600	1	6"	25.5	94.7	104.5	20.5	91	Within Zone	Pass					
110	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54420	1	6"	25.9	94.6	104.5	20.5	91	Within Zone	Pass					
111	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54500	1	6"	26.2	94.0	104.5	20.5	90	Within Zone	Pass					
112	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54600	1	6"	27.1	93.0	104.5	20.5	89	Within Zone	Pass					
113	8/14/98	Corliss Type B	Sta. 9+00	1	6"	12.6	105.7	130.6	8.8	81	Within Zone	Fail					
114	8/14/98	Corliss Type B	Sta. 8+10	1	6"	8.9	111.7	130.6	8.8	86	Within Zone	Fail					
113R	8/14/98	Corliss Type B	Sta. 9+00	1	6"	14.1	117.9	130.6	8.8	90	Within Zone	Pass					
114R	8/14/98	Corliss Type B	Sta. 8+10	1	6"	13.7	120.0	130.6	8.8	92	Within Zone	Pass					
115	8/14/98	Corliss Type B	Sta. 7+00	1	6"	12.2	119.5	130.6	8.8	92	Within Zone	Pass					
116	8/15/98	Corliss Type B	Sta. 6+50	1	6"	10.0	130.7	136	7.9	96	Within Zone	Pass					
117	8/15/98	Corliss Type B	Sta. 5+50	1	6"	9.7	131.0	136	7.9	96	Within Zone	Pass					
118	8/15/98	Corliss Type B	Sta. 4+50	1	6"	8.5	135.8	136	7.9	100	Within Zone	Pass					
119	8/18/98	Corliss Type B	Sta.3+50	1	6"	8.5	134.7	136	7.9	99	Within Zone	Pass					
120	8/25/98	Corliss Type A	Sta. 2+50	1	6"	9.3	134.7	136	7.9	99	Within Zone	Fail					
121	8/25/98	Corliss Type A	Sta. 1+50	1	6"	8.2	135.7	136	7.9	100	Within Zone	Fail					
122	8/25/98	Corliss Type A	Sta. 1+00	1	6"	8.5	135.1	136	7.9	99	Within Zone	Pass					
123	8/25/98	Corliss Type A	Sta. 0+50	1	6"	8.1	135.9	136	7.9	100	Within Zone	Pass					
124	8/31/98	Corliss Type A	N 25860 @ E 54450	1	6"	29.4	88.3	104.5	20.5	84	Within Zone	Pass					
125	8/31/98	Corliss Type A	N 25835 @ N 54570	1	6"	23.8	100.2	104.5	20.5	96	Within Zone	Pass					
126	8/31/98	Corliss Type A	N 25875 @ E 54530	1	6"	29.4	91.9	104.5	20.5	88	Within Zone	Pass					
127	9/12/98	Corliss Type A	Top NW Corner, N 25600 @ E 54400	1	6"	26.8	94.4	104.5	20.5	90	Within Zone	Pass					



**TABLE B-1b**  
**SUMMARY OF**  
**NUCLEAR MOISTURE & DENSITY TESTS**

Project: East Lined Area Partial Closure, Hidden Valley Landfill										Prepared By: Glenn Heath			
Project No.: 40202-005.061										Reviewed By: <i>KEU</i>			
Owner: L.R.I.										Tested By: Glenn Heath			
Test No.	Date	Material Used	Test Location	Lift No.	Test Depth (in)	Field Moist. (%)	Dry Density (PCF)	Reference Curve		Relative Compaction %	Specified Compaction %	Pass / Fail	Test Assign.
								D. D. (PCF)	% Moisture				
201	8/4/98	Corliss Type A	Top, N 25350 @ E 54425	2	6"	31.1	88.0	104.5	20.5	84	Within Zone	Pass	
202	8/4/98	Corliss Type A	Top, N 25510 @ E 54425	2	6"	28.8	92.5	104.5	20.5	89	Within Zone	Pass	
203	8/4/98	Corliss Type A	Top, N 25650 @ E 54390	2	6"	29.7	91.6	104.5	20.5	88	Within Zone	Pass	
204	8/4/98	Corliss Type A	Top, N 25640 @ E 54480	2	6"	29.3	92.7	104.5	20.5	89	Within Zone	Pass	
205	8/4/98	Corliss Type A	Top, N 25510 @ E 54480	2	6"	30.5	90.4	104.5	20.5	87	Within Zone	Pass	
206	8/7/98	Corliss Type A	Top SE Corner, N 25390 @ E 54465	2	6"	24.3	99.2	104.5	20.5	95	Within Zone	Pass	
207	8/7/98	Corliss Type A	South Slope, N 25175 @ E 54420	2	6"	26.2	93.4	104.5	20.5	89	Within Zone	Pass	
208	8/7/98	Corliss Type A	South Slope, N 25175 @ E 54500	2	6"	27.0	94.5	104.5	20.5	90	Within Zone	Pass	
209	8/7/98	Corliss Type A	South Slope, N 25175 @ E 54600	2	6"	26.8	93.7	104.5	20.5	90	Within Zone	Pass	
210	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54420	2	6"	29.1	92.1	104.5	20.5	88	Within Zone	Pass	
211	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54500	2	6"	28.4	91.7	104.5	20.5	88	Within Zone	Pass	
212	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54600	2	6"	27.5	92.0	104.5	20.5	88	Within Zone	Pass	
213	8/14/98	Corliss Type B	Sta. 9+10	2	6"	12.7	120.2	130.6	8.8	92	Within Zone	Pass	
214	8/14/98	Corliss Type B	Sta. 8+50	2	6"	13.9	119.6	130.6	8.8	92	Within Zone	Pass	
215	8/14/98	Corliss Type B	Sta. 7+50	2	6"	12.9	120.9	130.6	8.8	93	Within Zone	Pass	
216	8/21/98	Corliss Type B	Sta. 6+00	2	6"	9.5	130.8	136	7.9	96	Within Zone	Pass	
217	8/21/98	Corliss Type B	Sta. 5+00	2	6"	8.8	132.2	136	7.9	97	Within Zone	Pass	
218	8/21/98	Corliss Type B	Sta. 4+00	2	6"	9.4	132.3	136	7.9	97	Within Zone	Pass	
219	8/21/98	Corliss Type B	Sta. 3+00	2	6"	8.0	135.1	136	7.9	99	Within Zone	Pass	
220	8/25/98	Corliss Type A	Sta. 2+00	2	6"	*7.2	135.8	136	7.9	100	Within Zone	Fail	
220R	8/25/98	Corliss Type A	Sta. 2+00	2	6"	10.2	132.7	136	7.9	98	Within Zone	Pass	
221	8/26/98	Corliss Type A	Sta. 1+00	2	6"	10.5	129.8	136	7.9	95	Within Zone	Pass	
222	8/26/98	Corliss Type A	Sta. 0+25	2	6"	10.7	130.0	136	7.9	96	Within Zone	Pass	
223	8/26/98	Corliss Type A	Sta. 0+00, 8ft E of Inlet	2	6"	10.0	130.4	136	7.9	96	Within Zone	Pass	
224	8/31/98	Corliss Type A	N 25850 @ E 54575	2	6"	25.8	94.1	104.5	20.5	90	Within Zone	Pass	
225	8/31/98	Corliss Type A	N 25875 @ E 54500	2	6"	31.3	90.6	104.5	20.5	87	Within Zone	Pass	
226	8/31/98	Corliss Type A	N 25860 @ E 54450	2	6"	27.6	92.2	104.5	20.5	88	Within Zone	Pass	
227	9/12/98	Corliss Type A	Top NW Corner, N 25675 @ E 54390	2	6"	27.2	94.1	104.5	20.5	90	Within Zone	Pass	



**TABLE B-1b**  
**SUMMARY OF**  
**NUCLEAR MOISTURE & DENSITY TESTS**

Project: East Lined Area Partial Closure, Hidden Valley Landfill													
Project No.: 40202-005.060													
Owner: L.R.I.													
Prepared By: Glenn Heath													
Reviewed By: <i>[Signature]</i>													
Tested By: Glenn Heath													
Test No.	Date	Material Used	Test Location	Lift No.	Test Depth (in)	Field Moist. (%)	Dry Density (PCF)	Reference Curve		Relative Compaction %	Specified Compaction %	Pass / Fail	Test Assign.
								D. D. (PCF)	% Moisture				
301	8/5/98	Corliss Type A	Top, N 25380 @ E 54420	3	6"	27.2	94.4	104.5	20.5	90	Within Zone	Pass	
302	8/5/98	Corliss Type A	Top, N 25500 @ E 54430	3	6"	25.7	95.7	104.5	20.5	92	Within Zone	Pass	
303	8/5/98	Corliss Type A	Top, N 25670 @ E 54430	3	6"	26.6	92.3	104.5	20.5	88	Within Zone	Pass	
304	8/5/98	Corliss Type A	Top, N 25650 @ E 54475	3	6"	27.6	93.4	104.5	20.5	89	Within Zone	Pass	
305	8/5/98	Corliss Type A	Top, N 25510 @ E 54480	3	6"	27.9	94.4	104.5	20.5	90	Within Zone	Pass	
306	8/7/98	Corliss Type A	Top SE Corner, N 25400 @ E 54470	3	6"	27.4	93.5	104.5	20.5	89	Within Zone	Pass	
307	8/7/98	Corliss Type A	South Slope, N 25150 @ E 54420	3	6"	28.6	91.5	104.5	20.5	88	Within Zone	Pass	
308	8/7/98	Corliss Type A	South Slope, N 25150 @ E 54500	3	6"	28.0	93.8	104.5	20.5	90	Within Zone	Pass	
309	8/7/98	Corliss Type A	South Slope, N 25150 @ E 54600	3	6"	27.5	93.1	104.5	20.5	89	Within Zone	Pass	
310	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54420	3	6"	27.2	94.7	104.5	20.5	91	Within Zone	Pass	
311	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54500	3	6"	28.8	92.6	104.5	20.5	89	Within Zone	Pass	
312	8/7/98	Corliss Type A	South Slope, N 25075 @ E 54600	3	6"	29.4	89.3	104.5	20.5	85	Within Zone	Pass	
313	8/14/98	Corliss Type B	Sta. 9+00	3	6"	12.5	121.1	130.6	8.8	93	Within Zone	Pass	
314	8/14/98	Corliss Type B	Sta. 8+00	3	6"	12.2	120.6	130.6	8.8	92	Within Zone	Pass	
315	8/14/98	Corliss Type B	Sta. 7+00	3	6"	12.9	121.7	130.6	8.8	93	Within Zone	Pass	
316	8/21/98	Corliss Type B	Sta.6+50	3	6"	8.7	136.5	136	7.9	100	Within Zone	Pass	
317	8/23/98	Corliss Type B	Sta. 5+50	3	6"	9.2	134.8	136	7.9	99	Within Zone	Pass	
318	8/24/98	Corliss Type B	Sta. 4+50	3	6"	10.0	133.9	136	7.9	98	Within Zone	Pass	
319	8/24/98	Corliss Type B	Sta. 3+50	3	6"	9.3	134.6	136	7.9	99	Within Zone	Pass	
320	8/26/98	Corliss Type A	Sta. 2+50	3	6"	9.6	135.3	136	7.9	99	Within Zone	Pass	
321	8/26/98	Corliss Type A	Sta. 1+50	3	6"	9.0	134.7	136	7.9	99	Within Zone	Pass	
322	8/28/98	Corliss Type A	Sta. 1+00	3	6"	8.5	135.0	136	7.9	99	Within Zone	Pass	
323	9/1/98	Corliss Type A	N 25875 @ E 54430	3	6"	24.3	99.1	104.5	20.5	95	Within Zone	Pass	
324	9/1/98	Corliss Type A	N 25825 @ E 54525	3	6"	25.7	96.2	104.5	20.5	92	Within Zone	Pass	
325	9/1/98	Corliss Type A	N 25875 @ E 54575	3	6"	26.8	94.6	104.5	20.5	91	Within Zone	Pass	
326	9/12/98	Corliss Type A	Top NW Corner, N 25650 @ E 54360	3	6"	28.8	92.3	104.5	20.5	88	Within Zone	Pass	





**TABLE B-1b**  
**SUMMARY OF**  
**NUCLEAR MOISTURE & DENSITY TESTS**

Project: East Lined Area Partial Closure, Hidden Valley Landfill										Prepared By: Glenn Heath			
Project No.: 40202-005.060										Reviewed By: <i>Glenn Heath</i>			
Owner: L.R.I.										Tested By: Glenn Heath			
Test No.	Date	Material Used	Test Location	Lift No.	Test Depth (in)	Field Moist. (%)	Dry Density (PCF)	Reference Curve		Relative Compaction %	Specified Compaction %	Pass / Fail	Test Assign.
								D. D. (PCF)	% Moisture				
401	8/12/98	Corliss Type A	N 24825 @ E 54020	Final	6"	18.3	96.3	104.5	20.5	92	Within Zone	Fail	
402	8/12/98	Corliss Type A	N 24920 @ E 54100	Final	6"	19.7	97.2	104.5	20.5	93	Within Zone	Fail	
403	8/12/98	Corliss Type A	N 24960 @ E 54200	Final	6"	24.3	99.1	104.5	20.5	95	Within Zone	Pass	
404	8/12/98	Corliss Type A	N 24990 @ E 54295	Final	6"	30.7	86.2	104.5	20.5	82	Within Zone	Fail	
405	8/12/98	Corliss Type A	N 25025 @ E 54350	Final	6"	29.6	85.8	104.5	20.5	82	Within Zone	Fail	
401R	8/12/98	Corliss Type A	N 24825 @ E 54020	Final	6"	28.1	93.7	104.5	20.5	90	Within Zone	Pass	Depth
402R	8/12/98	Corliss Type A	N 24920 @ E 54100	Final	6"	27.4	93.3	104.5	20.5	89	Within Zone	Pass	Depth
403R	8/12/98	Corliss Type A	N 24960 @ E 54200	Final	6"	25.6	96.1	104.5	20.5	92	Within Zone	Pass	Depth
404R	8/12/98	Corliss Type A	N 24990 @ E 54295	Final	6"	27.8	91.8	104.5	20.5	88	Within Zone	Pass	Depth
405R	8/12/98	Corliss Type A	N 25025 @ E 54350	Final	6"	27.0	92.3	104.5	20.5	88	Within Zone	Pass	Depth
406	8/13/98	Corliss Type A	N 25390 @ E 54420	Final	6"	21.9	102.5	104.5	20.5	98	Within Zone	Pass	
407	8/13/98	Corliss Type A	N 25400 @ E 54480	Final	6"	24.8	98.3	104.5	20.5	94	Within Zone	Pass	
408	8/13/98	Corliss Type A	N 25490 @ E 54420	Final	6"	22.5	101.0	104.5	20.5	97	Within Zone	Pass	Perm
409	8/13/98	Corliss Type A	N 25510 @ E 54480	Final	6"	21.7	103.4	104.5	20.5	99	Within Zone	Pass	
410	8/13/98	Corliss Type A	N 25610 @ E 54400	Final	6"	22.0	102.8	104.5	20.5	98	Within Zone	Pass	
411	8/13/98	Corliss Type A	N 25650 @ E 54475	Final	6"	22.8	101.5	104.5	20.5	97	Within Zone	Pass	
412	8/15/98	Corliss Type B	Sta. 9+00	Final	6"	15.1	114.8	130.6	8.8	88	Within Zone	Pass	
413	8/15/98	Corliss Type B	Sta. 8+25	Final	6"	13.7	118.9	130.6	8.8	91	Within Zone	Pass	
414	8/15/98	Corliss Type B	Sta. 7+25	Final	6"	8.7	132.4	136.0	7.9	97	Within Zone	Pass	
415	8/16/98	Corliss Type A	N 25170 @ E 54450	Final	6"	27.5	94.8	104.5	20.5	91	Within Zone	Pass	
416	8/16/98	Corliss Type A	N 25150 @ E 54550	Final	6"	28.0	90.1	104.5	20.5	86	Within Zone	Pass	
417	8/16/98	Corliss Type A	N 25150 @ E 54650	Final	6"	27.3	90.5	104.5	20.5	87	Within Zone	Pass	
418	8/16/98	Corliss Type A	N 25075 @ E 54450	Final	6"	29.1	91.6	104.5	20.5	88	Within Zone	Pass	Perm
419	8/16/98	Corliss Type A	N 25100 @ E 54540	Final	6"	29.4	88.3	104.5	20.5	84	Within Zone	Pass	
420	8/16/98	Corliss Type A	N 25100 @ E 54640	Final	6"	27.7	90.3	104.5	20.5	86	Within Zone	Pass	
421	8/20/98	Corliss Type A	N 25245 @ E 54580	Final	6"	22.6	102.1	104.5	20.5	98	Within Zone	Pass	
422	8/20/98	Corliss Type A	N 25320 @ E 54415	Final	6"	22.7	102.7	104.5	20.5	98	Within Zone	Pass	
423	8/20/98	Corliss Type A	N 25245 @ E 54445	Final	6"	23.8	100.2	104.5	20.5	96	Within Zone	Pass	



**TABLE B-1b**  
**SUMMARY OF**  
**NUCLEAR MOISTURE & DENSITY TESTS**

Project: East Lined Area Partial Closure, Hidden Valley Landfill													
Project No.: 40202-005.060													
Owner: L.R.I.													
Prepared By: Glenn Heath													
Reviewed By: <i>[Signature]</i>													
Tested By: Glenn Heath													
Test No.	Date	Material Used	Test Location	Lift No.	Test Depth (in)	Field Moist. (%)	Dry Density (PCF)	Reference Curve		Relative Compaction %	Specified Compaction %	Pass / Fail	Test Assign.
								D. D. (PCF)	% Moisture				
424	8/20/98	Corliss Type A	N 25295 @ E 54495	Final	6"	21.9	101.4	104.5	20.5	97	Within Zone	Pass	
425	8/22/98	Corliss Type A	N 25220 @ E 54545	Final	6"	22.5	101.5	104.5	20.5	97	Within Zone	Pass	
426	8/24/98	Corliss Type B	Sta. 6+00	Final	6"	9.6	130.7	136.0	7.9	96	Within Zone	Pass	
427	8/24/98	Corliss Type B	Sta. 5+00	Final	6"	8.5	132.9	136.0	7.9	98	Within Zone	Pass	
428	8/24/98	Corliss Type B	Sta. 4+00	Final	6"	8.0	134.3	136.0	7.9	99	Within Zone	Pass	
429	8/24/98	Corliss Type B	Sta. 3+00	Final	6"	9.2	133.7	136.0	7.9	98	Within Zone	Pass	
430	8/27/98	Corliss Type A	N 25350 @ E 54550	Final	6"	24.1	100.3	104.5	20.5	96	Within Zone	Pass	
431	8/27/98	Corliss Type A	N 25445 @ E 54585	Final	6"	24.7	96.0	104.5	20.5	92	Within Zone	Pass	
432	8/27/98	Corliss Type A	N 25420 @ E 54650	Final	6"	25.0	96.1	104.5	20.5	92	Within Zone	Pass	
433	8/27/98	Corliss Type A	N 25320 @ E 54680	Final	6"	24.8	102.8	104.5	20.5	98	Within Zone	Pass	Perm
434	8/27/98	Corliss Type A	N 25425 @ E 54780	Final	6"	27.3	94.7	104.5	20.5	91	Within Zone	Pass	
435	8/27/98	Corliss Type A	N 25320 @ E 54780	Final	6"	26.2	95.3	104.5	20.5	91	Within Zone	Pass	
436	8/27/98	Corliss Type A	N 25200 @ E 54745	Final	6"	26.7	96.0	104.5	20.5	92	Within Zone	Pass	
437	8/28/98	Corliss Type A	Sta. 2+00	Final	6"	7.9	135.8	136.0	7.9	100	Within Zone	Pass	
438	8/28/98	Corliss Type A	Sta. 1+00	Final	6"	8.7	135.1	136.0	7.9	99	Within Zone	Pass	
439	8/28/98	Corliss Type A	Sta. 0+00, 5ft E of Inlet	Final	6"	9.8	134.8	136.0	7.9	99	Within Zone	Pass	
440	8/31/98	Corliss Type A	N 25510 @ E 54580	Final	6"	26.7	94.6	104.5	20.5	91	Within Zone	Pass	
441	8/31/98	Corliss Type A	N 25620 @ E 54565	Final	6"	24.3	95.8	104.5	20.5	92	Within Zone	Pass	
442	8/31/98	Corliss Type A	N 25625 @ E 54625	Final	6"	22.2	102.3	104.5	20.5	98	Within Zone	Pass	
443	8/31/98	Corliss Type A	N 25550 @ E 54650	Final	6"	25.4	97.2	104.5	20.5	93	Within Zone	Pass	
444	8/31/98	Corliss Type A	N 25685 @ E 54650	Final	6"	23.8	100.3	104.5	20.5	96	Within Zone	Pass	Perm
445	8/31/98	Corliss Type A	N 25765 @ E 54655	Final	6"	22.9	101.0	104.5	20.5	97	Within Zone	Pass	
446	8/31/98	Corliss Type A	N 25780 @ E 54780	Final	6"	30.1	91.7	104.5	20.5	88	Within Zone	Pass	
447	8/31/98	Corliss Type A	N 25695 @ E 54780	Final	6"	29.4	92.1	104.5	20.5	88	Within Zone	Pass	
448	8/31/98	Corliss Type A	N 25710 @ E 54725	Final	6"	26.5	95.2	104.5	20.5	91	Within Zone	Pass	
449	8/31/98	Corliss Type A	N 25525 @ E 54745	Final	6"	22.5	102.7	104.5	20.5	98	Within Zone	Pass	
450	8/31/98	Corliss Type A	N 25710 @ E 54575	Final	6"	23.3	100.4	104.5	20.5	96	Within Zone	Pass	
451	9/5/98	Corliss Type A	N 25725 @ E 54525	Final	6"	27.6	92.2	104.5	20.5	88	Within Zone	Pass	
452	9/5/98	Corliss Type A	N 25780 @ E 54615	Final	6"	26.2	95.3	104.5	20.5	91	Within Zone	Pass	

**TABLE B-1b**

## SUMMARY OF NUCLEAR MOISTURE & DENSITY TESTS

Project: East Lined Area Partial Closure, Hidden Valley Landfill

Project No.: 40202-005.061

Owner: L.R.I.

Prepared By: Glenn Heath

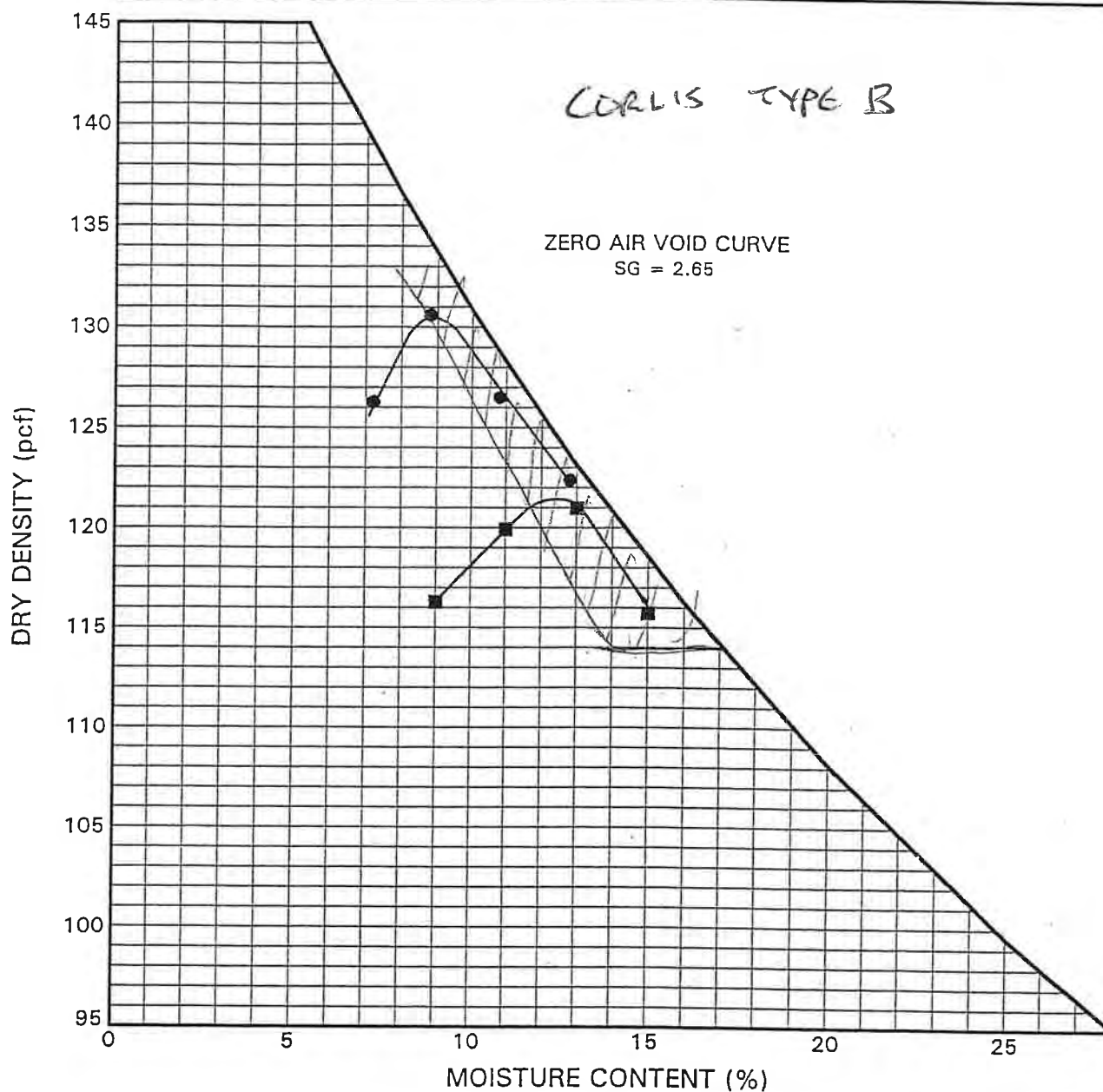
Reviewed By:                     

Tested By: Glenn Heath

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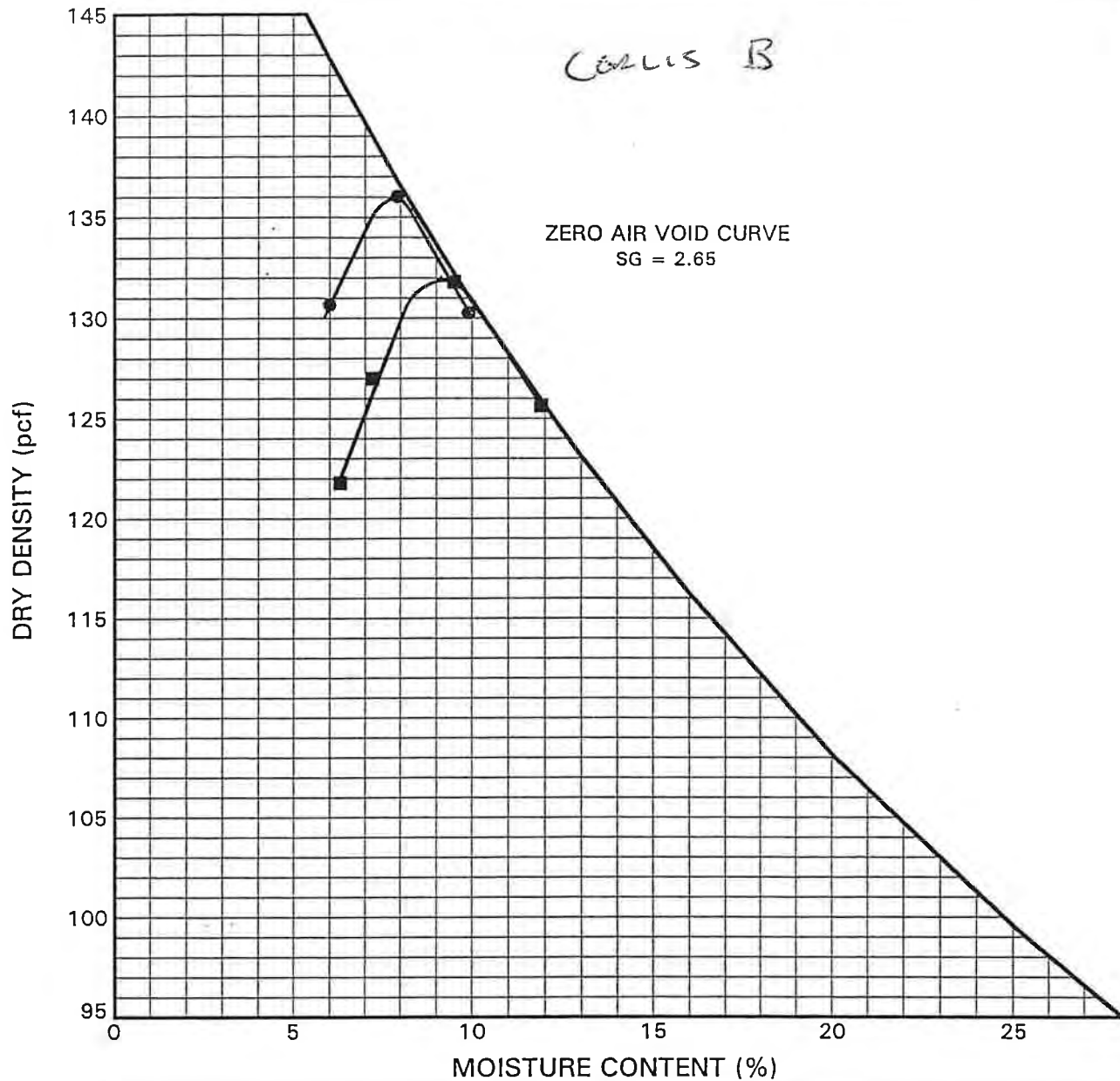
**B-1c**  
**Reference Moisture/Density Curves**

SAMPLE	DEPTH (feet)	CLASSIFICATION
CORBMOD		(SM) Dark grayish brown, silty SAND with gravel.
CORBSTD		(SM) Dark grayish brown, silty SAND with gravel.



SAMPLE:	CORBMOD,	CORBSTD,	
TEST METHOD:	ASTM D 1557	ASTM D 698	
MAXIMUM DRY DENSITY (pcf):	130.6	121.2	
OPTIMUM MOISTURE CONTENT (%):	8.8	12.5	
INITIAL MOISTURE CONTENT (%):	4.8	4.8	

SAMPLE	DEPTH (feet)	CLASSIFICATION
COR2BMOD		(SM) Dark brown, silty SAND with gravel.
COR2BSTD		(SM) Dark brown, silty SAND with gravel.



SAMPLE:	COR2BMOD,	COR2BSTD,	
TEST METHOD:	ASTM D 1557	ASTM D 1557	
MAXIMUM DRY DENSITY (pcf):	136.0	131.8	
OPTIMUM MOISTURE CONTENT (%):	7.9	9.5	
INITIAL MOISTURE CONTENT (%):	7.9	7.9	



HWAGEOSCIENCES INC.

Hidden Valley Landfill  
Puyallup, Washington

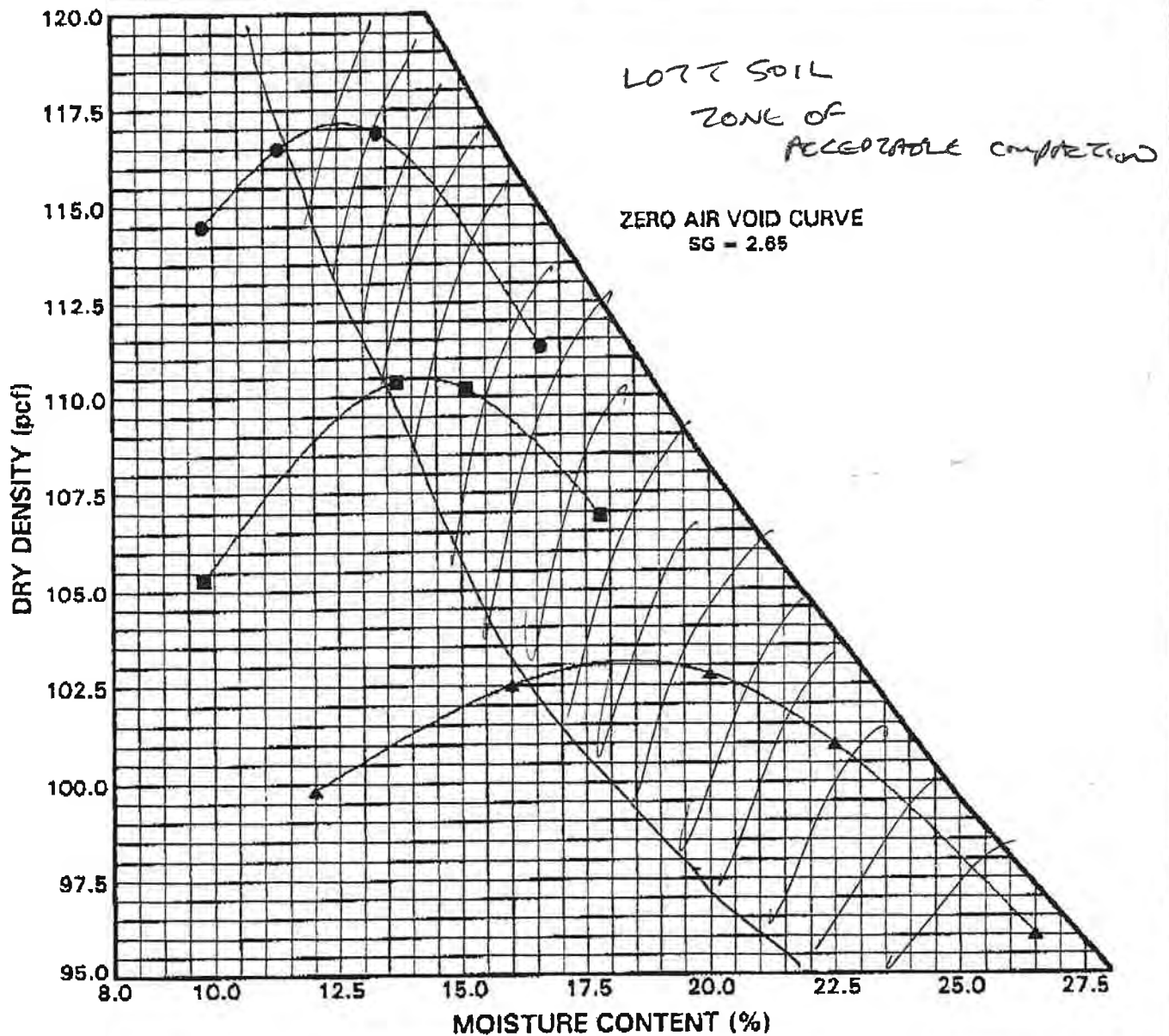
## COMPACTION TEST RESULT

PROJECT NO.: 98037

FIGURE: 1



SAMPLE	DEPTH (feet)	CLASSIFICATION
S-3MOD		(GM) Very dark brown, silty GRAVEL with sand
S-3STD		(GM) Very dark brown, silty GRAVEL with sand
S-4		(GM) Very dark brown, silty GRAVEL with sand (LOTT Soil)



SAMPLE:	S-3MOD,	S-3STD,	S-4,
TEST METHOD:	ASTM D 1557	ASTM D 698	Low Energy
MAXIMUM DRY DENSITY (pcf):	117.2	110.5	103.1
OPTIMUM MOISTURE CONTENT (%):	12.5	14.3	18.5
INITIAL MOISTURE CONTENT (%):	12.2	12.2	20.0



HWAGEOSCIENCES INC.

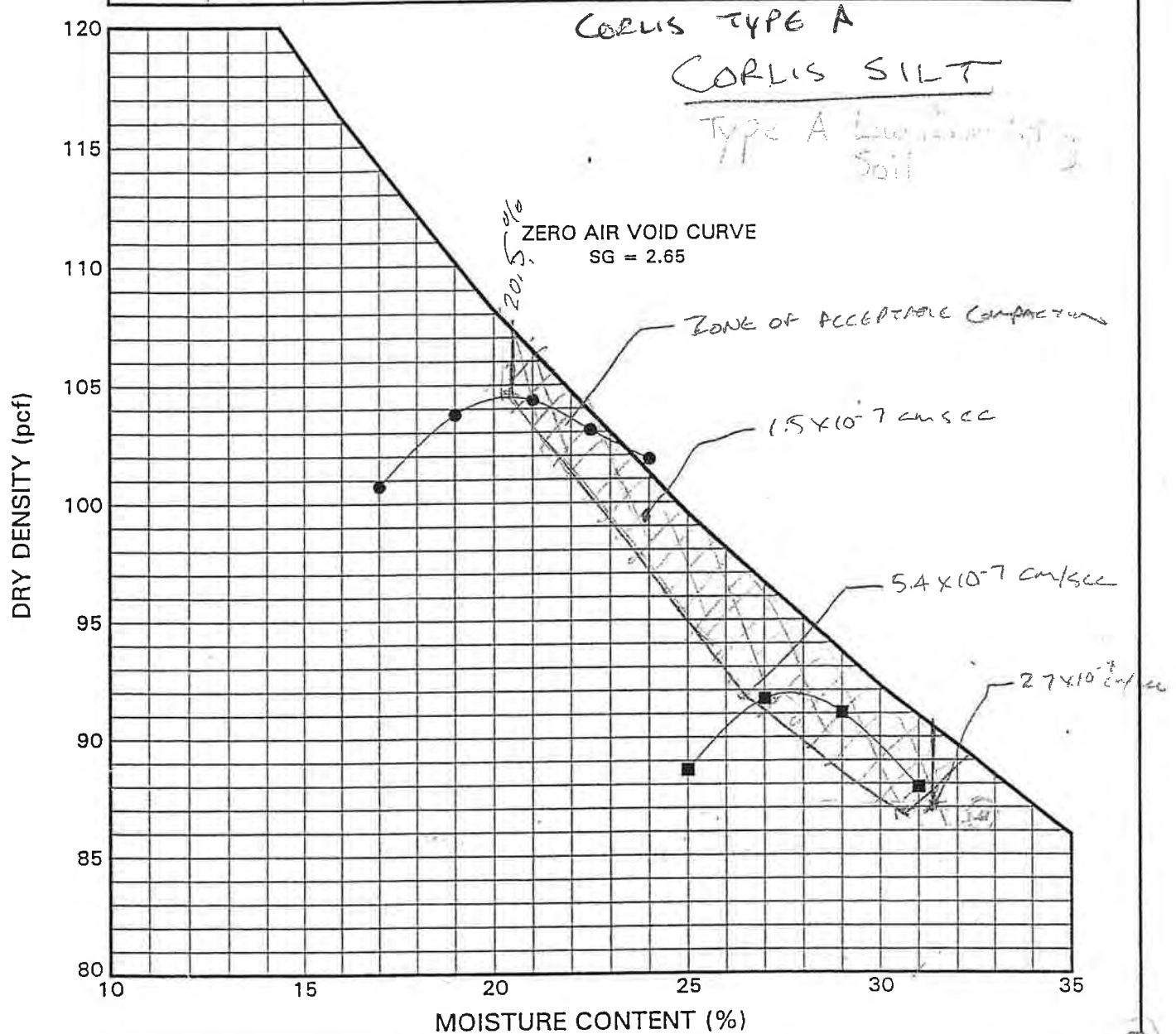
Hidden Valley Landfill

## COMPACTION TEST RESULT

PROJECT NO.: 98037

FIGURE: B-1

SAMPLE	DEPTH (feet)	CLASSIFICATION
S-1MOD		(CH) Olive Brown, Fat CLAY with sand.
S-1STD		(CH) Olive brown, Fat CLAY with sand.



SAMPLE:	S-1MOD,	S-1STD,	
TEST METHOD:	ASTM D 1557	ASTM D 698	
MAXIMUM DRY DENSITY (pcf):	104.5	91.9	<del>104.5</del>
OPTIMUM MOISTURE CONTENT (%):	20.5	27.5	<del>20.5</del>
INITIAL MOISTURE CONTENT (%):	58.9	58.9	



**B-1d**  
**Permeability Test Data**

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAIL WATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill  
 LOCATION: Washington  
 MATERIAL: Silty clay, olive-brown  
 BORING/SAMPLE: 8118  
 PROCTOR #: \_\_\_\_\_  
 SAMPLE ORIENTATION: Vertical  
Remold

JOB No.: 40202-005-061  
 LAB START DATE: 9/2/98  
 LAB REP. DATE: 9/8/98  
 TECHNICIAN: ML  
 DEPTH/LIFT: Test #23 E. Slope 444  
 PERM FLUID USED: De-aired Tap Water

a. Length of Specimen, L: 1.9 in  
 c. Sample Volume  
 $(0.7854 * a * b^2)$ : 11.70 cu in

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 $[(e * 3.8095) / c]$ : 120.9 pcf

## INITIAL CONDITIONS

e. Wet Weight Soil: 371.2 gms  
 f. Wet Weight Soil + Tare: 469.5 gms  
 g. Dry Weight Soil + Tare: 389.6 gms  
 h. Tare Weight: 98.3 gms  
 i. Moisture Content  
 $[(f-g)/(g-h)] * 100$ : 27.4 %  
 j. Unit Dry Weight  
 $[d / (1 + (i/100))]$ : 94.9 pcf

## FINAL CONDITIONS

k. Wet Weight Soil + Tare: 473.0 gms  
 l. Dry Weight Soil + Tare: 389.6 gms  
 m. Tare Weight: 98.3 gms  
 n. Moisture Content  
 $[(k-l)/(l-m)] * 100$ : 28.6 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 13.08 cm  
 Maximum Gradient,  $i$ : 30.0 cm/cm

## B COEFFICIENT DETERMINATION

## PRESSURE, psi

Date	P3	Delta Pressure	Back Pressure, bp	Pore Pressure	B Coeff.	Trial	P3 cp	Inflow ha, in	Outflow ha, out
4-Sep	70	10 10 10 10	65	75	1	1	70	65	65

Date	Time	Cumul. Time, s	Head Reading H, cm	Total Head Loss $\Delta z_p$ , cm	Temp C	Rt	k @ 20C cm/sec
9/4/98	15:13		13.00				
9/4/98	15:20	420	11.20	1.80	22	0.953	1.2E-07
9/4/98	15:25	720	10.50	2.50	22	0.953	9.9E-08
9/4/98	15:32	1140	9.80	3.20	22	0.953	8.3E-08
9/4/98	15:45	1920	8.00	5.00	22	0.953	8.7E-08
9/4/98	15:50	2220	7.50	5.50	22	0.953	8.6E-08

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAILWATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill  
 LOCATION: Washington  
 MATERIAL: Sandy clay, brown  
 BORING/SAMPLE: 8081  
 PROCTOR #:                       
 SAMPLE ORIENTATION: Vertical  
Remold

JOB No.: 40202-005-061  
 LAB START DATE: 8/31/98  
 LAB REP. DATE: 9/3/98  
 TECHNICIAN: DG  
 DEPTH/LIFT: 433 Test #15 E. Slope  
 PERM FLUID USED: De-aired Tap Water

a. Length of Specimen, L: 2.5 in  
 c. Sample Volume  
 (0.7854 \* a \* b ^ 2): 15.39 cu in

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 [(e \* 3.8095) / c]: 126.7 pcf

## INITIAL CONDITIONS

e. Wet Weight Soil: 512.1 gms  
 f. Wet Weight Soil + Tare: 610.2 gms  
 g. Dry Weight Soil + Tare: 506.8 gms  
 h. Tare Weight: 98.1 gms  
 i. Moisture Content  
 [(f-g)/(g-h)]\*100: 25.3 %  
 j. Unit Dry Weight  
 [d/(1+(i/100))]: 101.1 pcf

## FINAL CONDITIONS

k. Wet Weight Soil + Tare: 612.7 gms  
 l. Dry Weight Soil + Tare: 506.8 gms  
 m. Tare Weight: 98.1 gms  
 n. Moisture Content  
 [(k-l)/(l-m)]\*100: 25.9 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 16.58 cm  
 Maximum Gradient, i: 30.0 cm/cm

## B COEFFICIENT DETERMINATION

Date	P3	Delta Pressure	Back Pressure, bp	Pore Pressure	B Coeff.
9/2/98	70	10 10 10 10	65	75	1

## PRESSURE, psi

Trial	P3 cp	Inflow ha, in	Outflow ha, out
1	70	65	65

Date	Time	Cumul. Time, s	Head Reading H, cm	Total Head Loss $\Delta z_p$ , cm	Temp C	Rt	k @ 20C cm/sec
9/2/98	11:02		16.00				
9/2/98	11:11	540	14.70	1.30	22	0.953	6.3E-08
9/2/98	11:25	1380	13.35	2.65	22	0.953	5.3E-08
9/2/98	11:45	2580	12.00	4.00	22	0.953	4.6E-08
9/2/98	12:10	4080	9.90	6.10	22	0.953	4.9E-08
9/2/98	13:06	7440	7.05	8.95	22	0.953	4.7E-08

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAIL WATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill  
 LOCATION: Washington  
 MATERIAL: Silty clay, brown  
 BORING/SAMPLE: 8117  
 PROCTOR #: \_\_\_\_\_  
 SAMPLE ORIENTATION: Vertical  
Remold

JOB No.: 40202-005-061  
 LAB START DATE: 9/2/98  
 LAB REP. DATE: 9/8/98  
 TECHNICIAN: ML  
 DEPTH/LIFT: 400 Test #3 Top  
 PERM FLUID USED: De-aired Tap Water

a. Length of Specimen, L: 2.35 in  
 c. Sample Volume  
 $(0.7854 * a * b^2)$ : 14.47 cu in

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 $[(e * 3.8095) / c]$ : 123.0 pcf

## INITIAL CONDITIONS

## FINAL CONDITIONS

e. Wet Weight Soil: 467.2 gms  
 f. Wet Weight Soil + Tare: 557.6 gms  
 g. Dry Weight Soil + Tare: 455.1 gms  
 h. Tare Weight: 90.4 gms  
 i. Moisture Content  
 $[(f-g)/(g-h)] * 100$ : 28.1 %  
 j. Unit Dry Weight  
 $[d / (1 + (i/100))]$ : 96.0 pcf

k. Wet Weight Soil + Tare: 562.1 gms  
 l. Dry Weight Soil + Tare: 455.1 gms  
 m. Tare Weight: 90.4 gms  
 n. Moisture Content  
 $[(k-l)/(l-m)] * 100$ : 29.3 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 15.71 cm  
 Maximum Gradient,  $i$ : 30.0 cm/cm

## B COEFFICIENT DETERMINATION

## PRESSURE, psi

Date	P3	Delta Pressure	Back Pressure, bp	Pore Pressure	B Coeff.	Trial	P3 cp	Inflow ha, in	Outflow ha, out
		10							
		10							
		10							
4-Sep	70	10	65	75	1	1	70	65	65

Date	Time	Cumul. Time, s	Head Reading H, cm	Total Head Loss $\Delta z_p$ , cm	Temp C	Rt	k @ 20C cm/sec
9/4/98	14:25		15.00				
9/4/98	14:35	600	13.50	1.50	22	0.953	6.7E-08
9/4/98	14:45	1200	12.50	2.50	22	0.953	5.8E-08
9/4/98	14:58	1980	11.40	3.60	22	0.953	5.3E-08
9/4/98	15:05	2400	11.00	4.00	22	0.953	5.0E-08
9/4/98	15:10	2700	10.60	4.40	22	0.953	4.9E-08

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAIL WATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill JOB No.: 40202-005-061  
 LOCATION: Washington LAB START DATE: 9/11/98  
 MATERIAL: Silty clay, olive-brown LAB REP. DATE: 9/15/98  
 BORING/SAMPLE: Test #35 TECHNICIAN: ML  
 PROCTOR #: \_\_\_\_\_ DEPTH/LIFT: 456 N. Slope  
 SAMPLE ORIENTATION: Vertical PERM FLUID USED: De-aired Tap Water  
Remold

a. Length of Specimen, L: 2.45 in  
 c. Sample Volume  
 $(0.7854 * a * b^2):$  15.09 cu in

## INITIAL CONDITIONS

e. Wet Weight Soil: 514.4 gms  
 f. Wet Weight Soil + Tare: 608.1 gms  
 g. Dry Weight Soil + Tare: 515.7 gms  
 h. Tare Weight: 93.7 gms  
 i. Moisture Content  
 $[(f-g)/(g-h)] * 100:$  21.9 %  
 j. Unit Dry Weight  
 $[d/(1+(i/100))]:$  106.6 pcf

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 $[(e * 3.8095) / c]:$  129.9 pcf

## FINAL CONDITIONS

k. Wet Weight Soil + Tare: 612.8 gms  
 l. Dry Weight Soil + Tare: 515.7 gms  
 m. Tare Weight: 93.7 gms  
 n. Moisture Content  
 $[(k-l)/(l-m)] * 100:$  23.0 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 16.29 cm  
 Maximum Gradient, i: 30.0 cm/cm

B COEFFICIENT DETERMINATION						PRESSURE, psi			
Date	P3	Delta Pressure	Back Pressure, bp	Pore Pressure	B Coeff.	Trial	P3 cp	Inflow ha, in	Outflow ha, out
14-Sep	70	10	65	75	1				
		10							
		10							
		10				1	70	65	65
Date	Time	Cumul. Time, s	Head Reading H, cm	Total Head Loss $\Delta Z_p$ , cm	Temp C	Rt	k @ 20C cm/sec		
9/14/98	11:14		16.00						
9/14/98	11:30	960	13.50	2.50	22	0.953	7.2E-08		
9/14/98	11:45	1860	8.85	7.15	22	0.953	1.3E-07		
9/14/98	12:00	2760	8.30	7.70	22	0.953	1.0E-07		
9/14/98	12:30	4560	6.10	9.90	22	0.953	9.3E-08		
9/14/98	13:36	8520	3.20	12.80	22	0.953	9.5E-08		

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAIL WATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill  
 LOCATION: Washington  
 MATERIAL: Clay, brown  
 BORING/SAMPLE: Test #49 N. Slope  
 PROCTOR #:                       
 SAMPLE ORIENTATION: Vertical  
Remold                     

JOB No.: 40202-005-061  
 LAB START DATE: 9/22/98  
 LAB REP. DATE: 9/25/98  
 TECHNICIAN: ML  
 DEPTH/LIFT: 471  
 PERM FLUID USED: De-aired Tap Water

a. Length of Specimen, L: 2.7 in  
 c. Sample Volume  
 $(0.7854 * a * b^2)$ : 16.63 cu in

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 $[(e * 3.8095) / c]$ : 124.5 pcf

## INITIAL CONDITIONS

## FINAL CONDITIONS

e. Wet Weight Soil: 543.5 gms  
 f. Wet Weight Soil + Tare: 635.4 gms  
 g. Dry Weight Soil + Tare: 526.8 gms  
 h. Tare Weight: 91.9 gms  
 i. Moisture Content  
 $[(f-g)/(g-h)] * 100$ : 25.0 %  
 j. Unit Dry Weight  
 $[d / (1 + (i/100))]$ : 99.7 pcf

k. Wet Weight Soil + Tare: 641.4 gms  
 l. Dry Weight Soil + Tare: 526.8 gms  
 m. Tare Weight: 91.9 gms  
 n. Moisture Content  
 $[(k-l)/(l-m)] * 100$ : 26.4 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 17.75 cm  
 Maximum Gradient,  $i$ : 30.0 cm/cm

## B COEFFICIENT DETERMINATION

## PRESSURE, psi

Date	P3	Delta Pressure	Back Pressure, bp	Pore Pressure	B Coeff.	Trial	P3 cp	Inflow ha, in	Outflow ha, out
		10							
		10							
		10							
24-Sep	70	10	65	75	1	1	70	65	65

Date	Time	Cumul. Time, s	Head Reading H, cm	Total Head Loss $\Delta z_p$ , cm	Temp C	Rt	k @ 20C cm/sec
9/24/98	05:56		17.70				
9/24/98	06:15	1140	15.10	2.60	22	0.953	6.3E-08
9/24/98	06:27	1860	13.60	4.10	22	0.953	6.4E-08
9/24/98	06:45	2940	12.00	5.70	22	0.953	6.0E-08
9/24/98	07:00	3840	11.20	6.50	22	0.953	5.5E-08
9/24/98	07:20	5040	9.55	8.15	22	0.953	5.7E-08

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAIL WATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill  
 LOCATION: Washington  
 MATERIAL: Clay, sandy brown  
 BORING/SAMPLE: 8035  
 PROCTOR #: Vertical  
 SAMPLE ORIENTATION: Remold

JOB No.: 40202-005-061  
 LAB START DATE: 8/19/98  
 LAB REP. DATE: 8/24/98  
 TECHNICIAN: D.G.  
 DEPTH/LIFT: 41 Test #4 Final Lift  
 PERM FLUID USED: De-aired Tap Water

a. Length of Specimen, L: 3.25 in  
 c. Sample Volume  
 $(0.7854 * a * b^2)$ : 20.01 cu in

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 $[(e * 3.8095) / c]$ : 126.0 pcf

## INITIAL CONDITIONS

e. Wet Weight Soil: 661.9 gms  
 f. Wet Weight Soil + Tare: 760.1 gms  
 g. Dry Weight Soil + Tare: 622.4 gms  
 h. Tare Weight: 98.2 gms  
 i. Moisture Content  
 $[(f-g)/(g-h)] * 100$ : 26.3 %  
 j. Unit Dry Weight  
 $[d/(1+(i/100))]$ : 99.8 pcf

## FINAL CONDITIONS

k. Wet Weight Soil + Tare: 764.2 gms  
 l. Dry Weight Soil + Tare: 622.4 gms  
 m. Tare Weight: 98.2 gms  
 n. Moisture Content  
 $[(k-l)/(l-m)] * 100$ : 27.1 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 20.96 cm  
 Maximum Gradient,  $i$ : 30.0 cm/cm

B COEFFICIENT DETERMINATION						PRESSURE, psi			
Date	P3	Delta Pressure	Back Pressure, bp	Pore Pressure	B Coeff.	Trial	P3 cp	Inflow ha, in	Outflow ha, out
8/21/98	70	10	65	75	1				
		10							
		10							
		10				1	70	65	65
Date	Time	Cumul. Time, s	Head Reading H, cm	Total Head Loss $\Delta z_p$ , cm	Temp C	Rt	k @ 20C cm/sec		
8/21/98	07:00		20.60						
8/21/98	07:20	1200	18.90	1.70	22	0.953	3.7E-08		
8/21/98	07:39	2340	17.60	3.00	22	0.953	3.5E-08		
8/21/98	07:58	3480	16.90	3.70	22	0.953	3.0E-08		
8/21/98	08:22	4920	15.10	5.50	22	0.953	3.3E-08		
8/21/98	09:32	9120	12.00	8.60	22	0.953	3.2E-08		

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAIL WATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill  
 LOCATION: Washington  
 MATERIAL: Clay, sandy brown  
 BORING/SAMPLE: 8034  
 PROCTOR #: \_\_\_\_\_  
 SAMPLE ORIENTATION: Vertical  
Remold

JOB No.: 40202-005-061  
 LAB START DATE: 8/19/98  
 LAB REP. DATE: 8/24/98  
 TECHNICIAN: D.G.  
 DEPTH/LIFT: 201-Test #12 Sub Grade, 3rd lift  
 PERM FLUID USED: De-aired Tap Water

a. Length of Specimen, L: 2.95 in  
 c. Sample Volume  
 $(0.7854 * a * b^2)$ : 18.16 cu in

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 $[(e * 3.8095) / c]$ : 124.6 pcf

## INITIAL CONDITIONS

e. Wet Weight Soil: 594.0 gms  
 f. Wet Weight Soil + Tare: 686.5 gms  
 g. Dry Weight Soil + Tare: 566.6 gms  
 h. Tare Weight: 92.5 gms  
 i. Moisture Content  
 $[(f-g)/(g-h)] * 100$ : 25.3 %  
 j. Unit Dry Weight  
 $[d/(1+(i/100))]$ : 99.4 pcf

## FINAL CONDITIONS

k. Wet Weight Soil + Tare: 716.9 gms  
 l. Dry Weight Soil + Tare: 566.6 gms  
 m. Tare Weight: 92.5 gms  
 n. Moisture Content  
 $[(k-l)/(l-m)] * 100$ : 31.7 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 19.21 cm  
 Maximum Gradient,  $i$ : 30.0 cm/cm

B COEFFICIENT DETERMINATION						PRESSURE, psi			
Date	P3	Delta Pressure	Back Pressure, bp	Pore Pressure	B Coeff.	Trial	P3 op	Inflow ha, in	Outflow ha, out
8/21/98	70	10	65	75	1				
		10							
		10							
		10				1	70	65	65
Date	Time	Cumul. Time, s	Head Reading H, cm	Total Head Loss $\Delta z_p$ , cm	Temp C	Rt	k @ 20C cm/sec		
8/21/98	09:46		19.00						
8/21/98	09:51	300	11.20	7.80	22	0.953	8.7E-07		
8/21/98	09:56	600	7.10	11.90	22	0.953	8.5E-07		
8/21/98	10:02	960	4.90	14.10	22	0.953	7.7E-07		
8/21/98	10:08	1320	3.40	15.60	22	0.953	7.8E-07		
8/21/98	10:14	1680	2.85	16.15	22	0.953	7.2E-07		
8/21/98	10:23	2220	2.30	16.70	22	0.953	6.9E-07		

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm



## FALLING HEAD, RISING TAIL WATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER.

JOB No.:	40202-005-061
LAB START DATE:	9/11/98
LAB REP. DATE:	9/15/98
TECHNICIAN:	ML
DEPTH/LIFT:	<i>Existing Subgrade</i>
PERM FLUID USED:	De-aired Tap Water

b. Avg. Diameter of Specimen: 2.80 in

d. Wet Unit Weight:  
[(e \* 3.8095) / c]: 129.3 pcf

## FINAL CONDITIONS

k. Wet Weight Soil + Tare:	503.8 gms
l. Dry Weight Soil + Tare:	429.0 gms
m. Tare Weight:	92.2 gms
n. Moisture Content	
$[(k-l)/(l-m)]*100:$	22.2 %

Equilibrium Head, $R_{eq}$ :	<u>2.0 cm</u>
Maximum Pipet Head, $R_p$ :	<u>13.37 cm</u>
Maximum Gradient, $i$ :	30.0 cm/cm

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
Annulus Area = 0.767120 sq cm

# HYDRAULIC CONDUCTIVITY WORKSHEET

FALLING HEAD, RISING TAILWATER, CONSTANT VOLUME - FLEXIBLE WALL PERMEAMETER

PROJECT: Hidden Valley Landfill  
 LOCATION: Washington  
 MATERIAL: Silty clay, olive-brown  
 BORING/SAMPLE: SG-39  
 PROCTOR #:                       
 SAMPLE ORIENTATION: Vertical  
Remold

JOB No.: 40202-005-061  
 LAB START DATE: 9/11/98  
 LAB REP. DATE: 9/15/98  
 TECHNICIAN: ML  
 DEPTH/LIFT: Existing subsurface  
 PERM FLUID USED: De-aired Tap Water

a. Length of Specimen, L: 2.15 in  
 c. Sample Volume  
 (0.7854 \* a \* b ^ 2): 13.24 cu in

b. Avg. Diameter of Specimen: 2.80 in  
 d. Wet Unit Weight:  
 [(e \* 3.8095) / c]: 123.8 pcf

## INITIAL CONDITIONS

e. Wet Weight Soil: 430.2 gms  
 f. Wet Weight Soil + Tare: 529.5 gms  
 g. Dry Weight Soil + Tare: 440.3 gms  
 h. Tare Weight: 99.3 gms  
 i. Moisture Content  
 [(f-g)/(g-h)]\*100: 26.2 %  
 j. Unit Dry Weight  
 [d/(1+(i/100))]: 98.1 pcf

## FINAL CONDITIONS

k. Wet Weight Soil + Tare: 535.0 gms  
 l. Dry Weight Soil + Tare: 440.3 gms  
 m. Tare Weight: 99.3 gms  
 n. Moisture Content  
 [(k-l)/(l-m)]\*100: 27.8 %

Specific Gravity of Mercury,  $\delta_{Hg}$ : 13.55  
 Specific Gravity of Water,  $\delta_w$ : 1.00

Equilibrium Head,  $R_{eq}$ : 2.0 cm  
 Maximum Pipet Head,  $R_p$ : 14.54 cm  
 Maximum Gradient, i: 30.0 cm/cm

## B COEFFICIENT DETERMINATION

## PRESSURE, psi

Date	P3	Delta Pressure	Back Pressure, $h_p$	Pore Pressure	B Coeff.	Trial	P3 $h_p$	Inflow $h_a$ , in	Outflow $h_a$ , out
14-Sep	70	10 10 10 10	65	75	1	1	70	65	65

Date	Time	Cumul. Time, s	Head Reading $H$ , cm	Total Head Loss $\Delta Z_p$ , cm	Temp C	Rt	k @ 20C cm/sec
9/14/98	09:00		14.50				
9/14/98	09:12	720	12.25	2.25	22	0.953	8.7E-08
9/14/98	09:20	1200	11.20	3.30	22	0.953	8.0E-08
9/14/98	09:34	2040	9.50	5.00	22	0.953	7.9E-08
9/14/98	09:45	2700	8.50	6.00	22	0.953	7.6E-08
9/14/98	09:58	3480	7.45	7.05	22	0.953	7.5E-08

Test Method ASTM D 5084-90

Pipet Area = 0.031416 sq cm  
 Annulus Area = 0.767120 sq cm

**Hidden Valley Landfill Project**  
**LABORATORY PERMEABILITY TESTING SUMMARY**  
**HWA Project No. 98037, Report No. 4**

**TABLE 1**

SAMPLE DESIGNATION	REMOLDING PARAMETERS DRY DENSITY & MOISTURE CONTENT	HYDRAULIC CONDUCTIVITY (k) CM/SEC
S-13	99.4 pcf @ 12.0% MC	$k = 3.1 \times 10^{-5}$
S-27	112.3 pcf @ 14.5% MC	$k = 8.5 \times 10^{-6}$
S-37	87.3 pcf @ 22.9% MC	$k = 2.8 \times 10^{-5}$

Existing sub-grade

**B-1e**  
**Liquid Limit/Plastic Limit and Gradations**



**TABLE B-1e**  
**LIQUID LIMIT/PLASTIC LIMIT AND GRADATIONS**

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East partial Closure

Boring Exploration Point No.	Sample Depth (ft)	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index	Percent Passing #200
404	0	57	34	23	70
408	0	58	33	25	69
411	0	39	26	13	68
433	0	54	31	23	66
435	0	46	26	20	76
456	0	44	28	16	50
471	0	45	29	16	50
SG-30	0	38	24	14	77
SG-39	0	43	28	15	74

**B-1f**  
**Thickness Verification**



**TABLE B-1f**  
**THICKNESS VERIFICATION**

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East partial Closure

Survey Provided by: D.A. Berg  
Date: 12/23/98

Point #	Northing	Easting	Stored #	Top of Existing Type B Cover	Stored #	Finished Grade	Thickness (finished grade- top of existing Type B cover)
1065	25032	54400	4090	483.55		n/a	
1066	25040	54430	4091	485.17		n/a	
1064	25050	54400	4089	489.18		n/a	
1033	25050	54430	4088	488.28		n/a	
1037	25050	54500	4012	484.08		n/a	
1041	25050	54600	4023	479.45		n/a	
1063	25052	54500	4087	486.44	4435	488.93	2.49
1062	25052	54550	4086	484.27	4434	487.24	2.97
1053	25055	54600	4064	481.23	4368	484.32	3.09
1052	25064	54650	4063	480.01	4367	483	2.99
1061	25100	54400	4081	506.25		n/a	
3871	25100	54430	4082	505.16	4304	507.05	1.89
3872	25100	54500	4083	502.28	4300	503.83	1.55
1039	25100	54550	4084	499.88	4301	501.58	1.70
3873	25100	54600	4085	496.12	4302	497.91	1.79
3874	25100	54650	4024	489.88	4303	491.77	1.89
3875	25100	54700	4025	481.73	4328	483.98	2.25
1051	25100	54715	4062	478.43		n/a	
1060	25150	54400	4080	523.62		n/a	
1034	25150	54430	4003	522.37	4305	525.48	3.11
1036	25150	54500	4010	519.6	4306	522.15	2.55
1040	25150	54550	4077	516.73	4307	519.55	2.82
3867	25150	54600	4021	512.5	4308	514.4	1.90
3868	25150	54650	4034	503.76	4309	505.09	1.33
3869	25150	54700	4033	492.36	4310	494.43	2.07
3870	25150	54750	4026	482.27	4329	484.27	2.00
1050	25150	54769	4061	477.86		n/a	
1059	25200	54400	4074	540.46		n/a	
3859	25200	54430	4004	539.39	4315	541.17	1.78
3860	25200	54500	4009	536.52	4314	537.98	1.46
3861	25200	54550	4015	533.66	4313	534.59	0.93
3862	25200	54600	4020	527.52	4312	528.95	1.43
3863	25200	54650	4035	516.75	4311	520.05	3.30
3864	25200	54700	4036	504.63	4331	505.6	0.97
3865	25200	54750	4032	490.11	4330	492.81	2.70
3866	25200	54800	4027	476.4		n/a	



**TABLE B-1f**  
**THICKNESS VERIFICATION**

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East partial Closure

Survey Provided by: D.A. Berg  
Date: 12/23/98

Point #	Northing	Easting	Stored #	Top of Existing Type B Cover	Stored #	Finished Grade	Thickness (finished grade-top of existing Type B cover)
1058	25250	54400	4073	556.31		n/a	
1035	25250	54430	4005	555.55	4316	555.91	0.36
3852	25250	54500	4008	551.95	4317	553.48	1.53
3853	25250	54550	4016	549.26	4318	549.48	0.22
3854	25250	54600	4019	540.47	4319	541.87	1.40
3855	25250	54650	4038	527.79		n/a	
3856	25250	54700	4037	512.39	4343	516.74	4.35
3857	25250	54750	4031	495.35	4332	496.99	1.64
3858	25250	54800	4028	480.65	4365	482.99	2.34
1049	25250	54814	4060	477.06	4366	479.6	2.54
1057	25300	54400	4068	571.02	not completed		
3844	25300	54430	4006	570.93	4323	570.35	-0.58
3845	25300	54500	4007	567.78	4322	567.32	-0.46
3846	25300	54550	4017	561.99	4321	562.24	0.25
3847	25300	54600	4018	547.9	4320	549.01	1.11
3848	25300	54650	4039	532.49	4351	533.31	0.82
3849	25300	54700	4040	515.42	4342	516.8	1.38
3850	25300	54750	4030	497.64	4333	498.84	1.20
3851	25300	54800	4029	482.92	4334	484.85	1.93
1048	25300	54823	4059	476.4	4335	479.19	2.79
1056	25331	54400	4067	579.43	4324	579.01	-0.42
1055	25335	54430	4066	579.85	4325	579.11	-0.74
1054	25336	54500	4065	576.57	4326	575.87	-0.70
1099	25350	54400	4161	580.55	4327	581.29	0.74
1100	25400	54400	4162	582.08		n/a	
3840	25400	54500	4052	579.5	4352	578.69	-0.81
3841	25400	54600	4047	550.62	4350	551.55	0.93
3842	25400	54700	4046	516.5	4344	518.16	1.66
3843	25400	54800	4041	483.06	4336	485.29	2.23
1047	25400	54824	4058	476.71	4341	478.92	2.21
1101	25500	54400	4163	582.81		n/a	
3835	25500	54500	4051	580.92	4353	580.42	-0.50
3836	25500	54600	4048	552.63	4349	553.28	0.65
3837	25500	54700	4045	517.38	4345	519.02	1.64
3838	25500	54800	4042	483.11	4337	485.89	2.78
1046	25500	54826	4057	475.9	4340	478.43	2.53





**TABLE B-1f**  
**THICKNESS VERIFICATION**

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East partial Closure

Survey Provided by: D.A. Berg  
Date: 12/23/98

Point #	Northing	Easting	Stored #	Top of Existing Type B Cover	Stored #	Finished Grade	Thickness (finished grade- top of existing Type B cover)
1102	25600	54400	4164	583.31	4408	583.93	0.62
3828	25600	54500	4050	581.3	4354	581.02	-0.28
3829	25600	54550	4053	569.03	4356	569.2	0.17
3830	25600	54600	4049	552.58	4348	553.24	0.66
3831	25600	54650	4054	535.01	4347	536.28	1.27
3832	25600	54700	4044	517.42	4346	519.44	2.02
1044	25600	54750	4055	499.86	4372	502.16	2.30
3833	25600	54800	4043	483.35	4338	485.83	2.48
1045	25600	54827	4056	475.38	4339	478.53	3.15
1076	25615	54312	4167	580.45		n/a	
1075	25649	54400	4166	581.55	4407	581.76	0.21
1077	25650	54291	4168	571.68			
1070	25650	54510	4093	579.35	4355	579.23	-0.12
3822	25650	54550	4092	567.96	4357	569.52	1.56
3823	25650	54600	4094	551.67	4358	553.25	1.58
3824	25650	54650	4097	534.64	4361	535.99	1.35
3825	25650	54700	4098	516.95	4362	518.94	1.99
3826	25650	54750	4104	499	4371	502.25	3.25
1043	25650	54800	4105	482.89	4373	485.7	2.81
1073	25650	54830	4110	474.64	4374	477.36	2.72
1074	25663	54500	4165	578.87	4406	579.41	0.54
1078	25700	54239	4169	553.78		n/a	
3812	25700	54300	4170	560.66	4402	563.14	2.48
3813	25700	54400	4171	570.23	4403	571.24	1.01
3814	25700	54500	4172	569.09	4404	570.08	0.99
3815	25700	54550	4111	565.02	4405	565.98	0.96
3816	25700	54600	4095	551.51	4359	552.92	1.41
3817	25700	54650	4096	534.25	4360	536.32	2.07
3818	25700	54700	4099	517.51	4363	519.02	1.51
3819	25700	54750	4103	499.53	4370	502.14	2.61
3820	25700	54800	4106	482.86	4376	486.8	3.94
1072	25700	54829	4109	475	4375	478.15	3.15
1080	25750	54188	4180	533.63		n/a	
1079	25750	54300	4231	547.2	4401	549.62	2.42
3797	25750	54400	4178	556.14	4400	557.28	1.14
3805	25750	54500	4177	554.3	4399	556.1	1.80



**TABLE B-1f**  
**THICKNESS VERIFICATION**

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East partial Closure

Survey Provided by: D.A. Berg  
Date: 12/23/98

Point #	Northing	Easting	Stored #	Top of Existing Type B Cover	Stored #	Finished Grade	Thickness (finished grade- top of existing Type B cover)
3806	25750	54550	4229	550.61	4398	551.98	1.37
3807	25750	54600	4125	543.48	4397	545.62	2.14
3808	25750	54650	4126	534.89	4396	536.15	1.26
3809	25750	54700	4100	518.13	4364	520.23	2.10
3810	25750	54750	4102	500.32	4369	503.24	2.92
3811	25750	54800	4107	483.3	4377	488.22	4.92
1071	25750	54829	4108	475.76	4378	478.18	2.42
3796	25800	54300	4181	531.86	4390	533.19	1.33
1083	25800	54400	4232	541.59	4389	542.33	0.74
3798	25800	54500	4184	539.52	4391	541.57	2.05
3799	25800	54550	4185	535.6	4392	537.63	2.03
3800	25800	54600	4186	527.96	4393	530.79	2.83
3801	25800	54650	4187	520.25	4394	522.36	2.11
3802	25800	54700	4134	512.3	4395	514.56	2.26
3803	25800	54750	4101	501.7	4381	503.7	2.00
3804	25800	54800	4128	484.47	4380	487.07	2.60
1081	25800	54830			4379	477.84	
1103	25820	54300	4182	525.39	4431	527.53	2.14
1113	25824	54200	4214	523.4	4432	525.45	2.05
1114	25845	54150	4215	519.54	4410	521.17	1.63
3786	25850	54200	4217	515.95	4433	518.38	2.43
n/a	25850	54300		n/a	n/a	n/a	
3788	25850	54400	4194	523.93	4388	526.09	2.16
1085	25850	54500	4233	522.67	4387	524.65	1.98
1086	25850	54600	4192	513.17	4386	515.05	1.88
3792	25850	54700	4191	497.17	4385	500.97	3.80
3793	25850	54750	4190	490.04	4384	493.53	3.49
3794	25850	54800			4382	484.24	484.24
1082	25850	54833	4130	474.71	4383	476.71	2.00
1112	25865	54300	4213	517.32	4414	520.03	2.71
1104	25865	54400	4195	518.69	4430	520.56	1.87
1107	25872	54802	4199	475.55		n/a	
1106	25890	54700	4198	486.14	4409	488.43	2.29
1105	25893	54500	4196	507.28		n/a	
1090	25900	54150			4411	504.37	504.37
1089	25900	54200	4216	499.85	4412	502.33	2.48



**TABLE B-1f**  
**THICKNESS VERIFICATION**

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East partial Closure

Survey Provided by: D.A. Berg  
Date: 12/23/98

Point #	Northing	Easting	Stored #	Top of Existing Type B Cover	Stored #	Finished Grade	Thickness (finished grade- top of existing Type B cover)
3787	25900	54300	4222	507.98	4413	509.84	1.86
n/a	25900	54400		n/a	n/a	n/a	
n/a	25900	54500		n/a	n/a	n/a	
3790	25900	54600	4197	497.1	4429	498.81	1.71
n/a	25900	54700		n/a	n/a	n/a	
1111	25911	54400	4212	509.71	4415	512.03	2.32
1117	25920	54740	4227	479.42	4427	481.66	2.24
1108	25928	54700	4200	483.26	4426	485.45	2.19
1110	25931	54500	4202	501.89	4423	504.08	2.19
1118	25933	54740	4228	475.7		n/a	
1109	25939	54600	4201	492.66	4425	493.96	1.30
1116	25948	54700	4226	476.72		n/a	
1092	25950	54200	4218	484.73	4421	488.14	3.41
1091	25950	54300	4221	495.02	4419	496.78	1.76
3783	25950	54400	4223	498.43	4416	500.57	2.14
3784	25950	54500	4203	496	4422	497.79	1.79
3785	25950	54600	4204	489.05	4428	490.6	1.55
1093	25950	54700	n/a	n/a		n/a	
1094	25984	54600	4225	476.38		n/a	
1115	25987	54200	4219	476.77	4420	478.82	2.05
1097	26000	54300	4220	481.23	4418	483.54	2.31
1096	26000	54400	4224	481.34	4417	483.89	2.55
1095	26000	54500	4205	478.62	4424	480.86	2.24

**B-2**  
**DRAINAGE LAYER**

**B-2a**  
**Permeability Test Data**





# TABLE B-2a

## DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East partial Closure

Date: 9/19/98  
 Sampled By: D. Short  
 Tested By: D. Short

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$   
 (from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Location Sampled: Southeast corner, upper section of slope.  
 Material Description: Medium Coarse Gravel with sand

Sample No.: DR-1

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	20	15	0.2775
B.	24	12.5	12.5	0.2483
C.	24	12.5	57	0.2613
Avg. =				<u>2.62E-01</u>

Remarks:



# TABLE B-2a

## DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East Partial Closure

Date: 9/20/98  
 Sampled By: D. Short  
 Tested By: D. Short

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$   
 (from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-2

Location: South Slope East Side, @ Top

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	20	61	0.2442
B.	24	12.5	103	0.1446
C.	24	12.5	107	0.1392
Avg. =				<u>1.76E-01</u>

Sample No.: DR-3

Location: Lower South Slope

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	20	61	0.2442
B.	24	20	56	0.266
C.	24	20	59	0.2525
Avg. =				<u>2.54E-01</u>

Sample No.: DR-4

Location: Stockpile

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	20	41	0.3633
B.	24	20	34	0.4381
C.	24	20	39	0.3819
Avg. =				<u>3.94E-01</u>

Remarks:



## TABLE B-2a DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East Partial Closure

Date: 9/22/98  
 Sampled By: G Heath  
 Tested By: G Heath

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$

(from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-5

Location: East Lower Slope, South End

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	282	0.558
B.	24	12.5	296	0.532
C.	24	12.5	280	0.561
Avg. =				<u>5.50E-01</u>

Remarks:





# TABLE B-2a

## DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East Partial Closure

Date: 9/23/98  
 Sampled By: G Heath  
 Tested By: G Heath

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$   
 (from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-7

Location: East slope, Center, Upper slope

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	208.2	0.755
B.	24	12.5	210.7	0.747
C.	24	12.5	209.5	0.751
Avg. =				<u>7.51E-01</u>

Sample No.: DR-8

Location: Top @ South End

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	213.6	0.736
B.	24	12.5	216	0.728
C.	24	12.5	211	0.744
Avg. =				<u>7.36E-01</u>

Remarks:



# TABLE B-2a

## DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East Partial Closure

Date: 9/24/98  
 Sampled By: G. Heath  
 Tested By: G. Heath

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$   
 (from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-9

Location: North Slope, Lower section

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	262.2	0.06
B.	24	12.5	265	0.0593
C.	24	12.5	261	0.0612
Avg. =				<u>6.02E-02</u>

Sample No.: DR-10

Location: SE Corner, Lower Section

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	250.8	0.0627
B.	24	12.5	245.4	0.0641
C.	24	12.5	244.2	0.0644
Avg. =				<u>6.37E-02</u>

Remarks:





# TABLE B-2a

## DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East Partial Closure

Date: 9/26/98  
 Sampled By: G. Heath  
 Tested By: G. Heath

Sample No.:

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$   
 (from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-11

Location: North Slope, Upper Section

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	306	0.0514
B.	24	12.5	298	0.0527
C.	24	12.5	298.8	0.0526
Avg. =				<u>5.22E-02</u>

Sample No.: DR-12

Location: East Slope, Lower Section

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	280.2	0.0561
B.	24	12.5	282.6	0.0556
C.	24	12.5	285.6	0.0551
Avg. =				<u>5.56E-02</u>

Remarks:



# TABLE B-2a

## DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East Partial Closure

Date: 9/28/98  
 Sampled By: G. Heath  
 Tested By: G. Heath

Sample No.:

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$   
 (from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-13

Location: North Slope, Lower section

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	289.8	0.0543
B.	24	12.5	295.2	0.0533
C.	24	12.5	294.6	0.0534
Avg. =				<u>5.37E-02</u>

Remarks:





# TABLE B-2a

## DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
 Project No: 40202-005.061  
 Facility: East Partial Closure

Date: 9/30/98  
 Sampled By: G. Heath  
 Tested By: G. Heath

Sample No.:

$$\text{Formula: } K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$$

(from HWA Geosciences Inc.)

Where;

L = Length of Sample  
 $h_1$  = Initial Height of Water above Datum (cm)  
 $h_2$  = Final Height of Water above Datum (cm)  
 t = Total Test Time  
 K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-14

Location: North Slope, Lower section

	$h_1$ (inches)	$h_2$ (inches)	t (sec)	K (cm / sec)
A.	24	12.5	288	0.0546
B.	24	12.5	283.8	0.0554
C.	24	12.5	286.2	0.0549
Avg. =				<u>5.50E-02</u>

Remarks:



## TABLE B-2a DRAIN ROCK PERMEABILITY TEST (FALLING HEAD)

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 10/1/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.:

Formula:  $K = \frac{2.3 (L)}{t} \log_{10} (h_1 / h_2)$   
(from HWA Geosciences Inc.)

Where;

L = Length of Sample  
h<sub>1</sub> = Initial Height of Water above Datum (cm)  
h<sub>2</sub> = Final Height of Water above Datum (cm)  
t = Total Test Time  
K = Permeability of Sample (cm / sec)

Material Description: Medium Coarse Gravel with sand

Sample No.: DR-15

Location: North Lower Slope, East end

	<u>h<sub>1</sub> (inches)</u>	<u>h<sub>2</sub> (inches)</u>	<u>t (sec)</u>	<u>K (cm / sec)</u>
A.	24	12.5	301.2	0.0522
B.	24	12.5	298.2	0.0527
C.	24	12.5	297.6	0.0528
Avg. =				<u>5.26E-02</u>

Sample No.: DR-16

Location: North Upper Slope, West end

	<u>h<sub>1</sub> (inches)</u>	<u>h<sub>2</sub> (inches)</u>	<u>t (sec)</u>	<u>K (cm / sec)</u>
A.	24	12.5	261.6	0.0601
B.	24	12.5	259.8	0.0605
C.	24	12.5	260.3	0.0604
Avg. =				<u>6.03E-02</u>

Remarks:



**B-2b**  
**Gradation**



**TABLE B-2b**  
**DRAIN ROCK GRADATION**

1 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/19/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-1

Location Sampled: Southeast corner, upper section of slope.  
Material Description: Medium Coarse Gravel with sand

Initial Weight: 25.96

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	25.96	100	100
3/8"	20.2	5.76	22	20-30
#4	4.75	1.01	4	4-10
200	0.63	0.38	1	0-3





# TABLE B-2b DRAIN ROCK GRADATION

2 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/20/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-2 Location: South Slope East Side, @ Top

Initial Weight: 13.05

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	13.05	100	100
3/8"	10.95	2.1	16	20-30
#4	1.6	0.5	4	4-10
200	0.25	0.25	2	0-3

Sample No.: DR-3 Location: Lower South Slope

Initial Weight: 19.45

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	19.45	100	100
3/8"	13.26	6.19	32	20-30
#4	4.09	2.1	11	4-10
200	2.01	0.09	0	0-3

Sample No.: DR-4 Location: Stockpile

Initial Weight: 8.17

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	8.17	100	100
3/8"	6.42	1.75	21	20-30
#4	1.06	0.69	8	4-10
200	0.57	0.12	1	0-3



**TABLE B-2b**  
**DRAIN ROCK GRADATION**

3 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/22/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-5 Location: East Lower Slope, South end

Initial Weight: 21.2

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	21.2	100	100
3/8"	16.5	4.7	22	20-30
#4	3.64	1.06	5	4-10
200	0.58	0.48	2	0-3

Sample No.: DR-6 Location: NE Corner @ Top, Stockpile

Initial Weight: 17.1

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	17.1	100	100
3/8"	13.51	3.59	21	20-30
#4	2.22	1.37	8	4-10
200	0.9	0.47	3	0-3





**TABLE B-2b**  
**DRAIN ROCK GRADATION**

4 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/23/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-7

Location: East slope, Center, Upper slope

Initial Weight: 20.8

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	20.8	100	100
3/8"	16.3	4.5	22	20-30
#4	2.9	1.6	8	4-10
200	0.98	0.62	3	0-3

Sample No.: DR-8

Location: Top @ South End

Initial Weight: 18.8

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	18.8	100	100
3/8"	14.3	4.5	24	20-30
#4	2.9	1.6	9	4-10
200	1.3	0.3	2	0-3



**TABLE B-2b**  
**DRAIN ROCK GRADATION**

5 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/24/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-9

Location: North Slope, Lower section

Initial Weight: 8.76

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	8.76	100	100
3/8"	6.39	2.37	27	20-30
#4	1.21	1.16	13	4-10
200	0.97	0.19	2	0-3

Sample No.: DR-10

Location: SE Corner, Lower Section

Initial Weight: 14.2

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	14.2	100	100
3/8"	10.5	3.7	26	20-30
#4	2.4	1.3	9	4-10
200	1.1	0.2	1	0-3





# TABLE B-2b DRAIN ROCK GRADATION

6 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/26/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-11

Location: North Slope, Upper Section

Initial Weight: 20.5

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	20.5	100	100
3/8"	16.2	4.3	21	20-30
#4	3.1	1.2	6	4-10
200	0.98	0.22	1	0-3

Sample No.: DR-12

Location: East Slope, Lower Section

Initial Weight: 17.4

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	17.4	100	100
3/8"	12.8	4.6	26	20-30
#4	3.1	1.5	9	4-10
200	0.98	0.52	3	0-3



**TABLE B-2b**  
**DRAIN ROCK GRADATION**

7 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/28/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-13

Location: North Slope, Lower section

Initial Weight: 12.6

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	12.6	100	100
3/8"	9.7	2.9	23	20-30
#4	1.5	1.4	11	4-10
200	0.97	0.43	3	0-3





# TABLE B-2b DRAIN ROCK GRADATION

8 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 9/30/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-14

Location: North Slope, Lower section

Initial Weight: 13.7

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	13.7	100	100
3/8"	10.4	3.3	24	20-30
#4	2.1	1.2	9	4-10
200	0.95	0.25	2	0-3



# TABLE B-2b DRAIN ROCK GRADATION

9 of 9

Project: Hidden Valley Landfill  
Project No: 40202-005.061  
Facility: East Partial Closure

Date: 10/1/98  
Sampled By: G. Heath  
Tested By: G. Heath

Sample No.: DR-15

Location: North Lower Slope, East end

Initial Weight: 16.8

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	16.8	100	100
3/8"	12.2	4.6	27	20-30
#4	2.9	1.7	10	4-10
200	1.3	0.4	2	0-3

Sample No.: DR-16

Location: North Upper Slope, West end

Initial Weight: 21.6

Sieve Size	Retained	Passing	% Passing	Spec.
1"	0	21.6	100	100
3/8"	15.8	5.8	27	20-30
#4	3.4	2.4	11	4-10
200	1.8	0.6	3	0-3



**B-3**  
**Topsoil**

**B-3a**  
**Permeability Test Data**





HWA GEOSCIENCES INC.

19730-64TH AVE. W., SUITE 200  
LYNNWOOD, WA 98036-5957  
TEL. 425-774-0106  
FAX. 425-774-2714  
E-MAIL hwa@hongwest.com

## SOIL LABORATORY TESTING REPORT

FOR THE

HIDDEN VALLEY LANDFILL PROJECT

HWA Project No. 98037

Report No. 5

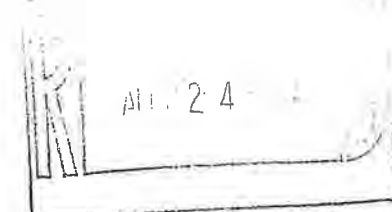
August 19, 1998

Prepared For

EMCON, Inc.

18912 N. Creek Parkway, Suite 200  
Bothell, Washington 98011

Attention: Mr. Kent Wiken, P.E.



In accordance with your request, Hong West & Associates, Inc., has undertaken and completed a testing program outlined by Mr. Kent Wiken of EMCON, Inc. Herein we present the results of our laboratory analyses. The data is summarized in Table 1. The testing was conducted in accordance with the clients' instructions and the procedures outlined below:

**GRAIN SIZE ANALYSIS:** The grain size distributions for the submitted soil samples were determined in general accordance with ASTM D 422. The results are plotted on Figures 1 and 2.

**MOISTURE-DENSITY RELATIONSHIP:** The moisture-density relationships (Proctors) for the Corliss B soil sample were determined in general accordance with ASTM D 698 and 1557. The results are plotted on Figure 3.

**HYDRAULIC CONDUCTIVITY OF SOIL:** The hydraulic conductivity of two remolded soil samples were measured in general accordance with ASTM D 5084. The samples were remolded to the clients specified parameters with regard to the results obtained from ASTM D 698 for the Corliss B soil sample. The topsoil sample was placed within a membrane stretcher in a loose state and allowed to saturate under an effective confining stress of 1 psi. Saturation was induced by subjecting the material to a flow gradient of 4 to 5 generated by a back pressure differential of 1.0 psi for several days within a triaxial pressure chamber. Testing was conducted until inflow was equal to outflow. Subsequent determinations of B coefficient through pore pressure measurements (per ASTM D 4767, par. 8.2.4) confirmed that the degree of saturation for the sample tested was above 95%. The results are presented in Table 1.

★  
GEOLOGY  
GEOENVIRONMENTAL SERVICES  
HYDROGEOLOGY  
GEOTECHNICAL ENGINEERING  
TESTING & INSPECTION

August 19, 1998

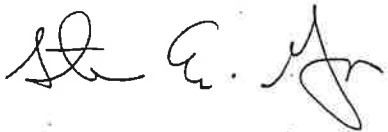
HWA Project No. 98037, Report No. 5

These tests were conducted utilizing the generally accepted laboratory procedures. Experience has shown that test values derived by these standard methods vary with each representative sample. In addition, it is typical that the engineering properties of soils vary over small distances of lateral or vertical extent. HWA has no knowledge with regard to the extent and quantities of on-site materials that these samples represent.

Thank you for this opportunity to be of service. Should any questions arise, please do not hesitate to contact this office at your earliest convenience.

Respectfully Submitted,

HWA GEOSCIENCES INC.



Steven E. Greene  
Senior Engineering Geologist

Attachments: Figures 1 & 2 - Grain Size Distributions  
Figure 3 - Compaction Test Results



Table 1  
Hidden Valley Landfill Project  
LABORATORY PERMEABILITY TESTING SUMMARY  
HWA Project No. 98037, Report No. 5

SAMPLE DESIGNATION	REMOLDING PARAMETERS DRY DENSITY & MOISTURE CONTENT	HYDRAULIC CONDUCTIVITY (k) CM/SEC
Corliss Type B	114.8 pcf @ 12.5% MC	$k = 2.4 \times 10^{-6}$
Topsoil	68.4 pcf @ 16.1% MC	$k = 1.9 \times 10^{-5}$





**APPENDIX C**

**SUMMARY OF GEOSYNTHETIC CONFORMANCE AND  
CONSTRUCTION TESTING**

## **APPENDIX C**

### **GEOSYNTHETICS TESTING**

#### **C-1 GEOSYNTHETIC CLAY LINER**

- C-1a MQA/MQC
- C-1b GCL Received Log
- C-1c GCL Moisture Tests
- C-1d GCL Placement Log

#### **C-2 GEOMEMBRANE**

- C-2a Conformance Testing
- C-2b Panel Layout Drawing
- C-2c Geomembrane Received Log
- C-2d Trial Welds
- C-2e Geomembrane Panel and Seaming Log
- C-2f Geomembrane Non-Destructive Seam Test Results
- C-2g Geomembrane Destructive Seam Test Results
- C-2h Geomembrane Repair Log
- C-2i MQA/MQC

#### **C-3 GEOCOMPOSITE**

- C-3a MQA/MQC
- C-3b Conformance Testing
- C-3c Geocomposite Material Received Log

#### **C-4 GEOTEXTILE**

- C-4a MQA/MQC
- C-4b Conformance Testing
- C-4c Geotextile Material Received Log



**C-1**  
**GEOSYNTHETICS CLAY LINER**

**C-1a**  
**MQA/MQC Testing**





COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY

P.O. Box 428 • Lovell, Wyoming 82431  
(307) 548-6521 • Fax (307) 548-6413

26-Aug

Mr. Tom Sparks,  
Serrot Corporation  
125 Cassia Way  
Henderson, NV. 89014-2708  
702-566-8600

Dear Mr. Tom Sparks,

Please find enclosed the MQA/MQC Data Package for Geosynthetic Clay Liner  
( GCL ) shipments to Serrot Corporation. These  
shipments left our CETCO - Lovell, Wy. plant on 24-Aug.

If you have any questions regarding the enclosed QA/QC information, please contact  
Mr. Moses Briseno @ 800-322-1149 (Ext: 421).

Sincerely,

A handwritten signature in black ink, appearing to read "Noe Garcia". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Noe Garcia

Quality Assurance



# **GEOSYNTHETIC CLAY LINER**

## **MANUFACTURING QA / QC DATA PACKAGE**

<b>SERROT JOB #:</b>	<b>8228</b>
<b>PROJECT NAME:</b>	<b>Hidden Valley Landfill</b>
<b>CUSTOMER PO:</b>	<b>50049</b>
<b>PREPARED FOR:</b>	<b>Serrot Corporation 125 Cassia Way Henderson, NV. 89014-2708</b>
<b>Telephone # :</b>	<b>702-566-8600</b>
<b>PREPARED BY:</b>	<b>Noe Garcia Quality Assurance CETCO P.O. Box 428 92 Hwy. 37 Lovell, Wy. 82431</b>
<b>Telephone #:</b>	<b>800-322-1149 ( Ext. 423 )</b>
<b>Fax #:</b>	<b>(307)548-6927</b>
<b>E-Mail:</b>	<b>cetco3@trib.com</b>



# **GEOSYNTHETIC CLAY LINER**

## **DAILY MANUFACTURING QA / QC DATA**

FOR ALL GCL MANUFACTURED ON:

SERROT JOB #:	8228
Project Name:	Hidden Valley Landfill
Prepared For:	Serrot Corporation
Customer PO:	50049
Order #:	88411
Ship Date:	8/24

## **CONTENTS:**

1. DAILY GCL PRODUCTION CERTIFICATION
2. NEEDLE DETECTION CERTIFICATION
3. BENTONITE CLAY CERTIFICATION
4. NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
5. NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
6. GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
7. GCL MQA TRACKING FORM

**DAILY GEOSYNTHETIC CLAY LINER  
PRODUCTION CERTIFICATION**




# GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

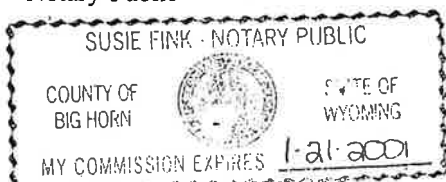
**SERROT JOB #:** 8228  
**PROJECT:** Hidden Valley Landfill  
**CUSTOMER PO:** 50049  
**SHIP DATE:** 8/24  
**ORDER #:** 88411  
**PRODUCT:** Bentomat DN

Colloid Environmental Technologies Company ( CETCO ) hereby affirms and certifies that all of the Geosynthetic Clay Liner ( GCL ) manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

  
\_\_\_\_\_  
Steve Wilkerson  
Production Coordinator

Subscribed and sworn to before me this 20<sup>th</sup> day of Aug. 1998.

  
\_\_\_\_\_  
Notary-Public



# NEEDLE DETECTION CERTIFICATION



# CERTIFICATION STATEMENT

**TO:** Serrot Corporation  
125 Cassia Way  
Henderson, NV. 89014-2708

**ATTN:** Mr. Tom Sparks,

**PROJECT:** Hidden Valley Landfill

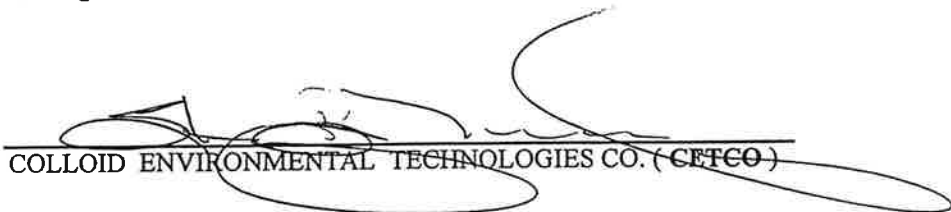
**ORDER #:** 88411

**P.O #:** 50049

**SHIP DATE:** 8/24/98

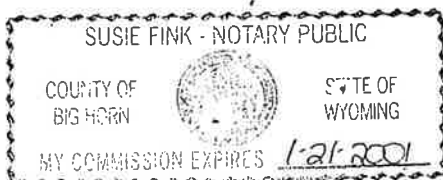
**SERROT JOB #:** 8228

This statement is to certify that all components of the Geosynthetic Clay Liner manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

  
COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

Subscribed and sworn to before me this 20<sup>th</sup> day of Aug. 1998.

  
NOTARY PUBLIC



# **BENTONITE CLAY CERTIFICATIONS**



## TECHNICAL DATA SHEET

### **ORIGIN INFORMATION**

#### **BENTONITE**

**Manufacturer:** **Colloid Environmental Technologies Co.**

#### **PRODUCTION**

**Facility:** **Colloid Environmental Technologies Co.**  
92 HWY. 37  
Lovell, WY 82431

**Contact:** **Jay Bischoff (800)-322-1159**

**Brand Name:** **CG-50**

# BENTONITE CERTIFICATE OF ANALYSIS

**CETCO**  
92 HWY. 37  
LOVELL, WY 82431

TO: Serrot Corporation

DATE: 8/23/98

ATTN: Mr. Tom Sparks,

Dear Customer:

The BENTONITE that is used to produce our GCL is CG 50 from CETCO, Order Number See Below

A sample of the CG 50 was tested from Lot Number 082398A and was provided the following test results below.

TEST	METHOD	REQ. SPECIFICATION	ROLL #	Daily Results
Free Swell	ASTM D 5890	24 MLS. / 2g MIN.	26.0	Mls. ✓
Fluid Loss	ASTM D 5891	18.0 MLS ( MAX )	16.4	Mls.
Moisture	ASTM D 2216	12.0 % ( MAX )	9.2	%
Passing 200 Mesh	ASTM D 421	1 % ( Max )	0.8	% ✓
RET. 10 MESH	ASTM C 136	0 PERCENT	0	%

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.  
Product made in the U.S.A.

Tests Conducted By: SF. MG

Approved By: Noe Garcia

In any correspondence regarding this shipment, please refer to our Order Numbers listed below.  
88411



**NON-WOVEN GEOTEXTILE  
MANUFACTURER'S CERTIFICATION**

## **TECHNICAL DATA SHEET**

---

### **ORIGIN INFORMATION**

#### **NON-WOVEN GEOTEXTILE**

**Manufacturer:** **Synthetic Industries**

#### **PRODUCTION**

**Facility:** **Synthetic Industries**  
4019 Industry Drive  
Chattanooga, TN. 37416

**Contact:** **Sid Weiser**

**Brand Name:** **Geotex 651**



## SYNTHETIC INDUSTRIES

Geosynthetic Products Division  
Cetco WY  
Noe Garcia  
PO BOX 428  
Lovell, WY 82431  
BoL; 623929 PO 77495

June 25, 1998

This is to certify that Product GEOTEX™ 651, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
Weight	ASTM D-5261	6.0 oz/yd <sup>2</sup>	200 g/m <sup>2</sup>
Thickness	ASTM D-5199	80 mils	2.0 mm
Tensile Strength	ASTM D-4632	170 lbs	755 N
Elongation	ASTM D-4632	50 %	50 %
Trapezoidal Tear	ASTM D-4533	70 lbs	310 N
Mullen Burst	ASTM D-3786	330 psi	2275 Kpa
Puncture Strength	ASTM D-4833	110 lbs	485 N
AOS	ASTM D-4751	70 US Standard Sieve	0.212 mm
Permittivity	ASTM D-4491	1.3 sec <sup>-1</sup>	1.3 sec <sup>-1</sup>
Permeability	ASTM D-4491	0.24 cm/sec	0.24 cm/sec
Flow Rate	ASTM D-4491	110 gpm/ft <sup>2</sup>	4480 lpm/m <sup>2</sup>
U V Resistance	ASTM D-4355	70 %	70 %

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

Sincerely,

Sid Weiser  
Technical Manager  
Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1897

Synthetic Industries, Inc.

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444



Synthetic Industries  
Individual Roll Data  
Bill of Lading: 623929

Roll Number	Style	Mass/ Unit Osy	Lab Thick mils	Tensile (MD) lbs	(XMD) lbs	Elongation (MD) %	(XMD) %	Trap (MD) lbs	Tear (XMD) lbs	Mullen Burst psi	Punct Resist lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
6048996A	651	6.1	80	195	207	61	69	86	95	337	110
6049022A	651	6.3	91	216		65		83		344	123
6049026A	651	7.1	89	237	254	65	67	97	89	344	131
6050648A	651	6.6	91	216		61		105		367	130
6050664A	651	6.9	97	228	243	59	74	99	127	414	138
6050676A	651	6.9	101	221	235	61	74	100	117	419	120

*Did Weiss*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that the rolls produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence, test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.



## SYNTHETIC INDUSTRIES

Geosynthetic Products Division

June 5, 1998

Cetco WY

Noe Garcia

PO BOX 428

Lovell, WY 82431

BoL; 623617 PO 77487

This is to certify that Product GEOTEX™ 651, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
Weight	ASTM D-5261	6.0 oz/yd <sup>2</sup>	200 g/m <sup>2</sup>
Thickness	ASTM D-5199	80 mils	2.0 mm
Tensile Strength	ASTM D-4632	170 lbs	755 N
Elongation	ASTM D-4632	50 %	50 %
Trapezoidal Tear	ASTM D-4533	70 lbs	310 N
Mullen Burst	ASTM D-3786	330 psi	2275 Kpa
Puncture Strength	ASTM D-4833	110 lbs	485 N
AOS	ASTM D-4751	70 US Standard Sieve	0.212 mm
Permittivity	ASTM D-4491	1.3 sec <sup>-1</sup>	1.3 sec <sup>-1</sup>
Permeability	ASTM D-4491	0.24 cm/sec	0.24 cm/sec
Flow Rate	ASTM D-4491	110 gpm/ft <sup>2</sup>	4480 lpm/m <sup>2</sup>
U V Resistance	ASTM D-4355	70 %	70 %

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

Sincerely,

Sid Weiser

Technical Manager

Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1897

Synthetic Industries, Inc.

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

Synthetic Industries  
Individual Roll Data  
Bill of Lading:623617

Roll Number	Style	Mass/ Unit Osy D5261	Lab Thick mils D5199	Tensile (MD) lbs D4632	(XMD) lbs D4632	Elongation (MD) % D4632	(XMD) % D4632	Trap (MD) lbs D4533	Tear (XMD) lbs D4533	Mullen Burst psi D3786	Punct Resist lbs D4833
6050778A	651	6.2									
6050788A	651	6.6	89	207	214	60	72	98		406	116
6050805A	651	6.9	96	221	233	58	66	97	115	410	
6050820A	651	6.7	90	208	229	61	67	109	134	379	128
6050824A	651	6.6	91	212	224	57	69	99	115	371	126
6050840A	651	6.6	89	215	230	59	69	106	116	367	130
6050858A	651	7.2	95	207	251	57	72	105	114	407	131
6050872A	651	6.7	91	209	215	57	65	85	109	404	126
6050890A	651	6.5	95	210	226	61	68	105	229	385	257

*Sid Weiss*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.





## SYNTHETIC INDUSTRIES

Geosynthetic Products Division

Cetco WY

Noe Garcia

PO BOX 428

Lovell, WY 82431

BoL; 623499 PO 77487

May 27, 1998

This is to certify that Product GEOTEX™ 651, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
Weight	ASTM D-5261	6.0 oz/yd <sup>2</sup>	200 g/m <sup>2</sup>
Thickness	ASTM D-5199	80 mils	2.0 mm
Tensile Strength	ASTM D-4632	170 lbs	755 N
Elongation	ASTM D-4632	50 %	50 %
Trapezoidal Tear	ASTM D-4533	70 lbs	310 N
Mullen Burst	ASTM D-3786	330 psi	2275 Kpa
Puncture Strength	ASTM D-4833	110 lbs	485 N
AOS	ASTM D-4751	70 US Standard Sieve	0.212 mm
Permittivity	ASTM D-4491	1.3 sec <sup>-1</sup>	1.3 sec <sup>-1</sup>
Permeability	ASTM D-4491	0.24 cm/sec	0.24 cm/sec
Flow Rate	ASTM D-4491	110 gpm/ft <sup>2</sup>	4480 lpm/m <sup>2</sup>
U V Resistance	ASTM D-4355	70 %	70 %

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

Sincerely,

Sid Weiser

Technical Manager

Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1/97

Synthetic Industries, Inc.

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
Telephone • 423-899-0444 • Fax • 423-899-7819 • 1-800-621-0444

05/29/98

10:02 Page 1

**Synthetic Industries  
Individual Roll Data  
Bill of Lading: 623499**

Roll Number	Product Style	Tensile		Elongation		Trap Tear		Mullen	Punct
		(MD)	(XMD)	(MD)	(XMD)	(MD)	(XMD)	Burst	Resist
		lbs	lbs	%	%	lbs	lbs	psi	lbs
		D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4633
6048946A	651	200		58		94		380	122
6049086A	651	216	233	63	66	80	104	354	115
6050636A	651	229	224	60	69	117	132	387	120
6050688A	651	235	248	63	72	105	123	386	130
6050696A	651	184	220	58	72	103	134	361	110

*Bid Wesson*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

**NON-WOVEN GEOTEXTILE  
MANUFACTURER'S CERTIFICATION**



**TECHNICAL DATA SHEET**

---

**ORIGIN INFORMATION**

**NON-WOVEN GEOTEXTILE**

**Manufacturer:** **Synthetic Industries Inc.**

**PRODUCTION**

**FACILITY:** **Synthetic Industries**  
4019 Industry Drive  
Chattanooga, TN. 37416

**CONTACT:** **Sid Weiser**

**BRAND NAME:** **Geotex 650**



Geosynthetic Products Division

August 20, 1998

American Colliod/WY-Cetco  
Lovell WY Plant  
Noe Garcia  
PO Box 428  
Lovell WY 82431  
BoL: 624731 624734 624737 624738 PO 77348

This is to certify that Product GEOTEX™ 650, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS
Weight	ASTM D-5261	6.0 oz/yd <sup>2</sup>
Thickness	ASTM D-5199	120 mils
Tensile Strength	ASTM D-4632	45 lbs
Elongation	ASTM D-4632	90 %
Trapezoidal Tear	ASTM D-4533	25 lbs
Mullen Burst	ASTM D-3786	190 psi
Puncture Strength	ASTM D-4833	50 lbs

Sincerely,

Sid Weiser  
Technical Manager  
Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1997.

**Synthetic Industries, Inc.**

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence, test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

08/19/98

12:52 Page 1

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624734

Roll Number	Style	Mass/	Lab Thick	Tensile		Elongation		Trap Tear		Mullen	Punct
		Unit		(MD)	(XMD)	(MD)	(XMD)	(MD)	(XMD)	Burst	Resist
		Osy	mils	lbs	lbs	%	%	lbs	lbs	psi	lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
5143795A	650	6.7	131	81	102	104	120	39	32	246	75
5143841A	650	7.2	139	78	131	109	122	31	38	252	
5143919A	650	6.4	131	83	110	106	125	31	32	240	63
5143931A	650	7.1	141	100	139	107	123	47	47	251	86

*Bid Wesson*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.



08/19/98

12:52 Page 1

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624737

Roll Number	Style	Mass/ Unit	Lab Thick	Tensile		Elongation		Trap Tear		Mullen	Punct
		Osy	mils	(MD) lbs	(XMD) lbs	(MD) %	(XMD) %	(MD) lbs	(XMD) lbs	Burst psi	Resist lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4811
5143869A	650	6.8	134	80	127	101	121	40	36	260	70
5143872A	650	6.7	129	77	118	97	131	47	35	256	72

*Sid Weiser*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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08/19/98

12:52 Page 1

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624731

Roll Number	Style	Mass/ Unit Osy DS261	Lab Thick mils DS199	Tensile (MD) lbs D4632	(XMD) lbs D4632	Elongation (MD) % D4632	(XMD) % D4632	Trap lbs D4533	Tear lbs D4533	Mullen psi D3786	Punct lbs D4833
5143924A	650	7.1	145	100	145	108	119	50	44	263	76
5143929A	650	6.8	134	81	114	109	125	39	33	236	74

*Bill Wessan*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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08/19/98

12:53 Page 1

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624738

Roll Number	Style	Mass/ Unit Osy	Lab Thick mil	Tensile (MD) lbs	(XMD) lbs	Elongation (MD) %	(XMD) %	Trap (MD) lbs	Tear (XMD) lbs	Mullen Burst psi	Punch Resistance lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4834
5143831A	650	7.0	132	81		99		48	67	270	
5143844A	650	7.4	136	89	186	99	125	43	43	229	
5143875A	650	6.5	130	66	94	96	126	32	24	241	80
5143935A	650	6.5	127	88	116	104	120	43	38	217	63

*Bid Waiser*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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# SYNTHETIC INDUSTRIES

Geosynthetic Products Division

July 22, 1998

American Colliod/WY-Cetco  
Lovell WY Plant  
Noe Garcia  
PO Box 428  
Lovell WY 82431  
Bol: 624254 PO# 77324

This is to certify that Product GEOTEX™ 650, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS
Weight	ASTM D-5261	6.0 oz/yd <sup>2</sup>
Thickness	ASTM D-5199	120 mils
Tensile Strength	ASTM D-4632	45 lbs
Elongation	ASTM D-4632	90 %
Trapezoidal Tear	ASTM D-4533	25 lbs
Mullen Burst	ASTM D-3786	190 psi
Puncture Strength	ASTM D-4833	50 lbs

Sincerely,

Sid Weiser  
Technical Manager  
Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1897

**Synthetic Industries, Inc.**

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624254

Roll Number	Style	Mass/ Unit	Lab Thick	Tensile (MD)	(XMD)	Elongation (MD)	(XMD)	Trap (MD)	Tear (XMD)	Mullen Burst	Punct Resist
		Osy	mils	lbs	lbs	%	%	lbs	lbs	psi	lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833

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5143855A	650	6.9	129	82		104		48		239	
5143911A	650	6.9	133	86	131	105	131	47	30	233	67
5143914A	650	6.8	132	88	129	104	124	46	44	238	76

*Sid Wase*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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# **GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS**



# GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

TO: Serrot Corporation  
125 Cassia Way  
Henderson, NV. 89014-2708  
702-566-8600

ATTENTION: Mr. Tom Sparks,

PROJECT: Hidden Valley Landfill  
SERROT JOB #: 8228  
ORDER NUMBER: 88411

PRODUCT: Bentomat DN

CETCO hereby affirms and certifies that all of the Geosynthetic Clay Liner manufactured in this lot achieves the physical and chemical criteria listed below.

<u>PROPERTY</u>	<u>TEST METHOD</u>	<u>MINIMUM VALUE</u>
Bentonite Mass / Area	ASTM D 5993 *	.80 lbs/sq.ft.
Grab Strength	ASTM D 4632	150 Lbs.
Grab Elongation	ASTM D 4632	15 Percent Typical
Peel Strength	ASTM D 4632	15 Lbs.
Index Flux	ASTM D 5887	1.0 x 10 <sup>-8</sup> m(3)/m(2)/sec. (max. )
Permeability	ASTM D 5084	5 x 10 <sup>-9</sup> cm/sec. ( Max )

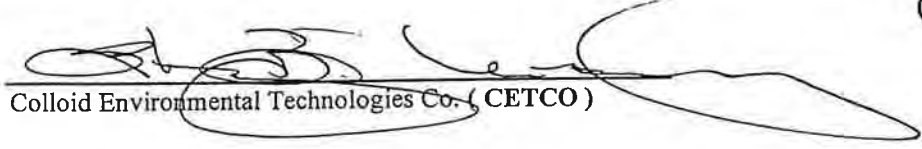
\* Reported at 0 % moisture content.

GAI Lab Accredited Test Methods were followed during conformance testing for:

ASTM D 4632 - Grab Strength and Grab Elongation.

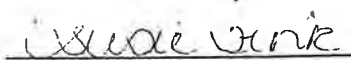
ASTM D 5887 - Index Flux.

ASTM D 5993 - Bentonite Mass/Area.

  
Colloid Environmental Technologies Co. ( CETCO )



Subscribed and sworn to before me this 20<sup>th</sup> day of Aug. 19 98.

  
Notary Public



QCG#T2 OCT#T2  
8/25/98 16:51:06

COLLOID ENVIRONMENTAL TECH CO  
GCL QUALITY DATA

PAGE: 1

LOVELL  
PO BOX 428  
LOVELL WY 82431

SHIP TO: HIDDEN VALLEY LANDFILL  
17925 MERIDIAN ST., E  
PUYALLUP WA

O R D E R # 000088411

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 0.75 lb/sqft ASTM D 5993	GRAB STRENGTH 150lbs max ASTM D 4632	PEEL STRENGTH 15 lbs ASTM D 4632
020-BENTOMAT DN	199834020	00002530	1.01	285.10	31.90
020-BENTOMAT DN	199834020	00002529	1.01	285.10	31.90
020-BENTOMAT DN	199834020	00002528	1.01	285.10	31.90
020-BENTOMAT DN	199834020	00002527	1.01	285.10	31.90
020-BENTOMAT DN	199834020	00002526	1.01*	285.10	31.90*
020-BENTOMAT DN	199834020	00002525	1.03	285.10	34.40
020-BENTOMAT DN	199834020	00002524	1.03	285.10	34.40
020-BENTOMAT DN	199834020	00002523	1.03	285.10	34.40
020-BENTOMAT DN	199834020	00002522	1.03	285.10	34.40
020-BENTOMAT DN	199834020	00002521	1.03	285.10	34.40
020-BENTOMAT DN	199834020	00002520	1.03	285.10	34.40
020-BENTOMAT DN	199834020	00002519	1.03	285.10	34.40

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.  
If an asterisk is not present, test results are based on the previous roll tested.  
Mass/Area and Moisture content are tested a minimum of every 200,000sf.  
Grab Strength is tested a minimum of every 40,000sf.  
Peel Strength is tested a minimum of every 40,000sf.  
Bentonite Mass/Area is reported at 0% moisture content.  
Grab Elongation is tested a minimum of every 200,000sf.

\*\*\* End of Report \*\*\*

# **GEOSYNTHETIC CLAY LINER MQA TRACKING FORMS**



QC#TF1 OCT#TF1  
8/25/98 16:51:05

COLLOID ENVIRONMENTAL TECH CO  
GCL MDA/MOC TRACKING FORM

PAGE: 1

CETCO LOVELL PLANT  
PO BOX 428  
LOVELL

WY 82431

SHIP TO: HIDDEN VALLEY LANDFILL  
17925 MERIDIAN ST., E  
PUYALLUP WA

ORDER NUMBER 000088411  
\*\*\*\*\*

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOSYNTHETIC TOP LOT#	GEOSYNTHETIC TOP ROLL#	GEOSYNTHETIC BOTTOM LOT#	GEOSYNTHETIC BOTTOM ROLL#	CLAY LOT#
LOT# 199834020									
00002519	020-BENTONAT DN	150	2100	2875	6050809A		5143927A		082398A
00002520	020-BENTONAT DN	150	2100	2886	6050809A		5143927A		082398A
00002521	020-BENTONAT DN	150	2100	2874	6050809A		5143912A		082398A
00002522	020-BENTONAT DN	150	2100	2874	6050809A		5143912A		082398A
00002523	020-BENTONAT DN	150	2100	2881	6050644A		5143912A		082398A
00002524	020-BENTONAT DN	150	2100	2866	6050644A		5143912A		082398A
00002525	020-BENTONAT DN	150	2100	2886	6050644A		5143912A		082398A
00002526	020-BENTONAT DN	150	2100	2897	6050644A		5143912A		082398A
00002527	020-BENTONAT DN	150	2100	2872	6050644A		5143912A		082398A
00002528	020-BENTONAT DN	150	2100	2865	6050644A		5143912A		082398A
00002529	020-BENTONAT DN	150	2100	2881	6050648A		5143912A		082398A
00002530	020-BENTONAT DN	150	2100	2843	6050648A		5143912A		082398A

TOTAL SQUARE FEET.....

25,200

TOTAL PAGES 1



COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY

P.O. Box 428 • Lovell, Wyoming 82431  
(307) 548-6521 • Fax (307) 548-6413

24-Aug

Mr. Tom Sparks,  
Serrot Corporation  
125 Cassia Way  
Henderson, NV. 89014-2708  
702-566-8600

Dear Mr. Tom Sparks,

Please find enclosed the MQA/MQC Data Package for Geosynthetic Clay Liner  
( GCL ) shipments to Serrot Corporation. These  
shipments left our CETCO - Lovell, Wy. plant on 20-Aug.

If you have any questions regarding the enclosed QA/QC information, please contact  
Mr. Moses Briseno @ 800-322-1149 (Ext: 421).

Sincerely,

Noe Garcia  
Quality Assurance



# **GEOSYNTHETIC CLAY LINER**

## **MANUFACTURING QA / QC DATA PACKAGE**

**SERROT JOB #:** 8228

**PROJECT NAME:** Hidden Valley Landfill

**CUSTOMER PO:** 50049

**PREPARED FOR:** Serrot Corporation  
125 Cassia Way  
Henderson, NV. 89014-2708  
**Telephone # :** 702-566-8600

**PREPARED BY:** Noe Garcia  
Quality Assurance  
CETCO  
P.O. Box 428  
92 Hwy. 37  
Lovell, Wy. 82431  
**Telephone #:** 800-322-1149 (Ext. 423 )  
**Fax #:** (307)548-6927  
**E-Mail:** cetco3@trib.com



# GEOSYNTHETIC CLAY LINER

## DAILY MANUFACTURING QA / QC DATA

FOR ALL GCL MANUFACTURED ON:

SERROT JOB #:	8228
Project Name:	Hidden Valley Landfill
Prepared For:	Serrot Corporation
Customer PO:	50049
Order #:	88439
Ship Date:	8/20

## CONTENTS:


1. DAILY GCL PRODUCTION CERTIFICATION
2. NEEDLE DETECTION CERTIFICATION
3. BENTONITE CLAY CERTIFICATION
4. NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
5. NON-WOVEN GEOTEXTILE MANUFACTURER'S CERTIFICATION
6. GCL MANUFACTURING CERTIFICATION AND TEST RESULTS
7. GCL MQA TRACKING FORM

**DAILY GEOSYNTHETIC CLAY LINER  
PRODUCTION CERTIFICATION**

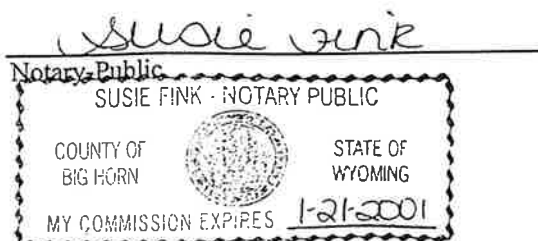
# GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

SERROT JOB #: 8228  
PROJECT: Hidden Valley Landfill  
CUSTOMER PO: 50049  
SHIP DATE: 8/20  
ORDER #: 88439  
PRODUCT: Bentomat DN

Colloid Environmental Technologies Company ( CETCO ) hereby affirms and certifies that all of the Geosynthetic Clay Liner ( GCL ) manufactured in this lot achieves the physical and chemical criteria listed on the attached analysis sheet.

  
Steve Wilkerson  
Production Coordinator

Subscribed and sworn to before me this 24<sup>th</sup> day of Aug. 1998.





# **NEEDLE DETECTION CERTIFICATION**

# CERTIFICATION STATEMENT

**TO:** Serrot Corporation  
125 Cassia Way  
Henderson, NV. 89014-2708

**ATTN:** Mr. Tom Sparks,

**PROJECT:** Hidden Valley Landfill

**ORDER #:** 88439

**P.O #:** 50049

**SHIP DATE:** 8/20/98

**SERROT JOB #:** 8228

This statement is to certify that all components of the Geosynthetic Clay Liner manufactured for the above project have been inspected continually for the presence of broken needles through the use of a magnetic removal system.

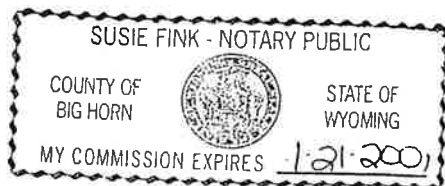


COLLOID ENVIRONMENTAL TECHNOLOGIES CO. (CETCO)

Subscribed and sworn to before me this 21<sup>st</sup> day of Aug 1998.



NOTARY PUBLIC



# **BENTONITE CLAY CERTIFICATIONS**



**TECHNICAL DATA SHEET**

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**ORIGIN INFORMATION**

**BENTONITE**

**Manufacturer:** **Colloid Environmental Technologies Co.**

**PRODUCTION**

**Facility:** **Colloid Environmental Technologies Co.**  
92 HWY. 37  
Lovell, WY 82431

**Contact:** **Jay Bischoff (800)-322-1159**

**Brand Name:** **CG-50**

# BENTONITE CERTIFICATE OF ANALYSIS

**CETCO**  
92 HWY. 37  
LOVELL, WY 82431

TO: Serrot Corporation

DATE: 8/22/98

ATTN: Mr. Tom Sparks,

Dear Customer:

The BENTONITE that is used to produce our GCL is CG 50 from CETCO, Order Number See Below

A sample of the CG 50 was tested from Lot Number 082298A1 and was provided the following test results below.

TEST	METHOD	REQ. SPECIFICATION	ROLL #	Daily Results
Free Swell	ASTM D 5890	24 MLS. / 2g MIN.	27.0	Mls.
Fluid Loss	ASTM D 5891	18.0 MLS ( MAX )	15.8	Mls.
Moisture	ASTM D 2216	12.0 % ( MAX )	8.0	%
Passing 200 Mesh	ASTM D 421	1 % ( Max )	0.8	%
RET. 10 MESH	ASTM C 136	0 PERCENT	0	%

We hereby certify that the results shown above represent this shipment. Tests were conducted using American Standard Test Methods and/or customer approved laboratory procedures.  
Product made in the U.S.A.

Tests Conducted By: SF. MG

Approved By: Noe Garcia

In any correspondence regarding this shipment, please refer to our Order Numbers listed below.  
88439

**NON-WOVEN GEOTEXTILE  
MANUFACTURER'S CERTIFICATION**



**TECHNICAL DATA SHEET**

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**ORIGIN INFORMATION**

**NON-WOVEN GEOTEXTILE**

**Manufacturer:** **Synthetic Industries**

**PRODUCTION**

**Facility:** **Synthetic Industries**  
4019 Industry Drive  
Chattanooga, TN. 37416

**Contact:** **Sid Weiser**

**Brand Name:** **Geotex 651**

**SYNTHETIC INDUSTRIES**

Geosynthetic Products Division

July 22, 1998

Cetco WY

Noe Garcia

PO BOX 428

Lovell, WY 82431

Bol: 624257,624273 PO#77324

This is to certify that Product GEOTEX™ 651, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level. This geotextile has been continuously inspected for the presence of needles and none were detected.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
Weight	ASTM D-5261	6.0 oz/yd <sup>2</sup>	200 g/m <sup>2</sup>
Thickness	ASTM D-5199	80 mils	2.0 mm
Tensile Strength	ASTM D-4632	170 lbs	755 N
Elongation	ASTM D-4632	50 %	50 %
Trapezoidal Tear	ASTM D-4533	70 lbs	310 N
Mullen Burst	ASTM D-3786	330 psi	2275 Kpa
Puncture Strength	ASTM D-4833	110 lbs	485 N
AOS	ASTM D-4751	70 US Standard Sieve	0.212 mm
Permittivity	ASTM D-4491	1.3 sec <sup>-1</sup>	1.3 sec <sup>-1</sup>
Permeability	ASTM D-4491	0.24 cm/sec	0.24 cm/sec
Flow Rate	ASTM D-4491	110 gpm/ft <sup>2</sup>	4480 lpm/m <sup>2</sup>
U V Resistance	ASTM D-4355	70 %	70 %

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

Sincerely,

Sid Weiser

Technical Manager

Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/18/97.

**Synthetic Industries, Inc.**

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444

07/22/98

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624273

Roll Number	Style	Mass/ Unit	Lab Thick	Tensile		Elongation		Trap Tear		Mullen Burst	Punct Resist
		Osy	mils	lbs	(XMD)	(MD)	(XMD)	lbs	lbs	psi	lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
6054600A	651	6.5	83	210			55	115		374	117
6054604A	651	6.8	88	221	241		58	123	138	393	
6054612A	651	6.5	86	207	230		57	90	133	381	
6054620A	651	6.4	83	204	223		56	122	140	374	
6054624A	651	6.7	83	236	236		59	86	96	377	
6054632A	651	6.4	82	229	222		60	87	103	370	118

*Bill Wessen*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.



Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624257

Roll Number	Style	Mass/ Unit Osy	Lab Thick mils	Tensile (MD) lbs	(XMD) lbs	Elongation (MD) %	(XMD) %	Trap (MD) lbs	Tear (XMD) lbs	Mullen Burst psi	Punct Resist lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
6054616A	651	6.7	87	223	228	60	63	85	112	379	
6054642A	651	6.4	84								
6054645A	651	7.3	87								
6054666A	651	6.7	87	215	236	64	69	127	144	363	
6054670A	651	6.9	88	227	241	61	64	90	107	379	
6054674A	651	6.5	85	220		58		130		398	
6054678A	651	6.8	88	232	235	62	70	92	116	403	
6054686A	651	6.6	84	219	232	58	66	94	148	410	

*Sid Weiss*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

**NON-WOVEN GEOTEXTILE  
MANUFACTURER'S CERTIFICATION**

**TECHNICAL DATA SHEET**

---

**ORIGIN INFORMATION**

**NON-WOVEN GEOTEXTILE**

**Manufacturer:** **Synthetic Industries Inc.**

**PRODUCTION**

**FACILITY:** **Synthetic Industries**  
4019 Industry Drive  
Chattanooga, TN. 37416

**CONTACT:** **Sid Weiser**

**BRAND NAME:** **Geotex 650**



**SYNTHETIC INDUSTRIES**

Geosynthetic Products Division

August 20, 1998

American Colliod/WY-Cetco  
 Lovell WY Plant  
 Noe Garcia  
 PO Box 428  
 Lovell WY 82431  
 BoL: 624731 624734 624737 624738 PO 77348

This is to certify that Product GEOTEX™ 650, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS
Weight	ASTM D-5261	6.0 oz/yd <sup>2</sup>
Thickness	ASTM D-5199	120 mils
Tensile Strength	ASTM D-4632	45 lbs
Elongation	ASTM D-4632	90 %
Trapezoidal Tear	ASTM D-4533	25 lbs
Mullen Burst	ASTM D-3786	190 psi
Puncture Strength	ASTM D-4833	50 lbs

Sincerely,

Sid Weiser  
 Technical Manager  
 Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries' current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1997.

**Synthetic Industries, Inc.**

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
 Telephone • 423-899-0444 • Fax • 423-899-7819 • 1-800-621-0444

materials produced during the production run meets our published minimum average roll values. approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

08/19/98

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Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624734

Roll Number	Style	Mass/ Unit Oz	Lab Thick mils	Tensile (MD) lbs	(XMD) lbs	Elongation (MD) %	(XMD) %	Trap (MD) lbs	Tear (XMD) lbs	Mullen Burst psi	Punct Resist lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4833
S143795A	650	6.7	131	81	102	104	120	39	32	246	75
S143841A	650	7.2	139	78	131	109	122	31	38	252	
S143919A	650	6.4	131	83	110	106	125	31	32	240	63
S143911A	650	7.1	141	100	139	107	123	47	47	251	86

*Sid Weisen*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.

08/19/98

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Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624737

Roll Number	Style	Mass/ Unit Osy D5261	Lab Thick mils D5199	Tensile (MD) lbs D4632	(XMD) lbs D4632	Elongation (MD) % D4632	(XMD) % D4632	Trap Tear (MD) lbs D4533	(XMD) lbs D4533	Mullen Burst psi D3786	Puncture Resist lbs D4831
5143869A	650	6.8	134	80	127	101	121	40	36	260	70
5143872A	650	6.7	129	77	118	97	131	47	35	256	72

*Sid Weiser*

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08/19/98

12:52 Page 1

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624731

Roll Number	Style	Mass/ Unit Osy	Lab Thick mils	Tensile (MD) lbs	(XMD) lbs	Elongation (MD) %	(XMD) %	Trap (MD) lbs	Tear (XMD) lbs	Mullen Burst psi	Punch Resist lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4844
5143924A	650	7.1	145	100	145	108	119	50	44	253	76
5143929A	650	6.8	134	81	114	109	125	39	33	236	74

*Sid Wessner*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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08/19/98

12:53 Page 1

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 624738

Roll Number	Style	Mass/ Unit Osy	Lab Thick mils	Tensile (MD) lbs	(XMD) lbs	Elongation (MD) %	(XMD) %	Trap (MD) lbs	Tear (XMD) lbs	Mullen Burst psi	Punct. Resist lbs
		D5261	D5199	D4632	D4632	D4632	D4632	D4533	D4533	D3786	D4834
5143831A	650	7.0	132	81		99		48	67	270	
5143844A	650	7.4	136	89	186	99	125	43	43	229	
5143875A	650	6.5	130	66	94	96	126	32	24	241	80
5143935A	650	6.5	127	88	116	104	120	43	38	217	63

*Bill Wessner*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

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# **GEOSYNTHETIC CLAY LINER QUALITY TEST RESULTS**



# GEOSYNTHETIC CLAY LINER MANUFACTURING CERTIFICATION

TO: Serrot Corporation  
125 Cassia Way  
Henderson, NV. 89014-2708  
702-566-8600

ATTENTION: Mr. Tom Sparks,

PROJECT: Hidden Valley Landfill  
SERROT JOB #: 8228  
ORDER NUMBER: 88439

PRODUCT: Bentomat DN

CETCO hereby affirms and certifies that all of the Geosynthetic Clay Liner manufactured in this lot achieves the physical and chemical criteria listed below.

<u>PROPERTY</u>	<u>TEST METHOD</u>	<u>MINIMUM VALUE</u>
Bentonite Mass / Area	ASTM D 5993 *	.80 lbs/sq.ft.
Grab Strength	ASTM D 4632	150 Lbs.
Grab Elongation	ASTM D 4632	10 Percent Typical
Peel Strength	ASTM D 4632	15 Lbs.
Index Flux	ASTM D 5887	1.0 x 10 <sup>-8</sup> m(3)/m(2)/sec. (max. )
Permeability	ASTM D 5084	5 x 10 <sup>-9</sup> cm/sec. ( Max )

\* Reported at 0 % moisture content.

GAI Lab Accredited Test Methods were followed during conformance testing for:

ASTM D 4632 - Grab Strength and Grab Elongation.

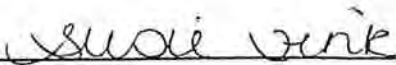
ASTM D 5887 - Index Flux.

ASTM D 5993 - Bentonite Mass/Area.

  
Colloid Environmental Technologies Co. ( CETCO )



Subscribed and sworn to before me this 24<sup>th</sup> day of Aug 1998.

  
Notary Public



COLLOID ENVIRONMENTAL TECH CO  
GCL QUALITY DATA

QCG#FT2 OCT#FT2  
8/24/98 8:16:13

LOVELL  
PO BOX 428  
LOVELL WY 82431

SHIP TO: HIDDEN VALLEY LANDFILL  
17925 MERIDIAN ST., E  
PUYALLUP WA

O R D E R # 000088439

MATERIAL	LOT No.	ROLL No	BENTONITE MASS/AREA 0.75 lb/sqft ASTM D 5993	GRAB STRENGTH 150lbs marv ASTM D 4632	PEEL STRENGTH 15 lbs ASTM D 4632
020-BENTONAT DN	199834020	00002404	.95*	306.20*	41.80*
020-BENTONAT DN	199834020	00002403	.99	276.90	39.90
020-BENTONAT DN	199834020	00002402	.99	276.90	39.90
020-BENTONAT DN	199834020	00002401	.99	276.90	39.90
020-BENTONAT DN	199834020	00002400	.99	276.90	39.90
020-BENTONAT DN	199834020	00002386	.99	276.90	39.90
020-BENTONAT DN	199834020	00002385	.99*	276.90	39.90*
020-BENTONAT DN	199834020	00002384	1.08	276.90	30.40
020-BENTONAT DN	199834020	00002383	1.08	276.90	30.40
020-BENTONAT DN	199834020	00002382	1.08	276.90	30.40
020-BENTONAT DN	199834020	00002381	1.08	276.90	30.40
020-BENTONAT DN	199834020	00002380	1.08	276.90	30.40
020-BENTONAT DN	199834020	00002379	1.08	276.90	30.40
020-BENTONAT DN	199834020	00002378	1.08	276.90	30.40

NOTE:

An asterisk indicates the actual test done on the roll and the roll tested.  
If an asterisk is not present, test results are based on the previous roll tested.  
Mass/Area and Moisture content are tested a minimum of every 40,000sf.  
Grab Strength is tested a minimum of every 200,000sf.  
Peel Strength is tested a minimum of every 40,000sf.  
Bentonite Mass/Area is reported at 0% moisture content.  
Grab Elongation is tested a minimum of every 200,000sf.

\*\*\* End of Report \*\*\*

**GEOSYNTHETIC CLAY LINER  
MQA TRACKING FORMS**



QCG#TF1 OCT#TF1  
8/24/98 8:16:12

COLLOID ENVIRONMENTAL TECH CO  
GCL WQA/MQC TRACKING FORM

PAGE: 1

CETCO LOVELL PLANT  
PO BOX 428  
LOVELL

WY 82A31

SHIP TO: HIDDEN VALLEY LANDFILL  
17925 MERIDIAN ST., E  
PUYALLUP WA

ORDER NUMBER 000088439

\*\*\*\*\*

ROLL#	MATERIAL	ROLL LENGTH	SQUARE FEET	ROLL WEIGHT	GEOSYNTHETIC TOP LOT#	GEOSYNTHETIC TOP ROLL#	GEOSYNTHETIC BOTTOM LOT#	GEOSYNTHETIC BOTTOM ROLL#	CLAY LOT#
LOT# 199834020									
00002378	020-BENTONAT DN	150	2100	3020	6054685A		5143821A		082298A1
00002379	020-BENTONAT DN	150	2100	3005	6054685A		5143821A		082298A1
00002380	020-BENTONAT DN	150	2100	3019	6054685A		5143821A		082298A1
00002381	020-BENTONAT DN	150	2100	3001	6054685A		5143924A		082298A1
00002382	020-BENTONAT DN	150	2100	3000	6054685A		5143924A		082298A1
00002383	020-BENTONAT DN	150	2100	3012	6054685A		5143924A		082298A1
00002384	020-BENTONAT DN	150	2100	3027	6054685A		5143924A		082298A1
00002385	020-BENTONAT DN	150	2100	3044	6054685A		5143924A		082298A1
00002386	020-BENTONAT DN	150	2100	3018	6054685A		5143924A		082298A1
00002400	020-BENTONAT DN	150	2100	2974	6054670A		5143929A		082298A1
00002401	020-BENTONAT DN	150	2100	2952	6054670A		5143929A		082298A1
00002402	020-BENTONAT DN	150	2100	2939	6054670A		5143929A		082298A1
00002403	020-BENTONAT DN	150	2100	2936	6054624A		5143929A		082298A1
00002404	020-BENTONAT DN	150	2100	2974	6054624A		5143929A		082298A1

TOTAL SQUARE FEET.....

29,400

TOTAL PAGES 1

**VECTOR****ENGINEERING, INC.**12458 Loma Rica Dr., Suite C, Orinda Valley, CA 95043  
(916) 272-2448 Fax: (916) 272-8553**LARGE SCALE DIRECT SHEAR REPORT  
INTERNAL SHEAR**

Client Name: Serrot Corporation

Project Name: Hidden Valley Landfill; No.: 943015.17-788A

Material 1: &lt;--- Geosynthetic Clay Liner (GCL) Bentomat DN (CETCO)

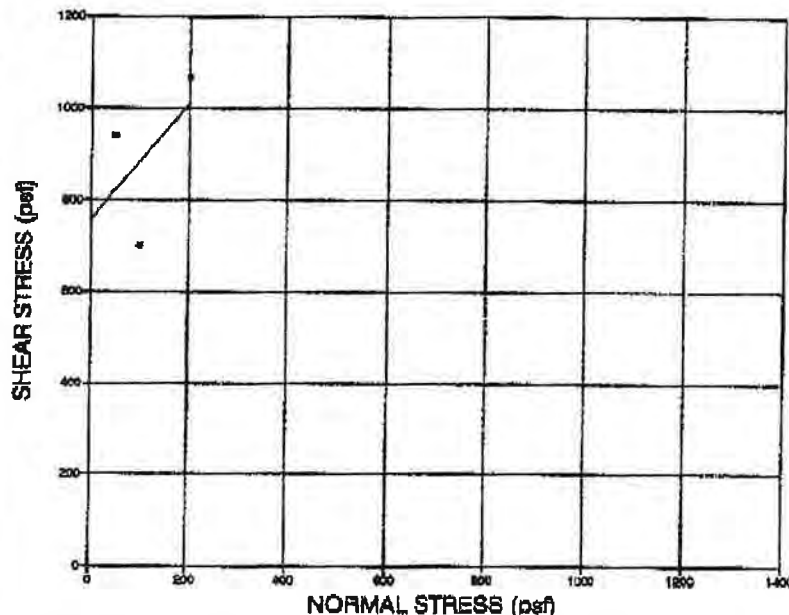
Material 2: ---&gt; Geosynthetic Clay Liner (GCL) Bentomat DN (CETCO)

Substrate: ---&gt; &lt;resp board&gt;

**PEAK STRENGTH**

Test Point	Normal Stress		Shear Stress psf
	psi	psf	
1.	0.3	50	940
2.	0.7	100	700
3.	1.4	200	1070

Adhesion: 760 psf  
Friction Angle: 52 degrees  
Displ. Rate: 0.040 in./min.



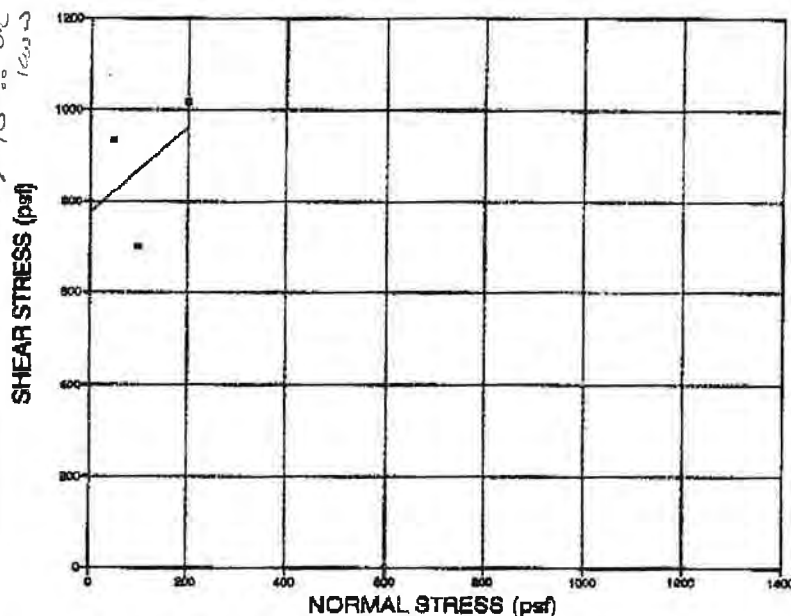
NOTE: GRAPH NOT TO SCALE

**STRENGTH ENVELOPE**

(at 2.5 in. displacement)

Test Point	Normal Stress		Shear Stress psf
	psi	psf	
1.	0.3	50	930
2.	0.7	100	700
3.	1.4	200	1020

Adhesion: 780 psf  
Friction Angle: 43 degrees  
Displ. Rate: 0.040 in./min.



NOTE: GRAPH NOT TO SCALE

**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined "best fit" line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering.

accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of data to the cost for this respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

Report Date 8/6/98

Reviewed by:

KEL

**PLATE 1.**

**VECTOR**ENGINEERING, INC.  
13438 Laurel River Dr., Elder C, Green Valley, CA 95045  
(916) 272-2448 Fax: (916) 272-8553**LARGE SCALE DIRECT SHEAR REPORT  
INTERNAL SHEAR**

Client Name: Serrot Corporation

Project Name: Hidden Valley Landfill; No.: 943015.17-788A

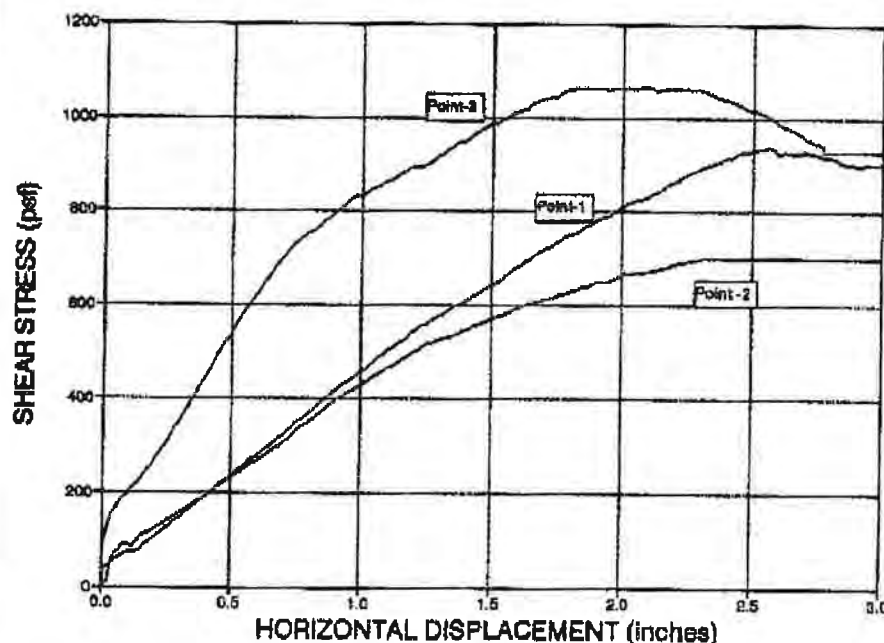
Material 1: &lt;--- Geosynthetic Clay Liner (GCL) Bentomat DN (CETCO)

Material 2: ---&gt; Geosynthetic Clay Liner (GCL) Bentomat DN (CETCO)

Substrate: ---&gt; &lt;rasp board&gt;

**DISPLACEMENT  
vs SHEAR STRESS**

Test Point	Normal Stress	
	psi	psf
1.	0.3	50
2.	0.7	100
3.	1.4	200

**STANDARD CONDITIONS:**

1. The "gap" between shear boxes was set at 80 mil (2.0 mm).
2. The test specimens were flooded during testing unless noted.
3. High Normal Stress (>5psi) was applied using air pressure.
4. Low Normal Stress (<5 psi) was applied using dead weights.
5. The tests were terminated 3.0" displacement unless noted.
6. Tests were performed in general accordance with ASTM procedure D 5321-92 Method A using a Brainard-Kilman LG-112 direct shear machine with an effective area of 12 in. x 12 in. (Machine A)

**TEST ORIENTATION:****NORMAL STRESS**

GAP &gt;

&lt;--- TOP BOX W/ RASP BOARD

&lt; BENTOMAT DN

---&gt; BOTTOM BOX W/ RASP BOARD

&lt; BENTOMAT DN

**SPECIAL TEST NOTES:**

1. The lower textile of the GCL was wrapped around a 12" x 16" rasp board in the lower box.
2. The upper textile of the GCL was wrapped around a 12" x 12" rasp board in the upper box.
3. Each specimen was hydrated & consolidated under a 50 psf Normal Stress app. 24 hr prior to shearing.
4. The test was performed in a "wet" or "hydrated" condition.
5. Shearing caused a multiple of failure modes, consisting of textile stretching, pull-out of needle punched fibers and the internal clay shearing.
6. Partial pullout of the needle punched fiber occurred in points 1 & 2.
7. Complete pullout of the needle punched fiber occurred in point 3.
8. Point 1 had higher shear strengths than point 2, possible due to a high concentration of punched fibers.

accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.



**C-1b**  
**GCL Received Log**

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Manufacturer:

P=Pass

F=Fail

Notes:

Total This Page: 54600 Sq.Ft.

	Sq.Ft.
Cumulative Total:	54600

Logged By: Glenn Heath

Checked By:



Project: Hidden Valley Landfill

Project No: 40202-005.061

Facility: East Partial Closure

# TABLE C-1b GEOSYNTHETIC CLAY LINER RECEIVED

Date Rec'd	Roll No.	Lot / Batch No.	ROLL SIZE		Thickness / Weight	QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L X W	Sq. Ft.					
7/21/98	1488	199829020	150 14	2100					
7/21/98	1486	199829020	150 14	2100					
7/21/98	1432	199829020	150 14	2100					
7/21/98	1487	199829020	150 14	2100					
7/21/98	1450	199829020	150 14	2100					
8/24/98	2386	199834020	150 14	2100				8/24/98	
8/24/98	2383	199834020	150 14	2100				8/24/98	
8/24/98	2382	199834020	150 14	2100				8/24/98	
8/24/98	2381	199834020	150 14	2100				8/24/98	
8/24/98	2379	199834020	150 14	2100				8/24/98	
8/24/98	2380	199834020	150 14	2100				8/24/98	
8/24/98	2401	199834020	150 14	2100				8/24/98	
8/24/98	2384	199834020	150 14	2100				8/24/98	
8/24/98	2400	199834020	150 14	2100				8/24/98	
8/24/98	2403	199834020	150 14	2100				8/24/98	
8/24/98	2385	199834020	150 14	2100				8/24/98	
8/24/98	2402	199834020	150 14	2100				8/24/98	
8/24/98	2404	199834020	150 14	2100				8/24/98	
8/24/98	2378	199834020	150 14	2100				8/24/98	
8/25/98	2525	199834020	150 14	2100				8/25/98	
8/25/98	2527	199834020	150 14	2100				8/25/98	
8/25/98	2528	199834020	150 14	2100				8/25/98	
8/25/98	2529	199834020	150 14	2100				8/25/98	
8/25/98	2526	199834020	150 14	2100				8/25/98	
8/25/98	2530	199834020	150 14	2100				8/25/98	
8/25/98	2521	199834020	150 14	2100				8/25/98	
8/25/98	2523	199834020	150 14	2100				8/25/98	
8/25/98	2520	199834020	150 14	2100				8/25/98	
8/25/98	2522	199834020	150 14	2100				8/25/98	

Manufacturer: _____		Total This Page: 60900 Sq.Ft.		Notes:
P=Pass F=Fail		Cumulative Total: 115500 Sq.Ft.		
Logged By: <u>Glenn Heath</u>		Checked By: _____		



**TABLE C-1b**  
**GEOSYNTHETIC CLAY LINER RECEIVED**

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Manufacturer:

P=Pass

**F=Fail**

Logged By: Glenn Heath

Checked By:

Notes:

Total This Page:

31500 Sq.Ft.

Cumulative Total:

147000 Sq.Ft.

**C-1c**  
**GCL Moisture Log**



Tested By: Glenn Heath

[illegible]



**C-1d**  
**GCL Placement Log**



## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
1	1422	8/12/98	GH	25	X	14	350	8/12/98	350	Trench
2	1422	8/12/98	GH	25	X	14	350	8/12/98	700	Trench
3	1422	8/12/98	GH	25	X	14	350	8/12/98	1050	Trench
4	1422	8/12/98	GH	25	X	14	350	8/12/98	1400	Trench
5	1422	8/12/98	GH	25	X	14	350	8/12/98	1750	Trench
6	1422	8/12/98	GH	25	X	14	350	8/12/98	2100	Trench
7	1539	8/12/98	GH	25	X	14	350	8/12/98	2450	Trench
8	1539	8/12/98	GH	25	X	14	350	8/12/98	2800	Trench
9	1539	8/12/98	GH	25	X	14	350	8/12/98	3150	Trench
10	1539	8/12/98	GH	25	X	14	350	8/12/98	3500	Trench
11	1539	8/12/98	GH	25	X	14	350	8/12/98	3850	Trench
12	1539	8/12/98	GH	25	X	14	350	8/12/98	4200	Trench
13	1483	8/12/98	GH	25	X	14	350	8/12/98	4550	Trench
14	1483	8/12/98	GH	25	X	14	350	8/12/98	4900	Trench
15	1483	8/12/98	GH	25	X	14	350	8/12/98	5250	Trench
16	1483	8/12/98	GH	25	X	14	350	8/12/98	5600	Trench
17	1483	8/12/98	GH	25	X	14	350	8/12/98	5950	Trench
18	1483	8/12/98	GH	25	X	14	350	8/12/98	6300	Trench
19	1538	8/12/98	GH	25	X	14	350	8/12/98	6650	Trench
20	1538	8/12/98	GH	25	X	14	350	8/12/98	7000	Trench
21	1538	8/12/98	GH	25	X	14	350	8/12/98	7350	Trench
22	1538	8/12/98	GH	25	X	14	350	8/12/98	7700	Trench
23	1538	8/12/98	GH	25	X	14	350	8/12/98	8050	Trench
24	1538	8/12/98	GH	25	X	14	350	8/12/98	8400	Trench
25	1562	8/12/98	GH	25	X	14	350	8/12/98	8750	Trench
26	1562	8/12/98	GH	25	X	14	350	8/12/98	9100	Trench
27	1562	8/12/98	GH	25	X	14	350	8/12/98	9450	Trench
28	1562	8/12/98	GH	25	X	14	350	8/12/98	9800	Trench
29	1562	8/21/98	GH	25	X	14	350	8/21/98	10150	Trench
30	1562	8/21/98	GH	25	X	14	350	8/21/98	10500	Trench
31	1541	8/21/98	GH	25	X	14	350	8/21/98	10850	Trench
32	1541	8/21/98	GH	25	X	14	350	8/21/98	11200	Trench

Notes:

Total Area This Sheet: 184800Cumulative Area: 184800

Logged By: Glenn Heath

Checked By:



## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
33	1541	8/12/98	GH	25	X	14	350	8/12/98	350	Trench
34	1541	8/12/98	GH	25	X	14	350	8/12/98	700	Trench
35	1541	8/12/98	GH	25	X	14	350	8/12/98	1050	Trench
36	1541	8/12/98	GH	25	X	14	350	8/12/98	1400	Trench
37	1542	8/21/98	GH	25	X	14	350	8/21/98	1750	Trench
38	1542	8/21/98	GH	25	X	14	350	8/21/98	2100	Trench
39	1542	8/21/98	GH	25	X	14	350	8/21/98	2450	Trench
40	1542	8/21/98	GH	25	X	14	350	8/21/98	2800	Trench
41	1542	8/21/98	GH	25	X	14	350	8/21/98	3150	Trench
42	1542	8/21/98	GH	25	X	14	350	8/21/98	3500	Trench
43	1560	8/21/98	GH	25	X	14	350	8/21/98	3850	Trench
44	1560	8/21/98	GH	25	X	14	350	8/21/98	4200	Trench
45	1560	8/21/98	GH	25	X	14	350	8/21/98	4550	Trench
46	1560	8/21/98	GH	25	X	14	350	8/21/98	4900	Trench
47	1560	8/21/98	GH	25	X	14	350	8/21/98	5250	Trench
48	1560	8/21/98	GH	25	X	14	350	8/21/98	5600	Trench
49	1552	8/21/98	GH	40	X	14	560	8/21/98	6160	Berm
50	1552	8/21/98	GH	40	X	14	560	8/21/98	6720	Berm
51	1552	8/21/98	GH	40	X	14	560	8/21/98	7280	Berm
52	1425	8/21/98	GH	40	X	14	560	8/21/98	7840	Berm
53	1425	8/21/98	GH	40	X	14	560	8/21/98	8400	Berm
54	1425	8/21/98	GH	40	X	14	560	8/21/98	8960	Berm
55	1550	8/21/98	GH	40	X	14	560	8/21/98	9520	Berm
56	1550	8/21/98	GH	40	X	14	560	8/21/98	10080	Berm
57	1550	8/22/98	GH	40	X	14	560	8/22/98	10640	Berm
58	1563	8/22/98	GH	40	X	14	560	8/22/98	11200	Berm
59	1563	8/22/98	GH	25	X	14	350	8/22/98	11550	Trench
60	1563	8/22/98	GH	25	X	14	350	8/22/98	11900	Trench
61	1563	8/22/98	GH	25	X	14	350	8/22/98	12250	Trench
62	1563	8/22/98	GH	25	X	14	350	8/22/98	12600	Trench
63	1552	8/22/98	GH	25	X	14	350	8/22/98	12950	Trench
64	1425	8/22/98	GH	25	X	14	350	8/22/98	13300	Trench

Notes:

Total Area This Sheet: 208950Cumulative Area: 393750

Logged By: Glenn Heath

Checked By:





## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
65	1550	8/22/98	GH	30	X	14	420	8/22/98	420	Trench
66	1554	8/22/98	GH	30	X	14	420	8/22/98	840	Trench
67	1554	8/22/98	GH	30	X	14	420	8/22/98	1260	Trench
68	1554	8/22/98	GH	30	X	14	420	8/22/98	1680	Trench
69	1554	8/22/98	GH	30	X	14	420	8/22/98	2100	Trench
70	1554	8/22/98	GH	30	X	14	420	8/22/98	2520	Trench
71	1540	8/22/98	GH	30	X	14	420	8/22/98	2940	Trench
72	1540	8/22/98	GH	30	X	14	420	8/22/98	3360	Trench
73	1540	8/22/98	GH	30	X	14	420	8/22/98	3780	Trench
74	1540	8/22/98	GH	30	X	14	420	8/22/98	4200	Trench
75	1540	8/22/98	GH	30	X	14	420	8/22/98	4620	Trench
76	1371	8/22/98	GH	30	X	14	420	8/22/98	5040	Trench
77	1371	8/22/98	GH	30	X	14	420	8/22/98	5460	Trench
78	1450	8/22/98	GH	40	X	14	560	8/22/98	6020	Berm
79	1450	8/22/98	GH	40	X	14	560	8/22/98	6580	Berm
80	1450	8/22/98	GH	40	X	14	560	8/22/98	7140	Berm
81	1486	8/22/98	GH	40	X	14	560	8/22/98	7700	Berm
82	1486	8/22/98	GH	40	X	14	560	8/22/98	8260	Berm
83	1486	8/22/98	GH	40	X	14	560	8/22/98	8820	Berm
84	1487	8/22/98	GH	40	X	14	560	8/22/98	9380	Berm
85	1487	8/22/98	GH	40	X	14	560	8/22/98	9940	Berm
86	1487	8/22/98	GH	40	X	14	560	8/22/98	10500	Berm
87	1488	8/22/98	GH	40	X	14	560	8/22/98	11060	Berm
88	1488	8/22/98	GH	40	X	14	560	8/22/98	11620	Berm
89	1488	8/22/98	GH	40	X	14	560	8/22/98	12180	Berm
90	1432	8/22/98	GH	40	X	14	560	8/22/98	12740	Berm
91	1432	8/31/98	GH	32	X	14	448	8/31/98	13188	Trench
92	1432	8/31/98	GH	32	X	14	448	8/31/98	13636	Trench
93	1432	8/31/98	GH	30	X	14	420	8/31/98	14056	Trench
94	1485	8/31/98	GH	30	X	14	420	8/31/98	14476	Trench
95	1485	8/31/98	GH	30	X	14	420	8/31/98	14896	Trench
96	1485	8/31/98	GH	30	X	14	420	8/31/98	15316	Trench

Notes:

Total Area This Sheet: 245728Cumulative Area: 639478

Logged By: Glenn Heath

Checked By:



## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
97	1487	8/31/98	GH	30	X	14	420	8/31/98	420	Trench
98	1488	8/31/98	GH	30	X	14	420	8/31/98	840	Trench
99	1450	8/31/98	GH	30	X	14	420	8/31/98	1260	Trench
100	1486	8/31/98	GH	30	X	14	420	8/31/98	1680	Trench
101	2403	8/31/98	GH	30	X	14	420	8/31/98	2100	Trench
102	2403	8/31/98	GH	30	X	14	420	8/31/98	2520	Trench
103	2403	8/31/98	GH	30	X	14	420	8/31/98	2940	Trench
104	2403	8/31/98	GH	50	X	14	700	8/31/98	3640	Berm
105	2384	8/31/98	GH	50	X	14	700	8/31/98	4340	Berm
106	2384	8/31/98	GH	50	X	14	700	8/31/98	5040	Berm
107	2384	8/31/98	GH	50	X	14	700	8/31/98	5740	Berm
108	2401	8/31/98	GH	50	X	14	700	8/31/98	6440	Berm
109	2401	8/31/98	GH	50	X	14	700	8/31/98	7140	Berm
110	2401	8/31/98	GH	50	X	14	700	8/31/98	7840	Berm
111	2381	8/31/98	GH	50	X	14	700	8/31/98	8540	Berm
112	2381	8/31/98	GH	50	X	14	700	8/31/98	9240	Berm
113	2381	8/31/98	GH	50	X	14	700	8/31/98	9940	Berm
114	2386	8/31/98	GH	50	X	14	700	8/31/98	10640	Berm
115	2386	9/1/98	GH	30	X	14	420	9/1/98	11060	Trench
116	2386	9/1/98	GH	30	X	14	420	9/1/98	11480	Trench
117	2386	9/1/98	GH	30	X	14	420	9/1/98	11900	Trench
118	2403	9/1/98	GH	30	X	14	420	9/1/98	12320	Trench
119	2400	9/1/98	GH	30	X	14	420	9/1/98	12740	Trench
120	2400	9/1/98	GH	30	X	14	420	9/1/98	13160	Trench
121	2400	9/1/98	GH	30	X	14	420	9/1/98	13580	Trench
122	2400	9/1/98	GH	30	X	14	420	9/1/98	14000	Trench
123	2400	9/1/98	GH	30	X	14	420	9/1/98	14420	Trench
124	2385	9/1/98	GH	30	X	14	420	9/1/98	14840	Trench
125	2385	9/1/98	GH	30	X	14	420	9/1/98	15260	Trench
126	2385	9/1/98	GH	50	X	14	700	9/1/98	15960	Berm
127	2383	9/1/98	GH	50	X	14	700	9/1/98	16660	Berm
128	2383	9/1/98	GH	50	X	14	700	9/1/98	17360	Berm

Notes:

Total Area This Sheet: 285040Cumulative Area: 924518

Logged By: Glenn Heath

Checked By:



## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
129	2383	9/1/98	GH	50	X	14	700	9/1/98	700	Berm
130	2404	9/1/98	GH	50	X	14	700	9/1/98	1400	Berm
131	2404	9/1/98	GH	50	X	14	700	9/1/98	2100	Berm
132	2404	9/1/98	GH	50	X	14	700	9/1/98	2800	Berm
133	2402	9/1/98	GH	50	X	14	700	9/1/98	3500	Berm
134	2402	9/1/98	GH	50	X	14	700	9/1/98	4200	Berm
135	2402	9/1/98	GH	50	X	14	700	9/1/98	4900	Berm
136	2382	9/1/98	GH	50	X	14	700	9/1/98	5600	Berm
137	2385	9/2/98	GH	30	X	14	420	9/2/98	6020	Trench
138	2379	9/2/98	GH	30	X	14	420	9/2/98	6440	Trench
139	2379	9/2/98	GH	30	X	14	420	9/2/98	6860	Trench
140	2379	9/2/98	GH	30	X	14	420	9/2/98	7280	Trench
141	2379	9/2/98	GH	30	X	14	420	9/2/98	7700	Trench
142	2523	9/2/98	GH	50	X	14	700	9/2/98	8400	Berm
143	2523	9/2/98	GH	50	X	14	700	9/2/98	9100	Berm
144	2523	9/2/98	GH	50	X	14	700	9/2/98	9800	Berm
145	2525	9/2/98	GH	50	X	14	700	9/2/98	10500	Berm
146	2525	9/2/98	GH	50	X	14	700	9/2/98	11200	Berm
147	2525	9/4/98	GH	30	X	14	420	9/4/98	11620	Trench
148	2379	9/4/98	GH	30	X	14	420	9/4/98	12040	Trench
149	2527	9/4/98	GH	30	X	14	420	9/4/98	12460	Trench
150	2527	9/4/98	GH	30	X	14	420	9/4/98	12880	Trench
151	2527	9/4/98	GH	30	X	14	420	9/4/98	13300	Trench
152	2527	9/4/98	GH	30	X	14	420	9/4/98	13720	Trench
153	2527	9/4/98	GH	30	X	14	420	9/4/98	14140	Trench
154	2520	9/4/98	GH	30	X	14	420	9/4/98	14560	Trench
155	2520	9/4/98	GH	30	X	14	420	9/4/98	14980	Trench
156	2520	9/4/98	GH	30	X	14	420	9/4/98	15400	Trench
157	2520	9/4/98	GH	30	X	14	420	9/4/98	15820	Trench
158	2526	9/4/98	GH	50	X	14	700	9/4/98	16520	Berm
159	2526	9/4/98	GH	50	X	14	700	9/4/98	17220	Berm
160	2526	9/4/98	GH	50	X	14	700	9/4/98	17920	Berm

Notes:

Total Area This Sheet: 311080Cumulative Area: 1235598

Logged By: Glenn Heath

Checked By:





## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
161	2530	9/4/98	GH	50	X	14	700	9/4/98	700	Berm
162	2530	9/4/98	GH	50	X	14	700	9/4/98	1400	Berm
163	2530	9/4/98	GH	50	X	14	700	9/4/98	2100	Berm
164	2521	9/4/98	GH	50	X	14	700	9/4/98	2800	Berm
165	2521	9/4/98	GH	50	X	14	700	9/4/98	3500	Berm
166	2521	9/4/98	GH	50	X	14	700	9/4/98	4200	Berm
167	2522	9/4/98	GH	50	X	14	700	9/4/98	4900	Berm
168	2522	9/4/98	GH	50	X	14	700	9/4/98	5600	Berm
169	2522	9/5/98	GH	35	X	14	490	9/5/98	6090	Trench
170	2520	9/5/98	GH	35	X	14	490	9/5/98	6580	Trench
171	2378	9/5/98	GH	35	X	14	490	9/5/98	7070	Trench
172	2378	9/5/98	GH	35	X	14	490	9/5/98	7560	Trench
173	2378	9/5/98	GH	35	X	14	490	9/5/98	8050	Trench
174	2528	9/5/98	GH	35	X	14	490	9/5/98	8540	Trench
175	2528	9/5/98	GH	35	X	14	490	9/5/98	9030	Trench
176	2528	9/5/98	GH	35	X	14	490	9/5/98	9520	Trench
177	2528	9/5/98	GH	50	X	14	700	9/5/98	10220	Berm
178	1396	9/5/98	GH	50	X	14	700	9/5/98	10920	Berm
179	1553	9/5/98	GH	50	X	14	700	9/5/98	11620	Berm
180	1553	9/5/98	GH	50	X	14	700	9/5/98	12320	Berm
181	1553	9/5/98	GH	50	X	14	700	9/5/98	13020	Berm
182	1372	9/5/98	GH	50	X	14	700	9/5/98	13720	Berm
183	1372	9/5/98	GH	50	X	14	700	9/5/98	14420	Berm
184	1372	9/5/98	GH	50	X	14	700	9/5/98	15120	Berm
185	2524	9/5/98	GH	85	X	14	1190	9/5/98	16310	Berm
186	1396	9/5/98	GH	70	X	14	980	9/5/98	17290	Berm
187	2524	9/5/98	GH	57	X	14	798	9/5/98	18088	Berm
188	1423	9/11/98	GH	67	X	14	938	9/11/98	19026	Trenches & Access Road
189	1423	9/11/98	GH	78	X	14	1092	9/11/98	20118	Trenches & Access Road
190	1370	9/11/98	GH	89	X	14	1246	9/11/98	21364	Trenches & Access Road
191	1370	9/11/98	GH	14	X	14	196	9/11/98	21560	Trench
192	1370	9/11/98	GH	14	X	14	196	9/11/98	21756	Trench

Notes:

Total Area This Sheet: 344512Cumulative Area: 1580110

Logged By: Glenn Heath

Checked By:



## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W		Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
193	1370	9/11/98	GH	14	X 14	196	9/11/98	196	Trench
194	1549	9/11/98	GH	14	X 14	196	9/11/98	392	Trench
195	1549	9/11/98	GH	14	X 14	196	9/11/98	588	Trench
196	1542	9/11/98	GH	14	X 14	196	9/11/98	784	Trench
197	1542	9/11/98	GH	14	X 14	196	9/11/98	980	Trench
198	1542	9/11/98	GH	14	X 14	196	9/11/98	1176	Trench
199	1542	9/11/98	GH	14	X 14	196	9/11/98	1372	Trench
200	1542	9/11/98	GH	14	X 14	196	9/11/98	1568	Trench
201	1542	9/11/98	GH	14	X 14	196	9/11/98	1764	Trench
202	1542	9/11/98	GH	50	X 14	700	9/11/98	2464	Trench & Access Road
203	1565	9/11/98	GH	50	X 14	700	9/11/98	3164	Trench & Access Road
204	1565	9/11/98	GH	50	X 14	700	9/11/98	3864	Trench & Access Road
205	1565	9/11/98	GH	50	X 14	700	9/11/98	4564	Trench & Access Road
206	2524	9/11/98	GH	50	X 14	700	9/11/98	5264	Trench & Access Road
207	2524	9/11/98	GH	50	X 14	700	9/11/98	5964	Trench & Access Road
208	2524	9/11/98	GH	50	X 14	700	9/11/98	6664	Trench & Access Road
209	2300	9/11/98	GH	50	X 14	700	9/11/98	7364	Trench & Access Road
210	2300	9/11/98	GH	50	X 14	700	9/11/98	8064	Trench & Access Road
211	2300	9/11/98	GH	50	X 14	700	9/11/98	8764	Trench & Access Road
212	2380	9/11/98	GH	50	X 14	700	9/11/98	9464	Trench & Access Road
213	2380	9/12/98	GH	50	X 14	700	9/12/98	10164	Trench & Access Road
214	2380	9/12/98	GH	50	X 14	700	9/12/98	10864	Trench & Access Road
215	1485	9/12/98	GH	50	X 14	700	9/12/98	11564	Trench & Access Road
216	1485	9/12/98	GH	50	X 14	700	9/12/98	12264	Trench & Access Road
217	1485	9/12/98	GH	50	X 14	700	9/12/98	12964	Trench & Access Road
218	3130	9/12/98	GH	50	X 14	700	9/12/98	13664	Trench & Access Road
219	3130	9/12/98	GH	50	X 14	700	9/12/98	14364	Trench & Access Road
220	3130	9/12/98	GH	50	X 14	700	9/12/98	15064	Trench & Access Road
221	3133	9/12/98	GH	50	X 14	700	9/12/98	15764	Trench & Access Road
222	3133	9/12/98	GH	50	X 14	700	9/12/98	16464	Trench & Access Road
223	3133	9/12/98	GH	50	X 14	700	9/12/98	17164	Trench & Access Road
224	1551	9/12/98	GH	50	X 14	700	9/12/98	17864	Trench & Access Road

Notes:

Total Area This Sheet: 242592Cumulative Area: 1822702

Logged By: Glenn Heath

Checked By:



## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
225	1551	9/12/98	GH	50	X	14	700	9/12/98	700	Trench & Access Road
226	1551	9/12/98	GH	50	X	14	700	9/12/98	1400	Trench & Access Road
227	1561	9/12/98	GH	14	X	14	196	9/12/98	1596	Trench
228	3138	9/12/98	GH	14	X	14	196	9/12/98	1792	Trench
229	3138	9/12/98	GH	14	X	14	196	9/12/98	1988	Trench
230	3138	9/12/98	GH	14	X	14	196	9/12/98	2184	Trench
231	3138	9/12/98	GH	14	X	14	196	9/12/98	2380	Trench
232	3138	9/12/98	GH	14	X	14	196	9/12/98	2576	Trench
233	3138	9/12/98	GH	14	X	14	196	9/12/98	2772	Trench
234	3138	9/12/98	GH	14	X	14	196	9/12/98	2968	Trench
235	3138	9/12/98	GH	14	X	14	196	9/12/98	3164	Trench
236	3138	9/12/98	GH	14	X	14	196	9/12/98	3360	Trench
237	3138	9/12/98	GH	14	X	14	196	9/12/98	3556	Trench
238	3127	9/12/98	GH	14	X	14	196	9/12/98	3752	Trench
239	3127	9/12/98	GH	14	X	14	196	9/12/98	3948	Trench
240	3127	9/12/98	GH	14	X	14	196	9/12/98	4144	Trench
241	3127	9/12/98	GH	14	X	14	196	9/12/98	4340	Trench
242	1561	9/12/98	GH	50	X	14	700	9/12/98	5040	Trench & Access Road
243	1561	9/12/98	GH	50	X	14	700	9/12/98	5740	Trench & Access Road
244	3127	9/12/98	GH	50	X	14	700	9/12/98	6440	Trench & Access Road
245	3137	9/12/98	GH	50	X	14	700	9/12/98	7140	Trench & Access Road
246	3136	9/12/98	GH	50	X	14	700	9/12/98	7840	Trench & Access Road
247	3136	9/12/98	GH	50	X	14	700	9/12/98	8540	Trench & Access Road
248	3136	9/12/98	GH	50	X	14	700	9/12/98	9240	Trench & Access Road
249	3128	9/12/98	GH	50	X	14	700	9/12/98	9940	Trench & Access Road
250	3128	9/12/98	GH	50	X	14	700	9/12/98	10640	Trench & Access Road
251	3128	9/13/98	GH	50	X	14	700	9/13/98	11340	Trench & Access Road
252	3131	9/13/98	GH	50	X	14	700	9/13/98	12040	Trench & Access Road
253	3131	9/13/98	GH	50	X	14	700	9/13/98	12740	Trench & Access Road
254	3131	9/13/98	GH	50	X	14	700	9/13/98	13440	Trench & Access Road
255	2529	9/13/98	GH	50	X	14	700	9/13/98	14140	Trench & Access Road
256	2529	9/14/98	GH	50	X	14	700	9/14/98	14840	Trench & Access Road

Notes:

Total Area This Sheet: 195720Cumulative Area: 2018422

Logged By: Glenn Heath

Checked By:





## TABLE C-1d GEOSYNTHETIC CLAY LINER PLACEMENT LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No: 40202-005.061

Panel No.	Roll No.	Date Placed	Q.A. Mon.	Panel Size L X W			Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Remarks
257	1371	9/14/98	GH	50	X	14	700	9/14/98	700	Trench & Access Road
258	1371	9/14/98	GH	10	X	14	140	9/14/98	840	Trench
259	1371	9/14/98	GH	10	X	14	140	9/14/98	980	Trench
260	1371	9/15/98	GH	10	X	14	140	9/15/98	1120	Trench
261	1371	9/15/98	GH	10	X	14	140	9/15/98	1260	Trench
262	2529	9/15/98	GH	10	X	14	140	9/15/98	1400	Trench
263	2529	9/15/98	GH	10	X	14	140	9/15/98	1540	Trench
264	3132	9/15/98	GH	12	X	14	168	9/15/98	1708	Trench
265	3132	9/15/98	GH	12	X	14	168	9/15/98	1876	Trench
266	3132	9/15/98	GH	13	X	14	182	9/15/98	2058	Trench
267	3132	9/15/98	GH	13	X	14	182	9/15/98	2240	Trench
268	3132	9/17/98	GH	50	X	14	700	9/17/98	2940	Trench & Access Road
269	3132	9/17/98	GH	50	X	14	700	9/17/98	3640	Trench & Access Road
270	3132	9/17/98	GH	50	X	14	700	9/17/98	4340	Trench & Access Road
271	3126	9/17/98	GH	50	X	14	700	9/17/98	5040	Trench & Access Road
272	3126	9/17/98	GH	50	X	14	700	9/17/98	5740	Trench & Access Road
273	3126	9/17/98	GH	50	X	14	700	9/17/98	6440	Trench & Access Road
274	3126	9/17/98	GH	50	X	14	700	9/17/98	7140	Trench & Access Road
275	3126	9/17/98	GH	50	X	14	700	9/17/98	7840	Trench & Access Road
276	3132	9/17/98	GH	13	X	14	182	9/17/98	8022	Trench
277	3126	9/17/98	GH	12	X	14	168	9/17/98	8190	Trench
278	3135	9/17/98	GH	12	X	14	168	9/17/98	8358	Trench
279	3135	9/17/98	GH	12	X	14	168	9/17/98	8526	Trench
280	3135	9/17/98	GH	11	X	14	154	9/17/98	8680	Trench
281	3135	9/17/98	GH	11	X	14	154	9/17/98	8834	Trench
282	3135	9/19/98	GH	11	X	14	154	9/19/98	8988	Trench
283	3135	9/19/98	GH	11	X	14	154	9/19/98	9142	Trench
284	3135	9/19/98	GH	11	X	14	154	9/19/98	9296	Trench
285	3135	9/19/98	GH	11	X	14	154	9/19/98	9450	Trench
286	3135	9/19/98	GH	11	X	14	154	9/19/98	9604	Trench
287	3135	9/19/98	GH	11	X	14	154	9/19/98	9758	Trench

Notes:

Total Area This Sheet: 165690Cumulative Area: 2184112

Logged By: Glenn Heath

Checked By:

**C-2**  
**GEOMEMBRANE**

**C-2a**  
**Conformance Testing**



# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-27-98

Sample: 3803436

Roll #:

Material: 60ML TEXTURED HDPE

Test	Readings					Average
Thickness (mils) ASTM D1593	68.20	68.20	68.80	69.09	69.01	68.66

Density (g/cm3)	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D792	0.9425	0.9432	0.9404	0.9420

Tensile Properties: ASTM D638		Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength							
Yield (psi)	Direction A	171.1	167.0	172.8	204.1	171.6	177.3
	Direction B	167.9	169.7	172.6	168.2	167.4	169.2
Break (psi)	Direction A	144.0	142.0	140.4	144.0	130.0	144.1
	Direction B	136.0	120.0	132.0	156.2	136.0	136.0
Elongation							
Yield %	Direction A	22.3	21.3	24.7	23.3	25.7	23.5
	Direction B	21.8	22.5	21.8	20.3	24.8	22.2
Break %	Direction A	232.8	253.2	205.1	278.5	352.8	264.5
	Direction B	126.6	254.7	164.1	226.5	136.3	181.6

Carbon Black, %	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D1603	2.1950	2.0270	2.3250	2.1823

Carbon Black Dispersion	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
ASTM D3015/D2663	A-2	A-1	A-2	A-1	A-1	A-1

## Remarks:

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
Readings taken at 1 foot intervals along length of roll.

## Tensile Properties:

1. Grip separation 2.5".
2. Assumed gauge length 1.3" and 2.5" for yield and break elongations, respectively (as modified by NSF).
3. Direction A = Machine Direction  
Direction B = Cross-Machine Direction

Tested by:  
Entered by:  
Checked by: RSA

# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 8-27-98

Sample: 3803734

Material: 60ML TEXTURED HDPE

Test	Readings					Average
Thickness (mils) ASTM D1593	63.60	64.50	60.90	59.90	63.50	62.48

Density (g/cm3) ASTM D792	Specimen 1	Specimen 2	Specimen 3	Average
	0.9406	0.9403	0.9408	0.9406

Tensile Properties: ASTM D638		Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength							
Yield (ppi)	Direction A	158.0	157.5	163.2	160.5	156.7	159.2
	Direction B	155.2	158.2	160.2	154.7	158.2	157.3
Break (ppi)	Direction A	154.2	158.0	164.2	184.2	175.0	167.1
	Direction B	179.5	166.5	163.5	180.0	171.5	172.2
Elongation							
Yield %	Direction A	14.3	14.3	18.3	15.8	17.3	16.0
	Direction B	17.3	17.3	18.3	15.8	15.8	16.9
Break %	Direction A	440.0	455.0	445.0	520.0	515.0	475.0
	Direction B	555.0	505.0	490.0	565.0	525.0	528.0

Carbon Black, % ASTM D1603	Specimen 1	Specimen 2	Specimen 3	Average
	2.390	2.386	2.374	2.383

Carbon Black Dispersion ASTM D3015/D2663	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
	A-2	A-1	A-1	A-1	A-1	A-1

Remarks:

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
Readings taken at 1 foot intervals along length of roll.

Tensile Properties:

- Grip separation 2.5".
- Assumed guage length of 1.3" and 2.0" for yield and break elongations, respectively (as modified by NSF).
- Direction A = Machine Direction  
Direction B = Cross-Machine Direction

Tested by: K.H./N.B.  
Entered by: K.H.  
Checked by: RSA

# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Client: EMCON WA

Sample: 3803841

Material: 60ML TEXTURED HDPE

Proj. No. 40202.005.061

Date: 8-27-98

Test	Readings					Average
Thickness (mils) ASTM D1593	69.70	67.80	62.80	64.90	64.00	65.84

Density (g/cm3) ASTM D792	Specimen 1	Specimen 2	Specimen 3	Average
	0.9411	0.9402	0.9408	0.9407

Tensile Properties: ASTM D638		Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength							
Yield (ppi)	Direction A	179.7	185.5	193.0	178.2	190.2	185.3
	Direction B	190.5	193.2	189.5	191.2	192.7	191.4
Break (ppi)	Direction A	195.7	171.7	222.0	217.2	202.7	201.9
	Direction B	202.5	196.0	174.2	190.0	183.5	189.2
Elongation							
Yield %	Direction A	18.8	17.3	17.3	14.3	17.3	17.0
	Direction B	17.3	17.3	15.8	14.3	15.8	16.1
Break %	Direction A	520.0	425.0	555.0	565.0	515.0	516.0
	Direction B	545.0	510.0	455.0	505.0	465.0	496.0

Carbon Black, % ASTM D1603	Specimen 1	Specimen 2	Specimen 3	Average
	2.412	2.562	2.496	2.490

Carbon Black Dispersion ASTM D3015/D2663	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
	A-1	A-1	A-1	A-1	A-1	A-1

Remarks:

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
Readings taken at 1 foot intervals along length of roll.

Tensile Properties:

1. Grip separation 2.5".
2. Assumed guage length of 1.3" and 2.0" for yield and break elongations, respectively (as modified by NSF).
3. Direction A = Machine Direction  
Direction B = Cross-Machine Direction

Tested by: K.H./N.B.  
Entered by: K.H.  
Checked by: RSA



# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 8-27-98

Sample: 3803798

Material: 60ML TEXTURED HDPE

Test	Readings					Average
Thickness (mils) ASTM D1593	63.40	62.80	64.40	62.80	63.70	63.42

Density (g/cm3) ASTM D792	Specimen 1	Specimen 2	Specimen 3	Average
	0.9424	0.9423	0.9411	0.9419

Tensile Properties: ASTM D638	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength						
Yield (ppi) Direction A	179.2	185.5	170.7	182.7	184.7	180.6
Direction B	187.7	184.5	185.7	182.2	186.0	185.2
Break (ppi) Direction A	196.7	208.5	204.0	228.7	243.2	216.2
Direction B	194.5	160.7	188.2	211.0	172.5	185.4
Elongation						
Yield % Direction A	15.8	18.8	18.8	17.3	17.3	17.6
Direction B	15.8	14.3	17.3	17.3	17.3	16.4
Break % Direction A	515.0	550.0	550.0	605.0	645.0	573.0
Direction B	535.0	440.0	515.0	575.0	475.0	508.0

Carbon Black, % ASTM D1603	Specimen 1	Specimen 2	Specimen 3	Average
	2.518	2.547	2.506	2.524

Carbon Black Dispersion ASTM D3015/D2663	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
	A-1	A-2	A-1	A-1	A-1	A-1

Remarks:

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
Readings taken at 1 foot intervals along length of roll.

Tensile Properties:

1. Grip separation 2.5".
2. Assumed guage length of 1.3" and 2.0" for yield and break elongations, respectively (as modified by NSF).
3. Direction A = Machine Direction  
Direction B = Cross-Machine Direction

Tested by: K.H./N.B.

Entered by: K.H.

Checked by: RSA

# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Client: EMCON WA

Sample: 3803060

Material: 60ML TEXTURED HDPE

Proj. No. 40202.005.061

Date: 8-11-98

Test	Readings					Average
Thickness (mils) ASTM D1593	65.70	72.80	70.00	73.00	72.70	74.21

Density (g/cm3) ASTM D792	Specimen 1	Specimen 2	Specimen 3	Average
	0.9397	0.9419	0.9367	0.9394

Tensile Properties: ASTM D638		Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength							
Yield (psi)	Direction A	174.7	172.2	175.7	180.0	170.0	174.5
	Direction B	167.7	171.2	163.3	166.7	166.2	167.0
Break (psi)	Direction A	186.7	206.0	210.3	182.2	155.0	188.1
	Direction B	133.3	143.2	176.2	140.2	178.0	154.6
Elongation							
Yield %	Direction A	15.8	15.8	14.3	17.3	17.3	16.1
	Direction B	14.3	14.3	15.8	15.0	17.3	15.3
Break %	Direction A	493.0	565.0	565.0	480.0	430.0	507.0
	Direction B	365.0	400.0	500.0	290.0	515.0	414.0

Carbon Black, % ASTM D1603	Specimen 1	Specimen 2	Specimen 3	Average
	2.764	2.793	2.578	2.712

Carbon Black Dispersion ASTM D3015/D2663	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
	A-1	A-1	A-1	A-1	A-2	A-1

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
Readings taken at 1 foot intervals along length of roll.

Tensile Properties:

1. Grip separation 2.5".
2. Assumed gauge length 1.3" and 2.5" for yield and break elongations, respectively (as modified by NSF).
3. Direction A = Machine Direction  
Direction B = Cross-Machine Direction

Remarks:

Tested by: K.H./N.B.  
Entered by: K.H.  
Checked by: R.S.A.

# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.003.061

Client: EMCON WA

Date: 7-27-98

Sample: 3803447 Roll #:

Material: 60ML TEXTURED HDPE

Test	Readings					Average
Thickness (mils) ASTM D1593	75.44	75.81	75.85	75.56	75.35	75.60

Density (g/cm3)	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D792	0.9409	0.9433	0.9425	0.9422

Tensile Properties: ASTM D638		Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength							
Yield (psi)	Direction A	206.6	205.5	197.5	196.1	221.5	205.4
	Direction B	194.9	201.8	195.3	200.4	198.0	198.1
Break (psi)	Direction A	180.0	192.0	168.0	188.0	220.0	189.6
	Direction B	148.0	152.0	192.0	168.0	148.0	161.6
Elongation							
Yield %	Direction A	20.3	21.0	23.3	27.8	21.0	22.7
	Direction B	21.8	21.8	23.3	23.8	23.3	22.8
Break %	Direction A	344.0	387.5	336.0	358.0	412.0	367.5
	Direction B	184.0	100.0	386.7	316.4	189.8	235.4

Carbon Black, %	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D1603	2.1950	2.0270	2.3250	2.1823

Carbon Black Dispersion	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
ASTM D3015/D2663	A-2	A-1	A-2	A-1	A-1	A-1

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
Readings taken at 1 foot intervals along length of roll.

Tensile Properties:

1. Grip separation 2.5".
2. Assumed gauge length 1.3" and 2.5" for yield and break elongations, respectively (as modified by NSF).
3. Direction A = Machine Direction  
Direction B = Cross-Machine Direction

Remarks:

Tested by:  
Entered by: N.B.  
Checked by: RSA

# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL  
 Client: EMCON WA  
 Sample: 3804352  
 Material: 60ML TEXTURED HDPE

Proj. No. 40202.005.061  
 Date: 9-25-98

Test	Readings					Average
Thickness (mils) ASTM D1593	73.13	72.96	72.55	72.93	72.80	72.87

Density (g/cm3) ASTM D792	Specimen 1	Specimen 2	Specimen 3	Average
	0.9403	0.9404	0.9412	0.9406

Tensile Properties: ASTM D638		Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength							
Yield (psi)	Direction A	199.7	197.5	202.5	206.5	198.2	200.9
	Direction B	196.2	195.0	191.0	195.0	197.5	194.9
Break (psi)	Direction A	182.7	167.0	215.5	157.0	175.5	179.5
	Direction B	181.7	182.0	166.5	153.2	139.5	164.6
Elongation							
Yield %	Direction A	14.3	15.8	17.3	15.8	15.8	15.8
	Direction B	15.8	15.8	15.8	15.8	15.0	15.6
Break %	Direction A	440.0	415.0	520.0	255.0	335.0	393.0
	Direction B	470.0	490.0	425.0	325.0	295.0	401.0

Carbon Black, % ASTM D1603	Specimen 1	Specimen 2	Specimen 3	Average
	2.527	2.557	2.404	2.496

Carbon Black Dispersion ASTM D3015/D2663	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
	A-1	A-1	A-1	A-1	A-1	A-1

Remarks:

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
 Readings taken at 1 foot intervals along length of roll.

Tensile Properties:

- Grip separation 2.5".
- Assumed gauge length of 1.3" and 2.0" for yield and break elongations, respectively (as modified by NSF).
- Direction A = Machine Direction  
 Direction B = Cross-Machine Direction

Tested by: K.H./N.B.  
 Entered by: K.H.  
 Checked by: RSA



# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Client: EMCON WA

Sample: 3804354

Material: 60ML TEXTURED HDPE

Proj. No. 40202.005.061

Date: 9-25-98

Test	Readings					Average
Thickness (mils) ASTM D1593	72.20	71.99	72.99	72.58	71.91	72.33

Density (g/cm3) ASTM D792	Specimen 1	Specimen 2	Specimen 3	Average
	0.9418	0.9405	0.9415	0.9413

Tensile Properties: ASTM D638		Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Average
Tensile Strength							
Yield (psi)	Direction A	185.7	185.7	178.5	184.7	181.0	183.1
	Direction B	179.2	181.5	179.0	179.5	181.0	180.0
Break (psi)	Direction A	170.0	216.7	202.0	205.7	222.7	203.4
	Direction B	137.7	139.5	139.7	140.5	128.0	137.1
Elongation							
Yield %	Direction A	15.8	17.3	17.3			
	Direction B	14.3	14.3	14.3	15.8	15.8	16.4
Break %	Direction A	435.0	545.0	520.0	510.0	580.0	518.0
	Direction B	250.0	325.0	320.0	260.0	150.0	261.0

Carbon Black, % ASTM D1603	Specimen 1	Specimen 2	Specimen 3	Average
	2.370	2.648	2.775	2.598

Carbon Black Dispersion ASTM D3015/D2663	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6
	A-1	A-1	A-1	A-1	A-1	A-1

Remarks:

Thickness: Tested with Mitutoyo Model No. 326-711 Digital Micrometer.  
Readings taken at 1 foot intervals along length of roll.

Tensile Properties:

1. Grip separation 2.5".
2. Assumed gauge length of 1.3" and 2.0" for yield and break elongations, respectively (as modified by NSF).
3. Direction A = Machine Direction  
Direction B = Cross-Machine Direction

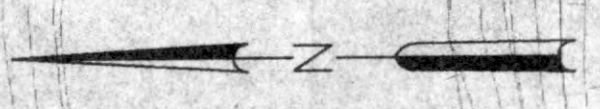
Tested by: K.H./N.B.

Entered by: K.H.

Checked by: RSA

**C-2b**  
**Panel Layout Drawing**





NORTH PERIMETER  
DITCH

NORTH PERIMETER  
DITCH H.P.

DICHARGE TO  
EXISTING MANHOLE

EAST LINED AREA  
PARTIAL CLOSURE

EDGE OF GEOMEMBRANE

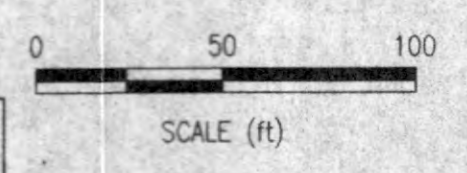
STRAW BALE BARRIER  
ON EL. 540

EXISTING  
TRANSFER STATION

POINT

Topography prepared by photogrammetric methods by:  
NIES Mapping Group, Inc. Date of Aerial: 1-9-98.

THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON  
SURVEY INFORMATION PROVIDED BY OTHERS. EMCON HAS NOT  
VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS  
INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS  
OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.



- LEGEND:**
- 31 PANEL NUMBER
  - DS-3 DESTRUCTIVE TEST LOCATION
  - 61 SEAM CAP OR LARGE REPAIR WITH REPAIR NUMBER



0	3/99	RECORD DRAWING	BB	I.S.	KWW	KWW
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
DATE OF ISSUE	9/98	MLP	CHK BY	KWW	APP BY	KWW
		DES BY	IS.WYK			



LAND RECOVERY, INC  
HIDDEN VALLEY LANDFILL  
PIERCE COUNTY, WASHINGTON

EAST LINED AREA PARTIAL CLOSURE  
PANEL LAYOUT

DRAWING NO.  
**C-1**  
PROJECT NO.  
40202-005.061



**C-2c**  
**Geomembrane Received Log**




**Emcon**

# TABLE C-2c

## GEOMEMBRANE RECEIVED LOG

Project: Hidden Valley Landfill, Puyallup, WA

Facility: East Lined Area Partial Closure

Project No 40202-005.061

Date Rec'd	Roll No.	Lot/ Batch No.	ROLL SIZE			QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L / W	Sq. Ft.	Thickness (Mils)				
8/4/98	3803572	7180524	510 22.5	11475	60				Textured
8/4/98	3803437	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803436	7180524	525 22.5	11812.5	60			8/11/98 P	Textured
8/4/98	3803445	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803438	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803444	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803440	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803443	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803439	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803446	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803454	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803456	7180524	540 22.5	12150	60				Textured
8/4/98	3803453	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803451	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803449	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803452	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803455	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803448	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803450	7180524	525 22.5	11812.5	60				Textured
8/4/98	3803447	7180524	600 22.5	13500	60			7/27/98 P	Textured

Manufacturer: Serrot Corporation

P=Pass

F=Fail

Total This Page:

237937.5 Sq.Ft.

Cumulative Total:

237937.5 Sq.Ft.

Logged By: Glenn Heath

Checked By:

*KWJ*

Project: Hidden Valley Landfill, Puyallup, WA

Facility: East Lined Area Partial Closure

Project No:

[illegible]

**Manufacturer: Serrot Corporation**

P=Pass

P=Pass  
F=Fail

Total This Page:

118125 Sq.Ft.

Cumulative Total:

356062.5 Sq.Ft.

Logged By: Glenn Heath

Checked By:



TABLE C-2c  
GEOMEMBRANE RECEIVED LOG

Project: Hidden Valley Landfill, Puyallup, WA

Facility: East Lined Area Partial Closure

Project No:

Date Rec'd	Roll No.	Lot/ Batch No.	ROLL SIZE			QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L / W	Sq. Ft.	Thickness (Mils)				
9/3/98	3803800		525 22.5	11812.5	60				Textured
9/3/98	3803801		525 22.5	11812.5	60				Textured
9/3/98	3803802		525 22.5	11812.5	60				Textured
9/3/98	3803804		525 22.5	11812.5	60				Textured
9/3/98	3803799		525 22.5	11812.5	60				Textured
9/3/98	3803803		525 22.5	11812.5	60				Textured
9/3/98	3803797		525 22.5	11812.5	60				Textured
9/3/98	3803790		525 22.5	11812.5	60				Textured
9/3/98	3803793		525 22.5	11812.5	60				Textured
9/3/98	3803791		525 22.5	11812.5	60			8/27/98 P	Textured
9/3/98	3803798		525 22.5	11812.5	60				Textured
9/3/98	3803845		525 22.5	11812.5	60				Textured
9/3/98	3803805		525 22.5	11812.5	60				Textured
9/3/98	3803842		525 22.5	11812.5	60				Textured
9/3/98	3803841		525 22.5	11812.5	60			8/27/98 P	Textured
9/3/98	3803844		525 22.5	11812.5	60				Textured
9/3/98	3803843		525 22.5	11812.5	60				Textured
9/3/98	3803736		525 22.5	11812.5	60				Textured
9/3/98	3803806		525 22.5	11812.5	60				Textured
9/3/98	3803734		525 22.5	11812.5	60			8/27/98 P	Textured
9/3/98	3803846		525 22.5	11812.5	60				Textured

Manufacturer: Serrot Corporation

P=Pass

F=Fail

Total This Page: 248062.5 Sq.Ft.

Cumulative Total: 604125 Sq.Ft.

Logged By: Glenn Heath

Checked By: *[Signature]*





**C-2d**  
**Trial Welds**

**Facility:** East Partial Closure

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

## Fusion

Peel:	79	lb/in
	68	lb/in

68 lb/in

Shear:	101	lb/in	101	lb/in
--------	-----	-------	-----	-------

101 lb/in

Logged By: Glenn Heath

Checked By: David



**C-2d**  
**TRIAL WELDS**

**Project:** Hidden Valley Landfill

**Facility:** East Partial Closure

Project No.: 40202-005.061

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

Peel: 79 lb/in

68 1b/in

Shear: 101 lb/in

101 lb/in

Logged By: Glenn Heath

Checked By: *Shawn*



# C-2d TRIAL WELDS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

Monitor: Glenn Heath

Test No	Date	Time	Equip No	Equip E or F	Tech	QA Monitor	Temperatures			Peel A	Peel B	Break Type	Pass/Fail	Shear	Break Type	Pass/Fail
							Preheat	Ext	Wedge							
1	8/21/98	10:40	167	F	JC	GH			420	137	143	FTB	P	193	FTB	P
										144	129	FTB	P	176	FTB	P
										141	138	FTB	P	171	FTB	P
2	8/21/98	10:55	133	F	VM	GH			430	129	128	FTB	P	198	FTB	P
										135	148	FTB	P	180	FTB	P
										143	135	FTB	P	190	FTB	P
3	8/21/98	12:40	133	F	VM	GH			430	135	136	FTB	P	197	FTB	P
										133	125	FTB	P	188	FTB	P
										139	141	FTB	P	192	FTB	P
4	8/21/98	12:50	111	F	CG	GH			430	135	136	FTB	P	159	FTB	P
										125	133	FTB	P	167	FTB	P
										139	141	FTB	P	170	FTB	P
5	8/21/98	14:30	22	E	VM	GH		250		110	N/A	FTB	P	176	FTB	P
										118	N/A	FTB	P	170	FTB	P
										100	N/A	FTB	P	177	FTB	P

**Specifications:**
**Extrusion**
**Fusion**

 Peel: 79 lb/in  
 Shear: 101 lb/in

 Extrusion  
 68 lb/in  
 101 lb/in

Logged By: Glenn Heath

 Checked By: *Glenn*



**Facility:** East Partial Closure

Monitor: Glenn Heath

[illegible]

**Specifications:**

## Extrusion

Peel:	79	lb/in	68	lb/in
Shear:	101	lb/in	101	lb/in

Logged By: Glenn Heath

**Checked By:**





**Monitor:** Glenn Heath

Specifications:		Extrusion		Logged By: Glenn Heath	
Peel:	79 lb/in	68	lb/in		
Shear:	101 lb/in	101	lb/in		
				Checked By: <i>fw</i>	

**Checked By:**



**Project:** Hidden Valley Landfill

**Facility:** East Partial Closure

Project No.: 40202-005,061

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

## Fusion

Peel: 79 lb/in

68 1b/in

Shear: 101 lb/in

101 lb/in

Logged By: Glenn Heath

Checked By: *HW*



**Monitor:** Glenn Heath

Specifications:		Extrusion		Logged By:	Checked By:
	Fusion				
Peel:	79 lb/in	68	lb/in	Glenn Heath	
Shear:	101 lb/in	101	lb/in		

**Checked By:**





**Facility:** East Partial Closure

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

Peel:	79	lb/in
Shear:	101	lb/in

Logged By: Glenn Heath



**Project:** Hidden Valley Landfill

**Facility:** East Partial Closure

Project No.: 40202-005.061

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

## Fusion

Peel:	79	lb/in	68	lb/in

68 lb/in

Shear: 101 lb/in 101 lb/in

101 lb/in

Logged By: Glenn Heath

**Checked By:**





## TRIAL WELDS



Project: Hidden Valley Landfill

**Facility:** East Partial Closure

Project No.: 40202-005.061

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Fusion

## Extrusion

**Peel:**

1lb/in

68 89 lb/in

Shear:

101 lb/in

101 lb/in

Logged By: Glenn Heath

**Checked By:**



**Facility:** East Partial Closure

**Monitor:** Glenn Heath

[illegible]

## Extrusion

## Fusion

68 1b/in

Logged By: Glenn Heath

101 lb/in

Checked By:



**Facility:** East Partial Closure

Project No.: 40202-005.061

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

Peel: 79 lb/in

68 lb/in

Shear: 101 lb/in

101 lb/in

Logged By: Glenn Heath

Checked By:

**Facility:** East Partial Closure

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

## Fusion

**Peel:**

67 1b/q1

68 lb/in

**Logged By:**

**Glenn Heath**

**Checked By:**

David



[illegible]

**Specifications:**

	Fusion	Extrusion
--	--------	-----------

## Extrusion

**Peel:**

67 ulyil

68 lb/in

**Shear:**

101 lb/in

101 lb/in

Logged By: Glenn Heath

**Checked By:**

Project No.: 40202-005,061

[illegible]

**Specifications:**

Extrusion

## Fusion

Peel:	79	lb/in	68	lb/in
-------	----	-------	----	-------

68 1b/in

Shear:	101	lb/in
	101	lb/in

101 lb/in

Logged By: Glenn Heath

Checked By: flw



Project: Hidden Valley Landfill

**Facility:** East Partial Closure

Project No.: 40202-005,061

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

Peel:	79	lb/in
	68	lb/in

68 lb/in

Logged By: Glenn Heath

**Checked By:**

How



**Project:** Hidden Valley Landfill

**Facility:** East Partial Closure

Project No.: 40202-005.061

**Monitor:** Glenn Heath

[illegible]**Specifications:**

## Extrusion

## Fusion

**Peel:**

79 lb/in

68 1b/in

Logged By: Glenn Heath

**Checked By:**



[illegible]

**Specifications:**

## Extrusion

## Fusion

**Peel:**

79 lb/in

68 lb/in

68 lb/in

Logged By: Glenn Heath

**Checked By:**



Test No	Date	Time	Equip No	Equip E or F	Tech	QA Monitor	Temperatures		
							Preheat	Ext	Wedge
1	9/19/98	8:30	111	Fus.	FM	GH			450
2	9/19/98	9:30	167	Fus.	JC	GH			450
3	9/19/98	12:45	111	Fus.	FM	GH			450
4	9/19/98	12:55	167	Fus.	JC	GH			450

**Specifications:**

## Extrusion

Peel: 79 lb/in

68 lb/in

Shear: 101 lb/in

101 1b/in

Logged By: Glenn Heath

Checked By:







**C-2d**

## TRIAL WELDS

Page 23 of 26

**Project:** Hidden Valley Landfill

**Facility:** East Partial Closure

Project No.: 40202-005.061

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

## Fusion

Peel:	79	lb/in
-------	----	-------

68 lb/in

Shear: 101 lb/in

101 lb/in

Logged By: Glenn Heath

Checked By:

**Monitor:** Glenn Heath

[illegible]

**Specifications:**

## Extrusion

Peel: 79 lb/in

89 1b/1n

Shear: 101 lb/in

101 lb/in

Logged By: Glenn Heath

**Checked By:**

**Monitor:** Glenn Heath

**Checked By:**



Specifications:	Fusion		Extrusion		Logged By: <u>Glenn Heath</u>	Checked By: <u><i>me</i></u>
	Peel: <u>79</u> lb/in	<u>68</u> lb/in	101 lb/in	<u>101</u> lb/in		

**Checked By:**



**C-2e**  
**Geomembrane Panel and Seaming Log**



# TABLE C-2e GEOMEMBRANE PANEL AND SEAMING LOG

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

Panel No.	Roll No.	Text'd / Smooth (T / S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
1	3803570	T	8/12/98	GH	49	23	1127	8/13/98	1127	8/12/98	92	OB	14:05	91	100			GH	48	48
2	3803570	T	8/12/98	GH	51	23	1173	8/13/98	2300	8/12/98	111	JC	14:17					GH	47	95
3	3803570	T	8/12/98	GH	52	23	1196	8/13/98	3496	8/12/98	92	OB	14:20					GH	48	143
4	3803570	T	8/12/98	GH	49	23	1127	8/13/98	4623	8/12/98	111	JC	14:28			DS-5	Pass	GH	48	191
5	3803570	T	8/12/98	GH	50	23	1150	8/13/98	5773	8/12/98	92	OB	14:35					GH	49	240
6	3803570	T	8/12/98	GH	50	23	1150	8/13/98	6923	8/12/98	111	JC	14:40					GH	49	289
7	3803570	T	8/12/98	GH	51	23	1173	8/13/98	8096	8/12/98	92	OB	14:45					GH	48	337
8	3803570	T	8/12/98	GH	49	23	1127	8/13/98	9223	8/12/98	111	JC	14:55					GH	48	385
9	3803563	T	8/12/98	GH	49	23	1127	8/13/98	10350	8/12/98	92	OB	15:00					GH	48	433
10	3803563	T	8/12/98	GH	50	23	1150	8/13/98	11500	8/12/98	111	JC	15:07					GH	47	480
11	3803563	T	8/12/98	GH	50	23	1150	8/13/98	12650	8/12/98	92	OB	15:20					GH	46	526
12	3803563	T	8/12/98	GH	52	23	1196	8/13/98	13846	8/12/98	111	JC	15:23					GH	47	573
13	3803563	T	8/12/98	GH	50	23	1150	8/13/98	14996	8/12/98	92	OB	15:35					GH	47	620
14	3803563	T	8/12/98	GH	48	23	1104	8/13/98	16100	8/12/98	111	JC	15:43			DS-1	Pass	GH	46	666
15	3803570	T	8/12/98	GH	49	23	1127	8/13/98	17227	8/12/98	92	OB	16:05	91	101			GH	46	712
16	3803563	T	8/12/98	GH	49	23	1127	8/13/98	18354	8/12/98	111	JC	15:43					GH	46	758
17	3803563	T	8/12/98	GH	50	23	1150	8/13/98	19504	8/12/98	92	OB	16:25					GH	47	805
18	3803563	T	8/12/98	GH	50	23	1150	8/13/98	20654	8/12/98	111	JC	16:35					GH	47	852
19	3803561	T	8/12/98	GH	51	23	1173	8/13/98	21827	8/12/98	92	OB	16:40					GH	48	900
20	3803561	T	8/12/98	GH	51	23	1173	8/13/98	23000	8/12/98	111	JC	16:47					GH	48	948
21	3803561	T	8/12/98	GH	51	23	1173	8/13/98	24173	8/12/98	111	JC	17:00	86	87			GH	47	995
22	3803561	T	8/12/98	GH	51	23	1173	8/13/98	25346	8/12/98	111	JC	17:21					GH	49	1044

Panel Area This Sheet: 25346 Cumulative Panel Area: 25346 Total Seam Footage, This Sheet: 1044 Cumulative Seam footage: 1044

Logged By: Glenn Heath

Checked By: *mu*



**TABLE C-2e**  
**GEOMEMBRANE PANEL AND SEAMING LOG**

**Project:** Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Panel Area This Sheet:	3214	Cumulative Panel Area:	28560	Total Seam Footage, This Sheet:	97	Cumulative Seam footage:	1141
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Logged By: Glenn Heath

**Checked By:**



## GEOMEMBRANE PANEL AND SEAMING LOG

Page 3 of 22

**Project:** Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Panel Area This Sheet:

55576.5

Cumulative Panel Area:

84137

2083

Cumulative Seam footage:

3224

Logged By: Glenn Heath

Checked By:





# TABLE C-2e GEOMEMBRANE PANEL AND SEAMING LOG

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

Panel No.	Roll No.	Text'd / Smooth (T/S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
33	3803448	T	8/22/98	GH	320	23	7360	9/2/98	7360	S32-33	8/22/98	133	VM	13:20				GH	321	321
34	3803452	T	8/22/98	GH	300	23	6900	9/2/98	14260	S33-34	8/22/98	167	JC	14:20		DS-7	Pass	GH	300	621
35	3803450	T	8/22/98	GH	283	10.5	2971.5	9/2/98	17231.5	S34-35	8/22/98	133	VM	15:00		DS-8	Pass	GH	283	904
36	3803450	T	8/22/98	GH	282	10.5	2961	9/2/98	20192.5	S35-36	8/22/98	167	JC	15:36		DS-9	Pass	GH	282	1186
37	3803571	T	8/22/98	GH	226	23	5198	9/2/98	25390.5	S36-45	8/22/98	167	JC	17:25	70	88		GH	34	1220
38	3803455	T	8/22/98	GH	198	23	4554	9/2/98	29944.5	S36-44	8/22/98	167	JC	17:31				GH	33	1253
39	3803450	T	8/22/98	GH	167	23	3841	9/2/98	33785.5	S36-37	8/22/98	167	JC	17:37				GH	226	1479
40	3803450	T	8/22/98	GH	35	23	805	9/2/98	34590.5	S37-38	8/22/98	133	VM	17:30		DS-10	Pass	GH	197	1676
41	3803452	T	8/22/98	GH	66	23	1518	9/2/98	36108.5	S38-39	8/22/98	111	CG	17:50				GH	165	1841
42	3803452	T	8/22/98	GH	95	23	2185	9/2/98	38293.5	S39-43	8/22/98	167	JC	18:25		DS-11	Fail	GH	33	1874
43	3803448	T	8/22/98	GH	126	23	2898	9/2/98	41191.5	S39-42	8/22/98	167	JC	18:32				GH	34	1908
44	3803571	T	8/22/98	GH	256	23	5888	9/2/98	47079.5	S39-41	8/22/98	167	JC	18:37	66	72		GH	33	1941
45	3803455	T	8/22/98	GH	287	23	6601	9/2/98	53680.5	S39-40	8/22/98	167	JC	18:25				GH	35	1976
									S44-45	8/22/98	133	VM	16:40			DS-12	Pass	GH	265	2241
									S37-44	8/22/98	167	JC	15:50					GH	33	2274
									S38-44	8/22/98	167	JC	15:58					GH	33	2307
									S39-44	8/22/98	167	JC	16:06					GH	33	2340
									S43-44	8/22/98	167	JC	16:15					GH	126	2466
									S42-43	8/22/98	133	VM	18:55					GH	115	2581
									S41-42	8/22/98	111	CG	18:59					GH	95	2676
									S40-41	8/22/98	133	VM	19:15					GH	35	2711

Panel Area This Sheet: 53680.5 Cumulative Panel Area: 137817 Total Seam Footage, This Sheet: 2711 Cumulative Seam footage: 3852

Logged By: Glenn Heath

Checked By: *Glenn*



## GEOMEMBRANE PANEL AND SEAMING LOG

Checked By: \_\_\_\_\_

[illegible]

Checked By: \_\_\_\_\_



Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Panel Area This Sheet:	35077.5	Cumulative Panel Area:	276732	Total Seam Footage, This Sheet:	1616	Cumulative Seam footage:	10061
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Logged By: Glenn Heath

Checked By:





**TABLE C-2e**  
**GEOMEMBRANE PANEL AND SEAMING LOG**

**Project:** Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Panel Area This Sheet:	58612.5	Cumulative Panel Area:	335344.5	Total Seam Footage, This Sheet:	2598	Cumulative Seam footage:	12659
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Logged By: Glenn Heath

Checked By: PRO

**Project:** Hidden Valley Landfill Partial Closure

Project No: 40202-005.061

Facility: East Partial Closure

**Project:** Hidden Valley Landfill Partial Closure

Project No: 40202-005.061

**TABLE C-2e**  
**GEOMEMBRANE PANEL AND SEAMING LOG**

Page 9 of 22

[illegible]

Panel Area This Sheet:	29497.5	Cumulative Panel Area:	364842	Total Seam Footage, This Sheet:	1311	Cumulative Seam footage:	13970
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Logged By: Glenn Heath

Checked By: James



TABLE C-2e

## GEOMEMBRANE PANEL AND SEAMING LOG

Page 10 of 22

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

Panel No.	Roll No.	Text/d / Smooth (T / S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
82A	3803440	T	9/11/98	GH	26	22	572	572	S82-83	9/11/98	187	JC	13:29					GH	57	57
82	3803440	T	9/11/98	GH	60	22	1320	1892	S83-84	9/11/98	187	JC	13:05	75	88			GH	89	146
83	3803443	T	9/11/98	GH	86	22	1892	3784	S84-85	9/11/98	111	FM	12:50					GH	112	258
84	3803454	T	9/11/98	GH	102	22	2244	6028	S85-86	9/11/98	187	JC	11:40					GH	135	393
85	3803453	T	9/11/98	GH	117	22	2574	8602	S86-87	9/11/98	111	FM	11:35	68	85	DS36	Pass	GH	158	551
86	3803800	T	9/11/98	GH	126	22	2772	11374	S87-88	9/11/98	187	JC	11:10					GH	178	729
87	3803800	T	9/11/98	GH	148	22	3256	14630	S88-89	9/11/98	111	FM	11:00					GH	200	929
88	3803800	T	9/11/98	GH	171	22	3762	18392	S89-90	9/11/98	187	JC	10:30	71	87	DS-37	Pass	GH	220	1149
89	3803790	T	9/11/98	GH	190	22	4180	22572	S90-74	9/11/98	187	JC	14:00					GH	34	1183
90	3803790	T	9/11/98	GH	226	22	4972	27544	S89-74	9/11/98	187	JC	14:07					GH	2	1185
91	3803443	T	9/11/98	GH	34	22	748	28292	S89-75	9/11/98	187	JC	14:07					GH	30	1215
92	3803799	T	9/11/98	GH	36	22	792	29084	S88-75	9/11/98	187	JC	14:12					GH	5	1220
93	3803799	T	9/11/98	GH	40	22	880	29964	S88-76	9/11/98	187	JC	14:12					GH	27	1247
94	3803799	T	9/11/98	GH	45	22	990	30954	S87-76	9/11/98	187	JC	14:17					GH	9	1256
95	3803793	T	9/11/98	GH	47	22	1034	31988	S87-77	9/11/98	187	JC	14:19					GH	23	1279
96	3803793	T	9/11/98	GH	55	22	1210	33198	S86-77	9/11/98	187	JC	14:23					GH	13	1292
									S86-78	9/11/98	187	JC	14:26					GH	20	1312
									S85-78	9/11/98	187	JC	14:30					GH	16	1328
									S85-79	9/11/98	187	JC	14:33					GH	16	1344
									S84-79	9/11/98	187	JC	14:36					GH	20	1364
									S84-80	9/11/98	187	JC	14:40					GH	13	1377
									S83-80	9/11/98	187	JC	14:42	75	90			GH	20	1397

Panel Area This Sheet: 33198	Cumulative Panel Area: 398040	Total Seam Footage, This Sheet: 1397	Cumulative Seam Footage: 15367
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Logged By: Glenn Heath

Checked By: *FWW*

[illegible]

Panel Area This Sheet:	0	Cumulative Panel Area:	398040	Total Seam Footage, This Sheet:	428	Cumulative Seam footage:	15795
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Logged By: Glenn Heath

Checked By:





# TABLE C-2e GEOMEMBRANE PANEL AND SEAMING LOG

Page 12 of 22

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

Panel No.	Roll No.	Text'd / Smooth (T / S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
97	3803805	T	9/12/98	GH	271	5962	9/20/98	5962	S90-97	9/12/98	187	JC	8:52	62	65			GH	219	219
98	3803805	T	9/12/98	GH	260	5720	9/20/98	11682	S97-98	9/12/98	187	JC	9:30			DS-38	Pass	GH	227	446
99	3803806	T	9/12/98	GH	270	5940	9/20/98	17622	S98-99	9/12/98	111	FM	9:40					GH	248	694
100	3803844	T	9/12/98	GH	299	6578	9/20/98	24200	S99-100	9/12/98	187	JC	10:20			DS-39	Pass	GH	265	959
101	3803798	T	9/12/98	GH	295	6490	9/20/98	30690	S100-101	9/12/98	111	FM	10:55					GH	284	1243
102	3803841	T	9/12/98	GH	290	6380	9/20/98	37070	S101-102	9/12/98	187	JC	11:09	67	75	DS-40	Pass	GH	295	1538
103	3803841	T	9/12/98	GH	290	6380	9/20/98	43450	S102-103	9/12/98	111	FM	12:45					GH	290	1828
104	3803843	T	9/12/98	GH	284	6248	9/20/98	49698	S103-104	9/12/98	187	JC	12:55					GH	290	2118
105	3803436	T	9/12/98	GH	281	6182	9/20/98	55880	S104-105	9/12/98	111	FM	13:35					GH	283	2401
106	3803436	T	9/12/98	GH	150	3300	9/20/98	59180	S106-107	9/12/98	167	CG	13:05	72	84	DS-46	Pass	GH	280	2681
107	3803806	T	9/12/98	GH	150	3300	9/20/98	62480	S107-108	9/12/98	167	CG	13:30					GH	250	2931
108	3803798	T	9/12/98	GH	148	3256	9/20/98	65736	S106-60	9/12/98	167	CG	14:50					GH	22	2953
109	3803844	T	9/12/98	GH	60	1320	9/20/98	67056	S106-61	9/12/98	187	JC	15:10					GH	22	2975
110	3803844	T	9/12/98	GH	70	1540	9/20/98	68596	S106-62	9/12/98	187	JC	15:06					GH	22	2997
111	3803841	T	9/12/98	GH	77	1694	9/20/98	70290	S106-63	9/12/98	187	JC	15:02	75	88			GH	22	3019
112	3803841	T	9/12/98	GH	84	1848	9/20/98	72138	S106-67	9/12/98	187	JC	14:58					GH	22	3041
113	3803843	T	9/12/98	GH	93	2046	9/20/98	74184	S106-68	9/12/98	187	JC	14:54					GH	22	3063
114	3803843	T	9/12/98	GH	95	2090	9/20/98	76274	S106-69	9/12/98	187	JC	14:50					GH	22	3085
115	3803790	T	9/12/98	GH	100	2200	9/20/98	78474	S106-64	9/12/98	187	JC	15:18					GH	22	3107
116	3803566	T	9/12/98	GH	102	2244	9/20/98	80718	S107-65	9/12/98	187	JC	15:22					GH	22	3129
117	3803449	T	9/12/98	GH	107	2354	9/20/98	83072	S108-66	9/12/98	187	JC	15:26					GH	22	3151
									S69-101	9/12/98	187	JC	9:12					GH	3	3154

Panel Area This Sheet: 83072 Cumulative Panel Area: 481112 Total Seam Footage, This Sheet: 3154 Cumulative Seam Footage: 18949

Logged By: Glenn Heath

Checked By: *pre w*



TABLE C-2e

## GEOMEMBRANE PANEL AND SEAMING LOG

Page 13 of 22

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

Panel No.	Roll No.	Text'd / Smooth (T / S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
									S70-101	9/12/98	111	FM	09:12					GH	10	10
									S70-100	9/12/98	111	FM	09:15					GH	23	33
									S71-100	9/12/98	111	FM	09:19					GH	8	41
									S71-99	9/12/98	111	FM	09:20			DS-45	Pass	GH	26	67
									S72-99	9/12/98	111	FM	09:26					GH	8	75
									S72-98	9/12/98	111	FM	09:28					GH	26	101
									S73-98	9/12/98	111	FM	09:34					GH	6	107
									S73-97	9/12/98	111	FM	09:36					GH	29	136
									S74-97	9/12/98	111	FM	09:51					GH	2	138
									S106-101	9/12/98	187	JC	09:51					GH	16	154
									S106-104	9/12/98	187	JC	09:55					GH	5	159
									S107-104	9/12/98	187	JC	09:56					GH	21	180
									S107-105	9/12/98	187	JC	10:01					GH	7	187
									S107-105	9/12/98	187	JC	10:03					GH	5	192
									S108-105	9/12/98	187	JC	10:04					GH	15	207
									S96-109	9/12/98	187	JC	14:00					GH	22	229
									S109-110	9/12/98	187	JC	14:13					GH	60	289
									S110-111	9/12/98	187	JC	14:27					GH	70	359
									S111-112	9/12/98	187	JC	14:42					GH	77	436
									S112-113	9/12/98	187	JC	15:00			DS-47	Pass	GH	84	520
									S113-114	9/12/98	187	JC	15:16					GH	93	613
									S114-115	9/12/98	187	JC	15:35					GH	95	708

Panel Area This Sheet: 0

Cumulative Panel Area: 481112

Total Seam Footage, This Sheet: 708

Cumulative Seam footage: 19657

Logged By: Glenn Heath

Checked By: *Glenn*



# TABLE C-2e GEOMEMBRANE PANEL AND SEAMING LOG

Page 14 of 22

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

Panel No.	Roll No.	Text'd / Smooth (T/S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
									S115-116	9/12/98	187	JC	15:57					GH	100	100
									S116-117	9/12/98	111	FM	16:10					GH	102	202
									S97-109	9/12/98	187	JC	16:19					GH	22	224
									S98-110	9/12/98	187	JC	16:23					GH	22	246
									S99-111	9/12/98	187	JC	16:27					GH	22	268
									S100-112	9/12/98	187	JC	16:31					GH	22	290
									S101-113	9/12/98	187	JC	16:35					GH	22	312
									S102-114	9/12/98	187	JC	16:39					GH	22	334
									S103-115	9/12/98	187	JC	16:44			DS-41	Pass	GH	22	356
									S104-115	9/12/98	187	JC	16:48					GH	22	378
									S104-116	9/12/98	187	JC	16:52	76	88			GH	22	400
									S105-116	9/12/98	187	JC	16:56					GH	22	422
									S105-117	9/12/98	187	JC	17:00					GH	22	444

Panel Area This Sheet: 0	Cumulative Panel Area: 48112	Total Seam Footage, This Sheet: 444	Cumulative Seam footage: 20101
Logged By: Glenn Heath	Checked By: <i>[Signature]</i>		



**TABLE C-2e**  
**GEOMEMBRANE PANEL AND SEAMING LOG**

**Project:** Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

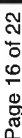
[illegible]

Panel Area This Sheet:	18249	Cumulative Panel Area:	499361	Total Seam Footage, This Sheet:	1095	Cumulative Seam footage:	21196
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Logged By: Glenn Heath

Checked By:





**TABLE C-2e**  
**GEOMEMBRANE PANEL AND SEAMING LOG**

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Panel Area This Sheet:	9394	Cumulative Panel Area:	508755	Total Seam Footage, This Sheet:	724	Cumulative Seam footage:	21920
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Logged By: Glenn Heath

Checked By: *F. W. W.*



Project: Hidden Valley Landfill Partial Closure

Project No: 40202-005.061

Facility: East Partial Closure

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## TABLE C-2e GEOMEMBRANE PANEL AND SEAMING LOG

Panel No.	Roll No.	Text'd / Smooth (T/S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
126	3803846	T	9/15/98	GH	126	22	2772	9/20/98	2772	9/15/98	187	JC	10:00					GH	22	22
127	3803846	T	9/15/98	GH	133	22	2926	9/20/98	5698	9/15/98	187	JC	10:08	60	66			GH	81	103
128	3803734	T	9/15/98	GH	140	22	3080	9/20/98	8778	9/15/98	187	JC	10:28					GH	49	152
129	3803842	T	9/15/98	GH	152	22	3344	9/20/98	12122	9/15/98	187	JC	10:38					GH	81	233
130	3803845	T	9/15/98	GH	161	22	3542	9/20/98	15664	9/15/98	187	JC	10:58					GH	18	251
131	3803436	T	9/15/98	GH	81	22	1782	9/20/98	17446	9/15/98	187	JC	11:00			DS-55	Pass	GH	84	335
132	3803846	T	9/15/98	GH	49	22	1078	9/20/98	18524	9/15/98	187	JC	11:38					GH	17	352
133	3803439	T	9/15/98	GH	95	22	2090	9/20/98	20614	9/15/98	187	JC	11:42					GH	5	357
134	3803806	T	9/15/98	GH	84	22	1848	9/20/98	22462	9/15/98	187	JC	11:43					GH	15	372
										EXT	45	CG	16:50					GH	15	387
										9/15/98	111	FM	16:50	76	85			GH	114	501
										9/15/98	111	FM	16:30					GH	117	618
										9/15/98	111	FM	10:45					GH	128	746
										9/15/98	111	FM	11:20					GH	140	886
										9/15/98	111	FM	11:40			DS-50	Pass	GH	144	1030
										9/15/98	187	JC	13:10					GH	20	1050
										9/15/98	187	JC	13:15	71	83			GH	6	1056
										9/15/98	187	JC	13:17					GH	18	1074
										9/15/98	187	JC	13:21					GH	15	1089
										9/15/98	187	JC	13:25					GH	7	1096
										9/15/98	187	JC	13:27					GH	14	1110

Panel Area This Sheet: 22462	Cumulative Panel Area: 531217	Total Seam Footage, This Sheet: 1110	Cumulative Seam footage: 23030
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Logged By: Glenn Heath

Checked By: *WVW*



# GEOMEMBRANE PANEL AND SEAMING LOG

Page 18 of 22

**Project:** Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Panel Area This Sheet:

**Cumulative Panel Area:**

Total Seam Footage, This Sheet: 20

Cumulative Seam footage:	23050
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Logged By: Glenn Heath

Checked By: \_\_\_\_\_



Facility: East Partial Closure

40202-005.061

Panel Area This Sheet:	50050	Cumulative Panel Area:	581267	Total Seam Footage, This Sheet:	2382	Cumulative Seam footage:	25432
Logged By:	Glenn Heath	Checked By: <i>Kucel</i>					

Checked By: \_\_\_\_\_





# TABLE C-2e GEOMEMBRANE PANEL AND SEAMING LOG

Page 20 of 22

Project: Hidden Valley Landfill Partial Closure

Facility: East Partial Closure

Project No: 40202-005.061

Panel No.	Roll No.	Text'd / Smooth (T / S)	Date Placed	Q.A. Mon.	L X W Feet	Panel Area (Sq Ft)	Date of Final QA	Total Area Sq Ft	Seam No.	Date Seamed	Equip No.	Tech	Time	Amb. Temp	Sheet Temp	DS No.	Test Result	Q.A. Mon.	Seam Length	Total Seams Lin Ft
149	3804350	T	9/19/98	GH	225	22	9/20/98	4950	S147-148	9/19/98	111	FM	08:50					GH	215	215
150	3804353	T	9/19/98	GH	220	22	9/20/98	9790	S148-149	9/19/98	167	JC	09:30	59	60	DS-52	Pass	GH	221	436
151	3804353	T	9/19/98	GH	212	22	9/20/98	14454	S149-150	9/19/98	111	FM	09:46					GH	220	656
152	3804355	T	9/19/98	GH	193	22	9/20/98	18700	S150-151	9/19/98	167	JC	10:31			DS-53	Pass	GH	212	868
153	3803845	T	9/19/98	GH	87	22	9/20/98	20614	S151-152	9/19/98	111	FM	10:45					GH	193	1061
154	3804350	T	9/19/98	GH	61	22	9/20/98	21956	S153-154	9/19/98	167	JC	11:25	68	71			GH	61	1122
155	3803845	T	9/19/98	GH	48	22	9/20/98	23012	S154-155	9/19/98	111	FM	11:50					GH	48	1170
156	3803845	T	9/19/98	GH	22	22	9/20/98	23496	S155-156	9/19/98	167	JC	11:46					GH	22	1192
									S152-153	9/19/98	111	FM	13:00					GH	24	1216
									S152-154	9/19/98	111	FM	13:05			DS-54	Pass	GH	24	1240
									S152-155	9/19/98	111	FM	13:11	74	81			GH	24	1264
									S152-156	9/19/98	111	FM	13:16					GH	24	1288
									S135-130	9/19/98	187	JC	13:00					GH	11	1299
									S135-145	9/19/98	187	JC	13:03					GH	8	1307
									S136-145	9/19/98	187	JC	13:05					GH	14	1321
									S137-146	9/19/98	187	JC	13:08			DS-49	Pass	GH	14	1335
									S137-147	9/19/98	187	JC	13:11					GH	9	1344
									S138-147	9/19/98	187	JC	13:13					GH	14	1358
									S138-148	9/19/98	167	JC	13:16					GH	7	1365
									S139-148	9/19/98	167	JC	13:18					GH	15	1380
									S139-149	9/19/98	167	JC	13:22					GH	6	1386

Panel Area This Sheet: 23496

Cumulative Panel Area: 604763

Total Seam Footage, This Sheet: 1386

Cumulative Seam footage: 26818

Logged By: Glenn Heath

Checked By: *new*



Facility: East Partial Closure

Project No: 40202-005.061

[illegible]

Panel Area This Sheet:	0	Cumulative Panel Area:	6047763	Total Seam Footage, This Sheet:	46	Cumulative Seam footage:	26864
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Logged By: Glenn Heath

Checked By:



Project: Hidden Valley Landfill Partial Closure

Project No: 40202-005.061

Facility: East Partial Closure[illegible]

Panel Area This Sheet: 1188

**Cumulative Panel Area:**

**Total Seam Footage, This Sheet:** 106

Logged By: Glenn Heath

Checked By: *PELW*

Cumulative Seam footage: 26970

**C-2f**  
**Geomembrane Non-destructive**  
**Seam Test Results**





TABLE C-2f  
NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST

Project: Hidden Valley Landfill

Facility: East Partial Closure

Page 1 of 12

Project No: 40202-005.061

Project No: 40202-005.061

Seam No.		Q.A. Mon.	Date Tested	Location	AIR TEST							VACUUM TEST		
					Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURATION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.	P/F
S1-2		GH	8/12/98	Full Seam Length	30	15:05	30	15:10	5	N	P			
S2-3		GH	8/12/98	Roadway to pump sta.	30	15:05	30	15:10	5	N	P			
S2-3		GH	8/12/98	Pump sta. to AT.	30	15:06	30	15:11	5	N	P			
S3-4		GH	8/12/98	Full Seam Length	30	15:06	30	15:11	5	N	P			
S4-5		GH	8/12/98	Full Seam Length	30	15:06	30	15:11	5	N	P			
S5-6		GH	8/12/98	Full Seam Length	30	15:25	30	15:30	5	N	P			
S6-7		GH	8/12/98	Full Seam Length	30	15:07	30	15:12	5	N	P			
S7-8		GH	8/12/98	Full Seam Length	30	15:18	30	15:23	5	N	P			
S8-9		GH	8/12/98	Full Seam Length	30	15:22	30	15:27	5	N	P			
S9-10		GH	8/12/98	Full Seam Length	30	15:21	30	15:26	5	N	P			
S10-11		GH	8/12/98	Full Seam Length	30	15:23	30	15:28	5	N	P			
S11-12		GH	8/12/98	Full Seam Length	30	15:44	30	15:49	5	N	P			
S12-13		GH	8/12/98	Full Seam Length	30	15:45	30	15:50	5	N	P			
S13-14		GH	8/12/98	Full Seam Length	30	15:45	30	15:50	5	N	P			
S14-15		GH	8/12/98	Full Seam Length	30	15:59	30	16:04	5	N	P			
S15-16		GH	8/12/98	Full Seam Length	30	16:27	30	16:32	5	N	P			
S16-17		GH	8/12/98	Full Seam Length	30	16:27	30	16:32	5	N	P			
S17-18		GH	8/12/98	Full Seam Length	30	16:27	29	16:32	5	N	P			
S18-19		GH	8/12/98	Full Seam Length	30	16:44	30	16:49	5	N	P			
S19-20		GH	8/12/98	Full Seam Length	30	16:46	30	16:51	5	N	P			
S20-21		GH	8/12/98	Full Seam Length	30	17:00	30	17:05	5	N	P			
S22-1		GH	8/13/98	Full Seam Length	30	17:08	28	17:13	5	N	P			
S22-23		GH	8/13/98	Full Seam Length	30	09:44	30	09:49	5	N	P			
S23-24		GH	8/13/98	Full Seam Length	30	09:45	30	09:50	5	N	P			
S24-TN		GH	8/13/98	Full Seam Length	30	09:46	30	09:51	5	N	P			
S21-25		GH	8/13/98	Full Seam Length	30	09:47	30	09:52	5	N	P			
Logged By: <i>GH</i>					30	16:55	28	17:00	5	N	P			
Checked By: <i>Kenn</i>														

Logged By: GH

Checked By: Kew

Min. pressure: 30 Psi.

Max. press. Loss: 2 Psi.

Min. Vac 10 in. Hg

Min. Duration: 10 Sec.



# TABLE C-2f NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005,061

Project No: 40202-005.061

Seam No.	Q.A. Mon.	Date Tested	Location	AIR TEST						VACUUM TEST			
				Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURATION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.	P/F
S25-26	GH	8/22/98	Full Seam Length	30	15:05	30	15:10	5	N	P			
S26-27	GH	8/22/98	Full Seam Length	30	15:18	30	15:13	5	N	P			
S27-28	GH	8/22/98	Top to Gas Well	30	15:13	28	15:18	5	N	P			
S27-28	GH	8/22/98	Gas Well to End	32	15:16	32	15:21	5	N	P			
S28-29	GH	8/22/98	Full Seam Length	30	15:12	30	15:17	5	N	P			
S29-30	GH	8/22/98	Full Seam Length	30	15:10	30	15:15	5	N	P			
S30-31	GH	8/22/98	Top to Repair #16	30	15:33	30	15:38	5	N	P			
S30-31	GH	8/22/98	Repair #16 to S End	30	15:38	30	15:43	5	N	P			
S31-32	GH	8/22/98	Top to Gas Well	30	15:50	30	15:55	5	N	P			
S31-32	GH	8/29/98	Gas Well to Repair #15	30	15:53	30	15:58	5	N	P			
S31-32	GH	8/29/98	Repair #15 to S End	30	15:54	30	15:59	5	N	P			
S32-33	GH	8/29/98	Top to Repair #17	30	09:08	30	09:13	5	N	P			
S32-33	GH	8/29/98	Repair #17 to S End	30	09:10	30	09:15	5	N	P			
S33-34	GH	8/29/98	Top to Repair #18	30	09:10	30	09:15	5	N	P			
S33-34	GH	8/29/98	Repair #18 to S End	30	09:11	30	09:16	5	N	P			
S34-35	GH	8/29/98	Full Seam Length	30	09:12	30	09:17	5	N	P			
S35-36	GH	8/29/98	Top to Gas Well	30	09:40	30	09:45	5	N	P			
S35-36	GH	8/29/98	Gas Well to S End	30	09:42	30	09:47	5	N	P			
S36-45	GH	8/29/98	Full Seam Length	30	09:30	30	09:35	5	N	P			
S36-44	GH	8/29/98	Full Seam Length	30	09:33	29	09:38	5	N	P			
S36-37	GH	8/29/98	Full Seam Length	30	09:45	30	09:50	5	N	P			
S37-38	GH	8/29/98	Full Seam Length	30	09:50	29	09:55	5	N	P			
S38-39	GH	8/29/98	Full Seam Length	30	09:54	30	09:59	5	N	P			
S39-43	GH	8/29/98	Full Seam Length	30	10:04	30	10:09	5	N	P			
S39-42	GH	8/29/98	Full Seam Length	30	10:09	30	10:14	5	N	P			
S39-41	GH	8/29/98	Full Seam Length	30	10:09	30	10:14	5	N	P			

Logged By: 

6-41

Logged By: *CH*Checked By: *hmm*
 Min. pressure: 30 Psi.  
 Max. press. Loss: 2 Psi.

 Min. Vac 10 In. Hg  
 Min. Duration: 10 Sec.

TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

Seam No.	Q.A. Mon.	Date Tested	Location	AIR TEST						VACUUM TEST			
				Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURATION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.	P/F
S39-40	GH	8/31/98	Full Seam Length	30	10:15	30	10:20	5	N	P			
S44-45	GH	8/31/98	Top to Repair #28	30	09:35	30	09:40	5	N	P			
S44-45	GH	8/31/98	Repair #28 to E End	30	09:39	30	09:44	5	N	P			
S37-44	GH	8/31/98	Full Seam Length	30	10:00	30	10:05	5	N	P			
S38-44	GH	8/31/98	Full Seam Length	30	09:53	30	09:58	5	N	P			
S39-44	GH	8/31/98	Full Seam Length	30	09:54	30	09:59	5	N	P			
S43-44	GH	8/31/98	Full Seam Length	30	10:05	30	10:10	5	N	P			
S42-43	GH	8/31/98	Full Seam Length	30	10:08	30	10:13	5	N	P			
S41-42	GH	8/31/98	Full Seam Length	30	10:09	30	10:14	5	N	P			
S40-41	GH	8/31/98	Full Seam Length	30	10:10	30	10:15	5	N	P			
S45-46	GH	9/2/98	Top to Repair #43	30	13:22	30	13:27	5	N	P			
S45-46	GH	9/2/98	Repair #43 to E End	30	13:30	30	13:35	5	N	P			
S46-47	GH	9/2/98	Top to Gas Well	30	13:00	30	13:05	5	N	P			
S46-47	GH	9/2/98	Gas Well to E End	30	13:04	30	13:09	5	N	P			
S47-48	GH	9/2/98	Full Seam Length	30	13:18	30	13:23	5	N	P			
S48-49	GH	9/2/98	Full Seam Length	30	13:25	30	13:30	5	N	P			
S49-50	GH	9/2/98	Full Seam Length	30	13:27	30	13:32	5	N	P			
S51-52	GH	9/2/98	Full Seam Length	30	11:43	30	11:48	5	N	P			
S52-53	GH	9/2/98	Full Seam Length	32	11:51	32	11:56	5	N	P			
S31-53	GH	9/2/98	Full Seam Length	32	14:41	32	14:46	5	N	P			
S32-52	GH	9/2/98	Full Seam Length	30	11:30	30	11:35	5	N	P			
S33-52	GH	9/2/98	Full Seam Length	30	11:35	30	11:40	5	N	P			
S33-51	GH	9/2/98	Full Seam Length	30	11:38	30	11:43	5	N	P			
S34-51	GH	9/2/98	Full Seam Length	30	11:40	30	11:45	5	N	P			
S46-51	GH	9/2/98	Full Seam Length	30	11:42	30	11:47	5	N	P			
S47-51	GH	9/2/98	Full Seam Length	30	11:48	30	11:53	5	N	P			

logged By: P.S.K

Logged By: *BSH*Checked By: *POW*

Min. pressure: 30 Psi.

Max. press. Loss: 2 Psi.

Min. Vac. 10 in. Hg

Min. Duration: 10 Sec.

TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

Seam No.	Q.A. Mon.	Date Tested	Location	AIR TEST					VACUUM TEST			
				Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURATION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.
S48-51	GH	9/2/98	Full Seam Length	30	11:50	30	11:55	5	N	P		
S49-51	GH	9/2/98	Full Seam Length	30	11:50	30	11:55	5	N	P		
S50-51	GH	9/2/98	Full Seam Length	30	12:41	30	12:46	5	N	P		
S53-54	GH	9/2/98	Full Seam Length	30	11:50	30	11:55	5	N	P		
S54-55	GH	9/2/98	Full Seam Length	32	14:41	32	14:46	5	N	P		
S55-56	GH	9/2/98	Full Seam Length	32	14:50	32	14:55	5	N	P		
S56-57	GH	9/2/98	Top to Gas Well	32	15:07	32	15:12	5	N	P		
S56-57	GH	9/2/98	Gas Well to E End	32	15:09	32	15:14	5	N	P		
S57-58	GH	9/2/98	Full Seam Length	32	15:37	32	15:42	5	N	P		
S58-59	GH	9/2/98	Full Seam Length	32	15:34	32	15:39	5	N	P		
S59-60	GH	9/2/98	Top to Gas Well	32	15:40	32	15:45	5	N	P		
S59-60	GH	9/2/98	Gas Well to E End	32	15:43	32	15:48	5	N	P		
S30-55	GH	9/2/98	Full Seam Length	32	16:07	32	16:12	5	N	P		
S31-55	GH	9/2/98	Full Seam Length	32	15:05	30	15:10	5	N	P		
S31-54	GH	9/2/98	Full Seam Length	30	15:20	30	15:25	5	N	P		
S60-61	GH	9/2/98	Top to Repair #58	30	16:07	30	16:12	5	N	P		
S60-61	GH	9/2/98	Repair #58 to E End	30	16:09	30	16:14	5	N	P		
S61-62	GH	9/2/98	Top to Repair #72	30	16:10	30	16:15	5	N	P		
S61-62	GH	9/2/98	Repair #72 to E End	30	16:13	30	16:18	5	N	P		
S62-63	GH	9/2/98	Full Seam Length	30	16:21	30	16:26	5	N	P		
S55-64	GH	9/4/98	Full Seam Length	30	15:02	30	15:07	5	N	P		
S56-64	GH	9/4/98	Full Seam Length	30	15:09	30	15:14	5	N	P		
S57-64	GH	9/4/98	Full Seam Length	30	15:14	30	15:19	5	N	P		
S58-64	GH	9/4/98	Full Seam Length	30	15:36	30	15:41	5	N	P		
S59-64	GH	9/4/98	Full Seam Length	30	15:33	30	15:38	5	N	P		
S64-65	GH	9/4/98	Full Seam Length	30	15:45	30	16:50	5	N	P		

Min. pressure: 30 Psi. Min. Vac 10 In. Hg  
 Max. press. Loss: 2 Psi. Min. Duration: 10 Sec.

Logged By: CH

Checked By: KWW



TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061



				AIR TEST							VACUUM TEST		
Seam No.	Q.A. Mon.	Date Tested	Location	Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURA-TION min	Block-age Y/N	Pass/Fail	Vac. In. Hg	Duration Sec.	P/F
S65-66	GH	9/4/98	Full Seam Length	32	16:50	32	16:55	5	N	Pass			
S29-64	GH	9/4/98	Full Seam Length	30	16:46	30	16:51	5	N	Pass			
S28-65	GH	9/4/98	E End to Repair #71	30	16:47	30	16:52	5	N	Pass			
S28-65	GH	9/4/98	Repair #71 to W End	30	16:47	30	16:52	5	N	Pass			
S27-66	GH	9/4/98	Full Seam Length	30	16:50	30	16:57	5	N	Pass			
S63-67	GH	9/5/98	Top to Gas Well	32	14:15	32	14:20	5	N	Pass			
S63-67	GH	9/5/98	Gas Well to E End	32	14:18	32	14:23	5	N	Pass			
S67-68	GH	9/5/98	Full Seam Length	32	15:02	32	15:07	5	N	Pass			
S68-69	GH	9/5/98	Full Seam Length	32	14:25	32	14:25	5	N	Pass			
S69-70	GH	9/5/98	Full Seam Length	32	15:05	32	15:00	5	N	Pass			
S70-71	GH	9/5/98	Full Seam Length	32	14:45	32	14:50	5	N	Pass			
S71-72	GH	9/5/98	Full Seam Length	32	14:47	32	14:52	5	N	Pass			
S72-73	GH	9/5/98	Top to Repair #89	32	15:55	32	16:00	5	N	Pass			
S72-73	GH	9/5/98	Repair #89 to Gas Well	32	16:00	32	16:05	5	N	Pass			
S72-73	GH	9/5/98	Gas Well to E End	32	15:55	32	16:00	5	N	Pass			
S73-74	GH	9/5/98	Full Seam Length	32	16:00	32	16:05	5	N	Pass			
S74-75	GH	9/5/98	Full Seam Length	32	15:54	32	15:59	5	N	Pass			
S75-76	GH	9/5/98	Top to Gas Well	32	15:52	32	15:57	5	N	Pass			
S75-76	GH	9/5/98	Gas Well to E End	32	15:52	32	15:57	5	N	Pass			
S76-77	GH	5/5/98	Full Seam Length	32	15:50	32	15:55	5	N	Pass			
S77-78	GH	5/5/98	Top to Repair No. 89	32	16:10	32	16:15	5	N	Pass			
S77-78	GH	5/5/98	Repair No.89 to E End	32	16:15	32	16:20	5	N	Pass			
S78-79	GH	5/5/98	Full Seam Length	32	16:16	32	16:21	5	N	Pass			
S79-80	GH	5/5/98	Full Seam Length	32	16:23	32	16:28	5	N	Pass			
S80-81	GH	5/5/98	Full Seam Length	32	16:37	32	16:42	5	N	Pass			
S82-83	GH	9/11/98	Full Seam Length	32	08:32	32	08:37	5	N	Pass			

Logged By:

GK

Min. pressure: 30 Psi.

Min. Vac 10 in. Hg

Checked By:

HVV

Max. press. Loss: 2 Psi.

Min. Duration: 10 Sec.

TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

				AIR TEST							VACUUM TEST		
Seam No.	Q.A. Mon.	Date Tested	Location	Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURATION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.	P/F
S83-84	GH	9/11/98	Full Seam Length	32	08:30	32	08:35	5	N	Pass			
S84-85	GH	9/11/98	Full Seam Length	32	08:04	32	08:09	5	N	Pass			
S85-86	GH	9/11/98	Full Seam Length	32	07:45	32	07:50	5	N	Pass			
S86-87	GH	9/11/98	Full Seam Length	32	07:40	32	07:45	5	N	Pass			
S87-88	GH	9/11/98	Full Seam Length	32	07:20	32	07:25	5	N	Pass			
S88-89	GH	9/11/98	Full Seam Length	32	07:15	32	07:20	5	N	Pass			
S89-90	GH	9/11/98	Top to Gas Well	32	07:29	32	07:34	5	N	Pass			
S89-90	GH	9/11/98	Gas Well to N End	32	07:30	32	07:35	5	N	Pass			
S90-74	GH	9/11/98	Full Seam Length	32	07:30	32	07:35	5	N	Pass			
S89-75	GH	9/11/98	Full Seam Length	32	07:10	32	07:15	5	N	Pass			
S88-76	GH	9/11/98	Full Seam Length	32	07:17	32	07:22	5	N	Pass			
S87-76	GH	9/11/98	Full Seam Length	32	07:20	32	07:25	5	N	Pass			
S87-77	GH	9/11/98	Full Seam Length	32	07:50	32	07:55	5	N	Pass			
S86-77	GH	9/11/98	Full Seam Length	32	07:44	32	07:49	5	N	Pass			
S86-78	GH	9/11/98	Full Seam Length	32	07:43	32	07:48	5	N	Pass			
S85-78	GH	9/11/98	Full Seam Length	32	07:50	32	07:55	5	N	Pass			
S85-79	GH	9/11/98	Full Seam Length	32	08:20	32	08:25	5	N	Pass			
S84-79	GH	9/11/98	Full Seam Length	32	08:04	32	08:09	5	N	Pass			
S84-80	GH	9/11/98	Full Seam Length	32	08:22	32	08:27	5	N	Pass			
S83-80	GH	9/12/98	Full Seam Length	32	08:32	32	08:37	5	N	Pass			
S83-81	GH	9/12/98	Full Seam Length	32	08:34	32	08:39	5	N	Pass			
S82-81	GH	9/12/98	Full Seam Length	32	08:36	32	08:41	5	N	Pass			
S82A-81	GH	9/12/98	Full Seam Length	32	08:45	32	08:50	5	N	Pass			
S82A-82	GH	9/12/98	Full Seam Length	32	08:45	32	08:50	5	N	Pass			
S84-91	GH	9/12/98	Full Seam Length	32	09:27	32	09:32	5	N	Pass			
S91-92	GH	9/12/98	Full Seam Length	32	09:25	32	09:30	5	N	Pass			

Logged By: *CH*Checked By: *Kevin*

Min. pressure: 30 Psi.

Max. press. Loss: 2 Psi.

Min. Vac

10

In. Hg

Min. Duration: 10

10

Sec.

TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

Seam No.	Q.A. Mon.	Date Tested	Location	AIR TEST						VACUUM TEST		
				Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURATION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.
S92-93	GH	9/12/98	Full Seam Length	32	09:22	32	09:27	5	N	P		
S93-94	GH	9/12/98	Full Seam Length	32	09:20	32	09:25	5	N	P		
S94-95	GH	9/12/98	Full Seam Length	32	09:36	32	09:41	5	N	P		
S95-96	GH	9/12/98	Full Seam Length	32	09:35	32	09:40	5	N	P		
S85-91	GH	9/12/98	Full Seam Length	32	09:27	32	09:32	5	N	P		
S86-92	GH	9/12/98	Full Seam Length	32	09:25	32	09:30	5	N	P		
S87-93	GH	9/12/98	Full Seam Length	32	09:22	32	09:27	5	N	P		
S88-94	GH	9/12/98	Full Seam Length	32	09:40	32	09:45	5	N	P		
S89-95	GH	9/12/98	Full Seam Length	32	09:30	32	09:35	5	N	P		
S90-96	GH	9/12/98	Full Seam Length	32	09:36	32	09:41	5	N	P		
S90-97	GH	9/12/98	Full Seam Length	32	10:13	32	10:18	5	N	P		
S97-98	GH	9/12/98	Full Seam Length	32	10:11	32	10:16	5	N	P		
S98-99	GH	9/12/98	Full Seam Length	32	10:10	32	10:15	5	N	P		
S99-100	GH	9/12/98	Full Seam Length	32	09:40	32	09:45	5	N	P		
S100-101	GH	9/12/98	Full Seam Length	32	09:45	32	09:50	5	N	P		
S101-102	GH	9/12/98	Full Seam Length	32	09:40	32	09:45	5	N	P		
S102-103	GH	9/12/98	Full Seam Length	32	09:38	32	09:43	5	N	P		
S103-104	GH	9/12/98	Full Seam Length	32	09:35	32	09:40	5	N	P		
S104-105	GH	9/12/98	Full Seam Length	32	09:25	32	09:30	5	N	P		
S106-107	GH	9/12/98	Full Seam Length	32	07:21	32	07:26	5	N	P		
S107-108	GH	9/12/98	Full Seam Length	32	07:20	32	07:25	5	N	P		
S106-60	GH	9/12/98	Full Seam Length	32	07:22	32	07:27	5	N	P		
S106-61	GH	9/12/98	Full Seam Length	32	07:22	32	07:27	5	N	P		
S106-62	GH	9/12/98	Full Seam Length	32	08:30	32	08:35	5	N	P		
S106-63	GH	9/12/98	Full Seam Length	32	08:30	32	08:35	5	N	P		
S106-67	GH	9/12/98	Full Seam Length	32	08:30	32	08:35	5	N	P		

Logged By: *CH*

Min. pressure: 00:00 Psi.

Max. press. Loss: 00:00 Psi.

Min. Vac 10 In. Hg

Min. Duration: 10 Sec.

Checked By: *Wend*

TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

Seam No.	Q.A. Mon.	Date Tested	Location	AIR TEST						VACUUM TEST		
				Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURATION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.
S106-68	GH	9/12/98	Full Seam Length	32	08:35	32	08:40	5	N	P		
S106-69	GH	9/12/98	Full Seam Length	32	08:35	32	08:40	5	N	P		
S106-64	GH	9/12/98	Full Seam Length	32	07:21	32	07:26	5	N	P		
S107-65	GH	9/12/98	Full Seam Length	32	07:20	32	07:25	5	N	P		
S108-66	GH	9/12/98	Full Seam Length	32	07:20	32	07:25	5	N	P		
S69-101	GH	9/12/98	Full Seam Length	32	10:35	32	10:40	5	N	P		
S70-101	GH	9/12/98	Full Seam Length	32	10:35	32	10:40	5	N	P		
S70-100	GH	9/12/98	Full Seam Length	32	09:06	32	09:11	5	N	P		
S71-100	GH	9/12/98	Full Seam Length	32	09:06	32	09:11	5	N	P		
S71-99	GH	9/12/98	Full Seam Length	32	09:05	32	09:10	5	N	P		
S72-99	GH	9/12/98	Full Seam Length	32	09:05	32	09:10	5	N	P		
S72-98	GH	9/12/98	Full Seam Length	32	09:15	32	09:20	5	N	P		
S73-98	GH	9/12/98	Full Seam Length	32	09:15	32	09:20	5	N	P		
S73-97	GH	9/12/98	Full Seam Length	32	09:15	32	09:20	5	N	P		
S74-97	GH	9/12/98	Full Seam Length	32	09:17	32	09:22	5	N	P		
S106-101	GH	9/12/98	Full Seam Length	32	08:53	32	08:57	5	N	P		
S106-104	GH	9/12/98	Full Seam Length	32	08:53	32	08:58	5	N	P		
S107-104	GH	9/12/98	Full Seam Length	32	08:55	32	09:00	5	N	P		
S107-105	GH	9/12/98	Full Seam Length	32	08:55	32	09:00	5	N	P		
S107-105	GH	9/12/98	Full Seam Length	32	08:55	32	09:00	5	N	P		
S108-105	GH	9/12/98	Full Seam Length								10	10
S96-109	GH	9/12/98	Full Seam Length	32	15:12	32	15:17	5	N	P		
S109-110	GH	9/12/98	Full Seam Length	32	15:17	32	15:22	5	N	P		
S110-111	GH	9/12/98	Full Seam Length	32	15:18	32	15:23	5	N	P		
S111-112	GH	9/12/98	Full Seam Length	32	15:25	32	15:30	5	N	P		
S112-113	GH	9/12/98	Full Seam Length	32	15:27	32	15:32	5	N	P		

Logged By: *GH*Checked By: *Ward*

Min. pressure: 00:00 Psi.

Max. press. Loss: 00:00 Psi.

Min. Vac 10

Min. Duration: 10

In. Hg

Sec.



TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

				AIR TEST							VACUUM TEST		
Seam No.	Q.A. Mon.	Date Tested	Location	Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURA-TION min	Block-age Y/N	Pass/Fail	Vac. In. Hg	Duration Sec.	P/F
S113-114	GH	9/13/98	Full Seam Length	32	09:04	32	09:09	5	N	P			
S114-115	GH	9/13/98	Full Seam Length	32	09:08	32	09:13	5	N	P			
S115-116	GH	9/13/98	Top to Gas Well	32	09:10	32	09:15	5	N	P			
S115-116	GH	9/13/98	Gas Well to N End	32	09:12	32	09:17	5	N	P			
S116-117	GH	9/13/98	Full Seam Length	32	09:13	32	09:18	5	N	P			
S97-109	GH	9/13/98	Full Seam Length	32	9:04	32	09:09	5	N	P			
S98-110	GH	9/13/98	Full Seam Length	32	10:43	32	10:48	5	N	P			
S99-111	GH	9/13/98	Full Seam Length	32	10:55	32	11:00	5	N	P			
S100-112	GH	9/13/98	Full Seam Length	32	10:50	32	10:55	5	N	P			
S101-113	GH	9/13/98	Full Seam Length	32	10:55	32	11:00	5	N	P			
S102-114	GH	9/13/98	Full Seam Length	32	10:55	32	11:00	5	N	P			
S103-115	GH	9/13/98	Full Seam Length	32	10:56	32	11:01	5	N	P			
S104-115	GH	9/13/98	Full Seam Length	32	10:56	32	11:01	5	N	P			
S104-116	GH	9/13/98	Full Seam Length	32	11:07	32	11:12	5	N	P			
S105-116	GH	9/13/98	Full Seam Length	32	11:08	32	11:13	5	N	P			
S105-117	GH	9/13/98	Full Seam Length	32	10:10	32	10:15	5	N	P			
S105-118	GH	9/13/98	Full Seam Length	32	09:55	32	10:00	5	N	P			
S118-119	GH	9/13/98	Full Seam Length	32	10:20	32	10:25	5	N	P			
S119-120	GH	9/15/98	Full Seam Length	32	14:35	32	14:40	5	N	P			
S120-121	GH	9/15/98	Full Seam Length	32	14:00	32	14:05	5	N	P			
S121-122	GH	9/15/98	Full Seam Length	32	14:02	32	14:07	5	N	P			
S122-123	GH	9/15/98	Full Seam Length	32	14:37	32	14:42	5	N	P			
S117-124	GH	9/14/98	Full Seam Length	32	11:02	32	11:07	5	N	P			
S124-125	GH	9/14/98	Full Seam Length	32	11:07	32	11:12	5	N	P			
S131-132	GH	9/15/98	Full Seam Length	32	12:48	32	12:53	5	N	P			
S131-108	GH	9/15/98	Full Seam Length	32	12:52	32	12:57	5	N	P			

Min. pressure: 00:00 Psi.

Max. press. Loss: 00:00 Psi.

Min. Vac

10

In. Hg

Min. Duration: 10 Sec.

Logged By: GH

Checked By: GH

TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

				AIR TEST							VACUUM TEST		
Seam No.	Q.A. Mon.	Date Tested	Location	Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURA- TION min	Block- age Y/N	Pass/ Fail	Vac. In. Hg	Duration Sec.	P/F
S132-108	GH	9/15/98	Full Seam Length	32	13:00	32	13:05	5	N	P			
S131-133	GH	9/15/98	Full Seam Length	32	13:02	32	13:07	5	N	P			
S132-133	GH	9/15/98	Full Seam Length	32	13:03	32	13:08	5	N	P			
S133-134	GH	9/15/98	Full Seam Length	32	13:05	32	13:10	5	N	P			
S133-119	GH	9/15/98	Full Seam Length	32	13:08	32	13:13	5	N	P			
S131-119	GH	9/15/98	Full Seam Length	32	13:08	32	13:13	5	N	P			
S131-118	GH	9/15/98	Full Seam Length	32	13:10	32	13:15	5	N	P			
S108-109	GH	9/15/98	Full Seam Length	32	13:11	32	13:16	5	N	P			
S125-126	GH	9/15/98	Full Seam Length	32	13:28	32	13:33	5	N	P			
S126-127	GH	9/15/98	Full Seam Length	32	13:32	32	13:37	5	N	P			
S127-128	GH	9/15/98	Full Seam Length	32	13:34	32	13:39	5	N	P			
S128-129	GH	9/15/98	Full Seam Length	32	13:39	32	13:44	5	N	P			
S129-130	GH	9/15/98	Full Seam Length	32	13:42	32	13:47	5	N	P			
S123-135	GH	9/18/98	Full Seam Length	32	13:24	32	13:29	5	N	P			
S135-136	GH	9/18/98	Full Seam Length	32	13:29	32	13:34	5	N	P			
S136-137	GH	9/18/98	Full Seam Length	32	13:26	32	13:31	5	N	P			
S137-138	GH	9/18/98	Full Seam Length	32	13:26	32	13:31	5	N	P			
S119-126	GH	9/16/98	Full Seam Length	32	11:28	32	11:33	5	N	P			
S120-126	GH	9/16/98	Full Seam Length	32	11:28	32	11:33	5	N	P			
S120-127	GH	9/16/98	Full Seam Length	32	11:30	32	11:35	5	N	P			
S121-128	GH	9/16/98	Full Seam Length	32	11:31	32	11:36	5	N	P			
S122-128	GH	9/16/98	Full Seam Length	32	11:31	32	11:36	5	N	P			
S122-129	GH	9/16/98	Full Seam Length	32	11:33	32	11:38	5	N	P			
S122-129	GH	9/16/98	Full Seam Length	32	11:33	32	11:38	5	N	P			
S123-129	GH	9/16/98	Full Seam Length	32	11:35	32	11:40	5	N	P			
S123-130	GH	9/16/98	Full Seam Length	32	11:36	32	11:41	5	N	P			

Logged By: *GH*

Min. pressure: 30 Psi.

Min. Vac 10 in. Hg

Max. press. Loss: 2 Psi.

Min. Duration: 10 Sec.

Checked By: *GH*

TABLE C-2f

## NON-DESTRUCTIVE AIR PRESSURE OR VACUUM SEAM TEST



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

				AIR TEST							VACUUM TEST		
Seam No.	Q.A. Mon.	Date Tested	Location	Stabil Press. psi.	Start Time	Final Press. psi.	End Time	DURA-TION min	Blockage Y/N	Pass/Fail	Vac. in. Hg	Duration Sec.	P/F
S138-139	GH	9/18/98	Full Seam Length	32	14:00	32	14:05	5	N	P			
S139-140	GH	9/18/98	Full Seam Length	32	13:50	32	13:55	5	N	P			
S133-135	GH	9/17/98	Full Seam Length	32	13:45	32	13:50	5	N	P			
S134-135	GH	9/17/98	Full Seam Length	32	13:47	32	13:52	5	N	P			
S134-136	GH	9/17/98	Full Seam Length	32	13:50	32	13:55	5	N	P			
S140-141	GH	9/18/98	Full Seam Length	32	13:57	32	14:02	5	N	P			
S141-142	GH	9/18/98	Full Seam Length	32	14:02	32	14:07	5	N	P			
S130-143	GH	9/18/98	Full Seam Length	32	14:07	32	14:12	5	N	P			
S143-144	GH	9/18/98	Full Seam Length	32	14:55	32	15:00	5	N	P			
S144-145	GH	9/17/98	Full Seam Length	32	14:25	32	14:30	5	N	P			
S145-146	GH	9/17/98	Full Seam Length	32	14:58	32	15:03	5	N	P			
S146-147	GH	9/17/98	Top to Gas Well	32	15:05	32	15:10	5	N	P			
S146-147	GH	9/17/98	Gas Well to N End	32	15:15	32	15:20	5	N	P			
S147-148	GH	9/19/98	Full Seam Length	32	13:24	32	13:29	5	N	P			
S148-149	GH	9/19/98	Full Seam Length	32	12:55	32	13:00	5	N	P			
S148-149	GH	9/19/98	Top to Gas Well	32	12:58	32	13:03	5	N	P			
S149-150	GH	9/19/98	Gas Well to N End	32	13:10	32	13:15	5	N	P			
S150-151	GH	9/19/98	Full Seam Length	32	12:55	32	13:00	5	N	P			
S151-152	GH	9/19/98	Full Seam Length	32	14:05	32	14:10	5	N	P			
S153-154	GH	9/19/98	Full Seam Length	32	14:05	32	14:10	5	N	P			
S154-155	GH	9/19/98	Full Seam Length	32	14:05	32	14:10	5	N	P			
S155-156	GH	9/19/98	Full Seam Length	32	14:09	32	14:14	5	N	P			
S152-153	GH	9/19/98	Full Seam Length	32	14:11	32	14:16	5	N	P			
S152-154	GH	9/19/98	Full Seam Length	32	14:15	32	14:20	5	N	P			
S152-155	GH	9/19/98	Full Seam Length	32	14:17	32	14:22	5	N	P			
S152-156	GH	9/19/98	Full Seam Length	32	14:21	32	14:26	5	N	P			

Logged By:

LCH

Min. pressure: 30 Psi.

Min. Vac 10 In. Hg

Max. press. Loss: 2 Psi.

Min. Duration: 10 Sec.

Checked By:

GAW





**C-2g**  
**Geomembrane Destructive**  
**Seam Test Results**



# TABLE C-2g GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

Date: 8/22/98

Seam No.: S14-15

QC Tech: RL

Monitor: GH

Date Welded: 8/12/98

Date Tested: 8/25/98

## DS-1

Equipmt Type:

Equipmt No: 111

Oper.: JC

Repair No.: 6

### Field Tests

Peel A	Peel B	Brk Type	Shear	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
126	145	FTB	195	FTB	P	143.37	124.00	FTB	P	171.31	FTB	P
131	146	FTB	194	FTB	P	125.06	120.43	FTB	P	170.68	FTB	P
156	134	FTB	190	FTB	P	127.87	126.31	FTB	P	173.43	FTB	P
						136.31	118.00	FTB	P	174.12	FTB	P
						131.12	120.81	FTB	P	175.12	FTB	P

### Lab Tests

## DS-2

Date: 8/22/98

Seam No.: S27-28

QC Tech: RL

Monitor: GH

Date Welded: 8/21/98

Date Tested: 8/25/98

Equipmt Type:

Equipmt No: 111

Oper.: CG

Repair No.: 11

### Field Tests

Peel A	Peel B	Brk Type	Shear	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
122	120	FTB	195	FTB	P	132.06	129.37	FTB	P	165.00	FTB	P
131	146	FTB	188	FTB	P	128.87	142.56	FTB	P	165.81	FTB	P
130	128	FTB	187	FTB	P	136.06	129.75	FTB	P	164.62	FTB	P
						131.18	138.69	FTB	P	165.56	FTB	P
						136.68	144.87	FTB	P	166.81	FTB	P

### Lab Tests

## DS-3

Date: 8/22/98

Seam No.: S29-30

QC Tech: RL

Monitor: GH

Date Welded: 8/21/98

Date Tested: 8/25/98

Equipmt Type:

Equipmt No: 167

Oper.: JC

Repair No.: 12

### Field Tests

Peel A	Peel B	Brk Type	Shear	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
130	124	FTB	194	FTB	P	136.56	122.87	FTB	P	167.75	FTB	P
151	140	FTB	191	FTB	P	151.50	96.06	FTB	P	167.12	FTB	P
159	128	FTB	196	FTB	P	147.93	116.31	NFTB	F	166.62	FTB	P
						Failure	100.87	NFTB	F	166.31	FTB	P
						148.68	148.37	FTB	P	167.06	FTB	P

### Lab Tests

Logged By: Glenn Heath

Checked By:

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TABLE C-2g  
GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-3A									
Date: 9/3/98		Monitor: GH		Equipment Type: Fusion		Equipment No: 167		Oper.: JC	
Seam No.: S29-30		Date Welded: 8/21/98		Date Tested: 9/4/98		Repair No.: 59			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
122	125	FTB	155	FTB	P	145.17	135.67	FTB	P
124	119	FTB	153	FTB	P	148.32	152.05	FTB	P
122	120	FTB	160	FTB	P	154.20	145.47	FTB	P
						161.65	154.75	FTB	P
						137.10	149.77	FTB	P

DS-3B									
Date: 9/3/98		Monitor: GH		Equipment Type: Fusion		Equipment No: 167		Oper.: JC	
Seam No.: S29-30		Date Welded: 8/21/98		Date Tested: 9/4/98		Repair No.: 60			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
117	122	FTB	148	FTB	P	107.25	144.15	FTB	P
117	120	FTB	145	FTB	P	148.80	118.67	FTB	P
119	119	FTB	147	FTB	P	131.40	131.77	FTB	P
						150.55	147.77	FTB	P
						134.72	145.05	FTB	P

Logged By: Glenn Heath

Checked By: *FWW*



TABLE C-2g  
GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-4									
Date: 8/21/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 133		Oper.: VM	
Seam No.: S30-31		Date Welded: 8/21/98		Date Tested: 8/25/98		Repair No.: 13			
QC Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
133	157	FTB	189	FTB	P	138.87	140.25	FTB	P
149	140	FTB	190	FTB	P	140.06	134.37	FTB	P
130	139	FTB	189	FTB	P	142.31	149.31	FTB	P
						138.06	136.25	FTB	P
						133.62	130.68	FTB	P
DS-5									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 111		Oper.: JC	
Seam No.: S4-5		Date Welded: 8/12/98		Date Tested: 9/4/98		Repair No.: 29			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
126	127	FTB	150	FTB	P	135.12	156.30	FTB	P
126	131	FTB	149	FTB	P	154.10	145.45	FTB	P
122	126	FTB	150	FTB	P	135.27	140.15	FTB	P
						154.25	133.85	FTB	P
						152.37	156.87	FTB	P
DS-6									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 167		Oper.: JC	
Seam No.: S26-27		Date Welded: 8/12/98		Date Tested: 9/4/98		Repair No.: 30			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
129	122	FTB	157	FTB	P	152.62	149.35	FTB	P
132	119	FTB	160	FTB	P	111.05	148.87	FTB	P
144	125	FTB	149	FTB	P	148.80	149.56	FTB	P
						135.62	150.00	FTB	P
						146.40	150.00	FTB	P

Logged By: Glenn Heath

Checked By: *KW*





# TABLE C-29 GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-7									
Date: 9/3/98		Monitor: GH		Equipt Type: Fusion		Equipt No: 167		Oper.: JC	
Seam No.: S33-34		Date Welded: 8/22/98		Date Tested: 9/4/98		Repair No.: 62			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	P/F	Brk Type	Peel B	Brk Type	Sheer	Brk Type	P/F
126	124	FTB	P	157	128.82	FTB	189.12	FTB	P
126	120	FTB	P	FTB	139.77	FTB	188.13	FTB	P
123	129	FTB	P	FTB	126.45	FTB	187.25	FTB	P
					138.40	FTB	188.15	FTB	P
					147.45	FTB	185.43	FTB	P
DS-8									
Date: 9/3/98		Monitor: GH		Equipt Type: Fusion		Equipt No: 133		Oper.: VM	
Seam No.: S34-35		Date Welded: 8/22/98		Date Tested: 9/4/98		Repair No.: 63			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	P/F	Brk Type	Peel B	Brk Type	Sheer	Brk Type	P/F
143	129	FTB	P	FTB	138.10	FTB	185.85	FTB	P
132	130	FTB	P	FTB	146.20	FTB	181.56	FTB	P
141	126	FTB	P	FTB	153.37	FTB	183.43	FTB	P
					150.40	FTB	185.50	FTB	P
					158.12	FTB	180.62	FTB	P
DS-9									
Date: 9/3/98		Monitor: GH		Equipt Type: Fusion		Equipt No: 167		Oper.: JC	
Seam No.: S35-36		Date Welded: 8/22/98		Date Tested: 9/4/98		Repair No.: 64			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	P/F	Brk Type	Peel B	Brk Type	Sheer	Brk Type	P/F
120	139	FTB	P	FTB	147.06	FTB	188.93	FTB	P
119	127	FTB	P	FTB	131.43	FTB	180.50	FTB	P
113	125	FTB	P	FTB	127.43	FTB	177.06	FTB	P
					134.37	FTB	180.12	FTB	P
					128.62	FTB	180.18	FTB	P

Logged By: Glenn Heath

Checked By: *hew*



**TABLE C-2g**  
**GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS**

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-10									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 133		Oper.: VM	
Seam No.: S37-38		Date Welded: 8/22/98		Date Tested: 9/4/98		Repair No.: 65			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
129	130	FTB	155	FTB	P	147.62	138.37	FTB	P
134	136	FTB	161	FTB	P	144.37	145.75	FTB	P
123	117	FTB	153	FTB	P	148.75	143.00	FTB	P
						145.62	139.25	FTB	P
						157.06	146.06	FTB	P
DS-11									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 167		Oper.: JC	
Seam No.: S39-43		Date Welded: 8/22/98		Date Tested: 9/4/98		Repair No.: 66			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
131	130	FTB	155	FTB	P	130.75	140.93	FTB	P
118	120	FTB	150	FTB	P	151.31	141.18	FTB	P
118	125	FTB	150	FTB	P	151.43	129.56	FTB	P
						122.62	130.18	NFTB	P
						115.93	140.87	NFTB	P
DS-12									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 133		Oper.: VM	
Seam No.: S44-45		Date Welded: 8/22/98		Date Tested: 9/4/98		Repair No.: 67			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
130	118	FTB	153	FTB	P	135.62	144.00	FTB	P
118	120	FTB	162	FTB	P	137.25	141.62	FTB	P
131	125	FTB	149	FTB	P	135.62	147.68	FTB	P
						138.31	135.37	FTB	P
						142.00	153.75	FTB	P

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**TABLE C-2g**  
**GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS**

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-16									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 111		Oper.: CG	
Seam No.: S31-53		Date Welded: 8/31/98		Date Tested: 9/4/98		Repair No.: 73			
Tech: RL		Field Tests				LabTests			
Peel A	Peel B	Brk Type	Brk Type	Sheer	P/F	Peel A	Peel B	Brk Type	P/F
123	129	FTB	FTB	160	P	152.27	149.37	FTB	P
122	123	FTB	FTB	155	P	150.47	141.15	FTB	P
119	129	FTB	FTB	155	P	*131.07	143.10	NFTB	F
						150.55	141.80	FTB	P
						141.20	151.97	FTB	P
DS-17									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 167		Oper.: JC	
Seam No.: S53-54		Date Welded: 9/1/98		Date Tested: 9/4/98		Repair No.: 74			
Tech: RL		Field Tests				LabTests			
Peel A	Peel B	Brk Type	Brk Type	Sheer	P/F	Peel A	Peel B	Brk Type	P/F
130	133	FTB	FTB	176	P	144.10	139.32	FTB	P
134	134	FTB	FTB	166	P	140.65	133.17	FTB	P
130	129	FTB	FTB	160	P	145.20	130.32	FTB	P
						134.85	149.05	FTB	P
						146.65	156.17	FTB	P
DS-18									
Date: 9/3/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 111		Oper.: CG	
Seam No.: S54-55		Date Welded: 9/1/98		Date Tested: 9/4/98		Repair No.: 75			
Tech: RL		Field Tests				LabTests			
Peel A	Peel B	Brk Type	Brk Type	Sheer	P/F	Peel A	Peel B	Brk Type	P/F
122	131	FTB	FTB	167	P	156.82	140.60	FTB	P
136	111	FTB	FTB	160	P	153.52	131.92	FTB	P
132	113	FTB	FTB	155	P	158.25	141.12	FTB	P
						155.32	155.72	FTB	P
						148.17	138.57	FTB	P

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Checked By: *Peru*



Facility: East Partial Closure

**DS-19**

Monitor: GH  
Date Welded: 9/1/98  
Date Tested: 9/4/98

Equipment Type: Fusion  
Equipment No.: 167  
Operator: JC  
Repair No.: 76

Date: 9/3/98	Monitor: GH	Equipmt No: 111
Seam No.: S56-57	Date Welded: 9/1/98	Oper.: CG
Tech: RL	Date Tested: 9/4/98	Repair No.: 77

Date: 9/3/98	Monitor: GH	Equipmt No: 187
Seam No.: S57-58	Date Welded: 9/1/98	Oper.: BS
Tech: RL	Date Tested: 9/4/98	Repair No.: 78

Logged By: Glenn Heath

Checked By: KW



# TABLE C-2g GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

Date: 9/3/98

Seam No.: S58-59

Tech: RL

Monitor: GH

Date Welded: 9/1/98

Date Tested: 9/4/98

DS-22

Equipmt Type: Fusion

Equipmt No.: 167

Oper.: JC

Repair No.: 79

## Field Tests

Peel A	Peel B	Brk Type	Shear	P/F	Brk Type	P/F
120	124	FTB	177	P	FTB	P
127	118	FTB	170	P	FTB	P
114	134	FTB	166	P	FTB	P

## Lab Tests

Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
124.80	142.95	FTB	P	177.06	FTB	P
128.90	148.30	FTB	P	177.75	FTB	P
126.87	138.50	FTB	P	176.87	FTB	P
146.02	135.10	FTB	P	172.37	FTB	P
138.54	138.65	FTB	P	174.68	FTB	P

Date: 9/3/98

Seam No.: S61-62

Tech: RL

Monitor: GH

Date Welded: 9/1/98

Date Tested: 9/4/98

DS-23

Equipmt Type: Fusion

Equipmt No.: 111

Oper.: JC

Repair No.: 80

## Field Tests

Peel A	Peel B	Brk Type	Shear	P/F	Brk Type	P/F
116	119	FTB	178	P	FTB	P
120	140	FTB	168	P	FTB	P
122	136	FTB	166	P	FTB	P

## Lab Tests

Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
139.72	151.40	FTB	P	166.37	FTB	P
114.47	151.52	FTB	P	168.25	FTB	P
118.22	161.22	FTB	P	165.75	FTB	P
139.87	164.55	FTB	P	163.68	FTB	P
131.97	155.70	FTB	P	165.31	FTB	P

Date: 9/3/98

Seam No.: S62-63

Tech: RL

Monitor: GH

Date Welded: 9/2/98

Date Tested: 9/4/98

DS-24

Equipmt Type: Fusion

Equipmt No.: 187

Oper.: BS

Repair No.: 81

## Field Tests

Peel A	Peel B	Brk Type	Shear	P/F	Brk Type	P/F
128	138	FTB	146	P	FTB	P
138	131	FTB	130	P	FTB	P
110	121	FTB	149	P	FTB	P

## Lab Tests

Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
121.85	137.27	FTB	P	166.25	FTB	P
127.10	137.05	FTB	P	169.68	FTB	P
139.27	158.67	FTB	P	168.18	FTB	P
140.22	141.95	FTB	P	165.18	FTB	P
131.17	135.80	FTB	P	167.18	FTB	P

Logged By: Glenn Heath

Checked By: *glh*



# TABLE C-2g GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-25											
Date: 9/3/98			Monitor: GH			Equipmt Type: Fusion			Equipmt No: 111		
Seam No.: S64-65			Date Welded: 9/2/98			Oper.: BS			Repair No.: 82		
Tech: RL			Date Tested: 9/4/98			Lab Tests					
Field Tests			Brk Type			Brk Type			Brk Type		
Peel A	Peel B	Sheer	P/F	Brk Type	Brk Type	Peel A	Peel B	Sheer	P/F	Brk Type	P/F
127	129	158	P	FTB	FTB	147.85	124.50	163.50	P	FTB	P
117	121	149	P	FTB	FTB	140.30	128.52	156.93	P	FTB	P
139	125	150	P	FTB	FTB	139.47	129.10	160.81	P	FTB	P
						134.37	130.10	161.06	P	FTB	P
						141.35	122.62	164.62	P	FTB	P

DS-26											
Date: 9/7/98			Monitor: GH			Equipmt Type: Fusion			Equipmt No: 167		
Seam No.: S63-67			Date Welded: 9/4/98			Oper.: JC			Repair No.: 90		
Tech: RL			Date Tested: 9/9/98			Lab Tests					
Field Tests			Brk Type			Brk Type			Brk Type		
Peel A	Peel B	Sheer	P/F	Brk Type	Brk Type	Peel A	Peel B	Sheer	P/F	Brk Type	P/F
135	136	186	P	FTB	FTB	140.85	126.52	174.05	P	FTB	P
191	138	187	P	FTB	FTB	127.45	132.37	177.52	P	FTB	P
126	152	180	P	FTB	FTB	120.87	133.15	175.37	P	FTB	P
						138.80	116.37	179.18	P	FTB	P
						140.77	126.05	180.43	P	FTB	P

DS-27											
Date: 9/7/98			Monitor: GH			Equipmt Type: Fusion			Equipmt No: 111		
Seam No.: S67-68			Date Welded: 9/4/98			Oper.: BS			Repair No.: 91		
Tech: RL			Date Tested: 9/9/98			Lab Tests					
Field Tests			Brk Type			Brk Type			Brk Type		
Peel A	Peel B	Sheer	P/F	Brk Type	Brk Type	Peel A	Peel B	Sheer	P/F	Brk Type	P/F
144	154	199	P	FTB	FTB	147.65	147.42	190.56	P	FTB	P
145	144	187	P	FTB	FTB	151.10	155.62	189.87	P	FTB	P
139	140	190	P	FTB	FTB	161.70	161.77	192.37	P	FTB	P
						151.15	164.10	190.78	P	FTB	P
						142.85	167.22	190.75	P	FTB	P

Logged By: Glenn Heath

Checked By: *for 66 in*





# TABLE C-2g GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-28									
Date: 9/7/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 167		Oper.: JC	
Seam No.: S68-69		Date Welded: 9/4/98		Date Tested: 9/9/98		Repair No.: 92			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
128	148	FTB	203	FTB	P	148.40	125.85	FTB	P
161	139	FTB	199	FTB	P	128.67	151.42	FTB	P
135	150	FTB	200	FTB	P	141.12	138.30	FTB	P
						138.60	155.40	FTB	P
						122.97	163.60	FTB	P
DS-29									
Date:		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 111		Oper.: BS	
Seam No.: S69-70		Date Welded: 9/4/98		Date Tested: 9/9/98		Repair No.: 93			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
132	152	FTB	180	FTB	P	143.02	132.92	FTB	P
130	159	FTB	193	FTB	P	150.10	147.85	FTB	P
132	199	FTB	178	FTB	P	149.45	138.82	FTB	P
						150.00	132.28	FTB	P
						149.95	116.60	FTB	P
DS-30									
Date:		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 167		Oper.: JC	
Seam No.: S70-71		Date Welded: 9/4/98		Date Tested: 9/9/98		Repair No.: 94			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
145	129	FTB	206	FTB	P	146.07	149.12	FTB	P
148	161	FTB	200	FTB	P	160.60	164.32	FTB	P
141	156	FTB	190	FTB	P	136.12	149.92	FTB	P
						150.05	160.70	FTB	P
						139.20	149.30	FTB	P

Logged By: Glenn Heath

Checked By: *KW*





Facility: East Partial Closure

**DS-34**

Equip Type: Fusion

Date Welded: 9/3/98

Repair No.: 98

LabTests

DS-35

Equipment Type: Fusion

Date Welded: 9/5/98

Repair No.: 99

**LabTests**

DS-36

Equipment Type: Fusion

Date Welded: 9/11/98

Repair No.: 156

**LabTests**

Checked By:







**Facility: East Partial Closure**

Project No.: 40202-005.061

**DS-40**

Date: 9/15/98

Monitor: GH

Seam No.: S101-102

Date Welded: 9/12/98

Tech: RL

Equipment Type: Fusion

Equipt No: 187

Oper.: JC

Repair No.: 160

Field Tests					Lab Tests				
Peel A	Peel B	Birk Type	P/F	Sheer	Peel A	Peel B	Birk Type	P/F	Sheer
131	123	FTB	P	156	137.45	146.87	FTB	P	185.00
123	144	FTB	P	162	140.92	135.80	FTB	P	186.00
121	138	FTB	P	166	142.85	151.87	FTB	P	185.75
					140.02	141.00	FTB	P	185.31
					146.30	160.30	FTB	P	185.19

**DS-41**

Date: 9/15/98

Monitor: GH

Seam No.: S103-115

Date Welded: 9/12/98

Tech: RL

Equip Type: Fusion

Equip't No: 111

Oper.: FM

Repair No.: 161

Field Tests						LabTests							
Peel A	Peel B	Birk Type	P/F	Sheer	Birk Type	P/F	Peel A	Peel B	Birk Type	P/F	Sheer	Birk Type	P/F
114	129	FTB	P	136	FTB	P	138.17	148.90	FTB	P	168.05	FTB	P
124	130	FTB	P	147	FTB	P	140.07	137.70	FTB	P	167.45	FTB	P
125	128	FTB	P	140	FTB	P	160.40	151.27	FTB	P	164.47	FTB	P
							143.00	144.02	FTB	P	167.05	FTB	P
							139.05	152.95	FTB	P	174.20	FTB	P

DS-42

Date: 9/15/98

Monitor: GH

Seam No.: S105-118

Date Welded: 9/13/98

Tech: RL

Equip Type: Fusion

Equipt No: 187

Oper.: JC

Repair No.: 162

Field Tests				Lab Tests			
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B
111	101	FTB	144	FTB	P	134.35	*111.13
110	96	FTB	147	FTB	P	136.95	*109.00
108	87	FTB	142	FTB	P	134.52	*111.07
						125.17	*107.17
						126.52	*107.42

Logged By: Glenn Heath

Checked By:



**TABLE C-2g**  
**GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS**

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

**DS-42A**

Date: 9/20/98

Monitor: GH

Equipmt Type: Fusion

Equipmt No: 111

Seam No.: S105-118

Date Welded: 9/13/98

Oper.: BS

Tech: RL

Date Tested: 9/21/98

Repair No.: 187

**Field Tests**

**Lab Tests**

Peel A	Peel B	Brk Type	Sheer	P/F	Brk Type	Peel A	Peel B	Brk Type	P/F	Sheer	Brk Type	P/F
132	128	FTB	158	P	FTB	124.32	142.05	FTB	P	170.10	FTB	P
124	137	FTB	160	P	FTB	130.35	130.45	FTB	P	171.97	FTB	P
127	136	FTB	160	P	FTB	130.75	131.67	FTB	P	173.75	FTB	P
						133.10	137.07	FTB	P	172.27	FTB	P
						136.07	128.92	FTB	P	169.70	FTB	P

**DS-42B**

Date: 9/20/98

Monitor: GH

Equipmt Type: Fusion

Equipmt No: 111

Seam No.: S105-108

Date Welded: 9/13/98

Oper.: BS

Tech: RL

Date Tested: 9/21/98

**Field Tests**

**Lab Tests**

Peel A	Peel B	Brk Type	Sheer	P/F	Brk Type	Peel A	Peel B	Brk Type	P/F	Sheer	Brk Type	P/F
128	141	FTB	172	P	FTB	136.20	128.82	FTB	P	171.30	FTB	P
130	140	FTB	169	P	FTB	135.65	118.57	FTB	P	172.35	FTB	P
132	137	FTB	157	P	FTB	138.92	130.47	FTB	P	171.95	FTB	P
						137.02	119.75	FTB	P	172.40	FTB	P
						140.00	112.82	FTB	P	170.77	FTB	P

Logged By: Glenn Heath

Checked By:

*KW*



TABLE C-2g  
GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-43											
Date: 9/15/98			Monitor: GH			Equipmt Type: Fusion			Equipmt No: 111		
Seam No.: S119-120			Date Welded: 9/13/98			Oper.: BS			Repair No.: 163		
Tech: RL			Date Tested: 9/16/98								
Field Tests						LabTests					
Peel A	Peel B	Brk Type	Sheer	P/F	Brk Type	Peel A	Peel B	Brk Type	P/F	Sheer	Brk Type
120	119	FTB	135	P	FTB	150.18	135.81	FTB	P	159.43	FTB
127	130	FTB	138	P	FTB	147.00	145.43	FTB	P	159.60	FTB
114	122	FTB	133	P	FTB	142.56	135.00	FTB	P	159.62	FTB
						150.93	135.43	FTB	P	158.63	FTB
						149.12	136.50	FTB	P	160.81	FTB

DS-44											
Date: 9/15/98			Monitor: GH			Equipmt Type: Fusion			Equipmt No: 111		
Seam No.: S121-122			Date Welded: 9/14/98			Oper.: BS			Repair No.: 164		
Tech: RL			Date Tested: 9/16/98								
Field Tests						LabTests					
Peel A	Peel B	Brk Type	Sheer	P/F	Brk Type	Peel A	Peel B	Brk Type	P/F	Sheer	Brk Type
108	119	FTB	128	P	FTB	129.53	128.62	FTB	P	164.93	FTB
107	118	FTB	132	P	FTB	133.31	*132.25	NFTB	F	169.23	FTB
103	112	FTB	130	P	FTB	*115.06	126.87	NFTB	F	169.81	FTB
						130.31	149.13	FTB	P	164.10	FTB
						131.81	135.81	FTB	P	169.97	FTB

DS-45											
Date: 9/15/98			Monitor: GH			Equipmt Type: Fusion			Equipmt No: 187		
Seam No.: S71-99			Date Welded: 9/12/98			Oper.: JC			Repair No.: 165		
Tech: RL			Date Tested: 9/16/98								
Field Tests						LabTests					
Peel A	Peel B	Brk Type	Sheer	P/F	Brk Type	Peel A	Peel B	Brk Type	P/F	Sheer	Brk Type
113	131	FTB	159	P	FTB	139.97	125.96	FTB	P	173.16	FTB
106	131	FTB	160	P	FTB	131.31	121.56	FTB	P	179.56	FTB
101	114	FTB	159	P	FTB	141.93	122.43	FTB	P	177.37	FTB
						*116.9	113.00	NFTB	F	176.63	FTB
						138.75	131.37	FTB	P	173.52	FTB

Logged By: Glenn Heath

Checked By: *Kevin*



**TABLE C-2g**  
**GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS**

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-46									
Date: 9/15/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 167		Oper.: CG	
Seam No.: S106-107		Date Welded: 9/12/98		Date Tested: 9/16/98		Repair No.: 166			
Tech: RL		Field Tests		LabTests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
104	116	FTB	145	FTB	P	134.97	126.31	FTB	P
92	121	FTB	148	FTB	P	130.00	150.87	FTB	P
98	109	FTB	144	FTB	P	134.37	149.68	FTB	P
						132.56	138.25	FTB	P
						131.68	165.75	FTB	P
DS-47									
Date: 9/15/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 187		Oper.: JC	
Seam No.: S113-112		Date Welded: 9/12/98		Date Tested: 9/16/98		Repair No.: 167			
Tech: RL		Field Tests		LabTests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
126	126	FTB	158	FTB	P	144.37	136.57	FTB	P
122	132	FTB	155	FTB	P	144.60	149.57	FTB	P
128	132	FTB	157	FTB	P	131.68	129.56	FTB	P
						131.25	130.17	FTB	P
						142.30	138.12	FTB	P
DS-48									
Date: 9/15/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 111		Oper.: FM	
Seam No.: S117-124		Date Welded: 9/14/98		Date Tested: 9/16/98		Repair No.: 168			
Tech: RL		Field Tests		LabTests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
127	122	FTB	147	FTB	P	144.62	140.05	FTB	P
113	132	FTB	147	FTB	P	141.37	129.37	FTB	P
119	116	FTB	148	FTB	P	143.31	134.32	FTB	P
						141.56	139.49	FTB	P
						145.57	137.23	FTB	P

Logged By: Glenn Heath

Checked By: *KEW*





# TABLE C-2g GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

DS-49									
Date: 9/20/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 187		Oper.: JC	
Seam No.: S137-146		Date Welded: 9/19/98		Date Tested: 9/22/98		Repair No.: 218			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
130	125	FTB	178	FTB	P	141.72	142.85	FTB	P
110	120	FTB	180	FTB	P	154.12	141.92	FTB	P
126	132	FTB	185	FTB	P	146.70	131.17	FTB	P
						138.62	141.35	FTB	P
						153.82	137.70	FTB	P

DS-50									
Date: 9/20/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 111		Oper.: FM	
Seam No.: S129-130		Date Welded: 9/15/98		Date Tested: 9/22/98		Repair No.: 219			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
120	133	FTB	180	FTB	P	160.22	139.52	FTB	P
119	132	FTB	190	FTB	P	128.97	145.75	FTB	P
130	125	FTB	193	FTB	P	162.50	132.90	FTB	P
						149.07	140.70	FTB	P
						161.17	147.45	FTB	P

DS-51									
Date: 9/20/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 111		Oper.: FM	
Seam No.: S145-146		Date Welded: 9/17/98		Date Tested: 9/22/98		Repair No.: 220			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
140	138	FTB	176	FTB	P	122.77	137.77	FTB	P
126	130	FTB	175	FTB	P	131.45	141.10	FTB	P
129	126	FTB	180	FTB	P	150.65	123.85	FTB	P
						144.47	137.95	FTB	P
						129.92	133.55	FTB	P

Logged By: Glenn Heath

Checked By: *KW*





# TABLE C-2g GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No.: 40202-005.061

Date: 9/20/98

Seam No.: S133-134

Tech: RL

Monitor: GH

Date Welded: 9/15/98

Date Tested: 9/22/98

DS-55

Equipment Type: Fusion

Equipment No: 187

Operator: JC

Repair No.: 224

## Field Tests

Peel A	Peel B	Brk Type	Shear	P/F	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
120	125	FTB	170	P	FTB	P	147.62	138.47	FTB	P	169.85	FTB	P
130	132	FTB	165	P	FTB	P	129.55	148.22	FTB	P	170.75	FTB	P
120	110	FTB	180	P	FTB	P	142.20	149.87	FTB	P	168.80	FTB	P
							150.00	141.05	FTB	P	170.95	FTB	P
							145.82	113.40	FTB	P	168.57	FTB	P

Date: 9/20/98

Seam No.: S135-136

Tech: RL

Monitor: GH

Date Welded: 9/17/98

Date Tested: 9/22/98

DS-56

Equipment Type: Fusion

Equipment No: 187

Operator: JC

Repair No.: 225

## Field Tests

Peel A	Peel B	Brk Type	Shear	P/F	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
133	130	FTB	160	P	FTB	P	149.42	145.85	FTB	P	181.00	FTB	P
129	125	FTB	175	P	FTB	P	144.00	144.55	FTB	P	181.20	FTB	P
130	118	FTB	175	P	FTB	P	154.17	152.12	FTB	P	181.67	FTB	P
							150.15	140.52	FTB	P	182.10	FTB	P
							136.60	154.05	FTB	P	180.67	FTB	P

Date: 9/20/98

Seam No.: S137-138

Tech: RL

Monitor: GH

Date Welded: 9/17/98

Date Tested: 9/22/98

DS-57

Equipment Type: Fusion

Equipment No: 187

Operator: JC

Repair No.: 226

## Field Tests

Peel A	Peel B	Brk Type	Shear	P/F	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F	Shear	Brk Type	P/F
138	140	FTB	170	P	FTB	P	136.15	140.97	FTB	P	177.40	FTB	P
140	135	FTB	170	P	FTB	P	150.10	153.52	FTB	P	178.05	FTB	P
129	120	FTB	190	P	FTB	P	130.25	137.80	FTB	P	176.82	FTB	P
							135.52	150.70	FTB	P	176.85	FTB	P
							153.15	148.85	FTB	P	176.82	FTB	P

Logged By: Glenn Heath

Checked By: *Glenn*



Project: Hidden Valley Landfill

Facility: East Partial Closure

# TABLE C-29 GEOMEMBRANE DESTRUCTIVE SEAM TEST RESULTS

Project No.: 40202-005.061

DS-58									
Date: 9/20/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 187		Oper.: JC	
Seam No.: S139-140		Date Welded: 9/17/98		Date Tested: 9/22/98		Repair No.: 227			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
120	125	FTB	160	FTB	P	140.45	140.12	FTB	P
124	120	FTB	170	FTB	P	149.62	140.47	FTB	P
139	135	FTB	166	FTB	P	146.95	134.47	FTB	P
						*61.12	143.67	FTB	F
						140.90	142.30	FTB	P

DS-59									
Date: 9/20/98		Monitor: GH		Equipmt Type: Fusion		Equipmt No: 187		Oper.: JC	
Seam No.: S141-142		Date Welded: 9/17/98		Date Tested: 9/22/98		Repair No.: 228			
Tech: RL		Field Tests		Lab Tests					
Peel A	Peel B	Brk Type	Sheer	Brk Type	P/F	Peel A	Peel B	Brk Type	P/F
110	120	FTB	150	FTB	P	146.32	135.10	FTB	P
125	130	FTB	155	FTB	P	142.47	137.00	FTB	P
135	140	FTB	165	FTB	P	120.67	136.65	FTB	P
						147.55	135.98	FTB	P
						152.42	154.55	FTB	P

Logged By: Glenn Heath

Checked By: *lowell*



**C-2h**  
**Geomembrane Repair Log**



## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
1	8/13/98	GH	P24-TN	Filler Panel, Old liner to New	8/13/98	8/22/98	Pass
2	8/13/98	GH	Patch 3'X4'	Trench Bottom @ Tie-In	8/13/98	8/22/98	Pass
3	8/13/98	GH	Patch 4'X10'	Trench Bottom @ Tie-In	8/13/98	8/22/98	Pass
4	8/13/98	GH	Pump Station Boots	Panel 3, 5' N of Trench Bottom	8/22/98	8/22/98	Pass
5	8/13/98	GH	3 Cleanout Boots	Panel 17, 5' N of Trench Bottom	8/22/98	8/22/98	Pass
6	8/21/98	GH	3'X6' Patch	P14-15, 10ft South of AT, DS-1	8/22/98	8/22/98	Pass
7	8/21/98	GH	Patch, 3'X3'	S27-28, @ Top of berm, Burnout	8/22/98	8/22/98	Pass
8	8/21/98	GH	Patch, 3'X3'	S28-29, @ Top of berm, Burnout	8/22/98	8/23/98	Pass
9	8/21/98	GH	Patch, 2'X10'	S29-30, @ Top of berm, Burnout	8/22/98	8/23/98	Pass
10	8/21/98	GH	Boot	S27-28, @ Gas Extraction Well	8/22/98	8/23/98	Pass
11	8/21/98	GH	3'X6' Patch	S27-28, 215ft N of S toe, DS-2	8/22/98	8/23/98	Pass
12	8/21/98	GH	3'X6' Patch	S29-30, 348ft N of S toe, DS-3	8/22/98	8/23/98	Pass
13	8/21/98	GH	3'X6' Patch	S30-31, 75ft N of S toe, DS-4	8/22/98	8/23/98	Pass
14	8/21/98	GH	Boot	S31-32, @ Gas Extraction Well	8/23/98	8/23/98	Pass
15	8/22/98	GH	2'X3' Patch	S31-32, @ Top of berm, Burnout	8/23/98	8/23/98	Pass
16	8/22/98	GH	2'X2' Patch	S30-31, 160' S of Top of slope, Burnout	8/23/98	8/23/98	Pass
17	8/22/98	GH	2'X2' Patch	S32-33, 180' S of top of slope, Burnout	8/23/98	8/23/98	Pass
18	8/22/98	GH	3'X6' Patch	S33-34, @ Face of berm, Burnout	8/23/98	8/23/98	Pass
19	8/22/98	GH	Boot	S35-36, @ Gas Extraction Well	8/23/98	8/23/98	Pass
20	8/22/98	GH	2'X3' Patch	S36-37-44, Intersection	8/23/98	8/23/98	Pass
21	8/22/98	GH	2'X2' Patch	S37-38-44, Intersection	8/23/98	8/23/98	Pass
22	8/22/98	GH	2'X2' Patch	S38-39-44, Intersection	8/23/98	8/23/98	Pass
23	8/22/98	GH	2'X2' Patch	S39-43-44, Intersection	8/23/98	8/23/98	Pass
24	8/22/98	GH	2'X2' Patch	S39-42-43, Intersection	8/23/98	8/23/98	Pass
25	8/22/98	GH	2'X2' Patch	S39-41-42, Intersection	8/23/98	8/23/98	Pass
26	8/22/98	GH	2'X2' Patch	S39-40-41, Intersection	8/23/98	8/23/98	Pass
27	8/22/98	GH	2'X2' Patch	S44-45, 10' N of berm, Burnout	8/23/98	8/23/98	Pass
28	8/22/98	GH	4'X4' Patch	S44-45, @ top of berm, Burnout	8/23/98	8/23/98	Pass
29	8/22/98	GH	4X2' Patch	S4-5, 15' S of AT, DS-5	8/23/98	8/23/98	Pass
30	8/22/98	GH	4X2' Patch	S25-26, 30'N of toe, DS-6.	8/23/98	8/23/98	Pass
31	8/22/98	GH	3X6' Patch	S39-40, Trench to Roadway, Fill-in triangle	8/23/98	8/23/98	Pass

Specified Requirements:

Vacuum Pressure: 10 In. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn Heath

Checked By: *[Signature]*



## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
32	8/22/98	GH	3X4' Patch	S36-44-45, Intersection	8/23/98	8/23/98	Pass
33	8/31/98	GH	2'X2' Patch	S31-52-53, Intersection	9/3/98	9/3/98	Pass
34	8/31/98	GH	3X4' Patch	S32-52-53, Intersection	9/3/98	9/3/98	Pass
35	8/31/98	GH	3X4' Patch	S33-34-51, Intersection	9/3/98	9/3/98	Pass
36	8/31/98	GH	4X5' Patch	S34-35-36-45-51, Intersection	9/3/98	9/3/98	Pass
37	8/31/98	GH	2'X2' Patch	S45-46-51, Intersection	9/3/98	9/3/98	Pass
38	8/31/98	GH	3X4' Patch	S46-47-51, Intersection	9/3/98	9/3/98	Pass
39	8/31/98	GH	2'X2' Patch	S47-48-51, Intersection	9/3/98	9/3/98	Pass
40	8/31/98	GH	3X4' Patch	S48-49-51, Intersection	9/3/98	9/3/98	Pass
41	8/31/98	GH	2'X2' Patch	S49-50-51, Intersection	9/3/98	9/3/98	Pass
42	8/31/98	GH	2'X2' Patch	S33-51-52, Intersection	9/3/98	9/3/98	Pass
43	8/31/98	GH	2'X2' Patch	S45-46, 33ft N of toe, Burnout	9/3/98	9/3/98	Pass
44	8/31/98	GH	Boot	S46-47, @ Gas Extraction Well	9/3/98	9/3/98	Pass
45	8/31/98	GH	2X3' Patch	S30-31-55, Intersection	9/3/98	9/3/98	Pass
46	8/31/98	GH	2'X2' Patch	S31-53-55, Intersection	9/3/98	9/3/98	Pass
47	8/31/98	GH	2'X2' Patch	S31-53-54, Intersection	9/3/98	9/3/98	Pass
48	9/2/98	GH	2X3' Patch	S29-30-55-64, Intersection	9/3/98	9/3/98	Pass
49	9/2/98	GH	2'X2' Patch	S28-29-64-65, Intersection	9/3/98	9/3/98	Pass
50	9/2/98	GH	3X4' Patch	S27-28-65-66, Intersection	9/3/98	9/3/98	Pass
51	9/2/98	GH	3X3' Patch	S55-56-64, Intersection	9/3/98	9/3/98	Pass
52	9/2/98	GH	2X3' Patch	S56-57-64, Intersection	9/3/98	9/3/98	Pass
53	9/2/98	GH	2X3' Patch	S57-58-64, Intersection	9/3/98	9/3/98	Pass
54	9/2/98	GH	2X3' Patch	S58-59-64, Intersection	9/3/98	9/3/98	Pass
55	9/2/98	GH	Boot	P56, @ Gas Extraction Well	9/3/98	9/3/98	Pass
56	9/2/98	GH	Boot	S59-60, @ Gas Extraction Well	9/3/98	9/3/98	Pass
57	9/2/98	GH	2'X2' Patch	S56-57, 187ft W of Toe, Burnout	9/3/98	9/3/98	Pass
58	9/2/98	GH	3X4' Patch	S60-61, @ Top of Berm, Burnout	9/3/98	9/3/98	Pass
59	9/2/98	GH	3X6' Patch	S29-30, 358' N of S Toe, DS-3A	9/3/98	9/3/98	Pass
60	9/2/98	GH	3X6' Patch	S29-30, 338' N of S Toe, DS-3B	9/3/98	9/3/98	Pass
61	9/2/98	GH	Seam Cap	S29-30, 338' to 358' N of S toe	9/3/98	9/3/98	Pass
62	9/2/98	GH	3X6' Patch	S33-34, 126' S of N End, DS-7	9/3/98	9/3/98	Pass

Specified Requirements:

Vacuum Pressure: 10 In. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn Heath

Checked By: *How*



## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
63	9/2/98	GH	3X6' Patch	S34-35, 50' N of S toe, DS-8	9/3/98	9/3/98	Pass
64	9/2/98	GH	3X6' Patch	S35-36, 60' S of N, DS-9	9/3/98	9/3/98	Pass
65	9/2/98	GH	3X6' Patch	S37-38, 10' S of N, DS-10	9/3/98	9/3/98	Pass
66	9/2/98	GH	3X6' Patch	S39-42, 6' S of N, DS-11	9/3/98	9/3/98	Pass
67	9/2/98	GH	3X6' Patch	S44-45, 175' N of S, DS-12	9/3/98	9/3/98	Pass
68	9/2/98	GH	3X6' Patch	S34-51, 10' S of N, DS-13	9/3/98	9/3/98	Pass
69	9/2/98	GH	3X6' Patch	S47-48, 25' W of E, DS-14	9/3/98	9/3/98	Pass
70	9/2/98	GH	3X6' Patch	S51-52, 75' W of E, DS-15	9/3/98	9/3/98	Pass
71	9/2/98	GH	2X6' Patch	S65-28, 8' W of E End, Burnouts	9/3/98	9/3/98	Pass
72	9/2/98	GH	2X4' Patch	S61-62, @ Top of Berm, Burnout	9/3/98	9/3/98	Pass
73	9/2/98	GH	3X6' Patch	S31-53, @ CL of P53, DS-16	9/3/98	9/3/98	Pass
74	9/2/98	GH	3X6' Patch	S53-54, 280' W of E Toe, DS-17	9/3/98	9/3/98	Pass
75	9/2/98	GH	3X6' Patch	S52-55, 25' W of E Toe, DS-18	9/3/98	9/3/98	Pass
76	9/2/98	GH	3X6' Patch	S55-56, 120 W of E Toe, DS-19	9/3/98	9/3/98	Pass
77	9/2/98	GH	3X6' Patch	S56-57, 80' W of E Toe, DS-20	9/3/98	9/3/98	Pass
78	9/2/98	GH	3X6' Patch	S57-58, 420' W of E Toe, DS-21	9/3/98	9/3/98	Pass
79	9/2/98	GH	3X6' Patch	S58-59, 25' E of E Toe, DS-22	9/3/98	9/3/98	Pass
80	9/2/98	GH	3X6' Patch	S61-62, 200' W of E Toe, DS-23	9/3/98	9/3/98	Pass
81	9/2/98	GH	3X6' Patch	S62-63, 140' W of E Toe, DS-24	9/3/98	9/3/98	Pass
82	9/2/98	GH	3X6' Patch	S64-65, 70' S of N end, DS-25	9/3/98	9/3/98	Pass
83	9/8/98	GH	3X6' Patch	S39-42, 3' S of N, DS-11A	9/3/98	9/3/98	Pass
84	9/8/98	GH	3X6' Patch	S39-41, 3' S of N, DS-11B	9/3/98	9/3/98	Pass
85	9/8/98	GH	Boot	P70, @ Gas Extraction Well,	9/8/98	9/8/98	Pass
86	9/8/98	GH	Boot	S63-67, @ Gas Extraction Well	9/8/98	9/8/98	Pass
87	9/8/98	GH	Boot	S75-76, @ Gas Extraction Well	9/8/98	9/8/98	Pass
88	9/8/98	GH	Boot	S72-73, @ Gas Extraction Well	9/8/98	9/8/98	Pass
89	9/8/98	GH	2X2' Patch	S72-73, 125' W of Toe, Burnout	9/8/98	9/8/98	Pass
90	9/8/98	GH	2'X3' Patch	S63-67, 60' W of E Toe, DS-26	9/8/98	9/8/98	Pass
91	9/8/98	GH	2'X3' Patch	S67-68, #00' W of E Toe, DS-27	9/8/98	9/8/98	Pass
92	9/8/98	GH	2'X3' Patch	S68-69, 200' W of E Toe, DS-28	9/8/98	9/8/98	Pass
93	9/8/98	GH	2'X3' Patch	S69-70, 110' W of E Toe, DS-29	9/8/98	9/8/98	Pass

Specified Requirements:

Vacuum Pressure: 10 In. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn Heath

Checked By: *How*





## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
94	9/8/98	GH	2'X3' Patch	S70-71, 40' W of E Toe, DS-30	9/8/98	9/8/98	Pass
95	9/8/98	GH	2'X3' Patch	S71-72, 175' W of E Toe, DS-31	9/8/98	9/8/98	Pass
96	9/8/98	GH	2'X3' Patch	S72-73, 306' W of E Toe, DS-32	9/8/98	9/8/98	Pass
97	9/8/98	GH	2'X3' Patch	S74-75, 40' W of E Toe, DS-33	9/8/98	9/8/98	Pass
98	9/8/98	GH	2'X3' Patch	S76-77, 125' W of E Toe, DS-34	9/8/98	9/8/98	Pass
99	9/8/98	GH	2'X3' Patch	S79-80, 75' W of E Toe, DS-35	9/8/98	9/8/98	Pass
100	9/10/98	GH	Seam Cap (Seam Failure)	S39-43, S39-42, S39-41, & S39-40	9/10/98	9/10/98	Pass
101	9/11/98	GH	2X3' Patch	S81-82-82A, Intersection	9/13/98	9/13/98	Pass
102	9/11/98	GH	3X3' Patch	S81-82-83, Intersection	9/13/98	9/13/98	Pass
103	9/11/98	GH	2X2' Patch	S80-81-83, Intersection	9/13/98	9/13/98	Pass
104	9/11/98	GH	2X2' Patch	S80-83-84, Intersection	9/13/98	9/13/98	Pass
105	9/11/98	GH	2X3' Patch	S79-80-84, Intersection	9/13/98	9/13/98	Pass
106	9/11/98	GH	2X2' Patch	S78-84-85, Intersection	9/13/98	9/13/98	Pass
107	9/11/98	GH	2X2' Patch	S78-79-85, Intersection	9/13/98	9/13/98	Pass
108	9/11/98	GH	2X2' Patch	S85-86-78, Intersection	9/13/98	9/13/98	Pass
109	9/11/98	GH	2X2' Patch	S77-78-86, Intersection	9/13/98	9/13/98	Pass
110	9/11/98	GH	2X2' Patch	S77-86-87, Intersection	9/13/98	9/13/98	Pass
111	9/11/98	GH	2X2' Patch	S76-77-87, Intersection	9/13/98	9/13/98	Pass
112	9/11/98	GH	2X3' Patch	S76-87-88, Intersection	9/13/98	9/13/98	Pass
113	9/11/98	GH	2X8' Patch	S75-76-88-89, Intersection	9/13/98	9/13/98	Pass
114	9/11/98	GH	2X8' Patch	S74-75-89-90, Intersection	9/13/98	9/13/98	Pass
115	9/12/98	GH	3X3' Patch	S90-97-73-74, Intersection	9/13/98	9/13/98	Pass
116	9/12/98	GH	2X3' Patch	S73-97-98, Intersection	9/13/98	9/13/98	Pass
117	9/12/98	GH	2X2' Patch	S72-73-98, Intersection	9/13/98	9/13/98	Pass
118	9/12/98	GH	2X2' Patch	S72-98-99, Intersection	9/13/98	9/13/98	Pass
119	9/12/98	GH	2X2' Patch	S71-72-99, Intersection	9/13/98	9/13/98	Pass
120	9/12/98	GH	2X2' Patch	S99-100-71, Intersection	9/13/98	9/13/98	Pass
121	9/12/98	GH	2X3' Patch	S70-71-100, Intersection	9/13/98	9/13/98	Pass
122	9/12/98	GH	2.5X2.5' Patch	S100-101-70, Intersection	9/13/98	9/13/98	Pass
123	9/12/98	GH	2X2' Patch	S69-70-101, Intersection	9/13/98	9/13/98	Pass
124	9/12/98	GH	2X2' Patch	S69-101-106, Intersection	9/13/98	9/13/98	Pass

Specified Requirements:

Vacuum Pressure: 10 in. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn Heath

Checked By: *[Signature]*



## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
125	9/12/98	GH	2X3' Patch	S101-102-103-104-106, Intersection	9/13/98	9/13/98	Pass
126	9/12/98	GH	Boot	P83, @ Condensate Sump	9/13/98	9/13/98	Pass
127	9/12/98	GH	Boot	24" Culvert At NE Corner	9/13/98	9/13/98	Pass
128	9/12/98	GH	Boot	NE Inlet	9/16/98	9/16/98	Pass
129	9/12/98	GH	2.5X2.5' Patch	S60-61-106, Intersection	9/13/98	9/13/98	Pass
130	9/12/98	GH	2X3' Patch	S61-62-106, Intersection	9/13/98	9/13/98	Pass
131	9/12/98	GH	2X2' Patch	S62-63-106, Intersection	9/13/98	9/13/98	Pass
132	9/12/98	GH	3X3' Patch	S63-67-106, Intersection	9/13/98	9/13/98	Pass
133	9/12/98	GH	2.5X2.5' Patch	S67-68-106, Intersection	9/13/98	9/13/98	Pass
134	9/12/98	GH	2X3' Patch	S68-69-106, Intersection	9/13/98	9/13/98	Pass
135	9/12/98	GH	2X2' Patch	S65-64-106-107, Intersection	9/13/98	9/13/98	Pass
136	9/12/98	GH	2X2' Patch	S65-66-107-108, Intersection	9/13/98	9/13/98	Pass
137	9/12/98	GH	2.5X2.5' Patch	S59-60-64-106, Intersection	9/13/98	9/13/98	Pass
138	9/12/98	GH	2.5X2.5' Patch	S104-106-107, Intersection	9/13/98	9/13/98	Pass
139	9/12/98	GH	3X3' Patch	S104-105-107, Intersection	9/13/98	9/13/98	Pass
140	9/12/98	GH	2X3' Patch	S105-108-118, Intersection	9/13/98	9/13/98	Pass
141	9/12/98	GH	2X2' Patch	S105-107, Intersection	9/13/98	9/13/98	Pass
142	9/12/98	GH	2X2' Patch	S84-85-91, Intersection	9/13/98	9/13/98	Pass
143	9/12/98	GH	2X2' Patch	S85-86-91-92, Intersection	9/13/98	9/13/98	Pass
144	9/12/98	GH	2X2' Patch	S86-87-92-93, Intersection	9/13/98	9/13/98	Pass
145	9/12/98	GH	2X2' Patch	S87-88-93-94, Intersection	9/13/98	9/13/98	Pass
146	9/12/98	GH	2X2' Patch	S88-89-94-95, Intersection	9/13/98	9/13/98	Pass
147	9/12/98	GH	3X 4' Patch	S89-90-95-96, Intersection	9/13/98	9/13/98	Pass
148	9/12/98	GH	2.5X2.5' Patch	S90-97-96-109, Intersection	9/13/98	9/13/98	Pass
149	9/12/98	GH	2.5X2.5' Patch	S97-98-109-110, Intersection	9/13/98	9/13/98	Pass
150	9/12/98	GH	2X4' Patch	S98-99-110-111, Intersection	9/13/98	9/13/98	Pass
151	9/12/98	GH	2X3' Patch	S99-100-111-112, Intersection	9/13/98	9/13/98	Pass
152	9/12/98	GH	2X2' Patch	S100-101-112-113, Intersection	9/13/98	9/13/98	Pass
153	9/12/98	GH	2X2' Patch	S101-102-113-114, Intersection	9/13/98	9/13/98	Pass
154	9/12/98	GH	2X2' Patch	S102-103-114-115, Intersection	9/13/98	9/13/98	Pass
155	9/12/98	GH	3X3' Patch	S103-104-115-116, Intersection	9/13/98	9/13/98	Pass

Specified Requirements:

Vacuum Pressure: 10 In. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn Heath

Checked By: *[Signature]*



## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
156	9/14/98	GH	3X6' Patch	S86-87, 35' S of N Toe, DS-36	9/15/98	9/16/98	Pass
157	9/14/98	GH	3X6' Patch	S89-90, 110' S of N Toe, DS-37	9/15/98	9/16/98	Pass
158	9/14/98	GH	3X6' Patch	S97-98, 202' S of N Toe, DS-38	9/15/98	9/16/98	Pass
159	9/14/98	GH	3X6' Patch	S99-100, 115' S of N Toe, DS-39	9/15/98	9/16/98	Pass
160	9/14/98	GH	3X6' Patch	S101-102, 205' S of N Toe, DS-40	9/15/98	9/16/98	Pass
161	9/14/98	GH	3X6' Patch	S103-115, @ CL of P103, DS-41	9/15/98	9/16/98	Pass
162	9/14/98	GH	3X6' Patch	S105-118, 220 S of N Toe, DS-42	9/15/98	9/16/98	Pass
163	9/14/98	GH	3X6' Patch	S119-120, 25' S of N Toe, DS-43	9/15/98	9/16/98	Pass
164	9/14/98	GH	3X6' Patch	S121-122, 150' S of N Toe, DS-44	9/15/98	9/16/98	Pass
165	9/14/98	GH	3X6' Patch	S71-99, @ CL of P99, DS-45	9/15/98	9/16/98	Pass
166	9/14/98	GH	3X6' Patch	S106-107, 55' S of N End, DS-46	9/15/98	9/16/98	Pass
167	9/14/98	GH	3X6' Patch	S112-113, 70' S of N Toe, DS-47	9/15/98	9/16/98	Pass
168	9/14/98	GH	3X6' Patch	S117-124, 35' S of N Toe, DS-48	9/15/98	9/16/98	Pass
169	9/12/98	GH	2X3' Patch	S104-105-116-117, Intersection	9/13/98	9/13/98	Pass
170	9/15/98	GH	2X2' Patch	S105-118-117-124, Intersection	9/15/98	9/16/98	Pass
171	9/15/98	GH	2X3' Patch	S118-119-124-125-126, Intersection	9/15/98	9/16/98	Pass
172	9/15/98	GH	2X2' Patch	S119-120-126, Intersection	9/16/98	9/16/98	Pass
173	9/15/98	GH	2X3' Patch	S120-126-127, Intersection	9/16/98	9/16/98	Pass
174	9/15/98	GH	2X2' Patch	S120-121-127, Intersection	9/16/98	9/16/98	Pass
175	9/15/98	GH	2X2' Patch	S127-128-121, Intersection	9/16/98	9/16/98	Pass
176	9/15/98	GH	2X2' Patch	S121-122-128, Intersection	9/16/98	9/16/98	Pass
177	9/15/98	GH	2X3' Patch	S122-128-129, Intersection	9/16/98	9/18/98	Pass
178	9/15/98	GH	2.5X2.5' Patch	S122-123-129, Intersection	9/16/98	9/18/98	Pass
179	9/15/98	GH	2X3' Patch	S123-129-130, Intersection	9/18/98	9/18/98	Pass
180	9/15/98	GH	2X2' Patch	S108-118-131, Intersection	9/18/98	9/18/98	Pass
181	9/15/98	GH	2X3' Patch	S118-119-131, Intersection	9/18/98	9/18/98	Pass
182	9/17/98	GH	2.5X2.5' Patch	S119-131-133, Intersection	9/18/98	9/18/98	Pass
183	9/17/98	GH	3X6' Patch	S119-120-121-122-123-133-135, Intersection	9/18/98	9/18/98	Pass
184	9/17/98	GH	2X3' Patch	S133-134-135, Intersection	9/18/98	9/18/98	Pass
185	9/17/98	GH	2X2' Patch	S134-135-136, Intersection	9/18/98	9/18/98	Pass
186	9/17/98	GH	2X2' Patch	S123-130-135, Intersection	9/18/98	9/18/98	36056

Specified Requirements:

Vacuum Pressure: 10 In. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn Heath

Checked By: *[Signature]*



## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
187	9/17/98	GH	3X6' Patch	S105-118, 230' S of N Toe, DS-42A	9/17/98	9/18/98	Pass
188	9/17/98	GH	3X6' Patch	S105-118, 210' S of N Toe, DS-42B	9/17/98	9/18/98	Pass
189	9/17/98	GH	2X2' Patch	S130-135-143-144-145, Intersection	9/18/98	9/18/98	Pass
190	9/17/98	GH	2X2' Patch	S135-136-145, Intersection	9/18/98	9/18/98	Pass
191	9/17/98	GH	2X2' Patch	S136-137-146, Intersection	9/18/98	9/20/98	Pass
192	9/17/98	GH	2X2' Patch	S137-146-147, Intersection	9/18/98	9/20/98	Pass
193	9/17/98	GH	2X2' Patch	S137-138-147, Intersection	9/18/98	9/20/98	Pass
194	9/17/98	GH	2.5X2.5' Patch	S138-147-148, Intersection	9/20/98	9/20/98	Pass
195	9/17/98	GH	2X3' Patch	S138-139-148, Intersection	9/20/98	9/20/98	Pass
196	9/19/98	GH	2X2' Patch	S139-148-149, Intersection	9/20/98	9/20/98	Pass
197	9/19/98	GH	2X2' Patch	S139-140-149, Intersection	9/20/98	9/20/98	Pass
198	9/19/98	GH	2X3' Patch	S140-149-150, Intersection	9/20/98	9/20/98	Pass
199	9/19/98	GH	2.5X2.5' Patch	S140-141-150, Intersection	9/20/98	9/20/98	Pass
200	9/19/98	GH	Seam Cap	S105-118, 210' to 230' S of N Toe	9/20/98	9/20/98	Pass
201	9/19/98	GH	2X2' Patch	S141-142-150-151, Intersection	9/20/98	9/20/98	Pass
202	9/19/98	GH	2X2' Patch	S142-151-152, Intersection	9/20/98	9/20/98	Pass
203	9/19/98	GH	2X2' Patch	S152-153-154, Intersection	9/20/98	9/20/98	Pass
204	9/19/98	GH	2X2' Patch	S152-154-155, Intersection	9/20/98	9/20/98	Pass
205	9/19/98	GH	2.5X2.5' Patch	S152-155-156, Intersection	9/20/98	9/20/98	Pass
206	9/19/98	GH	2.5X2.5' Patch	P70, 60' E of W end, Gas Vent	9/20/98	9/20/98	Pass
207	9/19/98	GH	Boot	S115-116, @ Gas Extraction Well	9/20/98	9/20/98	Pass
208	9/19/98	GH	Boot	P130, @ Gas Extraction Well	9/20/98	9/20/98	Pass
209	9/19/98	GH	Boot	S148-149, @ Gas Extraction Well	9/20/98	9/20/98	Pass
210	9/19/98	GH	Boot	S146-147, @ Gas Extraction Well	9/20/98	9/20/98	Pass
211	9/19/98	GH	Boot	S89-90, @ Gas Extraction Well	9/20/98	9/20/98	Pass
212	9/19/98	GH	Boot	P99, @ Gas Extraction Well	9/20/98	9/20/98	Pass
213	9/19/98	GH	Boot	P105, @ Gas Extraction Well	9/20/98	9/20/98	Pass
214	9/19/98	GH	2X2' Patch	S108-131-132, Intersection	9/20/98	9/20/98	Pass
215	9/19/98	GH	2.5X2.5' Patch	S131-132-133, Intersection	9/20/98	9/20/98	Pass
216	9/20/98	GH	2X3' Patch	S136-137-134-158, Intersection	9/20/98	9/20/98	Pass
217	9/20/98	GH	2X2' Patch	Puncture, 3' S of Gas Well, in P59	9/20/98	9/20/98	Pass

Specified Requirements:

Vacuum Pressure: 10 In. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn Heath

Checked By: *[Signature]*





## TABLE C-2h GEOMEMBRANE REPAIR LOG

Project: Hidden Valley LandfillFacility: East Partial ClosureProject No. 40202-005.061

Repair No.	Date	Mon.	Description	Location	Repair Date	Test Date	Pass / Fail
218	9/20/98	GH	3X6' Patch	S146-137, 6' E of W Edge, DS-49	9/20/98	9/20/98	Pass
219	9/20/98	GH	3X6' Patch	S129-130, 70' S of N Toe, DS-50	9/20/98	9/20/98	Pass
220	9/20/98	GH	3X6' Patch	S144-145, 145' S of N Toe, DS-51	9/20/98	9/20/98	Pass
221	9/20/98	GH	3X6' Patch	S147-148, 105' S of N Toe, DS-52	9/20/98	9/20/98	Pass
222	9/20/98	GH	3X6' Patch	S150-151, 120' S of N Toe, DS-53	9/20/98	9/20/98	Pass
223	9/20/98	GH	3X6' Patch	S152-154, 15' S of P152-153-154 Int, DS-54	9/20/98	9/20/98	Pass
224	9/20/98	GH	3X6' Patch	S133-134, 8' S of N End of Seam, DS-55	9/20/98	9/20/98	Pass
225	9/20/98	GH	3X6' Patch	S135-136, 50' S of N Toe, DS-56	9/20/98	9/20/98	Pass
226	9/20/98	GH	3X6' Patch	S137-138, 167' S of N Toe, DS-57	9/20/98	9/20/98	Pass
227	9/20/98	GH	3X6' Patch	S139-140, 105' S of N Toe, DS-58	9/20/98	9/20/98	Pass
228	9/20/98	GH	3X6' Patch	S141-142, 75' S of N Toe, DS-59	9/20/98	9/20/98	Pass
229	9/26/98	GH	Boot Replacement	Gas Well, P55 @ Top of Closure	9/26/98	9/26/98	Pass
230	9/26/98	GH	Boot Replacement	Gas Well, S31-32	9/26/98	9/26/98	Pass
231	9/26/98	GH	1X2 Patch	Abrasion, P29 @ Approx CL, 100' N of Berm	9/26/98	9/26/98	Pass
232	9/26/98	GH	1X1' Patch	Abrasion, P29, 4' E of CL, 100' N of Berm	9/26/98	9/26/98	Pass
233	9/26/98	GH	2X2 Patch	Puncture, P31, 6' W of CL, 100 N of Berm	9/26/98	9/26/98	Pass
234	9/26/98	GH	Boot Replacement	Gas Well @ CL P56	9/26/98	9/26/98	Pass
235	9/26/98	GH	Boot Replacement	Gas Well @ S35-36	9/26/98	9/26/98	Pass
236	9/26/98	GH	2X2' Patch	P41 @ Approx. CL, Small Puncture	9/26/98	9/26/98	Pass
237	9/30/98	GH	87ft of Ext Weld	P59 thru 63, 12ft W of Berm, Wrinkle	10/13/98	10/3/98	Pass
238	10/1/98	GH	2X2 Patch	P33, 100ft S of Berm	10/12/98	10/3/98	Pass
239	10/1/98	GH	3X3 Patch	P72, Gas Vent hole, 3ft E of Berm	10/13/98	10/3/98	Pass
240	10/1/98	GH	2X2 Patch	Puncture, P115 11 ft N of Access Road	10/13/98	10/3/98	Pass
241	10/12/98	GH	2X2 Patch	Puncture, P87 10 ft S of Access Road	10/13/98	10/13/98	Pass
242	10/12/98	GH	2X2 Patch	Puncture, P99, 165 ft S of Access Road	10/13/98	10/13/98	Pass
243	10/13/98	GH	2X2 Patch	P97, Gas Vent Hole, Top of Closure	10/13/98	10/13/98	Pass
244	10/13/98	GH	3X3 Patch	Puncture, P71, 35 ft E of Top of Closure	10/13/98	10/13/98	Pass
245	10/14/98	GH	3X3 Patch	P104, Gas Vent, Top of Closure	10/14/98	10/14/98	Pass
246	10/15/98	GH	3X3 Patch	P45, Gas Vent, 10 ft E of Berm	10/15/98	10/15/98	Pass
247	10/15/98	GH	3X3 Patch	P31, Gas Vent, 8 ft S of Berm	10/15/98	10/15/98	Pass
248	10/15/98	GH	Cap Strip	P137-138-139, 25 ft S of Maintenance Road	10/15/98	10/15/98	Pass

Specified Requirements:

Vacuum Pressure: 10 In. Hg.

Min. Dwell Time: 10 seconds

Logged By: Glenn HeathChecked By: KW

**C-2i**  
**MQA/MQC**

# SERROT CERTIFICATE OF QUALITY ASSURANCE

PROJECT NAME: Hidden Valley Landfill  
MATERIAL TYPE: 60 mil HDT

LOCATION: Puyallup, WA

SALES ORDER #:8228

TEST DESCRIPTION	AVERAGE THICKNESS	MINIMUM THICKNESS	TENSILE @ YIELD	ELONG. @ YIELD	ELONG. @ BREAK	TEAR	PUNCTURE	CARBON BLACK	CARBON BLACK DISPERSION	DENSITY	MELT FLOW	DIMENSIONAL STABILITY	NOTCHED CONSTANT LOAD	MODULUS OF ELASTICITY	LOW TEMP. BRITTLENESS	Batch	MULTI-AXIAL ELONGATION	RESISTANCE TO SOIL BURIAL
TEST METHOD (modifications)	D5994	D5994	D638	D638	D638	D1004	FTMS101	D1603	D3015	D792	D1238	D1204	D5397	D638	D746	D3895	D5617	D3083
FREQUENCY	Every Roll	Every Roll	50,000 SqFt	50,000 SqFt	50,000 SqFt	50,000 SqFt	50,000 SqFt	50,000 SqFt	50,000 SqFt	100,000 SqFt	Batch	100,000 SqFt	Batch	Certified	Certified	minutes	Batch	Certified
SPECIFICATION	UNITS	mils	ppl	%	%	lb	lb	%	A1,A2,B1	g/cc	g/10 min	%	hr	psi	-100° F		%	%
ROLL #	LOT/BLEND	60	112	13	100	45	80	2.0-3.0	A1,A2,B1	0.94-0.95	<1.0	± 2	>200	>80000	>100° F	>100	>15	>10
3804350	H051258	60	165	19	362	55	110	2.50	A1	0.944	0.145	-0.12	>200	>80000	Pass	>100	>15	<± 10
3804351	H051258	63	188	19	359	64	132	2.60	A1	0.944	0.149	-0.12	>200	>80000	Pass	>100	>15	<± 10
3804352	H051258	60	59	161	439	64	132	2.60	A1	0.944	0.149	-0.12	>200	>80000	Pass	>100	>15	<± 10
3804353	H051258	61	59	169	407	57	113	2.60	A1	0.944	0.149	-0.12	>200	>80000	Pass	>100	>15	<± 10
3804354	H051258	61	59	162	438	57	113	2.60	A1	0.944	0.149	-0.12	>200	>80000	Pass	>100	>15	<± 10
3804355	H051258	61	59	170	405	56	113	2.53	A1	0.947	0.149	-0.10	>200	>80000	Pass	>100	>15	<± 10
3804356	H051258	61	165	17	492	56	113	2.53	A1	0.947	0.149	-0.10	>200	>80000	Pass	>100	>15	<± 10
3804357	H051258	60	161	17	506	54	113	2.42	A1	0.947	0.149	-0.10	>200	>80000	Pass	>100	>15	<± 10

Certified By: *Seri Pano*  
Quality Control Laboratory Supervisor 9/16/98

**QC Rolls Released Job Number: 8228**

9/16/98 1:52:35 PM

**Order ID: 8228H****Job Title:** Hidden Valley Landfill**Sold To:** Land Recovery, Inc.**Job Location:** Puyallup, WA USA**Material Code:** HDT060**Comments:** Additional material**Material Description:** HDPE Texture, 60 mil**Purchase Order Description:** HDPE Texture, 60 mil**Roll Dimension:** 525 X 22.5**Order Qty:** 94,500.0 SF **# of Rolls:** 8.0**MC Release Qty:****Total Released:** 94,500.0 **# of Rolls:** 8.0**This is not a release for shipping**

Roll Number	Description	Roll Dimension	SqFt	Ship Wt. (lbs)	Resin Batch ID	Order ID
3804350	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,209	H051258	8228H
3804351	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,271	H051258	8228H
3804352	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,318	H051258	8228H
3804353	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,249	H051258	8228H
3804354	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,275	H051258	8228H
3804355	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,295	H051258	8228H
3804356	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,288	H051258	8228H
3804357	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,299	H051258	8228H
<b>Number of Rolls: 8</b>			<b>94,500.0</b>	<b>34,204</b>		

This report includes all rolls released, including rolls that have been shipped.

REF-Q-50

Serrot Corporation

Page 1 of 1

Rev. 0, 04/97

Received Time Mar. 4. 12:01PM





**Chevron**

U.S. Chemicals

June 10, 1998

Doug Wells  
Serrot Corp  
125 Cassia Way  
Henderson, NV 89014

**CERTIFICATE OF ANALYSIS**

Product: 9642  
Chevron Order #: 175285 - 8000  
Package: CHVX898032  
Customer Order #: 30256

Lot Number: H051258  
Destination: Henderson  
Weight (lbs): 171,550  
Ship Date: 6/9/98

Following is the data on the subject material as determined by the Quality Control Department:

<u>Property</u>	<u>Value</u>	<u>Units</u>
Melt Index	0.14	gms/10 min
HLMI	11.3	gms/10 min
Density	0.9373	gms/cc
OIT	142.0	

The data set forth herein has been carefully compiled by Chevron Chemical Company. However, there is no warranty of any kind, either expressed or implied, applicable to its use and the user assumes all risk and liability in connection therewith.

Sincerely,

G. E. Bertin  
Supervisor  
Quality Control

Customer Fax: 702-566-4745

For inquiry, contact Customer Service at the following number:

Film, Coating, Pipe Applications: 1-800-231-3826  
Molding Applications: 1-800-231-3828

Received Time Mar. 4. 12:01PM

**QC Rolls Released Job Number: 8228****Job Title: Hidden Valley Landfill****Sold To: Land Recovery, Inc.****7/30/98 10:09:01 AM****Order ID: 8228A****Job Location: Puyallup, WA USA****Material Code: HDT060****Material Description: HDPE Texture, 60 mil****Comments: Conf. at plant****Purchase Order Description: HDPE Texture, 60 mil****Roll Dimension: 525 X 22.5****Order Qty: 602,464.0 SF # of Rolls: 51.0****MC Release Qty:****This is not a release for shipping****Total Released: 356,062.5 # of Rolls: 30.0**

Roll Number	Description	Roll Dimension	SqFt	Ship Wt. (lbs)	Resin Batch ID	Order ID
3803436	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	3,736	7180254	8228A
3803437	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	3,786	7180254	8228A
3803438	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	3,791	7180254	8228A
3803439	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	3,786	7180254	8228A
3803440	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	3,953	7180254	8228A
3803443	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,192	7180254	8228A
3803444	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	3,988	7180254	8228A
3803445	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,170	7180254	8228A
3803446	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,214	7180254	8228A
3803447	HDPE TEXTURED 60 MIL	600 X 22.5	13,500.0	4,836	7180254	8228A
3803448	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,261	7180254	8228A
3803449	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,186	7180254	8228A
3803450	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,199	7180254	8228A
3803451	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,230	7180254	8228A
3803452	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,240	7180254	8228A
3803453	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,228	7180254	8228A
3803454	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,257	7180254	8228A
3803455	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,261	7180254	8228A
3803456	HDPE TEXTURED 60 MIL	540 X 22.5	12,150.0	4,325	7180254	8228A
3803560	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,076	H051225	8228A
3803561	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,081	H051225	8228A
3803562	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,096	H051225	8228A
3803563	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,136	H051225	8228A
3803565	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,171	H051225	8228A
3803566	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,176	H051225	8228A
3803567	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,171	H051225	8228A
3803568	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,166	H051225	8228A
3803570	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,182	H051225	8228A
3803571	HDPE TEXTURED 60 MIL	525 X 22.5	11,812.5	4,230	H051225	8228A
3803572	HDPE TEXTURED 60 MIL	510 X 22.5	11,475.0	4,111	H051225	8228A

**This report includes all rolls released, including rolls that have been shipped.****Page 1 of 2**

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**QC Rolls Released**    **Job Number: 8228****Job Title: Hidden Valley Landfill****7/30/98 10:09:09 AM****Order ID: 8228A****Sold To: Land Recovery, Inc.****Job Location: Puyallup, WA USA**

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**Number of Rolls: 30** ✓**366,062.5****124,243**

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**This report includes all rolls released, including rolls that have been shipped.****Page 2 of 2**

**SERROT CERTIFICATE OF QUALITY ASSURANCE**

**PROJECT NAME:** Hidden Valley Landfill  
**MATERIAL TYPE:** 60 mil HDT

**LOCATION:** Puyallup, WA

**SALES ORDER #8228**

TEST DESCRIPTION		AVERAGE THICKNESS	MINIMUM THICKNESS	TENSILE	ELONG. YIELD	ELONG. BREAK	TEAR	PUNCTURE	CARBON BLACK	CARBON BLACK DISPERSION	DENSITY	MELT FLOW	DIMENSIONAL STABILITY	NOTCHED CONSTANT LOAD	MODULUS OF ELASTICITY	LOW TEMP. BRITTLENESS	BATCH	BATCH	MULTI-AXIAL ELONGATION	RESISTANCE TO SOIL BURIAL
TEST METHOD	(modifications)	D5884	D5884	D638	D638	D638	D1004	FTMS101	D1603	D3015	D782	D1238	D1204	D5397	D638	D746	D3885	D5617	D3083	
FREQUENCY		Every Roll	Every Roll	50,000 SgFt	50,000 SgFt	50,000 SgFt	50,000 SgFt	2085	50,000 SgFt	50,000 SgFt	100,000 SgFt	g/10 min	%	h	psi	minutes	%	%	%	
UNITS		inches	inches	pph	%	%	lb	lb	%	SqFt	SqFt	SqFt	%	%	%	%	%	%	%	
SPECIFICATION		60	54	112	13	100	45	80	2.0-3.0	A1/A2,B1	0.94-0.95	<1.0	±2	>200	>80000	-100°F	>100	>15	>10	
LOT/BLEND																				
3803436	7180254	60	59	142	18	406	49	104	2.74	A1	0.944	0.123	-0.23	>200	>80000	Pass	>100	>15	<±10	
3803437	7180254	60	59	139	17	387	46	98	2.41	A1	0.944	0.123	-0.23	>200	>80000	Pass	>100	>15	<±10	
3803438	7180254	60	58	142	18	374	46	98	2.41	A1	0.944	0.123	-0.23	>200	>80000	Pass	>100	>15	<±10	
3803439	7180254	60	58	155	18	313	52	108	2.75	A1	0.944	0.123	-0.23	>200	>80000	Pass	>100	>15	<±10	
3803440	7180254	60	58	162	17	254	52	108	2.75	A1	0.944	0.123	-0.23	>200	>80000	Pass	>100	>15	<±10	
3803441	7180254	60	58	162	16	276	54	107	2.70	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803442	7180254	60	58	162	16	277	54	107	2.70	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803443	7180254	60	58	163	17	410	54	108	2.70	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803444	7180254	61	59	159	17	414	54	106	2.70	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803445	7180254	61	58	172	16	373	57	119	2.31	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803446	7180254	61	58	163	17	328	57	119	2.31	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803447	7180254	60	58	172	18	244	56	119	2.31	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803448	7180254	60	58	166	17	268	56	119	2.31	A2	0.947	0.123	-0.12	>200	>80000	Pass	>100	>15	<±10	
3803449	7180254	60	58	159	17	383	56	115	2.39	A1	0.945	0.123	-0.08	>200	>80000	Pass	>100	>15	<±10	
3803450	7180254	60	58	169	18	348	56	115	2.39	A1	0.945	0.123	-0.08	>200	>80000	Pass	>100	>15	<±10	
3803451	7180254	61	58	168	16	312	56	112	2.39	A1	0.945	0.123	-0.08	>200	>80000	Pass	>100	>15	<±10	
3803452	7180254	61	59	157	16	295	56	112	2.39	A1	0.945	0.123	-0.08	>200	>80000	Pass	>100	>15	<±10	
3803453	7180254	61	56	163	17	291	56	115	2.59	A1	0.945	0.123	-0.06	>200	>80000	Pass	>100	>15	<±10	
3803454	7180254	61	59	167	17	244	56	115	2.59	A1	0.945	0.123	-0.06	>200	>80000	Pass	>100	>15	<±10	
3803455	7180254	61	59	167	17	244	56	115	2.59	A1	0.945	0.123	-0.06	>200	>80000	Pass	>100	>15	<±10	
3803456	7180254	61	59	167	17	244	56	115	2.59	A1	0.945	0.123	-0.06	>200	>80000	Pass	>100	>15	<±10	

LOCATION: Puyallup, WA

TEST METHOD: 60 mil HDT

Certified By: *Pier*  
 Quality Control Laboratory Supervisor 7/30/98

Certified By: *Geri Stone*  
Quality Control Laboratory Supervisor 7/30/98



# SERROT CERTIFICATE OF QUALITY ASSURANCE

SERROT CERTIFICATE OF QUALITY ASSURANCE																																					
TEST DESCRIPTION		AVERAGE THICKNESS		MINIMUM THICKNESS		TENSILE @		ELONG. @		ELONG. @		TEAR		PUNCTURE		CARBON BLACK		DISPERSION		DENSITY		MELT FLOW		DIMENSIONAL STABILITY		NOTCHED CONSTANT LOAD		MODULUS OF ELASTICITY		LOW TEMP. BRITTLENESS		Batch		MULTI-AXIAL ELONGATION		RESISTANCE TO SOIL BURIAL	
TEST METHOD (modifications)		D5894		D5894		D638		D638		D638		D638		D1004		D1603		D3015		D792		D1238		D1204		App. A		D638		D746		D3885		D5817		D3083	
FREQUENCY		Every Roll		Every Roll		50,000 SqFt		50,000 SqFt		50,000 SqFt		50,000 SqFt		50,000 SqFt		50,000 SqFt		50,000 SqFt		100,000 SqFt		Batch		100,000 SqFt		hr		psi		Certified		Batch		Certified			
UNITS		mils		mils		%		%		%		lb		lb		%		g/cc		g/10 min		%		%		>200		>80000		-100° F		minutes		%			
SPECIFICATION		60		54		112		13		100		45		80		2.0-3.0		A1,A2,B1		0.94-0.95		<1.0		±2		>200		>80000		100° F		>100		>15			
LOT/BLEND		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225		H051225			
3803560		60	57	180	18	387	54	114	2.69	A1	0.943	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803561		60	58	155	17	368	54	108	2.69	A1	0.943	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803562		80	58	160	17	433	54	108	2.69	A1	0.943	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803563		61	58	160	18	471	54	115	2.49	A1	0.941	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803564		60	56	180	17	381	54	112	2.49	A1	0.941	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803565		61	57	158	17	399	54	112	2.49	A1	0.941	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803566		80	58	160	17	321	54	117	2.78	A1	0.941	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803567		61	58	160	18	399	54	117	2.78	A1	0.941	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803568		61	58	160	16	314	55	119	2.78	A1	0.941	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803570		62	60	169	17	400	56	113	2.60	A1	0.943	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803571		60	58	178	18	324	56	113	2.60	A1	0.943	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			
3803572		80	58	178	18	324	56	113	2.60	A1	0.943	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139			

Certified By: *[Signature]*  
 Quality Control Laboratory Supervisor 7/30/98



**Chevron**

**U.S. Chemicals**

June 8, 1998

Doug Wells  
Serrot Corp  
125 Cassia Way  
Henderson, NV 89014

**CERTIFICATE OF ANALYSIS**

Product:	9642	Lot Number:	H051225
Chevron Order #:	175285 - 2000	Destination:	Henderson
Package:	SCJX891954	Weight (lbs):	174,550
Customer Order #:	30256	Ship Date:	6/5/98

Following is the data on the subject material as determined by the Quality Control Department:

<u>Property</u>	<u>Value</u>	<u>Units</u>
Melt Index	0.13	gms/10 min
HLM1	12.3	gms/10 min
Density	0.9383	gms/cc
OTT	131.0	

The data set forth herein has been carefully compiled by Chevron Chemical Company. However, there is no warranty of any kind, either expressed or implied, applicable to its use and the user assumes all risk and liability in connection therewith.

Sincerely,

  
G. G. Berlin  
Supervisor  
Quality Control

Customer Fax: 702-566-4745

For inquiry, contact Customer Service at the following number:

Film, Coating, Pipe Applications: 1-800-231-3826

Molding Applications: 1-800-231-3828

**PHILLIPS CHEMICAL COMPANY**

A DIVISION OF PHILLIPS PETROLEUM COMPANY

BOX 782 • PHONE: 713 475-3666  
PASADENA, TEXAS 77501-0782PHILLIPS PLASTICS RESINS  
Houston Chemical Complex

April 09, 1998

JHV# 7703-98

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:	HHM TR-400G
Lot Number:	7180254
P.O. Number:	30253
Date Shipped:	04/08/98
Package:	PSPX 2368
Quantity:	186100 LBS.
HLMI Flow Rate, ASTM D1238:	12.3 G/10 MIN
Density, ASTM D1505:	.938 G/CC
Melt Index, ASTM D1238:	.090 G/10 MIN
Production Date:	02/19/98

J. H. Vaden  
Quality Assurance Manager

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

\* Reg. U.S. Pat. Off.

cc: QA-File-RC

**C-3**  
**GEOCOMPOSITE**



**C-3a**  
**MQA/MQC**

# MANUFACTURING QUALITY ASSURANCE REPORT

PROJECT: HIDDEN VALLEY  
 MATERIAL: GEOCOMPOSITE  
 Type of MQA: LEVEL II  
 Sampling Frequency: Every 100,000 sf / every LOT for Conf.  
 # of Rolls: 87 ROLLS

MANUFACTURED BY: EVERGREEN TECHNOLOGY				Sampled By: PGL representative					
Geocomposite Lot Number	Geocomposite Roll Number	Number	Geonet Lot Number	Geonet Roll Number	Geotextile (TOP) Lot Number	Geotextile (TOP) Roll Number	Geotextile(Bottom) Lot Number	Geotextile (Bottom) Roll Number	Sampled sent to Emcon
84048	8404661	27	83055	8302487	80058	8014550	80058	8014548	
84048	8404662	28	83055	8302487	80058	8014550	80058	8014548	
84048	8404663	29	83055	8302487	80058	8014550	80058	8014548	
84048	8404664	30	83055	8302487	80058	8014550	80058	8014548	XXXXXXXX
84048	8404665	31	83055	8302487	80058	8014550	80058	8014548	
84048	8404667	32	83055	8302485	80058	8014560	80058	8014547	
84048	8404668	33	83055	8302485	80058	8014560	80058	8014547	
84048	8404669	34	83055	8302485	80058	8014560	80058	8014547	
84048	8404670	35	83055	8302485	80058	8014560	80058	8014547	
84048	8404671	36	83055	8302486	80058	8014560	80058	8014547	
84048	8404672	37	83055	8302486	80058	8014560	80058	8014547	
84048	8404673	38	83055	8302486	80058	8014549	80058	8014558	
84048	8404674	39	83055	8302486	80058	8014549	80058	8014558	
84048	8404675	40	83055	8302486	80058	8014546	80058	8014558	
84048	8404676	41	83055	8302486	80058	8014546	80058	8014551	
84048	8404677	42	83055	8302493	80058	8014546	80058	8014551	
84048	8404678	43	83055	8302493	80058	8014546	80058	8014551	
84048	8404679	44	83055	8302493	80058	8014546	80058	8014551	
84048	8404680	45	83055	8302493	80058	8014546	80058	8014551	
84048	8404681	46	83055	8302493	80058	8014546	80058	8014551	
84048	8404682	47	83055	8302491	80058	8014546	80058	8014551	
84048	8404683	48	83055	8302491	80058	8014561	80058	8014571	
84048	8404684	49	83055	8302491	80058	8014561	80058	8014571	
84048	8404685	50	83055	8302491	80058	8014561	80058	8014571	
84048	8404686	51	83055	8302491	80058	8014561	80058	8014571	
84048	8404687	52	83055	8302488	80058	8014561	80058	8014571	
84048	8404688	53	83055	8302488	80058	8014561	80058	8014571	
84048	8404689	54	83055	8302488	80058	8014561	80058	8014571	
84048	8404690	55	83055	8302488	80058	8014545	80058	8014540	

MOA REPRESENTATIVE

## MANUFACTURING QUALITY ASSURANCE REPORT


PROJECT: HIDDEN VALLEY  
MATERIAL: GEOCOMPOSITE

Type of MQA: LEVEL II

Sampling Frequency: Every 100,000 sq / every LOT for Conf.

# of Rolls: 97 ROLLS

MANUFACTURED BY: EVERGREEN TECHNOLOGY				Sampled By: PGL Representative					
Geocomposite Lot Number	Geocomposite Roll Number	Number	Geonet Lot Number	Geonet Roll Number	Geotextile (TOP) Lot Number	Geotextile (TOP) Roll Number	Geotextile (Bottom) Lot Number	Geotextile (Bottom) Roll Number	Sampled sent to Emcon
84048	8404691	56	83055	8302488	80058	8014545	80058	8014540	
84048	8404692	57	83055	8302496	80058	8014545	80058	8014540	
84048	8404693	58	83055	8302496	80058	8014545	80058	8014540	
84048	8404694	59	83055	8302496	80058	8014545	80058	8014540	
84048	8404695	60	83055	8302496	80058	8014545	80058	8014540	
84048	8404696	61	83055	8302496	80058	8014545	80058	8014540	
84048	8404697	62	83055	8302496	80058	8014545	80058	8014540	
84048	8404698	63	83055	8302490	80058	8014562	80058	8014572	
84048	8404699	64	83055	8302490	80058	8014562	80058	8014572	
84048	8404700	65	83055	8302490	80058	8014562	80058	8014572	
84048	8404701	66	83055	8302490	80058	8014562	80058	8014572	
84048	8404702	67	83055	8302494	80058	8014562	80058	8014572	
84048	8404703	68	83055	8302494	80058	8014562	80058	8014572	
84048	8404704	69	83055	8302494	80058	8014562	80058	8014572	
84048	8404705	70	83055	8302494	80058	8014562	80058	8014572	
84048	8404706	71	83055	8302494	80058	8014562	80058	8014572	
84048	8404707	72	83055	8302492	80058	8014581	80058	8014552	
84048	8404708	73	83055	8302492	80058	8014581	80058	8014552	
84048	8404709	74	83055	8302492	80058	8014581	80058	8014552	
84048	8404710	75	83055	8302492	80058	8014581	80058	8014552	
84048	8404711	76	83055	8302492	80058	8014581	80058	8014552	
84048	8404712	77	83055	8302489	80058	8014581	80058	8014552	
84048	8404713	78	83055	8302489	80058	8014581	80058	8014552	
84048	8404714	79	83055	8302489	80058	8014581	80058	8014552	
84048	8404715	80	83055	8302489	80058	8014580	80058	8014544	
84048	8404722	81	83055	8302489	80058	8014580	80058	8014544	
84048	8404723	82	83055	8302495	80058	8014580	80058	8014544	
84048	8404724	83	83055	8302495	80058	8014580	80058	8014544	
84048	8404725	84	83055	8302495	80058	8014580	80058	8014544	
84048	8404726	85	83055	8302139	80058	8014580	80058	8014544	

  
MOA REPRESENTATIVE

## MANUFACTURING QUALITY ASSURANCE REPORT


PROJECT: HIDDEN VALLEY				Type of MQA: LEVEL II				# of Rolls: 87 ROLLS			
MATERIAL: GEOCOMPOSITE				Sampling Frequency: Every 100,000 sq / every LOT for Conf.							
MANUFACTURED BY: EVERGREEN TECHNOLOGY				Sampled By: PGL representative							
Geocomposite Lot Number	Geocomposite Roll Number	Number	Geonet Lot Number	Geonet Roll Number	Geotextile (TOP) Lot Number	Geotextile (TOP) Roll Number	Geotextile (Bottom) Lot Number	Geotextile (Bottom) Roll Number	Sampled sent to Emcon		
84048	8404635	1	83055	8302479	80058	8014568	80058	8014564	XXXXXXXX		
84048	8404636	2	83055	8302480	80058	8014568	80058	8014564			
84048	8404637	3	83055	8302480	80058	8014568	80058	8014564			
84048	8404638	4	83055	8302480	80058	8014568	80058	8014564			
84048	8404639	5	83055	8302480	80058	8014568	80058	8014564			
84048	8404640	6	83055	8302480	80058	8014568	80058	8014564			
84048	8404641	7	83055	8302482	80058	8014568	80058	8014564			
84048	8404642	8	83055	8302482	80058	8014559	80058	8014570			
84048	8404643	9	83055	8302482	80058	8014559	80058	8014570			
84048	8404644	10	83055	8302482	80058	8014559	80058	8014570			
84048	8404645	11	83055	8302482	80058	8014559	80058	8014570			
84048	8404646	12	83055	8302483	80058	8014559	80058	8014570			
84048	8404647	13	83055	8302483	80058	8014559	80058	8014570			
84048	8404648	14	83055	8302483	80058	8014559	80058	8014570			
84048	8404649	15	83055	8302483	80058	8014559	80058	8014570			
84048	8404650	16	83055	8302483	80058	8014549	80058	8014558			
84048	8404651	17	83055	8302484	80058	8014549	80058	8014558			
84048	8404652	18	83055	8302484	80058	8014549	80058	8014558			
84048	8404653	19	83055	8302484	80058	8014549	80058	8014558			
84048	8404654	20	83055	8302484	80058	8014549	80058	8014558			
84048	8404655	21	83055	8302484	80058	8014549	80058	8014558			
84048	8404656	22	83055	8302481	80058	8014549	80058	8014558			
84048	8404657	23	83055	8302481	80058	8014550	80058	8014548			
84048	8404658	24	83055	8302481	80058	8014550	80058	8014548			
84048	8404659	25	83055	8302481	80058	8014550	80058	8014548			
84048	8404660	26	83055	8302481	80058	8014550	80058	8014548			

MOA REPRESENTATIVE



PROJECT: HIDDEN VALLEY		Type of MQA: LEVEL II		Sampling Frequency: Every 100,000 sf / every LOT for Conf.		# of Rolls:	
MATERIAL: GEOCOMPOSITE		Sampled By:		PGL representative			
MANUFACTURED by: EVERGREEN TECHNOLOGY							
Geocomposite Lot Number	Geocomposite Roll Number	Geonet Lot Number	Geonet Roll Number	Geotextile (TOP) Lot Number	Geotextile (TOP) Roll Number	Geotextile (Bottom) Lot Number	Geotextile (Bottom) Roll Number
84048	8404727	83055	8302139	80058	8014573	80058	8014544
84048	8404728	83055	8302139	80058	8014573	80058	8014574

MANUFACTURED BY: EVERGREEN TECHNOLOGY			Sampled by: POLYPERFORMANCE					
Geocomposite Lot Number	Geocomposite Roll Number	Geonet Lot Number	Geonet Roll Number	Geotextile (TOP) Lot Number	Geotextile (TOP) Roll Number	Geotextile (Bottom) Lot Number	Geotextile (Bottom) Roll Number	Sampled sent to Encon
84048	8404727	86	83055	8302139	80058	8014573	8014544	
84048	8404728	87	83055	8302139	80058	8014573	80058	8014574

  
MQA REPRESENTATIVE

**C-3b**  
**Conformance Testing**

# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-23-98

Roll #: 8404664 ?

Material: GEOCOMPOSITE

### PLY ADHESION ASTM F904

Specimen	Machine Direction		Cross Machine Direction	
	Force # to Separate		Force # to Separate	
	Ply 1	Ply 2	Ply 1	Ply 2
1	1.2	2.1	3.2	3.6
2	2.3	1.6	2.3	2.3
3	3.2	2.1	3.8	2.4
4	3.0	2.1	5.5	2.1
5	4.1	1.9	3.6	2.7
Average	2.8	2.0	3.7	2.6

Remarks: Sample size 1" x 10"

Hydraulic Transmissivity gpm ASTM D4716	Trial 1	Trial 2	Trial 3	Average
	1.284	1.284	1.284	1.284

Remarks: Hydraulic Gradient: 0.5  
 Normal Compressive Stress: 100 psf  
 Geonet tested between rigid plates with normal compressive stress  
 applied for one hour (approximate time).  
 Sample size: 14" x 12" (Effective 12" x 12")  
 Hydraulic Transmissivity  $O = (QL)/(WH)$  gpm/ft width

Tested by: K.H.  
 Entered by: K.H.  
 Checked by: R.S.A.

**EMCON**  
*Conformance Sample Test Results*

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 84046365

Material: GEOCOMPOSITE

PLY ADHESION  
ASTM F904

Specimen	Machine Direction		Cross Machine Direction	
	Force # to Separate		Force # to Separate	
	Ply 1	Ply 2	Ply 1	Ply 2
1	1.4	3.8	4.7	3.0
2	3.2	2.4	2.7	2.6
3	2.3	4.8	4.4	2.2
4	2.0	2.7	5.1	3.0
5	2.1	3.0	4.4	3.2
Average	2.2	3.3	4.3	2.8

Remarks: Sample size 1" x 10"

Tested by: K.H.  
Entered by: K.H.  
Checked by: R.S.A.



# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8014564 (BOTTOM GEOCOMPOSITE COMPONENT)

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION

ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	150.31	132.7	226.56	45.0
2	176.50	130.0	248.00	49.3
3	178.12	122.7	189.43	42.7
4	206.75	129.3	203.50	41.7
5	174.56	115.0	239.37	44.3
Average	177.25	125.9	221.37	44.6

### FABRIC WEIGHT

ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	6.01	6.04	6.63	7.44	7.04	6.63

Remarks: Sample Size 6" x 6" (approx.)

### APPARENT OPENING SIZE

ASTM D4751

AOS (mm)	0.14
----------	------

Tested By:  
Entered By:  
Checked By:

K.H./N.B.  
K.H.  
R.S.A.

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8014548 (BOTTOM GEOCOMPOSITE COMPONENT)

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION

ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #'s	Apparent Elongation %	Breaking Load #'s	Apparent Elongation %
1	154.68	132.3	219.31	48.3
2	177.00	132.0	231.43	40.7
3	139.62	133.0	235.31	43.3
4	180.68	133.0	207.31	40.0
5	215.43	129.3	172.68	42.3
Average	173.48	131.9	213.21	42.9

### FABRIC WEIGHT

ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	7.11	7.04	6.32	6.59	6.61	6.73

Remarks: Sample Size 6" x 6" (approx.)

### APPARENT OPENING SIZE

ASTM D4751

AOS (mm)	0.15
----------	------

Tested By:  
Entered By:  
Checked By:

K.H./N.B.  
K.H.  
R.S.A.

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8014550 (TOP GEOCOMPOSITE COMPONENT)

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION

ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	161.00	136.7	243.62	43.3
2	143.81	118.7	215.93	40.0
3	194.87	132.7	241.06	48.3
4	151.18	133.3	238.25	46.0
5	228.00	125.7	208.00	46.0
Average	175.77	129.4	229.37	44.7

### FABRIC WEIGHT

ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	6.83	6.86	6.43	7.10	7.37	6.92

Remarks: Sample Size 6" x 6" (approx.)

### APPARENT OPENING SIZE

ASTM D4751

AOS (mm)	0.14
----------	------

Tested By:  
Entered By:  
Checked By:

K.H./N.B.  
K.H.  
R.S.A.

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8018568 (TOP GEOCOMPOSITE COMPONENT)

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION

ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #'s	Apparent Elongation %	Breaking Load #'s	Apparent Elongation %
1	213.50	127.0	236.37	48.3
2	202.50	125.7	234.75	49.3
3	208.62	122.0	229.81	49.0
4	218.43	124.7	162.06	42.7
5	151.18	126.0	224.93	41.7
Average	198.85	125.1	217.58	46.2

### FABRIC WEIGHT

ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	6.88	6.53	6.82	6.38	6.83	6.69

Remarks: Sample Size 6" x 6" (approx.)

### APPARENT OPENING SIZE

ASTM D4751

AOS (mm)	0.16
----------	------

Tested By:  
Entered By:  
Checked By:

K.H./N.B.  
K.H.  
R.S.A.



# EMCON

## Conformance Sample Test Results

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8302479

Material: GEONET

Test	Readings					Average
Thickness (inches)	0.205	0.207	0.208	0.212	0.207	
ASTM D1777	0.205	0.212	0.206	0.208	0.201	0.207

Density (g/cm <sup>3</sup> )	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D792	0.9500	0.9519	0.9515	0.9511

Carbon Black Content (%)	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D1603	2.376	2.348	2.200	2.308

Remarks: Thickness: Tested with Mitutoyo Model No. 293-701 Digital Micrometer.  
Readings taken at 1 foot intervals.

Tested by: N.B.  
Entered by: K.H.  
Checked by: R.S.A.

**EMCON**  
*Conformance Sample Test Results*

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8404661

Material: GEONET

Test	Readings					Average
Thickness (inches)	0.216	0.217	0.202	0.217	0.210	0.211
ASTM D1777	0.208	0.213	0.208	0.217	0.206	

Density (g/cm3)	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D792	0.9496	0.9507	0.9518	0.9507

Carbon Black Content (%)	Specimen 1	Specimen 2	Specimen 3	Average
ASTM D1603	2.369	2.184	2.289	2.281

Remarks: Thickness: Tested with Mitutoyo Model No. 293-701 Digital Micrometer.  
Readings taken at 1 foot intervals.

Tested by: N.B.  
Entered by: K.H.  
Checked by: R.S.A.

**C-3c**  
**Geocomposite Drain Material Received**



# TABLE C-3b

## GEOCOMPOSITE DRAIN MATERIAL RECEIVED

Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

Date Rec'd	Roll No.	Lot / Batch No.	ROLL SIZE		Thickness / Weight	QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L X W	Sq. Ft.					
8/11/98	8404702	84048	225 13.5	3037.5					
8/11/98	8404692	84048	225 13.5	3037.5					
8/11/98	8404664	84048	225 13.5	3037.5					
8/11/98	8404685	84048	225 13.5	3037.5			7/24/1998 P		
8/11/98	8404698	84048	225 13.5	3037.5					
8/11/98	8404695	84048	225 13.5	3037.5					
8/11/98	8404707	84048	225 13.5	3037.5					
8/11/98	8404684	84048	225 13.5	3037.5					
8/11/98	8404697	84048	225 13.5	3037.5					
8/11/98	8404696	84048	225 13.5	3037.5					
8/11/98	8404694	84048	225 13.5	3037.5					
8/11/98	8404705	84048	225 13.5	3037.5					
8/11/98	8404691	84048	225 13.5	3037.5					
8/11/98	8404714	84048	225 13.5	3037.5					
8/11/98	8404701	84048	225 13.5	3037.5					
8/11/98	8404711	84048	225 13.5	3037.5					
8/11/98	8404689	84048	225 13.5	3037.5					
8/11/98	8404687	84048	225 13.5	3037.5					
8/11/98	8404710	84048	225 13.5	3037.5					
8/11/98	8404700	84048	225 13.5	3037.5					
8/11/98	8404690	84048	225 13.5	3037.5					
8/11/98	8404708	84048	225 13.5	3037.5					
8/11/98	8404712	84048	225 13.5	3037.5					
8/11/98	8404699	84048	225 13.5	3037.5					
8/11/98	8404709	84048	225 13.5	3037.5					
8/11/98	8404703	84048	225 13.5	3037.5					
8/11/98	8404688	84048	225 13.5	3037.5					
8/11/98	8404713	84048	225 13.5	3037.5					
8/11/98	84048	84048	225 13.5	3037.5					

Manufacturer: Evergreen Technologies

P=Pass

F=Fail

Logged By:

Glenn Heath

Total This Page:

88087.5 Sq. Ft.

Cumulative Total:

88087.5 Sq. Ft.

Checked By:

Notes:



# TABLE C-3b

## GEOCOMPOSITE DRAIN MATERIAL RECEIVED



Project: Hidden Valley Landfill

Facility: East Partial Closure

Project No: 40202-005.061

Date Rec'd	Roll No.	Lot / Batch No.	ROLL SIZE		Thickness / Weight	QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L X W	Sq. Ft.					
8/11/98	8404715	84048	225 13.5	3037.5					
8/11/98	8404660	84048	225 13.5	3037.5					
8/11/98	8404664	84048	225 13.5	3037.5					
8/11/98	8404662	84048	225 13.5	3037.5				7/24/1998 P	
8/11/98	8404667	84048	225 13.5	3037.5					
8/11/98	8404668	84048	225 13.5	3037.5					
8/11/98	8404669	84048	225 13.5	3037.5					
8/11/98	8404670	84048	225 13.5	3037.5					
8/11/98	8404672	84048	225 13.5	3037.5					
8/11/98	8404673	84048	225 13.5	3037.5					
8/11/98	8404674	84048	225 13.5	3037.5					
8/11/98	8404675	84048	225 13.5	3037.5					
8/11/98	8404676	84048	225 13.5	3037.5					
8/11/98	8404677	84048	225 13.5	3037.5					
8/11/98	8404678	84048	225 13.5	3037.5					
8/11/98	8404679	84048	225 13.5	3037.5					
8/11/98	8404680	84048	225 13.5	3037.5					
8/11/98	8404681	84048	225 13.5	3037.5					
8/11/98	8404682	84048	225 13.5	3037.5					
8/11/98	8404683	84048	225 13.5	3037.5					
8/11/98	8404685	84048	225 13.5	3037.5					
8/11/98	8404653	84048	225 13.5	3037.5					
8/11/98	8404654	84048	225 13.5	3037.5					
8/11/98	8404655	84048	225 13.5	3037.5					
8/11/98	8404656	84048	225 13.5	3037.5					
8/11/98	8404657	84048	225 13.5	3037.5					
8/11/98	8404658	84048	225 13.5	3037.5					
8/11/98	8404659	84048	225 13.5	3037.5					

Manufacturer:

P=Pass

F=Fail

Logged By: Glenn Heath

Total This Page:

85050 Sq. Ft.

Cumulative Total:

173137.5 Sq. Ft.

Notes:

Checked By:

**C-4**  
**GEOTEXTILE**

**C-4a**  
**MQA/MQC**

## MANUFACTURING QUALITY ASSURANCE REPORT

PROJECT: HIDDEN VALLEY LE  
 MATERIAL: GEOTEXTILE

Type of MQA: LEVEL 2Frequency: Every Lot & or every 100,000 sq ftMANUFACTURED by: EVERGREEN TECH.# of Rolls: 82

Date	ITEM NUMBER	No.	Liner Roll #	Sampled by PGL, Sent to EMCON
7/20/98	TG700180300N1N	1	8003966	XXXXXXXXXXXX
7/20/98	TG700180300N1N	2	8003972	
7/20/98	TG700180300N1N	3	8004019	
7/20/98	TG700180300N1N	4	8004022	
7/20/98	TG700180300N1N	5	8004025	
7/20/98	TG700180300N1N	6	8004033	
7/20/98	TG700180300N1N	7	8004039	
7/20/98	TG700180300N1N	8	8004044	
7/20/98	TG700180300N1N	9	8004047	
7/20/98	TG700180300N1N	10	8004050	
7/20/98	TG700180300NCN	11	8003876	
7/20/98	TG700180300NCN	12	8003950	
7/20/98	TG700180300NCN	13	8003951	
7/20/98	TG700180300NCN	14	8003952	XXXXXXXXXXXX
7/20/98	TG700180300NCN	15	8003953	
7/20/98	TG700180300NCN	16	8003954	
7/20/98	TG700180300NCN	17	8003955	
7/20/98	TG700180300NCN	18	8003956	
7/20/98	TG700180300NCN	19	8003957	
7/20/98	TG700180300NCN	20	8003958	
7/20/98	TG700180300NCN	21	8003963	
7/20/98	TG700180300NCN	22	8003964	
7/20/98	TG700180300NCN	23	8003965	
7/20/98	TG700180300NCN	24	8003967	
7/20/98	TG700180300NCN	25	8003969	
7/20/98	TG700180300NCN	26	8003973	
7/20/98	TG700180300NCN	27	8003974	
7/20/98	TG700180300NCN	28	8003975	XXXXXXXXXXXX
7/20/98	TG700180300NCN	29	8003976	
7/20/98	TG700180300NCN	30	8003977	
7/20/98	TG700180300NCN	31	8003978	
7/20/98	TG700180300NCN	32	8003979	
7/20/98	TG700180300NCN	33	8003980	
7/20/98	TG700180300NCN	34	8003981	
7/20/98	TG700180300NCN	35	8003982	
7/20/98	TG700180300NCN	36	8003983	
7/20/98	TG700180300NCN	37	8003984	
7/20/98	TG700180300NCN	38	8003985	
7/20/98	TG700180300NCN	39	8003986	
7/20/98	TG700180300NCN	40	8003987	
7/20/98	TG700180300NCN	41	8003988	
7/20/98	TG700180300NCN	42	8003989	
7/20/98	TG700180300NCN	43	8003990	XXXXXXXXXXXX

  
 MQC REPRESENTATIVE



## MANUFACTURING QUALITY ASSURANCE REPORT

PROJECT: HIDDEN VALLEY LE  
 MATERIAL: GEOTEXTILE  
 MANUFACTURED by: EVERGREEN TECH.

Type of MQA: LEVEL 2  
 Frequency: Every Lot & or every 100,000 sq ft  
 # of Rolls: 82

Date	ITEM NUMBER	No.	Liner Roll #	Sampled by PGL, Sent to EMCON
7/20/98	TG700180300NCN	44	8003991	
7/20/98	TG700180300NCN	45	8003992	
7/20/98	TG700180300NCN	46	8003993	
7/20/98	TG700180300NCN	47	8003994	
7/20/98	TG700180300NCN	48	8003995	
7/20/98	TG700180300NCN	49	8003996	
7/20/98	TG700180300NCN	50	8003997	
7/20/98	TG700180300NCN	51	8003999	
7/20/98	TG700180300NCN	52	8004000	
7/20/98	TG700180300NCN	53	8004004	
7/20/98	TG700180300NCN	54	8004006	
7/20/98	TG700180300NCN	55	8004007	
7/20/98	TG700180300NCN	56	8004009	
7/20/98	TG700180300NCN	57	8004020	XXXXXXXXXXXXX
7/20/98	TG700180300NCN	58	8004021	
7/20/98	TG700180300NCN	59	8004023	
7/20/98	TG700180300NCN	60	8004024	
7/20/98	TG700180300NCN	61	8004026	
7/20/98	TG700180300NCN	62	8004027	
7/20/98	TG700180300NCN	63	8004028	
7/20/98	TG700180300NCN	64	8004029	
7/20/98	TG700180300NCN	65	8004030	
7/20/98	TG700180300NCN	66	8004031	
7/20/98	TG700180300NCN	67	8004032	
7/20/98	TG700180300NCN	68	8004034	
7/20/98	TG700180300NCN	69	8004035	
7/20/98	TG700180300NCN	70	8004036	
7/20/98	TG700180300NCN	71	8004037	XXXXXXXXXXXXX
7/20/98	TG700180300NCN	72	8004038	
7/20/98	TG700180300NCN	73	8004040	
7/20/98	TG700180300NCN	74	8004041	
7/20/98	TG700180300NCN	75	8004042	
7/20/98	TG700180300NCN	76	8004043	
7/20/98	TG700180300NCN	77	8004045	
7/20/98	TG700180300NCN	78	8004046	
7/20/98	TG700180300NCN	79	8004048	
7/20/98	TG700180300NCN	80	8004049	
7/20/98	TG700180300NCN	81	8004051	
7/20/98	TG700180300NCN	82	8004052	

  
 MQC REPRESENTATIVE

**SYNTHETIC INDUSTRIES**Construction • Civil Engineering Products Group

---

October 14, 1998

Charlie Scott  
Northwest Linings & Geotextiles  
21000 77 Ave. South  
Kent, WA 98032  
Fax# 253/872.9576

Pages: 1

**RE: Land Recovery Inc., Puyallup WA**

Dear Charlie:

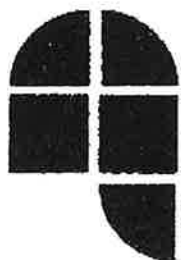
Synthetic Industries' GEOTEX® 701 nonwoven geotextile can meet the minimum average roll value (MARV) mass per unit area of 6.0 oz/yd<sup>2</sup> specified on the above referenced project.

Any further questions, please feel free to call.

Sincerely,

Eddie E. Cooper  
Engineering Assistant, Construction • Civil Engineering Products Group

cc: Andy Constantine, Synthetic Industries



**NORTHWEST LININGS &  
GEOTEXTILE PRODUCTS, Inc.**

21000 77th AVE. SOUTH  
KENT, WA 98032  
253-872-0244  
FAX 253-872-0245

Wednesday, October 14, 1998

Land Recovery, Inc.  
Attn: Jim Crondell  
P.O. Box 73057  
Puyallup, WA. 98373

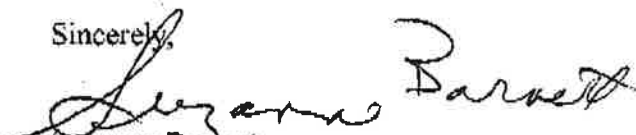
RE: Geotextile Letter of Certification

Dear Jim:

We hereby certify that the **Synthetic Industries Geotex 701 Non-woven** fabric supplied for the project noted below shall meet and/or exceed the attached product specifications, as approved by your engineer.

Project Spec. N/A  
Ref.: Closure "98"  
Shipping Date: 10/14/98  
Quantity Shipped: 12,500 SY  
Roll Dimensions: 15' x 300'  
Roll Number(s): 5120131a, 5120032a, 5120049a, 5119959a, 5120040a, 5120053a,  
5120128a, 5120055a, 5120135a, 5120072a, 5120283a, 5120056a,  
5120138a, 5120282a, 5120037a, 5120039a, 5120067a, 5120043a,  
5120058a, 5120062a, 5120065a, 5120211a, 5119940a, 5120171a,  
5120044a  
Customer: Land Recovery, Inc.  
NWL G#: 16310  
NWL Run#: N/A  
Other: Synthetic Industries B/L # 178071 - 9/16/98

Sincerely,

  
Suzanne Barnett  
Inside Sales Assistant



**Geosynthetic Products Division**  
 North West Linings & Geotextile Products Inc  
 Charli Scott  
 21000 77th Avenue South  
 Kent, WA 98032  
 BoL: 178071

September 23, 1998

This is to certify that Product GEOTEX<sup>TM</sup> 701, a nonwoven polypropylene geotextile produced by Synthetic Industries will meet the following certifiable minimum average roll values when tested in accordance with the proper ASTM test methods. A minimum average roll value is calculated as the mean minus two standard deviations, yielding a 97.5 percent confidence level.

PHYSICAL PROPERTY	TEST METHOD	U.S. UNITS	S.I. UNITS
Tensile Strength	ASTM D-4632	180 lbs	800 N
Elongation	ASTM D-4632	50 %	50 %
Trapezoidal Tear	ASTM D-4533	75 lbs	330 N
Mullen Burst	ASTM D-3786	330 psi	2275 Kpa
Puncture Strength	ASTM D-4833	100 lbs	445 N
AOS	ASTM D-4751	70 US Standard Sieve	0.212 mm
Permittivity	ASTM D-4491	1.5 sec <sup>-1</sup>	1.5 sec <sup>-1</sup>
Permeability	ASTM D-4491	0.34 cm/sec	0.34 cm/sec
Flow Rate	ASTM D-4491	110 gpm/ft <sup>2</sup>	4480 lpm/m <sup>2</sup>
U V Resistance	ASTM D-4355	70 %	70 %

Strength Retained after 500 hours exposure in Xenon Arc Weatherometer

Sincerely,

Sid Weiser  
 Technical Manager  
 Performance Nonwovens Division

Seller makes no warranty, express or implied, concerning the product furnished hereunder other than at the time of delivery it shall be of the quality and specifications stated herein. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED AND, TO THE EXTENT THAT IT IS CONTRARY TO THE FOREGOING SENTENCE ANY IMPLIED WARRANTY OF MERCHANTABILITY IS EXPRESSLY EXCLUDED. Any recommendations made by the Seller concerning uses or applications of said product are believed reliable and Seller makes no warranty of results to be obtained. If the product does not meet Synthetic Industries current published specifications, and the Customer gives notice to Synthetic Industries before installing the product, then Synthetic Industries will replace the product without charge or refund the purchase price. This Data Sheet supersedes all previous Data Sheets for this style and is subject to change without notice. The effective date for this product data is 02/1997

**Synthetic Industries, Inc.**

4019 Industry Drive • Chattanooga, Tennessee • 37416 • USA  
 Telephone • 423-899-0444 • Fax • 423-899-7619 • 1-800-621-0444





STRAIGHT BILL OF LADING  
ORIGINAL - NOT NEGOTIABLEBILL OF LADING #  
178071

## CARRIER COVENANT

PERMANENT ADDRESS  
CHATTANOOGA, TN  
SYNTHETIC

ATLANTA, GA

DATE 9/16/98

SHIPPER

WUVEN FABRICS DIV OF

SHIPPER'S NUMBERS

Q11930-0000

Q11930-0000

NORTHWEST LININGS & GEOTEXTILE  
PRODUCTS (INC)  
21000 77TH AVENUE SOUTH  
KENT WA 98032  
0NORTHWEST LININGS & GEOTEXTILE  
PRODUCTS (INC)  
21000 77TH AVENUE SOUTH  
KENT WA 98032  
0

TRAILER NO. SEAL NO.

32618 0008841

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor, shall sign the following statement:  
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

## SHIPPING INSTRUCTIONS

COLLECT ON DELIVERY

\$

SIGNATURE OF CONSIGNEE

If charges are to be prepaid, write or stamp here, "To Be Prepaid"

PREPAID

ORDER LINE	STYLE	PRODUCT DESCRIPTION	SIZE		ITEM	WEIGHT	Q
26675 001	701	GEOTEX (R)					
CONSTR.	COLOR	Inches	LY			LB	
G04	BLACK	180.000 X	100.00		5120050A	222.06	
G04	BLACK	180.000 X	100.00		5120051A	222.06	
G04	BLACK	180.000 X	100.00		5120052A	222.06	
G04	BLACK	180.000 X	100.00		5120053A	222.06	
G04	BLACK	180.000 X	100.00		5120054A	222.06	
G04	BLACK	180.000 X	100.00		5120055A	222.06	
G04	BLACK	180.000 X	100.00		5120056A	222.06	
G04	BLACK	180.000 X	100.00		5120058A	222.06	
G04	BLACK	180.000 X	100.00		5120059A	222.06	
G04	BLACK	180.000 X	100.00		5120061A	222.06	
G04	BLACK	180.000 X	100.00		5120062A	222.06	
G04	BLACK	180.000 X	100.00		5120063A	222.06	
G04	BLACK	180.000 X	100.00		5120064A	222.06	
G04	BLACK	180.000 X	100.00		5120065A	222.06	
G04	BLACK	180.000 X	100.00		5120066A	222.06	
G04	BLACK	180.000 X	100.00		5120067A	222.06	
G04	BLACK	180.000 X	100.00		5120068A	222.06	
G04	BLACK	180.000 X	100.00		5120069A	222.06	
G04	BLACK	180.000 X	100.00		5120072A	222.06	
G04	BLACK	180.000 X	100.00		5120114A	222.06	
G04	BLACK	180.000 X	100.00		5120116A	222.06	
G04	BLACK	180.000 X	100.00		5120122A	222.06	
G04	BLACK	180.000 X	100.00		5120123A	222.06	

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination, it is mutually agreed, as to each carrier of all of any of said property over all of any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed over all or any portion thereof be subject to all the terms and conditions of the Uniform Consensus Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight." NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding per

SHIPPER, PER

TOTAL VGS

CASES

BALES

ROLLS

TOTAL PGS.

TOTAL WT.

AGENT, PER

*[Signature]*  
*[Signature]* TRME 11 54C

201-1 01/001 000-1

STRAIGHT BILL OF LADING

09/16/98 11:49 AM

2538720245

STRAIGHT BILL OF LADING ORIGINAL - NOT NEGOTIABLE			BILL OF LADING # 178071	
CARRIER COVENANT			PERMANENT ADDRESS CHATTANOOGA, TN	
AT DALTON, GA	DATE 9/16/98	SHIPPER	SYNTHETIC	
Q11930-0000		Q11930-0000	SHIPPER'S NUMBERS	
NORTHWEST LININGS & GEOTEXTILE PRODUCTS (INC)		NORTHWEST LININGS & GEOTEXTILE PRODUCTS (INC)	TRAILER NO. SEAL NO.	
21000 77TH AVENUE SOUTH		21000 77TH AVENUE SOUTH	32618 0008841	
KENT WA 98032		KENT WA 98032	Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.	
SHIPPING INSTRUCTIONS			COLLECT ON DELIVERY	
			COD \$	
			SIGNATURE OF CONSIGNOR	
			If charges are to be prepaid, write or stamp here, "To Be Prepaid"	
			PREPAID	

ORDER#	LINE	STYLE	PRODUCT DESCRIPTION				
26675	001	701	GEOTEX (R)				
CONSTR.	COLOR	S I Z E		ITEM	WEIGHT		
		Inches	LY		LB		
	G04	BLACK	180.000 X	100.00	5120124A	222.06	
	G04	BLACK	180.000 X	100.00	5120128A	222.06	
	G04	BLACK	180.000 X	100.00	5120130A	222.06	
	G04	BLACK	180.000 X	100.00	5120131A	222.06	
	G04	BLACK	180.000 X	100.00	5120133A	222.06	
	G04	BLACK	180.000 X	100.00	5120134A	222.06	
	G04	BLACK	180.000 X	100.00	5120135A	222.06	
	G04	BLACK	180.000 X	100.00	5120136A	222.06	
	G04	BLACK	180.000 X	100.00	5120138A	222.06	
	G04	BLACK	180.000 X	100.00	5120140A	222.06	
	G04	BLACK	180.000 X	100.00	5120145A	222.06	
	G04	BLACK	180.000 X	100.00	5120154A	222.06	
	G04	BLACK	180.000 X	100.00	5120160A	222.06	
	G04	BLACK	180.000 X	100.00	5120259A	222.06	
60 ITEM TOTALS			6000.00				

WEIGHT CLASS:  
SYNTHETIC CLOTH NOT WOVEN OR KNITTED NMFC 49160-A CL77.5

WEIGHT  
20675.36

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all of any of said property over all of any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed over all or any portion shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight." NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \_\_\_\_\_ per \_\_\_\_\_

SHIPPER, PER	TOTAL YDS	CASES	BALES	ROLLS	TOTAL PCS	TOTAL WT
<i>Wm Jones</i>	6680.00			92	92	20675
AGENT, PER <i>Governing TIME</i>						

09/21/98

10:50 Page 1

Synthetic Industries  
Individual Roll Data  
Bill of Lading: 178071

Roll Number	Product Style	Tensile		Elongation		Trap Tear		Mullen	Punct
		(MD)	(XMD)	(MD)	(XMD)	(MD)	(XMD)	Burst	Resist
		lbs D4632	lbs D4632	% D4632	% D4632	lbs D4533	lbs D4533	psi D3786	lbs D4813
4130020A	1201	348	408	73	81	148	204	601	202
4130030A	1201	351	446	75	82	140	203	690	208
5119940A	701	194		60		85		347	109
5119960A	701	202	218	58	75	90	101	363	107
5120030A	701	194	210	61	75	100	114	363	111
5120040A	701	197	204	58	82	96	101	340	106
5120050A	701	195		58		93		373	114
5120130A	701	202	197	59	80	90	99	351	121
5120140A	701	207	212	60	77	91	105	341	118
5120160A	701	192	214	60	74	81	113	351	111
5147960A	451	123	155	64	71	60	76	261	71
5148060A	451	132	156	68	68	58	84	270	70

This test data includes all of the roll #'s listed on this certification

*Sid Wessan*

Synthetic Industries' current standard manufacturing quality control (MQC) testing frequency for GEOTEX nonwoven geotextiles is one (1) test per 90,000 sf (8,360 sm) for index properties (mass per unit area, thickness, grab tensile and elongation, trapezoidal tear, mullen burst and puncture resistance) for styles heavier than 601 and one (1) test per 162,000 sf (15,000 sm) for index properties for style 601 and lighter. Although we strive to test our nonwoven geotextiles for apparent opening size (AOS) and Permittivity/permeability/water flow rate approximately once every 540,000 sf (50,160 sm), the actual frequency of testing for performance properties will vary depending upon production schedules, product availability, customer requirements, job specifications or other agreements arranged with Synthetic Industries prior to the time of purchase. If additional testing is needed to meet higher frequencies required by the project specifications, it is the purchaser's responsibility to notify Synthetic Industries and ask for assistance in calculating the costs for the additional tests.

Once rolls of nonwoven geotextiles are produced, inspected and the test results from the frequency stated above indicates that materials produced during the production run meets our published minimum average roll values, approved rolls are shipped for storage until an order requires the material to be shipped. Since rolls are loaded at the warehouse independent of production sequence test results listed above may include data from rolls which were not shipped. However, the data provided is from the same production run as the rolls actually shipped on this bill of lading.



**C-4b**  
**Conformance Testing**

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8003952

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	324.37	148.3	281.31	60.7
2	283.50	141.7	238.06	65.0
3	317.06	137.3	271.00	74.3
4	341.25	134.7	317.12	81.7
5	275.43	153.3	282.43	66.7
Average	308.32	143.1	277.98	69.7

### TRAPEZOIDAL TEARING STRENGTH ASTM D4533

Specimen	Machine Direction	Cross Machine Direction
	Breaking Load #s	Breaking Load #s
1	127.43	134.81
2	112.12	114.87
3	93.87	156.43
4	107.18	108.00
5	106.00	136.43
Average	109.32	130.11

### PUNCTURE RESISTANCE ASTM D4833

Specimen	1	2	3	4	5	Average
Load #s	129.12	119.25	124.31	110.25	116.12	119.81

### FABRIC WEIGHT ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	9.78	9.16	8.89	7.99	8.93	8.95

Remarks: Sample Size 6" x 6" (approx.)

### PERMITTIVITY ASTM D4491

1.679	s-1
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Average of four readings.

### MULLEN BURST STRENGTH ASTM D3786

Test Number	1	2	3	4	5	6	7	8	9	10	Average
Burst Strength (psi)	460	325	425	360	380	390	415	375	415	390	394

Tested By:  
Entered By:  
Checked By:

K.H./N.B.  
K.H.  
R.S.A.

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8003966

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	335.12	129.7	324.12	73.3
2	316.43	130.0	310.68	73.3
3	286.43	128.3	279.68	78.3
4	264.56	116.7	266.56	76.0
5	279.50	133.3	285.31	73.0
Average	296.41	127.6	293.27	74.8

### TRAPEZOIDAL TEARING STRENGTH ASTM D4533

Specimen	Machine Direction	Cross Machine Direction
	Breaking Load #s	Breaking Load #s
1	135.62	130.37
2	105.12	91.31
3	165.93	101.75
4	133.12	102.31
5	159.37	115.56
Average	139.83	108.26

### PUNCTURE RESISTANCE ASTM D4833

Specimen	1	2	3	4	5	Average
Load #s	97.06	130.62	125.37	118.31	121.18	118.51

### FABRIC WEIGHT ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	10.03	9.48	9.43	9.57	7.89	9.28

Remarks: Sample Size 6" x 6" (approx.)

### PERMITTIVITY ASTM D4491

1.637	s-1
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Average of four readings.

### MULLEN BURST STRENGTH ASTM D3786

Test Number	1	2	3	4	5	6	7	8	9	10	Average
Burst Strength (psi)	345	330	460	420	405	395	445	410	390	385	399

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8003975

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	326.75	153.3	292.81	71.0
2	297.75	136.7	256.00	70.0
3	335.18	133.3	273.00	66.0
4	307.93	143.7	266.25	66.3
5	268.93	137.0	262.00	66.0
Average	307.31	140.8	270.01	67.9

### TRAPEZOIDAL TEARING STRENGTH ASTM D4533

Specimen	Machine Direction	Cross Machine Direction
	Breaking Load #s	Breaking Load #s
1	102.68	123.25
2	93.37	137.93
3	113.56	128.00
4	130.25	115.12
5	136.31	129.87
Average	115.23	126.83

### PUNCTURE RESISTANCE ASTM D4833

Specimen	1	2	3	4	5	Average
Load #s	125.50	121.50	124.81	142.81	97.43	122.41

### FABRIC WEIGHT ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	8.38	8.92	8.74	9.13	10.10	9.05

Remarks: Sample Size 6" x 6" (approx.)

### PERMITTIVITY ASTM D4491

1.672	s-l
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Average of four readings.

### MULLEN BURST STRENGTH ASTM D3786

Test Number	1	2	3	4	5	6	7	8	9	10	Average
Burst Strength (psi)	360	390	415	370	350	400	365	385	400	400	384

Tested By:  
Entered By:  
Checked By:

K.H.N.B.  
K.H.  
R.S.A.



# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCN WA

Date: 7-24-98

Roll #: 8003990

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	206.81	143.3	219.68	66.3
2	233.68	147.3	302.68	66.0
3	174.00	146.0	290.18	62.7
4	178.56	155.0	284.06	63.0
5	207.75	144.3	271.50	59.7
Average	200.16	147.2	273.62	63.5

### TRAPEZOIDAL TEARING STRENGTH ASTM D4533

Specimen	Machine Direction	Cross Machine Direction
	Breaking Load #s	Breaking Load #s
1	114.12	162.81
2	168.87	146.25
3	101.87	130.56
4	104.81	132.12
5	141.31	130.43
Average	126.20	140.43

### PUNCTURE RESISTANCE ASTM D4833

Specimen	1	2	3	4	5	Average
Load #s	140.50	110.06	111.81	123.18	126.00	122.31

### FABRIC WEIGHT ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	7.91	8.88	8.62	8.33	9.62	8.67

Remarks: Sample Size 6" x 6" (approx.)

### PERMITTIVITY ASTM D4491

1.878	s-1
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Average of four readings.

### MULLEN BURST STRENGTH ASTM D3786

Test Number	1	2	3	4	5	6	7	8	9	10	Average
Burst Strength (psi)	405	340	340	400	440	425	350	365	380	400	385

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8004020

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	334.50	135.0	270.12	65.0
2	325.25	126.0	281.62	66.7
3	309.81	132.0	329.00	67.3
4	344.37	121.7	300.25	72.3
5	278.18	125.0	301.81	66.7
Average	318.42	127.9	296.56	67.6

### TRAPEZOIDAL TEARING STRENGTH ASTM D4533

Specimen	Machine Direction	Cross Machine Direction
	Breaking Load #s	Breaking Load #s
1	96.25	116.37
2	98.43	112.75
3	99.18	106.62
4	124.18	118.00
5	90.18	128.87
Average	101.64	116.52

### PUNCTURE RESISTANCE ASTM D4833

Specimen	1	2	3	4	5	Average
Load #s	176.37	126.87	102.56	117.18	117.62	128.12

### FABRIC WEIGHT ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	9.47	10.75	10.23	8.96	8.89	9.66

Remarks: Sample Size 6" x 6" (approx.)

### PERMITTIVITY ASTM D4491

1.800	s-1
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Average of four readings.

### MULLEN BURST STRENGTH ASTM D3786

Test Number	1	2	3	4	5	6	7	8	9	10	Average
Burst Strength (psi)	360	445	415	375	375	390	365	390	400	405	392

Tested By:  
Entered By:  
Checked By:

K.H./N.B.  
K.H.  
R.S.A.

# EMCON

## GEOTEXTILE CONFORMANCE TESTING

Project: HIDDEN VALLEY LANDFILL

Proj. No. 40202.005.061

Client: EMCON WA

Date: 7-24-98

Roll #: 8004037

Test Condition: Moisture Equilibrium

### GRAB BREAKING LOAD & ELONGATION ASTM D4632

Specimen	Machine Direction		Cross Machine Direction	
	Breaking Load #s	Apparent Elongation %	Breaking Load #s	Apparent Elongation %
1	248.75	133.3	334.68	78.3
2	216.56	130.0	295.62	75.0
3	285.68	129.3	338.00	76.7
4	263.18	137.3	274.93	67.0
5	256.25	126.0	293.75	66.0
Average	254.08	131.2	307.40	72.6

### TRAPEZOIDAL TEARING STRENGTH ASTM D4533

Specimen	Machine Direction	Cross Machine Direction
	Breaking Load #s	Breaking Load #s
1	92.25	144.81
2	91.56	143.18
3	114.06	123.31
4	142.06	122.06
5	98.68	123.87
Average	107.72	131.45

### PUNCTURE RESISTANCE ASTM D4833

Specimen	1	2	3	4	5	Average
Load #s	112.56	95.06	102.50	126.75	109.18	109.21

### FABRIC WEIGHT ASTM D3776

Specimen	1	2	3	4	5	Average
Unit Weight (oz/yd <sup>2</sup> )	8.74	8.92	7.18	9.06	8.80	8.54

Remarks: Sample Size 6" x 6" (approx.)

### PERMITTIVITY ASTM D4491

1.715	s-1
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Average of four readings.

### MULLEN BURST STRENGTH ASTM D3786

Test Number	1	2	3	4	5	6	7	8	9	10	Average
Burst Strength (psi)	360	375	360	390	375	415	390	400	375	395	384

Tested By:  
Entered By:  
Checked By:

K.H./N.B.  
K.H.  
R.S.A.

**C-4c**  
**Geotextile Material Received Log**




**EMKON**

Project: Hidden Valley Landfill

Project No: 40202-005.061

Facility: East Partial Closure

# TABLE C-4c GEOTEXTILE MATERIAL RECEIVED

Date Rec'd	Roll No.	Lot / Batch No.	ROLL SIZE			QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L X W	Sq. Ft.	Thickness / Weight				
8/11/98	8003876	80006	300 15	4500	120mil / 6oz				
8/11/98	8003950	80006	300 15	4500	120mil / 6oz				
8/11/98	8003951	80006	300 15	4500	120mil / 6oz				
8/11/98	8003952	80006	300 15	4500	120mil / 6oz				
8/11/98	8003953	80006	300 15	4500	120mil / 6oz				
8/11/98	8003954	80006	300 15	4500	120mil / 6oz			7/24/98 P	
8/11/98	8003955	80006	300 15	4500	120mil / 6oz				
8/11/98	8003956	80006	300 15	4500	120mil / 6oz				
8/11/98	8003957	80006	300 15	4500	120mil / 6oz				
8/11/98	8003958	80006	300 15	4500	120mil / 6oz				
8/11/98	8003963	80006	300 15	4500	120mil / 6oz				
8/11/98	8003964	80006	300 15	4500	120mil / 6oz				
8/11/98	8003965	80006	300 15	4500	120mil / 6oz				
8/11/98	8003966	80006	300 15	4500	120mil / 6oz				
8/11/98	8003967	80006	300 15	4500	120mil / 6oz				
8/11/98	8003969	80006	300 15	4500	120mil / 6oz			7/24/98 P	
8/11/98	8003972	80006	300 15	4500	120mil / 6oz				
8/11/98	8003973	80006	300 15	4500	120mil / 6oz				
8/11/98	8003974	80006	300 15	4500	120mil / 6oz				
8/11/98	8003975	80006	300 15	4500	120mil / 6oz				
8/11/98	8003976	80006	300 15	4500	120mil / 6oz				
8/11/98	8003977	80006	300 15	4500	120mil / 6oz				
8/11/98	8003978	80006	300 15	4500	120mil / 6oz			7/24/98 P	
8/11/98	8003979	80006	300 15	4500	120mil / 6oz				
8/11/98	8003980	80006	300 15	4500	120mil / 6oz				
8/11/98	8003981	80006	300 15	4500	120mil / 6oz				
8/11/98	8003982	80006	300 15	4500	120mil / 6oz				
8/11/98	8003983	80006	300 15	4500	120mil / 6oz				

Manufacturer:

P=Pass

F=Fail

Logged By:

Glenn Heath

Total This Page:

126000 Sq.Ft.

Cumulative Total:

126000 Sq.Ft.

Checked By:

*[Signature]*

Notes:


**emcon**

# TABLE C-4c

## GEOTEXTILE MATERIAL RECEIVED

 Project: Hidden Valley Landfill

 Facility: East Partial Closure

 Project No: 40202-005.061

Date Rec'd	Roll No.	Lot / Batch No.	ROLL SIZE			QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L X W	Sq. Ft.	Thickness / Weight				
8/11/98	8003984	80006	300 15	4500	120mil / 6oz				
8/11/98	8003985	80006	300 15	4500	120mil / 6oz				
8/11/98	8003986	80006	300 15	4500	120mil / 6oz				
8/11/98	8003987	80006	300 15	4500	120mil / 6oz				
8/11/98	8003988	80006	300 15	4500	120mil / 6oz				
8/11/98	8003989	80006	300 15	4500	120mil / 6oz				
8/11/98	8003990	80006	300 15	4500	120mil / 6oz				
8/11/98	8003991	80006	300 15	4500	120mil / 6oz				
8/11/98	8003992	80006	300 15	4500	120mil / 6oz				
8/11/98	8003993	80006	300 15	4500	120mil / 6oz				
8/11/98	8003994	80006	300 15	4500	120mil / 6oz				
8/11/98	8003995	80006	300 15	4500	120mil / 6oz				
8/11/98	8003996	80006	300 15	4500	120mil / 6oz				
8/11/98	8003997	80006	300 15	4500	120mil / 6oz				
8/11/98	8003999	80006	300 15	4500	120mil / 6oz				
8/11/98	8004000	80006	300 15	4500	120mil / 6oz				
8/11/98	8004004	80006	300 15	4500	120mil / 6oz				
8/11/98	8004006	80006	300 15	4500	120mil / 6oz				
8/11/98	8004007	80006	300 15	4500	120mil / 6oz				
8/11/98	8004009	80006	300 15	4500	120mil / 6oz				
8/11/98	8004019	80006	300 15	4500	120mil / 6oz				
8/11/98	8004020	80006	300 15	4500	120mil / 6oz				
8/11/98	8004021	80006	300 15	4500	120mil / 6oz				
8/11/98	8004022	80006	300 15	4500	120mil / 6oz				
8/11/98	8004023	80006	300 15	4500	120mil / 6oz				
8/11/98	8004024	80006	300 15	4500	120mil / 6oz				
8/11/98	8004025	80006	300 15	4500	120mil / 6oz				
8/11/98	8004026	80006	300 15	4500	120mil / 6oz				

Manufacturer:

P=Pass

F=Fail

 Logged By: Glenn Heath

Total This Page:

Cumulative Total:

126000 Sq.Ft.

252000 Sq.Ft.

Notes:

 Checked By: David



# TABLE C-4c

## GEOTEXTILE MATERIAL RECEIVED

Project: Hidden Valley Landfill

Project No: 40202-005.061

Facility: East Partial Closure

Date Rec'd	Roll No.	Lot / Batch No.	ROLL SIZE			QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L X W	Sq. Ft.	Thickness / Weight				
8/11/98	8004027	80006	300 15	4500	120mil / 6oz				
8/11/98	8004028	80006	300 15	4500	120mil / 6oz				
8/11/98	8004029	80006	300 15	4500	120mil / 6oz				
8/11/98	8004030	80006	300 15	4500	120mil / 6oz				
8/11/98	8004031	80006	300 15	4500	120mil / 6oz				
8/11/98	8004032	80006	300 15	4500	120mil / 6oz				
8/11/98	8004033	80006	300 15	4500	120mil / 6oz				
8/11/98	8004034	80006	300 15	4500	120mil / 6oz				
8/11/98	8004035	80006	300 15	4500	120mil / 6oz				
8/11/98	8004036	80006	300 15	4500	120mil / 6oz				
8/11/98	8004037	80006	300 15	4500	120mil / 6oz				
8/11/98	8004038	80006	300 15	4500	120mil / 6oz				
8/11/98	8004039	80006	300 15	4500	120mil / 6oz			7/24/98 P	
8/11/98	8004040	80006	300 15	4500	120mil / 6oz				
8/11/98	8004041	80006	300 15	4500	120mil / 6oz				
8/11/98	8004042	80006	300 15	4500	120mil / 6oz				
8/11/98	8004043	80006	300 15	4500	120mil / 6oz				
8/11/98	8004044	80006	300 15	4500	120mil / 6oz				
8/11/98	8004045	80006	300 15	4500	120mil / 6oz				
8/11/98	8004046	80006	300 15	4500	120mil / 6oz				
8/11/98	8004047	80006	300 15	4500	120mil / 6oz				
8/11/98	8004048	80006	300 15	4500	120mil / 6oz				
8/11/98	8004049	80006	300 15	4500	120mil / 6oz				
8/11/98	8004050	80006	300 15	4500	120mil / 6oz				
8/11/98	8004051	80006	300 15	4500	120mil / 6oz				
8/11/98	8004052	80006	300 15	4500	120mil / 6oz				

Manufacturer:

P=Pass

F=Fail

Logged By: Glenn Heath

Total This Page:

Cumulative Total:

117000

Sq.Ft.

369000

Sq.Ft.

Notes:

Checked By: *Glenn*



# TABLE C-4c GEOTEXTILE MATERIAL RECEIVED

Project: Hidden Valley Landfill

Project No: 40202-005.061

Facility: East Partial Closure

Date Rec'd	Roll No.	Lot / Batch No.	ROLL SIZE			QC Docs Rec'd (Date)	QA Sample Sent (Date)	QA Test Rec'd P/F (Date)	Remarks
			L X W	Sq. Ft.	Thickness / Weight				
10/14/98	5119940a	80006	300 15	4500	120mil / 6oz				
10/14/98	5119959a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120032a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120037a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120039a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120040a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120043a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120044a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120049a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120053a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120055a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120056a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120058a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120062a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120065a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120067a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120072a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120128a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120131a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120135a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120138a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120171a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120211a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120282a	80006	300 15	4500	120mil / 6oz				
10/14/98	5120283a	80006	300 15	4500	120mil / 6oz				

Manufacturer:

P=Pass

F=Fail

Logged By: Dagan Short

Total This Page:

112500

Sq.Ft.

Cumulative Total:

481500

Sq.Ft.

Checked By: *www*

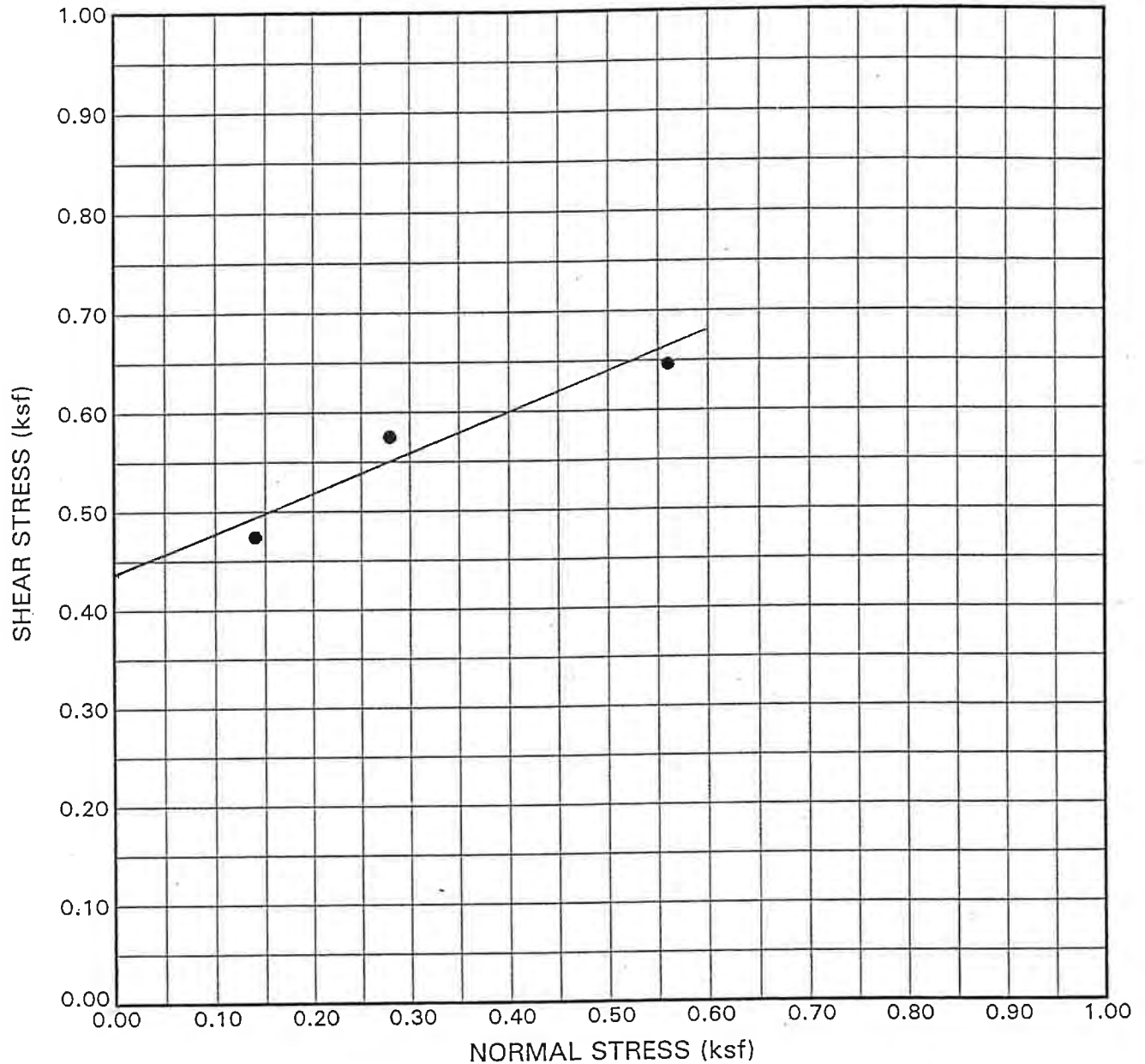
Notes:



**APPENDIX D**

**SUMMARY OF INTERFACE DIRECT SHEAR TESTING**

SAMPLE		DEPTH (feet)	CLASSIFICATION
S-1	<i>TYPE A</i>		(CH) Olive brown, Fat CLAY with sand.
TEST CONDITIONS:		Peak values plotted for remolded specimens.	



FRICTION ANGLE (degrees)	21
APPARENT COHESION (psf)	440
AVERAGE DRY DENSITY (pcf)	87.3
AVERAGE WATER CONTENT (%)	31.5



HWAGEOSCIENCES INC.

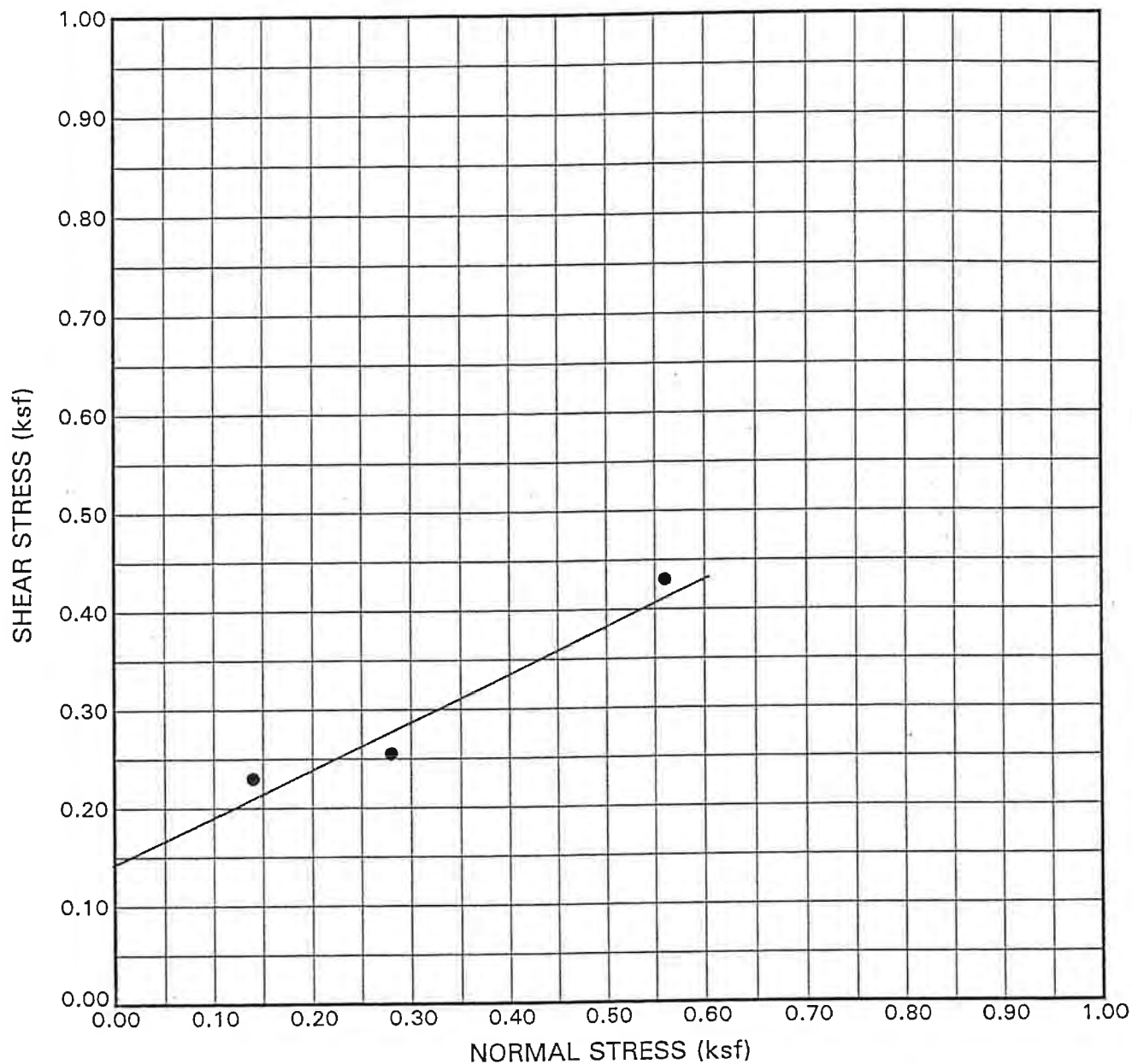
Hidden Valley Landfill  
Puyallup, Washington

DIRECT SHEAR  
TEST RESULT

PROJECT NO.: 98037

FIGURE: 3

SAMPLE	DEPTH (feet)	CLASSIFICATION
S-1R	TYPE A	(CH) Olive brown, Fat CLAY with sand.
TEST CONDITIONS: Approximate residual values obtained by re-testing failed sample.		



FRICTION ANGLE (degrees)	26
APPARENT COHESION (psf)	140
AVERAGE DRY DENSITY (pcf)	87.3
AVERAGE WATER CONTENT (%)	31.5



HWAGEOSCIENCES INC.

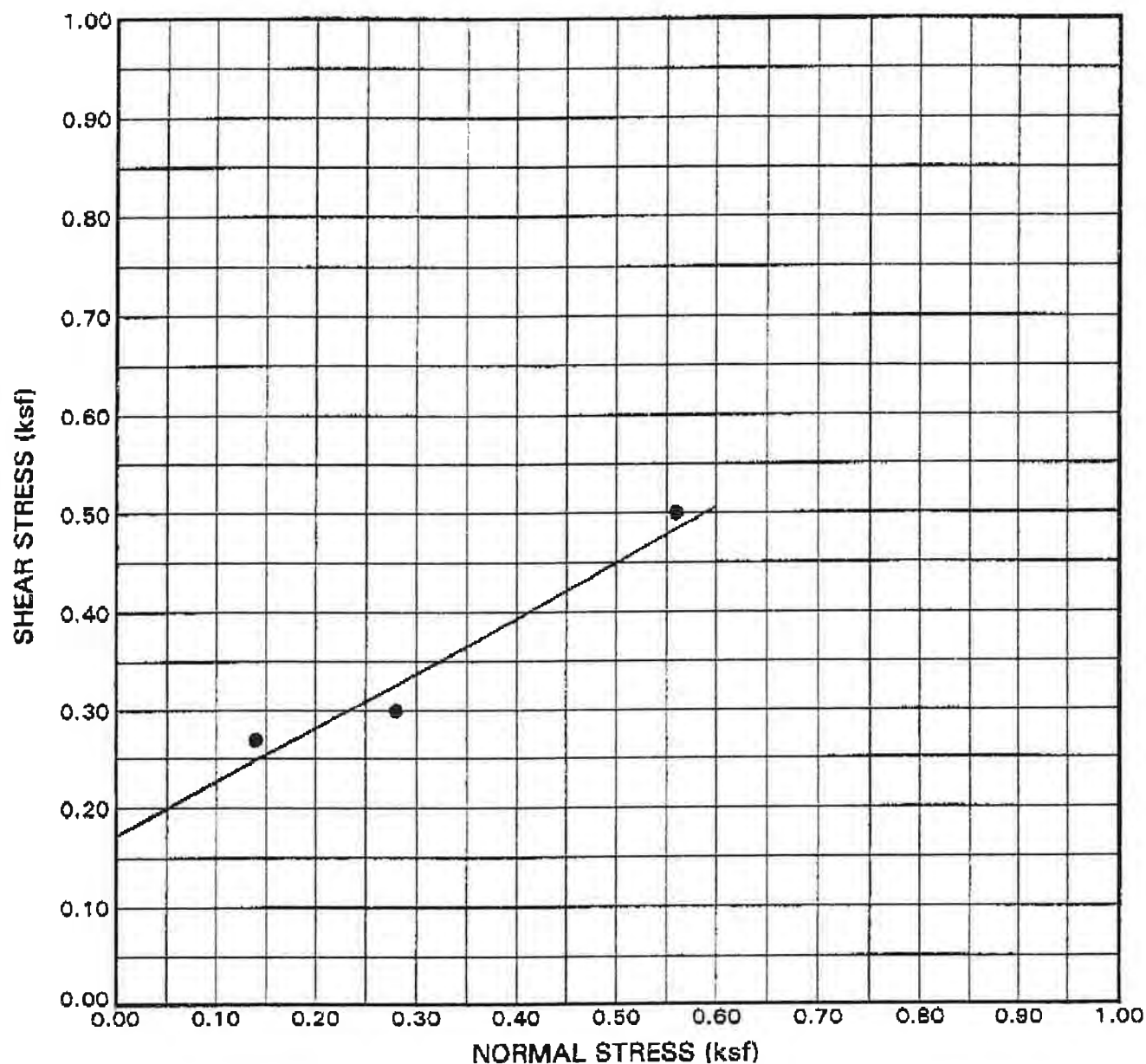
Hidden Valley Landfill  
Puyallup, Washington

DIRECT SHEAR  
TEST RESULT

PROJECT NO.: 98037

FIGURE: 4

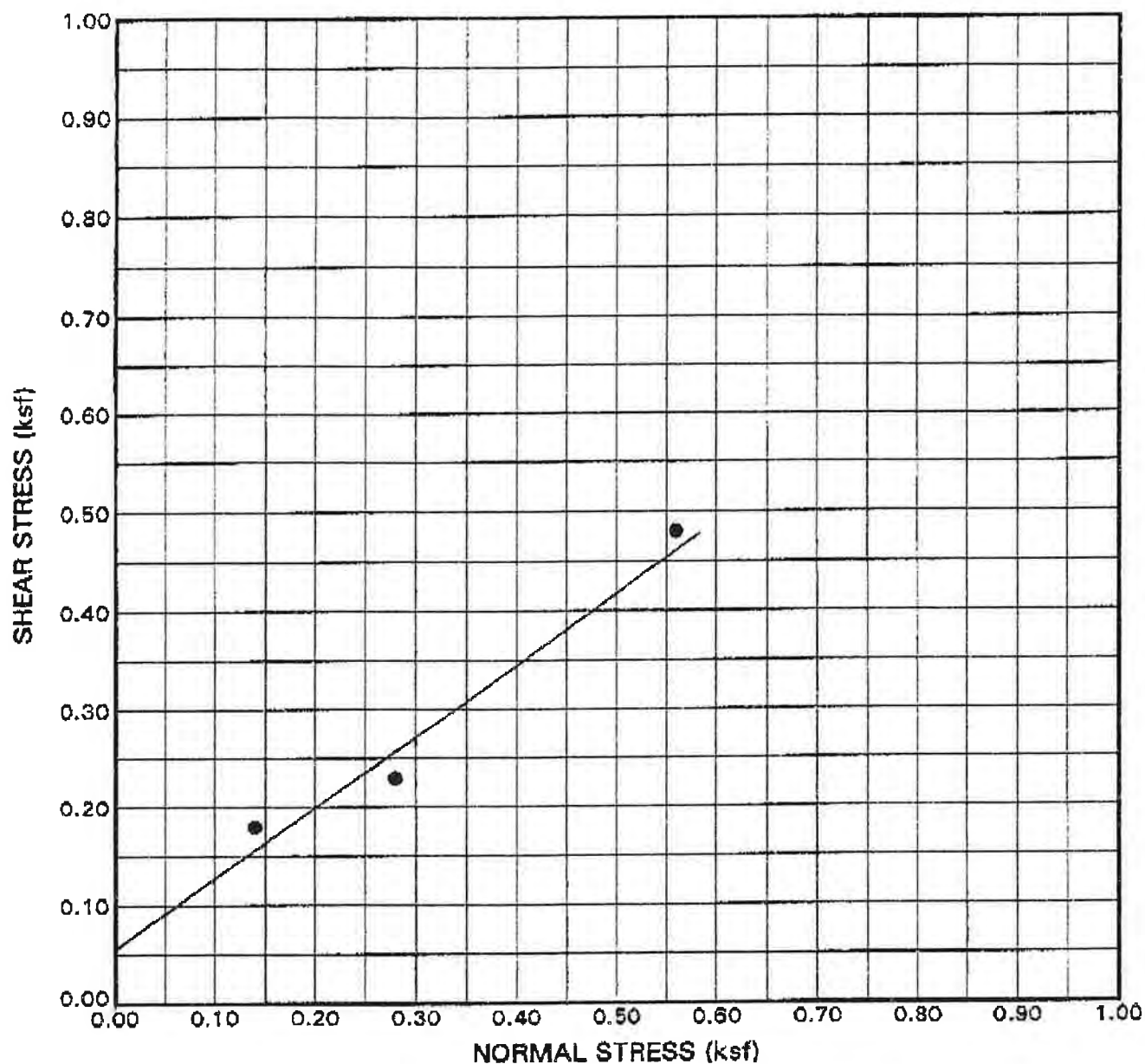
SAMPLE	DEPTH (feet)	CLASSIFICATION
S-4 <i>Type B</i>		(GM) Very dark brown, silty GRAVEL with sand (LOTT Soil)
TEST CONDITIONS: Specimens remolded to match field density and moisture content.		



FRICTION ANGLE (degrees)	30
APPARENT COHESION (psf)	170
AVERAGE DRY DENSITY (pcf)	88.7
AVERAGE WATER CONTENT (%)	20.9



SAMPLE	DEPTH (feet)	CLASSIFICATION
S-4R TYPE B		(GM) Very dark brown, silty GRAVEL with sand.
TEST CONDITIONS: Residual shear conducted on previously sheared remolded samples.		



FRICTION ANGLE (degrees)	36
APPARENT COHESION (psf)	60
AVERAGE DRY DENSITY (pcf)	88.7
AVERAGE WATER CONTENT (%)	20.9

# VECTOR

ENGINEERING, INC.

12638 Loma Rica Dr., Suite C, Green Valley, CA 95945  
(916) 272-2448 Fax: (916) 272-8553

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot Corp.

Project Name: Hidden Valley Landfill; No.: 943015.17-788B

Material 1: &lt;--- Compacted Clay Liner (CCL)

Material 2: ---&gt; Geosynthetic Clay Liner (GCL) Bentomat DN Woven (CETCO)

Substrate: ---&gt; &lt;concrete board&gt;

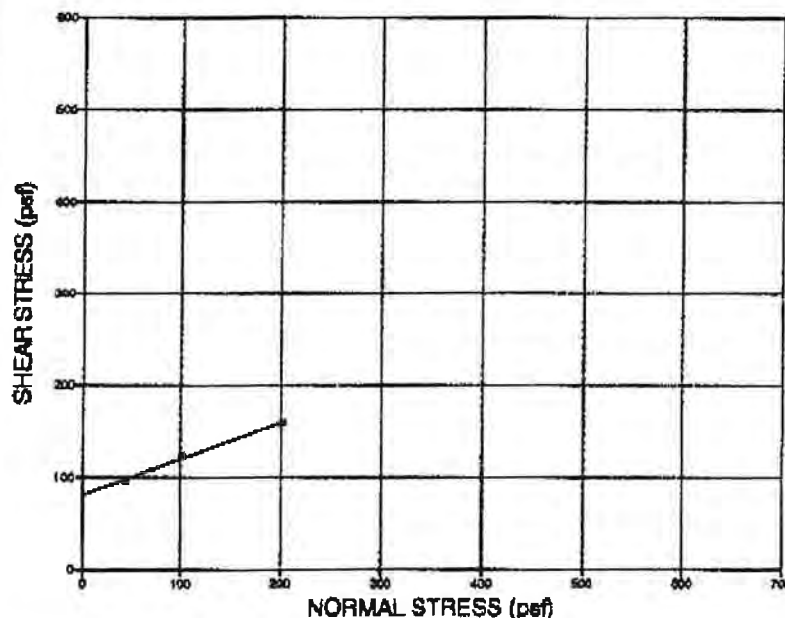
### PEAK STRENGTH

Test Point	Normal Stress		Shear Stress
	psi	psf	
1.	0.3	43	100
2.	0.7	101	120
3.	1.4	202	160

Adhesion: 80 psf

Friction Angle: 22 degrees

Displ. Rate: 0.200 in./min.



NOTE: GRAPH NOT TO SCALE

### STRENGTH ENVELOPE

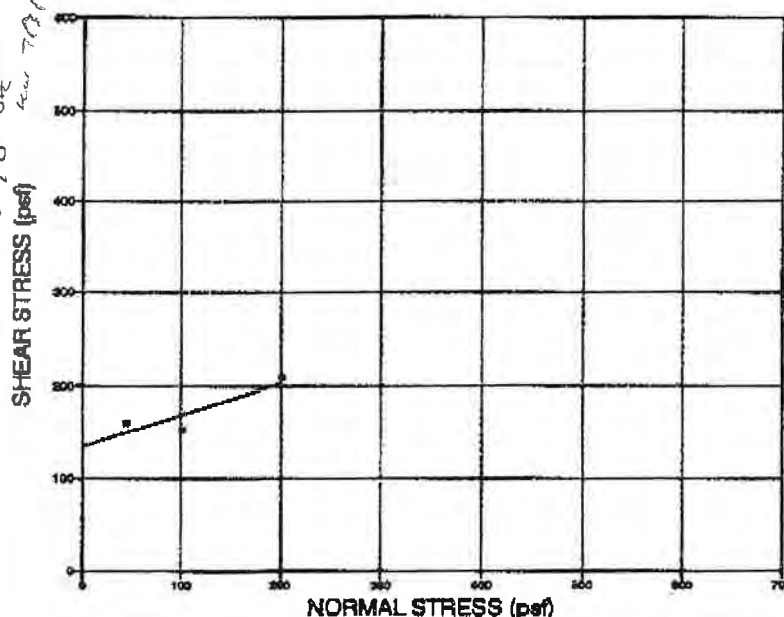
(at 2.5 in. displacement)

Test Point	Normal Stress		Shear Stress
	psi	psf	
1.	0.3	43	160
2.	0.7	101	150
3.	1.4	202	210

Adhesion: 140 psf

Friction Angle: 19 degrees

Displ. Rate: 0.200 in./min.



NOTE: GRAPH NOT TO SCALE

**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined 'best fit' line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering.

By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

Report Date: 5/15/98

Reviewed by:

PLATE 1.

# VECTOR

ENGINEERING, INC.

124M Loma Rica Dr., Suite C, Gratin Valley, CA 95945  
(916) 272-2446 Fax: (916) 272-8333

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot Corp.

Project Name: Hidden Valley Landfill; No.: 943015.17-788B

Material 1: &lt;--- Compacted Clay Liner (CCL)

Material 2: ---&gt; Geosynthetic Clay Liner (GCL) Bentomat DN Woven (CETCO)

Substrate: ---&gt; &lt;concrete board&gt;

### DISPLACEMENT

#### vs SHEAR STRESS

Test Point	Normal Stress	
	psi	psf
1.	0.3	43
2.	0.7	101
3.	1.4	202

### MOISTURE DATA

(Soil)

Initial Moisture Content:

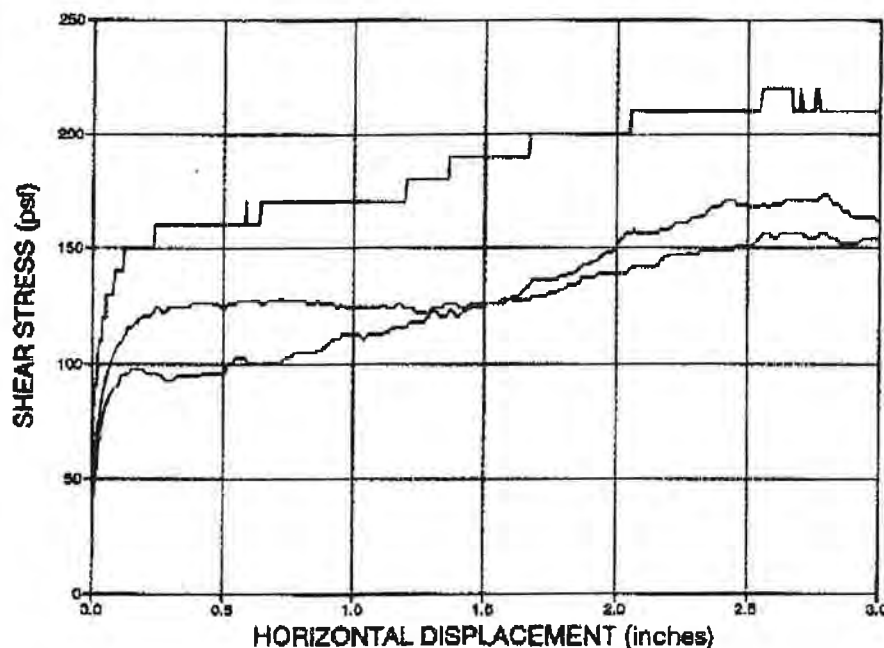
31.50%

Initial Dry Density:

87.30 pcf

Final Moisture Content:

1.	2.	3.
37.9	41.1	39.2



### STANDARD CONDITIONS:

1. The "gap" between shear boxes was set at 80 mil (2.0 mm).
2. The test specimens were flooded during testing unless noted.
3. High Normal Stress (>5psi) was applied using air pressure.
4. Low Normal Stress (<5 psi) was applied using dead weights
5. The tests were terminated 3.0" displacement unless noted.
6. Tests were performed in general accordance with ASTM procedure D 5321-92 Method B using a Brainard-Kilman LG-112 direct shear machine with an effective area of 12 in. x 12 in. (Machine C)

### TEST ORIENTATION:

#### NORMAL STRESS

GAP &gt;

&lt; SOIL

---&gt;

BOTTOM BOX W/ RASP BOARD

&lt; BENTOMAT DN

### SPECIAL TEST NOTES:

1. The Bentomat was wrapped & stapled to a rasp board and secured in the bottom box.
2. The CCL specimens were compacted in the upper box to the required specifications.
3. Each GCL specimen was hydrated under a Normal Stress of 50 psf app. 24 hr prior to consolidation.
4. Each specimen was consolidated under the specified Normal Stress app. 24 hr. before shearing.
5. Shearing occurred at the contact between the Soil and the Bentomat.
6. Minor stretching, and tearing was observed on the GCL specimens.

By accepting this data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of this data to the extent for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

**VECTOR**

ENGINEERING, INC.

12438 Loma Rica Dr., Suite C, Green Valley, CA 95945  
(916) 272-2448 Fax: (916) 272-8553**LARGE SCALE DIRECT SHEAR REPORT**

Client Name: Serrot Corp.

Project Name: Hidden Valley Landfill; No.: 943015.17-788C

Material 1: &lt;--- 60 mil (1.5 mm) HDPE Textured (Serrot #3802267)

Material 2: ---&gt; Geosynthetic Clay Liner (GCL) Bentomat DN Woven (CETCO)

Substrate: ---&gt; &lt;concrete board&gt;

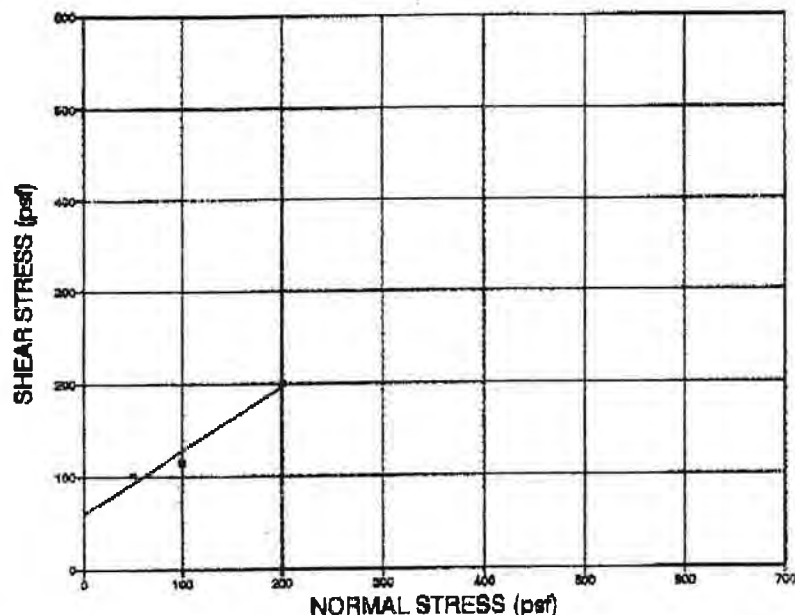
**PEAK STRENGTH**

Test Point	Normal Stress		Shear Stress
	psi	psf	psf
1.	0.3	50	100
2.	0.7	100	120
3.	1.4	200	200

Adhesion: 60 psf

Friction Angle: 34 degrees

Displ. Rate: 0.200 in./min.



NOTE: GRAPH NOT TO SCALE

**STRENGTH ENVELOPE**

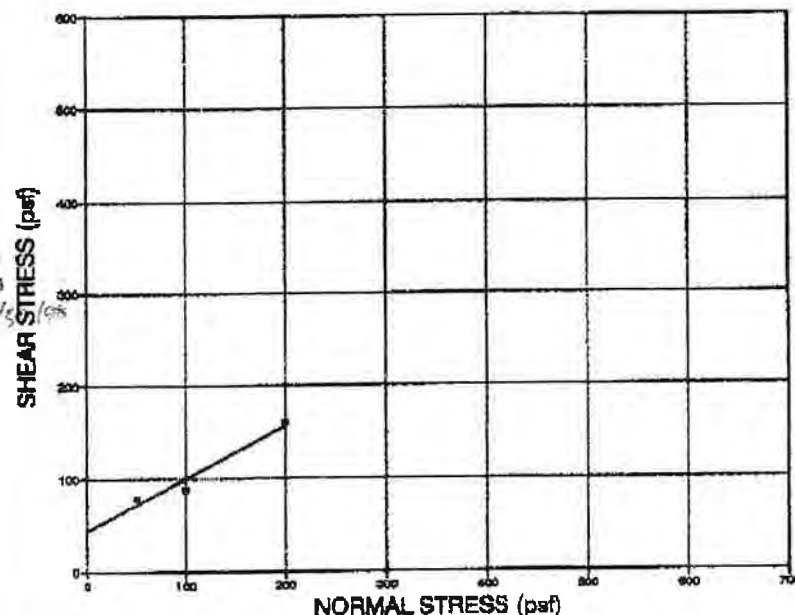
(at 2.5 in. displacement)

Test Point	Normal Stress		Shear Stress
	psi	psf	psf
1.	0.3	50	80
2.	0.7	100	90 > 70
3.	1.4	200	160

Adhesion: 40 psf

Friction Angle: 29 degrees

Displ. Rate: 0.200 in./min.



NOTE: GRAPH NOT TO SCALE

**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined "best fit" line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering.

By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

Report Date: 8/30/98

Reviewed by:

*[Signature]*

PLATE 1.



# VECTOR

ENGINEERING, INC.

17458 Inova Rise Dr., Suite C, Grass Valley, CA 95945  
(916) 272-2448 Fax: (916) 272-8553

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot Corp.

Project Name: Hidden Valley Landfill; No.: 943015.17-788C

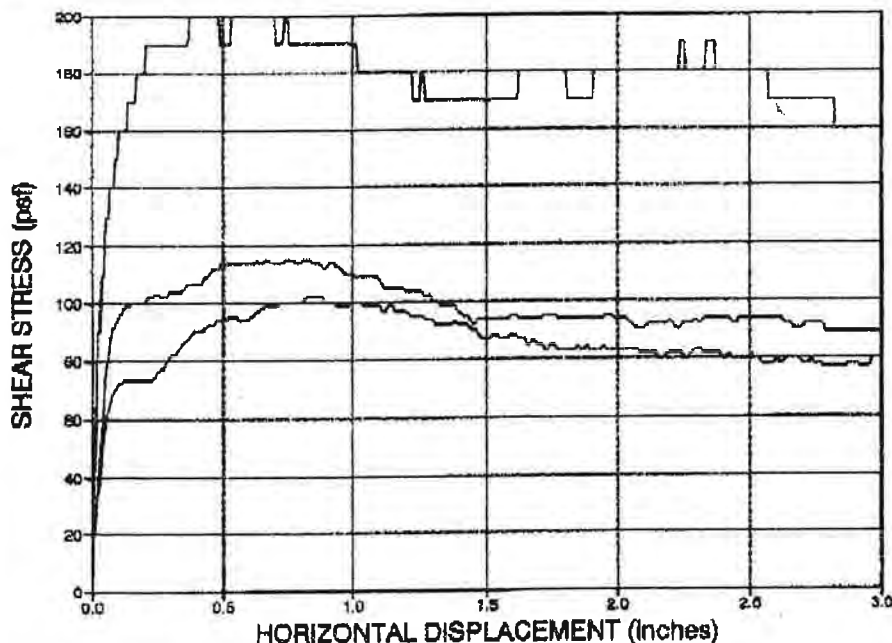
Material 1: &lt;--- 60 mil (1.5 mm) HDPE Textured (Serrot #3802267)

Material 2: ---&gt; Geosynthetic Clay Liner (GCL) Bentomat DN Woven (CETCO)

Substrate: ---&gt; &lt;concrete board&gt;

### DISPLACEMENT vs SHEAR STRESS

Test Point	Normal Stress	
	psi	psf
1.	0.3	50
2.	0.7	100
3.	1.4	200



### STANDARD CONDITIONS:

1. The "gap" between shear boxes was set at 80 mil (2.0 mm).
2. The test specimens were flooded during testing unless noted.
3. High Normal Stress > 5 psi (34 kPa) was applied using air pressure.
4. Low Normal Stress < 5 psi (34 kPa) was applied using dead weights.
5. The tests were terminated 3.0" (75 mm) displacement unless noted.
6. Tests were performed in general accordance with ASTM procedure D 5321-92 Method A using a Brainard-Kilman LG-112 direct shear machine with an effective area of 12 x 12 in. (300 x 300 mm).

### TEST ORIENTATION:



### SPECIAL TEST NOTES:

1. The Bentomat was wrapped & stapled to a rasp board and secured in the bottom box.
2. The HDPE specimen was bolted to the upper shear box with standard clamps.
3. Each GCL specimen was hydrated under a Normal Stress of 50 psf (2 kPa) app. 24 hr prior to consolidation.
4. Each specimen was consolidated under the specified Normal Stress app. 24 hr. before shearing.
5. Shearing occurred at the contact between the HDPE and the Bentomat.
6. Minor stretching, and tearing was observed on the GCL specimens.

By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

# VECTOR

ENGINEERING, INC.

12458 Loma Rica Dr., Suite C, Green Valley, CA 95045  
(916) 272-2448 Fax: (916) 272-8553

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot

Project Name: Hidden Valley Landfill; No.: 943015.17-788D

Material 1: &lt;--- Compacted Clay Liner (CCL)

Material 2: ---&gt; 60 mil (1.5 mm) HDPE Textured (Serrot 3802267)

Substrate: ---&gt; Drainage Aggregate

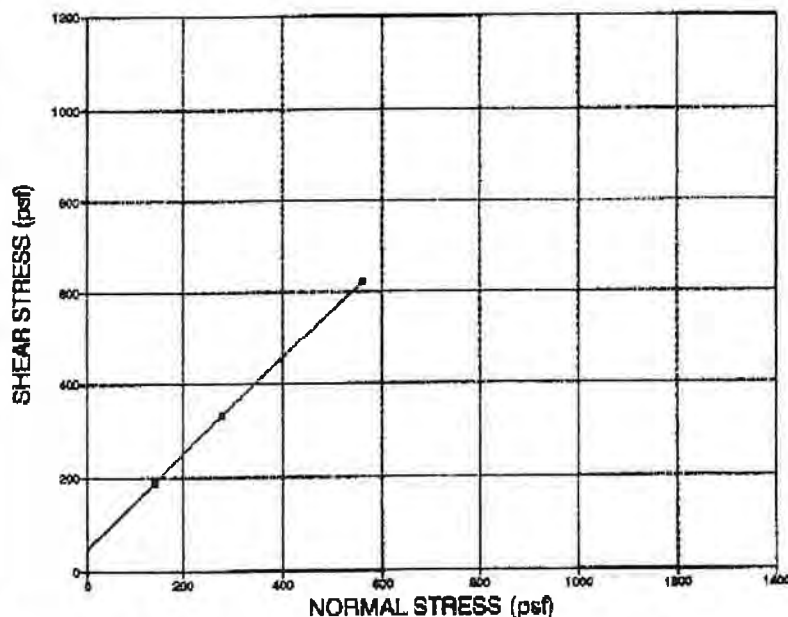
### PEAK STRENGTH

Test Point	Normal Stress		Shear Stress
	psi	psf	
1.	1.0	140	190
2.	1.9	280	330
3.	3.9	560	620

Adhesion: 50 psf

Friction Angle: 48 degrees

Displ. Rate: 0.040 in./min.



NOTE: GRAPH NOT TO SCALE

### STRENGTH ENVELOPE

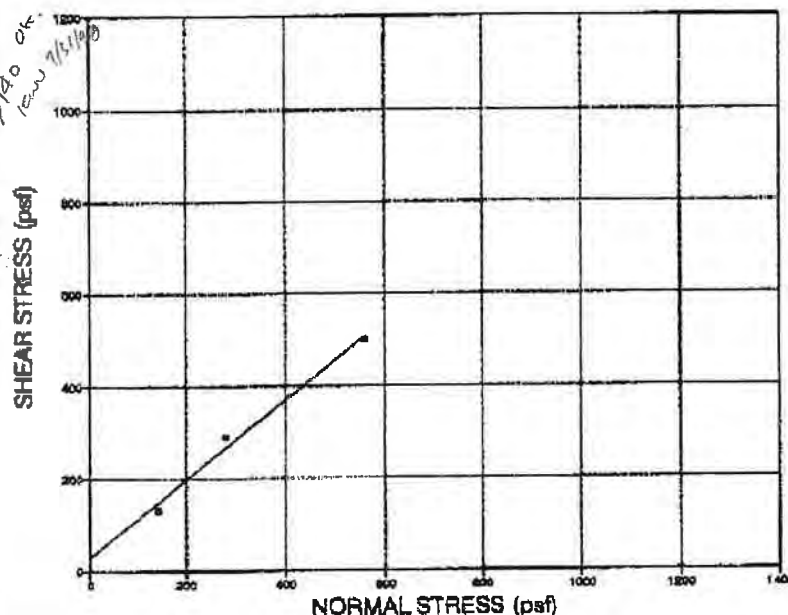
Minimum Shear Stresses

Test Point	Normal Stress		Shear Stress
	psi	psf	
1.	1.0	140	130
2.	1.9	280	290
3.	3.9	560	500

Adhesion: 30 psf

Friction Angle: 41 degrees

Displ. Rate: 0.040 in./min.



NOTE: GRAPH NOT TO SCALE

**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined "best fit" line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering.

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Report Date: 8/3/98

Reviewed by: *APL*

PLATE 1.

# VECTOR

ENGINEERING, INC.

17438 Loma Rica Dr., Suite C, Green Valley, CA 95045  
(916) 272-2448 Fax: (916) 272-8553

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot

Project Name: Hidden Valley Landfill No.: 943015.17-788D

Material 1: &lt;--- Compacted Clay Liner (CCL)

Material 2: ---&gt; 80 mil (1.5 mm) HDPE Textured (Serrot 3802267)

Substrate: ---&gt; Drainage Aggregate

### DISPLACEMENT

#### vs SHEAR STRESS

Test Point	Normal Stress	
	psi	pcf
1.	1.0	140
2.	1.9	280
3.	3.9	560

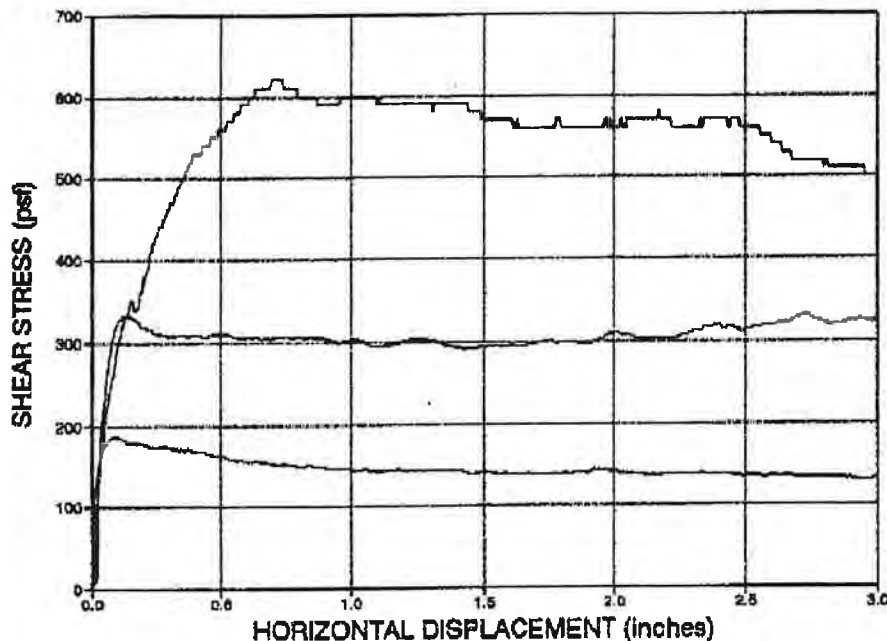
### MOISTURE DATA

(Clay)

Initial Moisture Content:  
31.5%Initial Dry Density:  
87.3 pcf

Final Moisture Content:

1.	2.	3.
38.7	35.7	36.7



### STANDARD CONDITIONS:

1. The "gap" between shear boxes was set at 80 mil (2.0 mm).
2. The test specimens were flooded during testing unless noted.
3. High Normal Stress (>5psi) was applied using air pressure.
4. Low Normal Stress (<5 psi) was applied using dead weights
5. The tests were terminated 3.0" displacement unless noted.
6. Tests were performed in general accordance with ASTM procedure D 5321-92 Method B using a Brainard-Kilman LG-112 direct shear machine with an effective area of 12 in. x 12 in. (Machine A)

### TEST ORIENTATION:

#### NORMAL STRESS



### SPECIAL TEST NOTES:

1. Each specimen of HDPE was cut to 14"x 20" dimensions.
2. The HDPE specimen was bolted to the lower shear box with channel clamps.
3. The compacted clay liner was molded into the top shear box to a density of 87.3 pcf.
4. The Drainage Aggregate was molded into the bottom box to a density of 109.5 pcf.
5. Each test point was consolidated under specified Normal Stress approximately 24 hr prior to shearing.
6. Shearing occurred at the contact between the HDPE and Clay.

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**VECTOR**

ENGINEERING, INC.

12438 Loma Rica Dr., Suite C, Green Valley, CA 95041  
(916) 272-2448 Fax: (916) 272-8553**LARGE SCALE DIRECT SHEAR REPORT**

Client Name: Serrot

Project Name: Hidden Valley Landfill; No.: 943015.17-788E

Material 1: &lt;--- Drainage Aggregate

Material 2: ---&gt; 60 mil (1.5 mm) HDPE Textured (Serrot 3802267)

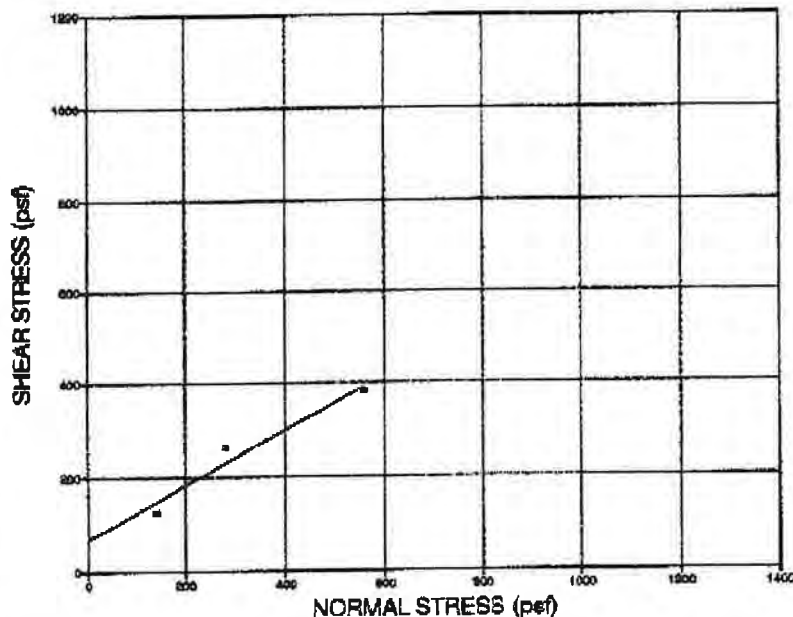
Substrate: ---&gt; Compacted Clay Liner (CCL)

**STRENGTH ENVELOPE**

(at 0.1 - 0.2 in. displacement)

Test Point	Normal Stress		Shear Stress
	psi	psf	psf
1.	1.0	140	130
2.	1.9	280	260
3.	3.9	560	380

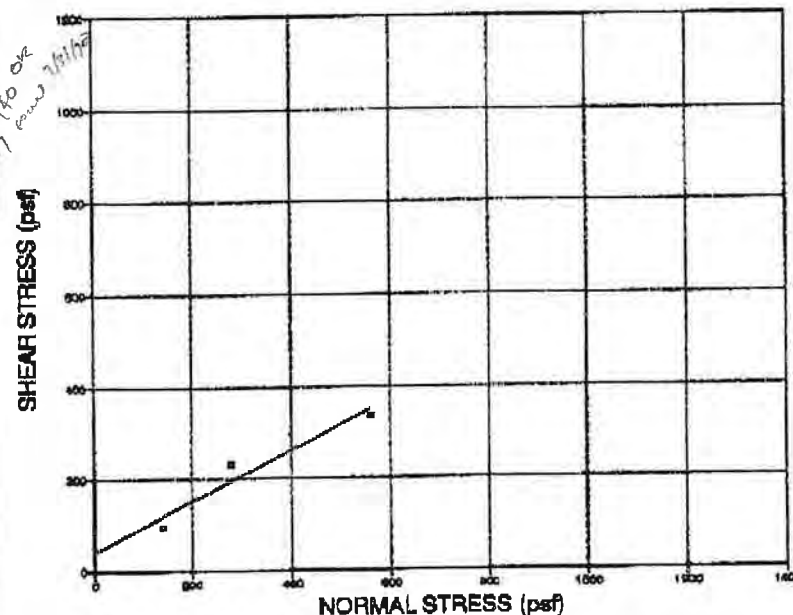
Adhesion: 70 psf  
 Friction Angle: 30 degrees  
 Displ. Rate: 0.040 in./min.

**STRENGTH ENVELOPE**

Minimum Shear Stress

Test Point	Normal Stress		Shear Stress
	psi	psf	psf
1.	1.0	140	100
2.	1.9	280	230
3.	3.9	560	340

Adhesion: 40 psf  
 Friction Angle: 29 degrees  
 Displ. Rate: 0.040 in./min.



**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined "best fit" line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering.

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Report Date: 5/5/98

Reviewed by:

HKL

PLATE 1.



# VECTOR

ENGINEERING, INC.

12438 Loma Vista Dr., Suite C, Green Valley, CA 95045  
(916) 272-3448 Fax: (916) 272-8553

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot

Project Name: Hidden Valley Landfill; No.: 943015.17-788E

Material 1: &lt;--- Drainage Aggregate

Material 2: ---&gt; 60 mil (1.5 mm) HDPE Textured (Serrot 3802267)

Substrate: ---&gt; Compacted Clay Liner (CCL)

### DISPLACEMENT vs SHEAR STRESS

Test Point	Normal Stress	
	psi	psf
1.	1.0	140
2.	1.9	280
3.	3.9	560

### MOISTURE DATA

(Clay)

Initial Moisture Content:

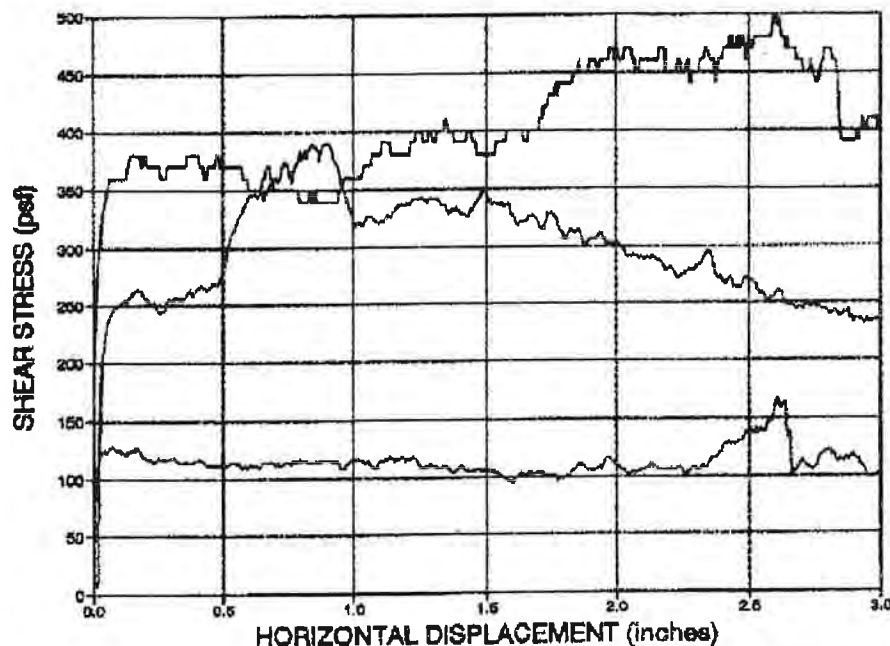
31.5%

Initial Dry Density:

87.3 pcf

Final Moisture Content:

1.	2.	3.
43.0	38.5	39.8



### STANDARD CONDITIONS:

1. The "gap" between shear boxes was set at 80 mil (2.0 mm).
2. The test specimens were flooded during testing unless noted.
3. High Normal Stress (>5psi) was applied using air pressure.
4. Low Normal Stress (<5 psi) was applied using dead weights
5. The tests were terminated 3.0" displacement unless noted.
6. Tests were performed in general accordance with ASTM procedure D 5321-92 Method B using a Brainard-Kilman LG-112 direct shear machine with an effective area of 12 in. x 12 in. (Machine A)

### TEST ORIENTATION:

#### NORMAL STRESS



### SPECIAL TEST NOTES:

1. Each specimen of HDPE was cut to 14"x 20" dimensions.
2. The HDPE specimen was bolted to the lower shear box with channel clamps.
3. The clay was molded into the lower shear box to a density of 87.3 pcf as a substrate below the geomembrane
4. The Drainage Aggregate was molded into the upper box at a density of 109.5 pcf.
5. Each test point was consolidated under specified Normal Stress approximately 24 hr prior to shearing.
6. Shearing occurred at the contact between the HDPE and the Drainage Gravel.
7. The peak shear data is presented based on low strain values, high strain peaks are not used.
8. The erratic shape of the stress strain curve is due to the irregular aggregate shape, dilatancy and edge effects.

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# VECTOR

ENGINEERING, INC.

12438 Loma Rica Dr., Suite C, Green Valley, CA 95945  
(916) 272-2448 Fax: (916) 272-8333

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot Corporation

Project Name: Hidden Valley Landfill; No.: 943015.17-788F

Material 1: &lt;--- 60 mil (1.5 mm) HDPE Textured (Serrot 3602267)

Material 2: ---&gt; Geocomposite (Tensar)

Substrate: ---&gt; &lt;Drainage Aggregate&gt;

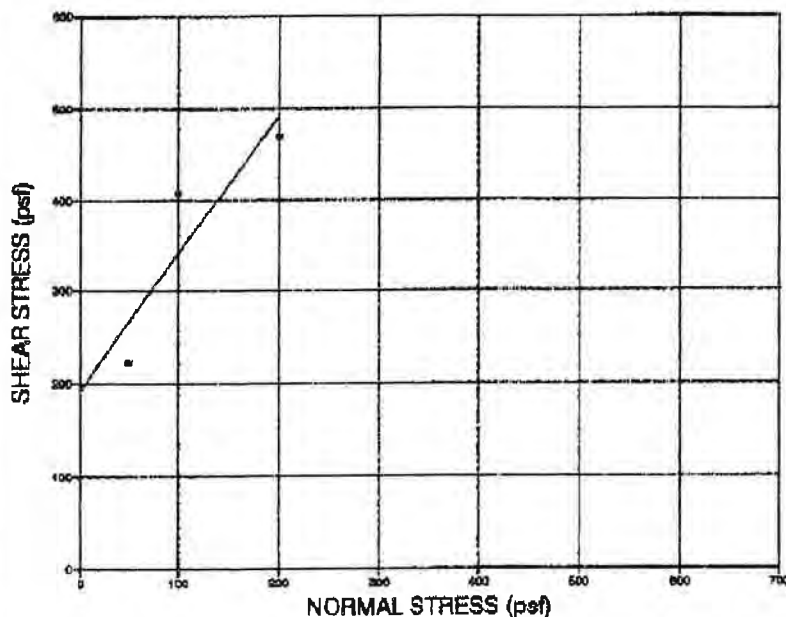
### PEAK STRENGTH

Test Point	Normal Stress		Shear Stress psf
	psi	psf	
1.	0.3	50	220
2.	0.7	100	410
3.	1.4	200	470

Adhesion: 180 psf

Friction Angle: 56 degrees

Displ. Rate: 0.040 in./min.



NOTE: GRAPH NOT TO SCALE

### STRENGTH ENVELOPE

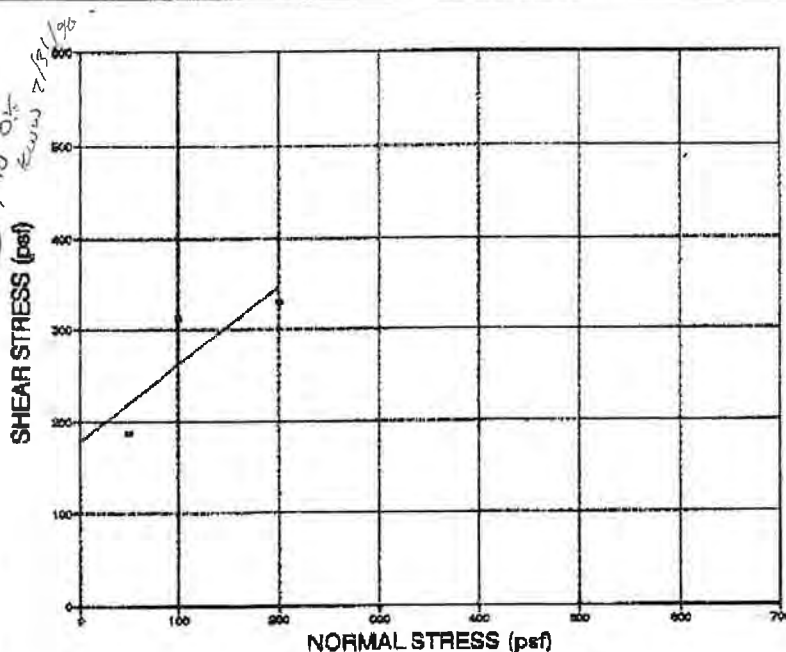
(at 2.5 in. displacement)

Test Point	Normal Stress		Shear Stress psf
	psi	psf	
1.	0.3	50	190
2.	0.7	100	310
3.	1.4	200	330

Adhesion: 180 psf

Friction Angle: 40 degrees

Displ. Rate: 0.040 in./min.



NOTE: GRAPH NOT TO SCALE

**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined "best fit" line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering.

By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc., from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

Report Date: 6/9/98

Reviewed by:

KAL

PLATE 1.

**VECTOR**  
ENGINEERING, INC.12458 Loma Rica Dr., Suite C, Grass Valley, CA 95945  
(916) 272-2448 Fax: (916) 272-8333**LARGE SCALE DIRECT SHEAR REPORT**

Client Name: Serrot Corporation

Project Name: Hidden Valley Landfill; No.: 943015.17-788F

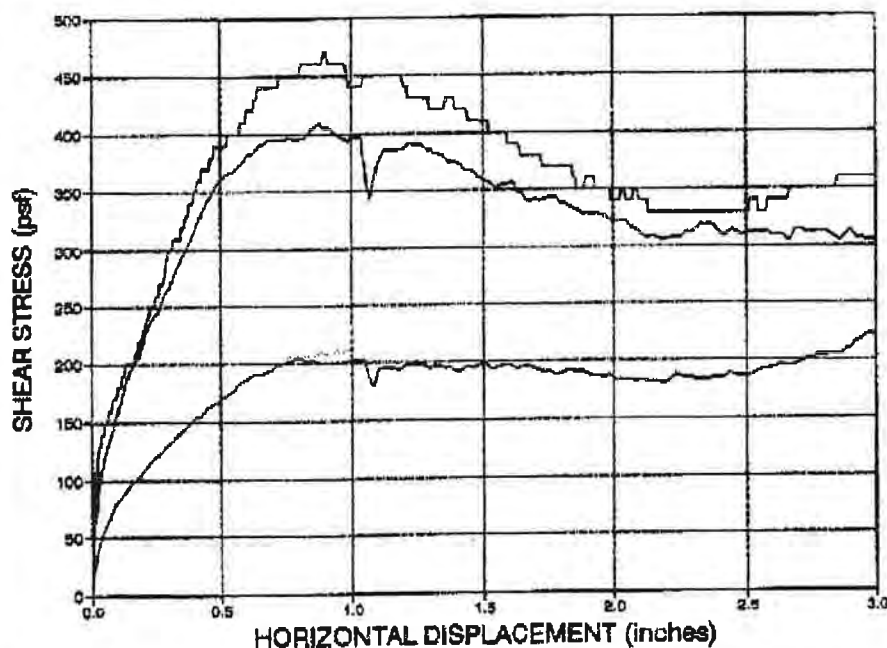
Material 1: &lt;--- 60 mil (1.5 mm) HDPE Textured (Serrot 3802267)

Material 2: ---&gt; Geocomposite (Tensar)

Substrate: ---&gt; &lt;Drainage Aggregate&gt;

**DISPLACEMENT  
vs SHEAR STRESS**

Test Point	Normal Stress	
	psf	psf
1.	0.3	50
2.	0.7	100
3.	1.4	200

**STANDARD CONDITIONS:**

1. The "gap" between shear boxes was set at 80 mil (2.0 mm).
2. The test specimens were flooded during testing unless noted.
3. High Normal Stress (>5psi) was applied using air pressure.
4. Low Normal Stress (<5 psi) was applied using dead weights
5. The tests were terminated 3.0" displacement unless noted.
6. Tests were performed in general accordance with ASTM procedure D 5321-92 Method A using a Brainard-Kilman LG-112 direct shear machine with an effective area of 12 in. x 12 in. (Machine A)

**TEST ORIENTATION:****SPECIAL TEST NOTES:**

1. Each specimen of HDPE was cut to 14"x 16" dimensions.
2. The HDPE specimen was bolted to the upper shear box with standard clamps.
3. Each specimen of Geocomposite was cut to 14"x 20" dimensions.
4. The Geocomposite was bolted to the lower shear box with "channel clamps".
5. Each test point was consolidated under specified Normal Stress approximately 15 min prior to shearing.
6. Shearing occurred at the contact between the HDPE and Geocomposite.

By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

# VECTOR

ENGINEERING, INC.

12436 Loma Rica Dr., Suite C, Grass Valley, CA 95945  
(916) 272-2448 Fax: (916) 272-5333

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot

Project Name: Hidden Valley Landfill; No.: 943015.17-788G

Material 1: &lt;--- Tensar Composite

Material 2: ---&gt; Drainage Aggregate

Substrate: ---&gt; &lt;concrete board&gt;

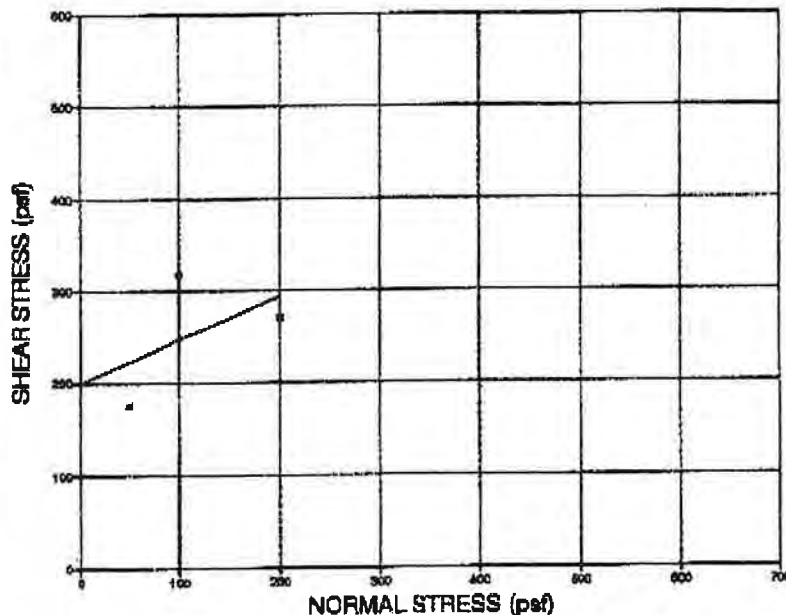
### PEAK STRENGTH

Test Point	Normal Stress		Shear Stress
	psi	psf	
1.	0.3	50	180
2.	0.7	100	320
3.	1.4	200	270

Adhesion: 200 psf

Friction Angle: 25 degrees

Displ. Rate: 0.040 in./min.



NOTE: GRAPH NOT TO SCALE

### STRENGTH ENVELOPE

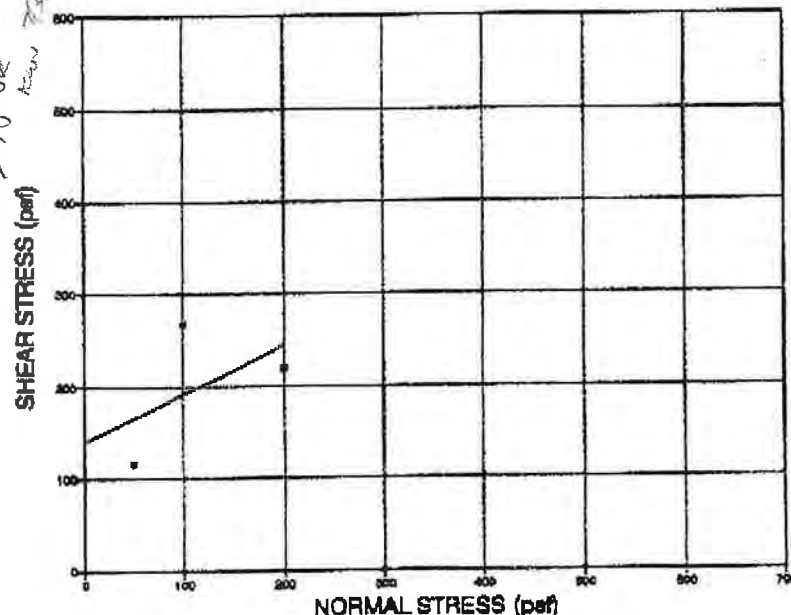
(at 2.5 in. displacement)

Test Point	Normal Stress		Shear Stress
	psi	psf	
1.	0.3	50	120
2.	0.7	100	270
3.	1.4	200	220

Adhesion: 140 psf

Friction Angle: 28 degrees

Displ. Rate: 0.040 in./min.



NOTE: GRAPH NOT TO SCALE

**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined "best fit" line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering.

By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from others and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

Report Date: 6/21/97

Reviewed by: *KA*

PLATE 1.



# VECTOR

ENGINEERING, INC.

12438 Loma Rica Dr., Suite C, Green Valley, CA 95945  
(916) 272-2448 Fax: (916) 272-8553

## LARGE SCALE DIRECT SHEAR REPORT

Client Name: Serrot

Project Name: Hidden Valley Landfill; No.: 943015.17-786G

Material 1: <--- Tensar Composite

Material 2: ---> Drainage Aggregate

Substrate: ---> <concrete board>

### DISPLACEMENT vs SHEAR STRESS

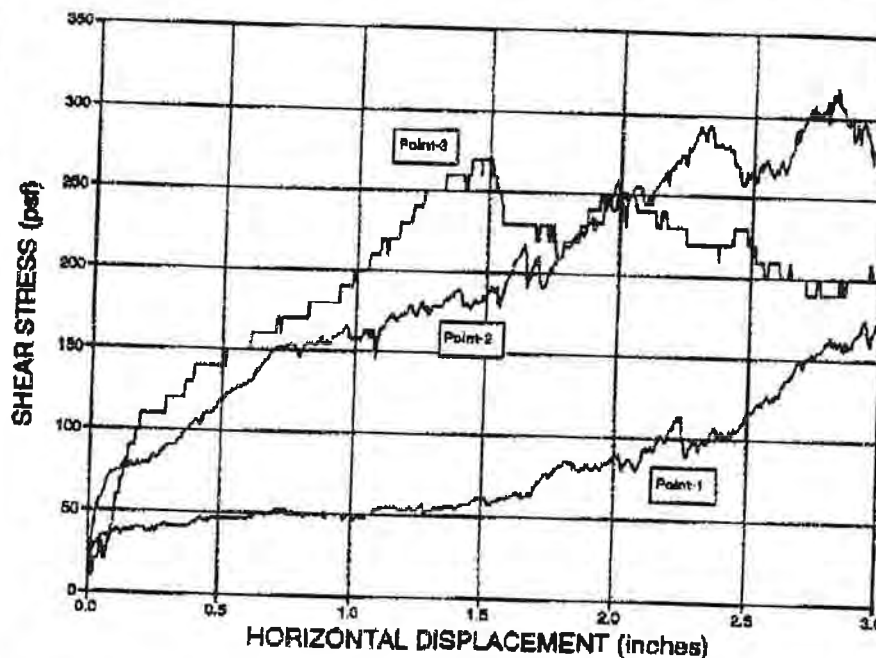
Test Point	Normal Stress	
	psi	pcf
1.	0.3	50
2.	0.7	100
3.	1.4	200

### MOISTURE/DENSITY DATA

(Aggregate)

Initial Moisture Content:  
0%

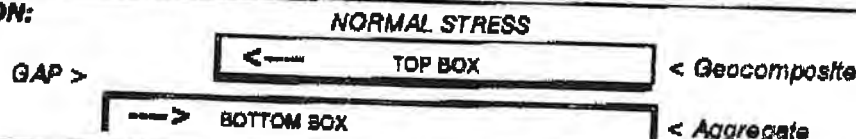
Initial Dry Density:  
109.5 pcf



### STANDARD CONDITIONS:

1. The "gap" between shear boxes was set at 80 mil (2.0 mm).
2. The test specimens were flooded during testing unless noted.
3. High Normal Stress (>5psi) was applied using air pressure.
4. Low Normal Stress (<5 psi) was applied using dead weights
5. The tests were terminated 3.0" displacement unless noted.
6. Tests were performed in general accordance with ASTM procedure D 5321-92 Method B using a Brinard-Kilman LG-112 direct shear machine with an effective area of 12 in. x 12 in. (Machine A)

### TEST ORIENTATION:



### SPECIAL TEST NOTES:

1. Each specimen of Geocomposite was cut to 14"x 20" dimensions.
2. The Geocomposite specimen was bolted to the upper shear box with standard clamps.
3. Each test point was consolidated under specified Normal Stress approximately 15 min prior to shearing.
4. Shearing occurred at the contact between the Geocomposite and Aggregate.
5. The erratic shape of the stress strain curve is due to the irregular aggregate shape, dilatancy and edge effects.
6. Strength envelopes presented are effected by the irregular aggregate as noted above.

By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of this data to the cost for the respective test(s) represented herein, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

Lab file: 786G-DBB.WQ

print date 06/16/98

entered by RWM

PLATE 2.

**VECTOR****ENGINEERING, INC.**7435 Lewis Rice Dr., Suite C, Green Valley, CA 95045  
(916) 272-2448 Fax: (916) 272-5553**LARGE SCALE DIRECT SHEAR REPORT**

Client Name: Serrot

Project Name: Hidden Valley Landfill; No.: 943015.17-788G-1

Material 1: &lt;--- Tensar Composite

Material 2: ---&gt; Drainage Aggregate

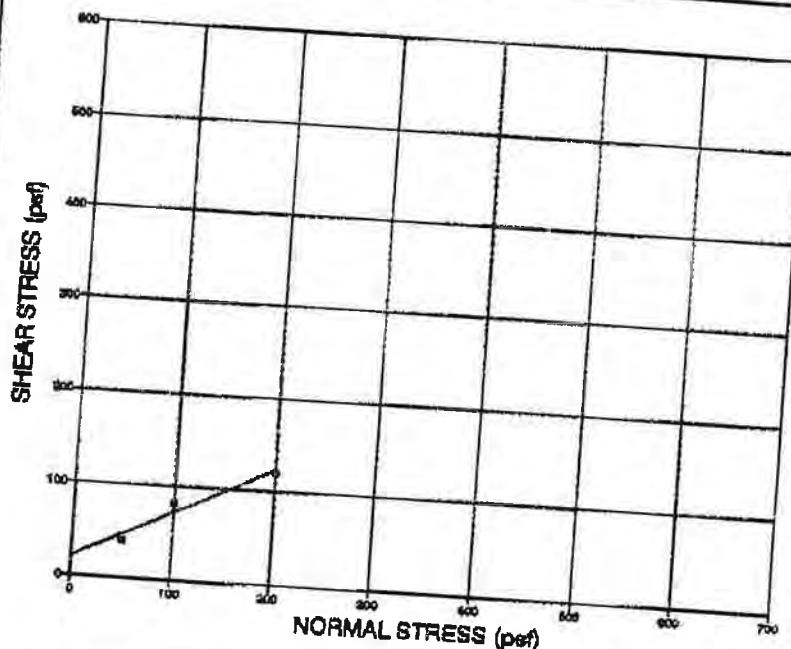
Substrate: ---&gt; &lt;concrete board&gt;

**STRENGTH ENVELOPE****LOW STRAIN (0.25 in.)**

Test Point	Normal Stress		Shear Stress
	psf	psf	
1.	0.3	50	40
2.	0.7	100	80
3.	1.4	200	120

Adhesion: 20 psf  
 Friction Angle: 27 degrees  
 Displ. Rate: 0.040 in./min.

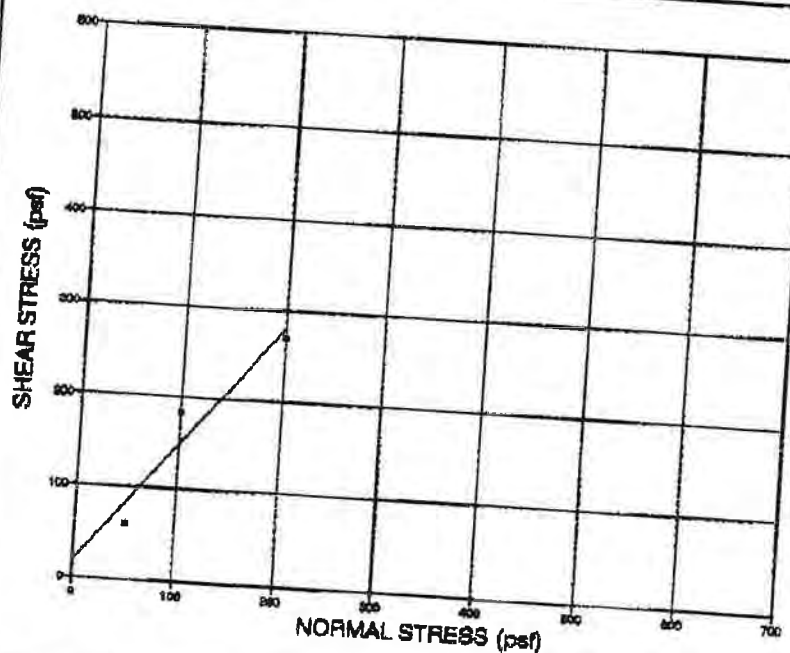
NOTE: GRAPH NOT TO SCALE

**STRENGTH ENVELOPE****HIGH STRAIN (1.5 in.)**

Test Point	Normal Stress		Shear Stress
	psf	psf	
1.	0.3	50	60
2.	0.7	100	180
3.	1.4	200	270

Adhesion: 20 psf  
 Friction Angle: 53 degrees  
 Displ. Rate: 0.040 in./min.

NOTE: GRAPH NOT TO SCALE



**NOTE:** The Friction Angle and Adhesion (or Cohesion) results given here are based upon a mathematically determined "best fit" line. Further interpretation should be conducted by a qualified professional experienced in geosynthetic and geotechnical engineering. By accepting the data and results represented on this page, Client agrees to limit the liability of Vector Engineering, Inc. from Client and all other parties for claims arising out of the use of the data to the cost for the respective test(s) represented hereon, and Client agrees to indemnify and hold harmless Vector from and against all liability in excess of the aforementioned limit.

Report Date: 5/21/97

Reviewed by:

KOA

**PLATE 1.**

**APPENDIX E**  
**DAILY REPORTS**

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 6/30/98

PROJECT NO.: 40202-005.061

REPORT NO.: 01

CLIENT: LRI

CONTRACTOR: LRI

REPORT BY: Glenn Heath

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WEATHER

Clear Lt. Wind

TEMP. (°F)

85

TIME ARRIVED: 14:00

TIME DEPARTED: 17:00

### AVERAGE FIELD FORCE

CONTRACTOR

LRI

PERSONNEL

1

EQUIPMENT IN OPERATION

1 D-4 Dozer

### VISITORS

TIME

14:00

NAME

Kent Wiken

REPRESENTING

EMCON

REMARKS

Project Orientation

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Toured the site with Kent Wiken And Jim Crandall, then unloaded lab equipment and set up the field lab.

CONSTRUCTION ACTIVITIES: On site along with Kent Wiken to meet Jim Crandall and get the field lab set up. We toured the site and looked at the various tasks that are going to be performed on this project. I then unloaded the equipment and set it up in preparation for testing. Kent and I left site at 17:00hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE



**DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/1/98

PROJECT NO.: 40202-005.061

REPORT NO.: 02

CLIENT: LRI

CONTRACTOR: LRI

REPORT BY: Glenn Heath

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WEATHER

Overcast, Lt. Wind

TEMP.(°F)

78

TIME ARRIVED: 08:00

TIME DEPARTED: 17:30

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
1EQUIPMENT IN OPERATION  
1 D-4 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Made a trip to Bothel Office to obtain more lab equipment and supplies, returned to site, and uncrated. Observed the pushing of clay down the South slope.

CONSTRUCTION ACTIVITIES: After talking with Don Briggs, I found out all the sieves had arrived along with the sieve shaker. I purchased blast sand for the sand cone test and went to the Bothel office to load the equipment. I returned to the site at 14:00hrs unloaded, and unpacked. Electrical power is still not available so the sand for the sandcone test is not ready as of this date as it needs to be dried to a constant weight. I left site at 17:30hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON**

### DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/2/98

PROJECT NO.: 40202-005.061

REPORT NO.: 03

CLIENT: LRI

CONTRACTOR: LRI

REPORT BY: Glenn Heath

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WEATHER

Overcast, Lt. Wind

TEMP.(°F)

78

TIME ARRIVED: 08:00

TIME DEPARTED: 17:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
1EQUIPMENT IN OPERATION  
1 D-4 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Observed the delivery of clay to the top of the South and East slopes. I met with the surveyor and located 2 gas extraction wells for drilling.

CONSTRUCTION ACTIVITIES: On site to observe the delivery of clay liner material. I also, by measuring off of the existing extraction wells, located two new wells. I met with the DBM surveyors and staked the wells and they shot them in and are supposed to fax the locations and elevations to the Bothell office this week. I worked on the lab some more and read the specs for balance of the day. Off site at 17:00hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**emcon****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 7/6/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 04			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Sunny, Lt. Wind					80		
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30			TIME DEPARTED: 15:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI		PERSONNEL 2		EQUIPMENT IN OPERATION None					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING				REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Ordered more equipt. for field observation and obtained information for scheduling.									
CONSTRUCTION ACTIVITIES: On site at 06:30 to observe the construction of liner. No work on this was performed this date. I called Kent Wiken and found out they will be drilling the two gas extraction wells on Thurs and Fri of this week. I informed Jim Crandall of this. I, at Kent's request called the Ft. Worth office and inquired about getting a gas monitor. They had one they could send us and I sent for it so I could monitor the trench work and gas well drilling operation for methane. Off site at 15:30hrs.									
WERE PHOTOS TAKEN: No									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

**emcon****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 7/7/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 05			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Overcast, Lt. Wind					83		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:30			TIME DEPARTED: 16:00				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI			PERSONNEL 1		EQUIPMENT IN OPERATION 1 John Deere D650 Dozer				
<b>VISITORS</b>									
TIME	NAME		REPRESENTING			REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Observed pushing clay down South slope and spreading to dry.									
CONSTRUCTION ACTIVITIES: Contractor pushing clay down South slope to dry it out for liner construction. I was informed that the drilling of two wells will begin tomorrow morning. Pete Sybert faxed me some forms to fill out along with the calculations on the depths of the wells. Jim Crandall told me he will send Cris to help build the casings for the wells. I left site at 16:00hrs.  8 hrs total 1 hr prep for gas well install									
WERE PHOTOS TAKEN: No									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				



**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 7/8/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 06					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Overcast, Lt. Wind				83			
REPORT BY: Glenn Heath				TIME ARRIVED: 07:00				TIME DEPARTED: 19:30			

**AVERAGE FIELD FORCE**

CONTRACTOR LRI	PERSONNEL 1	EQUIPMENT IN OPERATION 1 John Deere D650 Dozer 1 LL Drilling Rig 1 support truck
-------------------	----------------	--

**VISITORS**

TIME	NAME	REPRESENTING	REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Observed complete construction of Gas Well E-29

CONSTRUCTION ACTIVITIES: On site at 07:00hrs to observe the drilling, casing placement, and backfilling of Gas Well E29. Cris and I built the casings for both E28 and E29 and placed them near the locations for placement. The drilling contractor began drilling on E-29 at approx. 10:15 and drilled to approx. 60ft when the excavated trash began shedding some water. We at this time asked if the drilling and completion can be completed this date due to the water. Jim Crandall gave the permission and we completed the well at approx. 19:30hrs. All went smoothly and with little problems. Gas well E28 will be drilled tomorrow. Off site at 19:30hrs.

12.5 total hrs - East Gas System Const

WERE PHOTOS TAKEN: Yes, of the drill rig and the excavated trash.

FIELD REPRESENTATIVE \_\_\_\_\_ DATE \_\_\_\_\_

REVIEWED BY \_\_\_\_\_ DATE \_\_\_\_\_

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 7/9/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 07						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Overcast, Lt. Wind					83		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:00			TIME DEPARTED: 16:30				

**AVERAGE FIELD FORCE**

CONTRACTOR LRI	PERSONNEL 1 2	EQUIPMENT IN OPERATION 1 John Deere D650 Dozer 1 LL drill rig and 1 support truck
-------------------	---------------------	---

**VISITORS**

TIME	NAME	REPRESENTING	REMARKS
10:00	Kent Wiken and Pete Sybert	EMCON	Met with County and State Officials
10:00		DOE	Inspection
10:00		County Health Dept.	Inspection

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Drilling and completion of Gas Extraction Well No. E28 was performed this date.

CONSTRUCTION ACTIVITIES: Drilling and completion of Gas Extraction Well No. E28 was performed this date. Some problems occurred with joining the 4" and 3" pipes together as deformation of the 4" pipe had occurred approx. 2" below the bell when the pipe was formed. We eventually had to cut the bells from both pipes and place a coupling to weld the slip joint to.. Setr screws were screwed into the 3" pipe just below the reducer to insure the pipe would not slip apart while being placed into the hole. The well was then filled to proper depth with rock, bentonite, and clay to complete the task. Kent Wiken and Pete Sybert were on site to meet with the County and State officials and to talk to me about gas well reading. They left site at approx. 13:30hrs. I left site at 17:00hrs.

8 hrs Gas system Const.

WERE PHOTOS TAKEN: Yes, of Excavated trash on Well no. E28

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 7/10/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 08						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Sunnyt, Lt. Wind					80		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30				TIME DEPARTED: 16:00			

### AVERAGE FIELD FORCE

CONTRACTOR LRI	PERSONNEL 1	EQUIPMENT IN OPERATION 1 John Deere D650 Dozer
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### VISITORS

TIME	NAME	REPRESENTING	REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Began Taking Gas probe and Extraction well readings, this date.

CONSTRUCTION ACTIVITIES: Went to Bothell Office to obtain last of field lab eqipt. and to turn in the Leak Test Kit for Troxler. Returned to site and took readings on all of the gas probes and some of the gas extraction wells. Off site at 17:00hrs.

8 hrs total  
6 hrs to Gas System O&M - 005.054  
Monitoring

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 7/13/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 09					<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Partly Cloudyt, Lt. Wind				80			
REPORT BY: Glenn Heath				TIME ARRIVED: 08:00				TIME DEPARTED: 17:00			

**AVERAGE FIELD FORCE**

CONTRACTOR LRI	PERSONNEL 1	EQUIPMENT IN OPERATION 1 John Deere D650 Dozer
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**VISITORS**

TIME	NAME	REPRESENTING	REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Observed pushing clay down South slope and spreading to dry. Took Gas well readings.

CONSTRUCTION ACTIVITIES: On Site at 08:00hrs to continue the gas well readings. Clay was being pushed down the slope on the East side of closure area to dry. The roadway around the site was being wrecked out for trench rebuilding. Labor crews were picking trash from South slope. I took readings until 16:30 and left site to get flat fixed.

8 hrs total

4 hrs to Gas Monitoring - 005.054

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE \_\_\_\_\_ DATE \_\_\_\_\_

REVIEWED BY \_\_\_\_\_ DATE \_\_\_\_\_



**emcon****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 7/14/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 10			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER				TEMP. (°F)			
CONTRACTOR: LRI		Overcast, Lt. Wind				83			
REPORT BY: Glenn Heath		TIME ARRIVED: 08:00			TIME DEPARTED: 16:30				

**AVERAGE FIELD FORCE**

CONTRACTOR LRI	PERSONNEL 1	EQUIPMENT IN OPERATION 1 John Deere D650 Dozer
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**VISITORS**

TIME	NAME	REPRESENTING	REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Observed pushing clay down South slope and spreading to dry.

CONSTRUCTION ACTIVITIES: On site at 08:00 to continue the gas well readings. The contractor was pushing the clay down the East slope to dry it out. The labor crews were on site picking trash on the South Slope. More labor crew members were clearing the North slope and removing plastic and tires in prep for liner construction. I completed the gas readings this date.

8 hrs total

4 hrs for Gas Monitoring - 005.054

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 7/15/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 11			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Overcast, Rain, Lt. Wind					83		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:30			TIME DEPARTED: 16:00				

**AVERAGE FIELD FORCE**

<b>CONTRACTOR</b> LRI	<b>PERSONNEL</b> 10	<b>EQUIPMENT IN OPERATION</b> 1 John Deere D650 Dozer
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**VISITORS**

TIME	NAME	REPRESENTING	REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Attended the Preconstruction meeting for the liner. Labor crews were picking trash from the South slope in prep for construction.

CONSTRUCTION ACTIVITIES: Attended the Preconstruction meeting for the liner. The concrete, plastic, and gravel contractors were all present. Kent Wiken was present at this meeting along with myself to represent EMCON. All the points of the project were discussed at the meeting and the site tour was performed. The FML contractor from Serrot will begin trench construction on or around the 27th of this month.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 7/16/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 12						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP. (°F)		
CONTRACTOR: LRI					Clear, Lt Wind					85		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30			TIME DEPARTED: 16:00				

**AVERAGE FIELD FORCE**

<b>CONTRACTOR</b> LRI	<b>PERSONNEL</b> 10	<b>EQUIPMENT IN OPERATION</b> 1 John Deere D650 Dozer
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**VISITORS**

TIME	NAME	REPRESENTING	REMARKS
13:00	Kelly Susewind	DOE	Site Visit
13:00	Garin Schriever	DOE	Site Visit
13:00	David Bosch	County Health Dept.	Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Trash Picking on the South and East Slopes, Met with DOE and County Health Dept Personnel about the project

**CONSTRUCTION ACTIVITIES:** On site at 07:30 to observe the spreading of Corliss soil on the South slope, and trash removal on the East slope. At 13:00hrs, David Bosch, Kelly Susewind, and Garin Schriever arrived on site to look at the project and the progress. Jim Crandall and I met with them, and discussed the specifications. The problems they mentioned were as follows; 1) No compaction testing on the subgrade. 2) Rocks and debris in the subgrade. 3) Slopes > 3:1. Jim had to leave to tend to business so I stayed to answer questions about the specs. I got the specbook out and we looked at it. The specs were clear on the materials and the subgrade. Kelly explained to Garin the requirements as he saw them and they left concerned with the slope grade and the top 6" not having any rocks larger than 1" and less than 10% rock. I called Kent Wiken and informed him of the results and talked with Harvey and Jim about it. Off site at 16:30hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE \_\_\_\_\_ DATE \_\_\_\_\_

REVIEWED BY \_\_\_\_\_ DATE \_\_\_\_\_

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/17/98

PROJECT NO.: 40202-005.061

REPORT NO.: 13

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CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Overcast, Rain, Lt. Wind

83

REPORT BY: Glenn Heath

TIME ARRIVED: 07:30

TIME DEPARTED: 16:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
10EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Took Field density tests on the subgrade on the South and East slopes. The South slope was found to be within the zone of acceptable compaction. The East slope was too dry to meet the specification on the far north end at the top.

CONSTRUCTION ACTIVITIES: After a phone discussion with Kent Wiken, I took Field density tests on the Slopes to determine if the compaction is within the specified limits of the zone of acceptable compaction. The upper section of the North end of the East slope was too dry and over compacted the balance of the tests reflected passing results. (Some locations on the East slope could not be tested due to old stockpiles of Corlis soil.) I was informed that a meeting with Kelly Susewind will be held Mon. Morning at 07:30..Off site at 16:00hrs

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE



**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/18/98

PROJECT NO.: 40202-005.061

REPORT NO.: 14

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CLIENT: LRI

WEATHER

TEMP. (°F)

CONTRACTOR: LRI

Sunny, Lt. Wind

80

REPORT BY: Glenn Heath

TIME ARRIVED: 07:30

TIME DEPARTED: 13:30

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
10EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Worked on the East slope getting trash picked up Jim took some shots on the Slopes to see how bad they exceeded the 3:1 requirement.

CONSTRUCTION ACTIVITIES: Observed the trash removal on the East slope and the plastic removal on the North slope. Temporary piping was laid out to reactivate the gas wells on the East slopes as they have been out of use for a week. Jim took shots on the slopes to see just how bad they were and how far out of 3:1 they were. We worked thru lunch and I left at 13:30hrs.

6 hrs total

1 hr to East Gas System Const

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/20/98

PROJECT NO.: 40202-005.061

REPORT NO.: 15

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CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Overcast, Lt wind

77

REPORT BY: Glenn Heath

TIME ARRIVED: 07:00

TIME DEPARTED: 16:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
10EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

07:30

Lee fortier

EMCON

Meeting

07:30

Kent Wiken

EMCON

Meeting

07:30

Kelly Susewind

DOE

Meeting

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Attended meeting pertaining to the criteria which has to be met before the clay liner can begin.

**CONSTRUCTION ACTIVITIES:** Attended a meeting with DOE LRI and EMCON to discuss the criteria for this project as a whole in order to get the DOE and County officials approval. The Project at Harvey's request was also structured away from Jim Crandall's responsibility and more toward EMCON. This means that EMCON, as the QA group, will be responsible for the acceptance and rejection of all work and Jim Crandall will assume the roll of the contractor. The EMCON rep will be the main contact with the County and State officials as well. Kelly Susewind, Kent Wiken and I went over the site problems as well as walking the site to discuss the problems in whole. Mainly the still existing trash and the slope grades. After this Kent and I went over the problems with Jim to be sure we are on the same track. It was determined that Kent would have the surveyors reprofile the slopes, recalculate the slope stability and inform all whether the slopes could exceed the 3:1 mark or if 3:1 was the limit. The answer should known by Friday. Other than slope cleaning, no other work was performed this date

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/21/98

PROJECT NO.: 40202-005.061

REPORT NO.: 16

CLIENT: LRI

CONTRACTOR: LRI

REPORT BY: Glenn Heath

DAY	S	M	T	W	TH	F	S
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WEATHER

TEMP.(°F)

Overcast, Lt wind

77

TIME ARRIVED: 07:00

TIME DEPARTED: 16:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
10EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Jim Crandall Took more shots on the slopes, and subgrade fill was placed on the SE corner of the site.

CONSTRUCTION ACTIVITIES: Jim Crandall took more shots on the SE corner of the slope to find out how it fit in the slope problem area. I took the shots and plotted them to see, and found it too was out at the bottom 1/3 of the slope. Jim canceled the concrete construction at the drainage ditch until we could find out what needed to be done. Off site at 16:00hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/22/98

PROJECT NO.: 40202-005.061

REPORT NO.: 17

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CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Morning Fog, Lt wind

73

REPORT BY: Glenn Heath

TIME ARRIVED: 07:30

TIME DEPARTED: 16:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
10EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: The soil stockpiles on the East slope were moved down to the toe of the slope and spread over the bottom 1/3 of the slopes to try and balance the grades.

CONSTRUCTION ACTIVITIES: The soil stockpiles on the East slope were spread out over the bottom 1/3 of the slopes to help balance the grade on the slopes. Trash was picked up on the Southern half of the East slope as a second scan to see if anything was missed. Off site 16:00hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE



**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 7/23/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 18			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP. (°F)		
CONTRACTOR: LRI		Morning Fog, Lt wind					78		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:30			TIME DEPARTED: 16:00				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI		PERSONNEL 1		EQUIPMENT IN OPERATION 1 John Deere D650 Dozer					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING			REMARKS				
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Kent called and said the 3:1 mark could not be exceeded and that the surveyors will out tomorrow to profile the slopes as they exist. I notified Jim (as did Kent by phone) Jim began bringing Corlis clay to the top of the slope to be ready to push down and fill the toe area.									
CONSTRUCTION ACTIVITIES: Kent Wiken called me and stated that the 3:1 slope could not be exceeded and the slope will be adjusted by adding clay rather than cutting out the hump. He said he will notify Jim Crandall of this also. Jim after hearing this, began bringing in material to the top of the slope to begin processing for fill below the hump area. all the way around the top. Off site 16:00hrs.									
WERE PHOTOS TAKEN: No									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/24/98

PROJECT NO.: 40202-005.061

REPORT NO.: 19

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CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Clear, Lt wind

75

REPORT BY: Glenn Heath

TIME ARRIVED: 07:30

TIME DEPARTED: 16:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
1EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: East slope fill was pushed down and spread for processing. I plotted the rest of Jims shots to give him an idea of where he stood.

CONSTRUCTION ACTIVITIES: Corlis Clay was pushed down the East slope to dry and be used as fill on the lower 1/3 of fill . I plotted the rest of Jim's shots so he could see where he stood. Off site at 16:00hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 7/25/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 20						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP. (°F)		
CONTRACTOR: LRI					Clear, Lt wind					75		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30				TIME DEPARTED: 09:30			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI				PERSONNEL 2		EQUIPMENT IN OPERATION 21 John Deere D650 Dozer s						
<b>VISITORS</b>												
TIME	NAME				REPRESENTING				REMARKS			
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Jim laid out fill stakes this date to show where the fill must go. I plotted the last two rows he shot and found that 6' of fill was needed at the Western section of the South slope. The fill being brought in was so wet that the dozers were slipping. The import was shifted to the stockpiles in the back of the site.												
CONSTRUCTION ACTIVITIES: The fill was brought in to the top of the south slope for about 30min. but was so wet that dozers were sliding out of control. Jim shut the process down and had the material brought to the stockpiles in the back of the site. Jim also had the asphalt saw cut out 6 more feet from the North edge of the South road, to allow moving the toe out 6 more feet. I plotted the last two rows he shot today and left at 09:30hrs.												
WERE PHOTOS TAKEN:            No												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/27/98

PROJECT NO.: 40202-005.061

REPORT NO.: 21

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CLIENT: LRI

CONTRACTOR: LRI

WEATHER

Clear, Lt wind

TEMP.(°F)

95

REPORT BY: Glenn Heath

TIME ARRIVED: 07:30

TIME DEPARTED: 16:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
1EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Attended the site meeting with Kent, Dan Berg, the surveyors shot new profiles on the slopes

CONSTRUCTION ACTIVITIES: Attended the site meeting with Kent Wiken, Harvey, Jim Crandall and Dan Berg. We discussed the construction of the trenches, and filling some of the 6' of fill using pit run on the 1st 4' of fill as it was not in the testing area. The surveyors shot the profiles on the slopes beginning at 10:00hrs. The asphalt on the south section of the ring road was demoed and removed. No other work was performed this date.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/28/98

PROJECT NO.: 40202-005.061

REPORT NO.: 22

CLIENT: LRI

CONTRACTOR: LRI

REPORT BY: Glenn Heath

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WEATHER

TEMP. (°F)

Clear, Lt wind

95

TIME ARRIVED: 07:30

TIME DEPARTED: 16:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
1EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer, 1 Smooth drum roller**VISITORS**TIME  
16:30NAME  
Dave BoschREPRESENTING  
County Health DeptREMARKS  
Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Moved the trench at toe of South slope, and began bringing up grade using pit run. The pit run was rolled in with a large smooth drum roller borrowed from the compost facility construction site.

**CONSTRUCTION ACTIVITIES:** The trench was excavated on the south slope to move it over approx. 6ft. The pit run was then hauled to the fill area using the large dump trucks from the pit next door. The material was spread using a small dozer and rolled using a large smooth drum roller. Dave Bosch called me and checked on the progress. I told him what has been done (basically nothing) and that the GCL crew was cancelled. He said he would be out tomorrow to look at the construction. I checked with Jim Crandall and decided to go home for a few days. I will be leaving tomorrow at noon. I thought I should call Dave Bosch back and let him know so he could meet with me in the morning. He said he would be busy but could get with me today later in the afternoon. I met him at approx. 15:30hrs and showed him the fill at the toe of the South slope and explained what we were doing. He seemed pleased with the idea and was happy that I called him out so he would not get a surprise later. He left site at 16:30hrs. I left site 16:35hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE



**DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 7/29/98

PROJECT NO.: 40202-005.061

REPORT NO.: 23

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CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Clear, Lt wind

95

REPORT BY: Glenn Heath

TIME ARRIVED: 07:30

TIME DEPARTED: 12:00

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
1EQUIPMENT IN OPERATION  
1 John Deere D650 Dozer, 1 Smooth drum roller**VISITORS**TIME  
09:00NAME  
Kelly SuswindREPRESENTING  
DOEREMARKS  
Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Continued bring up the low area at toe of the South slope. Doe rep on site this date.

**CONSTRUCTION ACTIVITIES:** The build-up at the toe of the south slope was continued this date. the pit run was delivered using the Cat dumps and spread using a small dozer. The material was then rolled with a smooth drum roller. Kelly Suswind arrived on site at approx. 09:00 to observe the construction and I explained the fill at the toe of the slope Kelly asked if there was a drawing on this. I told him no as this was a field change. I told him I would get with Kent Wiken about it. Kelly off site at 09:45. I informed him that I will be off site until Mon. 8/3/98 and that Pete Sibert is on call in case someone is needed on site during my absence. I left site at 12:00 noon.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/3/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 24					<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Clear, Lt wind				88			
REPORT BY: Glenn Heath				TIME ARRIVED: 08:00				TIME DEPARTED: 11:00			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI				PERSONNEL 1		EQUIPMENT IN OPERATION 1 John Deere D650 Dozer, 1 Smooth drum roller					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING			REMARKS				
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Received 30 rolls of 60ml textured HDPE this date I logged the rolls in and observed unloading and storage. I also attended the Mon. morning meeting.											
CONSTRUCTION ACTIVITIES: On site 08:00 to attend meeting. I was informed that more samples need to be taken on the gas extraction system. Kent set the sample apparatus and container delivery up for tomorrow. We also discussed the shop drawings from Serrot and Jim expressed he would like to have the panels placed longwise along the trench West of the main cell. I was to call Serrot and ask them about this. 30 rolls of textured HDPE material arrived on site and I logged it in. I observed the unloading and storage of the materials to assure no damage was done to the material. Off site at 11:00.											
WERE PHOTOS TAKEN: No											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

**DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 8/4/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 25			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER		TEMP.(°F)					
CONTRACTOR: LRI		Clear, Lt wind		95					
REPORT BY: Glenn Heath		TIME ARRIVED: 07:30		TIME DEPARTED: 16:00					

**AVERAGE FIELD FORCE**

<b>CONTRACTOR</b> LRI	<b>PERSONNEL</b> 1	<b>EQUIPMENT IN OPERATION</b> 1 John Deere D650 Dozer, 1 Smooth drum roller
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**VISITORS**

TIME	NAME	REPRESENTING	REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: 18" of clay fill was begun on the top of the closure area this date. The material was placed and tested in 6" lifts. 2 lifts were completed this date. The sampling of the gas at the flare was not successful and rescheduled for tomorrow.

**CONSTRUCTION ACTIVITIES:** Due to the stockpile in the working face of the landfill being in the way, the material needed to be relocated. Jim Crandall decided to go ahead with the placement of 18" on the top of the closure area instead of relocating the pile. The material was placed in 6" lifts and I took compaction tests on each of the 2 lifts placed this date. The material was at an ideal moisture content and with exception of the SE corner, all tests were found within the Zone of Acceptable Compaction. The SE corner, 1st lift was found to be with excess moisture content and compaction could not be obtained. The 2nd lift was not placed in this area. The gas sampling was to be performed this date. However, the pump had a dead battery and as we placed the methanol containers in line, the lack of vacuum caused the methanol to be sucked up into the flair. We called Air Toxic Laboratories and they are to send more methanol and a converter to run the pump off of 115V line. They also told us to take the samples from the pressure side of the pump station. I expressed my opinion that this may not be a representative sample as if there is even a small leak in the intake side of one of the blowers, it could be injecting fresh air into the line causing high nitrogen and oxygen content in the gas. It would be still low enough not to affect the flair operation. Jim told me he called Serrot and they said they would rather not go horizontal on the trenches as it would cause too much work for them and too many repairs. Off site at 16:00hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/5/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 26						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Clear, Lt wind					80		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30				TIME DEPARTED: 17:00			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI				PERSONNEL 1		EQUIPMENT IN OPERATION 1 John Deere D650 Dozer, 1 Smooth drum roller						
<b>VISITORS</b>												
TIME	NAME			REPRESENTING				REMARKS				
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests:    Obtained the balance of tests on the clay fill on top of the closure area. Also obtained the gas samples as prescribed by ATL.												
<p><b>CONSTRUCTION ACTIVITIES:</b>    With exception of the test s on the SE corner of the cell the top of the closure area was completed this date. More of the material was placed on the East slope but not in it's final location. The gas from the extraction system was sampled this date using the new supply of methanol and a converter sent to us. WE sampled from the pressure side of the blowers and obtained a canister sample also. The material was hauled from the upper stockpile until 17:00hrs this date, and placed on the East slope. Off site at 17:00hrs.</p>												
WERE PHOTOS TAKEN:            No												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/5/98	JOB NO: 40202-005.061:
REPORT NO: 26	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) CAH

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☒ YES ☐ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☒ YES ☐ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

25

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

None

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

Silty Clay, Brown

BORROW AREA NO. USED TODAY Stockpile in trash area

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

Stockpiling on side slopes.

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

3rd Lift on the top of the closure area.

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

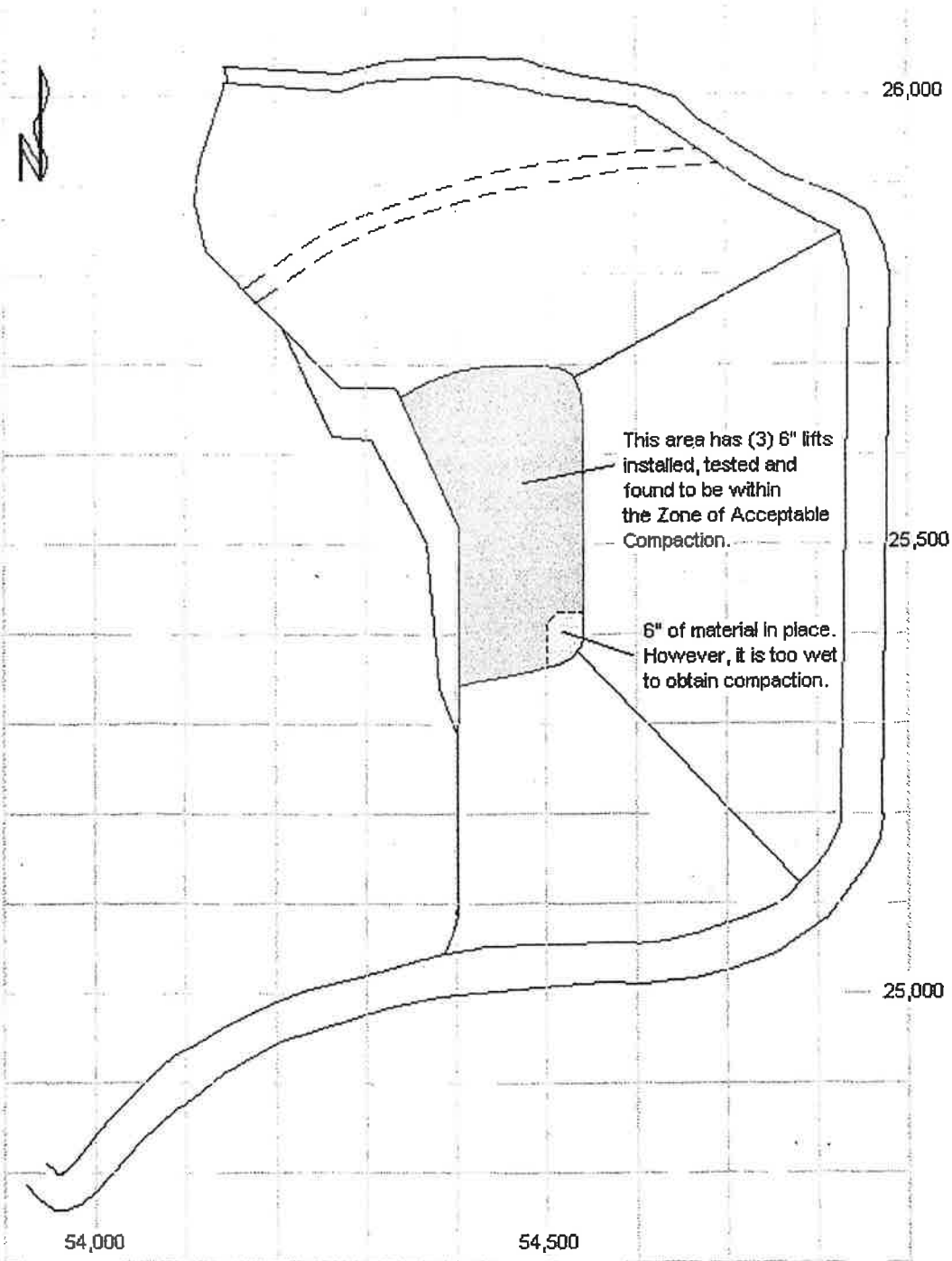
WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN





Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/5/98



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/6/98	JOB NO: 40202-005.061:
REPORT NO: 27	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) GH

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☒ YES ☐ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☒ YES ☐ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

25 26

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

Soft wet clay from SE corner removed.

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

Silty Clay, Brown

BORROW AREA NO. USED TODAY Stockpile in trash area

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

Stockpiling on side slopes.

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

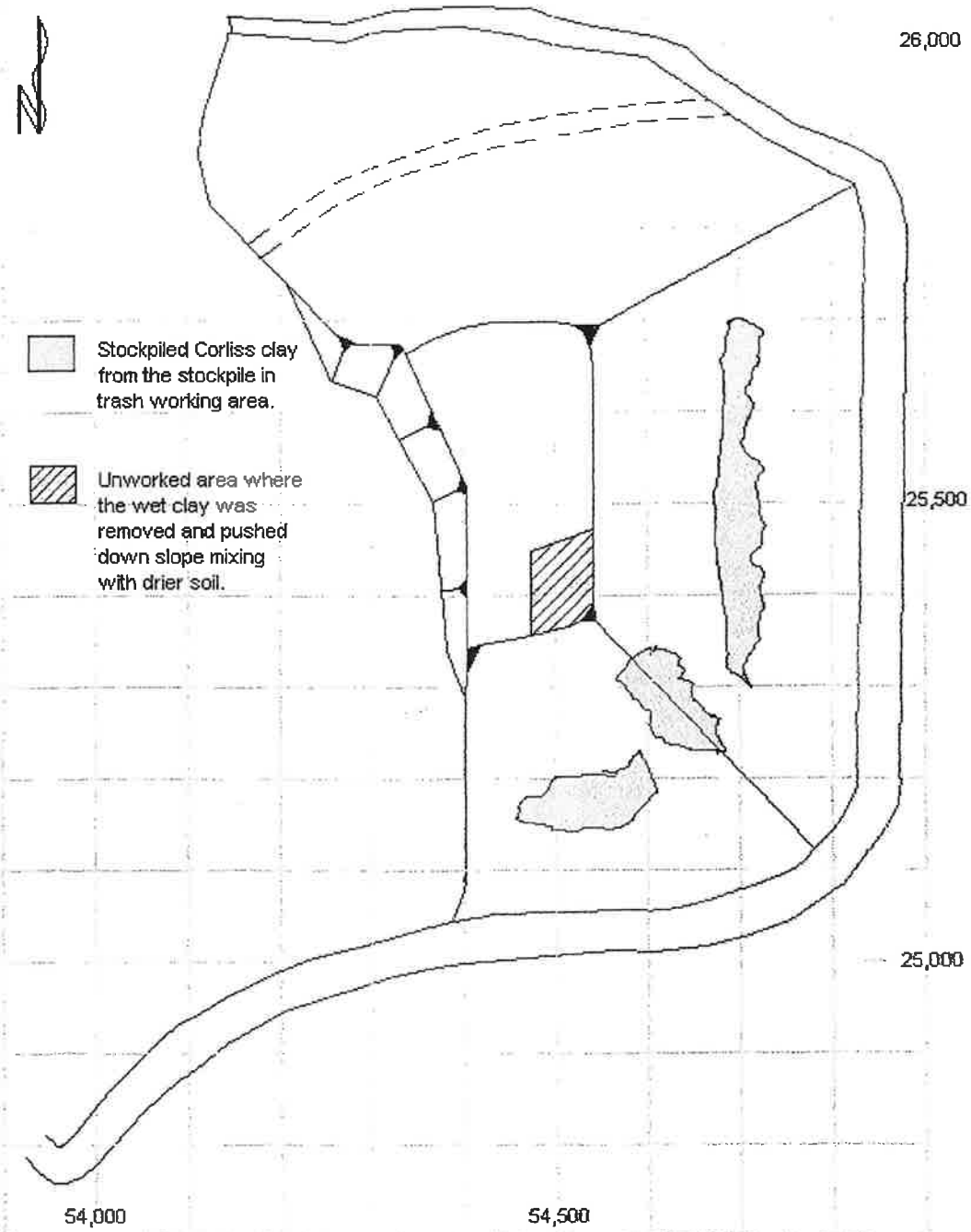
☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/6/98

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/7/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 28						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Clear, Lt wind					75		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30			TIME DEPARTED: 16:30				
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI					PERSONNEL 5		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe					
<b>VISITORS</b>												
TIME	NAME				REPRESENTING				REMARKS			
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Thre low area near the toe of the South slope was fill 6" for the 1st lift this date. I took tests and found to be within the Zone of Acceptable Compaction.												
CONSTRUCTION ACTIVITIES: On site 07:30hrs to observe the fill placed on the South slope to build up the subgrade. I took tests on the fill material and found tpo be within the limits required. The crew from Serrot arrived today with their equipt. They unloaded it and placed in the storage unit at top of the cell. Ricardo Leon was on site and wanted to meet me at 09:00hrs Sunday to confirm Wednesday start date. Jim told him we could start earlier but Wed. Iis realistic. Fill was placed on the 2nd lift but not completed this date. I left site at 16:30hrs.												
WERE PHOTOS TAKEN: No												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/7/98	JOB NO: 40202-005.061:
REPORT NO: 28.	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) CEH

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

Soft wet clay from SE corner removed.

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

Silty Clay, Brown

BORROW AREA NO. USED TODAY Stockpile in trash area

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

Lower area of the South slope

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

Lower area of the South slope.

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

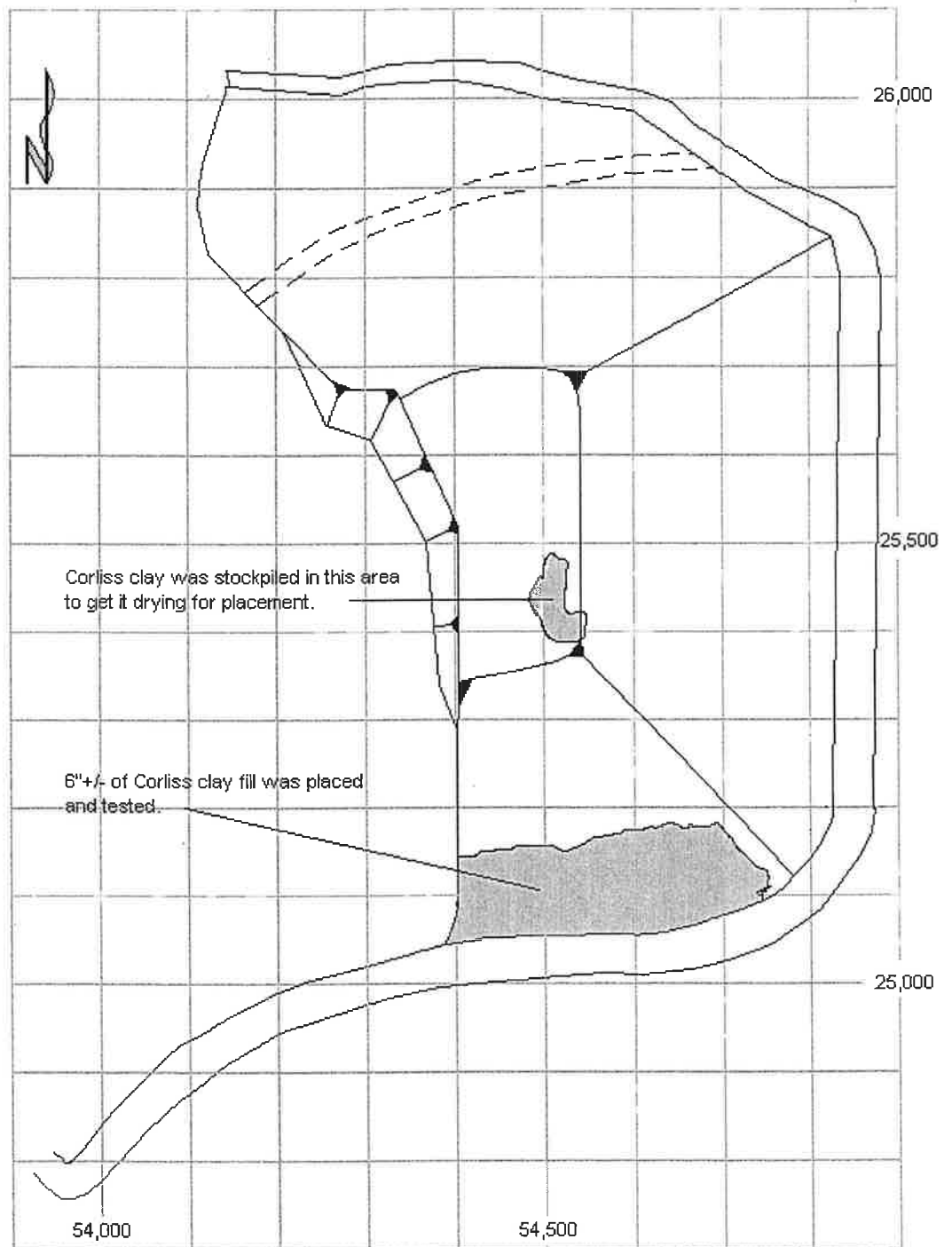
WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN





Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/7/98

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/8/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 29					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Clear, Lt wind				75			
REPORT BY: Glenn Heath				TIME ARRIVED: 08:00				TIME DEPARTED: 15:00			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI				PERSONNEL 5		EQUIPMENT IN OPERATION 1 Trackhoe, 2 Dozers, and 1 Track Loader					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Fill on the lower section of the South slope continued this date. The soil was not processed this date and no tests were taken.											
<p>CONSTRUCTION ACTIVITIES: Soil was delivered to the East side of the cell for placement. Soil was pushed down the slope to the lower fill area and spread out but was not processed nor rolled this date. Jim Crandall told me he was going to dig along the side of the roadway at the toe of the South slope tomorrow to allow anchorage of the edge of the liner materials. I told him I will be on site as Ricardo Leon wanted to meet me and confirm the start date for Serrot. Off site at 15:00hrs.</p>											
WERE PHOTOS TAKEN: No											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/8/98	JOB NO: 40202-005.061:
REPORT NO: 29	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) CEW

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

Silty Clay, Brown

BORROW AREA NO. USED TODAY Stockpile in trash area

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

Lower area of the South slope

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

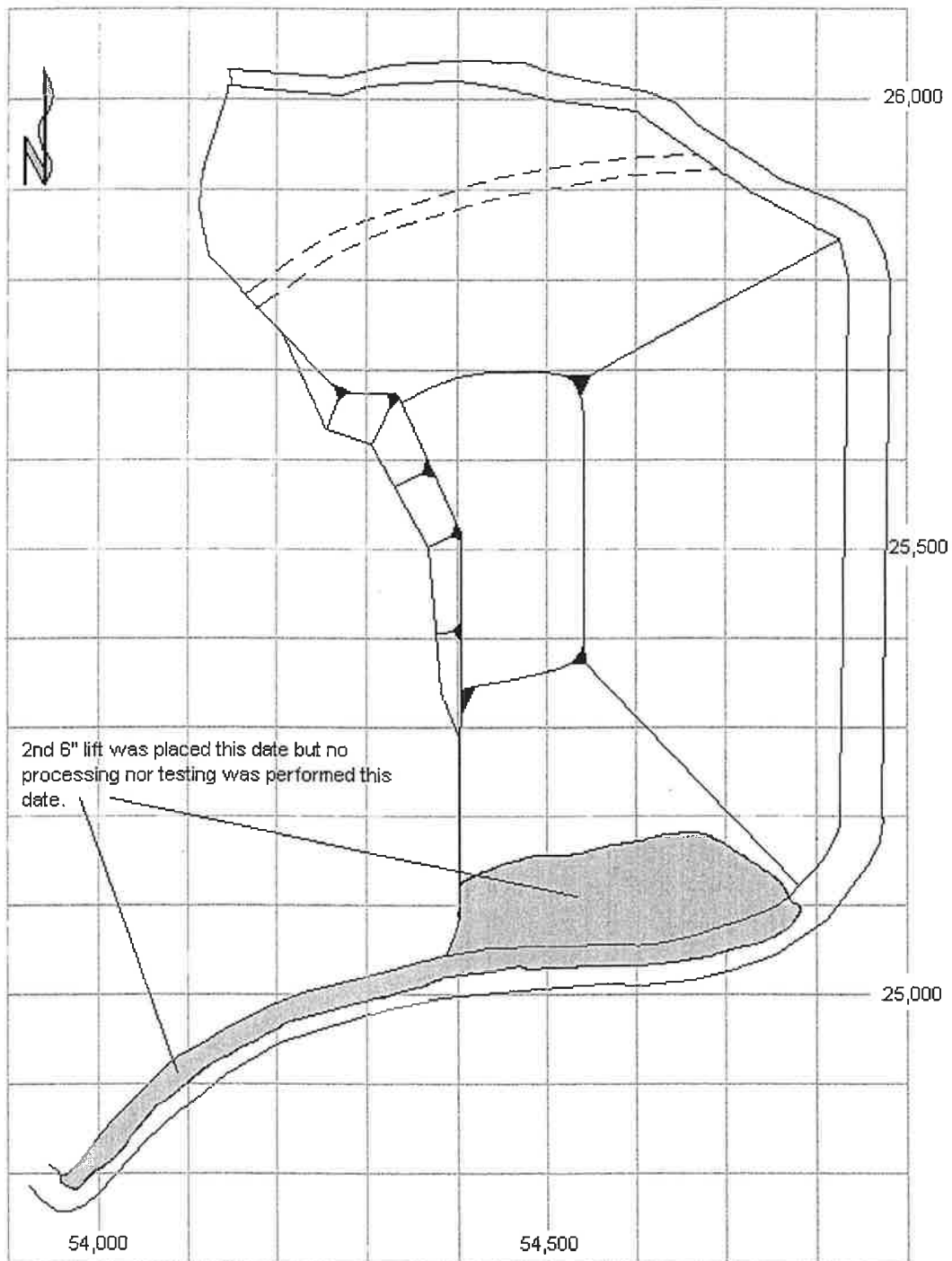
☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/8/98

10/26/98

### DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/9/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 30					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Clear, Lt wind				80			
REPORT BY: Glenn Heath				TIME ARRIVED: 09:00				TIME DEPARTED: 12:00			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI				PERSONNEL 3		EQUIPMENT IN OPERATION 1 Trackhoe					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Shoulder on roadway was excavated down approx. 6" to allow for anchoring the liner material. Ricardo Leon did not come on site this date.											
CONSTRUCTION ACTIVITIES: On site at 09:00 hrs to meet with Ricardo Leon with Serrot and observe the shoulder excavation at the roadway. As of noon Ricardo had not arrived. only 2 people were working on the excavation and I left site at 12:00hrs.											
WERE PHOTOS TAKEN: No											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					





## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/9/98	JOB NO: 40202-005.061:
REPORT NO: 30.	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) Celt

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY None

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

None

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

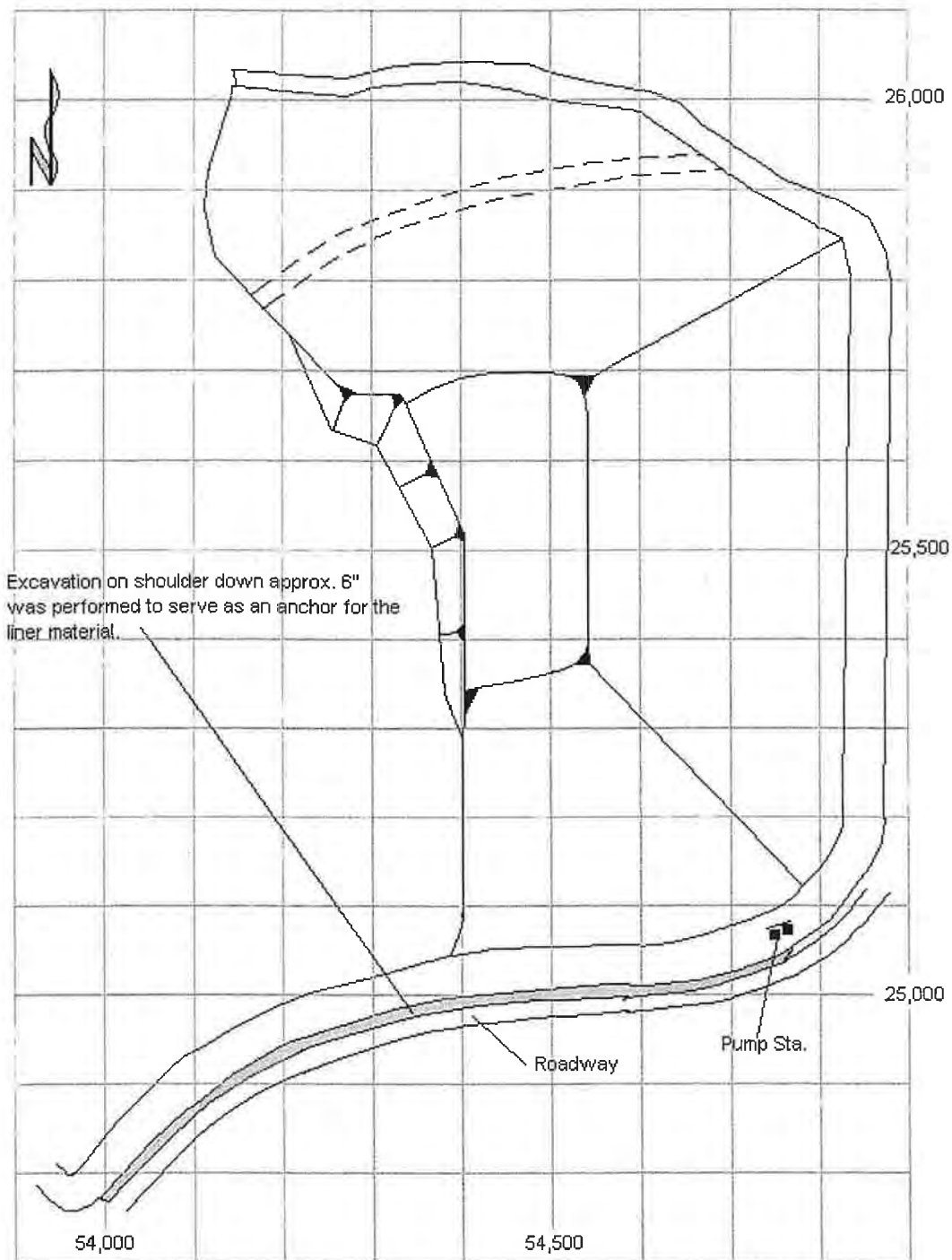
☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/9/98

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 8/10/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 31			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Clear, Lt wind					86		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:30			TIME DEPARTED: 17:00				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI		PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING				REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Attended weekly meeting, observed the placement of clay on the SE corner of cell. Tested the final adjustment lift on the South slope and the West finger area. The area off the cell to the west was found to be out of the parameters set by the specifications.									
CONSTRUCTION ACTIVITIES: On site site 07:30 to attend the weekly site meeting and observe construction on the South slope. The soil was rolled well and found to be within the specified parameters on moisture content. The area west of the main cell or the "finger" however did not meet specified requirements. I told Jim Crandall the east end of the finger was too wet and low in compaction, and the west half of the finger was too dry and was out of the zone of acceptable compaction. I told him that in my opinion, the disc would be the only fast way to dry the wet end and wet up the dry end. He said he would have the crew start on it tomorrow am. We were supposed to locate some "Type B" material to build the diversion berm out of but we did not have time this date. However, Jim did get a chance to talk with Corliss about it, and they said they had a material that might work. I left site at 15:00hrs.									
WERE PHOTOS TAKEN:		Yes							
FIELD REPRESENTATIVE		DATE							
REVIEWED BY		DATE							



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/10/98	JOB NO: 40202-005.061:
REPORT NO: 31.	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL)       *CS*      

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY None

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

None

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

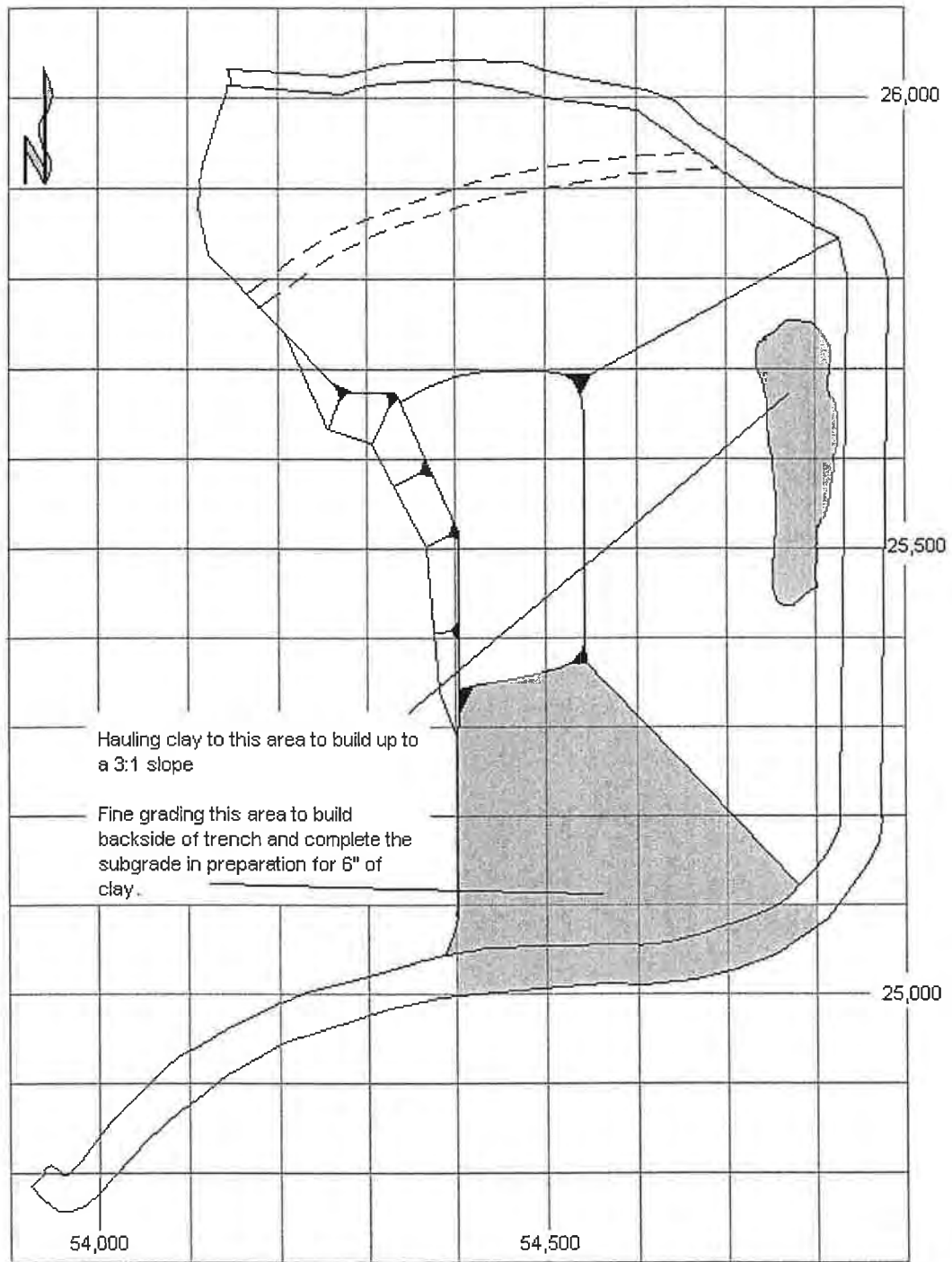
☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/10/98



**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 8/11/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 32			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Clear, Lt wind					86		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:30			TIME DEPARTED: 17:00				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI		PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING				REMARKS			
10:00	David Bosch & Ron Norton	County Health Dept.				Site Visit			
11:00	Garren	D.O.E.				Site Visit			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Rec'd 30 rolls of geocomposite, Met with David Bosch W/ county & Garren with DOE. Obtained soil samples for Topsoil and Type B, Serrot on site.									
CONSTRUCTION ACTIVITIES: On site at 07:30hrs to observe the placement of soil on the South slope. 30 rolls of geocomposite from Evergreen Technologies had just arrived on site and I logged it in. David Bosch & Ron Norton were on site and I showed them the material and how it was to be used. David walked the site and looked at the soil, then took Ron Norton to the Compost Building const. site. At 11:00hrs Garren with the D.O.E arrived. I showed him the Geocomposite as he had not seen it before and he looked at the soil on the SE corner of the slope. I told him it had just been installed and had not been processed yet. He left and went to the Compost Bldg. Const. site. After lunch Jim Crandall and I went to the Back area and searched for some Type B material. We found some that had been screened thru a 1' screen and appeared to be fat enough to pass the Type B criteria. I obtained a sample. Later I returned to the same area and sampled some topsoil for proctor, etc. at the same time the same locations were sampled for fertility and bacteria tests to see if it was suitable for grass. While I was with Jim I found out that he had already placed the top 6" of clay soil on most of the East and all of the South slopes. This is contrary to what I had been told in the past. I told him that the surveyors needed to shoot the slopes prior to the installation of the top 6". We called Kent Winken and it was decided to take shelly tubes on the 100ft grid to determine the clay depth and make sure that 6" of corliss clay has been placed on top. Any areas that the slopes had been reworked or added to will have to be checked 24" down to prove that there is 18" of type B and 6" of Type A soil in place. I will also have to take 24" tubes in 3 more areas for perm samples where they used Corliss clay for Type B material. Serrot filled sand bags for part of the day then assisted in picking rocks from the clay on the leg area on the Western area. I sent the Type b and topsoil samples to Bothell by way of Don Briggs this date.									
WERE PHOTOS TAKEN:		Yes							
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/11/98	JOB NO: 40202-005.061:
REPORT NO: 32.	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) CA

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY None

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

None

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

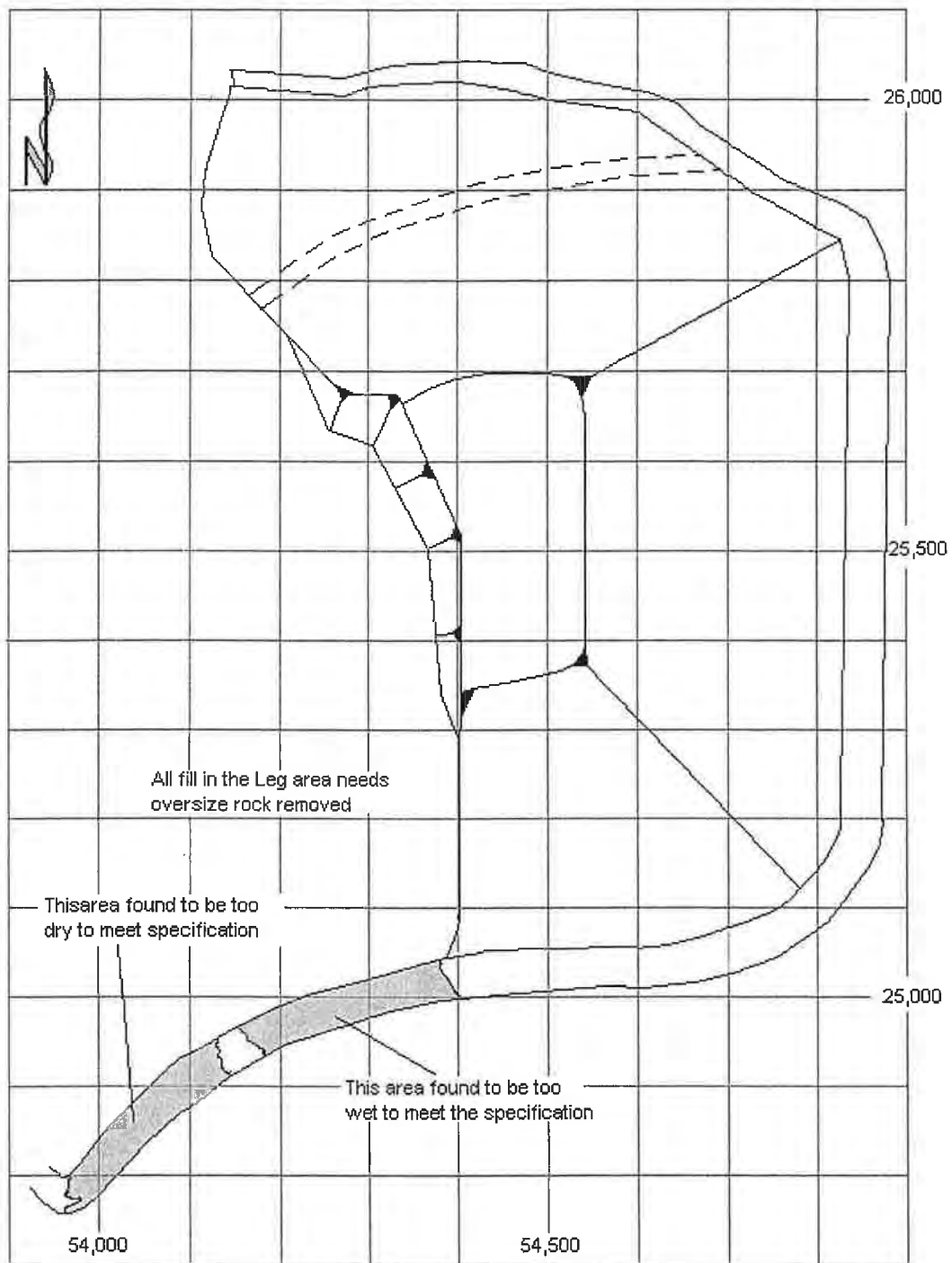
☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/11/98

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/12/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 33						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Clear, Lt wind					94		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30			TIME DEPARTED: 18:00				
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI				PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe						
<b>VISITORS</b>												
TIME	NAME			REPRESENTING			REMARKS					
12:00	Kent Wiken			EMCON			Site Visit.					
14:00	Kelly Susewind			D.O.E			Site Visit.					
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Tetsed the top 6" of Corliss clay on the West leg, Tested depth of the Cly and in 1 place, dug down 24" to prove the depth of the Lott soil exceeds 18" and 6" of Corliss clay on top. Serrot placed GCL, and 60mil FML on the Trench and slope area of the West leg this date.												
CONSTRUCTION ACTIVITIES: Serrot was on site at 07:30 this date to lay liner on the West leg of the project. The slope was not ready and was still being processed. I took F/D tests and found in compliance then took 6 depth tests on the clay. On one of the locations I took a 24" test to see if the Lott soil had been thickened as it was found to be less than 18" before. It was found to be in excess of 18" thick and the clay was 7" thick. The Roller could not get within 2.5 to 3ft of the trench as it was trying to slide down the trench. We decided to lay the GCL over the area and 2ftmin. beyond it to assure a good product. The GCL and the FML were deployed and welded from the main cell to the curve on the west end of trench this date. The boots around the Leachate cleanouts and the pump sta. will be installed tomorrow. The tie-in with the West in was tacked in place and will also be completed tomorrow. All air testing on the panel seams was completed this date also. Kelly Susewind came on site and looked at the materials and observed the deployment of the them. He was concerned with the rough soil above the trench that we could not roll in and placed the GCL over. I showed him the moisture was high enough to make the loose material soft however we had to let it dry back enough to keep from hydrating the GCL. I told him on the balance of the project we will bring the sand up over it to provide some safety on the GCL and he said that would be good. Kent Wiken also came to the site to discuss with Jim the importance of the surveying and the thickness of the clay to satisfy the specifications. The thicknesses of the soil liner has no tolerances and has to at least meet the thickness requirements that we have all agreed on. I also discussed getting some help testing as the FML moves fast and the soils will be preventing me from observing the liner installation. This was set up this date and someone will be out tomorrow morning. I left site at 18:00hrs.												
WERE PHOTOS TAKEN:					Yes							
FIELD REPRESENTATIVE					DATE							
REVIEWED BY					DATE							



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/12/98	JOB NO: 40202-005.061:
REPORT NO: 33.	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) CA

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY None

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

None

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

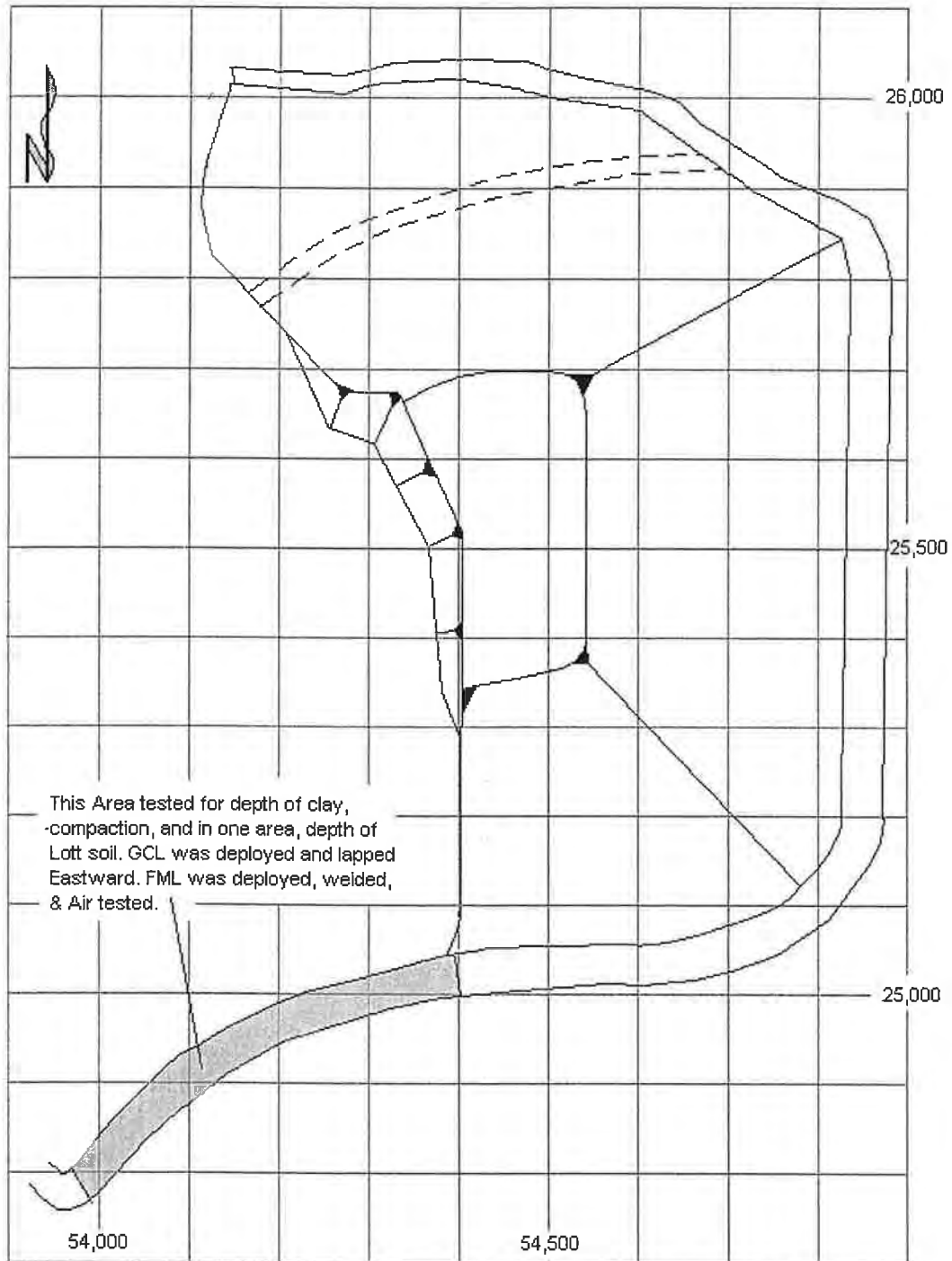
WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN





Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/12/98



## DAILY CHECKLIST FOR GEOMEMBRANE LINER INSTALLATION

PROJECT: Hidden Valley Landfill

DATE: :

CQA OBSERVER: Glenn Heath

PROJECT NUMBER: 40202-005.061

INSTALLER'S SUPERINTENDENT: Ricardo Leon

Are the following forms, prepared by the liner installer, accurate and current through the last applicable date?

	Yes	No	Current Through	Missing How Many Days?
Panel Placement/Production, Seaming, Welding, Testing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/12/98	0
Earthwork Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/12/98	0
Liner Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/12/98	0
Panel Placement Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/12/98	0
	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>		

Number of welding machines in use today:

Split Wedge: 2

Extr.: 0

Were trial welds performed with all machines? Yes

Number of panels installed today: 24

Panel Numbers: P1-P24

Seam Numbers: S1-2 thru S23-24

Most recent set of panels accepted:

Panel Numbers: None

Date Accepted:

Destruct Sample Submitted Today: 0

Destruct Sample Results Received Today: 0

Sample Numbers: 0

Failing Samples: 0

Destruct samples submitted but not yet tested:

Panels passing field inspection and destructs (ready for textile):

Samples provided to third party observer today:

Seam reconstructed from DS: through DS:

Are any deficiencies outstanding? (If yes, explain)

Comments, Weather, Deficiencies, and Resolutions (attach additional pages as necessary):

Signature \_\_\_\_\_

**DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/13/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 34						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Clear, Lt wind					94		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30			TIME DEPARTED: 17:00				
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI				PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe						
<b>VISITORS</b>												
TIME 14:00 08:00		NAME David Bosch Dani Porter			REPRESENTING County Health Dept. PSI			REMARKS Site Visit. Help with Testing Soils				
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Took depth tests on the South slope to determine the depth of the clay. Observed the FML work in the Ty-in area and the placement of boots around the the three penetration areas.												
CONSTRUCTION ACTIVITIES: The Serrot crew worked on the three penetration areas 1) The three pipes on the East end of the Leg, 2) The pump sta. at the west end of the leg and 3) The condensate lines in the Ty-in area. The later 2 had to be custom built as the boots could not be used without complete removal of the pump sta and cutting the condensate lines. Due to constant interruptions, I had Dani Porter with PSI watch the repair work and vacuum testing of the repairs so it would be covered. I told her that Saturday I might need her help but will not need any help until Tuesday morning. The Geocomposite was deployed this date so the Rip-Rap could be placed, thus placing a load on the GCL and completing the liner installation in the trench area. I took depth tests on the South slope and determined that the clay was only 18" deep over the Pit run at approx. 30ft above the trench. The surveyors told me that they were finding the slope was too steep at 2.8:1 in the same area. I notified Jim of this and he began hauling clay to the area to build it up. The Surveyors are coming back out tomorrow, so I had them blanket the lower half of the South slope with shots so we could get the grades reshot after filling and the 3:1 problem could be right. This shut down the construction of the diversion berm this date. David Bosch came on site and looked at the progress He questioned the the location of where the GCL was stopped and said he wanted to get with Kelly Susewind about it as it did not look to him that all of the area was covered. He left a message with Kelly on the voice mail and left site at approx. 15:00hrs. I later talked with Kelly, and told him I will get with Kent and see if the New liner meets the old as I have not seen the drawings of the old liner and do not know for sure wher it ends. Off site at 16:45hrs.												
WERE PHOTOS TAKEN: Yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/13/98	JOB NO: 40202-005.061:
REPORT NO: 34,	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) \_\_\_\_\_

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☒ YES ☐ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY None

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

None

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

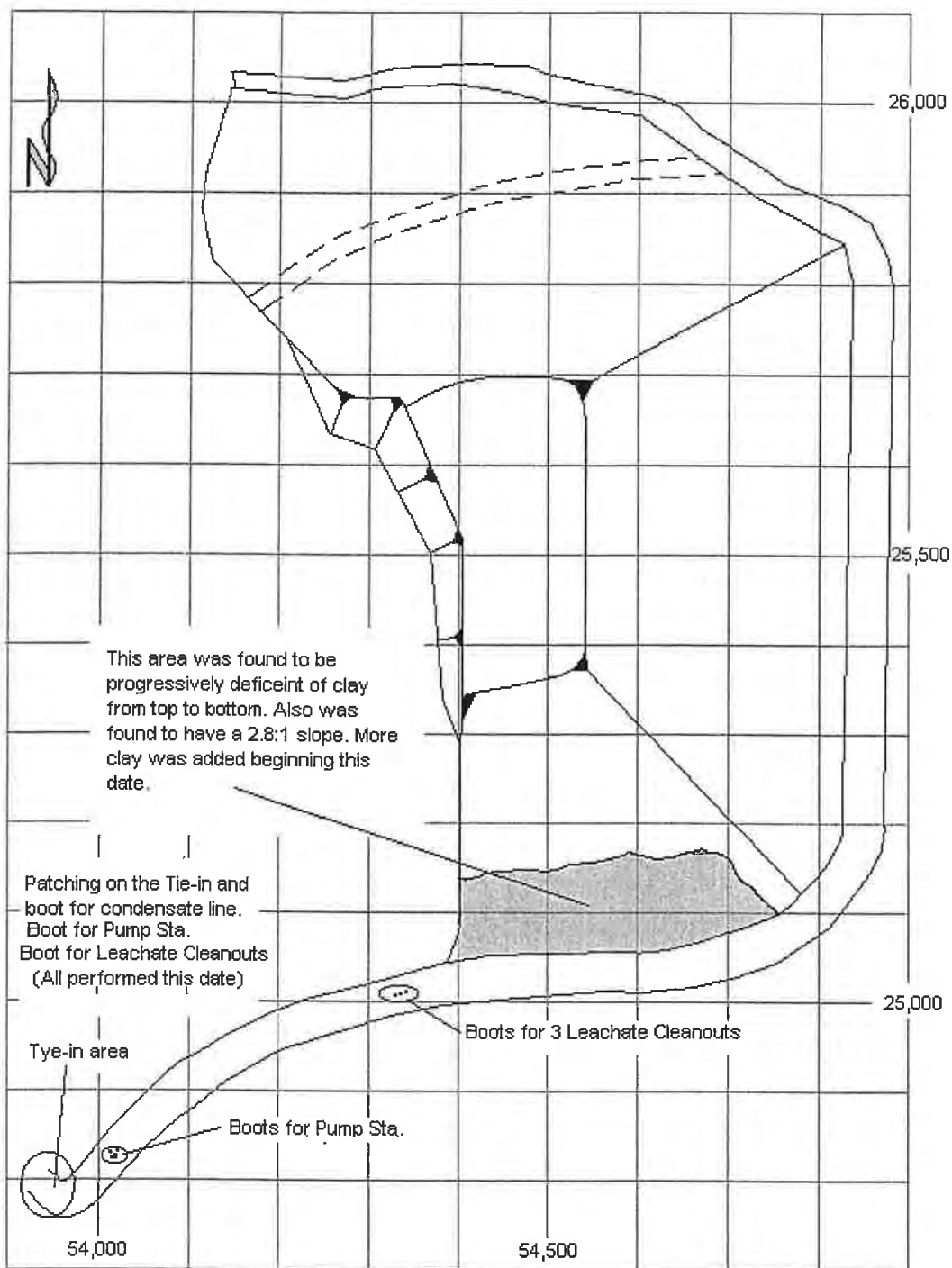
☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/13/98





## DAILY CHECKLIST FOR GEOMEMBRANE LINER INSTALLATION

PROJECT: Hidden Valley Landfill

DATE: :

CQA OBSERVER: Glenn Heath

PROJECT NUMBER:

INSTALLER'S SUPERINTENDENT: Ricardo Leon

Are the following forms, prepared by the liner installer, accurate and current through the last applicable date?

	Yes	No	Current Through	Missing How Many Days?
Panel Placement/Production, Seaming, Welding, Testing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Earthwork Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Liner Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Panel Placement Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>		

Number of welding machines in use today:

Split Wedge: 1

Extr.: 1

Were trial welds performed with all machines? Yes

Number of panels installed today: 0

Panel Numbers:

Seam Numbers: \_\_\_\_\_

Most recent set of panels accepted:

Panel Numbers: P1-P24

Date Accepted: 8/12/98

Destruct Sample Submitted Today: 0

Destruct Sample Results Received Today: 0

Sample Numbers:

Failing Samples:

Destruct samples submitted but not yet tested: 0

Panels passing field inspection and destructs (ready for textile): All

Samples provided to third party observer today: 0

Seam reconstructed from DS: 0 through DS:

Are any deficiencies outstanding? No (If yes, explain)

Comments, Weather, Deficiencies, and Resolutions (attach additional pages as necessary): None

Signature \_\_\_\_\_

<b>DAILY CONSTRUCTION REPORT</b>												
PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/14/98							
PROJECT NO.: 40202-005.061					DAY	S <input type="checkbox"/>	M <input type="checkbox"/>	T <input type="checkbox"/>	W <input type="checkbox"/>	TH <input type="checkbox"/>	F <input checked="" type="checkbox"/>	S <input type="checkbox"/>
REPORT NO.: 35					WEATHER					TEMP.(°F)		
CLIENT: LRI					Clear, Lt wind					94		
CONTRACTOR: LRI					TIME ARRIVED: 07:30					TIME DEPARTED: 17:00		
REPORT BY: Glenn Heath												
AVERAGE FIELD FORCE												
CONTRACTOR LRI				PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe						
VISITORS												
TIME 14:00	NAME David Bosch			REPRESENTING County Health Dept.				REMARKS Site Visit.				
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Took density tests on the South slope berm and observed watering of South slope. Serrot pulled off site until Tuesday Morning.												
CONSTRUCTION ACTIVITIES: Observed the construction of the berm on south slope and tested the installation of clay on the South slope lower half. I talked with David Bosch on the phone and he said the GCL at the Western tie-in was in the right location and that we need to as built the tie-in real well. The surveyors were still on site, so I told him I will have them shoot the end of the GCL on the West end and he said that would be the best idea. Due to technical problems, the suveyors did not get the lower half of the South slope nor the GCL locations but they said they will be back 1st thing Monday morning and can finish then. The South slope was watered all day to maintain the surface moisture content. I left site at 17:30hrs.												
WERE PHOTOS TAKEN: Yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/14/98	JOB NO: 40202-005,061
REPORT NO: 35	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) \_\_\_\_\_ REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY None

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

None

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



## DAILY CHECKLIST FOR GEOMEMBRANE LINER INSTALLATION

PROJECT: Hidden Valley Landfill

DATE: 8/13/98

CQA OBSERVER: Glenn Heath

PROJECT NUMBER:

INSTALLER'S SUPERINTENDENT: Ricardo Leon

Are the following forms, prepared by the liner installer, accurate and current through the last applicable date?

	Yes	No	Current Through	Missing How Many Days?
Panel Placement/Production, Seaming, Welding, Testing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Earthwork Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Liner Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Panel Placement Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>		

Number of welding machines in use today:

Split Wedge: 1

Extr.: 1

Were trial welds performed with all machines? Yes

Number of panels installed today: 0

Panel Numbers:

Seam Numbers: \_\_\_\_\_

Most recent set of panels accepted:

Panel Numbers: P1-P24

Date Accepted: 8/12/98

Destruct Sample Submitted Today: 0

Destruct Sample Results Received Today: 0

Sample Numbers:

Failing Samples:

Destruct samples submitted but not yet tested: 0

Panels passing field inspection and destructs (ready for textile): All

Samples provided to third party observer today: 0

Seam reconstructed from DS: 0 through DS:

Are any deficiencies outstanding? No (If yes, explain)

Comments, Weather, Deficiencies, and Resolutions (attach additional pages as necessary): None

Signature

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/15/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 36					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Clear, Lt wind				74			
REPORT BY: Glenn Heath				TIME ARRIVED: 07:30				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI				PERSONNEL 3		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Took depth tests on the SE corner and East slopeouth slope to dtermine the depth of the clay. Also, observed and tested the construction of the diversion berm on South slope.											
CONSTRUCTION ACTIVITIES: Took the depth tests on the East slope to find over 6" of clay in all areas. Dani w/PSI arrived on site at 08:30hrs and I had her take depth tests on the SE corner on a 50ft grid while I got caught up on my paperwork. She found all of the depths to exceed 6" also. There was no need to have her in the afternoon so she left at 12:00hrs. The South slope was watered all afternoon to try and keep the surface moiture up. I continued to test the berm construction until 17:00hrs at which time we left site.											
WERE PHOTOS TAKEN: Yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					





## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/15/98	JOB NO: 40202-005.061:
REPORT NO: 36.	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) \_\_\_\_\_

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☐ YES ☒ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY None

PORTION OF BORROW AREA BEING MINED TODAY

None

AREA BEING FILLED TODAY

None

AREA BEING CONDITIONED TODAY

None

AREA BEING COMPACTED TODAY

None

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

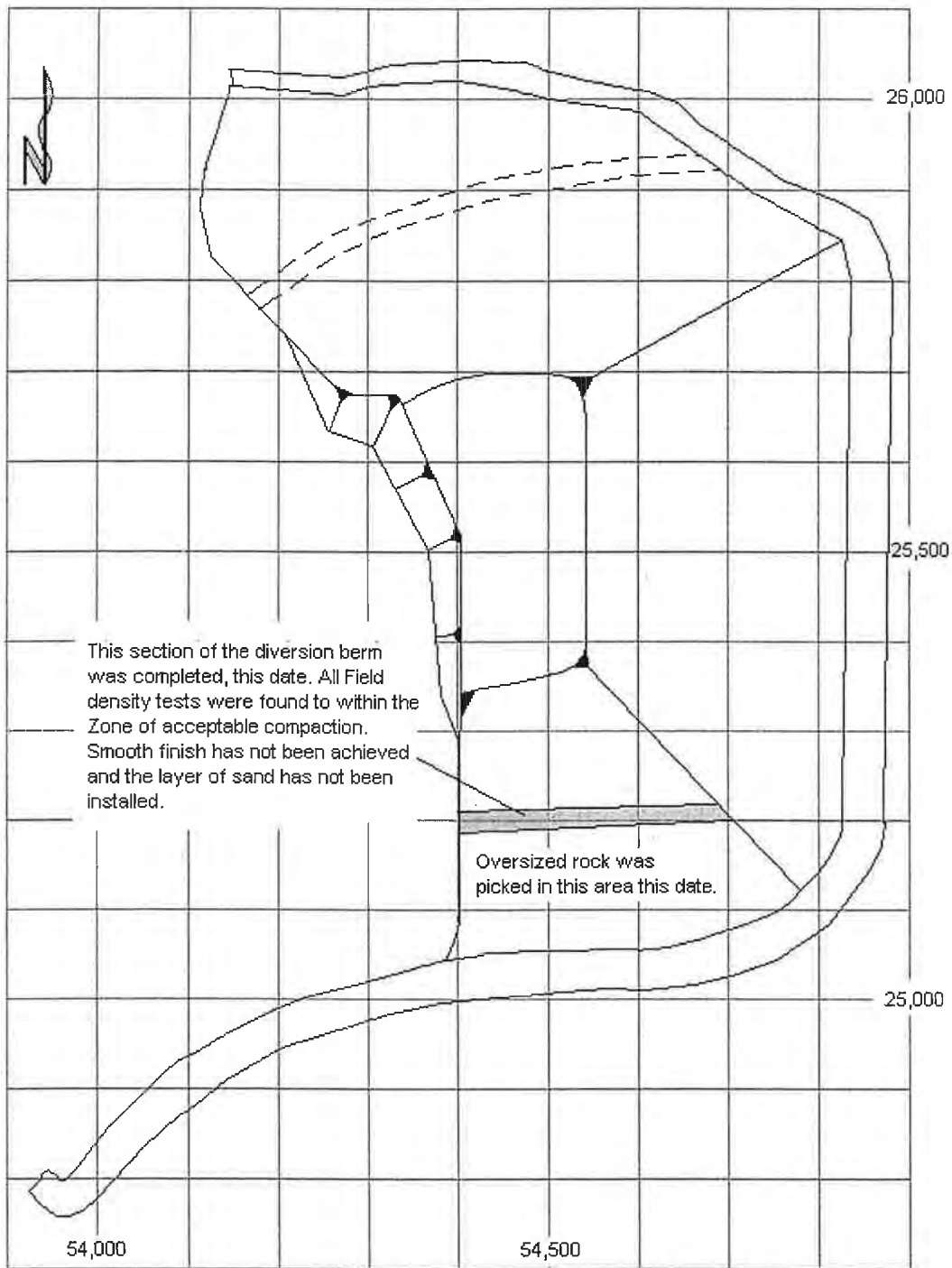
☐ YES ☒ NO IF YES, DESCRIBE AREA

WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/15/98



## DAILY CHECKLIST FOR GEOMEMBRANE LINER INSTALLATION

PROJECT: Hidden Valley Landfill

DATE: :

CQA OBSERVER: Glenn Heath

PROJECT NUMBER:

INSTALLER'S SUPERINTENDENT: Ricardo Leon

Are the following forms, prepared by the liner installer, accurate and current through the last applicable date?

	Yes	No	Current Through	Missing How Many Days?
Panel Placement/Production, Seaming, Welding, Testing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Earthwork Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Liner Acceptance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
Panel Placement Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8/13/98	0
	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>		

Number of welding machines in use today:

Split Wedge: 1

Extr.: 1

Were trial welds performed with all machines? Yes

Number of panels installed today: 0

Panel Numbers:

Seam Numbers: \_\_\_\_\_

Most recent set of panels accepted:

Panel Numbers: P1-P24

Date Accepted: 8/12/98

Destruct Sample Submitted Today: 0

Destruct Sample Results Received Today: 0

Sample Numbers:

Failing Samples:

Destruct samples submitted but not yet tested: 0

Panels passing field inspection and destructs (ready for textile): All

Samples provided to third party observer today: 0

Seam reconstructed from DS: 0 through DS:

Are any deficiencies outstanding? No (If yes, explain)

Comments, Weather, Deficiencies, and Resolutions (attach additional pages as necessary): None

Signature \_\_\_\_\_

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/16/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 37						<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Overcast, Rain					68		
REPORT BY: Glenn Heath					TIME ARRIVED: 8:00				TIME DEPARTED: 12:00			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI					PERSONNEL 2		EQUIPMENT IN OPERATION 1 John Deere D650 Dozer, 1 Trackhoe					
<b>VISITORS</b>												
TIME	NAME				REPRESENTING				REMARKS			
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Observed cleaning out and shaping of drainage trench at roadway. Also tested the lower section of the South slope.												
CONSTRUCTION ACTIVITIES: Observed the cleaning out and shaping of the trench along the roadway at toe of South slope. Rocks were removed and the trackhoe was then brought in to reshape the trench. I took Field density tests on the lower section of the South slope and found them to be well within the zone of acceptable compaction. Lt. rain began to fall approx. 10:30hrs and was not steady until 11:00. I left site at 12:00.												
WERE PHOTOS TAKEN: Yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						

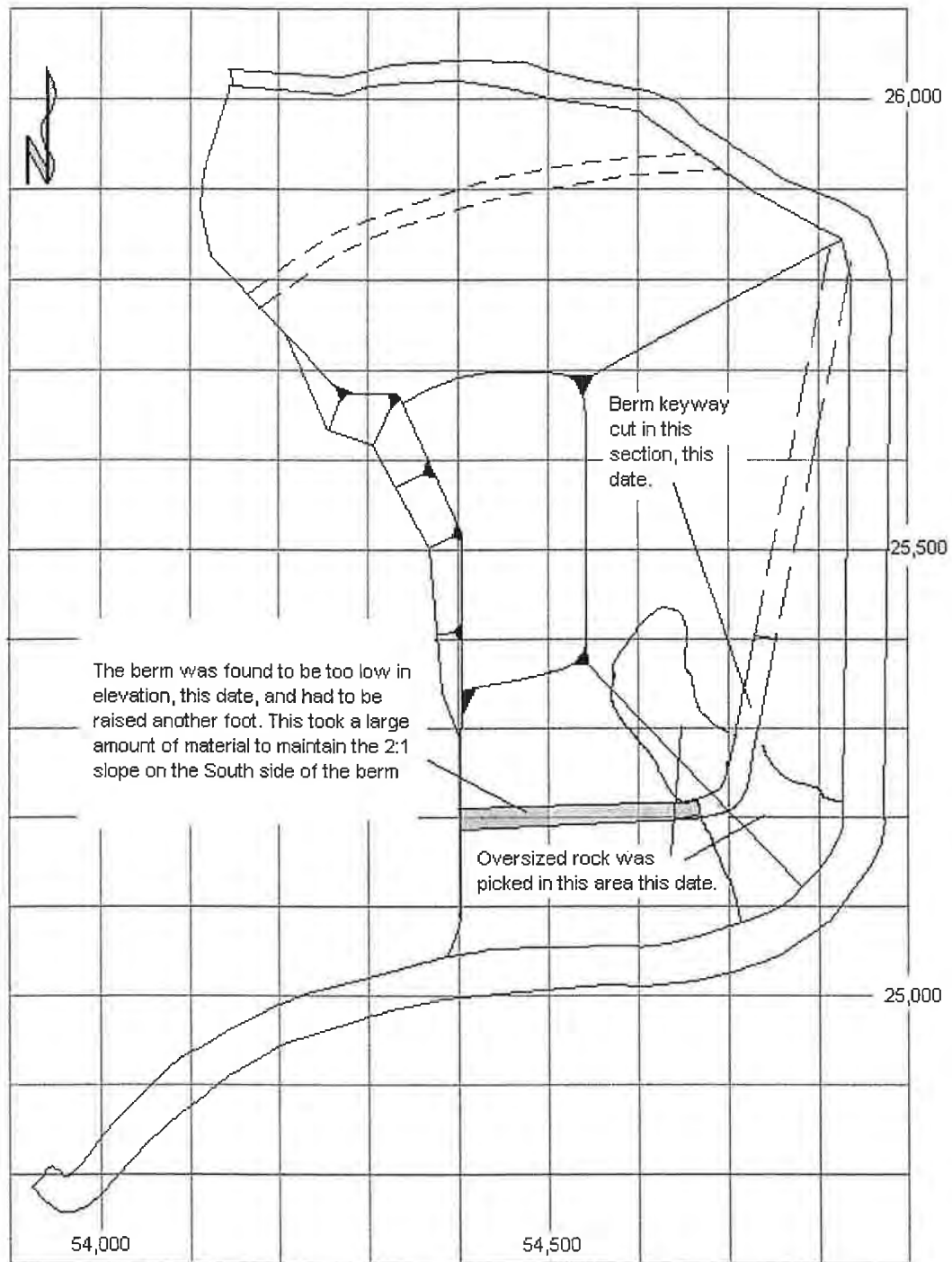
## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/17/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 38						<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Overcast, Lt wind					74		
REPORT BY: Glenn Heath					TIME ARRIVED: 0700				TIME DEPARTED: 16:30			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI				PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe						
<b>VISITORS</b>												
TIME 07:30	NAME Kent Wiken			REPRESENTING EMCON			REMARKS Site Visit.					
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Attended site meeting with Kent and Jim Crandall. Also observed the construction of the berm on the South slope.												
<p><b>CONSTRUCTION ACTIVITIES:</b> Attended the site meeting with Jim Crandall and Kent Wiken. We discussed the schedule and the plan for preparing the slope for tomorrow. The surveyors were on site and shot the GCL and the lower South slope. The berm at the South slope was checked by the surveyors this date. It was found to have 1.6:1 on most of the lower side. I talked to Jim and borrowed a level to shoot the slope myself and see what could be done. I found that the top of the berm was only 1.1' above the bottom of the trench. After calculating, I found the berm needed to be 2.1' above the bottom of the trench. More material was brought in and placed on the berm to raise it another foot. We then, after reshooting, found that the top of the berm was too far South and the face of the berm (South side of the trench) was too flat. We reshaped the trench and cut the back side of the berm down to flatten the slope to get it closer to 2:1. We did not hear from Serrot this date, and are not expecting them tomorrow as the rain could have shut them down yesterday. Jim said we could use another day to get ready. We left site at 16:30hrs.</p>												
WERE PHOTOS TAKEN: Yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						



## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/18/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 39					<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Overcast, Lt wind				68			
REPORT BY: Glenn Heath				TIME ARRIVED: 0700				TIME DEPARTED: 16:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI				PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests:    Obtained another sample of material to use for Type B soil on the drainage berm and took to Seattle. Also observed smooth rolling of south slope.											
<b>CONSTRUCTION ACTIVITIES:</b> Jim Crandall and I obtained a sample of what he calls Hard Pan material which Harry Corliss has screened over a 3" sieve. The soil seemed to have a better clay content and packs easier. I called Kent Wiken and told him due to the increase of the berm size to meet the requirements of the drawings, we used all the berm material up and would like to use a new material. This will require testing again for Perm and proctors and it is urgent to get the sample into the lab. He said he did not have a way to get to the lab, so after talking to Jim I left to take the sample in myself. I returned at approx. 14:30hrs and found out from Jim that Daveid Bosch had paid a site visit but no contact was made with him. the balance of the day I observed smooth drum rilling on the South slope..											
WERE PHOTOS TAKEN:            Yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					



Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/18/98

### DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/19/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 40						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Pct, Lt wind					74		
REPORT BY: Glenn Heath					TIME ARRIVED: 0700				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI				PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe						
<b>VISITORS</b>												
TIME	NAME				REPRESENTING				REMARKS			
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Observed Smooth drum rolling thre south slope and hand filling blemished areas on the upper half of the slope. Laborers picked rocks on the SE corner area of the slope. The berm was also under construction in this area. Took gas readings on perimeter probes and on the North section of extraction system.												
CONSTRUCTION ACTIVITIES: On site at 07:30 to see if Serrot was on site but found they have not arrived nor returned any calls Jim Crandall and I have made. I looked at the South slope surface and found to be in good overall condition. I did find some soft spots that will have to be rerolled, but only in a few small isolated situations. The berm construction continued this date on the SE corner of the slope and rock picking was performed in this area also. I took Tests on the berm which is now built from the new material. I spent most of the day taking gas readings.												
WERE PHOTOS TAKEN:      Yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/20/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 41						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					PCt, Lt wind					74		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:30			TIME DEPARTED: 17:30				
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI				PERSONNEL 7		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe						
<b>VISITORS</b>												
TIME 14:30	NAME David Bosch and Garren				REPRESENTING Health Dept & DOE				REMARKS Site Visit			
Non-Conforming Materials or Work: Sand in main trench does not reach up 2:1 slope, rough spots above berm, Soil on East slope contaminated with Type B material due to spillage from track loader hauling to berm.												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Observed construction of East berm, moisture maint. on South slope, mobilization by Serrot in prep. for deployment tomorrow, and processing of SE corner slope..												
<p>CONSTRUCTION ACTIVITIES: On site at 07:30 to observe the Berm construction on East slope and surface prep on South slope. Serrot on site at 11:00hrs and mobilized this date. Danny Porter w/PSI on site at 13:00hrs to assume taking F/D tests on the berm construction. Ricardo Leon w/Serrot walked the South slope to find all of the repairs required before construction. We noted the upper side needed some rocks removed, there was some isolated soft spots, and the down side of the berm needed some smooth rolling at the west end where Jim had some of the berm extended. The rough place on the west end of the berm was repaired right away and the rocks were removed right after lunch. The soft places will be rerolled prior to deployment tomorrow AM. David Bosch w/Pierce County Health Dept. and Garren w/DOE were on site at approx. 14:30hrs to look at the progress. Garren complained about the sand not reaching the top of the 2:1 slope at the trench at the toe of the South slope and some rough spots on the upper side of the berm, I told him the upper side of the berm will be rerolled and the sand will be placed tomorrow as the GCL is placed. The moisture was in good shape this morning as we watered each day at the end of the day, however, by the end of the day, it needs it again. Garren complained about this also. I notified Jim Crandall of the comments and we looked at the rough places which will be repaired prior to deployment tomorrow Am. I left site at 17:30hrs.</p>												
WERE PHOTOS TAKEN: Yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						



## DAILY CHECKLIST FORM FOR EARTHWORK

PROJECT NAME: Hidden Valley Landfill

PROJECT LOCATION: Puyallup, Washington

DATE: 8/20/98	JOB NO: 40202-005.061;
REPORT NO: 41.	PAGE: 1 OF 1

EMCON FIELD REP (INITIAL) \_\_\_\_\_

REVIEWED BY (INITIAL) \_\_\_\_\_

WERE ANY DEFICIENCIES NOTED THAT WERE NOT REMEDIED BEFORE THE END OF THE SHIFT?

☒ YES ☐ NO IF YES, ATTACH NON-CONFORMANCE REPORT FORM.

ARE ANY DEFICIENCIES FROM PREVIOUS DAILY FIELD REPORTS STILL UNRESOLVED?

☐ YES ☒ NO IF YES, LIST DAILY FIELD REPORT NUMBER(S) CORRESPONDING TO THE DEFICIENCY(IES).

WHICH DEFICIENCIES, IF ANY, FROM PREVIOUS DAYS WERE CORRECTED TODAY?

HAVE YOU ATTACHED THE FIELD DENSITY/MOISTURE CURVE WITH ALL OF TODAY'S FIELD DENSITY TESTS ATTACHED?

☐ YES ☒ NO

TOTAL YARDS PLACED THIS SHIFT? Not counted

TOTAL YARDS COMPACTED THIS SHIFT ? None

DESCRIPTION OF MATERIALS PLACED FROM SHIFT? (COLOR, GRADATION BASED ON VISUAL ID)

None

BORROW AREA NO. USED TODAY Corliss Yard

PORTION OF BORROW AREA BEING MINED TODAY

Hard Pan Stockpile

AREA BEING FILLED TODAY

East Berm

AREA BEING CONDITIONED TODAY

Maint. on South slope

AREA BEING COMPACTED TODAY

East berm

DOES DAILY FIELD REPORT ADDRESS ALL QUALITY-RELATED EARTHWORK INSPECTIONS PER CQC PLANS?

☒ YES ☐ NO

WAS ANY SUBGRADE CHECKED FOR CLAY LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

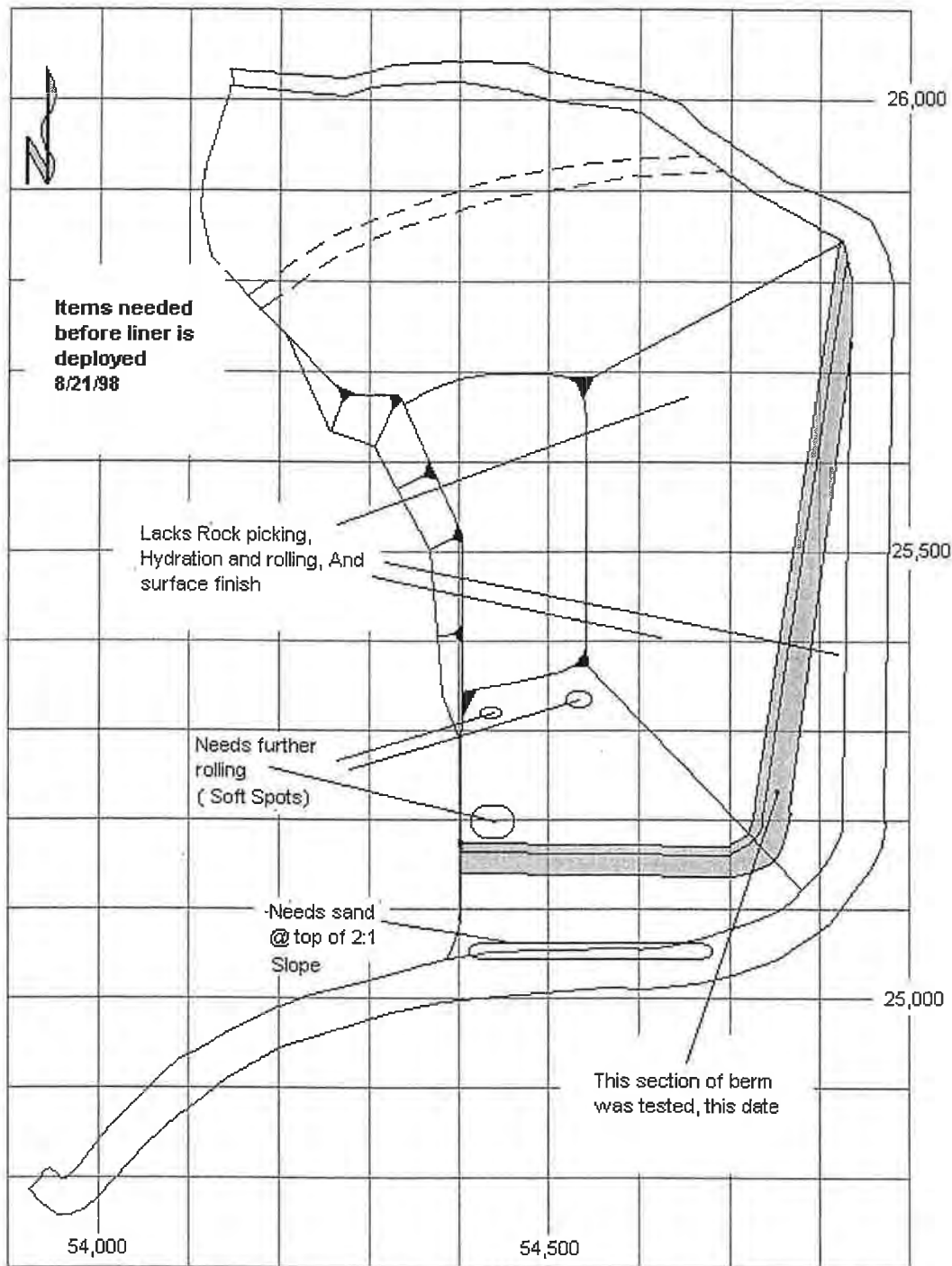
WAS ANY SUBGRADE CHECKED FOR MEMBRANE LINER?

☐ YES ☒ NO IF YES, DESCRIBE AREA

ARE THERE ANY MEMBRANE SUBSURFACE AREAS WITH SEVERE CRACKING?

☐ YES ☒ NO IF YES, DESCRIBE AREA AND CORRECTIVE ACTION TAKEN





Hidden Valley Landfill Supplemental Drawing  
Project No. 40202-005.061

Date: 8/20/98

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 8/21/98

PROJECT NO.: 40202-005.061

REPORT NO.: 42

DAY

S

M

T

W

TH

F

S

☐☐☐☐☒☐

CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

PCL, Lt wind

74

REPORT BY: Glenn Heath

TIME ARRIVED: 07:00

TIME DEPARTED: 18:00

**AVERAGE FIELD FORCE**

CONTRACTOR

LRI  
Serrot

PERSONNEL

9  
15

EQUIPMENT IN OPERATION

2 John Deere D650 Dozers, 1 Trackhoe  
2 Gen. & Forklifts**VISITORS**TIME  
09:00 &  
13:00NAME  
David BoschREPRESENTING  
Health DepREMARKS  
Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies: The Trench was sanded at toe of South slope to conform with the project agreements. The rough area above the berm was reshaped and smoothed using a vibraplate compactor and the contamination was dozed off of the East slope and placed on the Berm.

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: After the above deficiencies were corrected the GCL and plastic were deployed on the South slope. More berm was constructed on the SE corner and the East slope in prep for tomorrow.

CONSTRUCTION ACTIVITIES: On site 07:00hrs to observe repairs on the problems described yesterday. (See yesterday's report). After the above deficiencies were corrected the GCL was placed on the lower trench and the berm for 132ft. Plastic was then deployed to cover the entire South slope (Panels No.25 thru 32). The tie-in was completed to the West leg and all was welded. I marked the 1st 4 destruct locations this date and they were cut and patched, however we did not get them tested. David Bosch was on site approx. 09:00hrs and stayed until 11:00hrs. He then returned at 13:00hrs and observed the construction. He was concerned with the Gas well penetrations and requested that we put bentonite around the well and a piece of GCL to assure the seal. I told him we will have more than enough scraps to perform this and told him I will take pictures of it if he is not here to see it. Tests were taken on the Berm by Dani Porter w/ PSI and myself and were found to be within specified limits. Most of the repairs were performed this date as was all of the Air tests. The SE corner of the cell was scarified and heavily hydrated, this date, to soak overnight and rolled in the morning. I left site at 18:00hrs.

WERE PHOTOS TAKEN: Yes

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**emcon****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 8/22/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 43			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP. (°F)		
CONTRACTOR: LRI		PCt, Lt wind					74		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:00			TIME DEPARTED: 18:00				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 9 15		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe 2 Gen. & Forklifts					
<b>VISITORS</b>									
TIME	NAME		REPRESENTING			REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Deployment of GCL and plastic continued on the South slope and half of the SE corner. Destructive tests were taken on the work performed to date and tested.									
CONSTRUCTION ACTIVITIES: On site 07:00hrs to observe the deployment of GCL and Plastic liner this date. The area covered this date was the Southern half of the SE corner (Panels No33 thru 45). The Gcl was placed on the Berm and the Toe trench prior to deployment of the HDPE liner. Repairs were performed on the material placed yesterday but were not tested this date. We did however cut 4 destructive tests and test them on site for conformance. The placement ran late this date and the last seam was completed at 19:30hrs. No testing nor repairs were performed on the work performed today. I took Field Density tests on the clay liner @ SE corner this date. Off site at 19:30hrs.									
WERE PHOTOS TAKEN: Yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 8/23/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 44			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		PCt, Lt wind					74		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:00			TIME DEPARTED: 13:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 9 15		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe 2 Gen. & Forklifts					
<b>VISITORS</b>									
TIME	NAME		REPRESENTING			REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: LRI built some berm at Mid point of the East slope and processed soil on the South end. Serrot packed their equipt., temporarily sealed any patch areas, that were not completed and left site for a project in Idaho.									
CONSTRUCTION ACTIVITIES: On site 07:00hrs to observe repairs and testing on the plastic deployed yesturday and the earth contruction in progress. The Berm was worked on and soil processing was underway at the South end of the East slope. Serrot told me they were going to temporarily seal all unpatched areas then leave until Wednesday when another crew would arrive and continue work. Ricardo's crew would then arrive on Frday and pick up where this crew leaves off. They left site approx. 13:00hrs. I left site at 13:30hrs.									
WERE PHOTOS TAKEN: Yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 8/24/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 45			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP. (°F)		
CONTRACTOR: LRI		Pct. Lt wind					74		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:00			TIME DEPARTED: 16:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 9 15		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe 2 Gen. & Forklifts					
<b>VISITORS</b>									
TIME 09:00 & 13:00	NAME David Bosch		REPRESENTING Health Dep			REMARKS Site Visit			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Attended the Mon morning site meeting and observed the finishing of the berm surface on South half of the East slope.									
CONSTRUCTION ACTIVITIES: On site at 07:00 hrs to attend the Mon. morning site meeting. After the meeting, Kent Wilken and I looked at the site and the Drainage structure at the NE corner of site. The berm appeared to fall to the structure at a proper slope. Kent off site at 09:30. The Balance of the day I took gas readings and watched the placement of berm material and the soil processing on the top of the slope at the SE corner where there seemed to be a large quantity of gravel. There was a small amount of trash noted on the slope just below this area also so I notified them of this also. I left site at 17:30hrs.									
WERE PHOTOS TAKEN: Yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				



**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 8/25/98															
PROJECT NO.: 40202-005.061		DAY															
REPORT NO.: 46		<table border="1"><tr><td>S</td><td>M</td><td>T</td><td>W</td><td>TH</td><td>F</td><td>S</td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table>		S	M	T	W	TH	F	S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S	M	T	W	TH	F	S											
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>											
CLIENT: LRI		WEATHER															
CONTRACTOR: LRI		PCt, Lt wind															
REPORT BY: Glenn Heath		TEMP. (°F) 74															
TIME ARRIVED: 07:00		TIME DEPARTED: 17:00															
<b>AVERAGE FIELD FORCE</b>																	
CONTRACTOR LRI		PERSONNEL 9															
EQUIPMENT IN OPERATION 2 Jann Deere D650 Dozers, 1 Trackhoe																	
<b>VISITORS</b>																	
TIME 13:00hrs	NAME David Bosch	REPRESENTING Health Dep	REMARKS Site Visit														
Non-Conforming Materials or Work:																	
Follow-Up of Previously Reported Deficiencies:																	
Field Problems Which Could Result in Delay, Change Order or Claim:																	
Tests Performed, Observations, Results, Retests: Observed the processing of the soil on the SE corner, at the top and the berm construction at the mid point on the East slope.																	
CONSTRUCTION ACTIVITIES: On site 07:00 to observe the processing of the soil on the top of the SE corner. The soil still looked rocky and full of gravel. David Bosch was on site at approx 13:00hrs and noticed it also. I notified Jim Crandall and he looked at it and said he will have the crew fix it. The berm was also under construction on the East slope. I took tests on it and found it low on moisture. The soil was wet up, as was the lower portion of the East slope, and the berm tested within the zone of compaction. The berm was smooth rolled this date using the smooth drum roller pulled by the track loader using a long cable. As the roller was pulled up the 2:1 slope, the cable cut into the top of the slope requiring some repair. This was done using some of the hardpan clay with the rock removed. Off site at 17:00hrs after taking some gas readings.																	
WERE PHOTOS TAKEN: Yes																	
FIELD REPRESENTATIVE		DATE															
REVIEWED BY		DATE															



DAILY CONSTRUCTION REPORT												
PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 8/26/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 47						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Pct, Lt wind					74		
REPORT BY: Glenn Heath					TIME ARRIVED: 07:00				TIME DEPARTED: 17:00			
AVERAGE FIELD FORCE												
CONTRACTOR LRI				PERSONNEL 9		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe						
VISITORS												
TIME 09:30 09:30	NAME David Bosch Garren			REPRESENTING Health Dep DOE			REMARKS Site Visit Site Visit					
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Rolled the soil on the SE corner of the site and part of the East slope. Berm was continued to be constructed on the East slope this date.												
CONSTRUCTION ACTIVITIES: On site 07:00 to observe the deployment of plastic on the SE corner of the cell. The soil was smooth drum rolled and watered. Serrot did not arrive this date. David Bosch and Garren arrived on site at approx. 09:30. Garren asked if we were going to place sand on the berm before placing GCL. I told him no. He expressed it should be done and I could not convince him otherwise. I told him to call Kent Wiken and talk to him about it as I can not make that kind of change without going thru channels. I called Kent's voice mail and left a message. Kent returned the call and said he was going to have a meeting on site with Garren as Garren wanted to have this cleared up before deployment of any liner materials. The meeting was to be held at 14:30hrs. Kent called and said he will be late, Jim Crandall had to leave to go out of town, David Bosch and his boss arrived at 14:00hrs and left at 15:00hrs and Garren never showed up. Kent arrived at 15:45hrs and we looked at the berm. Kent said to just patch the rough areas wet up and smooth out the top with the vibrating plate compactor. Off site at 17:00hrs.												
WERE PHOTOS TAKEN: Yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/27/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 48					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP. (°F)			
CONTRACTOR: LRI				Pct, Lt wind				74			
REPORT BY: Glenn Heath				TIME ARRIVED: 07:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI				PERSONNEL 9		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot not on site this date. Maintained moisture on slopes and berm. patched berm and built more North end of East slope.											
<b>CONSTRUCTION ACTIVITIES:</b> On site 07:00 to observe the deployment of plastic on the SE corner of the cell. Serrot did not arrive this date, and did not call. I showed the crew how we wanted the berm to be patched and the slopes were watered to maintain moisture. I took field density tests on the slope from center of the SE corner to the half way point on the East slope heading North. all tests were found within the Zone of Acceptable Compaction. I also took a Shelby sample which will be shipped tomorrow. The berm was constructed on Northern end of the East slope, and should be completed tomorrow or Saturday. I also obtained a sample of the stone to be used for the drainage layer, for gradation, and placed in the oven to dry. Off site at 17:30hrs, after taking some gas readings.											
WERE PHOTOS TAKEN: Yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 8/28/98

PROJECT NO.: 40202-005.061

REPORT NO.: 49

DAY

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CLIENT: LRI

WEATHER

TEMP. (°F)

CONTRACTOR: LRI

Pct, Lt wind

74

REPORT BY: Glenn Heath

TIME ARRIVED: 07:00

TIME DEPARTED: 17:30

**AVERAGE FIELD FORCE**

CONTRACTOR

LRI  
Serrot

PERSONNEL

9  
4

EQUIPMENT IN OPERATION

2 John Deere D650 Dozers, 1 Trackhoe

**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Serrot on site this date. Maintained moisture on slopes and berm. and built more North end of East slope.

CONSTRUCTION ACTIVITIES: On site 07:00 to observe the deployment of plastic on the SE corner of the cell. Serrot did not arrive this date. I called them at the request of one of the crew. Graden w/Serrot told me a small crew under a leader named Espacio would arrive late today and begin work tomorrow then Sun. the rest would arrive and take over. I told Criss w/LRI the story and she scheduled her labor crew accordingly. I shipped a perm sample to Mark Lankford in Ft. Worth. I took final tests on the Berm this date and found to be within the specified limits. Off site at 17:30hrs

WERE PHOTOS TAKEN: Yes

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/29/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 50					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Pct, Lt wind				74			
REPORT BY: Glenn Heath				TIME ARRIVED: 07:00				TIME DEPARTED: 15:00			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI Serrot				PERSONNEL 4 4		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot performed repairs and tested patches this date. Maintained moisture on slopes and berm. and built more North end of East slope.											
<p><b>CONSTRUCTION ACTIVITIES:</b> On site 07:00 to observe the deployment of plastic on the SE corner of the cell. Serrot arrived this date with 4 crew members and performed repairs only on the SE corner that was deployed on 8/22/98. They told us they will be leaving for California tomorrow and the deployment crew will be on site on Monday. Criss told her labor crew not to come in tomorrow and only two people will be in tomorrow to water the slopes and berm. I left site at 15:00hrs.</p>											
WERE PHOTOS TAKEN: Yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					



**emcon****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 8/30/98

PROJECT NO.: 40202-005.061

REPORT NO.: 51

DAY	S	M	T	W	TH	F	S
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CLIENT: LRI

WEATHER

TEMP. (°F)

CONTRACTOR: LRI

Pct, Lt wind

74

REPORT BY: Glenn Heath

TIME ARRIVED: 11:00

TIME DEPARTED: 11:30

**AVERAGE FIELD FORCE**CONTRACTOR  
LRIPERSONNEL  
2EQUIPMENT IN OPERATION  
2 John Deere D650 Dozers, 1 Trackhoe**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Watering the slopes and pushed type B soil down Eastern end of North slope this date.

CONSTRUCTION ACTIVITIES: Only watered the East slopes and the SE corner of cell. Also pushed Type B soil down the East end of the North slope.. No other work performed this date. Off site at 11:30

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 8/31/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 52					<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Pct, Lt wind				74			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:30				TIME DEPARTED: 17:30			

### AVERAGE FIELD FORCE

CONTRACTOR LRI Serrot	PERSONNEL 5 15	EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Tractor loader 2 generators, 2 forklifts, welding eqipt.
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### VISITORS

TIME	NAME	REPRESENTING	REMARKS
07:30	Kent Wiken	EMCON	Site Visit
08:30	Andy Comstock	Health Dept.	Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on East side of SE corner. LRI pushed soil down the North slope and completed the Berm at Northeast corner.

CONSTRUCTION ACTIVITIES: On site at 06:00 hrs to attend the weekly site meeting and to observe deployment of plastic on the SE corner of the cell. The meeting was held at 07:30hrs and the schedule was discussed for the week. Jim Crandall said he was confident that we would have the clay finished by 11/2 weeks and the liner installed. He also wanted to know if they could get the design changed to using GCL on the roadway on the North slope so he could keep from using clay on it. Kent said he would get with the Health Dept. Kent brought a Washdot Permeometer to set it up and make a trial run on the drain rock. Andy Comstock w/ Pierce County Health Dept. was present and observed the procedure. Also. After running the test I went to observe the liner const. Panels 46 thru 53 were installed this date. I tested the clay this date on the Northern end of the East slope, all areas passed. Off site at 17:30hrs.

WERE PHOTOS TAKEN: yes

FIELD REPRESENTATIVE \_\_\_\_\_ DATE \_\_\_\_\_

REVIEWED BY \_\_\_\_\_ DATE \_\_\_\_\_

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 9/1/98

PROJECT NO.: 40202-005.061

REPORT NO.: 53

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CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Pct, Lt wind

86

REPORT BY: Glenn Heath

TIME ARRIVED: 06:30

TIME DEPARTED: 17:30

**AVERAGE FIELD FORCE**

CONTRACTOR

LRI  
Serrot

PERSONNEL

5  
15

EQUIPMENT IN OPERATION

2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader  
2 generators, 2 forklifts, welding equip**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

13:00

Andy Comstock

Health Dept.

Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on mid section of the East slope. Lri building berm on North end at storm inlet.

CONSTRUCTION ACTIVITIES: On site at 06:00 hrs, to observe the placement of panels no 54 thru 60. Some trouble with the berm rocks was encountered but the area was cleaned up without much delay. LRI worked on the Mid section of the East slope getting the Clay smooth rolled for more deployment of FML tomorrow. Labor crews were picking rocks on the North slope and getting it ready for more clay placement. Geocomposite was deployed this date along the toe of the South slope. Off site at 17:00hrs.

WERE PHOTOS TAKEN: yes

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 9/2/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 54					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Pct, Lt wind				86			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:30				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI Serrot				PERSONNEL 5 15		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
13:00	Andy Comstock			Health Dept.				Site Visit			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on mid section of the East slope and on top. Lri working on the North slope.											
<p><b>CONSTRUCTION ACTIVITIES:</b> On site at 06:00 hrs placement of panels no 61 thru 66. Some trouble with the berm rocks was encountered and the project was held up approx. 1hr picking up the loose rocks from the berm construction and from deployment of GCL panels. LRI worked on the Mid section of the East slope getting the Clay smooth rolled for more deployment of FML tomorrow. Labor crews were picking rocks and trash on the North slope and getting it ready for more clay placement. The low area where the access road to a gas well was filled this date using type B material I took F/D tests on it as they brought it up to grade. Clay placement on the North slope was begun this date on the East end of the North slope. Geo composite was deployed this date along the toe of the South slope. Off site at 17:00hrs.</p>											
WERE PHOTOS TAKEN:                      yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

**emcon****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 9/3/98

PROJECT NO.: 40202-005.061

REPORT NO.: 55

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CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Pct, Lt wind

84

REPORT BY: Glenn Heath

TIME ARRIVED: 06:00

TIME DEPARTED: 17:30

**AVERAGE FIELD FORCE**

CONTRACTOR

PERSONNEL

EQUIPMENT IN OPERATION

LRI  
Serrot5  
152 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader  
2 generators, 2 forklifts, welding equipt.**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Serrot crew on site deploying FML on the East slope this date. Berm material was rocky causing problems with deployment. LRI placing clay on the North slope.

CONSTRUCTION ACTIVITIES: On site 06:00hrs to observe the slope rolling and berm repair for FML deployment tomorrow. The Serrot crew fell back and began performing repairs and testing on the liner laid in the last few days. The subgrade was not ready for anymore deployment at this time so Serrot used the time to play catchup. The clay placement on the North slope continued this date and was spread out to dry. Balance of the day was spent on repairs, air testing, and Vacuum tests. Off site at 17:00hrs.

WERE PHOTOS TAKEN: yes

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE



## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 9/4/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 56						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER				TEMP.(°F)			
CONTRACTOR: LRI					Pct, Lt wind				84			
REPORT BY: Glenn Heath					TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI Serrot				PERSONNEL 5 15		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.						
<b>VISITORS</b>												
TIME	NAME				REPRESENTING				REMARKS			
10:00	Dave Bosch				Health Dept.				Site Visit			
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Serrot crew on site deploying FML on the East slope this date. Berm material was rocky causing problems with deployment. LRI placing clay on the North slope.												
<p><b>CONSTRUCTION ACTIVITIES:</b> On site 06:00hrs to observe the deployment of GCL and FML on the East slope. The soil in the berm was rocky and was washed from watering to keep moisture content to an acceptable level. I had them patch the berm yesterday and they watered it late in the evening so we could deploy today. As the GCL was dragged across the down slope, it dislodged the rocks and we had to shut the GCL deployment down until the Rocks could be removed. The area precluding, was in good shape so Serrot began FML deployment on it until Jim's crew could remove the rocks and patch the deformations in grade. David Bosch arrived on site at approx. 10:00 hrs and saw the work on the berm. 3 panels were removed and subgrade was reworked by LRI crew plus approx. 1/2 of Serrot's crew. The GCL was replaced and the lining continued. Panels 67 thru 73 were installed this date. The Gas wells on the South slope are beginning to lay over it has been discussed whether the FML is pulling the wells down or if the FML is holding in heat causing the PVC pipe to loose it's yield strength or both. Criss w/ LRI has propped the well heads up using sand bags and 2X4's but this does not appear to be working. Off site at 17:00hrs.</p>												
WERE PHOTOS TAKEN:            yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 9/5/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 57					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Pct, Lt wind				74			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI Serrot				PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding eqipt.					
<b>VISITORS</b>											
TIME 07:30 11:45		NAME Kent Wiken Dave Bosch			REPRESENTING EMCON Health Dept.			REMARKS Site Visit Site Visit			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot crew on site deploying FML on the East side of the NE corner of the site. LRI placed clay on the lower slopes above the perimeter road this date.											
<p>CONSTRUCTION ACTIVITIES: On site 06:00hrs to observe the deployment of GCL and FML on the East side of the NE corner of the Closure area. The berm material was rocky toward the North end and the slope was almost 2:1 from top to bottom causing the rocks to dislodge. I shut them down and had Jim get his crew over to remove all of the rocks and we added somemore sand to the surface to help pad the GCL. The FML was placed past the crown of the corner so the FML would "shingle" in case rain should hit. The Fml was placed and welded to cover all of the East slope this date. I took F/D tests on the 1st 10ft of the North slope and found to be passing as some of this area was to be covered up this date. The culvert at the NE corner of the site was covered up also and I had them make a temp. hole in case rain hit. Off site at 17:30hrs.</p>											
WERE PHOTOS TAKEN:            yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 9/6/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 58			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		PCt, Lt wind					74		
REPORT BY: Glenn Heath		TIME ARRIVED:			TIME DEPARTED:				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI		PERSONNEL 1		EQUIPMENT IN OPERATION 1 John Deere 650g Dozer					
<b>VISITORS</b>									
TIME	NAME		REPRESENTING			REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: 1 Dozer backdragging clay and shaping trenches along the upper road on North slope.									
CONSTRUCTION ACTIVITIES: 1 Dozer working on site this date mainly shaping the clay and working the upper roadway on North slope this date. Serrot took the day off as did LRI personel. I chose not to visit site this date either.									
WERE PHOTOS TAKEN: no									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 9/8/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 59					<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Pct, Lt wind				74			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI Serrot				PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
<b>VISITORS</b>											
TIME 07:30 11:45	NAME Kent Wiken Dave Bosch			REPRESENTING EMCON Health Dept.				REMARKS Site Visit Site Visit			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot crew on site Performing repairs on the liner placed on Saturday 9/5/98. Weekly site meeting was held and LRI working North slope.											
<p>CONSTRUCTION ACTIVITIES: On site 06:00hrs to observe the patching and Airtesting of the liner placed on Saturday. I logged in all air tests and repairs then attended the weekly site meeting. At the meeting, Jim Crandall discussed the schedule and stated he will begin the rock placement tomorrow and will be pushing with a small wide pad dozer. He told Kent he would like to skip the clay and use GCL on the roadway and Kent obtained approval this date from the Health Dept. I shipped 2 Perm tests on the type A subgrade and 1 perm from the soil on the North slope. We also shipped DS-26 thru DS-35 this date along with Ds-11A and DS-11B. These were also patched this date. Dave Bosch was on site and observed the attempted placement of the boot on the culvert at NE corner of closure. This did not work and was abandoned this date. Rain was in the forcast and we worked the last hour trying to get the site sealed off and drainage opened up.</p>											
WERE PHOTOS TAKEN:            yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 9/9/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 60						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					Pct, Lt wind					74		
REPORT BY: Glenn Heath					TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI Serrot				PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.						
<b>VISITORS</b>												
TIME	NAME				REPRESENTING				REMARKS			
11:45	Dave Bosch				Health Dept.				Site Visit			
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Serrot crew on site and performed repairs on Northeast corner, SE corner (destruct no. 11), and Booted several Gas wells. LRI processed clay on Northwest slope and sanded the trench along the upper and perimeter roads in prep for plastic deployment.												
CONSTRUCTION ACTIVITIES: On site 06:00hrs to observe the repairs and Vacuum testing on them. Destruct no. 11 Failed the 3rd party testing on 9/4/98. Suplimentary tests were sampled, 10 ft each side on 9/8/98 and labled 11A and 11B (Test A being the up side of the weld and B being the down side from the original test, in the direction welded.). They resulted in test 11A passing per specifications and 11B failing with three out of 5 failing to be FTB. We sampled again, 35ft from the original sample, labling the sample no. 11B2 and sent it in this date. Ricardo w/Serrot decided at this point, to cap the whole seam and it was performed and Vac. tested this date. This was the last seam welded on 8/22/98 by this machine and technician. and was performed late in the day, with a lower ambient temperature. The area we tested between DS-11B and 11B2 every 5ft. had a failing weld on the A side. and appeared to clear up just as it reached the trench. Fearing the worst, it was decided to cap all the way thru the trench and from DS-11 to the begining of the seam. The Boot on the culvert at the NE corner of the closure was completed this date and was banded with a gasket made from FML. A layer of FML was placed on the bottom of the trench then a layer of GCL was then placed then the FML and Boot was clamped on using a clamp with gasket. A strip of FML 6" wide and 3.5' was doubled over making it 3" wide and slipped over the pipe trimming it to length to form a gasket. Then a band was placed over the boot and sinched up tight to seal it off.												
WERE PHOTOS TAKEN:            yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						



**emcon****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 9/10/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 61			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP. (°F)		
CONTRACTOR: LRI		Pct, Lt wind					74		
REPORT BY: Glenn Heath		TIME ARRIVED: 06:00			TIME DEPARTED: 17:30				

**AVERAGE FIELD FORCE**

CONTRACTOR LRI Serrot	PERSONNEL 5 12	EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equip.
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**VISITORS**

TIME	NAME	REPRESENTING	REMARKS
11:45	Dave Bosch	Health Dept.	Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Serrot crew on site and performed repairs on Northeast corner, SE corner (destruct no. 11), and Booted several Gas wells. LRI processed clay on Northwest slope and sanded the trench along the upper and perimeter roads in prep for plastic deployment.

CONSTRUCTION ACTIVITIES: On site 06:00hrs to observe the repairs and Vacuum testing on them. Destruct no. 11 Failed the 3rd party testing on 9/4/98. Suplimentary tests were sampled, 10 ft each side on 9/8/98 and labled 11A and 11B (Test A being the up side of the weld and B being the down side from the original test, in the direction welded.). They resulted in test 11A passing per specifications and 11B failing with three out of 5 failing to be FTB. We sampled again, 35ft from the original sample, labing the sample no. 11B2 and sent it in this date. Ricardo w/Serrot decided at this point, to cap the whole seam and it was performed and Vac. tested this date. This was the last seam weded on 8/22/98 by this machine and technician. and was performed late in the day, with a lower ambient temperature. The area we tested between DS-11B and 11B2 every 5ft. had a failing weld on the A side. and appeared to clear up just as it reached the trench. Fearing the worst, it was decided to cap all the way thru the trench and from DS-11 to the begining of the seam. The Boot on the pump station at SE corner of site was installed this date, also. I took pictures of the work. A flap, at my request, was installed above and on each side of the station to prevent any run-off from entering this area. This will become a part of the Rip-Rap area and will have only it's own run-off. as it is flat and there is only minimal clearance between the pump controls and the liner. Drain rock continued to be placed on the slope West of the conveyor this date. by the end of the day there was enough to warrant being pushed by the dozer. I took F/D tests on the East half of the N slope and found within specified limits. Off site at 17:00hrs.

WERE PHOTOS TAKEN: yes

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 9/11/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 62					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP. (°F)			
CONTRACTOR: LRI				Pct, Lt wind				74			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI Serrot			PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.						
<b>VISITORS</b>											
TIME 07:30 14:00	NAME Kent Wiken Dan			REPRESENTING EMCON Health Dept.				REMARKS Site Visit Site Visit			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on Northeast corner of area. LRI pushed soil down the Northwest slope and sanded the trench along the upper and perimeter roads in prep for plastic deployment.											
<p><b>CONSTRUCTION ACTIVITIES:</b> On site at 06:00 to observe the final make ready for plastic deployment on the lower NE corner of the closure area. the inlet and surrounding berm were sanded for the GCL deployment as was the low water crossing and the trenches. GCL and Bentonite was placed around all of the gas wells and the condensate collection sump riser. The first piece of GCL was placed around the inlet and cut slightly smaller than the inlet then slid down the inlet as a tight seal. Bentonite was then placed around the edges approx 1/2" thick. Kent Wiken was on site to answer several questions that came up, and to make decisions on them. 1) Serrot wanted to have a seam separating the panels at the centerline of the roadway on the North slope to allow redirection of the panels to align with the lower slope. After observing the area and the idea and looking at the specifications, Kent said he saw no problem with doing it that way. 2) We got with Jim Crandall and worked out a way to place the drain rock on the liner without going down the slope. We decided to start on the West edge of the South slope and push across horizontally as far as practical, then push the stone down, over the 1ft of already installed stone, to build up a 3ft road to deploy stone horizontally again. This could be done all the way across, and keep the stone from being pushed downward on top of the FML. 3) We discussed the mixing of sand with the stone to help provide some stability to it, but Kent said it will depend on the perm test results and it was critical that they exceed the specified requirements. Kent also looked at the sand used on the road under the GCL and how it performed after compaction. He said he was satisfied as long as it did not rut while installation was performed. Panels 82 thru 96 were deployed this date. No stone was placed this date. I left site at 17:30hrs.</p>											
WERE PHOTOS TAKEN:            yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 9/12/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 63			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI		WEATHER Pct, Lt wind				TEMP.(°F) 75			
CONTRACTOR: LRI									
REPORT BY: Glenn Heath		TIME ARRIVED: 06:00			TIME DEPARTED: 17:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING				REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on Northeast corner of area. LRI pushed rock on the leg at the west end of site.									
CONSTRUCTION ACTIVITIES: On site at 06:00 to observe the deployment of FML on the East side of the North slope. The GCL was placed on the trenches and the FML was deployed. Panels 97 thru 105 were placed this date. The subgrade was reworked on the upper slope as it seemed to hydrate itself until it was pumping under foot traffic. I had the dirt crew rip it up to let it dry out some and it can be rerolled tomorrow or Monday. Some rock was pushed on the leg at the west edge of site at south end. Gas built up under the liner at the top of the cell by the end of the day. Recardo noticed also and I told him we will have to do something about it as it will become a problem. Off site at 17:30hrs.									
WERE PHOTOS TAKEN: yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 9/13/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 64					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER Pct, Lt wind				TEMP.(°F) 75			
CONTRACTOR: LRI											
REPORT BY: Glenn Heath				TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI Serrot				PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
14:00	Dave Bosch			Health Dept.				Site Visit			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on Northeast corner of area. LRI pushed rock on the leg at the west end of site.											
<p>CONSTRUCTION ACTIVITIES: On site at 06:00 to observe the deployment of FML on the East side of the North slope. The GCL was placed on the trenches and the FML was deployed. Panels 118 thru 121 were placed this date. The subgrade was not reworked on the upper slope as it seemed too wet, I had the dirt crew leave it to let it dry out some and it can be rerolled tomorrow. Some rock was pushed on the leg at the west edge of site at south end. At 15:00 hrs Ricardo Leon w/Serrot informed me that we only had 2.5 rolls of FML left on site. I started to call Kent Wiken and Jim Crandall but declined as there was nothing they could do on a Sunday Afternoon. I also took some F/D tests on the lower section of the North slope this date. Off site at 17:30hrs.</p>											
WERE PHOTOS TAKEN:            yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 9/14/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 65			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER		TEMP. (°F)					
CONTRACTOR: LRI		PCt, Lt wind		75					
REPORT BY: Glenn Heath		TIME ARRIVED: 06:00			TIME DEPARTED: 17:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
<b>VISITORS</b>									
TIME 07:30 14:00	NAME Kent Wiken Dave Bosch	REPRESENTING EMCON Health Dept.				REMARKS Site Visit Site Visit			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on Northeast corner of area. LRI pushed rock on the leg at the west end of site.									
<p><b>CONSTRUCTION ACTIVITIES:</b> On site at 06:00 to observe the deployment of FML on the North slope and the reworking of subgrades. I informed Jim Crandall that the FML was running short and he said he could get more. When Kent Wiken Arrived for the weekly site, I told him of the shortage and it was discussed in the meeting. I also asked Kent if I could get some help on the project as I do not have time to watch the rock placement. We discussed the placement of rock and told Jim Crandall that the rock can be brought down the outside of the SW slope and placed horizontally across the berm then upward. Then a new road could be placed over the foot of stone and bought across and up as they moved away from the West edge. Kent and I looked at the rock operation on the leg at SW section of the site, and the plastic installation, as well as the roadway sand subgrade. Later in the day, Jim told me they were having trouble getting the FML and checking into getting plastic from other suppliers. Dave Bosch was on site and looked at the GCL. placed in the lower trench on the north end.. The material was shingled backwards due to the change in the direction of the flow. I, in the presence of David told Ricardo wSerrot to change the laps he said he would 1st thing in the morning. The gas pocket at the top of the slope at NE corner was getting too large and was beginning to creep down slope. I told Jim that maybe we could place a suction line from the flair under the liner to pull some of it out. off site at 17:30</p>									
WERE PHOTOS TAKEN:            yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				



## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 9/15/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 66					<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Pct, Lt wind				75			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI Serrot				PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
11:00	Dave Bosch			Health Dept.				Site Visit			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Serrot crew on site and deployed FML on lower section of the north slope. only a few panels were placed as a large soft spot in the subgrade had formed and had to be removed. LRI placing rock on the North slope.											
<p><b>CONSTRUCTION ACTIVITIES:</b> On site at 06:00 to observe the deployment of FML on the North slope, lower section. Jim Crandall told me they will be getting the 7 rolls of plastic we need to finish on Thursday. Recardo noticed the subgrade had become soft and stopped the deployment until it could be reworked. He notified me and I told Jim Crandall about it and he said to get with the dozer operator about it. I told Tim, the dozer operator and he said it would be better to have it done by hand. I told him it was all the way down to the original subgrade and it would take days to fix it that way. It needed to be excavated out and replaced. He put one laborer with a shovel on it. While I was trying to discuss this with him, David Bosch arrived and found the soft spot and pointed it out to me. I told him I was aware of it and was trying to get it fixed. I don't think he believed me. He also said the GCL was still lapped backwards and Serrot had already deployed on it. I looked in the specs and nothing was mentioned about it and showed David. He wanted it changed. I went down and performed the task, with the help of one of the Serrot employees. Jim drove by and saw the laborer working on the subgrade and told Tim to get the track loader over there and remove the wet clay and replace it with some dry material as we did not have time to work it by hand. It was dipped out and replaced with drier material this date and I took F/D tests on it. FML was not deployed on it this date. Panels 126 thru 134 were placed, this date. LRI was pushing rock on the Leg at the SW section of the cell. Kent called and told me he will have help here in the morning from the Portland office, I asked him if I could get the Lanteck gas meter on the site to check readings on the gas under the liner and around the top of the cell. It arrived this date and I took readings finding the area safe and the gas under the plastic at 60% methane. I told Jim that the suction line would be advisable as it will evacuate most of the gas and help feed the flare at the same time Off site at 17:30hrs</p>											
WERE PHOTOS TAKEN:            yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure					DATE: 9/16/98							
PROJECT NO.: 40202-005.061					DAY	S	M	T	W	TH	F	S
REPORT NO.: 67						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI					WEATHER					TEMP.(°F)		
CONTRACTOR: LRI					PCt, Lt wind					75		
REPORT BY: Glenn Heath					TIME ARRIVED: 06:00				TIME DEPARTED: 17:30			
<b>AVERAGE FIELD FORCE</b>												
CONTRACTOR LRI Serrot				PERSONNEL 5 12		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.						
<b>VISITORS</b>												
TIME	NAME				REPRESENTING				REMARKS			
11:00	Dave Bosch				Health Dept.				Site Visit			
Non-Conforming Materials or Work:												
Follow-Up of Previously Reported Deficiencies:												
Field Problems Which Could Result in Delay, Change Order or Claim:												
Tests Performed, Observations, Results, Retests: Serrot crew on site and performed repairs and airtests this date. Lri Placing rock on the Leg and the South slope.												
<p>CONSTRUCTION ACTIVITIES: On site at 06:00 to observe the repairs and the testing of the work performed on previous days installation of FML. A hole was cut in the liner At NE corner at the top to place a vacuum hose from the flair to collect the built up gas. This appeared to work. I noticed that there was no LRI employee walking the wrinkles on the FML around the rock placement. and the rock was being placed at an angle down ward from above. I told Jim this was not what we agreed on and he needed somebody walking wrinkles. He said he did not have anyone on site to do it yet. (This was at approx. 6:30hrs.) He also said he was just getting rock over to the berm and would talk to his guys about it. I returned to the FML work area and marked the Destructs so we could test them today and get them to the lab. Jim informed me that he was mixing sand with the rock to make it more stable. Kent contacted me and told me he was concerned with the perm test results. I told him I am getting very low perm results and it was nowhere near the required 2cm/sec. Degan Short was on site and he began working on the problem as well as the pushing of the rock. He also told Kent that it might not be a bad idea if Kent came out to the site ASAP and look at it also. WE left site at 18:00hrs.</p>												
WERE PHOTOS TAKEN:                      yes												
FIELD REPRESENTATIVE						DATE						
REVIEWED BY						DATE						

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 9/17/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 68			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER Cloudy, Rain					TEMP.(°F) 65		
CONTRACTOR: LRI									
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30			TIME DEPARTED: 17:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 5 15		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING				REMARKS			
09:00	David Bosch	Health Dept.				Site Visit			
15:15	David Bosch	Health Dept.				Site Visit			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Rec'd 8 rolls of FML. Serrot deployed liner, LRI placed rock on the South slope.									
<p><b>CONSTRUCTION ACTIVITIES:</b> On site at 06:00 hrs to observed the deployment of FML on the North slope. The upper panels were placed and welded then the lower slopes began. Serrot had 1 panel deployed and ready to weld and was in the motion of deploying another when a storm came thru blowing the panel out of their control. It picked up the NW corner of the plastic at the top of the cell and got air under it almost flipping a generator over. Serrot anchored the plastic where it was and straightened the panel blown from them as they were deploying it and left it as it was too wet to walk on and they would destroy the subgrade surface. No more work could be performed as it was too slippery to walk on the clay. Serrot left site at 15:30 hrs. Degan Short and I worked on the rock for the balance of the day to try and get the perm tests to reach a consistency. Off site at 17:00hrs.</p>									
WERE PHOTOS TAKEN:           yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				



## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 9/18/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 69			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Cloudy, Lt. Wind					64		
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30			TIME DEPARTED: 17:30				
AVERAGE FIELD FORCE									
CONTRACTOR LRI Serrot		PERSONNEL 5 15		EQUIPMENT IN OPERATION 2 John Deere D650 Dozers, 1 Trackhoe, & 1 Trackloader 2 generators, 2 forklifts, welding equipt.					
VISITORS									
TIME 08:00 11:00	NAME Kent Wiken David Bosch		REPRESENTING EMCON Health Dept.			REMARKS Drainage Design Change Site Visit			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Serrot straitened out the wind blown material on top of the cell and performed airtests and repairs. LRI pushed rock all day and Degan worked on the .									
CONSTRUCTION ACTIVITIES: On site at 06:00 hrs to observed the re-placement of the displaced FML at the NW corner of the cell at the top of the cell. This was performed by pulling the plastic back up the slope by hand, and needed no special equipt to pull it. The lower slope was left alone to permit drying of the surface and no disturbance of the surface finish on the subgrade. Serrot spent the balance of the day patching and testing. I observed most of the day and watched the rock installation as Kent and Degan worked on testing the rock and redesigning the drainage plan. Once again we talked with Jim Crandall about the delivery and pushing of the rock as it was not being installed as per agreement and wrinkles were not being handled properly. David Bosch was on site and also observed this at the same time. David made a comment on how easily Serrot pulled the FML back into place earlier. I agreed as we all thought it would be a big task to perform this and it was done quickly and easily in about 20 min. I spent most of the afternoon standing guard and watching the operation, leaving only to ship more destructs out to the lab. Kent and Degan came up with a design using drainage pipe every 100ft to help carry off the water and Kent made a drawing to lay out the pipe by. He discussed the new design with David Bosch while he was still there. A wrinkle was found in the plastic approx 6ft above the berm that was too tall and not wide enough to displace. It appeared to have almost been covered up before it was discovered. I dug it up for approx. 10ft and it only got worse. I told Dave I would have it all dug up tomorrow and see what it will take to correct it. Degan and I left site at 17:30hrs.									
WERE PHOTOS TAKEN: yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 9/29/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 70					<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP.(°F)			
CONTRACTOR: LRI				Pct, Lt wind				77			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:30				TIME DEPARTED: 17:30			

### AVERAGE FIELD FORCE

CONTRACTOR LRI	PERSONNEL 2	EQUIPMENT IN OPERATION 1 Trackhoe
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### VISITORS

TIME	NAME	REPRESENTING	REMARKS
13:30	Dave Bosch	Health Dept.	Site Visit
13:30	Garren	DOE	Site Visit

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Placing Drain rock on East Slope below berm, And on the North slope @ perimeter roadway

CONSTRUCTION ACTIVITIES: On Site at 06:30 to Observe the placement of drain rock on the North slope using a concrete conveyor truck. The rig was on site when I arrived and setting up. They began placement at approx. 07:30. The placement was slow in the beginning but picked up throughout the day. The rig was setup at the NW corner of the lower slope where a stockpile was placed yesterday. The material was belted over the trench and placed in windrows running up and down the slope. I told the operator to change and place the material from the bottom up in an arc fashion to push the wrinkles upward. This made the grade hard to see from his view point so I fashioned a gauge stick with orange paint on a lathe and gave it to the person walking the wrinkles and told him to let the operator see it as he was pushing the wrinkles. At approx. 13:30hrs Dave Bosch and Garren arrived on site and looked at the operation. We were at the time moving to the NE corner and they just looked at the placed material and left with no comments. The dozer operation on the East slope was moving slowly and shut down at 12:hrs due to wrinkles which can not be displaced. The normal working hours are 06:00 to 12:00hrs in this area and should be completed tomorrow. This will complete the rock placement below the berm. I worked on paperwork and ran another gradation on the drain rock from the stockpile used by the truck which I sampled yesterday. Off site at 17:00hrs.

WERE PHOTOS TAKEN: Yes

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE



**DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 9/30/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 71			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Pct, Lt wind					75		
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30			TIME DEPARTED: 16:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 2 5		EQUIPMENT IN OPERATION 1 Trackhoe None					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING				REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Completed Drain Rock placement on East slope below berm. Concrete conveyor truck placing rock on the North slope from West end of access roadway upward to almost half way up									
CONSTRUCTION ACTIVITIES: On Site at 06:30 to Observe the placement of drain rock on the North slope using a concrete conveyor truck. The truck was on the access roadway on West end and placed rock up the slope not quite half way. The drain rock placement on the East slope below the berm was completed this date and fine grading was performed on all of the previously installed rock above and below the berm. Part of a Serrot crew arrived at approx. 08:00hrs this morning but did not have any equipment on site and was not able to perform any work as they will have to sew the fabric and no sewing machine was on site. They received a forklift and a generator from the rental place this date. Kent Wiken contacted me and informed me I need to document the installation of the pipe as it is crucial that it fall at a 5% slope. He also told me the wrinkle problem, on the East slope center to South end, has not been resolved as of yet, but not to do anything yet as it may not be that bad. I ran gradations on the drain rock and a perm test this date. Off site at 16:30hrs.									
WERE PHOTOS TAKEN: No									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill East Lined Area Partial Closure		DATE: 10/1/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 72			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Pct, Lt wind					75		
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30			TIME DEPARTED: 16:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 2 5		EQUIPMENT IN OPERATION 1 Trackhoe None					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING			REMARKS				
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Completed Drain Rock placement on East slope below berm. Concrete conveyer truck placing rock on the North slope from West end of access roadway upward to almost half way up									
CONSTRUCTION ACTIVITIES: On Site at 06:30 to Observe the placement of drain rock on the North slope using the concrete conveyor truck. The truck was on the access roadway on East end and placed rock up the slope above the berm to the access roadway. The hole in the liner cut at the end of the drain rock placement on the East slope below the berm was repaired this date. Part of a Serrot crew installed geotextile over the South slope this date and seamed by sewing all joints. I worked on liner report some this date.									
WERE PHOTOS TAKEN: No									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 10/2/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 73			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER						TEMP.(°F)	
CONTRACTOR: LRI		Pct, Lt wind						75	
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30				TIME DEPARTED: 16:30			
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot		PERSONNEL 2 5		EQUIPMENT IN OPERATION 1 Trackhoe None					
<b>VISITORS</b>									
TIME	NAME	REPRESENTING				REMARKS			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Serrot installing geotextile and Lri installing drainrock on the North slope.									
CONSTRUCTION ACTIVITIES: On Site at 06:30 to Observe the placement of drain rock on the North slope using the concrete conveyor truck. The truck was on the access roadway on West end and placed rock up the slope above the roadway. Serrot crew installed geotextile over the East slope this date and seamed by sewing all joints. I worked on liner report some this date. Off site at 16:30hrs.									
WERE PHOTOS TAKEN: No									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 10/3/98

PROJECT NO.: 40202-005.061

REPORT NO.: 74

DAY	S	M	T	W	TH	F	S
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CLIENT: LRI

WEATHER

TEMP.(°F)

CONTRACTOR: LRI

Cloudy, Drizzle

58

REPORT BY: Glenn Heath

TIME ARRIVED: 06:30

TIME DEPARTED: 16:30

**AVERAGE FIELD FORCE***CONTRACTOR**PERSONNEL**EQUIPMENT IN OPERATION**LRI**2**1 Trackhoe**Serrot**5**None***VISITORS***TIME**NAME**REPRESENTING**REMARKS*

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Serrot installing geotextile on East slope and LRI placing drain rock on the North slope.

CONSTRUCTION ACTIVITIES: On Site at 06:30 to Observe the placement of drain rock on the North slope using the concrete conveyor truck. The truck was on the access roadway on West end and placed rock up the slope above the roadway. Serrot crew installed geotextile over the East slope, center section this date and seamed by sewing all joints. I had them seal the textile to the bottom of the berm using the Leister as I was afraid the topsoil would get under the material. I worked on liner report some this date. Off site at 16:30hrs.

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 10/4/98

PROJECT NO.: 40202-005.061

REPORT NO.: 75

DAY

S

M

T

W

TH

F

S



CLIENT: LRI

CONTRACTOR: LRI

REPORT BY: Glenn Heath

WEATHER

TEMP.(°F)

Pct, Lt wind

67

TIME ARRIVED:

TIME DEPARTED:

**AVERAGE FIELD FORCE**

CONTRACTOR

LRI

Serrot

PERSONNEL

0

0

EQUIPMENT IN OPERATION

None

None

**VISITORS**

TIME

NAME

REPRESENTING

REMARKS

Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: No Work performed this date

CONSTRUCTION ACTIVITIES: No work performed this date

WERE PHOTOS TAKEN: No

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE



**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 10/5/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 76			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Pct, Lt wind					65		
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30			TIME DEPARTED: 16:30				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI			PERSONNEL 4		EQUIPMENT IN OPERATION 2 Dozers, 2 conver machines				
<b>VISITORS</b>									
TIME 09:00 13:00	NAME Kent Wiken Dave Bosch		REPRESENTING EMCON Health Dept.			REMARKS Site Meeting Site Visit			
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Concrete conveyor truck placing rock on the North slope. Placement of Topsoil on South slope.									
CONSTRUCTION ACTIVITIES: On site 07:00 to observe the placement of rock on the North slope and the topsoil on the South slope. Kent Wiken arrived on site to look at the rock placement operation and to get some data on the conveyor truck to see how thick the topsoil must be under the truck to support it moves up on top of the cell. We looked at the wrinkle on the East slope and the Southwest Closure Repair area. Dave Bosch was on site at 13:00hrs to look at the progress and take pictures of the wrinkle. I watched the Southwest Closure excavation and worked on the liner report.									
WERE PHOTOS TAKEN:            yes									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 10/6/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 77					<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP. (°F)			
CONTRACTOR: LRI				Pct, Lt wind				75			
REPORT BY: Glenn Heath				TIME ARRIVED: 06:30				TIME DEPARTED: 16:30			
<b>AVERAGE FIELD FORCE</b>											
CONTRACTOR LRI				PERSONNEL 4		EQUIPMENT IN OPERATION 2 Dozers, 2 conver machines					
<b>VISITORS</b>											
TIME	NAME			REPRESENTING				REMARKS			
13:00	Dave Bosch			Health Dept.				Site Visit			
Non-Conforming Materials or Work:											
Follow-Up of Previously Reported Deficiencies:											
Field Problems Which Could Result in Delay, Change Order or Claim:											
Tests Performed, Observations, Results, Retests: Concrete conveyor truck placing rock on the North slope. Placement of Topsoil on South slope.											
<p>CONSTRUCTION ACTIVITIES: On site 07:00 to observe the placement of rock on the North slope and the topsoil on the South slope. The Southwest Closure Repair area was sanded and made ready for the Serrot crew. Jim Crandall got with me and told me he will be out for the rest of the week. He has made a list and given it to Wayne as he will be running the project in Jim's absence. We talked about the repair to the trench on the SW corner of the East closure at the tie-in and I told him I will try to get it finished while Serrot was here. I worked on the report and left site at 16:30hrs.</p>											
WERE PHOTOS TAKEN:            yes											
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

**EMCON****DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 10/7/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 78			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Pct, Lt wind					65		
REPORT BY: Glenn Heath		TIME ARRIVED: 06:30			TIME DEPARTED: 17:00				

**AVERAGE FIELD FORCE**

<b>CONTRACTOR</b> LRI Serrot	<b>PERSONNEL</b> 4 7	<b>EQUIPMENT IN OPERATION</b> 2 Dozers, 2 conveer machines 2 Generators, 1 Forklift
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**VISITORS**

<b>TIME</b> 13:00	<b>NAME</b> Dave Bosch	<b>REPRESENTING</b> Health Dept.	<b>REMARKS</b> Site Visit
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Non-Conforming Materials or Work:

Follow-Up of Previously Reported Deficiencies:

Field Problems Which Could Result in Delay, Change Order or Claim:

Tests Performed, Observations, Results, Retests: Concrete conveyor truck placing rock on the North slope. Placement of Topsoil on South slope and Southwest Closure Repair liner replacement

CONSTRUCTION ACTIVITIES: On site 07:00 to observe the placement of rock on the North slope and the topsoil on the South slope. The Southwest Closure Repair was relined this date The crew did not have a wedge welder with them so they had to extrusion weld the whole thing. I elected to have them work on this first as the wrinkle and the small holes on site will hold up to a rain storm which is in the forecast. They got as far as having the main area covered and welded. They did not have the perimeter of the area welded as of the end of the day. I worked on the liner report and left site at 17:00hrs.

WERE PHOTOS TAKEN: yes

FIELD REPRESENTATIVE

DATE

REVIEWED BY

DATE

**DAILY CONSTRUCTION REPORT**

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 10/8/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 78			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER					TEMP.(°F)		
CONTRACTOR: LRI		Cloudy, Heavy Rain					55		
REPORT BY: Glenn Heath		TIME ARRIVED: 07:00			TIME DEPARTED: 17:00				
<b>AVERAGE FIELD FORCE</b>									
CONTRACTOR LRI Serrot			PERSONNEL 4 7		EQUIPMENT IN OPERATION 2 Dozers, 2 conveyor machines 2 Generators, 1 Forklift				
<b>VISITORS</b>									
TIME	NAME	REPRESENTING			REMARKS				
11:00	Dave Bosch	Health Dept.			Site Visit				
Non-Conforming Materials or Work:									
Follow-Up of Previously Reported Deficiencies:									
Field Problems Which Could Result in Delay, Change Order or Claim:									
Tests Performed, Observations, Results, Retests: Concrete conveyor truck placing rock on the North slope. Placement of Topsoil on South slope.									
CONSTRUCTION ACTIVITIES: On site 07:00 to observe the placement of rock on the North slope and the topsoil on the South slope. The Southwest Closure Repair was rained out and could not be completed this date. Criss w/LRI laced temporary plastic over the trench section of the area to help guard it from the run-off. Gregg w/LRI got with Serrot and stopped them from leaving town as we need them to stay until they can get the repairs finished and then install the geotextile when it arrives, next week. I worked on paperwork most of the day.									
WERE PHOTOS TAKEN: No									
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				

# DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 10/9/98							
PROJECT NO.: 40202-005,061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 79			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER			TEMP. (°F)				
CONTRACTOR: LRI		OVERCAST/RAIN			50-60				
REPORT BY: Dagan Short		TIME ARRIVED: 8am			TIME DEPARTED: 6pm				
AVERAGE FIELD FORCE									
CONTRACTOR		PERSONNEL		EQUIPMENT IN OPERATION					
LRI		8-10		2-BULL DOZERS					
Serrit		3		2-OFFROAD DUMP TRUCKS					
				1-CONVEYOR BELT SYSTEM (TRUCK)					
VISITORS									
TIME	NAME		REPRESENTING		REMARKS				
8:40 Am	DAVID BOSCH		T-ARCHD		None				
Non-Conforming Materials or Work:									
NONE									
Follow-Up of Previously Reported Deficiencies:									
NONE									
Field Problems Which Could Result in Delay, Change Order or Claim:									
RAINY WEATHER									
Tests Performed, Observations, Results, Retests:									
OBSERVED VACUUM TESTS ON SOUTHWEST CLOSURE AREA/ ALL PASSED									
CONSTRUCTION ACTIVITIES:									
<ul style="list-style-type: none"> <li>SERRIT WORKED ON SOUTHWEST CLOSURE REPAIR. ABOUT 90% COMPLETE BY THE END OF THE DAY. PROJ # 40202-005,063</li> <li>LRI WORKED ON SPREADING THE DRAINAGE ROCK BY MEANS OF THE CONVEYOR BELT TRUCK AND 2 BULL DOZERS.</li> </ul>									
WERE PHOTOS TAKEN: YES									
DAGAN SHORT					10/9/98				
FIELD REPRESENTATIVE					DATE				
REVIEWED BY					DATE				



# DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure				DATE: 10/10/98							
PROJECT NO.: 40202-005.061				DAY	S	M	T	W	TH	F	S
REPORT NO.: 80					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CLIENT: LRI				WEATHER				TEMP. (°F)			
CONTRACTOR: LRI				OVERCAST / RAIN				50-60			
REPORT BY: Dagan Short				TIME ARRIVED: 6AM		TIME DEPARTED: 5PM					
AVERAGE FIELD FORCE											
CONTRACTOR LRI Serrot				PERSONNEL 8-10 3		EQUIPMENT IN OPERATION 2-BULL DOZERS 2-OFF ROAD DUMP TRUCKS 1-CONVEYOR BELT TRUCK 1-FORK LIFT					
VISITORS											
TIME	NAME			REPRESENTING			REMARKS				
—	NONE			—			—				
Non-Conforming Materials or Work: NONE											
Follow-Up of Previously Reported Deficiencies: NONE											
Field Problems Which Could Result in Delay, Change Order or Claim: RAINY WEATHER											
Tests Performed, Observations, Results, Retests: OBSERVED VACUUM TEST ON SOUTHWEST CLOSURE AREA / ALL PASSED											
CONSTRUCTION ACTIVITIES: <ul style="list-style-type: none"> <li>- SERROT FINISHED SOUTHWEST CLOSURE REPAIR. PROJ # 40202-005.063</li> <li>- LRI WORKED ON SPREADING DRAINAGE ROCK BY MEANS OF THE CONVEYOR BELT TRUCK AND 2 BULL DOZERS, ABOUT 85% COMPLETE BY THE END OF DAY.</li> </ul>											
WERE PHOTOS TAKEN: NONE											
DAGAN SHORT						10/10/98					
FIELD REPRESENTATIVE						DATE					
REVIEWED BY						DATE					

# DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 10/12/98

PROJECT NO.: 40202-005.061

DAY

S	M	T	W	TH	F	S
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REPORT NO.: 81

CLIENT: LRI

WEATHER

TEMP. (°F)

CONTRACTOR: LRI

OVERCAST / RAIN

50-60

REPORT BY: Dagan Short

TIME ARRIVED: 6 AM

TIME DEPARTED: 5 PM

## AVERAGE FIELD FORCE

CONTRACTOR	PERSONNEL	EQUIPMENT IN OPERATION
LRI Serrrot	8-10 0	2-BULL DOZERS 2-OFF ROAD DUMP TRUCKS 1-CONVEYOR BELT TRUCK 1-FORK LIFT

## VISITORS

TIME	NAME	REPRESENTING	REMARKS
10:00 AM	DAVID BOSCH	TRCH D	HAS CURIOUS IF SERRROT WAS DONE WITH SW CLOSURE REPAIR

Non-Conforming Materials or Work:

NONE

Follow-Up of Previously Reported Deficiencies:

NONE

Field Problems Which Could Result in Delay, Change Order or Claim:

RAINY WEATHER

Tests Performed, Observations, Results, Retests:

## CONSTRUCTION ACTIVITIES:

- SERRROT DID NOT WORK TODAY DUE TO RAIN.
- LRI FINISHED SPREADING DRAINAGE ROCK AT ABOUT 10:30 AM  
BULL DOZERS CONTINUED WITH GRADING UNTIL ABOUT 3:30 PM  
LRI WORKED ON SPREADING TOP SOIL BY MEANS OF THE CONVEYOR BELT TRUCK.

WERE PHOTOS TAKEN: NO

DAGAN SHORT  
FIELD REPRESENTATIVE

10/12/98  
DATE

REVIEWED BY

DATE

# DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 10/13/98							
PROJECT NO.: 40202-005.061		DAY	S	M	T	W	TH	F	S
REPORT NO.: 82			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLIENT: LRI		WEATHER				TEMP. (°F)			
CONTRACTOR: LRI		OVERCAST				50-60			
REPORT BY: Dagan Short		TIME ARRIVED: 6AM			TIME DEPARTED: 5PM				

## AVERAGE FIELD FORCE

CONTRACTOR	PERSONNEL	EQUIPMENT IN OPERATION
LRI Serrot	5-10 3	2-BULL DOZERS 3-OFF ROAD DUMP TRUCKS 1-CONVEYOR BELT TRUCK
		1-FORK LIFT 1-SMALL BACKHOE

## VISITORS

TIME	NAME	REPRESENTING	REMARKS
—	NONE	—	—

Non-Conforming Materials or Work:

NONE

Follow-Up of Previously Reported Deficiencies:

NONE

Field Problems Which Could Result in Delay, Change Order or Claim:

RAINY WEATHER

Tests Performed, Observations, Results, Retests:

OBSERVED REPAIRS AND VACUUM TEST ON GED MEMBRANE/ ALL PASSED

## CONSTRUCTION ACTIVITIES:

- SERROT COMPLETED REPAIRS ON NORTH EAST SLOPE, INCLUDING REPAIR #S 237-243.
- LRI WORKED ON SPREADING TOP SOIL BY MEANS OF THE CONVEYOR BELT TRUCK. THEY ALSO WORKED ON DIGGING TRENCHES FOR DRAINAGE PIPE BY USING A SMALL BACKHOE AND ONE LABORER WITH A HAND SHOVEL.

WERE PHOTOS TAKEN: NO

DAGAN SHORT	10/13/98
FIELD REPRESENTATIVE	DATE
REVIEWED BY	DATE

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure		DATE: 10/14/98																	
PROJECT NO.: 40202-005.061		<table border="1" style="width: 100%; text-align: center;"> <tr> <td>DAY</td> <td>S</td> <td>M</td> <td>T</td> <td>W</td> <td>TH</td> <td>F</td> <td>S</td> </tr> <tr> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>		DAY	S	M	T	W	TH	F	S		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DAY	S	M	T	W	TH	F	S												
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
REPORT NO.: 83																			
CLIENT: LRI		WEATHER																	
CONTRACTOR: LRI		OVERCAST																	
REPORT BY: Dagan Short		TEMP. (°F)	50-55																
TIME ARRIVED: 6 AM		TIME DEPARTED: 5 PM																	
AVERAGE FIELD FORCE																			
CONTRACTOR LRI Serrot		PERSONNEL 8-10 3	EQUIPMENT IN OPERATION 2 BULL DOZERS 2-OFF ROAD DUMP TRUCKS 1- CONVEYOR BELT TRUCK 1- FORK LIFT 1- SMALL BACK HOE																
VISITORS																			
TIME	NAME	REPRESENTING	REMARKS																
—	NONE	—	—																
Non-Conforming Materials or Work: NONE																			
Follow-Up of Previously Reported Deficiencies: NONE																			
Field Problems Which Could Result in Delay, Change Order or Claim: RAINY WEATHER																			
Tests Performed, Observations, Results, Retests: OBSERVED REPAIRS AND VACUUM TEST ON GEOMEMBRANE / ALL PASSED																			
CONSTRUCTION ACTIVITIES: <p>SERROT COMPLETED REPAIRS ON NORTH SLOPE NEAR ROAD. STARTED TO DEPLOY GEOTEXTILE. LEFT AT 3 PM. NEW CREW TO ARRIVE TOMORROW.</p> <p>LRI FINISHED DIGGING TRENCHES FOR DRAINAGE PIPE. CONTINUED DEPLOYING DRAINAGE PIPE WITH GCL MAT UNDERNEATH. ALSO, CONTINUED SPREADING TOP SOIL ON BERM.</p>																			
WERE PHOTOS TAKEN: N																			
DAGAN SHORT		10/14/98																	
FIELD REPRESENTATIVE		DATE																	
REVIEWED BY		DATE																	



EMCON

## DAILY CONSTRUCTION REPORT

PROJECT: Hidden Valley Landfill, East Lined Area Partial Closure

DATE: 10/15/98

PROJECT NO.: 40202-005.061

REPORT NO.: 84

DAY

S

M

T

W

TH

F

S

CLIENT: LRI

CONTRACTOR: LRI

REPORT BY: Dagan Short

WEATHER

TEMP. (°F)

OVERCAST/RAIN

50-55

TIME ARRIVED: 6AM

TIME DEPARTED: 430 PM

## AVERAGE FIELD FORCE

CONTRACTOR

LRI  
Serrot

PERSONNEL

8-10  
8

EQUIPMENT IN OPERATION

2-Bull Dozers

1-FORK LIFT

2-OFF ROAD Dump Trucks

1-CONVEYOR BELT TRUCK

## VISITORS

TIME

NAME

REPRESENTING

REMARKS

10:30AM

Tom Pierce

DAVE BOSCH OF  
TRCHDQUESTIONS REGARDING  
PROGRESS

Non-Conforming Materials or Work:

NONE

Follow-Up of Previously Reported Deficiencies:

NONE

Field Problems Which Could Result in Delay, Change Order or Claim:

RAINY WEATHER

Tests Performed, Observations, Results, Retests:

OBSERVED SEWING OF GEOTEXTILE AND SPREADING OF TOPSOIL ON BERM

## CONSTRUCTION ACTIVITIES:

SERROT SHOWED UP WITH NEW CREW TO DEPLOY GEOTEXTILE ON  
NORTHERN SLOPE.LRI CONTINUED TO SPREAD TOP SOIL WITH THE CONVEYOR BELT TRUCK.  
TWO DOZERS WORKED AT SPREADING TOP SOIL ON BERM. DRAINAGE  
PIPE INSTALLATION WAS COMPLETED.

WERE PHOTOS TAKEN: NO

DAGAN SHORT

FIELD REPRESENTATIVE

DATE

10/15/98

REVIEWED BY

DATE