

File

SCS ENGINEERS



**Response to Request for Additional
Information (RAI No. 2)
Operation Permit Modification
Revisions to the Sequence of Filling
Phase II Section I Landfill Area**

Hardee County Landfill

Presented to:

Hardee County



Solid Waste Department
685 Airport Road
Wauchula, Florida 33873
(863) 773-5089

Presented by:

SCS ENGINEERS
4041 Park Oaks Boulevard
Suite 100
Tampa, Florida 33610
(813) 621-0080
Fax (813) 623-6757

File No. 09199033.20
January 18, 2011

Offices Nationwide
www.scsengineers.com

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
JAN 18 2011
SOUTHWEST DISTRICT
TAMPA

SCS ENGINEERS

TO Florida Department of Environmental Protection
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

DATE January 18, 2011

JOB NO. 09199033.20

ATTENTION Ms. Nancy Gaskin

Re: Hardee County Class I Landfill

Response to Request for Additional

Information Number 2

WE ARE SENDING YOU

- ☒ Attached ☐ Under separate cover via _____
- ☐ Shop drawings ☐ Prints
- ☐ Copy of letter ☐ Change Order
- ☐ The following items: ☐ Plans ☐ Samples
- ☐ Specifications ☐ _____

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
JAN 18 2011
SOUTHWEST DISTRICT
TAMPA

COPIES	DATE	DESCRIPTION
4	1/18/11	Hardee County Class I Landfill Response to Request for Additional Number 2

THESE ARE TRANSMITTED as check below:

- ☐ For approval ☐ Approved as submitted ☐ Resubmit _____ Copies for approval
- ☒ For your use ☐ Approved as noted ☐ Submit _____ Copies distribution
- ☐ As requested ☐ Returned for corrections ☐ Return _____ Corrected prints
- ☐ For review and comment ☐ _____
- ☐ FOR BIDS DUE _____ 20 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Nancy,

Please find enclosed the response to RAI Number 2. Please let me know if you need any additional information.

Thank You

COPY TO Teresa Carver, Hardee County SIGNED: Shane R. Fischer, P.E.

If enclosures are not as noted, kindly notify us at once.

SCS ENGINEERS

January 18, 2011
File No. 09199033.20

Ms. Nancy Gaskin
Florida Department of Environmental Protection
Southwest District
13501 North Telecom Parkway
Temple Terrace, Florida 33637

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
JAN 18 2011
SOUTHWEST DISTRICT
TAMPA

Subject: Response to Request for Additional Information (RAI) Number 2
Hardee County Landfill - Phase II Section I Operation
Pending Modification No. 38414-014-SO/MM to Permit No. 38414-011-SO-01
WACS ID No. 40612

Dear Ms. Gaskin:

On behalf of the Hardee County Board of County Commissioners (BOCC), SCS Engineers (SCS) submits the following responses to your Request for Additional Information (RAI) No. 2 from a letter dated September 7, 2010 (received by SCS on September 7, 2010 via email) directed to Ms. Teresa Carver, Director Hardee County Solid Waste Department regarding the previously submitted minor modification request to the Hardee County Class I Landfill's sequence of filling originally dated June 10, 2010 and responses to RAI No. 1 in support of the request dated August 16, 2010. The minor modification requested revisions to the sequence of filling for the Phase II Section I portion of the Hardee County Class I Landfill. For ease of review, each Florida Department of Environmental Protection (FDEP) comment is reiterated in **bold type**, followed by our response in normal print.

SCS has provided revised submittals, or replacement pages to the submittals, using a strikethrough (~~strikethrough~~) and underline (underline) format to facilitate the review process. SCS has included the revision date as part of the footer for all revised submittals, or replacement pages to the submittals, and has provided four copies of all the revised and additional materials.

A list of the submitted documents in response to RAI No. 2 has been provided at the end of this letter.

GENERAL

1. **The requested information and comments below do not repeat the information submitted by the applicant. However, every effort has been made to concisely refer to the section, page, drawing detail number, etc. where the information has been presented in the original submittal.**

Response: Comment noted.

2. **Please submit 4 copies of all requested information. Please specify if revised information is intended to supplement, or replace, previously submitted information. Please submit all revised plans and reports as a complete package. For revisions to the narrative reports, deletions may be struckthrough (~~struckthrough~~) and additions may be underlined underlined or similar notation method may be used. This format will expedite the review process. Please include the revision date on all revised pages.**

Response: Comment noted. SCS has provided revised submittals, or replacement pages to the submittals, using a strikethrough (~~strikethrough~~) or underline (underline) format to facilitate the review process. SCS has included the revision date as part of the footer for all revised submittals, or replacement pages to the submittals, and has provided four copies of all the revised and additional materials. A list of the submitted documents in response to RAI No. 2 has been provided at the end of this letter.

3. **Please provide a summary of all revisions to drawings, and indicate the revision on each of the applicable plan sheets. Please use a consistent numbering system for drawings. If new sheets must be added to the original plan set, please use the same numbering system with a prefix or suffix to indicate the sheet was an addition, e.g. Sheet 1A, 1B, P1-A, etc.**

Response: Please refer to the summary provided below of the revisions or clarifications implemented by SCS to the approved Hardee County Landfill Operations Drawings (Drawings) dated May 2007. In addition, revisions to the Drawings in response to RAI No. 2 have been indicated by SCS on each of the applicable Drawings using revision clouds with labels as necessary and the reason for the revisions have been indicated in the title block of the Drawing. Please refer to Attachment A for the revised Drawings created by SCS in response to RAI No. 2.

- Drawing 1 of 26 - Cover Sheet/Drawing Index - The Cover Sheet/Drawing Index has been revised to identify which Drawings have been revised based on the responses to RAI No. 2.
- Drawing 15 of 26 - Phase II Section I Fill Sequence No. 5 - Revised Sheet 15 of 26 identifies that Phase II Section I Fill Sequence No. 5 will be revised to continue waste filling to a top of intermediate cover of approximately Elevation 125 as opposed to the previously identified height of Elevation 97.0. In addition, an approximately 20 foot wide stormwater terrace has been included at Elevation 110 within the fill sequence. The extent of the footprint horizontally within the Phase II Section I Landfill area has not changed due to the proposed fill sequence revision.
- Drawing 16 of 26 - Phase II Section I Fill Sequence No. 6 - Revised Sheet 16 of 26 identifies that Phase II Section I Fill Sequence No. 6 will begin the "piggy-back" waste filling in the southwestern corner of the Phase I Landfill area, progressing

towards the east and will continue up to Elevation 125 as opposed to the previously identified height of Elevation 97.0. The "piggy-back" waste filling within this area along the south sideslope of the Phase I Landfill area will not begin until the County has received approval from FDEP of the Certification of Construction Completion of the Phase I Closure construction project within the area. The Phase I Closure construction project progress is discussed in further detail below.

- Drawing 17 of 26 - Phase II Section I Fill Sequence No. 7 - Revised Sheet 17 of 26 identifies that the final fill sequence elevation for Phase II Section I Fill Sequence No. 7 will be at a peak of approximately Elevation 132.1 top of intermediate cover as opposed to the previously identified height of Elevation 112.50.
- Drawing 24 of 26 - Phase II Section I Sections - Revised Sheet 24 of 26 identifies that Phase II Section I Fill Sequence No. 5 will be revised to continue waste filling to a peak of approximately Elevation 125 top of intermediate cover as opposed to the previously identified height of Elevation 97.0.
- Drawing 25 of 26 - Phase II Section I Sections - Revised Sheet 25 of 26 identifies that Phase II Section I Fill Sequence No. 6 will be revised to continue waste filling to a peak of Elevation 125 top of intermediate cover as opposed to the previously identified height of Elevation 97.0. In addition, revised Sheet 25 of 26 identifies that Phase II Section I Fill Sequence No. 7 will be revised to continue waste filling to a peak of Elevation 132.1 top of intermediate cover as opposed to the previously identified height of Elevation 112.50.

4. **Please be advised that although some comments do not explicitly request additional information, the intent of all comments shall be to request revised calculations, narrative, technical specifications, QA documentation, plan sheets, clarification to the item, and/or other information as appropriate. Please be reminded that all calculations, evaluations, etc., must be signed and sealed by the registered professional engineer (or geologist as appropriate) who prepared them.**

Response: Comment noted. All of the revised calculations, narrative, technical specifications, QA documentation, Drawings, clarification to items and/or other information as appropriate which has been submitted by SCS in response to RAI No. 2 has been signed and sealed by the registered professional engineer who prepared them.

**GENERAL INFORMATION, RULES 62-701.320 & 62-701.330
F.A.C.**

1. **Cover Letter.** The timeline for the Phase I Closure construction included in this response provides a construction start date in early October and indicates that physical work will be substantially complete in 210 days, or by approximately May 2011. Following a recent compliance inspection of the facility it appears that the

proposed Fill Sequence 5 is approximately one half to three-fourths full. This timeline indicates that, as proposed Fill Sequence 6 cannot be initiated until Closer construction on the south slope of Phase I is complete, the facility will not be able to start that sequence until May 2011. Please clarify that waste acceptance rates support this timeline. Alternatively, please provide an alternative Fill Sequence 6, that can be initiated independent of Phase I Construction. This alternative sequence could be initiated in the event that Fill Sequence 5 is complete prior to completion of Phase I Closure Construction. Please provide Sequence of Fill drawings as appropriate.

Response: As previously mentioned, Fill Sequence No. 5 is being revised to stop within the Phase II Section I Landfill area at Elevation 125 as opposed to the previously identified height of Elevation 97. In addition, an approximately 20 foot wide stormwater terrace has been included at approximately Elevation 110 within the fill sequence to be consistent with the Phase I Landfill area. This revised Fill Sequence No. 5 provides approximately 20,000 cubic yards (CY) of additional fill volume that will be available for waste filling prior to the need to begin Fill Sequence No. 6. Based on the current waste quantity reports, the volume consumption averages approximately 40,000 CY/year. Therefore, it is estimated that revised Fill Sequence No. 5 will take approximately 6 months to complete. Within this time period the Phase I Closure construction project will be completed and the south sideslope should be approved by FDEP so the County can commence with Fill Sequence No. 6. The current contract schedule for the Hardee County Class I Landfill Phase I Closure construction project is as follows:

- a) Notice to Proceed (NTP) - Issued to ERC General Contracting Services, Inc. (ERC) by Hardee County on October 4, 2010.
- b) South Sideslope Construction
 - Substantial Completion 120 Calendar Days from NTP - February 1, 2011.
 - Final Completion 145 Calendar Days from NTP - February 26, 2011.
- c) Remainder of Construction
 - Substantial Completion 180 Calendar Days from NTP - April 2, 2011.
 - Final Completion 210 Calendar Days from NTP - May 2, 2011.

Currently the south sideslope construction of the Phase I Closure construction project is complete and SCS is preparing a final Certification of Construction Completion Report for this initial area first for approval from FDEP. After approval of the south sideslope construction by FDEP, if needed, the County can then commence with Fill Sequence No. 6 (the "piggy-back" waste filling along the south sideslope of the Phase I Landfill area).

Following completion of the entire Phase I Closure construction project SCS will prepare a final Certification of Construction Completion Report for submittal to FDEP which will encompass the entire Phase I Landfill Closure construction project.

2. **Engineering Drawings (Attachment B). Rules 62-701.320(7)(f) and 62-701.330(3) F.A.C. No additional information is requested for this item.**

Response: Comment noted.

3. **Circular and Block Slope Stability Analysis...(Attachment C)**

- a. **Please explain why the boundary layers referenced in this analysis appear to be configured differently than those of the analysis provided in the original application, and provide revised models that utilize the layers previously used.**

Response: The boundary layers previously submitted have been revised to be consistent with those of the analysis provided in the original application. Please refer to Attachment B which contains revised slope stability models that utilize the layers previously used for analysis of the north, south, east and west slopes of the Phase II Section I Landfill area based on the revised fill sequence drawings contained in Attachment A in response to RAI No. 2. A summary table has also been provided in Attachment B for the revised slope stability model results.

4. **Notice of Application, no additional information is requested for this item.**

Response: Comment noted.

ADDITIONAL EMAIL CORRESPONDENCE - HARDEE COUNTY LANDFILL LEACHATE PIEZOMETERS

1. **This message has been prepared to follow up our telephone conversation on Friday [10/22/10] regarding the existing leachate piezometers at the referenced facility. The Department does not object to the abandonment of the leachate piezometers listed in Specific Condition #E.3. of permit #38414-011-SO/01 [P-1, P-2, P-9, P-10, P-15 and P-16A] prior to the installation of the final cover system over the Phase I disposal footprint in accordance with the requirements of permit #38414-012-SF/01.**

It is my understanding that piezometers designated as P-1, P-2 and P-15 are currently intact and that the piezometers designated as P-9, P-10 and P-16A have not been recently observed. Please provide a schedule for properly abandoning the intact leachate piezometers [by grouting from top to bottom until surface returns are noted] and subsequent submittal of documentation of proper abandonment. Please also provide a written description of the activities that will be conducted to

attempt to locate the missing leachate piezometers. In the event that any of the missing leachate piezometers are located, it is the Department's expectation that they would also be properly abandoned.

Response: Piezometers designated as P-1, P-2 and P-15 have been properly abandoned (by grouting from the top to bottom until surface returns were noted) by Huss Drilling, Inc. Subsequent documentation of proper abandonment of these piezometers will be supplied to FDEP in the final Certification of Construction Completion Report for the Hardee County Class I Landfill Phase I Closure construction project.

In addition, piezometers designated as P-1, P-2 and P-15 (and P-9, P-10 and P-16A) have been removed from the revised Operations Drawings submitted with these responses to RAI No. 2. Please refer to Attachment A for the revised Drawings created by SCS in response to RAI No. 2.

The County and SCS conducted a site walk to observe the areas where piezometers P-9, P-10 and P-16A were previously identified on the Operations Drawings. None of these piezometers were observed in the field nor does the County have recollection of them. Therefore, it is assumed that these piezometers are currently not located onsite and nothing further needs to be done.

2. **Please note that the abandonment of the leachate piezometers needs to be incorporated into pending operations permit minor modification #38414-014. At a minimum, revisions to the following information will need to be submitted:**

- **Part M of the Engineering Report [Revised Ground Water Monitoring Plan, Attachment M-1, prepared by SCS Engineers, revised March 10, 2008] – Tables M-3 and M-4, Figures M-1 and M-4**

Response: Please refer to Attachment C for a revised Part M of the Engineering Report [Revised Ground Water Monitoring Plan, Attachment M-1, prepared by SCS Engineers, revised March 10, 2008] - Tables M-3 and M-4, Figures M-1 and M-4.

- **Operations Plan - Section L.8.a.1 ["Leveling"] regarding the Phase I area**

Response: Please refer to Attachment D for a revised Operations Plan - Section L.8.a.1 ["Leveling"] regarding the Phase I Landfill area.

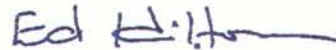
Ms. Nancy Gaskin
January 18, 2011
Page 7

Attached are four copies of our response as requested. Please do not hesitate to call should you have any questions or require additional information.

Sincerely,



Shane R. Fischer, P.E.
Project Manager
SCS ENGINEERS



C. Ed Hilton, P.E.
Vice President
SCS ENGINEERS

SRF/CEH:srf

cc: Teresa Carver, Hardee County Solid Waste Director

Attachments



LIST OF ATTACHMENTS

- A - Revised Hardee County Landfill Operations Drawings (Drawings 1, 15, 16, 24 and 25)
- B - Circular and Block Slope Stability Analyses North, South, East and West Sides of Phase II Section I
- C - Revised Part M of the Engineering Report [Revised Ground Water Monitoring Plan, Attachment M-1, prepared by SCS Engineers, revised March 10, 2008] Tables M-3 and M-4, Figures M-1 and M-4
- D - Revised Operations Plan - Section L.8.a.1 ["Leveling"]

ATTACHMENT A

Revised Hardee County Landfill Operations Drawings (Bound Separately)

- Revised Hardee County Landfill Operations Drawings Cover Sheet
- Fill Sequence No. 5 Sheet 15
- Fill Sequence No. 6 Sheet 16
- Fill Sequence No. 7 Sheet 17
- Phase II Section I Sections Sheet 24
- Phase II Section I Sections Sheet 25

ATTACHMENT B

Circular and Block Slope Stability Analyses
North, South, East and West Sides of Phase II Section

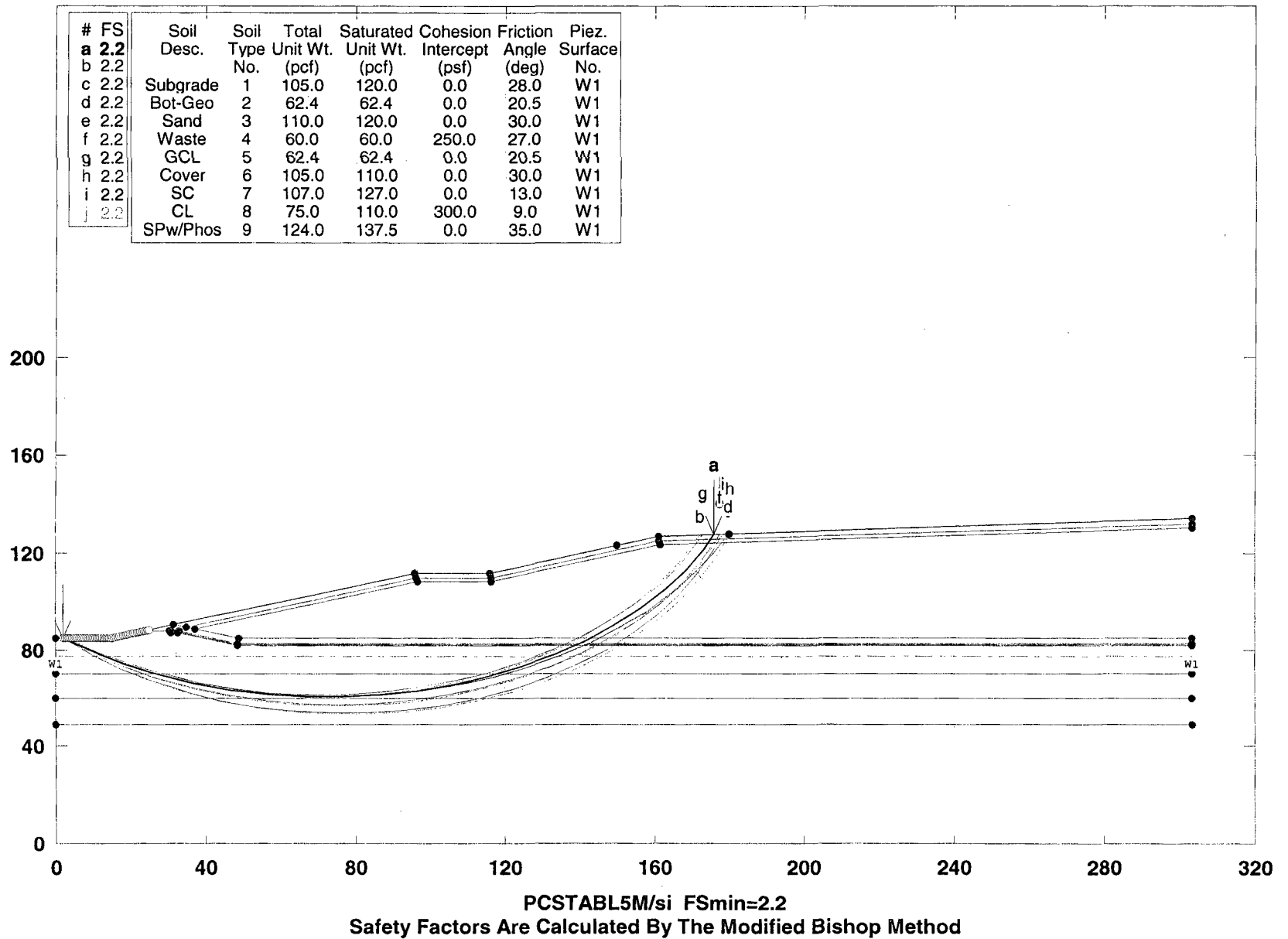
SCS ENGINEERS

Sheet 1 of 1

Client: Hardee County	Project: Hardee County Landfill - Phase II Section I Operation Revisions to the Sequence of Filling	Job No. 09199033.20	
Subject: Slope Stability Factor of Safety Summary Results		By: SRF	Date: 1/17/11
		Checked: CEH	Date: 1/17/11
	CIRCULAR MODE FACTOR SAFETY (FS)	BLOCK MODE FACTOR SAFETY (FS)	
Phase II Section I - East Section to Highest Final Buildout			
No Equipment	2.2	2.8	
CAT 816F Compactor	2.1	2.7	
Phase II Section I - South Section to Highest Final Buildout			
No Equipment	2.1	2.7	
CAT 816F Compactor	2.0	2.6	
Phase II Section I - West Section to Highest Final Buildout			
No Equipment	2.2	2.8	
CAT 816F Compactor	2.1	2.7	
Phase II Section I "Piggy-Backed" to South Sideslope of Phase I Landfill at Highest Final Buildout			
No Equipment	2.1	2.3	
CAT 816F Compactor	2.0	2.1	

Phase II Section of East Hardee County Landfill

C:\HARDEE-1\EASTCI-1\EAST.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 10:48AM



SCS ENGINEERS

**** PCSTABL5M ****

by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 1/18/2011
Time of Run: 10:48AM
Run By: Shane R. Fischer, P.E.
Input Data Filename: C: east.
Output Filename: C: east.OUT
Unit: ENGLISH
Plotted Output Filename: C: east.PLT
PROBLEM DESCRIPTION Phase II Section I East
Hardee County Landfill

BOUNDARY COORDINATES

7 Top Boundaries
35 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	15.00	85.00	1
2	15.00	85.00	24.00	88.00	1
3	24.00	88.00	31.58	90.53	3
4	31.58	90.53	96.00	112.00	6
5	96.00	112.00	116.00	112.00	6
6	116.00	112.00	160.95	126.98	6
7	160.95	126.98	303.32	134.10	6
8	31.58	90.53	34.74	89.47	3
9	34.74	89.47	96.32	110.00	6
10	96.32	110.00	116.32	110.00	6
11	116.32	110.00	161.32	125.00	6
12	161.32	125.00	303.32	132.10	6
13	34.74	89.47	37.12	88.68	3
14	37.12	88.68	96.57	108.50	4
15	96.57	108.50	116.57	108.50	4
16	116.57	108.50	161.60	123.51	4
17	161.60	123.51	303.32	130.60	4
18	37.12	88.68	48.76	84.80	3
19	48.76	84.80	303.32	84.80	3
20	24.00	88.00	30.32	88.00	1
21	30.32	88.00	30.84	88.00	1
22	30.84	88.00	32.84	88.00	5
23	32.84	88.00	48.44	82.80	5
24	48.44	82.80	303.32	82.80	5
25	30.84	88.00	30.95	87.53	1
26	30.95	87.53	32.68	87.53	1
27	32.68	87.53	48.43	82.30	1
28	48.43	82.30	303.32	82.30	1
29	30.32	88.00	30.55	87.03	1
30	30.55	87.03	32.60	87.03	1
31	32.60	87.03	48.35	81.80	1
32	48.35	81.80	303.32	81.80	1
33	.00	70.00	303.32	70.00	7
34	.00	60.00	303.32	60.00	8
35	.00	49.00	303.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1

8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	303.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	160.95	163.92	1376.6	.0
2	171.95	174.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 2.00 ft.

and X = 25.00 ft.

Each Surface Terminates Between X = 150.00 ft.

and X = 180.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	10.11	79.15
3	18.70	74.03
4	27.71	69.69
5	37.06	66.15
6	46.69	63.46
7	56.52	61.62
8	66.47	60.65
9	76.47	60.57
10	86.44	61.36
11	96.30	63.03
12	105.98	65.56
13	115.39	68.93
14	124.47	73.12
15	133.15	78.09
16	141.36	83.80
17	149.03	90.21
18	156.11	97.28
19	162.54	104.94
20	168.27	113.13
21	173.25	121.80
22	176.00	127.73

Circle Center At X = 72.4 ; Y = 173.9 and Radius, 113.4

*** 2.198 ***

Slice No.	Width (ft)	Weight (lbs)	Individual data on the		56 slices		Earthquake		Surcharge Load (lbs)
			Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	
1	8.1	2491.8	.0	.0	.0	.0	.0	.0	.0
2	2.8	1936.6	.0	.0	.0	.0	.0	.0	.0

3	2.1	1839.7	.0	98.2	.0	.0	.0	.0	.0
4	3.7	4204.3	.0	636.9	.0	.0	.0	.0	.0
5	5.3	8375.0	.0	1744.5	.0	.0	.0	.0	.0
6	3.1	6015.6	.0	1430.6	.0	.0	.0	.0	.0
7	.7	1402.5	.0	346.6	.0	.0	.0	.0	.0
8	2.6	5982.7	.0	1448.3	.0	.0	.0	.0	.0
9	.2	554.2	.0	135.7	.0	.0	.0	.0	.0
10	.3	705.2	.0	173.0	.0	.0	.0	.0	.0
11	.1	268.2	.0	66.2	.0	.0	.0	.0	.0
12	.6	1549.7	.0	384.9	.0	.0	.0	.0	.0
13	1.0	2578.6	.0	644.3	.0	.0	.0	.0	.0
14	.1	205.8	.0	51.6	.0	.0	.0	.0	.0
15	.2	413.0	.0	103.8	.0	.0	.0	.0	.0
16	1.9	5064.5	.0	1281.5	.0	.0	.0	.0	.0
17	2.3	6595.5	.0	1689.5	.0	.0	.0	.0	.0
18	.1	171.2	.0	42.9	.0	.0	.0	.0	.0
19	9.6	30011.9	.0	7879.2	.0	.0	.0	.0	.0
20	1.7	5562.0	.0	1494.9	.0	.0	.0	.0	.0
21	.1	270.3	.0	72.9	.0	.0	.0	.0	.0
22	.0	33.8	.0	9.1	.0	.0	.0	.0	.0
23	.3	1083.1	.0	292.5	.0	.0	.0	.0	.0
24	7.8	27619.8	.0	7467.2	.0	.0	.0	.0	.0
25	10.0	38710.8	.0	10211.4	.0	.0	.0	.0	.0
26	10.0	41553.5	.0	10539.6	.0	.0	.0	.0	.0
27	10.0	42965.4	.0	10318.7	.0	.0	.0	.0	.0
28	9.6	41596.4	.0	9273.0	.0	.0	.0	.0	.0
29	.3	1312.0	.0	277.4	.0	.0	.0	.0	.0
30	.0	76.6	.0	16.5	.0	.0	.0	.0	.0
31	.3	1081.8	.0	232.7	.0	.0	.0	.0	.0
32	9.4	39180.1	.0	7991.4	.0	.0	.0	.0	.0
33	9.4	35725.8	.0	6399.7	.0	.0	.0	.0	.0
34	.6	2167.0	.0	352.3	.0	.0	.0	.0	.0
35	.3	1133.2	.0	180.7	.0	.0	.0	.0	.0
36	.3	883.6	.0	138.9	.0	.0	.0	.0	.0
37	1.1	4013.4	.0	610.0	.0	.0	.0	.0	.0
38	6.8	22767.3	.0	2759.8	.0	.0	.0	.0	.0
39	7.7	23441.6	.0	1206.6	.0	.0	.0	.0	.0
40	1.0	2919.9	.0	.0	.0	.0	.0	.0	.0
41	5.3	14366.9	.0	.0	.0	.0	.0	.0	.0
42	.7	1818.5	.0	.0	.0	.0	.0	.0	.0
43	.7	1798.8	.0	.0	.0	.0	.0	.0	.0
44	1.4	3525.3	.0	.0	.0	.0	.0	.0	.0
45	1.2	2838.8	.0	.0	.0	.0	.0	.0	.0
46	6.5	14448.2	.0	.0	.0	.0	.0	.0	.0
47	7.1	14102.3	.0	.0	.0	.0	.0	.0	.0
48	4.8	8360.1	.0	.0	.0	.0	.0	.0	.0
49	.4	587.2	.0	.0	.0	.0	.0	.0	.0
50	.3	436.9	.0	.0	.0	.0	.0	.0	.0
51	.9	1421.3	.0	.0	.0	.0	.0	.0	.0
52	5.7	7149.0	.0	.0	.0	.0	.0	.0	.0
53	5.0	3778.9	.0	.0	.0	.0	.0	.0	.0
54	1.1	474.6	.0	.0	.0	.0	.0	.0	.0
55	.7	206.0	.0	.0	.0	.0	.0	.0	.0
56	.9	99.5	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.47	85.00
2	10.51	79.06
3	19.07	73.88
4	28.06	69.50
5	37.41	65.97
6	47.05	63.30
7	56.89	61.53
8	66.86	60.66
9	76.86	60.71
10	86.81	61.67

11	96.63	63.54
12	106.25	66.30
13	115.57	69.92
14	124.52	74.38
15	133.02	79.64
16	141.01	85.66
17	148.41	92.38
18	155.17	99.75
19	161.23	107.71
20	166.53	116.19
21	171.04	125.11
22	171.99	127.53

Circle Center At X = 71.3 ; Y = 169.7 and Radius, 109.2

*** 2.207 ***

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.94	85.00
2	11.11	79.23
3	19.74	74.18
4	28.77	69.90
5	38.14	66.40
6	47.77	63.71
7	57.60	61.86
8	67.55	60.86
9	77.55	60.71
10	87.53	61.42
11	97.40	62.99
12	107.11	65.39
13	116.58	68.61
14	125.73	72.64
15	134.51	77.43
16	142.84	82.96
17	150.67	89.18
18	157.94	96.05
19	164.59	103.51
20	170.58	111.52
21	175.86	120.01
22	179.89	127.93

Circle Center At X = 74.2 ; Y = 177.3 and Radius, 116.6

*** 2.208 ***

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.94	85.00
2	11.12	79.25
3	19.77	74.22
4	28.81	69.95
5	38.18	66.47
6	47.82	63.81
7	57.65	61.97
8	67.60	60.99
9	77.60	60.86
10	87.58	61.59
11	97.45	63.16
12	107.16	65.58
13	116.62	68.81
14	125.77	72.85
15	134.54	77.65
16	142.87	83.18
17	150.69	89.41
18	157.96	96.28
19	164.61	103.75
20	170.59	111.76
21	175.87	120.26
22	179.77	127.92

Circle Center At X = 74.1 ; Y = 177.5 and Radius, 116.7

*** 2.210 ***
 Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	9.77	78.70
3	18.07	73.13
4	26.85	68.34
5	36.03	64.37
6	45.53	61.25
7	55.27	59.01
8	65.18	57.66
9	75.17	57.22
10	85.16	57.69
11	95.07	59.07
12	104.81	61.35
13	114.30	64.50
14	123.46	68.50
15	132.22	73.32
16	140.51	78.91
17	148.26	85.24
18	155.39	92.24
19	161.86	99.87
20	167.61	108.05
21	172.59	116.72
22	176.76	125.81
23	177.47	127.81

Circle Center At X = 75.0 ; Y = 167.0 and Radius, 109.8

*** 2.212 ***
 Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	9.71	78.63
3	17.97	73.00
4	26.71	68.14
5	35.86	64.11
6	45.34	60.93
7	55.08	58.63
8	64.98	57.23
9	74.97	56.75
10	84.96	57.18
11	94.87	58.52
12	104.61	60.77
13	114.11	63.90
14	123.28	67.89
15	132.05	72.70
16	140.34	78.29
17	148.08	84.62
18	155.21	91.63
19	161.67	99.26
20	167.40	107.45
21	172.36	116.14
22	176.50	125.24
23	177.40	127.80

Circle Center At X = 75.3 ; Y = 165.8 and Radius, 109.1

*** 2.213 ***
 Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	10.16	79.22
3	18.80	74.19
4	27.86	69.95
5	37.26	66.54
6	46.93	63.97
7	56.78	62.28

8	66.75	61.47
9	76.75	61.55
10	86.70	62.52
11	96.53	64.37
12	106.15	67.10
13	115.49	70.67
14	124.48	75.05
15	133.04	80.22
16	141.10	86.13
17	148.61	92.74
18	155.50	99.99
19	161.72	107.82
20	167.21	116.17
21	171.94	124.99
22	173.05	127.59

Circle Center At X = 70.8 ; Y = 173.4 and Radius, 112.0

*** 2.213 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	9.35	78.22
3	17.30	72.15
4	25.78	66.85
5	34.72	62.37
6	44.03	58.74
7	53.65	56.00
8	63.48	54.17
9	73.44	53.27
10	83.44	53.31
11	93.40	54.28
12	103.21	56.17
13	112.81	58.98
14	122.11	62.67
15	131.01	67.21
16	139.46	72.57
17	147.36	78.69
18	154.66	85.53
19	161.29	93.02
20	167.19	101.09
21	172.31	109.68
22	176.60	118.71
23	179.96	127.93

Circle Center At X = 78.1 ; Y = 160.0 and Radius, 106.8

*** 2.216 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	9.36	78.23
3	17.33	72.19
4	25.84	66.93
5	34.80	62.50
6	44.14	58.93
7	53.78	56.26
8	63.62	54.51
9	73.59	53.70
10	83.59	53.83
11	93.53	54.91
12	103.33	56.92
13	112.89	59.85
14	122.13	63.67
15	130.97	68.34
16	139.33	73.83
17	147.14	80.08
18	154.31	87.04
19	160.80	94.65

20	166.54	102.84
21	171.49	111.53
22	175.59	120.65
23	178.03	127.83

Circle Center At X = 77.2 ; Y = 159.4 and Radius, 105.8

*** 2.219 ***

Failure Surface Specified By 22 Coordinate Points

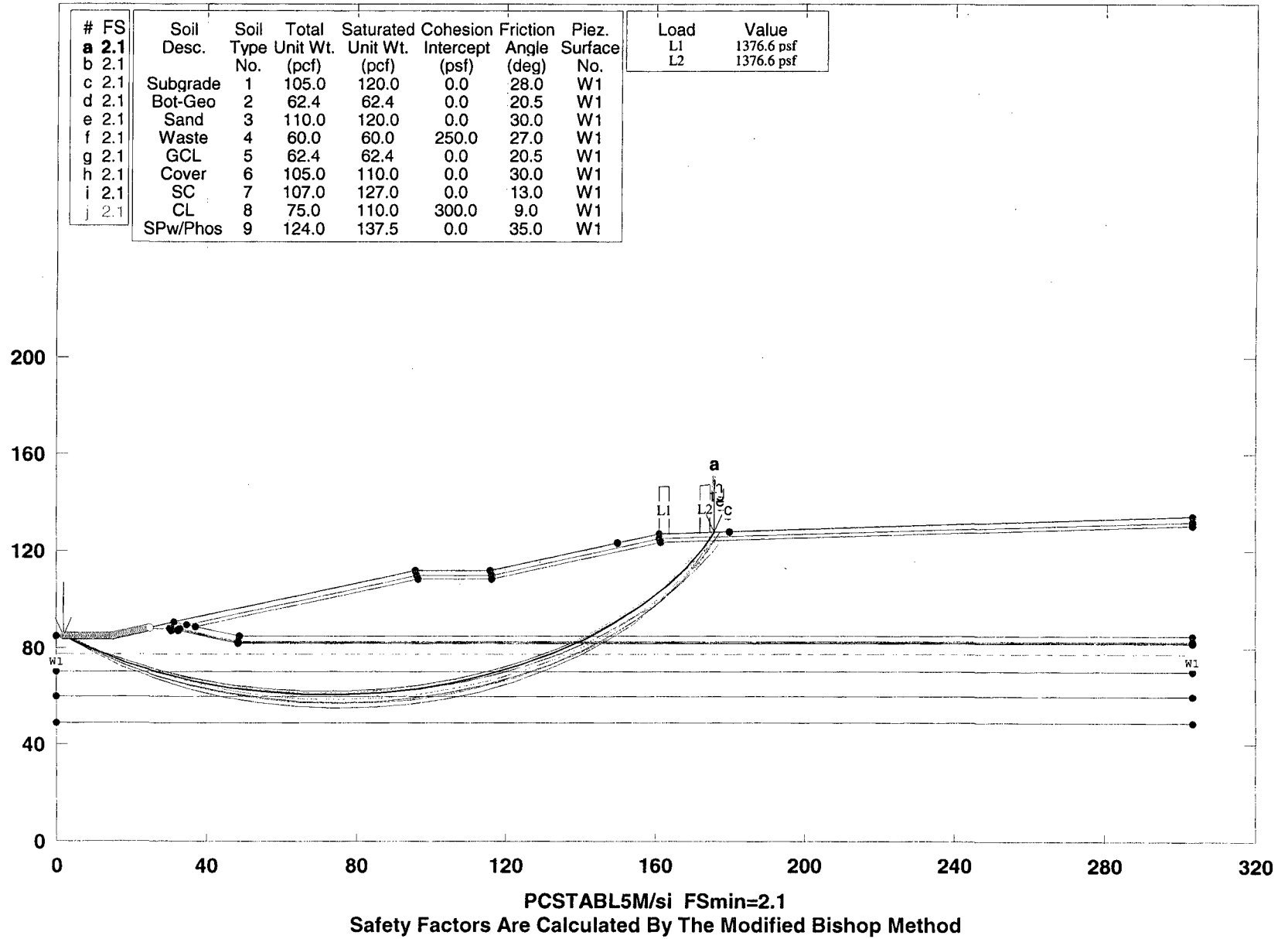
Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	10.28	79.39
3	19.01	74.51
4	28.12	70.38
5	37.54	67.05
6	47.22	64.53
7	57.08	62.84
8	67.04	62.00
9	77.04	62.01
10	87.01	62.87
11	96.86	64.57
12	106.53	67.11
13	115.96	70.46
14	125.06	74.59
15	133.78	79.49
16	142.05	85.11
17	149.81	91.42
18	157.01	98.36
19	163.59	105.89
20	169.50	113.95
21	174.71	122.49
22	177.36	127.80

Circle Center At X = 71.9 ; Y = 179.2 and Radius, 117.3

*** 2.219 ***

Phase II Section I East Hardee County Landfill

C:\HARDEE~1\EASTCI~1\EAST.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 10:51AM



SCS ENGINEERS

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011
 Time of Run: 10:51AM
 Run By: Shane R. Fischer, P.E.
 Input Data Filename: C: east.
 Output Filename: C: east.OUT
 Unit: ENGLISH
 Plotted Output Filename: C: east.PLT
 PROBLEM DESCRIPTION Phase II Section I East
 Hardee County Landfill

BOUNDARY COORDINATES

7 Top Boundaries

35 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	15.00	85.00	1
2	15.00	85.00	24.00	88.00	1
3	24.00	88.00	31.58	90.53	3
4	31.58	90.53	96.00	112.00	6
5	96.00	112.00	116.00	112.00	6
6	116.00	112.00	160.95	126.98	6
7	160.95	126.98	303.32	134.10	6
8	31.58	90.53	34.74	89.47	3
9	34.74	89.47	96.32	110.00	6
10	96.32	110.00	116.32	110.00	6
11	116.32	110.00	161.32	125.00	6
12	161.32	125.00	303.32	132.10	6
13	34.74	89.47	37.12	88.68	3
14	37.12	88.68	96.57	108.50	4
15	96.57	108.50	116.57	108.50	4
16	116.57	108.50	161.60	123.51	4
17	161.60	123.51	303.32	130.60	4
18	37.12	88.68	48.76	84.80	3
19	48.76	84.80	303.32	84.80	3
20	24.00	88.00	30.32	88.00	1
21	30.32	88.00	30.84	88.00	1
22	30.84	88.00	32.84	88.00	5
23	32.84	88.00	48.44	82.80	5
24	48.44	82.80	303.32	82.80	5
25	30.84	88.00	30.95	87.53	1
26	30.95	87.53	32.68	87.53	1
27	32.68	87.53	48.43	82.30	1
28	48.43	82.30	303.32	82.30	1
29	30.32	88.00	30.55	87.03	1
30	30.55	87.03	32.60	87.03	1
31	32.60	87.03	48.35	81.80	1
32	48.35	81.80	303.32	81.80	1
33	.00	70.00	303.32	70.00	7
34	.00	60.00	303.32	60.00	8
35	.00	49.00	303.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1

8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	303.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	160.95	163.92	1376.6	.0
2	171.95	174.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed

Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced

Along The Ground Surface Between X = 2.00 ft.

and X = 25.00 ft.

Each Surface Terminates Between X = 150.00 ft.

and X = 180.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation

At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	10.11	79.15
3	18.70	74.03
4	27.71	69.69
5	37.06	66.15
6	46.69	63.46
7	56.52	61.62
8	66.47	60.65
9	76.47	60.57
10	86.44	61.36
11	96.30	63.03
12	105.98	65.56
13	115.39	68.93
14	124.47	73.12
15	133.15	78.09
16	141.36	83.80
17	149.03	90.21
18	156.11	97.28
19	162.54	104.94
20	168.27	113.13
21	173.25	121.80
22	176.00	127.73

Circle Center At X = 72.4 ; Y = 173.9 and Radius, 113.4

*** 2.068 ***

Individual data on the 59 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force		Surcharge Load (lbs)
			Top (lbs)	Bot (lbs)			Hor (lbs)	Ver (lbs)	
1	8.1	2491.8	.0	.0	.0	.0	.0	.0	.0
2	2.8	1936.6	.0	.0	.0	.0	.0	.0	.0
3	2.1	1839.7	.0	98.2	.0	.0	.0	.0	.0

4	3.7	4204.3	.0	636.9	.0	.0	.0	.0	.0
5	5.3	8375.0	.0	1744.5	.0	.0	.0	.0	.0
6	3.1	6015.6	.0	1430.6	.0	.0	.0	.0	.0
7	.7	1402.5	.0	346.6	.0	.0	.0	.0	.0
8	2.6	5982.7	.0	1448.3	.0	.0	.0	.0	.0
9	.2	554.2	.0	135.7	.0	.0	.0	.0	.0
10	.3	705.2	.0	173.0	.0	.0	.0	.0	.0
11	.1	268.2	.0	66.2	.0	.0	.0	.0	.0
12	.6	1549.7	.0	384.9	.0	.0	.0	.0	.0
13	1.0	2578.6	.0	644.3	.0	.0	.0	.0	.0
14	.1	205.8	.0	51.6	.0	.0	.0	.0	.0
15	.2	413.0	.0	103.8	.0	.0	.0	.0	.0
16	1.9	5064.5	.0	1281.5	.0	.0	.0	.0	.0
17	2.3	6595.5	.0	1689.5	.0	.0	.0	.0	.0
18	.1	171.2	.0	42.9	.0	.0	.0	.0	.0
19	9.6	30011.9	.0	7879.2	.0	.0	.0	.0	.0
20	1.7	5562.0	.0	1494.9	.0	.0	.0	.0	.0
21	.1	270.3	.0	72.9	.0	.0	.0	.0	.0
22	.0	33.8	.0	9.1	.0	.0	.0	.0	.0
23	.3	1083.1	.0	292.5	.0	.0	.0	.0	.0
24	7.8	27619.8	.0	7467.2	.0	.0	.0	.0	.0
25	10.0	38710.8	.0	10211.4	.0	.0	.0	.0	.0
26	10.0	41553.5	.0	10539.6	.0	.0	.0	.0	.0
27	10.0	42965.4	.0	10318.7	.0	.0	.0	.0	.0
28	9.6	41596.4	.0	9273.0	.0	.0	.0	.0	.0
29	.3	1312.0	.0	277.4	.0	.0	.0	.0	.0
30	.0	76.6	.0	16.5	.0	.0	.0	.0	.0
31	.3	1081.8	.0	232.7	.0	.0	.0	.0	.0
32	9.4	39180.1	.0	7991.4	.0	.0	.0	.0	.0
33	9.4	35725.8	.0	6399.7	.0	.0	.0	.0	.0
34	.6	2167.0	.0	352.3	.0	.0	.0	.0	.0
35	.3	1133.2	.0	180.7	.0	.0	.0	.0	.0
36	.3	883.6	.0	138.9	.0	.0	.0	.0	.0
37	1.1	4013.4	.0	610.0	.0	.0	.0	.0	.0
38	6.8	22767.3	.0	2759.8	.0	.0	.0	.0	.0
39	7.7	23441.6	.0	1206.6	.0	.0	.0	.0	.0
40	1.0	2919.9	.0	.0	.0	.0	.0	.0	.0
41	5.3	14366.9	.0	.0	.0	.0	.0	.0	.0
42	.7	1818.5	.0	.0	.0	.0	.0	.0	.0
43	.7	1798.8	.0	.0	.0	.0	.0	.0	.0
44	1.4	3525.3	.0	.0	.0	.0	.0	.0	.0
45	1.2	2838.8	.0	.0	.0	.0	.0	.0	.0
46	6.5	14448.2	.0	.0	.0	.0	.0	.0	.0
47	7.1	14102.3	.0	.0	.0	.0	.0	.0	.0
48	4.8	8360.1	.0	.0	.0	.0	.0	.0	.0
49	.4	587.2	.0	.0	.0	.0	.0	.0	509.4
50	.3	436.9	.0	.0	.0	.0	.0	.0	385.4
51	.9	1421.3	.0	.0	.0	.0	.0	.0	1289.7
52	1.4	1974.6	.0	.0	.0	.0	.0	.0	1904.0
53	4.3	5174.4	.0	.0	.0	.0	.0	.0	.0
54	3.7	3034.4	.0	.0	.0	.0	.0	.0	.0
55	1.3	744.5	.0	.0	.0	.0	.0	.0	1793.9
56	1.1	474.6	.0	.0	.0	.0	.0	.0	1496.8
57	.6	175.9	.0	.0	.0	.0	.0	.0	797.8
58	.1	30.1	.0	.0	.0	.0	.0	.0	.0
59	.9	99.5	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.94	85.00
2	11.11	79.23
3	19.74	74.18
4	28.77	69.90
5	38.14	66.40
6	47.77	63.71
7	57.60	61.86
8	67.55	60.86

9	77.55	60.71
10	87.53	61.42
11	97.40	62.99
12	107.11	65.39
13	116.58	68.61
14	125.73	72.64
15	134.51	77.43
16	142.84	82.96
17	150.67	89.18
18	157.94	96.05
19	164.59	103.51
20	170.58	111.52
21	175.86	120.01
22	179.89	127.93

Circle Center At X = 74.2 ; Y = 177.3 and Radius, 116.6

*** 2.084 ***

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.94	85.00
2	11.12	79.25
3	19.77	74.22
4	28.81	69.95
5	38.18	66.47
6	47.82	63.81
7	57.65	61.97
8	67.60	60.99
9	77.60	60.86
10	87.58	61.59
11	97.45	63.16
12	107.16	65.58
13	116.62	68.81
14	125.77	72.85
15	134.54	77.65
16	142.87	83.18
17	150.69	89.41
18	157.96	96.28
19	164.61	103.75
20	170.59	111.76
21	175.87	120.26
22	179.77	127.92

Circle Center At X = 74.1 ; Y = 177.5 and Radius, 116.7

*** 2.086 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	9.77	78.70
3	18.07	73.13
4	26.85	68.34
5	36.03	64.37
6	45.53	61.25
7	55.27	59.01
8	65.18	57.66
9	75.17	57.22
10	85.16	57.69
11	95.07	59.07
12	104.81	61.35
13	114.30	64.50
14	123.46	68.50
15	132.22	73.32
16	140.51	78.91
17	148.26	85.24
18	155.39	92.24
19	161.86	99.87
20	167.61	108.05
21	172.59	116.72

22 176.76 125.81
 23 177.47 127.81
 Circle Center At X = 75.0 ; Y = 167.0 and Radius, 109.8
 *** 2.086 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	9.71	78.63
3	17.97	73.00
4	26.71	68.14
5	35.86	64.11
6	45.34	60.93
7	55.08	58.63
8	64.98	57.23
9	74.97	56.75
10	84.96	57.18
11	94.87	58.52
12	104.61	60.77
13	114.11	63.90
14	123.28	67.89
15	132.05	72.70
16	140.34	78.29
17	148.08	84.62
18	155.21	91.63
19	161.67	99.26
20	167.40	107.45
21	172.36	116.14
22	176.50	125.24
23	177.40	127.80

Circle Center At X = 75.3 ; Y = 165.8 and Radius, 109.1
 *** 2.087 ***

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.94	85.00
2	11.13	79.26
3	19.79	74.26
4	28.85	70.04
5	38.25	66.63
6	47.92	64.06
7	57.77	62.35
8	67.74	61.52
9	77.74	61.57
10	87.69	62.49
11	97.53	64.29
12	107.17	66.94
13	116.54	70.43
14	125.57	74.73
15	134.18	79.81
16	142.32	85.63
17	149.91	92.14
18	156.90	99.29
19	163.23	107.03
20	168.86	115.29
21	173.74	124.02
22	175.39	127.70

Circle Center At X = 72.2 ; Y = 174.9 and Radius, 113.5
 *** 2.088 ***

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	10.28	79.39
3	19.01	74.51
4	28.12	70.38
5	37.54	67.05

6	47.22	64.53
7	57.08	62.84
8	67.04	62.00
9	77.04	62.01
10	87.01	62.87
11	96.86	64.57
12	106.53	67.11
13	115.96	70.46
14	125.06	74.59
15	133.78	79.49
16	142.05	85.11
17	149.81	91.42
18	157.01	98.36
19	163.59	105.89
20	169.50	113.95
21	174.71	122.49
22	177.36	127.80

Circle Center At X = 71.9 ; Y = 179.2 and Radius, 117.3
 *** 2.090 ***

Failure Surface Specified By 22 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.94	85.00
2	10.83	78.86
3	19.25	73.46
4	28.12	68.84
5	37.37	65.05
6	46.93	62.10
7	56.71	60.03
8	66.64	58.86
9	76.64	58.59
10	86.62	59.22
11	96.50	60.75
12	106.20	63.18
13	115.65	66.46
14	124.76	70.59
15	133.45	75.53
16	141.67	81.23
17	149.33	87.65
18	156.39	94.74
19	162.77	102.43
20	168.44	110.68
21	173.33	119.40
22	177.08	127.79

Circle Center At X = 74.6 ; Y = 169.0 and Radius, 110.4
 *** 2.092 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.00	85.00
2	9.48	78.36
3	17.56	72.47
4	26.15	67.36
5	35.20	63.09
6	44.60	59.69
7	54.29	57.20
8	64.17	55.64
9	74.15	55.02
10	84.14	55.35
11	94.06	56.62
12	103.81	58.83
13	113.31	61.94
14	122.48	65.95
15	131.22	70.80
16	139.47	76.46
17	147.14	82.87
18	154.17	89.98

19	160.50	97.73
20	166.06	106.04
21	170.81	114.84
22	174.71	124.04
23	175.87	127.73

Circle Center At X = 75.7 ; Y = 160.5 and Radius, 105.5

*** 2.093 ***

Failure Surface Specified By 22 Coordinate Points

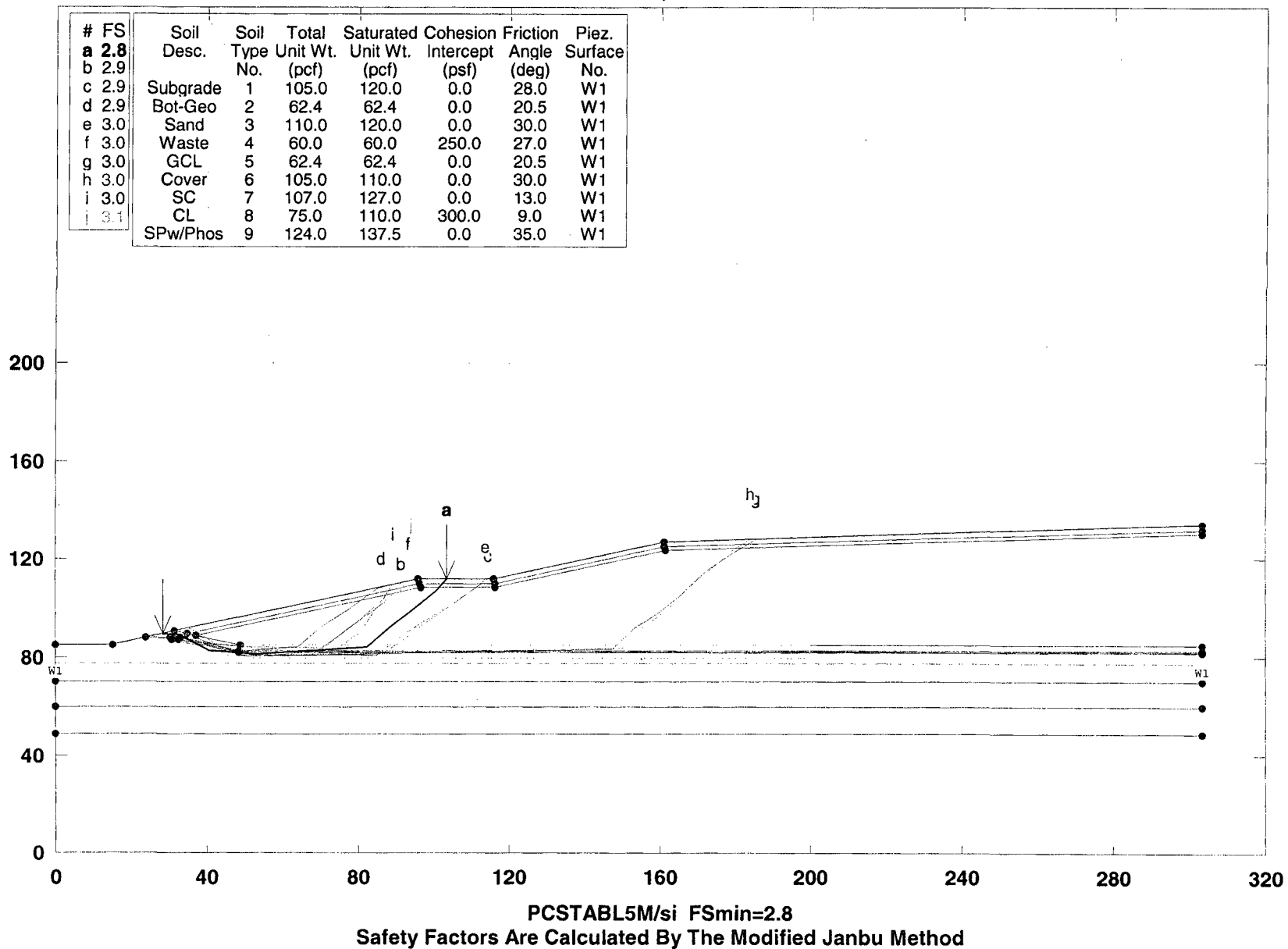
Point No.	X-Surf (ft)	Y-Surf (ft)
1	2.94	85.00
2	10.74	78.74
3	19.08	73.23
4	27.90	68.51
5	37.12	64.63
6	46.65	61.61
7	56.42	59.48
8	66.35	58.27
9	76.34	57.97
10	86.32	58.60
11	96.20	60.15
12	105.90	62.60
13	115.32	65.93
14	124.40	70.12
15	133.06	75.13
16	141.22	80.92
17	148.80	87.43
18	155.76	94.62
19	162.02	102.41
20	167.53	110.75
21	172.26	119.57
22	175.70	127.72

Circle Center At X = 74.5 ; Y = 166.2 and Radius, 108.2

*** 2.094 ***

Phase II Section East Hardee County Landfill

C:\HARDEE~1\EASTBL~1\EASTB.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 11:33AM



SCS ENGINEERS

**** PCSTABL5M ****

by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 1/18/2011
Time of Run: 11:33AM
Run By: Shane R. Fischer, P.E.
Input Data Filename: C: eastb.
Output Filename: C: eastb.OUT
Unit: ENGLISH
Plotted Output Filename: C: eastb.PLT
PROBLEM DESCRIPTION Phase II Section I East
Hardee County Landfill

BOUNDARY COORDINATES

7 Top Boundaries
35 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	15.00	85.00	1
2	15.00	85.00	24.00	88.00	1
3	24.00	88.00	31.58	90.53	3
4	31.58	90.53	96.00	112.00	6
5	96.00	112.00	116.00	112.00	6
6	116.00	112.00	160.95	126.98	6
7	160.95	126.98	303.32	134.10	6
8	31.58	90.53	34.74	89.47	3
9	34.74	89.47	96.32	110.00	6
10	96.32	110.00	116.32	110.00	6
11	116.32	110.00	161.32	125.00	6
12	161.32	125.00	303.32	132.10	6
13	34.74	89.47	37.12	88.68	3
14	37.12	88.68	96.57	108.50	4
15	96.57	108.50	116.57	108.50	4
16	116.57	108.50	161.60	123.51	4
17	161.60	123.51	303.32	130.60	4
18	37.12	88.68	48.76	84.80	3
19	48.76	84.80	303.32	84.80	3
20	24.00	88.00	30.32	88.00	1
21	30.32	88.00	30.84	88.00	1
22	30.84	88.00	32.84	88.00	5
23	32.84	88.00	48.44	82.80	5
24	48.44	82.80	303.32	82.80	5
25	30.84	88.00	30.95	87.53	1
26	30.95	87.53	32.68	87.53	1
27	32.68	87.53	48.43	82.30	1
28	48.43	82.30	303.32	82.30	1
29	30.32	88.00	30.55	87.03	1
30	30.55	87.03	32.60	87.03	1
31	32.60	87.03	48.35	81.80	1
32	48.35	81.80	303.32	81.80	1
33	.00	70.00	303.32	70.00	7
34	.00	60.00	303.32	60.00	8
35	.00	49.00	303.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1

8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	303.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	160.95	163.92	1376.6	.0
2	171.95	174.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	34.58	86.90	46.53	82.93	5.00
2	49.43	82.30	54.43	82.30	5.00
3	55.43	82.30	200.00	82.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.59	89.53
2	32.79	89.03
3	40.49	82.64
4	53.05	81.13
5	82.14	84.10
6	88.16	92.09
7	94.75	99.61
8	100.94	107.46
9	103.65	112.00

*** 2.844 ***

Individual data on the 27 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force		Surcharge Load (lbs)
			Top (lbs)	Bot (lbs)			Hor (lbs)	Ver (lbs)	
1	3.0	223.4	.0	.0	.0	.0	.0	.0	.0
2	1.2	214.5	.0	.0	.0	.0	.0	.0	.0
3	2.0	638.1	.0	.0	.0	.0	.0	.0	.0
4	.1	39.4	.0	.0	.0	.0	.0	.0	.0
5	1.0	536.5	.0	.0	.0	.0	.0	.0	.0
6	1.1	667.2	.0	.0	.0	.0	.0	.0	.0
7	.2	131.5	.0	.0	.0	.0	.0	.0	.0
8	3.4	2937.0	.0	.0	.0	.0	.0	.0	.0
9	7.9	8625.3	.0	.0	.0	.0	.0	.0	.0
10	.1	93.4	.0	.0	.0	.0	.0	.0	.0
11	.0	11.7	.0	.0	.0	.0	.0	.0	.0
12	.3	374.7	.0	.0	.0	.0	.0	.0	.0
13	4.3	5336.9	.0	.0	.0	.0	.0	.0	.0
14	6.6	8830.5	.0	.0	.0	.0	.0	.0	.0
15	4.9	6827.5	.0	.0	.0	.0	.0	.0	.0

16	4.9	7100.5	.0	.0	.0	.0	.0	.0	.0
17	12.7	19649.9	.0	.0	.0	.0	.0	.0	.0
18	.5	820.2	.0	.0	.0	.0	.0	.0	.0
19	5.5	7510.3	.0	.0	.0	.0	.0	.0	.0
20	6.6	6880.5	.0	.0	.0	.0	.0	.0	.0
21	1.3	1064.4	.0	.0	.0	.0	.0	.0	.0
22	.3	255.8	.0	.0	.0	.0	.0	.0	.0
23	.3	193.4	.0	.0	.0	.0	.0	.0	.0
24	4.4	2605.1	.0	.0	.0	.0	.0	.0	.0
25	.6	247.1	.0	.0	.0	.0	.0	.0	.0
26	.9	258.8	.0	.0	.0	.0	.0	.0	.0
27	1.2	125.5	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.43	90.14
2	33.99	87.34
3	43.77	85.28
4	50.19	84.13
5	71.06	83.73
6	77.33	91.52
7	83.99	98.98
8	90.30	106.73
9	91.55	110.52

*** 2.857 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	25.44	88.48
2	25.47	88.45
3	35.14	85.92
4	53.89	83.55
5	84.65	80.19
6	91.04	87.88
7	98.04	95.02
8	105.04	102.16
9	112.12	109.23
10	114.69	112.00

*** 2.927 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.18	90.06
2	37.07	86.46
3	45.93	81.83
4	52.51	82.62
5	63.89	84.14
6	70.01	92.05
7	77.08	99.13
8	83.82	106.51
9	85.92	108.64

*** 2.946 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.13	89.38
2	34.04	85.81
3	43.76	83.45
4	52.20	80.76
5	86.13	80.62
6	92.80	88.08
7	99.23	95.73
8	106.25	102.86
9	113.06	110.18
10	113.88	112.00

*** 2.976 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.09	91.03
2	40.27	85.53
3	53.88	80.25
4	73.88	83.12
5	80.78	90.36
6	84.67	99.57
7	91.49	106.89
8	93.12	111.04

*** 2.981 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.40	91.80
2	38.35	89.49
3	45.46	82.46
4	50.81	80.42
5	147.40	83.49
6	153.14	91.68
7	160.19	98.77
8	166.40	106.60
9	172.22	114.74
10	179.13	121.96
11	185.34	128.20

*** 3.004 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	32.18	90.73
2	36.52	86.41
3	46.35	84.60
4	53.47	80.69
5	150.30	83.61
6	155.42	92.20
7	162.13	99.61
8	167.30	108.17
9	173.71	115.85
10	179.56	123.96
11	183.71	128.12

*** 3.015 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	32.14	90.72
2	38.57	86.88
3	50.87	80.26
4	67.42	80.88
5	74.43	88.01
6	80.93	95.62
7	86.67	103.80
8	89.24	109.75

*** 3.049 ***

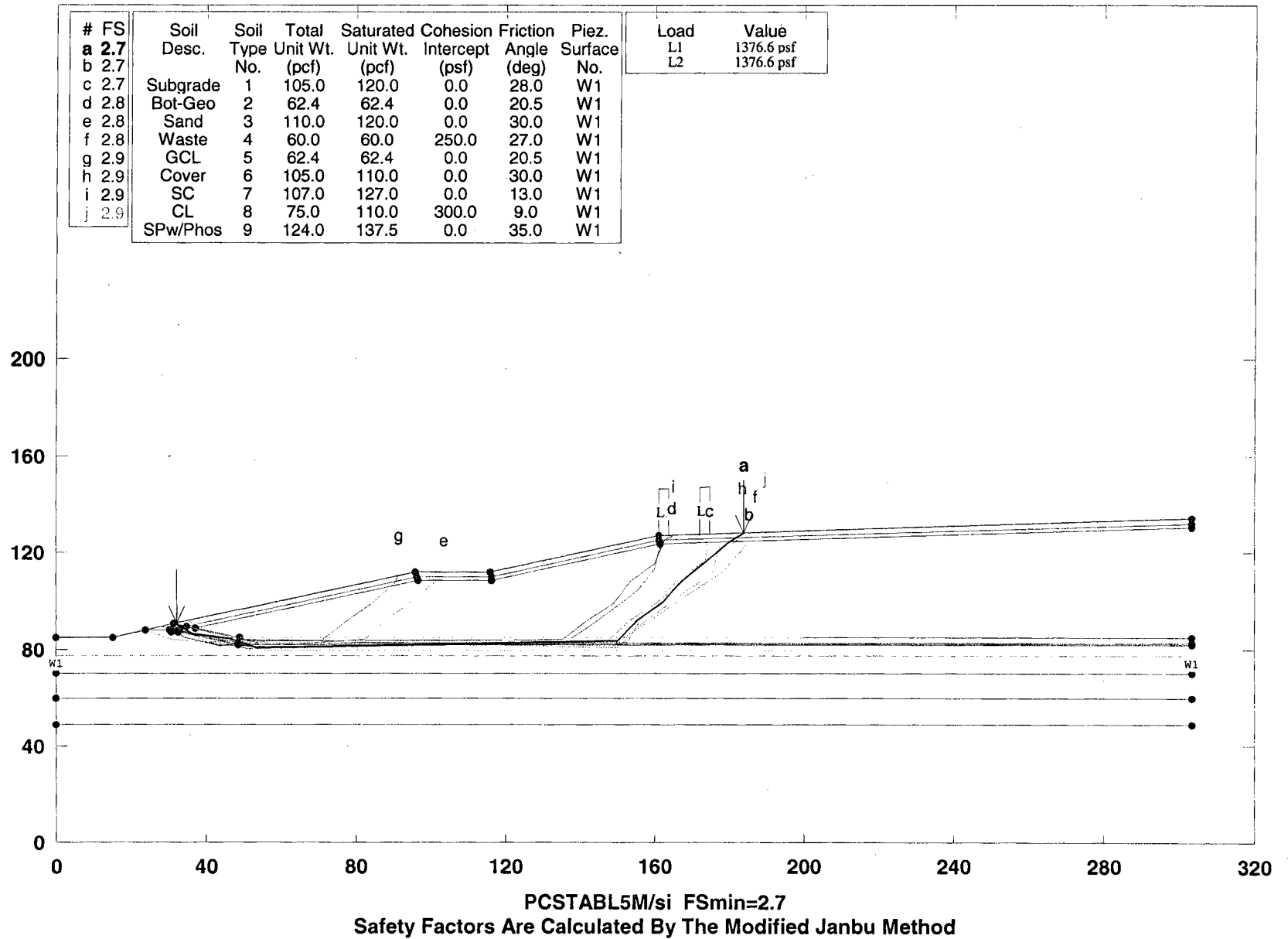
Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	32.14	90.72
2	34.76	89.74
3	41.84	82.68
4	50.02	79.90
5	71.41	82.40
6	78.34	89.62
7	83.81	97.99
8	89.91	105.91
9	93.86	111.29

*** 3.061 ***

Phase II Section 1 East Hardee County Landfill

C:\HARDEE~1\EASTBL~1\EASTB.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 11:32AM



SCS ENGINEERS

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011
 Time of Run: 11:32AM
 Run By: Shane R. Fischer, P.E.
 Input Data Filename: C: eastb.
 Output Filename: C: eastb.OUT
 Unit: ENGLISH
 Plotted Output Filename: C: eastb.PLT
 PROBLEM DESCRIPTION Phase II Section I East
 Hardee County Landfill

BOUNDARY COORDINATES

7 Top Boundaries

35 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	15.00	85.00	1
2	15.00	85.00	24.00	88.00	1
3	24.00	88.00	31.58	90.53	3
4	31.58	90.53	96.00	112.00	6
5	96.00	112.00	116.00	112.00	6
6	116.00	112.00	160.95	126.98	6
7	160.95	126.98	303.32	134.10	6
8	31.58	90.53	34.74	89.47	3
9	34.74	89.47	96.32	110.00	6
10	96.32	110.00	116.32	110.00	6
11	116.32	110.00	161.32	125.00	6
12	161.32	125.00	303.32	132.10	6
13	34.74	89.47	37.12	88.68	3
14	37.12	88.68	96.57	108.50	4
15	96.57	108.50	116.57	108.50	4
16	116.57	108.50	161.60	123.51	4
17	161.60	123.51	303.32	130.60	4
18	37.12	88.68	48.76	84.80	3
19	48.76	84.80	303.32	84.80	3
20	24.00	88.00	30.32	88.00	1
21	30.32	88.00	30.84	88.00	1
22	30.84	88.00	32.84	88.00	5
23	32.84	88.00	48.44	82.80	5
24	48.44	82.80	303.32	82.80	5
25	30.84	88.00	30.95	87.53	1
26	30.95	87.53	32.68	87.53	1
27	32.68	87.53	48.43	82.30	1
28	48.43	82.30	303.32	82.30	1
29	30.32	88.00	30.55	87.03	1
30	30.55	87.03	32.60	87.03	1
31	32.60	87.03	48.35	81.80	1
32	48.35	81.80	303.32	81.80	1
33	.00	70.00	303.32	70.00	7
34	.00	60.00	303.32	60.00	8
35	.00	49.00	303.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1

8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	303.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	160.95	163.92	1376.6	.0
2	171.95	174.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed

Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	34.58	86.90	46.53	82.93	5.00
2	49.43	82.30	54.43	82.30	5.00
3	55.43	82.30	200.00	82.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	32.18	90.73
2	36.52	86.41
3	46.35	84.60
4	53.47	80.69
5	150.30	83.61
6	155.42	92.20
7	162.13	99.61
8	167.30	108.17
9	173.71	115.85
10	179.56	123.96
11	183.71	128.12

*** 2.661 ***

Individual data on the 37 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force Norm (lbs)	Tie Force Tan (lbs)	Earthquake Force		Surcharge Load (lbs)
			Top (lbs)	Bot (lbs)			Hor (lbs)	Ver (lbs)	
1	.6	26.1	.0	.0	.0	.0	.0	.0	.0
2	1.9	435.9	.0	.0	.0	.0	.0	.0	.0
3	1.2	557.4	.0	.0	.0	.0	.0	.0	.0
4	.5	310.7	.0	.0	.0	.0	.0	.0	.0
5	.6	371.4	.0	.0	.0	.0	.0	.0	.0
6	1.8	1211.8	.0	.0	.0	.0	.0	.0	.0
7	7.4	5782.1	.0	.0	.0	.0	.0	.0	.0
8	2.4	2272.0	.0	.0	.0	.0	.0	.0	.0
9	.9	914.7	.0	.0	.0	.0	.0	.0	.0
10	.9	1013.6	.0	.0	.0	.0	.0	.0	.0
11	.9	1068.1	.0	.0	.0	.0	.0	.0	.0
12	2.0	2607.8	.0	.0	.0	.0	.0	.0	.0
13	36.8	61762.9	.0	.0	.0	.0	.0	.0	.0
14	5.7	11648.3	.0	.0	.0	.0	.0	.0	.0

15	.3	665.8	.0	.0	.0	.0	.0	.0	.0
16	.3	518.9	.0	.0	.0	.0	.0	.0	.0
17	10.2	21077.2	.0	.0	.0	.0	.0	.0	.0
18	9.2	18660.7	.0	.0	.0	.0	.0	.0	.0
19	.3	649.2	.0	.0	.0	.0	.0	.0	.0
20	.3	509.5	.0	.0	.0	.0	.0	.0	.0
21	6.8	14275.9	.0	.0	.0	.0	.0	.0	.0
22	26.9	64373.9	.0	.0	.0	.0	.0	.0	.0
23	.7	1807.5	.0	.0	.0	.0	.0	.0	.0
24	4.4	10243.2	.0	.0	.0	.0	.0	.0	.0
25	5.5	11142.4	.0	.0	.0	.0	.0	.0	.0
26	.4	692.7	.0	.0	.0	.0	.0	.0	509.4
27	.3	517.3	.0	.0	.0	.0	.0	.0	385.4
28	.5	969.8	.0	.0	.0	.0	.0	.0	733.5
29	1.8	3068.7	.0	.0	.0	.0	.0	.0	2460.2
30	3.4	4966.7	.0	.0	.0	.0	.0	.0	.0
31	4.6	5319.9	.0	.0	.0	.0	.0	.0	.0
32	1.8	1622.4	.0	.0	.0	.0	.0	.0	2417.1
33	1.2	989.3	.0	.0	.0	.0	.0	.0	1671.4
34	4.6	2694.1	.0	.0	.0	.0	.0	.0	.0
35	.5	179.6	.0	.0	.0	.0	.0	.0	.0
36	1.6	456.2	.0	.0	.0	.0	.0	.0	.0
37	2.1	220.3	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.40	91.80
2	38.35	89.49
3	45.46	82.46
4	50.81	80.42
5	147.40	83.49
6	153.14	91.68
7	160.19	98.77
8	166.40	106.60
9	172.22	114.74
10	179.13	121.96
11	185.34	128.20
***	2.692	***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.11	90.37
2	36.00	88.66
3	54.39	82.73
4	152.62	82.86
5	156.05	92.26
6	160.98	100.96
7	166.83	109.07
8	173.53	116.49
9	174.28	126.46
10	174.94	127.68
***	2.737	***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.52	89.51
2	34.47	85.05
3	43.82	81.51
4	50.34	83.59
5	135.47	84.29
6	141.96	91.90
7	149.01	98.99
8	153.41	107.97
9	160.08	115.42
10	162.66	125.08
11	164.52	127.16
***	2.767	***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.59	89.53
2	32.79	89.03
3	40.49	82.64
4	53.05	81.13
5	82.14	84.10
6	88.16	92.09
7	94.75	99.61
8	100.94	107.46
9	103.65	112.00

*** 2.844 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	31.45	90.49
2	38.18	88.14
3	51.48	83.61
4	150.26	83.25
5	157.26	90.39
6	164.14	97.64
7	171.13	104.80
8	178.07	112.00
9	183.11	120.64
10	187.02	128.28

*** 2.844 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.43	90.14
2	33.99	87.34
3	43.77	85.28
4	50.19	84.13
5	71.06	83.73
6	77.33	91.52
7	83.99	98.98
8	90.30	106.73
9	91.55	110.52

*** 2.857 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	24.26	88.09
2	30.80	84.25
3	40.73	83.06
4	52.60	84.08
5	150.01	80.67
6	155.38	89.11
7	162.08	96.54
8	168.56	104.15
9	175.39	111.45
10	177.07	121.31
11	183.68	128.12

*** 2.874 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	30.68	90.23
2	35.52	88.93
3	42.59	81.86
4	53.43	81.13
5	135.26	82.09
6	142.32	89.17
7	148.83	96.76
8	155.63	104.10
9	159.88	113.15

10	161.45	123.02
11	164.92	127.18

*** 2.912 ***

Failure Surface Specified By 10 Coordinate Points

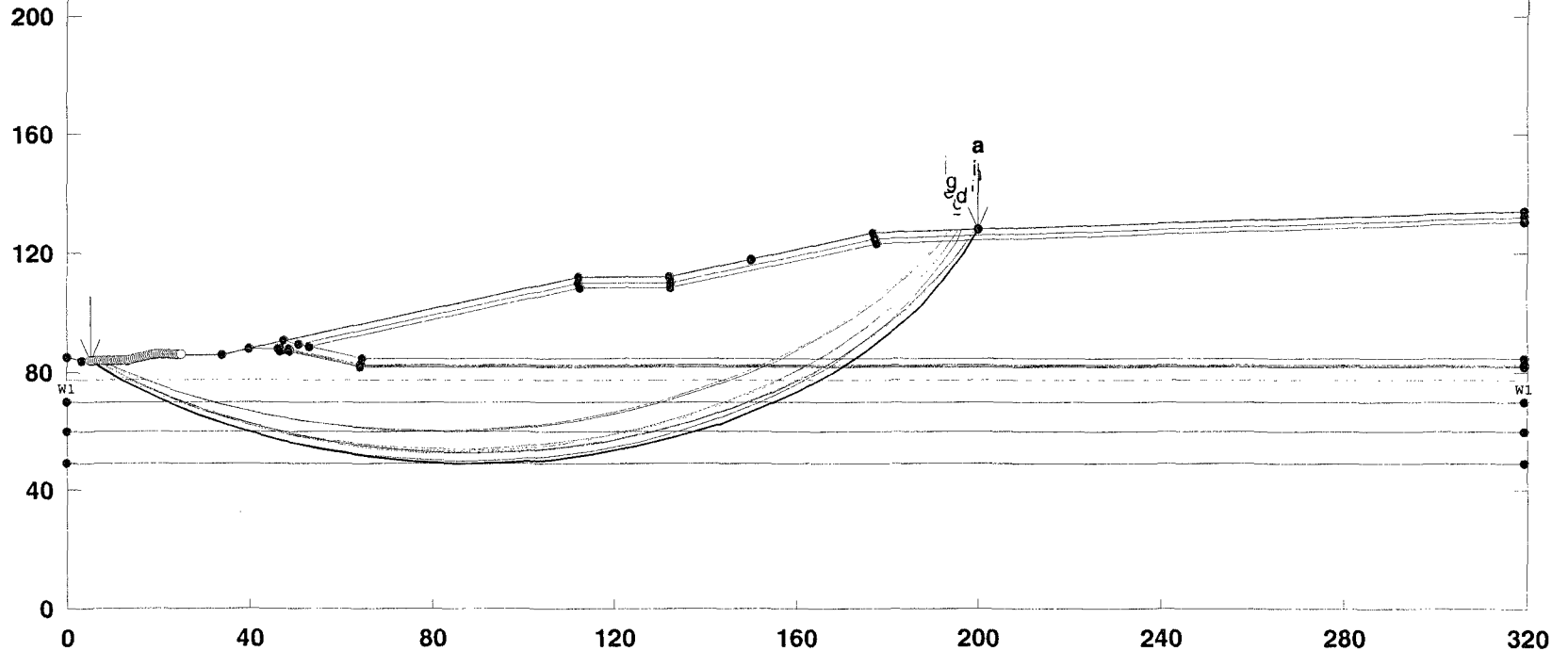
Point No.	X-Surf (ft)	Y-Surf (ft)
1	33.93	91.31
2	40.86	84.55
3	49.46	84.41
4	158.94	83.64
5	165.98	90.74
6	171.82	98.85
7	175.77	108.04
8	179.98	117.11
9	186.79	124.44
10	189.50	128.41

*** 2.917 ***

Phase II Section South Hardee County Landfill

C:\HARDEE~1\SOUTHC~1\SOUTH.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 10:56AM

#	FS	Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
a	2.1							
b	2.1							
c	2.1	Subgrade	1	105.0	120.0	0.0	28.0	W1
d	2.1	Bot-Geo	2	62.4	62.4	0.0	20.5	W1
e	2.1	Sand	3	110.0	120.0	0.0	30.0	W1
f	2.1	Waste	4	60.0	60.0	250.0	27.0	W1
g	2.1	GCL	5	62.4	62.4	0.0	20.5	W1
h	2.1	Cover	6	105.0	110.0	0.0	30.0	W1
i	2.1	SC	7	107.0	127.0	0.0	13.0	W1
j	2.1	CL	8	75.0	110.0	300.0	9.0	W1
		SPw/Phos	9	124.0	137.5	0.0	35.0	W1



PCSTABL5M/si FSmin=2.1

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011
 Time of Run: 10:56AM
 Run By: Shane R. Fischer, P.E.
 Input Data Filename: C:south.
 Output Filename: C:south.OUT
 Unit: ENGLISH
 Plotted Output Filename: C:south.PLT
 PROBLEM DESCRIPTION Phase II Section I South
 Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	3
7	47.58	90.53	112.00	112.00	6
8	112.00	112.00	132.00	112.00	6
9	132.00	112.00	176.95	126.98	6
10	176.95	126.98	319.32	134.10	6
11	47.58	90.53	50.74	89.47	3
12	50.74	89.47	112.32	110.00	6
13	112.32	110.00	132.32	110.00	6
14	132.32	110.00	177.32	125.00	6
15	177.32	125.00	319.32	132.10	6
16	50.74	89.47	53.12	88.68	3
17	53.12	88.68	112.57	108.50	4
18	112.57	108.50	132.57	108.50	4
19	132.57	108.50	177.60	123.51	4
20	177.60	123.51	319.32	130.60	4
21	53.12	88.68	64.76	84.80	3
22	64.76	84.80	319.32	84.80	3
23	40.00	88.00	46.32	88.00	1
24	46.32	88.00	46.84	88.00	1
25	46.84	88.00	48.84	88.00	5
26	48.84	88.00	64.44	82.80	5
27	64.44	82.80	319.32	82.80	5
28	46.84	88.00	46.95	87.53	1
29	46.95	87.53	48.68	87.53	1
30	48.68	87.53	64.43	82.30	1
31	64.43	82.30	319.32	82.30	1
32	46.32	88.00	46.55	87.03	1
33	46.55	87.03	48.60	87.03	1
34	48.60	87.03	64.35	81.80	1
35	64.35	81.80	319.32	81.80	1
36	.00	70.00	319.32	70.00	7
37	.00	60.00	319.32	60.00	8
38	.00	49.00	319.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1

5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	319.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 5.00 ft.

and X = 25.00 ft.

Each Surface Terminates Between X = 150.00 ft.

and X = 200.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.35	77.22
3	20.24	71.08
4	28.63	65.63
5	37.44	60.91
6	46.63	56.96
7	56.12	53.80
8	65.84	51.45
9	75.72	49.93
10	85.70	49.26
11	95.70	49.43
12	105.64	50.46
13	115.47	52.32
14	125.10	55.00
15	134.47	58.49
16	143.52	62.76
17	152.16	67.79
18	160.35	73.52
19	168.03	79.93
20	175.13	86.97
21	181.62	94.59
22	187.43	102.72
23	192.54	111.32
24	196.89	120.32
25	199.89	128.13

Circle Center At X = 88.6 ; Y = 167.2 and Radius, 118.0

*** 2.114 ***

Individual data on the 63 slices

Slice No.	Width (ft)	Weight (lbs)	Water	Water	Tie	Tie	Earthquake		Surcharge Load (lbs)
			Force Top (lbs)	Force Bot (lbs)	Force Norm (lbs)	Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	
1	7.0	2401.6	.0	.0	.0	.0	.0	.0	.0
2	.3	215.8	.0	3.7	.0	.0	.0	.0	.0
3	.7	488.2	.0	27.8	.0	.0	.0	.0	.0
4	6.0	6975.4	.0	1482.3	.0	.0	.0	.0	.0
5	1.2	1992.3	.0	582.8	.0	.0	.0	.0	.0
6	1.7	2864.3	.0	858.7	.0	.0	.0	.0	.0
7	6.7	13927.7	.0	4849.0	.0	.0	.0	.0	.0
8	5.4	13594.7	.0	5060.6	.0	.0	.0	.0	.0
9	3.4	9953.4	.0	3818.7	.0	.0	.0	.0	.0
10	2.1	6694.9	.0	2451.5	.0	.0	.0	.0	.0
11	.4	1437.1	.0	524.5	.0	.0	.0	.0	.0
12	6.3	22492.5	.0	8179.0	.0	.0	.0	.0	.0
13	.2	881.9	.0	319.7	.0	.0	.0	.0	.0
14	.1	304.5	.0	110.4	.0	.0	.0	.0	.0
15	.2	813.6	.0	285.4	.0	.0	.0	.0	.0
16	.1	424.6	.0	149.3	.0	.0	.0	.0	.0
17	.6	2442.7	.0	860.0	.0	.0	.0	.0	.0
18	1.0	4014.7	.0	1410.9	.0	.0	.0	.0	.0
19	.1	318.0	.0	111.6	.0	.0	.0	.0	.0
20	.2	637.1	.0	223.7	.0	.0	.0	.0	.0
21	1.9	7703.3	.0	2698.9	.0	.0	.0	.0	.0
22	2.4	10014.6	.0	3492.4	.0	.0	.0	.0	.0
23	3.0	13049.8	.0	4573.0	.0	.0	.0	.0	.0
24	8.2	37450.0	.0	13054.8	.0	.0	.0	.0	.0
25	.1	374.3	.0	132.0	.0	.0	.0	.0	.0
26	.0	46.8	.0	16.5	.0	.0	.0	.0	.0
27	.3	1499.5	.0	529.0	.0	.0	.0	.0	.0
28	1.1	5077.8	.0	1791.7	.0	.0	.0	.0	.0
29	9.9	48663.4	.0	16729.1	.0	.0	.0	.0	.0
30	10.0	52302.1	.0	17411.8	.0	.0	.0	.0	.0
31	10.0	54683.3	.0	17567.2	.0	.0	.0	.0	.0
32	9.9	55735.2	.0	17194.2	.0	.0	.0	.0	.0
33	6.4	35865.2	.0	10672.5	.0	.0	.0	.0	.0
34	.3	1803.2	.0	524.5	.0	.0	.0	.0	.0
35	.3	1406.2	.0	408.9	.0	.0	.0	.0	.0
36	2.9	16213.6	.0	4689.5	.0	.0	.0	.0	.0
37	9.6	52135.5	.0	14877.4	.0	.0	.0	.0	.0
38	6.9	35335.0	.0	9743.2	.0	.0	.0	.0	.0
39	.3	1594.0	.0	423.4	.0	.0	.0	.0	.0
40	.3	1244.8	.0	329.0	.0	.0	.0	.0	.0
41	1.9	9440.1	.0	2454.7	.0	.0	.0	.0	.0
42	3.2	15597.5	.0	4020.4	.0	.0	.0	.0	.0
43	5.9	27609.1	.0	6507.6	.0	.0	.0	.0	.0
44	8.6	37786.1	.0	7627.8	.0	.0	.0	.0	.0
45	3.2	12724.9	.0	2071.1	.0	.0	.0	.0	.0
46	5.0	18910.8	.0	2199.5	.0	.0	.0	.0	.0
47	4.8	16212.9	.0	769.2	.0	.0	.0	.0	.0
48	2.9	9085.8	.0	.0	.0	.0	.0	.0	.0
49	1.9	5533.6	.0	.0	.0	.0	.0	.0	.0
50	.5	1432.8	.0	.0	.0	.0	.0	.0	.0
51	.5	1416.8	.0	.0	.0	.0	.0	.0	.0
52	2.0	5464.5	.0	.0	.0	.0	.0	.0	.0
53	2.2	5643.1	.0	.0	.0	.0	.0	.0	.0
54	1.8	4515.0	.0	.0	.0	.0	.0	.0	.0
55	.4	896.7	.0	.0	.0	.0	.0	.0	.0
56	.3	671.3	.0	.0	.0	.0	.0	.0	.0
57	4.0	9037.9	.0	.0	.0	.0	.0	.0	.0
58	5.8	10931.7	.0	.0	.0	.0	.0	.0	.0
59	5.1	7117.8	.0	.0	.0	.0	.0	.0	.0
60	4.4	3837.6	.0	.0	.0	.0	.0	.0	.0
61	1.6	799.8	.0	.0	.0	.0	.0	.0	.0
62	.6	169.7	.0	.0	.0	.0	.0	.0	.0
63	.8	82.0	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.77	77.70
3	21.03	72.06
4	29.73	67.14
5	38.81	62.95
6	48.21	59.53
7	57.86	56.90
8	67.69	55.09
9	77.64	54.10
10	87.64	53.93
11	97.62	54.60
12	107.50	56.10
13	117.23	58.41
14	126.74	61.53
15	135.95	65.42
16	144.80	70.06
17	153.24	75.42
18	161.21	81.47
19	168.64	88.16
20	175.50	95.44
21	181.72	103.27
22	187.28	111.58
23	192.12	120.33
24	195.52	127.91

Circle Center At X = 84.6 ; Y = 174.1 and Radius, 120.2
 *** 2.116 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.71	77.63
3	20.93	71.93
4	29.59	66.94
5	38.64	62.68
6	48.02	59.21
7	57.65	56.52
8	67.47	54.66
9	77.42	53.62
10	87.42	53.42
11	97.40	54.05
12	107.29	55.52
13	117.02	57.81
14	126.53	60.90
15	135.75	64.78
16	144.61	69.42
17	153.05	74.79
18	161.01	80.84
19	168.44	87.53
20	175.28	94.83
21	181.48	102.67
22	187.01	111.00
23	191.82	119.77
24	195.44	127.90

Circle Center At X = 84.8 ; Y = 172.7 and Radius, 119.4
 *** 2.117 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.36	77.23
3	20.28	71.13
4	28.70	65.72
5	37.55	61.07
6	46.77	57.19

7	56.28	54.12
8	66.03	51.89
9	75.93	50.50
10	85.92	49.97
11	95.91	50.31
12	105.84	51.50
13	115.63	53.55
14	125.21	56.43
15	134.50	60.12
16	143.44	64.61
17	151.96	69.84
18	159.99	75.79
19	167.49	82.42
20	174.38	89.66
21	180.63	97.47
22	186.18	105.79
23	190.99	114.56
24	195.02	123.70
25	196.48	127.96

Circle Center At X = 87.0 ; Y = 165.9 and Radius, 115.9

*** 2.117 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.22	84.00
2	14.60	78.54
3	23.38	73.74
4	32.50	69.64
5	41.91	66.27
6	51.56	63.64
7	61.38	61.76
8	71.32	60.66
9	81.31	60.33
10	91.30	60.78
11	101.23	62.01
12	111.03	64.00
13	120.64	66.75
14	130.01	70.25
15	139.08	74.46
16	147.80	79.36
17	156.11	84.92
18	163.96	91.12
19	171.30	97.91
20	178.09	105.25
21	184.30	113.09
22	189.87	121.39
23	193.48	127.81

Circle Center At X = 80.5 ; Y = 188.8 and Radius, 128.4

*** 2.120 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.22	84.00
2	13.88	77.57
3	22.04	71.79
4	30.66	66.71
5	39.66	62.37
6	49.00	58.78
7	58.60	55.99
8	68.40	54.01
9	78.34	52.84
10	88.33	52.51
11	98.32	53.00
12	108.23	54.33
13	118.00	56.47
14	127.55	59.42
15	136.83	63.15

16	145.77	67.64
17	154.30	72.86
18	162.37	78.77
19	169.92	85.32
20	176.89	92.49
21	183.25	100.20
22	188.95	108.42
23	193.94	117.09
24	198.20	126.13
25	198.92	128.08

Circle Center At X = 87.4 ; Y = 172.7 and Radius, 120.2

*** 2.121 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	7.04	84.00
2	15.38	78.47
3	24.12	73.62
4	33.21	69.47
5	42.61	66.04
6	52.24	63.36
7	62.06	61.45
8	71.99	60.31
9	81.99	59.96
10	91.98	60.39
11	101.91	61.61
12	111.70	63.60
13	121.32	66.35
14	130.68	69.86
15	139.75	74.08
16	148.45	79.01
17	156.74	84.60
18	164.57	90.83
19	171.88	97.65
20	178.63	105.02
21	184.79	112.90
22	190.30	121.25
23	193.95	127.83

Circle Center At X = 81.5 ; Y = 187.2 and Radius, 127.3

*** 2.122 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.63	84.00
2	14.33	77.62
3	22.53	71.89
4	31.17	66.86
5	40.20	62.57
6	49.56	59.03
7	59.17	56.28
8	68.98	54.34
9	78.92	53.21
10	88.91	52.91
11	98.90	53.43
12	108.81	54.78
13	118.57	56.95
14	128.12	59.91
15	137.39	63.66
16	146.32	68.16
17	154.85	73.38
18	162.92	79.29
19	170.47	85.84
20	177.46	93.00
21	183.82	100.71
22	189.53	108.92
23	194.54	117.57
24	198.82	126.61

25 199.38 128.10
 Circle Center At X = 87.6 ; Y = 173.7 and Radius, 120.8
 *** 2.124 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.63	84.00
2	14.31	77.59
3	22.49	71.84
4	31.12	66.79
5	40.14	62.47
6	49.49	58.91
7	59.10	56.15
8	68.90	54.19
9	78.84	53.05
10	88.83	52.74
11	98.82	53.26
12	108.73	54.60
13	118.49	56.77
14	128.04	59.73
15	137.31	63.48
16	146.24	67.99
17	154.76	73.22
18	162.82	79.14
19	170.36	85.71
20	177.33	92.88
21	183.68	100.61
22	189.37	108.83
23	194.35	117.50
24	198.60	126.55
25	199.17	128.09

Circle Center At X = 87.6 ; Y = 173.1 and Radius, 120.4
 *** 2.124 ***

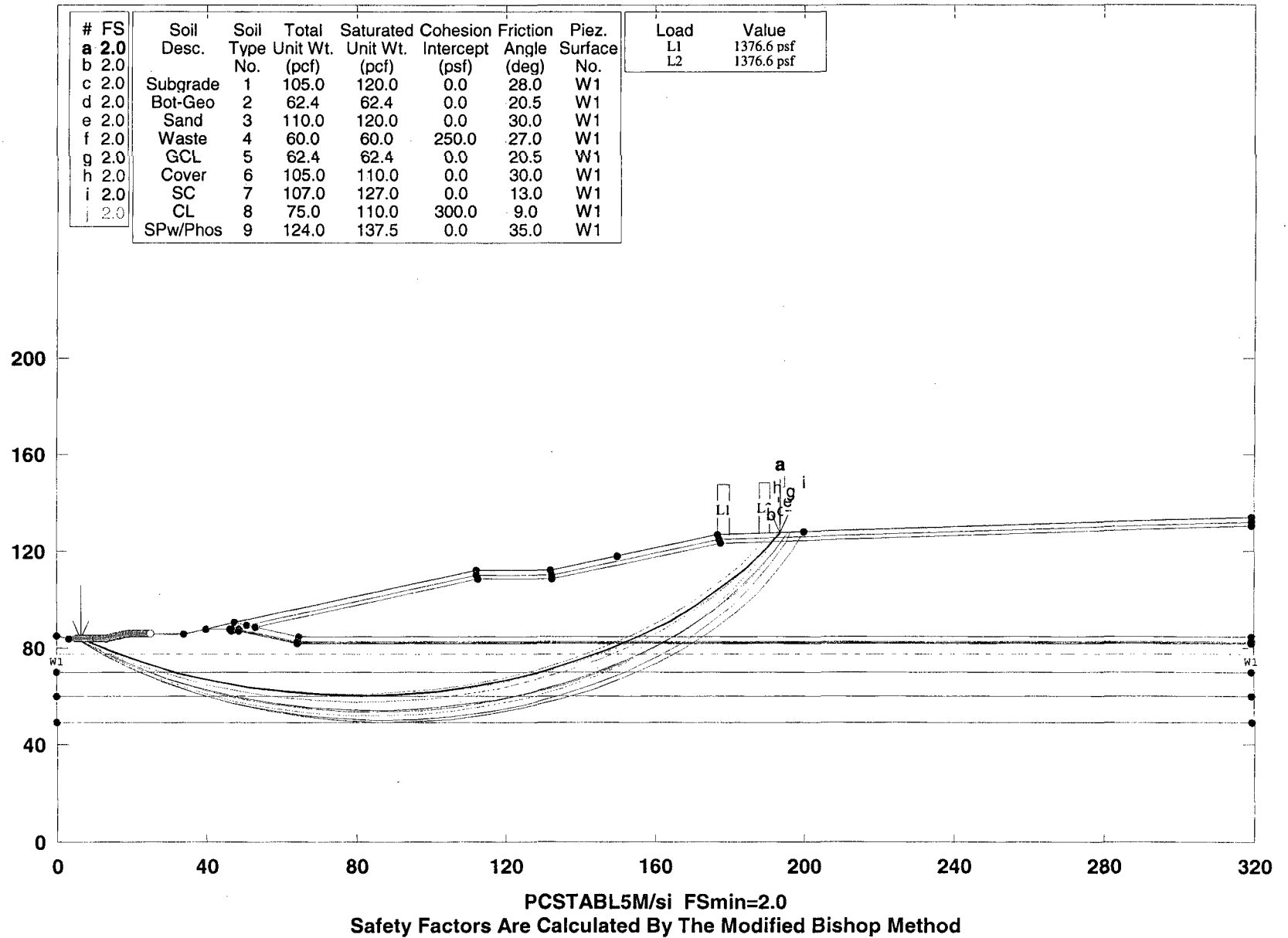
Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.48	77.36
3	20.51	71.40
4	29.03	66.17
5	37.97	61.69
6	47.27	58.01
7	56.86	55.16
8	66.65	53.15
9	76.59	52.00
10	86.58	51.72
11	96.56	52.31
12	106.46	53.77
13	116.19	56.08
14	125.68	59.23
15	134.85	63.20
16	143.65	67.95
17	152.00	73.45
18	159.85	79.66
19	167.12	86.53
20	173.76	94.00
21	179.73	102.02
22	184.98	110.54
23	189.46	119.47
24	192.76	127.77

Circle Center At X = 84.8 ; Y = 166.4 and Radius, 114.7
 *** 2.125 ***

Phase II Section South Hardee County Landfill

C:\HARDEE~1\SOUTHC~1\SOUTH.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 10:57AM



**** PCSTABL5M ****

by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 1/18/2011
Time of Run: 10:57AM
Run By: Shane R. Fischer, P.E.
Input Data Filename: C:south.
Output Filename: C:south.OUT
Unit: ENGLISH
Plotted Output Filename: C:south.PLT
PROBLEM DESCRIPTION Phase II Section I South
Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	3
7	47.58	90.53	112.00	112.00	6
8	112.00	112.00	132.00	112.00	6
9	132.00	112.00	176.95	126.98	6
10	176.95	126.98	319.32	134.10	6
11	47.58	90.53	50.74	89.47	3
12	50.74	89.47	112.32	110.00	6
13	112.32	110.00	132.32	110.00	6
14	132.32	110.00	177.32	125.00	6
15	177.32	125.00	319.32	132.10	6
16	50.74	89.47	53.12	88.68	3
17	53.12	88.68	112.57	108.50	4
18	112.57	108.50	132.57	108.50	4
19	132.57	108.50	177.60	123.51	4
20	177.60	123.51	319.32	130.60	4
21	53.12	88.68	64.76	84.80	3
22	64.76	84.80	319.32	84.80	3
23	40.00	88.00	46.32	88.00	1
24	46.32	88.00	46.84	88.00	1
25	46.84	88.00	48.84	88.00	5
26	48.84	88.00	64.44	82.80	5
27	64.44	82.80	319.32	82.80	5
28	46.84	88.00	46.95	87.53	1
29	46.95	87.53	48.68	87.53	1
30	48.68	87.53	64.43	82.30	1
31	64.43	82.30	319.32	82.30	1
32	46.32	88.00	46.55	87.03	1
33	46.55	87.03	48.60	87.03	1
34	48.60	87.03	64.35	81.80	1
35	64.35	81.80	319.32	81.80	1
36	.00	70.00	319.32	70.00	7
37	.00	60.00	319.32	60.00	8
38	.00	49.00	319.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Piez. Surface Constant
1	105.0	120.0	.0	28.0	.00	1
2	62.4	62.4	.0	20.5	.00	1
3	110.0	120.0	.0	30.0	.00	1
4	60.0	60.0	250.0	27.0	.00	1

5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	319.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 5.00 ft.

and X = 25.00 ft.

Each Surface Terminates Between X = 150.00 ft.

and X = 200.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.22	84.00
2	14.60	78.54
3	23.38	73.74
4	32.50	69.64
5	41.91	66.27
6	51.56	63.64
7	61.38	61.76
8	71.32	60.66
9	81.31	60.33
10	91.30	60.78
11	101.23	62.01
12	111.03	64.00
13	120.64	66.75
14	130.01	70.25
15	139.08	74.46
16	147.80	79.36
17	156.11	84.92
18	163.96	91.12
19	171.30	97.91
20	178.09	105.25
21	184.30	113.09
22	189.87	121.39
23	193.48	127.81

Circle Center At X = 80.5 ; Y = 188.8 and Radius, 128.4

*** 2.006 ***

Individual data on the 62 slices

Slice	Width	Weight	Water		Tie Force Norm	Tie Force Tan	Earthquake		Surcharge Load
			Top	Bot			Force Hor	Force Ver	

No.	(ft)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)
1	6.8	1571.8	.0	.0	.0	.0	.0	.0
2	1.6	875.4	.0	.0	.0	.0	.0	.0
3	1.9	1361.2	.0	.0	.0	.0	.0	.0
4	2.5	2328.3	.0	121.6	.0	.0	.0	.0
5	4.4	5251.5	.0	797.4	.0	.0	.0	.0
6	8.3	13061.7	.0	3207.7	.0	.0	.0	.0
7	.8	1436.9	.0	415.8	.0	.0	.0	.0
8	1.5	2811.1	.0	808.9	.0	.0	.0	.0
9	6.0	12886.1	.0	3766.6	.0	.0	.0	.0
10	1.9	4716.9	.0	1379.6	.0	.0	.0	.0
11	4.4	11920.4	.0	3374.2	.0	.0	.0	.0
12	.2	660.0	.0	185.4	.0	.0	.0	.0
13	.3	837.5	.0	235.2	.0	.0	.0	.0
14	.1	318.1	.0	89.6	.0	.0	.0	.0
15	.6	1832.4	.0	517.2	.0	.0	.0	.0
16	1.0	3025.1	.0	852.2	.0	.0	.0	.0
17	.1	240.3	.0	67.6	.0	.0	.0	.0
18	.2	481.6	.0	135.6	.0	.0	.0	.0
19	1.9	5853.3	.0	1644.5	.0	.0	.0	.0
20	.8	2599.1	.0	728.1	.0	.0	.0	.0
21	1.6	5075.3	.0	1390.0	.0	.0	.0	.0
22	8.3	28232.9	.0	7845.8	.0	.0	.0	.0
23	3.0	10589.0	.0	2964.1	.0	.0	.0	.0
24	.1	287.7	.0	80.7	.0	.0	.0	.0
25	.0	36.0	.0	10.1	.0	.0	.0	.0
26	.3	1152.0	.0	323.4	.0	.0	.0	.0
27	6.6	24368.3	.0	6786.8	.0	.0	.0	.0
28	10.0	39450.7	.0	10611.9	.0	.0	.0	.0
29	10.0	41349.2	.0	10573.5	.0	.0	.0	.0
30	9.9	41996.9	.0	10050.1	.0	.0	.0	.0
31	9.8	41392.7	.0	9044.8	.0	.0	.0	.0
32	1.0	4070.4	.0	842.8	.0	.0	.0	.0
33	.3	1334.8	.0	273.6	.0	.0	.0	.0
34	.3	1039.2	.0	212.4	.0	.0	.0	.0
35	8.1	32316.8	.0	6235.0	.0	.0	.0	.0
36	8.7	31803.5	.0	5292.1	.0	.0	.0	.0
37	.7	2261.6	.0	323.9	.0	.0	.0	.0
38	2.0	6677.1	.0	928.7	.0	.0	.0	.0
39	.3	1056.4	.0	137.8	.0	.0	.0	.0
40	.3	823.8	.0	105.3	.0	.0	.0	.0
41	6.5	20689.7	.0	2041.4	.0	.0	.0	.0
42	5.4	15867.1	.0	589.9	.0	.0	.0	.0
43	3.3	9046.2	.0	.0	.0	.0	.0	.0
44	3.6	9411.4	.0	.0	.0	.0	.0	.0
45	.7	1844.6	.0	.0	.0	.0	.0	.0
46	.7	1824.5	.0	.0	.0	.0	.0	.0
47	3.0	7034.4	.0	.0	.0	.0	.0	.0
48	.2	421.6	.0	.0	.0	.0	.0	.0
49	7.8	16995.5	.0	.0	.0	.0	.0	.0
50	7.3	14155.3	.0	.0	.0	.0	.0	.0
51	5.6	9439.2	.0	.0	.0	.0	.0	.0
52	.4	566.2	.0	.0	.0	.0	.0	509.4
53	.3	421.7	.0	.0	.0	.0	.0	385.4
54	.5	730.7	.0	.0	.0	.0	.0	679.5
55	1.8	2554.3	.0	.0	.0	.0	.0	2514.2
56	4.4	5130.3	.0	.0	.0	.0	.0	.0
57	3.7	3125.3	.0	.0	.0	.0	.0	.0
58	1.9	1178.6	.0	.0	.0	.0	.0	2640.5
59	1.1	501.9	.0	.0	.0	.0	.0	1448.0
60	.5	210.1	.0	.0	.0	.0	.0	.0
61	.9	251.8	.0	.0	.0	.0	.0	.0
62	1.2	121.6	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 23 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	5.41	84.00

2	13.81	78.58
3	22.62	73.83
4	31.76	69.79
5	41.20	66.47
6	50.86	63.91
7	60.69	62.10
8	70.64	61.07
9	80.64	60.82
10	90.62	61.35
11	100.54	62.66
12	110.32	64.74
13	119.91	67.57
14	129.25	71.15
15	138.28	75.45
16	146.94	80.44
17	155.19	86.09
18	162.98	92.37
19	170.24	99.24
20	176.95	106.65
21	183.06	114.57
22	188.54	122.94
23	191.14	127.69

Circle Center At X = 78.9 ; Y = 188.7 and Radius, 127.9

*** 2.009 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	7.04	84.00
2	15.38	78.47
3	24.12	73.62
4	33.21	69.47
5	42.61	66.04
6	52.24	63.36
7	62.06	61.45
8	71.99	60.31
9	81.99	59.96
10	91.98	60.39
11	101.91	61.61
12	111.70	63.60
13	121.32	66.35
14	130.68	69.86
15	139.75	74.08
16	148.45	79.01
17	156.74	84.60
18	164.57	90.83
19	171.88	97.65
20	178.63	105.02
21	184.79	112.90
22	190.30	121.25
23	193.95	127.83

Circle Center At X = 81.5 ; Y = 187.2 and Radius, 127.3

*** 2.009 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.77	77.70
3	21.03	72.06
4	29.73	67.14
5	38.81	62.95
6	48.21	59.53
7	57.86	56.90
8	67.69	55.09
9	77.64	54.10
10	87.64	53.93
11	97.62	54.60
12	107.50	56.10

13	117.23	58.41
14	126.74	61.53
15	135.95	65.42
16	144.80	70.06
17	153.24	75.42
18	161.21	81.47
19	168.64	88.16
20	175.50	95.44
21	181.72	103.27
22	187.28	111.58
23	192.12	120.33
24	195.52	127.91

Circle Center At X = 84.6 ; Y = 174.1 and Radius, 120.2

*** 2.011 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.71	77.63
3	20.93	71.93
4	29.59	66.94
5	38.64	62.68
6	48.02	59.21
7	57.65	56.52
8	67.47	54.66
9	77.42	53.62
10	87.42	53.42
11	97.40	54.05
12	107.29	55.52
13	117.02	57.81
14	126.53	60.90
15	135.75	64.78
16	144.61	69.42
17	153.05	74.79
18	161.01	80.84
19	168.44	87.53
20	175.28	94.83
21	181.48	102.67
22	187.01	111.00
23	191.82	119.77
24	195.44	127.90

Circle Center At X = 84.8 ; Y = 172.7 and Radius, 119.4

*** 2.011 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	13.11	78.15
3	21.66	72.96
4	30.60	68.49
5	39.88	64.75
6	49.43	61.78
7	59.18	59.58
8	69.08	58.18
9	79.07	57.58
10	89.06	57.79
11	99.01	58.81
12	108.85	60.62
13	118.50	63.23
14	127.91	66.60
15	137.02	70.73
16	145.77	75.57
17	154.10	81.11
18	161.96	87.30
19	169.28	94.10
20	176.04	101.47
21	182.18	109.37

22 187.66 117.73
 23 192.45 126.51
 24 193.02 127.78
 Circle Center At X = 81.5 ; Y = 181.3 and Radius, 123.7
 *** 2.016 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.36	77.23
3	20.28	71.13
4	28.70	65.72
5	37.55	61.07
6	46.77	57.19
7	56.28	54.12
8	66.03	51.89
9	75.93	50.50
10	85.92	49.97
11	95.91	50.31
12	105.84	51.50
13	115.63	53.55
14	125.21	56.43
15	134.50	60.12
16	143.44	64.61
17	151.96	69.84
18	159.99	75.79
19	167.49	82.42
20	174.38	89.66
21	180.63	97.47
22	186.18	105.79
23	190.99	114.56
24	195.02	123.70
25	196.48	127.96

Circle Center At X = 87.0 ; Y = 165.9 and Radius, 115.9
 *** 2.017 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.48	77.36
3	20.51	71.40
4	29.03	66.17
5	37.97	61.69
6	47.27	58.01
7	56.86	55.16
8	66.65	53.15
9	76.59	52.00
10	86.58	51.72
11	96.56	52.31
12	106.46	53.77
13	116.19	56.08
14	125.68	59.23
15	134.85	63.20
16	143.65	67.95
17	152.00	73.45
18	159.85	79.66
19	167.12	86.53
20	173.76	94.00
21	179.73	102.02
22	184.98	110.54
23	189.46	119.47
24	192.76	127.77

Circle Center At X = 84.8 ; Y = 166.4 and Radius, 114.7
 *** 2.018 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
--------------	----------------	----------------

1	5.00	84.00
2	12.35	77.22
3	20.24	71.08
4	28.63	65.63
5	37.44	60.91
6	46.63	56.96
7	56.12	53.80
8	65.84	51.45
9	75.72	49.93
10	85.70	49.26
11	95.70	49.43
12	105.64	50.46
13	115.47	52.32
14	125.10	55.00
15	134.47	58.49
16	143.52	62.76
17	152.16	67.79
18	160.35	73.52
19	168.03	79.93
20	175.13	86.97
21	181.62	94.59
22	187.43	102.72
23	192.54	111.32
24	196.89	120.32
25	199.89	128.13

Circle Center At X = 88.6 ; Y = 167.2 and Radius, 118.0

*** 2.018 ***

Failure Surface Specified By 24 Coordinate Points

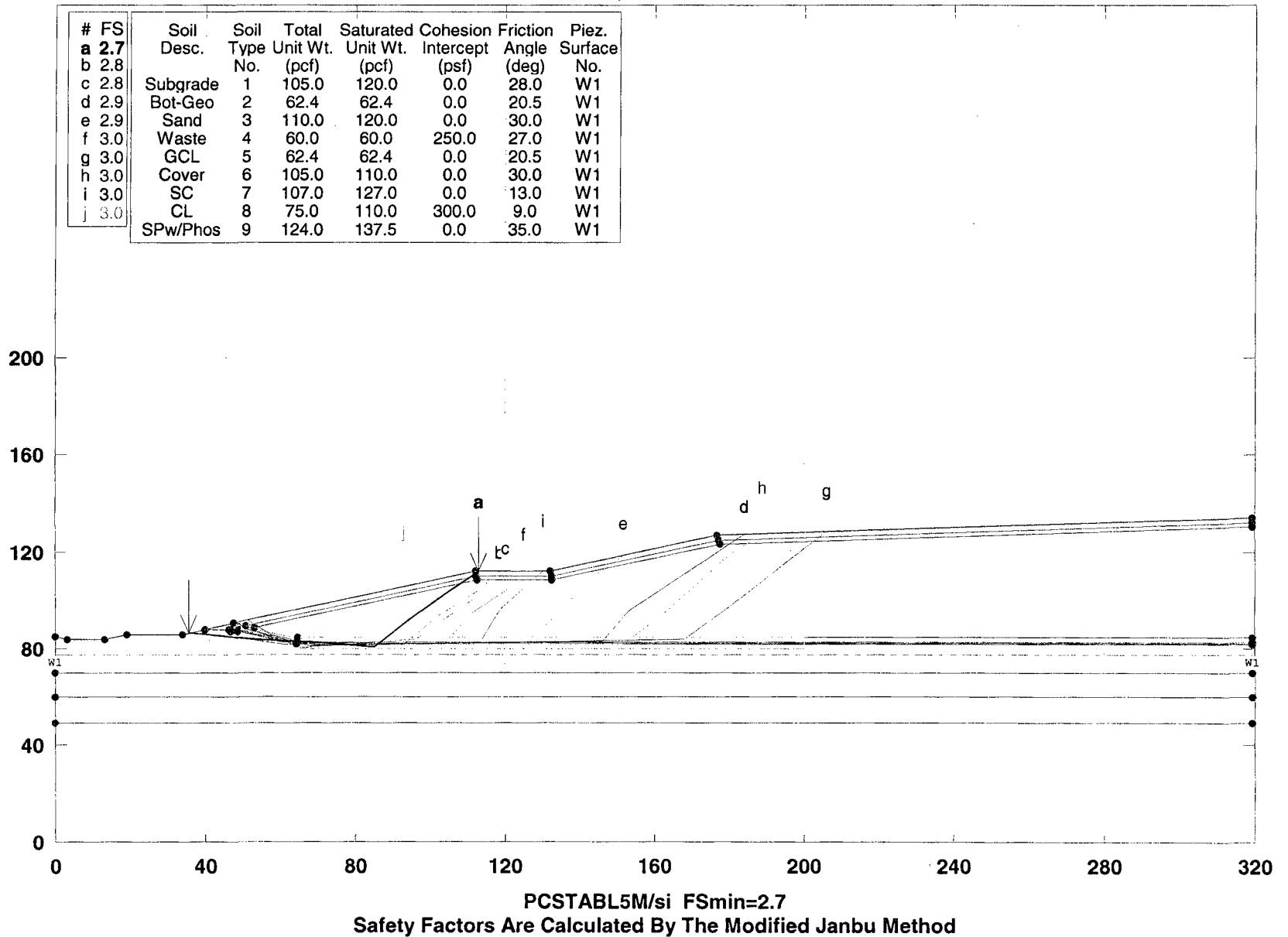
Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.82	84.00
2	13.71	77.86
3	22.08	72.39
4	30.88	67.64
5	40.04	63.62
6	49.50	60.38
7	59.19	57.93
8	69.06	56.29
9	79.02	55.46
10	89.02	55.47
11	98.99	56.30
12	108.85	57.95
13	118.55	60.41
14	128.00	63.66
15	137.16	67.68
16	145.95	72.44
17	154.32	77.91
18	162.21	84.06
19	169.56	90.83
20	176.33	98.19
21	182.47	106.09
22	187.94	114.46
23	192.70	123.26
24	194.71	127.87

Circle Center At X = 83.9 ; Y = 176.2 and Radius, 120.9

*** 2.018 ***

Phase II Section South Hardee County Landfill

C:\HARDEE~1\SOUTHB~1\SOUTHB.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 11:49AM



SCS ENGINEERS

**** PCSTABL5M ****

by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 1/18/2011
Time of Run: 11:49AM
Run By: Shane R. Fischer, P.E.
Input Data Filename: C:southb.
Output Filename: C:southb.OUT
Unit: ENGLISH
Plotted Output Filename: C:southb.PLT
PROBLEM DESCRIPTION Phase II Section I South
Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	3
7	47.58	90.53	112.00	112.00	6
8	112.00	112.00	132.00	112.00	6
9	132.00	112.00	176.95	126.98	6
10	176.95	126.98	319.32	134.10	6
11	47.58	90.53	50.74	89.47	3
12	50.74	89.47	112.32	110.00	6
13	112.32	110.00	132.32	110.00	6
14	132.32	110.00	177.32	125.00	6
15	177.32	125.00	319.32	132.10	6
16	50.74	89.47	53.12	88.68	3
17	53.12	88.68	112.57	108.50	4
18	112.57	108.50	132.57	108.50	4
19	132.57	108.50	177.60	123.51	4
20	177.60	123.51	319.32	130.60	4
21	53.12	88.68	64.76	84.80	3
22	64.76	84.80	319.32	84.80	3
23	40.00	88.00	46.32	88.00	1
24	46.32	88.00	46.84	88.00	1
25	46.84	88.00	48.84	88.00	5
26	48.84	88.00	64.44	82.80	5
27	64.44	82.80	319.32	82.80	5
28	46.84	88.00	46.95	87.53	1
29	46.95	87.53	48.68	87.53	1
30	48.68	87.53	64.43	82.30	1
31	64.43	82.30	319.32	82.30	1
32	46.32	88.00	46.55	87.03	1
33	46.55	87.03	48.60	87.03	1
34	48.60	87.03	64.35	81.80	1
35	64.35	81.80	319.32	81.80	1
36	.00	70.00	319.32	70.00	7
37	.00	60.00	319.32	60.00	8
38	.00	49.00	319.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1



Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	319.32	77.50

BOUNDARY LOAD (S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 15.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	49.63	87.21	63.48	82.62	5.00
2	65.43	82.30	70.43	82.30	5.00
3	71.43	82.30	200.00	82.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.51	86.50
2	38.92	86.04
3	53.76	83.87
4	70.32	82.52
5	85.08	80.79
6	94.70	92.29
7	104.66	103.51
8	112.95	112.00

*** 2.663 ***

Individual data on the 32 slices

Slice No.	Width (ft)	Weight (lbs)	Water	Water	Tie	Tie	Earthquake		Surcharge Load (lbs)
			Force Top (lbs)	Force Bot (lbs)	Force Norm (lbs)	Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	
1	3.4	286.0	.0	.0	.0	.0	.0	.0	.0
2	1.1	209.8	.0	.0	.0	.0	.0	.0	.0
3	6.3	2443.8	.0	.0	.0	.0	.0	.0	.0
4	.2	128.2	.0	.0	.0	.0	.0	.0	.0
5	.3	165.6	.0	.0	.0	.0	.0	.0	.0
6	.1	62.8	.0	.0	.0	.0	.0	.0	.0
7	.6	365.8	.0	.0	.0	.0	.0	.0	.0
8	1.0	634.3	.0	.0	.0	.0	.0	.0	.0
9	.1	51.9	.0	.0	.0	.0	.0	.0	.0
10	.2	104.5	.0	.0	.0	.0	.0	.0	.0
11	1.9	1337.7	.0	.0	.0	.0	.0	.0	.0
12	2.4	1932.6	.0	.0	.0	.0	.0	.0	.0
13	.6	566.3	.0	.0	.0	.0	.0	.0	.0

14	5.8	5337.7	.0	.0	.0	.0	.0	.0	.0
15	2.1	2053.0	.0	.0	.0	.0	.0	.0	.0
16	2.0	2044.0	.0	.0	.0	.0	.0	.0	.0
17	1.1	1164.3	.0	.0	.0	.0	.0	.0	.0
18	2.1	2317.6	.0	.0	.0	.0	.0	.0	.0
19	3.4	3968.5	.0	.0	.0	.0	.0	.0	.0
20	1.9	2322.7	.0	.0	.0	.0	.0	.0	.0
21	4.3	5638.3	.0	.0	.0	.0	.0	.0	.0
22	8.6	13167.2	.0	.0	.0	.0	.0	.0	.0
23	.8	1372.5	.0	.0	.0	.0	.0	.0	.0
24	.4	652.2	.0	.0	.0	.0	.0	.0	.0
25	.4	638.2	.0	.0	.0	.0	.0	.0	.0
26	1.7	2377.5	.0	.0	.0	.0	.0	.0	.0
27	6.3	7305.7	.0	.0	.0	.0	.0	.0	.0
28	10.0	7623.3	.0	.0	.0	.0	.0	.0	.0
29	3.4	1558.2	.0	.0	.0	.0	.0	.0	.0
30	2.3	697.3	.0	.0	.0	.0	.0	.0	.0
31	1.6	265.8	.0	.0	.0	.0	.0	.0	.0
32	.9	48.1	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.84	90.62
2	49.42	90.04
3	61.96	81.80
4	67.26	82.47
5	92.86	81.91
6	102.30	93.57
7	112.84	104.25
8	118.44	112.00

*** 2.809 ***

Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	48.47	90.83
2	53.43	87.24
3	65.63	80.11
4	96.00	83.66
5	106.17	94.68
6	116.11	105.92
7	120.03	112.00

*** 2.829 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	50.96	91.66
2	57.61	85.73
3	69.62	81.62
4	145.91	82.87
5	153.37	95.89
6	163.83	106.63
7	174.35	117.33
8	184.11	127.34

*** 2.880 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	42.60	88.87
2	47.67	84.46
3	62.37	81.49
4	70.09	82.71
5	125.82	82.72
6	134.41	95.01
7	141.94	107.99
8	151.78	118.59

*** 2.911 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	46.91	90.31
2	48.80	89.43
3	63.05	84.76
4	69.47	82.52
5	103.97	81.98
6	111.39	95.02
7	121.94	105.69
8	124.95	112.00

*** 2.952 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	48.18	90.73
2	51.03	87.89
3	68.00	80.87
4	168.19	83.75
5	178.03	95.08
6	187.72	106.53
7	197.34	118.03
8	205.92	128.43

*** 2.963 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	46.10	90.04
2	51.54	87.83
3	67.54	81.98
4	151.81	81.95
5	161.49	93.41
6	170.62	105.31
7	179.25	117.58
8	188.75	127.57

*** 2.964 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	45.36	89.79
2	46.91	88.24
3	60.77	82.50
4	66.55	82.53
5	113.42	82.58
6	119.14	96.45
7	127.58	108.85
8	129.95	112.00

*** 2.964 ***

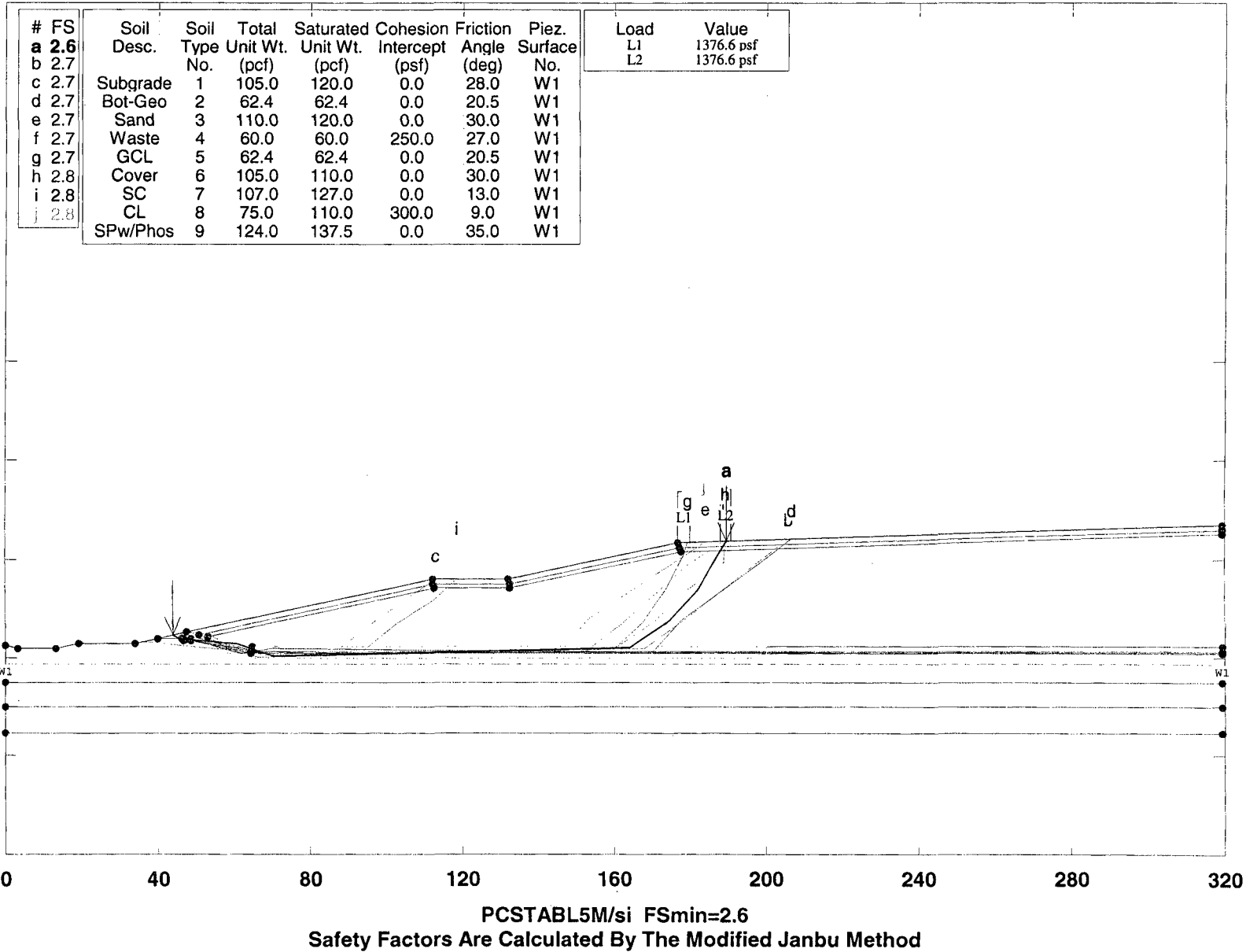
Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	41.36	88.45
2	43.43	87.76
3	57.35	82.16
4	68.06	82.04
5	72.14	84.41
6	82.62	95.15
7	93.06	105.69

*** 2.984 ***

Phase II Section South Hardee County Landfill

C:\HARDEE~1\SOUTHB~1\SOUTHB.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 11:50AM



SCS ENGINEERS

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011
 Time of Run: 11:50AM
 Run By: Shane R. Fischer, P.E.
 Input Data Filename: C:southb.
 Output Filename: C:southb.OUT
 Unit: ENGLISH
 Plotted Output Filename: C:southb.PLT
 PROBLEM DESCRIPTION Phase II Section I South
 Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	3
7	47.58	90.53	112.00	112.00	6
8	112.00	112.00	132.00	112.00	6
9	132.00	112.00	176.95	126.98	6
10	176.95	126.98	319.32	134.10	6
11	47.58	90.53	50.74	89.47	3
12	50.74	89.47	112.32	110.00	6
13	112.32	110.00	132.32	110.00	6
14	132.32	110.00	177.32	125.00	6
15	177.32	125.00	319.32	132.10	6
16	50.74	89.47	53.12	88.68	3
17	53.12	88.68	112.57	108.50	4
18	112.57	108.50	132.57	108.50	4
19	132.57	108.50	177.60	123.51	4
20	177.60	123.51	319.32	130.60	4
21	53.12	88.68	64.76	84.80	3
22	64.76	84.80	319.32	84.80	3
23	40.00	88.00	46.32	88.00	1
24	46.32	88.00	46.84	88.00	1
25	46.84	88.00	48.84	88.00	5
26	48.84	88.00	64.44	82.80	5
27	64.44	82.80	319.32	82.80	5
28	46.84	88.00	46.95	87.53	1
29	46.95	87.53	48.68	87.53	1
30	48.68	87.53	64.43	82.30	1
31	64.43	82.30	319.32	82.30	1
32	46.32	88.00	46.55	87.03	1
33	46.55	87.03	48.60	87.03	1
34	48.60	87.03	64.35	81.80	1
35	64.35	81.80	319.32	81.80	1
36	.00	70.00	319.32	70.00	7
37	.00	60.00	319.32	60.00	8
38	.00	49.00	319.32	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1

5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	319.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 15.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	49.63	87.21	63.48	82.62	5.00
2	65.43	82.30	70.43	82.30	5.00
3	71.43	82.30	200.00	82.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.08	89.36
2	45.59	87.88
3	60.48	85.99
4	70.21	80.56
5	163.96	84.15
6	174.40	94.92
7	182.10	107.79
8	187.39	121.82
9	189.69	127.62

*** 2.641 ***

Individual data on the 42 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force		Earthquake Force		
			Top (lbs)	Bot (lbs)	Norm (lbs)	Tan (lbs)	Hor (lbs)	Ver (lbs)	Surcharge Load (lbs)
1	1.4	139.0	.0	.0	.0	.0	.0	.0	.0
2	.1	26.4	.0	.0	.0	.0	.0	.0	.0
3	.7	171.5	.0	.0	.0	.0	.0	.0	.0
4	.1	13.5	.0	.0	.0	.0	.0	.0	.0
5	.5	125.7	.0	.0	.0	.0	.0	.0	.0
6	.1	18.8	.0	.0	.0	.0	.0	.0	.0
7	.7	192.7	.0	.0	.0	.0	.0	.0	.0
8	.7	237.8	.0	.0	.0	.0	.0	.0	.0
9	.4	119.4	.0	.0	.0	.0	.0	.0	.0
10	.2	56.2	.0	.0	.0	.0	.0	.0	.0
11	.1	19.7	.0	.0	.0	.0	.0	.0	.0
12	1.8	755.3	.0	.0	.0	.0	.0	.0	.0
13	.7	329.2	.0	.0	.0	.0	.0	.0	.0

14	1.7	918.1	.0	.0	.0	.0	.0	.0	.0
15	7.4	4742.2	.0	.0	.0	.0	.0	.0	.0
16	4.3	3627.0	.0	.0	.0	.0	.0	.0	.0
17	1.4	1497.3	.0	.0	.0	.0	.0	.0	.0
18	.9	1008.6	.0	.0	.0	.0	.0	.0	.0
19	.9	1062.0	.0	.0	.0	.0	.0	.0	.0
20	2.2	2917.4	.0	.0	.0	.0	.0	.0	.0
21	32.5	53818.9	.0	.0	.0	.0	.0	.0	.0
22	9.3	18502.4	.0	.0	.0	.0	.0	.0	.0
23	.3	659.6	.0	.0	.0	.0	.0	.0	.0
24	.3	514.0	.0	.0	.0	.0	.0	.0	.0
25	3.2	6519.0	.0	.0	.0	.0	.0	.0	.0
26	13.1	26430.9	.0	.0	.0	.0	.0	.0	.0
27	3.2	6396.5	.0	.0	.0	.0	.0	.0	.0
28	.3	640.3	.0	.0	.0	.0	.0	.0	.0
29	.3	502.4	.0	.0	.0	.0	.0	.0	.0
30	31.4	70973.3	.0	.0	.0	.0	.0	.0	.0
31	.6	1570.4	.0	.0	.0	.0	.0	.0	.0
32	9.8	22009.1	.0	.0	.0	.0	.0	.0	.0
33	2.6	4941.1	.0	.0	.0	.0	.0	.0	.0
34	.4	671.0	.0	.0	.0	.0	.0	.0	509.4
35	.3	497.8	.0	.0	.0	.0	.0	.0	385.4
36	2.3	3827.0	.0	.0	.0	.0	.0	.0	3193.7
37	2.2	3120.8	.0	.0	.0	.0	.0	.0	.0
38	5.3	4818.7	.0	.0	.0	.0	.0	.0	.0
39	.6	256.5	.0	.0	.0	.0	.0	.0	.0
40	.3	126.0	.0	.0	.0	.0	.0	.0	443.1
41	.6	176.4	.0	.0	.0	.0	.0	.0	840.9
42	.8	85.2	.0	.0	.0	.0	.0	.0	1117.7

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	48.18	90.73
2	51.03	87.89
3	68.00	80.87
4	168.19	83.75
5	178.03	95.08
6	187.72	106.53
7	197.34	118.03
8	205.92	128.43

*** 2.661 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	35.51	86.50
2	38.92	86.04
3	53.76	83.87
4	70.32	82.52
5	85.08	80.79
6	94.70	92.29
7	104.66	103.51
8	112.95	112.00

*** 2.663 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	45.86	89.95
2	47.99	87.87
3	61.64	81.64
4	69.96	83.76
5	170.20	82.27
6	177.53	95.35
7	187.42	106.63
8	197.54	117.70
9	206.68	128.47

*** 2.697 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	50.96	91.66
2	57.61	85.73
3	69.62	81.62
4	145.91	82.87
5	153.37	95.89
6	163.83	106.63
7	174.35	117.33
8	184.11	127.34

*** 2.707 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	46.10	90.04
2	51.54	87.83
3	67.54	81.98
4	151.81	81.95
5	161.49	93.41
6	170.62	105.31
7	179.25	117.58
8	188.75	127.57

*** 2.723 ***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.74	89.58
2	47.39	86.94
3	62.07	83.89
4	66.96	81.72
5	158.68	82.42
6	167.53	94.53
7	173.64	108.23
8	178.30	122.49
9	179.07	127.09

*** 2.746 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	49.78	91.26
2	58.92	82.86
3	66.22	80.16
4	160.10	83.95
5	170.59	94.67
6	178.87	107.18
7	188.83	118.39
8	189.16	127.59

*** 2.789 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	47.84	90.62
2	49.42	90.04
3	61.96	81.80
4	67.26	82.47
5	92.86	81.91
6	102.30	93.57
7	112.84	104.25
8	118.44	112.00

*** 2.809 ***

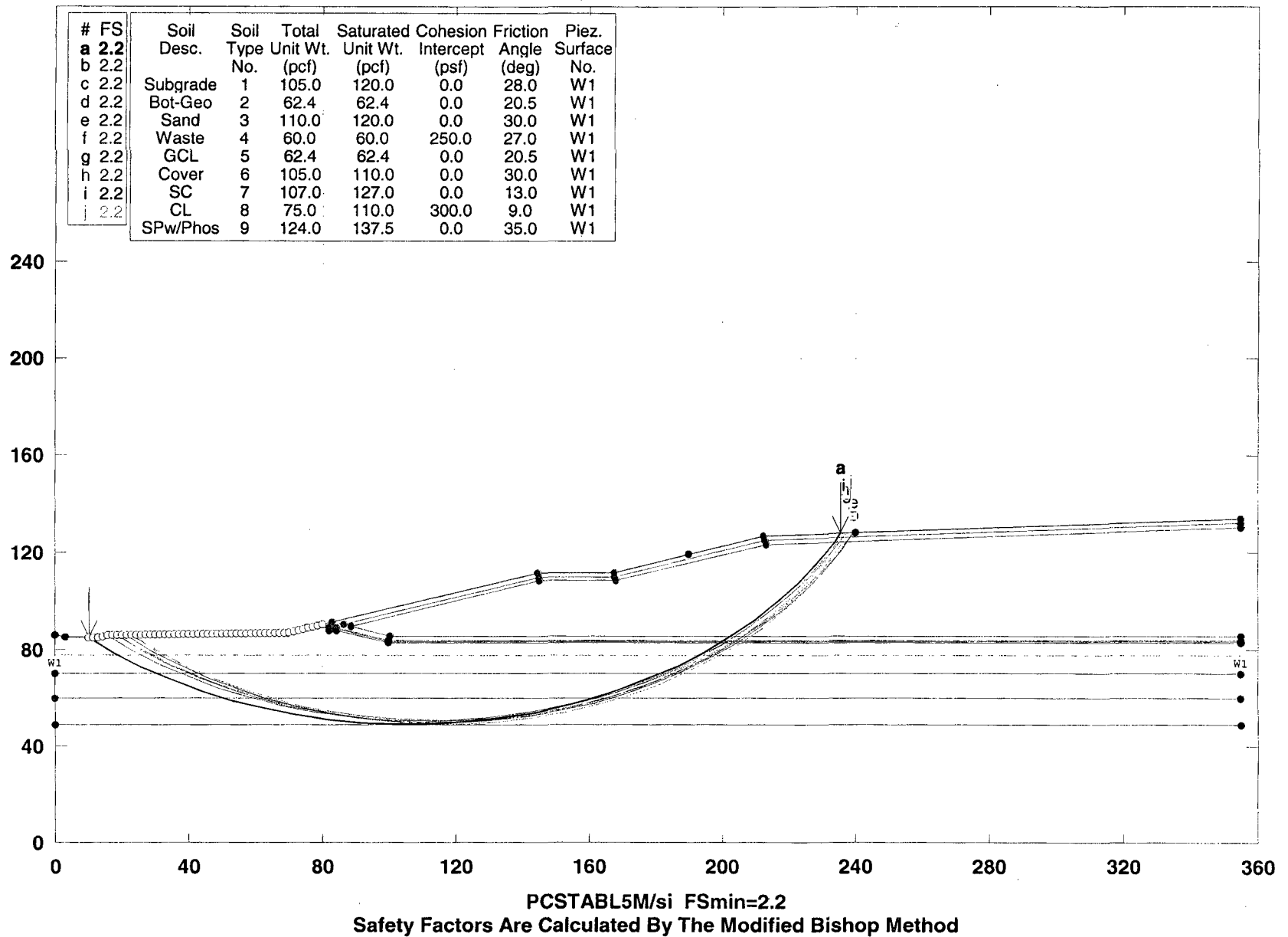
Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	43.93	89.31
2	51.93	85.33
3	66.79	84.17
4	149.42	84.03

5	159.36	95.27
6	166.66	108.37
7	177.26	118.98
8	183.43	127.30
***	2.811	***

Phase II Section I West Hardee County Landfill

C:\HARDEE~1\WESTCI~1\WEST.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 11:04AM



SCS ENGINEERS

**** PCSTABL5M ****

by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

Run Date: 1/18/2011
Time of Run: 11:04AM
Run By: Shane R. Fischer, P.E.
Input Data Filename: C:\west.
Output Filename: C:\west.OUT
Unit: ENGLISH
Plotted Output Filename: C:\west.PLT
PROBLEM DESCRIPTION Phase II Section I West
Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	86.00	3.00	85.00	1
2	3.00	85.00	13.00	85.00	1
3	13.00	85.00	16.00	86.00	1
4	16.00	86.00	69.58	87.00	1
5	69.58	87.00	75.58	89.00	1
6	75.58	89.00	83.16	91.53	3
7	83.16	91.53	144.58	112.00	6
8	144.58	112.00	167.58	112.00	6
9	167.58	112.00	212.53	126.98	6
10	212.53	126.98	354.90	134.10	6
11	83.16	91.53	86.32	90.47	3
12	86.32	90.47	144.90	110.00	6
13	144.90	110.00	167.90	110.00	6
14	167.90	110.00	212.90	125.00	6
15	212.90	125.00	354.90	132.10	6
16	86.32	90.47	88.69	89.68	3
17	88.69	89.68	145.15	108.50	4
18	145.15	108.50	168.15	108.50	4
19	168.15	108.50	213.18	123.51	4
20	213.18	123.51	354.90	130.60	4
21	88.69	89.68	100.34	85.80	3
22	100.34	85.80	354.90	85.80	3
23	75.58	89.00	81.90	89.00	1
24	81.90	89.00	82.42	89.00	1
25	82.42	89.00	84.42	89.00	5
26	84.42	89.00	100.02	83.80	5
27	100.02	83.80	354.90	83.80	5
28	82.42	89.00	82.53	88.53	1
29	82.53	88.53	84.26	88.53	1
30	84.26	88.53	100.01	83.30	1
31	100.01	83.30	354.90	83.30	1
32	81.90	89.00	82.13	88.03	1
33	82.13	88.03	84.17	88.03	1
34	84.17	88.03	99.92	82.80	1
35	99.92	82.80	354.90	82.80	1
36	.00	70.00	354.90	70.00	7
37	.00	60.00	354.90	60.00	8
38	.00	49.00	354.90	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Piez. Constant Surface No.
1	105.0	120.0	.0	28.0	.00	.0 1
2	62.4	62.4	.0	20.5	.00	.0 1
3	110.0	120.0	.0	30.0	.00	.0 1
4	60.0	60.0	250.0	27.0	.00	.0 1

5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	354.90	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	212.53	215.50	1376.6	.0
2	223.53	226.50	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 10.00 ft.

and X = 80.00 ft.

Each Surface Terminates Between X = 190.00 ft.

and X = 240.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 28 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	10.00	85.00
2	17.77	78.70
3	25.94	72.94
4	34.50	67.76
5	43.38	63.17
6	52.56	59.21
7	61.99	55.87
8	71.62	53.20
9	81.42	51.18
10	91.33	49.84
11	101.31	49.18
12	111.31	49.21
13	121.28	49.91
14	131.18	51.30
15	140.97	53.36
16	150.59	56.09
17	160.00	59.47
18	169.16	63.48
19	178.03	68.11
20	186.55	73.33
21	194.70	79.13
22	202.44	85.46
23	209.72	92.32
24	216.52	99.65
25	222.80	107.43
26	228.53	115.63
27	233.70	124.19
28	235.72	128.14

Circle Center At X = 105.9 ; Y = 195.2 and Radius, 146.1

*** 2.198 ***

Individual data on the 66 slices									
Slice No.	Width (ft)	Weight (lbs)	Water Force	Water Force	Tie Force	Tie Force	Earthquake Force		Surcharge
			Top (lbs)	Bot (lbs)	Norm (lbs)	Tan (lbs)	Hor (lbs)	Ver (lbs)	Load (lbs)
1	3.0	383.3	.0	.0	.0	.0	.0	.0	.0
2	3.0	1307.6	.0	.0	.0	.0	.0	.0	.0
3	1.8	1223.8	.0	.0	.0	.0	.0	.0	.0
4	1.7	1422.0	.0	.0	.0	.0	.0	.0	.0
5	6.5	7633.1	.0	1125.5	.0	.0	.0	.0	.0
6	4.9	7965.8	.0	2136.3	.0	.0	.0	.0	.0
7	3.7	7269.6	.0	2324.0	.0	.0	.0	.0	.0
8	8.9	21443.4	.0	7508.4	.0	.0	.0	.0	.0
9	7.3	21453.2	.0	7943.0	.0	.0	.0	.0	.0
10	1.8	5832.8	.0	2234.4	.0	.0	.0	.0	.0
11	9.4	32189.3	.0	12454.8	.0	.0	.0	.0	.0
12	7.6	28312.8	.0	11150.5	.0	.0	.0	.0	.0
13	2.0	8012.6	.0	3179.6	.0	.0	.0	.0	.0
14	4.0	16226.5	.0	6228.1	.0	.0	.0	.0	.0
15	5.8	25624.8	.0	9566.3	.0	.0	.0	.0	.0
16	.5	2201.2	.0	798.4	.0	.0	.0	.0	.0
17	.2	1056.3	.0	382.3	.0	.0	.0	.0	.0
18	.3	1335.8	.0	482.7	.0	.0	.0	.0	.0
19	.1	506.7	.0	183.3	.0	.0	.0	.0	.0
20	.6	2907.7	.0	1051.7	.0	.0	.0	.0	.0
21	1.0	4702.6	.0	1693.1	.0	.0	.0	.0	.0
22	.1	421.4	.0	151.3	.0	.0	.0	.0	.0
23	.2	750.0	.0	269.1	.0	.0	.0	.0	.0
24	1.9	9001.5	.0	3212.7	.0	.0	.0	.0	.0
25	2.4	11480.7	.0	4050.5	.0	.0	.0	.0	.0
26	2.6	13007.5	.0	4565.8	.0	.0	.0	.0	.0
27	8.6	43033.6	.0	15012.8	.0	.0	.0	.0	.0
28	.1	455.6	.0	158.9	.0	.0	.0	.0	.0
29	.0	50.6	.0	17.6	.0	.0	.0	.0	.0
30	.3	1620.8	.0	565.2	.0	.0	.0	.0	.0
31	1.0	4911.4	.0	1710.3	.0	.0	.0	.0	.0
32	10.0	51916.6	.0	17663.0	.0	.0	.0	.0	.0
33	10.0	53377.1	.0	17434.7	.0	.0	.0	.0	.0
34	9.9	53820.0	.0	16780.9	.0	.0	.0	.0	.0
35	9.8	53248.2	.0	15704.7	.0	.0	.0	.0	.0
36	3.6	19514.7	.0	5531.2	.0	.0	.0	.0	.0
37	.3	1721.1	.0	478.8	.0	.0	.0	.0	.0
38	.3	1341.4	.0	372.8	.0	.0	.0	.0	.0
39	5.4	28702.7	.0	7828.4	.0	.0	.0	.0	.0
40	9.4	47102.6	.0	12307.1	.0	.0	.0	.0	.0
41	1.2	5843.8	.0	1476.9	.0	.0	.0	.0	.0
42	6.4	29127.4	.0	6974.3	.0	.0	.0	.0	.0
43	.3	1408.9	.0	319.3	.0	.0	.0	.0	.0
44	.3	1099.3	.0	247.3	.0	.0	.0	.0	.0
45	1.0	4436.8	.0	983.8	.0	.0	.0	.0	.0
46	8.9	36811.2	.0	7305.5	.0	.0	.0	.0	.0
47	3.1	11920.4	.0	1909.7	.0	.0	.0	.0	.0
48	5.4	19701.1	.0	2321.5	.0	.0	.0	.0	.0
49	5.9	19266.9	.0	935.6	.0	.0	.0	.0	.0
50	2.3	6935.0	.0	.0	.0	.0	.0	.0	.0
51	4.5	12649.9	.0	.0	.0	.0	.0	.0	.0
52	.6	1619.0	.0	.0	.0	.0	.0	.0	.0
53	.6	1600.9	.0	.0	.0	.0	.0	.0	.0
54	2.0	5165.8	.0	.0	.0	.0	.0	.0	.0
55	.4	875.9	.0	.0	.0	.0	.0	.0	.0
56	6.9	16041.2	.0	.0	.0	.0	.0	.0	.0
57	2.8	5971.1	.0	.0	.0	.0	.0	.0	.0
58	.4	758.5	.0	.0	.0	.0	.0	.0	.0
59	.3	567.3	.0	.0	.0	.0	.0	.0	.0
60	3.3	6387.9	.0	.0	.0	.0	.0	.0	.0

61	6.3	9956.6	.0	.0	.0	.0	.0	.0	.0
62	5.7	6445.4	.0	.0	.0	.0	.0	.0	.0
63	5.2	3290.7	.0	.0	.0	.0	.0	.0	.0
64	.2	68.7	.0	.0	.0	.0	.0	.0	.0
65	.8	228.5	.0	.0	.0	.0	.0	.0	.0
66	1.1	110.4	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.57	86.05
2	26.27	79.67
3	34.40	73.85
4	42.93	68.61
5	51.79	63.99
6	60.97	60.01
7	70.40	56.68
8	80.04	54.02
9	89.84	52.05
10	99.76	50.77
11	109.74	50.20
12	119.74	50.33
13	129.71	51.16
14	139.59	52.69
15	149.34	54.91
16	158.91	57.82
17	168.25	61.39
18	177.31	65.61
19	186.06	70.45
20	194.44	75.90
21	202.42	81.93
22	209.96	88.51
23	217.01	95.60
24	223.55	103.16
25	229.54	111.17
26	234.95	119.58
27	239.74	128.34

Circle Center At X = 112.9 ; Y = 192.1 and Radius, 142.0

*** 2.202 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	22.86	86.13
2	30.37	79.52
3	38.34	73.49
4	46.74	68.06
5	55.51	63.27
6	64.62	59.13
7	74.01	55.68
8	83.62	52.93
9	93.41	50.90
10	103.33	49.59
11	113.31	49.02
12	123.31	49.19
13	133.27	50.10
14	143.13	51.74
15	152.85	54.10
16	162.37	57.17
17	171.63	60.93
18	180.59	65.37
19	189.20	70.46
20	197.41	76.17
21	205.18	82.46
22	212.46	89.32
23	219.22	96.69
24	225.41	104.54
25	231.01	112.83
26	235.98	121.51

27 239.24 128.32
 Circle Center At X = 116.0 ; Y = 184.5 and Radius, 135.5
 *** 2.202 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.43	86.10
2	29.04	79.61
3	37.09	73.69
4	45.56	68.36
5	54.38	63.66
6	63.53	59.61
7	72.94	56.24
8	82.57	53.55
9	92.37	51.57
10	102.29	50.31
11	112.28	49.76
12	122.28	49.94
13	132.24	50.84
14	142.10	52.47
15	151.83	54.80
16	161.36	57.83
17	170.65	61.54
18	179.64	65.91
19	188.29	70.92
20	196.56	76.55
21	204.40	82.76
22	211.76	89.52
23	218.62	96.80
24	224.94	104.55
25	230.68	112.74
26	235.80	121.33
27	239.32	128.32

Circle Center At X = 114.8 ; Y = 187.8 and Radius, 138.1
 *** 2.202 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.57	86.05
2	26.34	79.75
3	34.53	74.01
4	43.10	68.86
5	52.01	64.32
6	61.22	60.42
7	70.67	57.16
8	80.33	54.58
9	90.15	52.68
10	100.08	51.46
11	110.06	50.95
12	120.06	51.13
13	130.02	52.02
14	139.90	53.59
15	149.64	55.85
16	159.20	58.79
17	168.53	62.39
18	177.58	66.63
19	186.32	71.50
20	194.70	76.96
21	202.67	82.99
22	210.20	89.57
23	217.26	96.66
24	223.80	104.22
25	229.80	112.23
26	235.22	120.63
27	239.46	128.33

Circle Center At X = 112.4 ; Y = 193.9 and Radius, 143.0
 *** 2.206 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	22.86	86.13
2	30.49	79.66
3	38.56	73.77
4	47.05	68.48
5	55.91	63.83
6	65.07	59.84
7	74.51	56.53
8	84.16	53.91
9	93.98	52.01
10	103.91	50.83
11	113.90	50.39
12	123.90	50.67
13	133.85	51.68
14	143.69	53.41
15	153.39	55.86
16	162.88	59.02
17	172.11	62.85
18	181.04	67.36
19	189.62	72.50
20	197.80	78.25
21	205.53	84.59
22	212.78	91.48
23	219.51	98.88
24	225.68	106.75
25	231.26	115.04
26	236.22	123.73
27	238.39	128.27

Circle Center At X = 115.1 ; Y = 187.1 and Radius, 136.8

*** 2.207 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	15.71	85.90
2	23.46	79.58
3	31.64	73.82
4	40.19	68.64
5	49.08	64.07
6	58.28	60.13
7	67.72	56.85
8	77.37	54.23
9	87.18	52.29
10	97.10	51.04
11	107.09	50.49
12	117.09	50.64
13	127.05	51.48
14	136.93	53.02
15	146.68	55.24
16	156.25	58.14
17	165.60	61.70
18	174.67	65.91
19	183.43	70.73
20	191.83	76.16
21	199.83	82.16
22	207.39	88.71
23	214.47	95.77
24	221.05	103.30
25	227.08	111.27
26	232.54	119.65
27	237.31	128.22

Circle Center At X = 110.0 ; Y = 193.6 and Radius, 143.1

*** 2.207 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
--------------	----------------	----------------

1	22.86	86.13
2	30.41	79.57
3	38.42	73.59
4	46.86	68.22
5	55.67	63.49
6	64.81	59.43
7	74.22	56.06
8	83.86	53.40
9	93.67	51.46
10	103.60	50.26
11	113.59	49.80
12	123.58	50.08
13	133.53	51.10
14	143.38	52.86
15	153.06	55.35
16	162.54	58.55
17	171.75	62.44
18	180.64	67.01
19	189.17	72.23
20	197.29	78.06
21	204.96	84.49
22	212.12	91.46
23	218.75	98.95
24	224.81	106.91
25	230.25	115.30
26	235.06	124.07
27	236.94	128.20

Circle Center At X = 114.8 ; Y = 184.3 and Radius, 134.5
 *** 2.208 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.57	86.05
2	26.23	79.62
3	34.33	73.76
4	42.84	68.50
5	51.70	63.86
6	60.87	59.87
7	70.30	56.55
8	79.95	53.92
9	89.76	51.99
10	99.69	50.78
11	109.68	50.28
12	119.67	50.49
13	129.63	51.43
14	139.49	53.08
15	149.21	55.44
16	158.73	58.49
17	168.01	62.21
18	177.00	66.60
19	185.65	71.62
20	193.91	77.25
21	201.75	83.46
22	209.13	90.21
23	215.99	97.48
24	222.32	105.23
25	228.07	113.41
26	233.22	121.98
27	236.36	128.17

Circle Center At X = 111.6 ; Y = 189.2 and Radius, 138.9
 *** 2.208 ***

Failure Surface Specified By 27 Coordinate Points

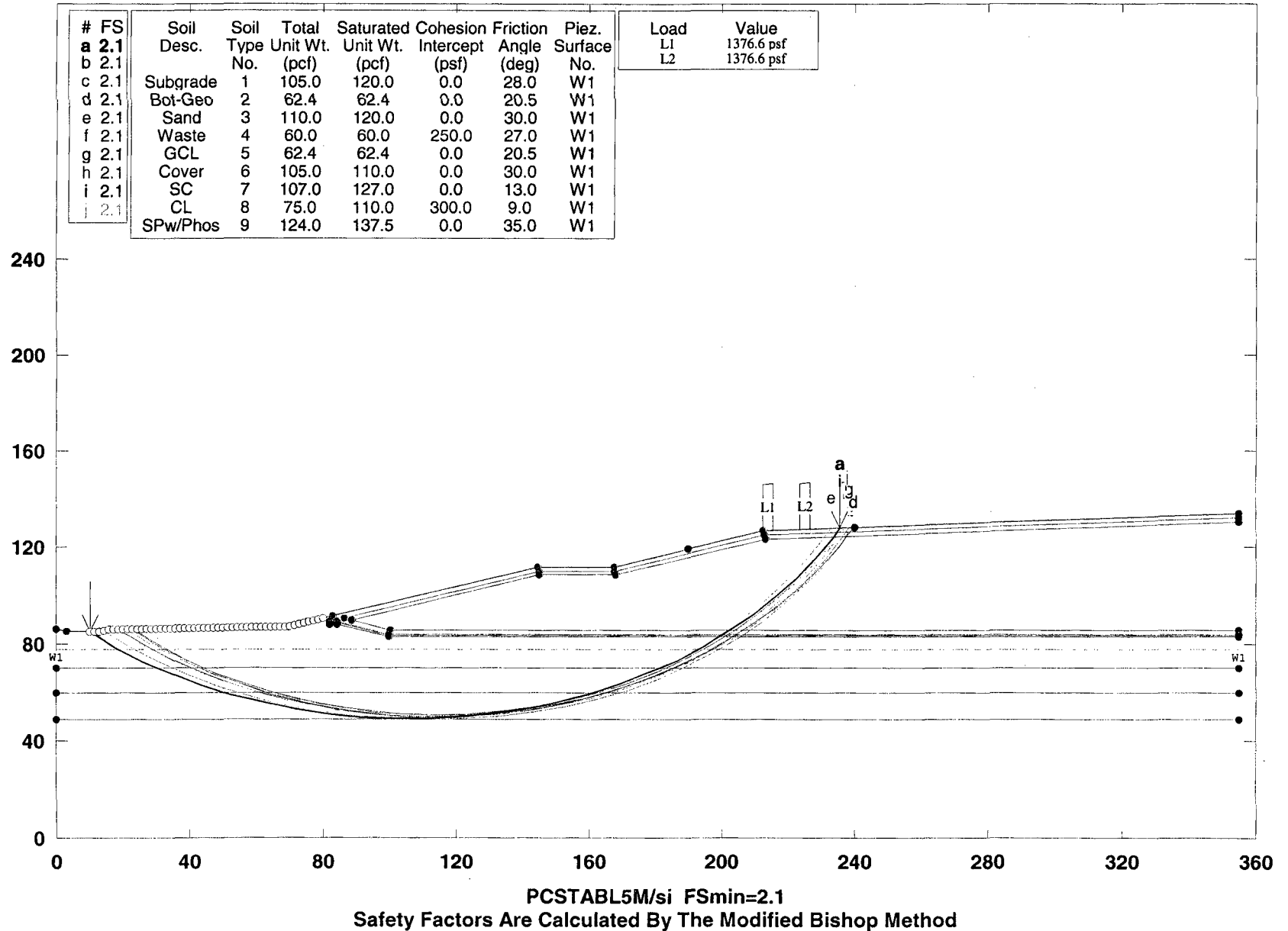
Point No.	X-Surf (ft)	Y-Surf (ft)
1	25.71	86.18
2	33.23	79.59
3	41.22	73.57

4	49.64	68.18
5	58.44	63.43
6	67.57	59.35
7	76.98	55.97
8	86.62	53.30
9	96.43	51.37
10	106.36	50.17
11	116.35	49.72
12	126.35	50.03
13	136.29	51.08
14	146.13	52.87
15	155.81	55.39
16	165.26	58.64
17	174.45	62.58
18	183.32	67.20
19	191.82	72.47
20	199.90	78.37
21	207.51	84.85
22	214.62	91.89
23	221.18	99.44
24	227.15	107.46
25	232.51	115.90
26	237.21	124.72
27	238.79	128.29

Circle Center At X = 117.3 ; Y = 183.0 and Radius, 133.3
*** 2.209 ***

Phase II Section I West Hardee County Landfill

C:\HARDEE~1\WESTCI~1\WEST.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 11:05AM



**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011

Time of Run: 11:05AM

Run By: Shane R. Fischer, P.E.

Input Data Filename: C:\west.

Output Filename: C:\west.OUT

Unit: ENGLISH

Plotted Output Filename: C:\west.PLT

PROBLEM DESCRIPTION Phase II Section I West

Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	86.00	3.00	85.00	1
2	3.00	85.00	13.00	85.00	1
3	13.00	85.00	16.00	86.00	1
4	16.00	86.00	69.58	87.00	1
5	69.58	87.00	75.58	89.00	1
6	75.58	89.00	83.16	91.53	3
7	83.16	91.53	144.58	112.00	6
8	144.58	112.00	167.58	112.00	6
9	167.58	112.00	212.53	126.98	6
10	212.53	126.98	354.90	134.10	6
11	83.16	91.53	86.32	90.47	3
12	86.32	90.47	144.90	110.00	6
13	144.90	110.00	167.90	110.00	6
14	167.90	110.00	212.90	125.00	6
15	212.90	125.00	354.90	132.10	6
16	86.32	90.47	88.69	89.68	3
17	88.69	89.68	145.15	108.50	4
18	145.15	108.50	168.15	108.50	4
19	168.15	108.50	213.18	123.51	4
20	213.18	123.51	354.90	130.60	4
21	88.69	89.68	100.34	85.80	3
22	100.34	85.80	354.90	85.80	3
23	75.58	89.00	81.90	89.00	1
24	81.90	89.00	82.42	89.00	1
25	82.42	89.00	84.42	89.00	5
26	84.42	89.00	100.02	83.80	5
27	100.02	83.80	354.90	83.80	5
28	82.42	89.00	82.53	88.53	1
29	82.53	88.53	84.26	88.53	1
30	84.26	88.53	100.01	83.30	1
31	100.01	83.30	354.90	83.30	1
32	81.90	89.00	82.13	88.03	1
33	82.13	88.03	84.17	88.03	1
34	84.17	88.03	99.92	82.80	1
35	99.92	82.80	354.90	82.80	1
36	.00	70.00	354.90	70.00	7
37	.00	60.00	354.90	60.00	8
38	.00	49.00	354.90	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1

5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	354.90	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	212.53	215.50	1376.6	.0
2	223.53	226.50	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 10.00 ft. and X = 80.00 ft.

Each Surface Terminates Between X = 190.00 ft. and X = 240.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 28 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	10.00	85.00
2	17.77	78.70
3	25.94	72.94
4	34.50	67.76
5	43.38	63.17
6	52.56	59.21
7	61.99	55.87
8	71.62	53.20
9	81.42	51.18
10	91.33	49.84
11	101.31	49.18
12	111.31	49.21
13	121.28	49.91
14	131.18	51.30
15	140.97	53.36
16	150.59	56.09
17	160.00	59.47
18	169.16	63.48
19	178.03	68.11
20	186.55	73.33
21	194.70	79.13
22	202.44	85.46
23	209.72	92.32
24	216.52	99.65
25	222.80	107.43
26	228.53	115.63
27	233.70	124.19
28	235.72	128.14

Circle Center At X = 105.9 ; Y = 195.2 and Radius, 146.1

*** 2.106 ***									
Individual data on the				69 slices		Earthquake			
Slice No.	Width (ft)	Weight (lbs)	Water Force	Water Force	Tie Force	Tie Force	Force		Surcharge
			Top (lbs)	Bot (lbs)	Norm (lbs)	Tan (lbs)	Hor (lbs)	Ver (lbs)	Load (lbs)
1	3.0	383.3	.0	.0	.0	.0	.0	.0	.0
2	3.0	1307.6	.0	.0	.0	.0	.0	.0	.0
3	1.8	1223.8	.0	.0	.0	.0	.0	.0	.0
4	1.7	1422.0	.0	.0	.0	.0	.0	.0	.0
5	6.5	7633.1	.0	1125.5	.0	.0	.0	.0	.0
6	4.9	7965.8	.0	2136.3	.0	.0	.0	.0	.0
7	3.7	7269.6	.0	2324.0	.0	.0	.0	.0	.0
8	8.9	21443.4	.0	7508.4	.0	.0	.0	.0	.0
9	7.3	21453.2	.0	7943.0	.0	.0	.0	.0	.0
10	1.8	5832.8	.0	2234.4	.0	.0	.0	.0	.0
11	9.4	32189.3	.0	12454.8	.0	.0	.0	.0	.0
12	7.6	28312.8	.0	11150.5	.0	.0	.0	.0	.0
13	2.0	8012.6	.0	3179.6	.0	.0	.0	.0	.0
14	4.0	16226.5	.0	6228.1	.0	.0	.0	.0	.0
15	5.8	25624.8	.0	9566.3	.0	.0	.0	.0	.0
16	.5	2201.2	.0	798.4	.0	.0	.0	.0	.0
17	.2	1056.3	.0	382.3	.0	.0	.0	.0	.0
18	.3	1335.8	.0	482.7	.0	.0	.0	.0	.0
19	.1	506.7	.0	183.3	.0	.0	.0	.0	.0
20	.6	2907.7	.0	1051.7	.0	.0	.0	.0	.0
21	1.0	4702.6	.0	1693.1	.0	.0	.0	.0	.0
22	.1	421.4	.0	151.3	.0	.0	.0	.0	.0
23	.2	750.0	.0	269.1	.0	.0	.0	.0	.0
24	1.9	9001.5	.0	3212.7	.0	.0	.0	.0	.0
25	2.4	11480.7	.0	4050.5	.0	.0	.0	.0	.0
26	2.6	13007.5	.0	4565.8	.0	.0	.0	.0	.0
27	8.6	43033.6	.0	15012.8	.0	.0	.0	.0	.0
28	.1	455.6	.0	158.9	.0	.0	.0	.0	.0
29	.0	50.6	.0	17.6	.0	.0	.0	.0	.0
30	.3	1620.8	.0	565.2	.0	.0	.0	.0	.0
31	1.0	4911.4	.0	1710.3	.0	.0	.0	.0	.0
32	10.0	51916.6	.0	17663.0	.0	.0	.0	.0	.0
33	10.0	53377.1	.0	17434.7	.0	.0	.0	.0	.0
34	9.9	53820.0	.0	16780.9	.0	.0	.0	.0	.0
35	9.8	53248.2	.0	15704.7	.0	.0	.0	.0	.0
36	3.6	19514.7	.0	5531.2	.0	.0	.0	.0	.0
37	.3	1721.1	.0	478.8	.0	.0	.0	.0	.0
38	.3	1341.4	.0	372.8	.0	.0	.0	.0	.0
39	5.4	28702.7	.0	7828.4	.0	.0	.0	.0	.0
40	9.4	47102.6	.0	12307.1	.0	.0	.0	.0	.0
41	1.2	5843.8	.0	1476.9	.0	.0	.0	.0	.0
42	6.4	29127.4	.0	6974.3	.0	.0	.0	.0	.0
43	.3	1408.9	.0	319.3	.0	.0	.0	.0	.0
44	.3	1099.3	.0	247.3	.0	.0	.0	.0	.0
45	1.0	4436.8	.0	983.8	.0	.0	.0	.0	.0
46	8.9	36811.2	.0	7305.5	.0	.0	.0	.0	.0
47	3.1	11920.4	.0	1909.7	.0	.0	.0	.0	.0
48	5.4	19701.1	.0	2321.5	.0	.0	.0	.0	.0
49	5.9	19266.9	.0	935.6	.0	.0	.0	.0	.0
50	2.3	6935.0	.0	.0	.0	.0	.0	.0	.0
51	4.5	12649.9	.0	.0	.0	.0	.0	.0	.0
52	.6	1619.0	.0	.0	.0	.0	.0	.0	.0
53	.6	1600.9	.0	.0	.0	.0	.0	.0	.0
54	2.0	5165.8	.0	.0	.0	.0	.0	.0	.0
55	.4	875.9	.0	.0	.0	.0	.0	.0	.0
56	6.9	16041.2	.0	.0	.0	.0	.0	.0	.0
57	2.8	5971.1	.0	.0	.0	.0	.0	.0	.0
58	.4	758.5	.0	.0	.0	.0	.0	.0	509.3
59	.3	567.3	.0	.0	.0	.0	.0	.0	385.5
60	2.3	4509.9	.0	.0	.0	.0	.0	.0	3193.7
61	1.0	1878.0	.0	.0	.0	.0	.0	.0	.0

62	6.3	9956.6	.0	.0	.0	.0	.0	.0	.0
63	.7	970.6	.0	.0	.0	.0	.0	.0	.0
64	3.0	3498.9	.0	.0	.0	.0	.0	.0	4088.5
65	2.0	1975.9	.0	.0	.0	.0	.0	.0	.0
66	5.2	3290.7	.0	.0	.0	.0	.0	.0	.0
67	.2	68.7	.0	.0	.0	.0	.0	.0	.0
68	.8	228.5	.0	.0	.0	.0	.0	.0	.0
69	1.1	110.4	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	22.86	86.13
2	30.37	79.52
3	38.34	73.49
4	46.74	68.06
5	55.51	63.27
6	64.62	59.13
7	74.01	55.68
8	83.62	52.93
9	93.41	50.90
10	103.33	49.59
11	113.31	49.02
12	123.31	49.19
13	133.27	50.10
14	143.13	51.74
15	152.85	54.10
16	162.37	57.17
17	171.63	60.93
18	180.59	65.37
19	189.20	70.46
20	197.41	76.17
21	205.18	82.46
22	212.46	89.32
23	219.22	96.69
24	225.41	104.54
25	231.01	112.83
26	235.98	121.51
27	239.24	128.32

Circle Center At X = 116.0 ; Y = 184.5 and Radius, 135.5

*** 2.109 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.43	86.10
2	29.04	79.61
3	37.09	73.69
4	45.56	68.36
5	54.38	63.66
6	63.53	59.61
7	72.94	56.24
8	82.57	53.55
9	92.37	51.57
10	102.29	50.31
11	112.28	49.76
12	122.28	49.94
13	132.24	50.84
14	142.10	52.47
15	151.83	54.80
16	161.36	57.83
17	170.65	61.54
18	179.64	65.91
19	188.29	70.92
20	196.56	76.55
21	204.40	82.76
22	211.76	89.52
23	218.62	96.80
24	224.94	104.55

25 230.68 112.74
 26 235.80 121.33
 27 239.32 128.32
 Circle Center At X = 114.8 ; Y = 187.8 and Radius, 138.1
 *** 2.110 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.57	86.05
2	26.27	79.67
3	34.40	73.85
4	42.93	68.61
5	51.79	63.99
6	60.97	60.01
7	70.40	56.68
8	80.04	54.02
9	89.84	52.05
10	99.76	50.77
11	109.74	50.20
12	119.74	50.33
13	129.71	51.16
14	139.59	52.69
15	149.34	54.91
16	158.91	57.82
17	168.25	61.39
18	177.31	65.61
19	186.06	70.45
20	194.44	75.90
21	202.42	81.93
22	209.96	88.51
23	217.01	95.60
24	223.55	103.16
25	229.54	111.17
26	234.95	119.58
27	239.74	128.34

Circle Center At X = 112.9 ; Y = 192.1 and Radius, 142.0
 *** 2.111 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	14.29	85.43
2	21.90	78.95
3	29.96	73.03
4	38.43	67.71
5	47.26	63.02
6	56.41	58.98
7	65.82	55.61
8	75.46	52.92
9	85.26	50.94
10	95.18	49.67
11	105.16	49.12
12	115.16	49.30
13	125.12	50.19
14	134.99	51.80
15	144.72	54.12
16	154.25	57.14
17	163.55	60.83
18	172.55	65.19
19	181.21	70.18
20	189.49	75.79
21	197.34	81.98
22	204.73	88.72
23	211.61	95.98
24	217.95	103.71
25	223.71	111.88
26	228.87	120.45
27	232.70	127.99

Circle Center At X = 107.8 ; Y = 187.5 and Radius, 138.4

*** 2.111 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	22.86	86.13
2	30.41	79.57
3	38.42	73.59
4	46.86	68.22
5	55.67	63.49
6	64.81	59.43
7	74.22	56.06
8	83.86	53.40
9	93.67	51.46
10	103.60	50.26
11	113.59	49.80
12	123.58	50.08
13	133.53	51.10
14	143.38	52.86
15	153.06	55.35
16	162.54	58.55
17	171.75	62.44
18	180.64	67.01
19	189.17	72.23
20	197.29	78.06
21	204.96	84.49
22	212.12	91.46
23	218.75	98.95
24	224.81	106.91
25	230.25	115.30
26	235.06	124.07
27	236.94	128.20

Circle Center At X = 114.8 ; Y = 184.3 and Radius, 134.5

*** 2.111 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	22.86	86.13
2	30.49	79.66
3	38.56	73.77
4	47.05	68.48
5	55.91	63.83
6	65.07	59.84
7	74.51	56.53
8	84.16	53.91
9	93.98	52.01
10	103.91	50.83
11	113.90	50.39
12	123.90	50.67
13	133.85	51.68
14	143.69	53.41
15	153.39	55.86
16	162.88	59.02
17	172.11	62.85
18	181.04	67.36
19	189.62	72.50
20	197.80	78.25
21	205.53	84.59
22	212.78	91.48
23	219.51	98.88
24	225.68	106.75
25	231.26	115.04
26	236.22	123.73
27	238.39	128.27

Circle Center At X = 115.1 ; Y = 187.1 and Radius, 136.8

*** 2.113 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	18.57	86.05
2	26.23	79.62
3	34.33	73.76
4	42.84	68.50
5	51.70	63.86
6	60.87	59.87
7	70.30	56.55
8	79.95	53.92
9	89.76	51.99
10	99.69	50.78
11	109.68	50.28
12	119.67	50.49
13	129.63	51.43
14	139.49	53.08
15	149.21	55.44
16	158.73	58.49
17	168.01	62.21
18	177.00	66.60
19	185.65	71.62
20	193.91	77.25
21	201.75	83.46
22	209.13	90.21
23	215.99	97.48
24	222.32	105.23
25	228.07	113.41
26	233.22	121.98
27	236.36	128.17

Circle Center At X = 111.6 ; Y = 189.2 and Radius, 138.9

*** 2.113 ***

Failure Surface Specified By 27 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	22.86	86.13
2	30.48	79.65
3	38.55	73.76
4	47.05	68.48
5	55.91	63.85
6	65.09	59.89
7	74.55	56.62
8	84.21	54.07
9	94.05	52.24
10	103.99	51.14
11	113.98	50.79
12	123.97	51.18
13	133.91	52.32
14	143.73	54.19
15	153.39	56.78
16	162.83	60.08
17	171.99	64.08
18	180.84	68.75
19	189.31	74.06
20	197.37	79.98
21	204.96	86.49
22	212.05	93.54
23	218.59	101.11
24	224.56	109.13
25	229.91	117.58
26	234.62	126.40
27	235.38	128.12

Circle Center At X = 113.7 ; Y = 185.3 and Radius, 134.5

*** 2.113 ***

Failure Surface Specified By 27 Coordinate Points

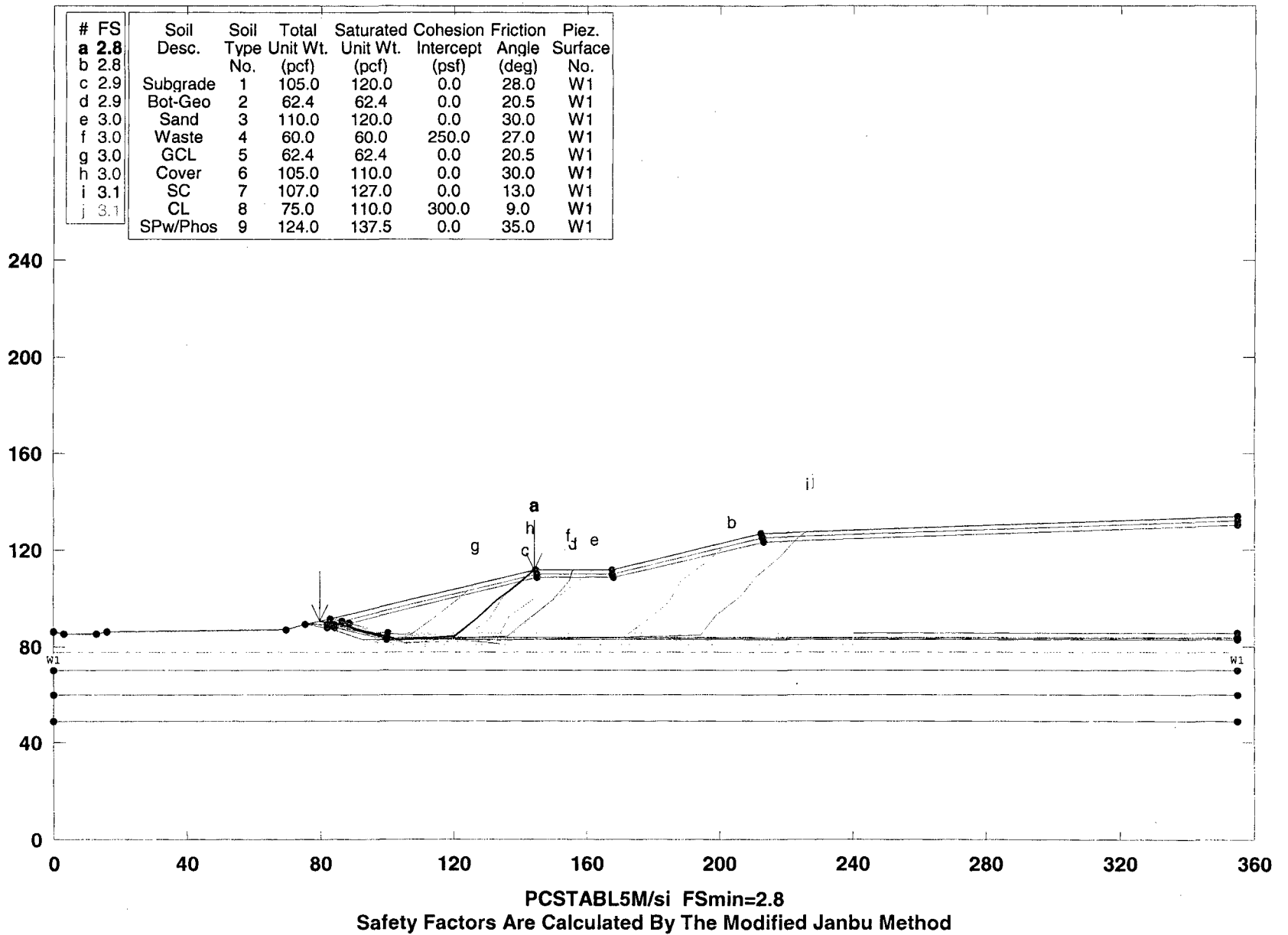
Point No.	X-Surf (ft)	Y-Surf (ft)
1	21.43	86.10

2	29.12	79.71
3	37.25	73.89
4	45.79	68.68
5	54.67	64.09
6	63.87	60.16
7	73.32	56.90
8	82.98	54.33
9	92.81	52.46
10	102.74	51.31
11	112.73	50.88
12	122.73	51.17
13	132.68	52.18
14	142.53	53.91
15	152.23	56.34
16	161.72	59.47
17	170.97	63.27
18	179.92	67.74
19	188.53	72.83
20	196.74	78.54
21	204.52	84.82
22	211.83	91.64
23	218.62	98.98
24	224.87	106.79
25	230.54	115.03
26	235.60	123.65
27	237.86	128.25

Circle Center At X = 113.7 ; Y = 189.3 and Radius, 138.5
*** 2.113 ***

Phase II Section I West Hardee County Landfill

C:\HARDEE~1\WESTBL~1\WESTB.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 12:13PM



**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011

Time of Run: 12:13PM

Run By: Shane R. Fischer, P.E.

Input Data Filename: C:WESTB.

Output Filename: C:WESTB.OUT

Unit: ENGLISH

Plotted Output Filename: C:WESTB.PLT

PROBLEM DESCRIPTION Phase II Section I West

Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	86.00	3.00	85.00	1
2	3.00	85.00	13.00	85.00	1
3	13.00	85.00	16.00	86.00	1
4	16.00	86.00	69.58	87.00	1
5	69.58	87.00	75.58	89.00	1
6	75.58	89.00	83.16	91.53	3
7	83.16	91.53	144.58	112.00	6
8	144.58	112.00	167.58	112.00	6
9	167.58	112.00	212.53	126.98	6
10	212.53	126.98	354.90	134.10	6
11	83.16	91.53	86.32	90.47	3
12	86.32	90.47	144.90	110.00	6
13	144.90	110.00	167.90	110.00	6
14	167.90	110.00	212.90	125.00	6
15	212.90	125.00	354.90	132.10	6
16	86.32	90.47	88.69	89.68	3
17	88.69	89.68	145.15	108.50	4
18	145.15	108.50	168.15	108.50	4
19	168.15	108.50	213.18	123.51	4
20	213.18	123.51	354.90	130.60	4
21	88.69	89.68	100.34	85.80	3
22	100.34	85.80	354.90	85.80	3
23	75.58	89.00	81.90	89.00	1
24	81.90	89.00	82.42	89.00	1
25	82.42	89.00	84.42	89.00	5
26	84.42	89.00	100.02	83.80	5
27	100.02	83.80	354.90	83.80	5
28	82.42	89.00	82.53	88.53	1
29	82.53	88.53	84.26	88.53	1
30	84.26	88.53	100.01	83.30	1
31	100.01	83.30	354.90	83.30	1
32	81.90	89.00	82.13	88.03	1
33	82.13	88.03	84.17	88.03	1
34	84.17	88.03	99.92	82.80	1
35	99.92	82.80	354.90	82.80	1
36	.00	70.00	354.90	70.00	7
37	.00	60.00	354.90	60.00	8
38	.00	49.00	354.90	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Piez. Pressure Constant	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1

5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	354.90	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	212.53	215.50	1376.6	.0
2	223.53	226.50	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	85.20	88.21	99.06	83.62	5.00
2	101.00	83.30	106.00	83.30	5.00
3	107.00	83.30	240.00	83.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	79.84	90.42
2	85.87	89.03
3	103.44	82.92
4	120.01	84.30
5	126.99	91.46
6	132.89	99.54
7	139.94	106.62
8	144.16	111.86

*** 2.783 ***

Individual data on the 18 slices

Slice No.	Width (ft)	Weight (lbs)	Water Force		Tie Force		Earthquake Force		Surcharge Load (lbs)
			Top (lbs)	Bot (lbs)	Norm (lbs)	Tan (lbs)	Hor (lbs)	Ver (lbs)	
1	3.3	342.3	.0	.0	.0	.0	.0	.0	.0
2	2.7	772.7	.0	.0	.0	.0	.0	.0	.0
3	.5	173.2	.0	.0	.0	.0	.0	.0	.0
4	2.4	1142.9	.0	.0	.0	.0	.0	.0	.0
5	11.7	9426.3	.0	.0	.0	.0	.0	.0	.0
6	.6	622.5	.0	.0	.0	.0	.0	.0	.0
7	1.4	1604.7	.0	.0	.0	.0	.0	.0	.0
8	1.1	1273.2	.0	.0	.0	.0	.0	.0	.0
9	4.5	5587.2	.0	.0	.0	.0	.0	.0	.0
10	6.0	7847.6	.0	.0	.0	.0	.0	.0	.0
11	6.0	8284.0	.0	.0	.0	.0	.0	.0	.0
12	1.5	1968.1	.0	.0	.0	.0	.0	.0	.0
13	5.5	6407.9	.0	.0	.0	.0	.0	.0	.0

14	5.9	5088.6	.0	.0	.0	.0	.0	.0	.0
15	7.1	3796.8	.0	.0	.0	.0	.0	.0	.0
16	.2	61.4	.0	.0	.0	.0	.0	.0	.0
17	1.7	530.4	.0	.0	.0	.0	.0	.0	.0
18	2.3	256.6	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	85.09	92.17
2	89.42	88.22
3	97.49	82.31
4	103.88	83.36
5	170.76	83.59
6	177.82	90.68
7	184.44	98.18
8	188.66	107.24
9	195.61	114.43
10	201.89	122.21
11	203.72	124.04
***	2.846	***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	82.21	91.21
2	86.08	88.18
3	95.86	86.11
4	101.76	85.13
5	121.38	84.73
6	127.65	92.52
7	134.31	99.98
8	140.62	107.73
9	141.72	111.05
***	2.875	***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	80.20	90.54
2	85.46	89.71
3	101.22	82.36
4	136.35	84.12
5	142.75	91.79
6	149.68	99.00
7	154.84	107.57
8	155.80	112.00
***	2.906	***

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	77.08	89.50
2	85.85	87.20
3	105.46	84.55
4	133.88	81.19
5	140.46	88.72
6	146.85	96.41
7	153.85	103.55
8	160.86	110.69
9	162.17	112.00
***	2.964	***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	83.91	91.78
2	85.23	90.53
3	101.82	83.87
4	133.16	83.11
5	136.78	92.43
6	143.86	99.50

7	150.09	107.32
8	154.46	112.00
***	2.981	***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	76.47	89.30
2	83.65	86.89
3	92.92	83.16
4	103.63	83.04
5	107.74	85.41
6	114.72	92.57
7	121.76	99.67
8	126.23	105.89
***	3.003	***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	84.65	92.03
2	91.80	86.54
3	105.45	81.25
4	123.97	84.12
5	130.87	91.36
6	134.76	100.57
7	141.58	107.89
8	142.99	111.47
***	3.008	***

Failure Surface Specified By 11 Coordinate Points

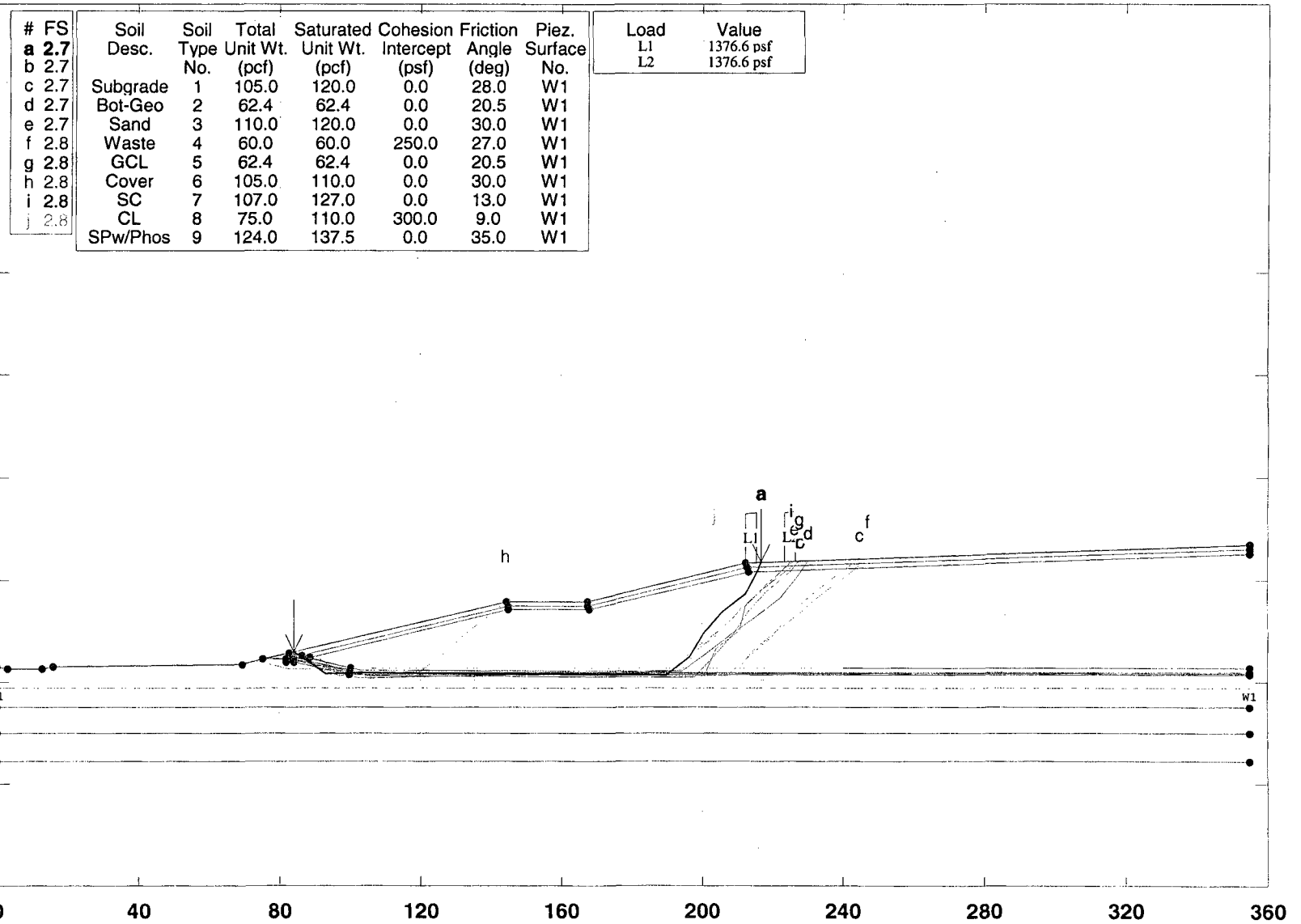
Point No.	X-Surf (ft)	Y-Surf (ft)
1	84.23	91.89
2	89.02	87.11
3	98.86	85.30
4	105.04	81.69
5	194.27	84.61
6	199.40	93.20
7	206.11	100.61
8	211.28	109.17
9	217.68	116.85
10	223.54	124.96
11	226.24	127.67
***	3.055	***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	87.30	92.91
2	90.71	90.24
3	97.82	83.21
4	102.38	81.42
5	191.61	84.49
6	197.35	92.68
7	204.40	99.77
8	210.61	107.60
9	216.43	115.74
10	223.34	122.96
11	228.12	127.76
***	3.056	***

Phase II Section I West Hardee County Landfill

C:\HARDEE~1\WESTBL~1\WESTB.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 12:13PM



PCSTABL5M/si FSmin=2.7

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011

Time of Run: 12:13PM

Run By: Shane R. Fischer, P.E.

Input Data Filename: C:WESTB.

Output Filename: C:WESTB.OUT

Unit: ENGLISH

Plotted Output Filename: C:WESTB.PLT

PROBLEM DESCRIPTION Phase II Section I West

Hardee County Landfill

BOUNDARY COORDINATES

10 Top Boundaries

38 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	86.00	3.00	85.00	1
2	3.00	85.00	13.00	85.00	1
3	13.00	85.00	16.00	86.00	1
4	16.00	86.00	69.58	87.00	1
5	69.58	87.00	75.58	89.00	1
6	75.58	89.00	83.16	91.53	3
7	83.16	91.53	144.58	112.00	6
8	144.58	112.00	167.58	112.00	6
9	167.58	112.00	212.53	126.98	6
10	212.53	126.98	354.90	134.10	6
11	83.16	91.53	86.32	90.47	3
12	86.32	90.47	144.90	110.00	6
13	144.90	110.00	167.90	110.00	6
14	167.90	110.00	212.90	125.00	6
15	212.90	125.00	354.90	132.10	6
16	86.32	90.47	88.69	89.68	3
17	88.69	89.68	145.15	108.50	4
18	145.15	108.50	168.15	108.50	4
19	168.15	108.50	213.18	123.51	4
20	213.18	123.51	354.90	130.60	4
21	88.69	89.68	100.34	85.80	3
22	100.34	85.80	354.90	85.80	3
23	75.58	89.00	81.90	89.00	1
24	81.90	89.00	82.42	89.00	1
25	82.42	89.00	84.42	89.00	5
26	84.42	89.00	100.02	83.80	5
27	100.02	83.80	354.90	83.80	5
28	82.42	89.00	82.53	88.53	1
29	82.53	88.53	84.26	88.53	1
30	84.26	88.53	100.01	83.30	1
31	100.01	83.30	354.90	83.30	1
32	81.90	89.00	82.13	88.03	1
33	82.13	88.03	84.17	88.03	1
34	84.17	88.03	99.92	82.80	1
35	99.92	82.80	354.90	82.80	1
36	.00	70.00	354.90	70.00	7
37	.00	60.00	354.90	60.00	8
38	.00	49.00	354.90	49.00	9

ISOTROPIC SOIL PARAMETERS

9 Type(s) of Soil

Soil Type	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	20.5	.00	.0	1
3	110.0	120.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1

5	62.4	62.4	.0	20.5	.00	.0	1
6	105.0	110.0	.0	30.0	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	354.90	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	212.53	215.50	1376.6	.0
2	223.53	226.50	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	85.20	88.21	99.06	83.62	5.00
2	101.00	83.30	106.00	83.30	5.00
3	107.00	83.30	240.00	83.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	84.35	91.93
2	85.94	90.47
3	93.02	83.41
4	105.34	83.91
5	189.69	82.81
6	196.71	89.93
7	200.31	99.26
8	205.77	107.64
9	212.58	114.96
10	215.92	124.39
11	216.77	127.19

*** 2.687 ***

Slice No.	Width (ft)	Weight (lbs)	Individual data on the		38 slices		Earthquake		
			Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	Surcharge Load (lbs)
1	1.4	123.6	.0	.0	.0	.0	.0	.0	.0
2	.2	41.7	.0	.0	.0	.0	.0	.0	.0
3	.4	90.2	.0	.0	.0	.0	.0	.0	.0
4	2.4	1025.8	.0	.0	.0	.0	.0	.0	.0
5	.2	141.8	.0	.0	.0	.0	.0	.0	.0
6	.8	513.5	.0	.0	.0	.0	.0	.0	.0
7	.8	586.0	.0	.0	.0	.0	.0	.0	.0
8	2.5	2315.9	.0	.0	.0	.0	.0	.0	.0
9	4.5	4765.8	.0	.0	.0	.0	.0	.0	.0
10	1.4	1508.1	.0	.0	.0	.0	.0	.0	.0
11	1.1	1149.2	.0	.0	.0	.0	.0	.0	.0

12	.3	345.3	.0	.0	.0	.0	.0	.0	.0
13	2.2	2444.7	.0	.0	.0	.0	.0	.0	.0
14	2.8	3163.9	.0	.0	.0	.0	.0	.0	.0
15	8.6	10751.1	.0	.0	.0	.0	.0	.0	.0
16	30.7	51018.8	.0	.0	.0	.0	.0	.0	.0
17	.3	633.9	.0	.0	.0	.0	.0	.0	.0
18	.3	494.2	.0	.0	.0	.0	.0	.0	.0
19	6.9	13661.5	.0	.0	.0	.0	.0	.0	.0
20	15.5	30911.9	.0	.0	.0	.0	.0	.0	.0
21	.3	642.5	.0	.0	.0	.0	.0	.0	.0
22	.3	504.6	.0	.0	.0	.0	.0	.0	.0
23	21.5	48540.2	.0	.0	.0	.0	.0	.0	.0
24	.5	1195.6	.0	.0	.0	.0	.0	.0	.0
25	.5	1195.8	.0	.0	.0	.0	.0	.0	.0
26	2.0	4584.4	.0	.0	.0	.0	.0	.0	.0
27	4.1	8769.9	.0	.0	.0	.0	.0	.0	.0
28	3.6	6588.8	.0	.0	.0	.0	.0	.0	.0
29	5.5	7573.5	.0	.0	.0	.0	.0	.0	.0
30	6.8	7035.2	.0	.0	.0	.0	.0	.0	.0
31	.1	44.9	.0	.0	.0	.0	.0	.0	69.6
32	.3	274.0	.0	.0	.0	.0	.0	.0	439.7
33	.3	225.2	.0	.0	.0	.0	.0	.0	385.5
34	2.3	1359.7	.0	.0	.0	.0	.0	.0	3193.7
35	.2	58.0	.0	.0	.0	.0	.0	.0	.0
36	.3	88.1	.0	.0	.0	.0	.0	.0	.0
37	.2	58.8	.0	.0	.0	.0	.0	.0	.0
38	.6	64.8	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	87.30	92.91
2	90.71	90.24
3	97.82	83.21
4	102.38	81.42
5	191.61	84.49
6	197.35	92.68
7	204.40	99.77
8	210.61	107.60
9	216.43	115.74
10	223.34	122.96
11	228.12	127.76

*** 2.700 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	73.65	88.36
2	83.13	85.32
3	93.13	85.14
4	104.44	83.48
5	207.36	82.69
6	213.68	90.44
7	220.12	98.09
8	225.06	106.78
9	231.29	114.60
10	238.26	121.78
11	245.09	128.61

*** 2.708 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	83.01	91.48
2	89.38	89.26
3	103.05	84.61
4	194.24	84.25
5	201.24	91.39
6	208.12	98.64
7	215.11	105.80

8	222.05	113.00
9	227.09	121.64
10	230.28	127.87

*** 2.723 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	84.23	91.89
2	89.02	87.11
3	98.86	85.30
4	105.04	81.69
5	194.27	84.61
6	199.40	93.20
7	206.11	100.61
8	211.28	109.17
9	217.68	116.85
10	223.54	124.96
11	226.24	127.67

*** 2.737 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	83.24	91.56
2	88.12	86.79
3	97.21	82.64
4	105.53	84.76
5	209.18	83.27
6	214.06	91.99
7	220.66	99.51
8	227.40	106.89
9	233.88	114.51
10	240.91	121.63
11	246.93	128.70

*** 2.769 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	81.46	90.96
2	89.50	87.82
3	105.14	82.55
4	198.04	82.24
5	203.69	90.49
6	208.95	99.00
7	213.19	108.05
8	218.86	116.29
9	225.43	123.82
10	227.41	127.72

*** 2.778 ***

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	79.84	90.42
2	85.87	89.03
3	103.44	82.92
4	120.01	84.30
5	126.99	91.46
6	132.89	99.54
7	139.94	106.62
8	144.16	111.86

*** 2.783 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	76.90	89.44
2	81.43	89.06
3	91.25	87.20
4	103.75	84.05

5	200.80	83.47
6	203.93	92.96
7	210.71	100.32
8	212.64	110.13
9	218.35	118.34
10	224.56	126.18
11	225.48	127.63

*** 2.795 ***

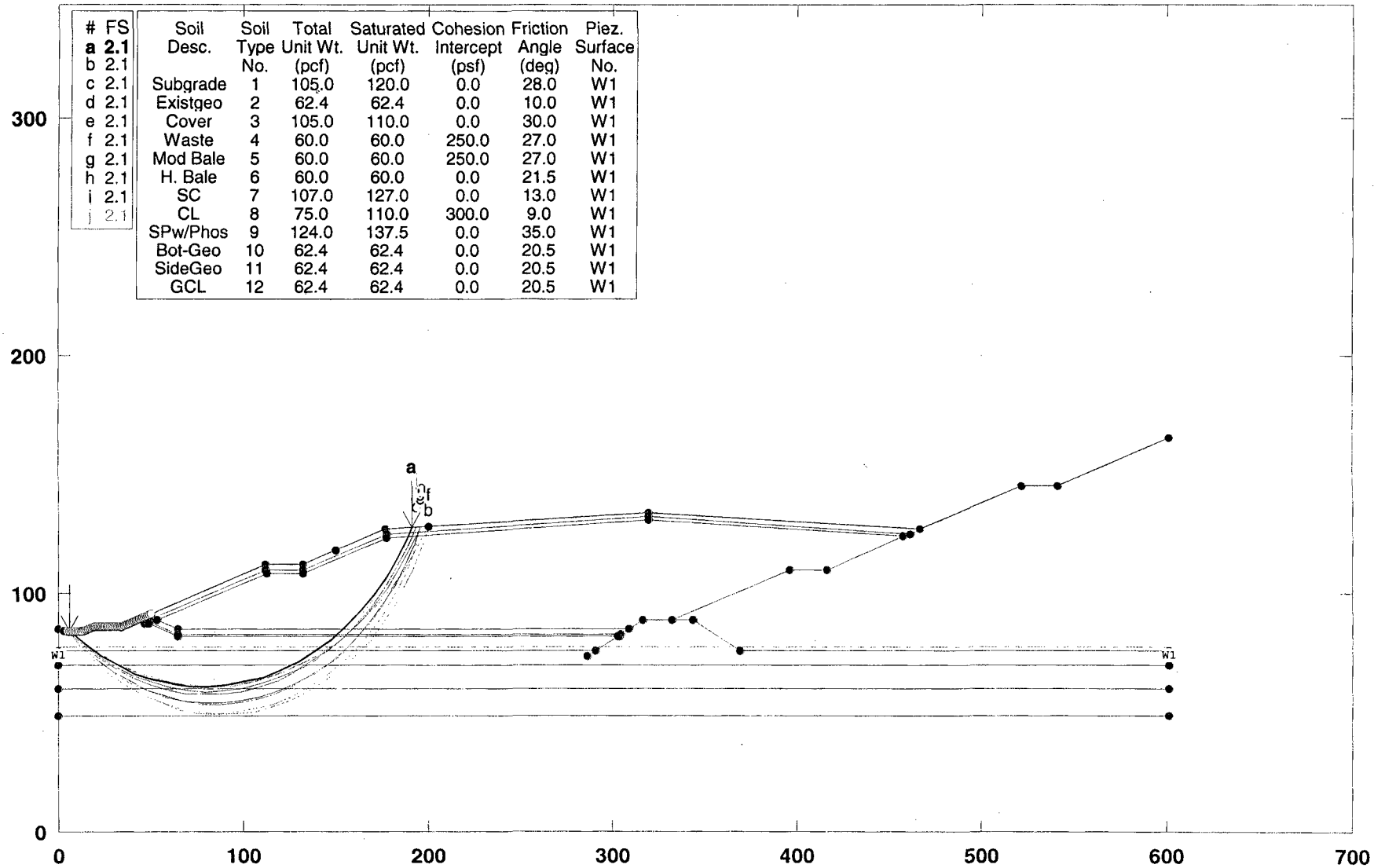
Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	85.09	92.17
2	89.42	88.22
3	97.49	82.31
4	103.88	83.36
5	170.76	83.59
6	177.82	90.68
7	184.44	98.18
8	188.66	107.24
9	195.61	114.43
10	201.89	122.21
11	203.72	124.04

*** 2.846 ***

Phase II Section I North Hardee County Landfill

C:\HARDEE~1\NORTH~1\NORTH.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 1:17PM



PCSTABL5M/si FSmin=2.1

Safety Factors Are Calculated By The Modified Bishop Method

** PCSTABL5M **

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011

Time of Run: 1:17PM

Run By: Shane R. Fischer, P.E.

Input Data Filename: C:north.

Output Filename: C:north.OUT

Unit: ENGLISH

Plotted Output Filename: C:north.PLT

PROBLEM DESCRIPTION Phase II Section I North

Hardee County Landfill

BOUNDARY COORDINATES

Note: User origin value specified.

Add 0.00 to X-values and 0.00 to Y-values listed.

14 Top Boundaries

60 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	10
7	47.58	90.53	112.00	112.00	3
8	112.00	112.00	132.00	112.00	3
9	132.00	112.00	176.95	126.98	3
10	176.95	126.98	319.32	134.10	3
11	319.32	134.10	466.55	126.74	3
12	466.55	126.74	521.32	145.00	4
13	521.32	145.00	541.32	145.00	4
14	541.32	145.00	601.32	165.00	4
15	47.58	90.53	50.74	89.47	3
16	50.74	89.47	112.32	110.00	3
17	112.32	110.00	132.32	110.00	3
18	132.32	110.00	177.32	125.00	3
19	177.32	125.00	319.32	132.10	3
20	319.32	132.10	461.32	125.00	3
21	50.74	89.47	53.12	88.68	10
22	53.12	88.68	112.57	108.50	4
23	112.57	108.50	132.57	108.50	4
24	132.57	108.50	177.60	123.51	4
25	177.60	123.51	319.32	130.60	4
26	319.32	130.60	457.41	123.69	4
27	53.12	88.68	64.76	84.80	10
28	64.76	84.80	308.72	84.80	10
29	308.72	84.80	316.37	88.62	1
30	316.37	88.62	332.20	88.62	1
31	332.20	88.62	396.32	110.00	11
32	396.32	110.00	416.32	110.00	11
33	416.32	110.00	457.41	123.69	11
34	457.41	123.69	461.32	125.00	11
35	461.32	125.00	466.55	126.74	11
36	40.00	88.00	46.32	88.00	1
37	46.32	88.00	46.84	88.00	1
38	46.84	88.00	48.84	88.00	12
39	48.84	88.00	64.44	82.80	12
40	64.44	82.80	304.72	82.80	12
41	304.72	82.80	308.72	84.80	1
42	46.84	88.00	46.95	87.53	1
43	46.95	87.53	48.68	87.53	1
44	48.68	87.53	64.43	82.30	1

45	64.43	82.30	303.72	82.30	1
46	303.72	82.30	304.72	82.80	1
47	46.32	88.00	46.55	87.03	1
48	46.55	87.03	48.60	87.03	1
49	48.60	87.03	64.35	81.80	1
50	64.35	81.80	302.72	81.80	1
51	302.72	81.80	303.72	82.30	1
52	.00	76.00	291.12	76.00	1
53	291.12	76.00	302.72	81.80	1
54	286.36	73.62	291.12	76.00	1
55	332.20	88.62	343.37	88.62	1
56	343.37	88.62	369.37	75.62	1
57	369.37	75.62	601.32	75.62	1
58	.00	70.00	601.32	70.00	7
59	.00	60.00	601.32	60.00	8
60	.00	49.00	601.32	49.00	9

ISOTROPIC SOIL PARAMETERS

12 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	10.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	60.0	60.0	250.0	27.0	.00	.0	1
6	60.0	60.0	.0	21.5	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1
10	62.4	62.4	.0	20.5	.00	.0	1
11	62.4	62.4	.0	20.5	.00	.0	1
12	62.4	62.4	.0	20.5	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	601.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed

Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 5.00 ft.

and X = 50.00 ft.

Each Surface Terminates Between X = 150.00 ft.

and X = 200.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
-----------	-------------	-------------

1	5.92	84.00
2	14.32	78.58
3	23.13	73.84
4	32.27	69.80
5	41.71	66.49
6	51.38	63.93
7	61.22	62.14
8	71.16	61.12
9	81.16	60.89
10	91.15	61.44
11	101.06	62.77
12	110.83	64.88
13	120.41	67.74
14	129.74	71.35
15	138.76	75.68
16	147.40	80.70
17	155.63	86.38
18	163.39	92.69
19	170.63	99.59
20	177.30	107.04
21	183.37	114.99
22	188.80	123.38
23	191.13	127.69

Circle Center At X = 79.1 ; Y = 188.3 and Radius, 127.4

*** 2.115 ***

Slice No.	Width (ft)	Weight (lbs)	Individual data on the		61 slices		Earthquake		
			Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	Surcharge Load (lbs)
1	7.1	1697.5	.0	.0	.0	.0	.0	.0	.0
2	1.3	724.3	.0	.0	.0	.0	.0	.0	.0
3	2.0	1418.4	.0	.0	.0	.0	.0	.0	.0
4	2.7	2489.7	.0	136.3	.0	.0	.0	.0	.0
5	.1	120.4	.0	11.7	.0	.0	.0	.0	.0
6	4.0	4825.7	.0	734.4	.0	.0	.0	.0	.0
7	8.7	13578.4	.0	3308.9	.0	.0	.0	.0	.0
8	.5	824.4	.0	236.7	.0	.0	.0	.0	.0
9	1.7	3203.2	.0	913.2	.0	.0	.0	.0	.0
10	6.0	12801.3	.0	3713.1	.0	.0	.0	.0	.0
11	1.7	4155.0	.0	1212.0	.0	.0	.0	.0	.0
12	4.6	12026.5	.0	3457.1	.0	.0	.0	.0	.0
13	.2	630.5	.0	182.0	.0	.0	.0	.0	.0
14	.3	799.1	.0	230.8	.0	.0	.0	.0	.0
15	.1	303.2	.0	87.9	.0	.0	.0	.0	.0
16	.6	1742.8	.0	507.6	.0	.0	.0	.0	.0
17	1.0	2984.8	.0	836.1	.0	.0	.0	.0	.0
18	.1	237.1	.0	66.3	.0	.0	.0	.0	.0
19	.2	475.4	.0	133.0	.0	.0	.0	.0	.0
20	1.9	5777.4	.0	1612.7	.0	.0	.0	.0	.0
21	.6	1939.1	.0	555.6	.0	.0	.0	.0	.0
22	1.7	5418.3	.0	1516.7	.0	.0	.0	.0	.0
23	8.1	26519.2	.0	7510.4	.0	.0	.0	.0	.0
24	3.1	10711.4	.0	3051.4	.0	.0	.0	.0	.0
25	.1	275.7	.0	78.7	.0	.0	.0	.0	.0
26	.0	34.5	.0	9.8	.0	.0	.0	.0	.0
27	.3	1105.0	.0	315.3	.0	.0	.0	.0	.0
28	6.4	22823.7	.0	6448.4	.0	.0	.0	.0	.0
29	10.0	37830.8	.0	10293.6	.0	.0	.0	.0	.0
30	10.0	39576.4	.0	10194.4	.0	.0	.0	.0	.0
31	9.9	40069.0	.0	9606.8	.0	.0	.0	.0	.0
32	9.8	39313.2	.0	8534.3	.0	.0	.0	.0	.0
33	1.2	4638.3	.0	946.2	.0	.0	.0	.0	.0
34	.3	1265.9	.0	254.8	.0	.0	.0	.0	.0
35	.3	985.2	.0	197.7	.0	.0	.0	.0	.0
36	7.8	29691.6	.0	5584.8	.0	.0	.0	.0	.0
37	5.8	20397.7	.0	3371.6	.0	.0	.0	.0	.0

38	3.5	11397.2	.0	1592.4	.0	.0	.0	.0	.0
39	2.3	7055.6	.0	877.2	.0	.0	.0	.0	.0
40	.3	977.3	.0	110.5	.0	.0	.0	.0	.0
41	.3	761.9	.0	84.0	.0	.0	.0	.0	.0
42	6.2	18112.7	.0	1416.4	.0	.0	.0	.0	.0
43	.6	1559.2	.0	66.8	.0	.0	.0	.0	.0
44	2.6	7027.2	.0	139.8	.0	.0	.0	.0	.0
45	5.5	14005.4	.0	.0	.0	.0	.0	.0	.0
46	1.6	3811.2	.0	.0	.0	.0	.0	.0	.0
47	.7	1684.5	.0	.0	.0	.0	.0	.0	.0
48	.7	1664.7	.0	.0	.0	.0	.0	.0	.0
49	2.9	6537.8	.0	.0	.0	.0	.0	.0	.0
50	2.3	5036.6	.0	.0	.0	.0	.0	.0	.0
51	7.8	16008.4	.0	.0	.0	.0	.0	.0	.0
52	7.2	13154.0	.0	.0	.0	.0	.0	.0	.0
53	6.3	9702.8	.0	.0	.0	.0	.0	.0	.0
54	.4	481.3	.0	.0	.0	.0	.0	.0	.0
55	.0	26.2	.0	.0	.0	.0	.0	.0	.0
56	.3	376.6	.0	.0	.0	.0	.0	.0	.0
57	5.8	6432.0	.0	.0	.0	.0	.0	.0	.0
58	5.4	3543.4	.0	.0	.0	.0	.0	.0	.0
59	.4	148.0	.0	.0	.0	.0	.0	.0	.0
60	.8	241.1	.0	.0	.0	.0	.0	.0	.0
61	1.1	116.5	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.92	84.00
2	14.44	78.77
3	23.33	74.18
4	32.52	70.25
5	41.98	67.00
6	51.65	64.44
7	61.47	62.60
8	71.41	61.47
9	81.40	61.07
10	91.40	61.40
11	101.34	62.46
12	111.18	64.24
13	120.87	66.73
14	130.35	69.92
15	139.57	73.79
16	148.48	78.32
17	157.04	83.49
18	165.20	89.27
19	172.92	95.62
20	180.16	102.53
21	186.87	109.94
22	193.03	117.82
23	198.60	126.12
24	199.73	128.12

Circle Center At X = 81.8 ; Y = 198.2 and Radius, 137.2

*** 2.115 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	7.76	84.00
2	16.13	78.54
3	24.91	73.75
4	34.04	69.67
5	43.46	66.31
6	53.12	63.71
7	62.94	61.87
8	72.89	60.81
9	82.89	60.54
10	92.87	61.05
11	102.79	62.35

12	112.57	64.42
13	122.16	67.25
14	131.50	70.83
15	140.53	75.13
16	149.19	80.13
17	157.43	85.79
18	165.20	92.08
19	172.46	98.97
20	179.15	106.40
21	185.23	114.33
22	190.68	122.72
23	193.44	127.80

Circle Center At X = 81.4 ; Y = 187.7 and Radius, 127.2

*** 2.117 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.77	77.70
3	21.03	72.06
4	29.73	67.14
5	38.81	62.95
6	48.21	59.53
7	57.86	56.90
8	67.69	55.09
9	77.64	54.10
10	87.64	53.93
11	97.62	54.60
12	107.50	56.10
13	117.23	58.41
14	126.74	61.53
15	135.95	65.42
16	144.80	70.06
17	153.24	75.42
18	161.21	81.47
19	168.64	88.16
20	175.50	95.44
21	181.72	103.27
22	187.28	111.58
23	192.12	120.33
24	195.52	127.91

Circle Center At X = 84.6 ; Y = 174.1 and Radius, 120.2

*** 2.118 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.71	77.63
3	20.93	71.93
4	29.59	66.94
5	38.64	62.68
6	48.02	59.21
7	57.65	56.52
8	67.47	54.66
9	77.42	53.62
10	87.42	53.42
11	97.40	54.05
12	107.29	55.52
13	117.02	57.81
14	126.53	60.90
15	135.75	64.78
16	144.61	69.42
17	153.05	74.79
18	161.01	80.84
19	168.44	87.53
20	175.28	94.83
21	181.48	102.67

22 187.01 111.00
 23 191.82 119.77
 24 195.44 127.90
 Circle Center At X = 84.8 ; Y = 172.7 and Radius, 119.4
 *** 2.119 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.35	77.22
3	20.24	71.08
4	28.63	65.63
5	37.44	60.91
6	46.63	56.96
7	56.12	53.80
8	65.84	51.45
9	75.72	49.93
10	85.70	49.26
11	95.70	49.43
12	105.64	50.46
13	115.47	52.32
14	125.10	55.00
15	134.47	58.49
16	143.52	62.76
17	152.16	67.79
18	160.35	73.52
19	168.03	79.93
20	175.13	86.97
21	181.62	94.59
22	187.43	102.72
23	192.54	111.32
24	196.89	120.32
25	199.89	128.13

Circle Center At X = 88.6 ; Y = 167.2 and Radius, 118.0
 *** 2.120 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	13.28	78.39
3	21.97	73.44
4	31.02	69.18
5	40.37	65.63
6	49.96	62.82
7	59.75	60.76
8	69.66	59.47
9	79.65	58.95
10	89.65	59.20
11	99.59	60.23
12	109.43	62.03
13	119.10	64.58
14	128.54	67.88
15	137.70	71.89
16	146.52	76.61
17	154.94	81.99
18	162.93	88.02
19	170.42	94.64
20	177.38	101.82
21	183.75	109.52
22	189.52	117.70
23	194.63	126.29
24	195.42	127.90

Circle Center At X = 81.4 ; Y = 187.7 and Radius, 128.8
 *** 2.120 ***

Failure Surface Specified By 25 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
--------------	----------------	----------------

1	5.00	84.00
2	12.36	77.23
3	20.28	71.13
4	28.70	65.72
5	37.55	61.07
6	46.77	57.19
7	56.28	54.12
8	66.03	51.89
9	75.93	50.50
10	85.92	49.97
11	95.91	50.31
12	105.84	51.50
13	115.63	53.55
14	125.21	56.43
15	134.50	60.12
16	143.44	64.61
17	151.96	69.84
18	159.99	75.79
19	167.49	82.42
20	174.38	89.66
21	180.63	97.47
22	186.18	105.79
23	190.99	114.56
24	195.02	123.70
25	196.48	127.96

Circle Center At X = 87.0 ; Y = 165.9 and Radius, 115.9

*** 2.125 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	13.11	78.15
3	21.66	72.96
4	30.60	68.49
5	39.88	64.75
6	49.43	61.78
7	59.18	59.58
8	69.08	58.18
9	79.07	57.58
10	89.06	57.79
11	99.01	58.81
12	108.85	60.62
13	118.50	63.23
14	127.91	66.60
15	137.02	70.73
16	145.77	75.57
17	154.10	81.11
18	161.96	87.30
19	169.28	94.10
20	176.04	101.47
21	182.18	109.37
22	187.66	117.73
23	192.45	126.51
24	193.02	127.78

Circle Center At X = 81.5 ; Y = 181.3 and Radius, 123.7

*** 2.125 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	9.59	84.00
2	17.93	78.47
3	26.68	73.63
4	35.78	69.50
5	45.19	66.11
6	54.84	63.48
7	64.67	61.64
8	74.61	60.58

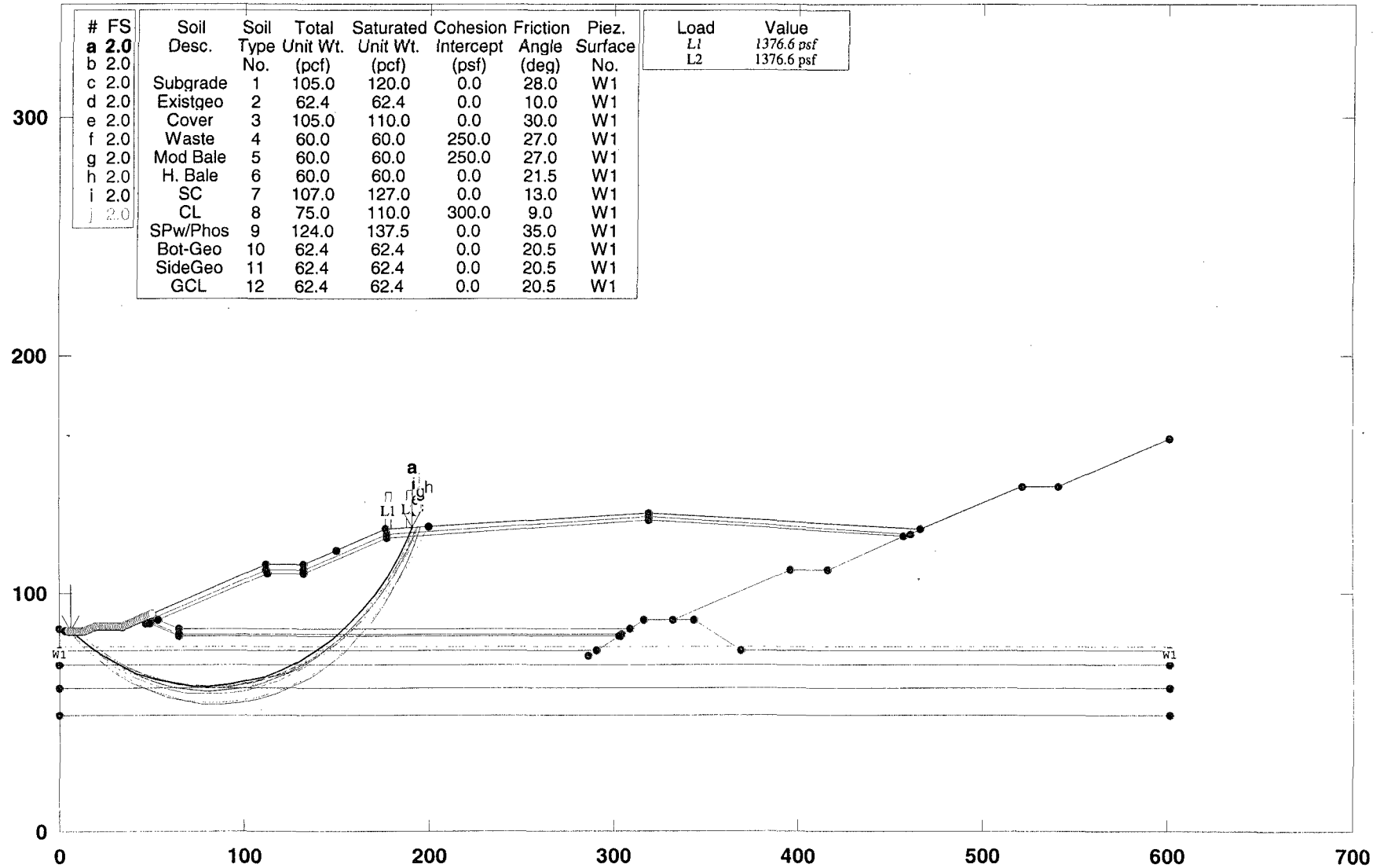
9	84.61	60.31
10	94.59	60.85
11	104.50	62.18
12	114.28	64.30
13	123.85	67.20
14	133.16	70.84
15	142.15	75.22
16	150.76	80.31
17	158.94	86.06
18	166.63	92.45
19	173.79	99.43
20	180.37	106.96
21	186.33	115.00
22	191.62	123.48
23	193.88	127.83

Circle Center At X = 82.9 ; Y = 185.5 and Radius, 125.2

	Y	A	X	I	S	F	T
	.00	75.17	150.33	225.50	300.66	375.83	
X	.00	+	+	+	+	+	+
	-	1*					
	-	41*					
	-	41.**					
	-	631..*					
	-	41..*..					
	75.17	+	.41.....				
	-	.41.....					
	-	.41.....					
	-	441.....**					
	-	641.....					
	-	.641.....**					
A	150.33	+	.421.....				
	-	.621.....					
	-	..611.**					
	-	..4111					
	-	.62					
X	225.50	+					
	-	*					
I	300.66	+	*				
	-	**	**				
	-	*					
	-	*					
S	375.83	+					
	-	*					
	-	*					
	450.99	+					
	-	**					
F	526.16	+			*		
	-	*					
T	601.32	+	****		*		

Phase II Section I North Hardee County Landfill

C:\HARDEE~1\NORTH~1\NORTH.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 1:18PM



PCSTABL5M/si FSmin=2.0
Safety Factors Are Calculated By The Modified Bishop Method

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011

Time of Run: 1:18PM

Run By: Shane R. Fischer, P.E.

Input Data Filename: C:north.

Output Filename: C:north.OUT

Unit: ENGLISH

Plotted Output Filename: C:north.PLT

PROBLEM DESCRIPTION Phase II Section I North

Hardee County Landfill

BOUNDARY COORDINATES

Note: User origin value specified.

Add 0.00 to X-values and 0.00 to Y-values listed.

14 Top Boundaries					
60 Total Boundaries					
Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	10
7	47.58	90.53	112.00	112.00	3
8	112.00	112.00	132.00	112.00	3
9	132.00	112.00	176.95	126.98	3
10	176.95	126.98	319.32	134.10	3
11	319.32	134.10	466.55	126.74	3
12	466.55	126.74	521.32	145.00	4
13	521.32	145.00	541.32	145.00	4
14	541.32	145.00	601.32	165.00	4
15	47.58	90.53	50.74	89.47	3
16	50.74	89.47	112.32	110.00	3
17	112.32	110.00	132.32	110.00	3
18	132.32	110.00	177.32	125.00	3
19	177.32	125.00	319.32	132.10	3
20	319.32	132.10	461.32	125.00	3
21	50.74	89.47	53.12	88.68	10
22	53.12	88.68	112.57	108.50	4
23	112.57	108.50	132.57	108.50	4
24	132.57	108.50	177.60	123.51	4
25	177.60	123.51	319.32	130.60	4
26	319.32	130.60	457.41	123.69	4
27	53.12	88.68	64.76	84.80	10
28	64.76	84.80	308.72	84.80	10
29	308.72	84.80	316.37	88.62	1
30	316.37	88.62	332.20	88.62	1
31	332.20	88.62	396.32	110.00	11
32	396.32	110.00	416.32	110.00	11
33	416.32	110.00	457.41	123.69	11
34	457.41	123.69	461.32	125.00	11
35	461.32	125.00	466.55	126.74	11
36	40.00	88.00	46.32	88.00	1
37	46.32	88.00	46.84	88.00	1
38	46.84	88.00	48.84	88.00	12
39	48.84	88.00	64.44	82.80	12
40	64.44	82.80	304.72	82.80	12
41	304.72	82.80	308.72	84.80	1
42	46.84	88.00	46.95	87.53	1
43	46.95	87.53	48.68	87.53	1
44	48.68	87.53	64.43	82.30	1

45	64.43	82.30	303.72	82.30	1
46	303.72	82.30	304.72	82.80	1
47	46.32	88.00	46.55	87.03	1
48	46.55	87.03	48.60	87.03	1
49	48.60	87.03	64.35	81.80	1
50	64.35	81.80	302.72	81.80	1
51	302.72	81.80	303.72	82.30	1
52	.00	76.00	291.12	76.00	1
53	291.12	76.00	302.72	81.80	1
54	286.36	73.62	291.12	76.00	1
55	332.20	88.62	343.37	88.62	1
56	343.37	88.62	369.37	75.62	1
57	369.37	75.62	601.32	75.62	1
58	.00	70.00	601.32	70.00	7
59	.00	60.00	601.32	60.00	8
60	.00	49.00	601.32	49.00	9

ISOTROPIC SOIL PARAMETERS

12 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	10.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	60.0	60.0	250.0	27.0	.00	.0	1
6	60.0	60.0	.0	21.5	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1
10	62.4	62.4	.0	20.5	.00	.0	1
11	62.4	62.4	.0	20.5	.00	.0	1
12	62.4	62.4	.0	20.5	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	601.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed

Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.
 2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced

Along The Ground Surface Between X = 5.00 ft.
 and X = 50.00 ft.

Each Surface Terminates Between X = 150.00 ft.
 and X = 200.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
 At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial
 Failure Surfaces Examined. They Are Ordered - Most Critical
 First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.92	84.00

2	14.32	78.58
3	23.13	73.84
4	32.27	69.80
5	41.71	66.49
6	51.38	63.93
7	61.22	62.14
8	71.16	61.12
9	81.16	60.89
10	91.15	61.44
11	101.06	62.77
12	110.83	64.88
13	120.41	67.74
14	129.74	71.35
15	138.76	75.68
16	147.40	80.70
17	155.63	86.38
18	163.39	92.69
19	170.63	99.59
20	177.30	107.04
21	183.37	114.99
22	188.80	123.38
23	191.13	127.69

Circle Center At X = 79.1 ; Y = 188.3 and Radius, 127.4

*** 1.996 ***

Slice No.	Width (ft)	Weight (lbs)	Individual data on the		64 slices		Earthquake		
			Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	Surcharge Load (lbs)
1	7.1	1697.5	.0	.0	.0	.0	.0	.0	.0
2	1.3	724.3	.0	.0	.0	.0	.0	.0	.0
3	2.0	1418.4	.0	.0	.0	.0	.0	.0	.0
4	2.7	2489.7	.0	136.3	.0	.0	.0	.0	.0
5	.1	120.4	.0	11.7	.0	.0	.0	.0	.0
6	4.0	4825.7	.0	734.4	.0	.0	.0	.0	.0
7	8.7	13578.4	.0	3308.9	.0	.0	.0	.0	.0
8	.5	824.4	.0	236.7	.0	.0	.0	.0	.0
9	1.7	3203.2	.0	913.2	.0	.0	.0	.0	.0
10	6.0	12801.3	.0	3713.1	.0	.0	.0	.0	.0
11	1.7	4155.0	.0	1212.0	.0	.0	.0	.0	.0
12	4.6	12026.5	.0	3457.1	.0	.0	.0	.0	.0
13	.2	630.5	.0	182.0	.0	.0	.0	.0	.0
14	.3	799.1	.0	230.8	.0	.0	.0	.0	.0
15	.1	303.2	.0	87.9	.0	.0	.0	.0	.0
16	.6	1742.8	.0	507.6	.0	.0	.0	.0	.0
17	1.0	2984.8	.0	836.1	.0	.0	.0	.0	.0
18	.1	237.1	.0	66.3	.0	.0	.0	.0	.0
19	.2	475.4	.0	133.0	.0	.0	.0	.0	.0
20	1.9	5777.4	.0	1612.7	.0	.0	.0	.0	.0
21	.6	1939.1	.0	555.6	.0	.0	.0	.0	.0
22	1.7	5418.3	.0	1516.7	.0	.0	.0	.0	.0
23	8.1	26519.2	.0	7510.4	.0	.0	.0	.0	.0
24	3.1	10711.4	.0	3051.4	.0	.0	.0	.0	.0
25	.1	275.7	.0	78.7	.0	.0	.0	.0	.0
26	.0	34.5	.0	9.8	.0	.0	.0	.0	.0
27	.3	1105.0	.0	315.3	.0	.0	.0	.0	.0
28	6.4	22823.7	.0	6448.4	.0	.0	.0	.0	.0
29	10.0	37830.8	.0	10293.6	.0	.0	.0	.0	.0
30	10.0	39576.4	.0	10194.4	.0	.0	.0	.0	.0
31	9.9	40069.0	.0	9606.8	.0	.0	.0	.0	.0
32	9.8	39313.2	.0	8534.3	.0	.0	.0	.0	.0
33	1.2	4638.3	.0	946.2	.0	.0	.0	.0	.0
34	.3	1265.9	.0	254.8	.0	.0	.0	.0	.0
35	.3	985.2	.0	197.7	.0	.0	.0	.0	.0
36	7.8	29691.6	.0	5584.8	.0	.0	.0	.0	.0
37	5.8	20397.7	.0	3371.6	.0	.0	.0	.0	.0
38	3.5	11397.2	.0	1592.4	.0	.0	.0	.0	.0

39	2.3	7055.6	.0	877.2	.0	.0	.0	.0	.0
40	.3	977.3	.0	110.5	.0	.0	.0	.0	.0
41	.3	761.9	.0	84.0	.0	.0	.0	.0	.0
42	6.2	18112.7	.0	1416.4	.0	.0	.0	.0	.0
43	.6	1559.2	.0	66.8	.0	.0	.0	.0	.0
44	2.6	7027.2	.0	139.8	.0	.0	.0	.0	.0
45	5.5	14005.4	.0	.0	.0	.0	.0	.0	.0
46	1.6	3811.2	.0	.0	.0	.0	.0	.0	.0
47	.7	1684.5	.0	.0	.0	.0	.0	.0	.0
48	.7	1664.7	.0	.0	.0	.0	.0	.0	.0
49	2.9	6537.8	.0	.0	.0	.0	.0	.0	.0
50	2.3	5036.6	.0	.0	.0	.0	.0	.0	.0
51	7.8	16008.4	.0	.0	.0	.0	.0	.0	.0
52	7.2	13154.0	.0	.0	.0	.0	.0	.0	.0
53	6.3	9702.8	.0	.0	.0	.0	.0	.0	.0
54	.4	481.3	.0	.0	.0	.0	.0	.0	482.8
55	.0	26.2	.0	.0	.0	.0	.0	.0	26.6
56	.3	376.6	.0	.0	.0	.0	.0	.0	385.4
57	2.3	2888.1	.0	.0	.0	.0	.0	.0	3193.7
58	3.5	3543.9	.0	.0	.0	.0	.0	.0	.0
59	4.6	3163.5	.0	.0	.0	.0	.0	.0	.0
60	.8	379.9	.0	.0	.0	.0	.0	.0	1169.9
61	.4	148.0	.0	.0	.0	.0	.0	.0	524.6
62	.8	241.1	.0	.0	.0	.0	.0	.0	1149.4
63	.9	112.5	.0	.0	.0	.0	.0	.0	1244.5
64	.2	4.0	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	7.76	84.00
2	16.13	78.54
3	24.91	73.75
4	34.04	69.67
5	43.46	66.31
6	53.12	63.71
7	62.94	61.87
8	72.89	60.81
9	82.89	60.54
10	92.87	61.05
11	102.79	62.35
12	112.57	64.42
13	122.16	67.25
14	131.50	70.83
15	140.53	75.13
16	149.19	80.13
17	157.43	85.79
18	165.20	92.08
19	172.46	98.97
20	179.15	106.40
21	185.23	114.33
22	190.68	122.72
23	193.44	127.80

Circle Center At X = 81.4 ; Y = 187.7 and Radius, 127.2

*** 2.001 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	13.28	78.39
3	21.97	73.44
4	31.02	69.18
5	40.37	65.63
6	49.96	62.82
7	59.75	60.76
8	69.66	59.47
9	79.65	58.95
10	89.65	59.20

11	99.59	60.23
12	109.43	62.03
13	119.10	64.58
14	128.54	67.88
15	137.70	71.89
16	146.52	76.61
17	154.94	81.99
18	162.93	88.02
19	170.42	94.64
20	177.38	101.82
21	183.75	109.52
22	189.52	117.70
23	194.63	126.29
24	195.42	127.90

Circle Center At X = 81.4 ; Y = 187.7 and Radius, 128.8

*** 2.009 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	9.59	84.00
2	17.93	78.47
3	26.68	73.63
4	35.78	69.50
5	45.19	66.11
6	54.84	63.48
7	64.67	61.64
8	74.61	60.58
9	84.61	60.31
10	94.59	60.85
11	104.50	62.18
12	114.28	64.30
13	123.85	67.20
14	133.16	70.84
15	142.15	75.22
16	150.76	80.31
17	158.94	86.06
18	166.63	92.45
19	173.79	99.43
20	180.37	106.96
21	186.33	115.00
22	191.62	123.48
23	193.88	127.83

Circle Center At X = 82.9 ; Y = 185.5 and Radius, 125.2

*** 2.010 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	13.11	78.15
3	21.66	72.96
4	30.60	68.49
5	39.88	64.75
6	49.43	61.78
7	59.18	59.58
8	69.08	58.18
9	79.07	57.58
10	89.06	57.79
11	99.01	58.81
12	108.85	60.62
13	118.50	63.23
14	127.91	66.60
15	137.02	70.73
16	145.77	75.57
17	154.10	81.11
18	161.96	87.30
19	169.28	94.10
20	176.04	101.47

21	182.18	109.37
22	187.66	117.73
23	192.45	126.51
24	193.02	127.78

Circle Center At X = 81.5 ; Y = 181.3 and Radius, 123.7
 *** 2.010 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.77	77.70
3	21.03	72.06
4	29.73	67.14
5	38.81	62.95
6	48.21	59.53
7	57.86	56.90
8	67.69	55.09
9	77.64	54.10
10	87.64	53.93
11	97.62	54.60
12	107.50	56.10
13	117.23	58.41
14	126.74	61.53
15	135.95	65.42
16	144.80	70.06
17	153.24	75.42
18	161.21	81.47
19	168.64	88.16
20	175.50	95.44
21	181.72	103.27
22	187.28	111.58
23	192.12	120.33
24	195.52	127.91

Circle Center At X = 84.6 ; Y = 174.1 and Radius, 120.2
 *** 2.010 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	5.00	84.00
2	12.71	77.63
3	20.93	71.93
4	29.59	66.94
5	38.64	62.68
6	48.02	59.21
7	57.65	56.52
8	67.47	54.66
9	77.42	53.62
10	87.42	53.42
11	97.40	54.05
12	107.29	55.52
13	117.02	57.81
14	126.53	60.90
15	135.75	64.78
16	144.61	69.42
17	153.05	74.79
18	161.01	80.84
19	168.44	87.53
20	175.28	94.83
21	181.48	102.67
22	187.01	111.00
23	191.82	119.77
24	195.44	127.90

Circle Center At X = 84.8 ; Y = 172.7 and Radius, 119.4
 *** 2.011 ***

Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
-----------	-------------	-------------

1	5.92	84.00
2	14.44	78.77
3	23.33	74.18
4	32.52	70.25
5	41.98	67.00
6	51.65	64.44
7	61.47	62.60
8	71.41	61.47
9	81.40	61.07
10	91.40	61.40
11	101.34	62.46
12	111.18	64.24
13	120.87	66.73
14	130.35	69.92
15	139.57	73.79
16	148.48	78.32
17	157.04	83.49
18	165.20	89.27
19	172.92	95.62
20	180.16	102.53
21	186.87	109.94
22	193.03	117.82
23	198.60	126.12
24	199.73	128.12

Circle Center At X = 81.8 ; Y = 198.2 and Radius, 137.2

*** 2.012 ***

Failure Surface Specified By 23 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.84	84.00
2	15.02	78.26
3	23.65	73.20
4	32.66	68.86
5	41.99	65.26
6	51.58	62.44
7	61.37	60.40
8	71.30	59.16
9	81.29	58.74
10	91.28	59.13
11	101.21	60.33
12	111.00	62.33
13	120.61	65.12
14	129.95	68.68
15	138.98	72.99
16	147.62	78.02
17	155.83	83.73
18	163.54	90.10
19	170.71	97.06
20	177.30	104.59
21	183.25	112.63
22	188.53	121.12
23	191.92	127.73

Circle Center At X = 81.5 ; Y = 181.7 and Radius, 123.0

*** 2.016 ***

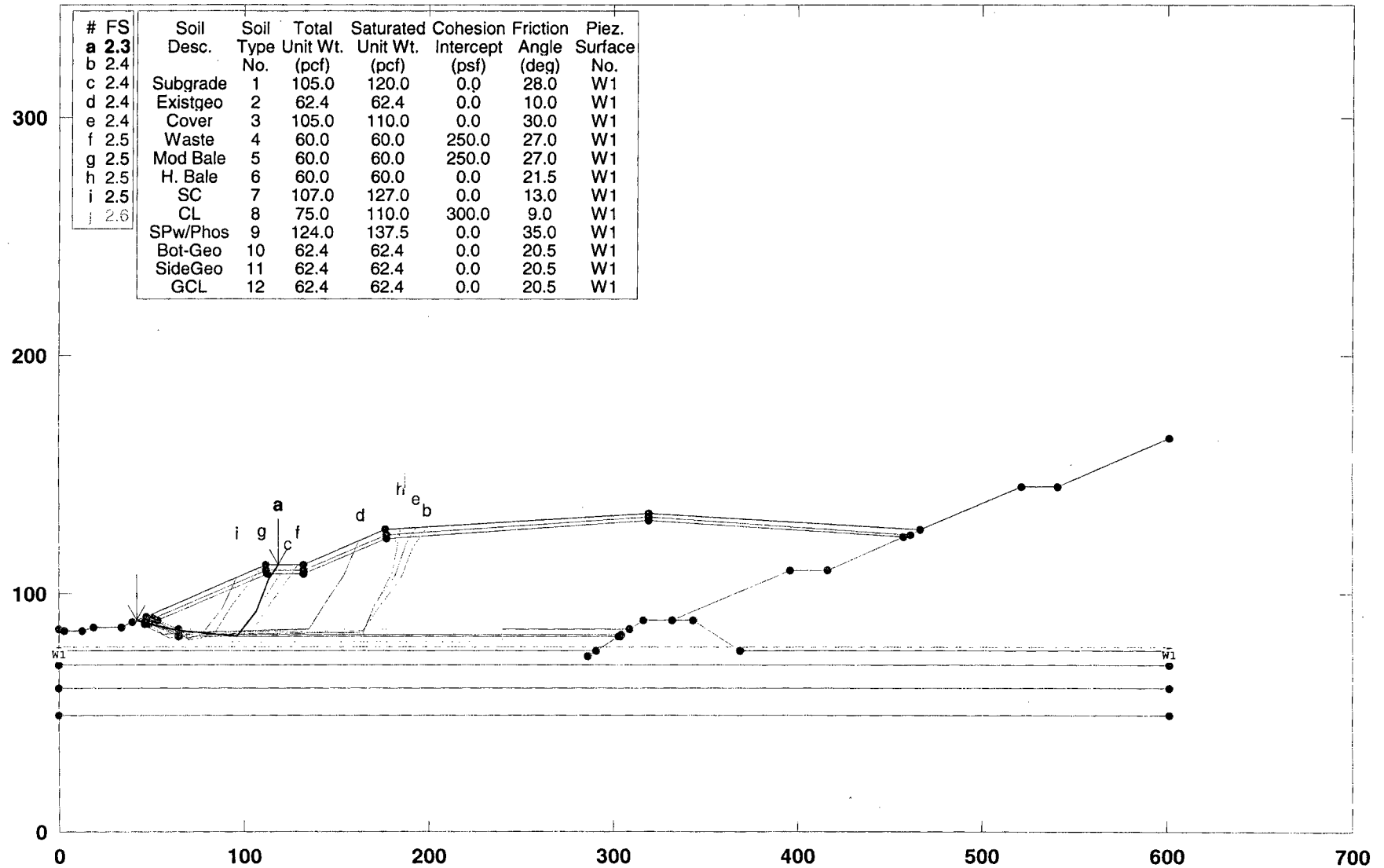
Failure Surface Specified By 24 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	6.84	84.00
2	14.73	77.86
3	23.11	72.40
4	31.91	67.65
5	41.07	63.65
6	50.54	60.43
7	60.24	58.00
8	70.11	56.39
9	80.08	55.61
10	90.08	55.65



Phase II Section I North Hardee County Landfill

C:\HARDEE~1\NORTH~1\NORTH~1\NORTH~1.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 1:25PM



PCSTABL5M/si FSmin=2.3

Safety Factors Are Calculated By The Modified Janbu Method

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011

Time of Run: 1:25PM

Run By: Shane R. Fischer, P.E.

Input Data Filename: C:NORTHB.

Output Filename: C:NORTHB.OUT

Unit: ENGLISH

Plotted Output Filename: C:NORTHB.PLT

PROBLEM DESCRIPTION Phase II Section I North

Hardee County Landfill

BOUNDARY COORDINATES

Note: User origin value specified.

Add 0.00 to X-values and 0.00 to Y-values listed.

14 Top Boundaries
60 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	10
7	47.58	90.53	112.00	112.00	3
8	112.00	112.00	132.00	112.00	3
9	132.00	112.00	176.95	126.98	3
10	176.95	126.98	319.32	134.10	3
11	319.32	134.10	466.55	126.74	3
12	466.55	126.74	521.32	145.00	4
13	521.32	145.00	541.32	145.00	4
14	541.32	145.00	601.32	165.00	4
15	47.58	90.53	50.74	89.47	3
16	50.74	89.47	112.32	110.00	3
17	112.32	110.00	132.32	110.00	3
18	132.32	110.00	177.32	125.00	3
19	177.32	125.00	319.32	132.10	3
20	319.32	132.10	461.32	125.00	3
21	50.74	89.47	53.12	88.68	10
22	53.12	88.68	112.57	108.50	4
23	112.57	108.50	132.57	108.50	4
24	132.57	108.50	177.60	123.51	4
25	177.60	123.51	319.32	130.60	4
26	319.32	130.60	457.41	123.69	4
27	53.12	88.68	64.76	84.80	10
28	64.76	84.80	308.72	84.80	10
29	308.72	84.80	316.37	88.62	1
30	316.37	88.62	332.20	88.62	1
31	332.20	88.62	396.32	110.00	11
32	396.32	110.00	416.32	110.00	11
33	416.32	110.00	457.41	123.69	11
34	457.41	123.69	461.32	125.00	11
35	461.32	125.00	466.55	126.74	11
36	40.00	88.00	46.32	88.00	1
37	46.32	88.00	46.84	88.00	1
38	46.84	88.00	48.84	88.00	12
39	48.84	88.00	64.44	82.80	12
40	64.44	82.80	304.72	82.80	12
41	304.72	82.80	308.72	84.80	1
42	46.84	88.00	46.95	87.53	1
43	46.95	87.53	48.68	87.53	1
44	48.68	87.53	64.43	82.30	1

45	64.43	82.30	303.72	82.30	1
46	303.72	82.30	304.72	82.80	1
47	46.32	88.00	46.55	87.03	1
48	46.55	87.03	48.60	87.03	1
49	48.60	87.03	64.35	81.80	1
50	64.35	81.80	302.72	81.80	1
51	302.72	81.80	303.72	82.30	1
52	.00	76.00	291.12	76.00	1
53	291.12	76.00	302.72	81.80	1
54	286.36	73.62	291.12	76.00	1
55	332.20	88.62	343.37	88.62	1
56	343.37	88.62	369.37	75.62	1
57	369.37	75.62	601.32	75.62	1
58	.00	70.00	601.32	70.00	7
59	.00	60.00	601.32	60.00	8
60	.00	49.00	601.32	49.00	9

ISOTROPIC SOIL PARAMETERS

12 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param. (psf)	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	10.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	60.0	60.0	250.0	27.0	.00	.0	1
6	60.0	60.0	.0	21.5	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1
10	62.4	62.4	.0	20.5	.00	.0	1
11	62.4	62.4	.0	20.5	.00	.0	1
12	62.4	62.4	.0	20.5	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	601.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

SURCHARGE BOUNDARY LOAD DATA HAS BEEN SUPPRESSED

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 15.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	49.63	87.21	63.48	82.62	5.00
2	65.43	82.30	70.43	82.30	5.00
3	71.43	82.30	240.00	82.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 7 Coordinate Points

Point	X-Surf	Y-Surf
-------	--------	--------

No.	(ft)	(ft)
1	42.18	88.73
2	56.55	85.34
3	66.59	84.28
4	96.19	82.15
5	106.80	92.76
6	113.32	106.27
7	119.04	112.00

*** 2.282 ***

Individual data on the			30 slices		Tie		Earthquake		Surcharge	
			Water	Water	Tie	Tie	Force	Force	Load	
Slice	Width	Weight	Force	Force	Force	Force	Hor	Ver		
No.	(ft)	(lbs)	Top	Bot	Norm	Tan	(lbs)	(lbs)	(lbs)	(lbs)
1	3.1	169.3	.0	.0	.0	.0	.0	.0	.0	.0
2	1.1	140.8	.0	.0	.0	.0	.0	.0	.0	.0
3	.1	9.9	.0	.0	.0	.0	.0	.0	.0	.0
4	.5	78.2	.0	.0	.0	.0	.0	.0	.0	.0
5	.1	16.1	.0	.0	.0	.0	.0	.0	.0	.0
6	.3	57.4	.0	.0	.0	.0	.0	.0	.0	.0
7	.3	60.0	.0	.0	.0	.0	.0	.0	.0	.0
8	1.1	369.3	.0	.0	.0	.0	.0	.0	.0	.0
9	.2	59.6	.0	.0	.0	.0	.0	.0	.0	.0
10	1.9	822.2	.0	.0	.0	.0	.0	.0	.0	.0
11	1.4	624.9	.0	.0	.0	.0	.0	.0	.0	.0
12	1.0	498.0	.0	.0	.0	.0	.0	.0	.0	.0
13	3.4	2070.7	.0	.0	.0	.0	.0	.0	.0	.0
14	.4	263.7	.0	.0	.0	.0	.0	.0	.0	.0
15	7.8	6044.1	.0	.0	.0	.0	.0	.0	.0	.0
16	1.8	1640.8	.0	.0	.0	.0	.0	.0	.0	.0
17	20.6	24204.8	.0	.0	.0	.0	.0	.0	.0	.0
18	6.9	10501.7	.0	.0	.0	.0	.0	.0	.0	.0
19	2.1	3341.8	.0	.0	.0	.0	.0	.0	.0	.0
20	.1	243.6	.0	.0	.0	.0	.0	.0	.0	.0
21	.5	814.4	.0	.0	.0	.0	.0	.0	.0	.0
22	2.0	3151.8	.0	.0	.0	.0	.0	.0	.0	.0
23	8.0	10944.2	.0	.0	.0	.0	.0	.0	.0	.0
24	5.2	4916.5	.0	.0	.0	.0	.0	.0	.0	.0
25	.3	208.4	.0	.0	.0	.0	.0	.0	.0	.0
26	.3	152.9	.0	.0	.0	.0	.0	.0	.0	.0
27	.7	409.2	.0	.0	.0	.0	.0	.0	.0	.0
28	2.2	966.5	.0	.0	.0	.0	.0	.0	.0	.0
29	1.5	432.6	.0	.0	.0	.0	.0	.0	.0	.0
30	2.0	209.7	.0	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 9 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	43.11	89.04
2	46.31	86.64
3	60.34	81.34
4	66.34	83.59
5	164.76	84.29
6	174.49	95.71
7	185.07	106.34
8	191.67	119.81
9	199.08	128.09

*** 2.372 ***

Failure Surface Specified By 7 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	47.34	90.45
2	55.44	85.56
3	66.39	80.86
4	99.20	83.97
5	109.20	95.15
6	118.85	106.64
7	124.13	112.00

*** 2.416 ***
 Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.86	89.62
2	55.31	86.27
3	68.11	83.57
4	135.13	84.74
5	144.61	96.37
6	154.27	107.84
7	161.68	120.88
8	162.77	122.25

*** 2.431 ***
 Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	50.36	91.46
2	59.63	84.05
3	70.38	82.36
4	164.64	83.19
5	171.60	96.48
6	181.93	107.35
7	188.00	121.07
8	192.97	127.78

*** 2.447 ***
 Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	45.57	89.86
2	51.09	89.11
3	68.15	80.33
4	104.84	84.31
5	114.47	95.81
6	124.42	107.03
7	129.27	112.00

*** 2.493 ***
 Failure Surface Specified By 7 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	50.06	91.36
2	54.35	87.60
3	69.18	80.81
4	84.63	83.90
5	94.22	95.44
6	104.72	106.15
7	109.72	111.24

*** 2.506 ***
 Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	46.89	90.30
2	55.25	84.68
3	67.37	84.44
4	164.68	83.56
5	172.42	96.40
6	180.12	109.28
7	184.14	123.73
8	185.01	127.38

*** 2.522 ***
 Failure Surface Specified By 6 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	44.57	89.53
2	56.66	82.80
3	66.88	83.20
4	77.84	83.28
5	88.37	93.96

```

6          96.10      106.70
***      2.528      ***
Failure Surface Specified By 9 Coordinate Points
Point      X-Surf      Y-Surf
No.        (ft)        (ft)
1          38.41      87.47
2          44.36      85.50
3          59.31      84.25
4          68.68      83.33
5          161.38     84.16
6          171.55     95.19
7          174.44     109.91
8          183.00     122.23
9          187.18     127.49
***      2.586      ***

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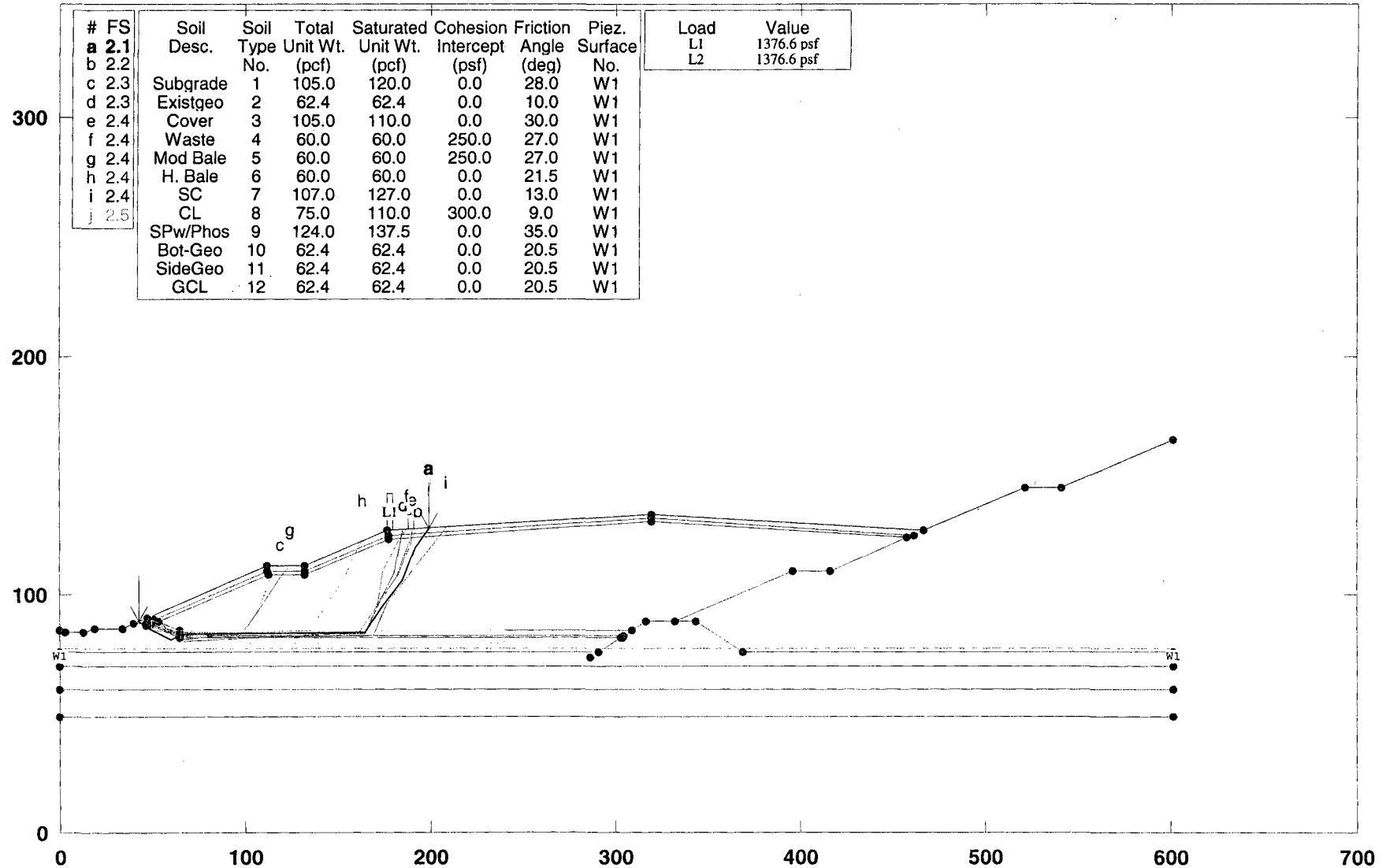
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          Y          A          X          I          S          F          T
          .00      75.17      150.33      225.50      300.66      375.83
X      .00 +-----+-----+-----+-----+-----+
      - *
      - *
      - **
      - 3*
      - *
      - .
      75.17 + 5 .
      - 7.9.
      - 1 77
      - .13**
      - ...61
      - 4...**
A      150.33 + ..44..
      - 2... 4.
      - ..2.8**
      - ...2.25
      - .....2
      - .....
X      225.50 + .....
      - .....
      - .....
      - . ....
      - ..
      - *
I      300.66 + *
      - **
      - **
      - *
      - *
S      375.83 +
      - *
      - *
      450.99 +
      - **
F      526.16 + *
      - *
T      601.32 + *****

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Phase II Section I North Hardee County Landfill

C:\HARDEE~1\NORTH~1\NORTH~1\NORTH~1.PL2 Run By: Shane R. Fischer, P.E. 1/18/2011 1:27PM



PCSTABL5M/si FSmin=2.1

Safety Factors Are Calculated By The Modified Janbu Method

**** PCSTABL5M ****

by

Purdue University

--Slope Stability Analysis--

Simplified Janbu, Simplified Bishop

or Spencer's Method of Slices

Run Date: 1/18/2011

Time of Run: 1:27PM

Run By: Shane R. Fischer, P.E.

Input Data Filename: C:NORTHB.

Output Filename: C:NORTHB.OUT

Unit: ENGLISH

Plotted Output Filename: C:NORTHB.PLT

PROBLEM DESCRIPTION Phase II Section I North
Hardee County Landfill

BOUNDARY COORDINATES

Note: User origin value specified.

Add 0.00 to X-values and 0.00 to Y-values listed.

14 Top Boundaries

60 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	85.00	3.00	84.00	1
2	3.00	84.00	13.00	84.00	1
3	13.00	84.00	19.00	86.00	1
4	19.00	86.00	34.00	86.00	1
5	34.00	86.00	40.00	88.00	1
6	40.00	88.00	47.58	90.53	10
7	47.58	90.53	112.00	112.00	3
8	112.00	112.00	132.00	112.00	3
9	132.00	112.00	176.95	126.98	3
10	176.95	126.98	319.32	134.10	3
11	319.32	134.10	466.55	126.74	3
12	466.55	126.74	521.32	145.00	4
13	521.32	145.00	541.32	145.00	4
14	541.32	145.00	601.32	165.00	4
15	47.58	90.53	50.74	89.47	3
16	50.74	89.47	112.32	110.00	3
17	112.32	110.00	132.32	110.00	3
18	132.32	110.00	177.32	125.00	3
19	177.32	125.00	319.32	132.10	3
20	319.32	132.10	461.32	125.00	3
21	50.74	89.47	53.12	88.68	10
22	53.12	88.68	112.57	108.50	4
23	112.57	108.50	132.57	108.50	4
24	132.57	108.50	177.60	123.51	4
25	177.60	123.51	319.32	130.60	4
26	319.32	130.60	457.41	123.69	4
27	53.12	88.68	64.76	84.80	10
28	64.76	84.80	308.72	84.80	10
29	308.72	84.80	316.37	88.62	1
30	316.37	88.62	332.20	88.62	1
31	332.20	88.62	396.32	110.00	11
32	396.32	110.00	416.32	110.00	11
33	416.32	110.00	457.41	123.69	11
34	457.41	123.69	461.32	125.00	11
35	461.32	125.00	466.55	126.74	11
36	40.00	88.00	46.32	88.00	1
37	46.32	88.00	46.84	88.00	1
38	46.84	88.00	48.84	88.00	12
39	48.84	88.00	64.44	82.80	12
40	64.44	82.80	304.72	82.80	12
41	304.72	82.80	308.72	84.80	1
42	46.84	88.00	46.95	87.53	1
43	46.95	87.53	48.68	87.53	1
44	48.68	87.53	64.43	82.30	1

45	64.43	82.30	303.72	82.30	1
46	303.72	82.30	304.72	82.80	1
47	46.32	88.00	46.55	87.03	1
48	46.55	87.03	48.60	87.03	1
49	48.60	87.03	64.35	81.80	1
50	64.35	81.80	302.72	81.80	1
51	302.72	81.80	303.72	82.30	1
52	.00	76.00	291.12	76.00	1
53	291.12	76.00	302.72	81.80	1
54	286.36	73.62	291.12	76.00	1
55	332.20	88.62	343.37	88.62	1
56	343.37	88.62	369.37	75.62	1
57	369.37	75.62	601.32	75.62	1
58	.00	70.00	601.32	70.00	7
59	.00	60.00	601.32	60.00	8
60	.00	49.00	601.32	49.00	9

ISOTROPIC SOIL PARAMETERS

12 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	120.0	.0	28.0	.00	.0	1
2	62.4	62.4	.0	10.0	.00	.0	1
3	105.0	110.0	.0	30.0	.00	.0	1
4	60.0	60.0	250.0	27.0	.00	.0	1
5	60.0	60.0	250.0	27.0	.00	.0	1
6	60.0	60.0	.0	21.5	.00	.0	1
7	107.0	127.0	.0	13.0	.00	.0	1
8	75.0	110.0	300.0	9.0	.00	.0	1
9	124.0	137.5	.0	35.0	.00	.0	1
10	62.4	62.4	.0	20.5	.00	.0	1
11	62.4	62.4	.0	20.5	.00	.0	1
12	62.4	62.4	.0	20.5	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	77.50
2	601.32	77.50

BOUNDARY LOAD(S)

2 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	176.95	179.92	1376.6	.0
2	187.95	190.92	1376.6	.0

NOTE - Intensity Is Specified As A Uniformly Distributed

Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 15.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	49.63	87.21	63.48	82.62	5.00
2	65.43	82.30	70.43	82.30	5.00
3	71.43	82.30	240.00	82.30	5.00

Following Are Displayed The Ten Most Critical Of The Trial

Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 9 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
-----------	-------------	-------------

1	43.11	89.04
2	46.31	86.64
3	60.34	81.34
4	66.34	83.59
5	164.76	84.29
6	174.49	95.71
7	185.07	106.34
8	191.67	119.81
9	199.08	128.09

*** 2.082 ***

Slice No.	Width (ft)	Weight (lbs)	Individual data on the		38 slices		Earthquake		Surcharge Load (lbs)
			Water Force Top (lbs)	Water Force Bot (lbs)	Tie Force Norm (lbs)	Tie Force Tan (lbs)	Force Hor (lbs)	Force Ver (lbs)	
1	1.4	65.0	.0	.0	.0	.0	.0	.0	.0
2	1.8	332.3	.0	.0	.0	.0	.0	.0	.0
3	.0	2.8	.0	.0	.0	.0	.0	.0	.0
4	.2	64.7	.0	.0	.0	.0	.0	.0	.0
5	.3	86.1	.0	.0	.0	.0	.0	.0	.0
6	.1	32.9	.0	.0	.0	.0	.0	.0	.0
7	.6	196.2	.0	.0	.0	.0	.0	.0	.0
8	1.0	486.0	.0	.0	.0	.0	.0	.0	.0
9	.1	41.4	.0	.0	.0	.0	.0	.0	.0
10	.2	84.1	.0	.0	.0	.0	.0	.0	.0
11	1.9	1142.2	.0	.0	.0	.0	.0	.0	.0
12	2.4	1598.0	.0	.0	.0	.0	.0	.0	.0
13	7.2	6656.4	.0	.0	.0	.0	.0	.0	.0
14	2.5	2629.7	.0	.0	.0	.0	.0	.0	.0
15	.7	732.0	.0	.0	.0	.0	.0	.0	.0
16	.7	689.7	.0	.0	.0	.0	.0	.0	.0
17	.4	419.5	.0	.0	.0	.0	.0	.0	.0
18	1.6	1517.5	.0	.0	.0	.0	.0	.0	.0
19	45.7	64240.8	.0	.0	.0	.0	.0	.0	.0
20	.3	592.2	.0	.0	.0	.0	.0	.0	.0
21	.3	461.6	.0	.0	.0	.0	.0	.0	.0
22	19.4	35751.2	.0	.0	.0	.0	.0	.0	.0
23	.3	589.2	.0	.0	.0	.0	.0	.0	.0
24	.3	462.8	.0	.0	.0	.0	.0	.0	.0
25	32.2	69849.2	.0	.0	.0	.0	.0	.0	.0
26	.4	1068.4	.0	.0	.0	.0	.0	.0	.0
27	9.3	20709.0	.0	.0	.0	.0	.0	.0	.0
28	2.5	4783.1	.0	.0	.0	.0	.0	.0	.0
29	.4	695.9	.0	.0	.0	.0	.0	.0	509.4
30	.3	520.2	.0	.0	.0	.0	.0	.0	385.4
31	2.3	4133.4	.0	.0	.0	.0	.0	.0	3193.7
32	5.1	8069.5	.0	.0	.0	.0	.0	.0	.0
33	2.9	3597.5	.0	.0	.0	.0	.0	.0	.0
34	3.0	2668.8	.0	.0	.0	.0	.0	.0	4088.5
35	.7	506.8	.0	.0	.0	.0	.0	.0	.0
36	4.1	2062.9	.0	.0	.0	.0	.0	.0	.0
37	1.4	407.2	.0	.0	.0	.0	.0	.0	.0
38	1.9	196.7	.0	.0	.0	.0	.0	.0	.0

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	50.36	91.46
2	59.63	84.05
3	70.38	82.36
4	164.64	83.19
5	171.60	96.48
6	181.93	107.35
7	188.00	121.07
8	192.97	127.78

*** 2.184 ***

Failure Surface Specified By 7 Coordinate Points

Point	X-Surf	Y-Surf
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No.	(ft)	(ft)
1	42.18	88.73
2	56.55	85.34
3	66.59	84.28
4	96.19	82.15
5	106.80	92.76
6	113.32	106.27
7	119.04	112.00
***	2.282	***

Failure Surface Specified By 8 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	46.89	90.30
2	55.25	84.68
3	67.37	84.44
4	164.68	83.56
5	172.42	96.40
6	180.12	109.28
7	184.14	123.73
8	185.01	127.38
***	2.314	***

Failure Surface Specified By 8 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	52.10	92.04
2	58.82	86.14
3	67.12	80.59
4	165.29	84.07
5	172.79	97.06
6	182.87	108.17
7	189.12	121.81
8	189.93	127.63
***	2.373	***

Failure Surface Specified By 9 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	38.41	87.47
2	44.36	85.50
3	59.31	84.25
4	68.68	83.33
5	161.38	84.16
6	171.55	95.19
7	174.44	109.91
8	183.00	122.23
9	187.18	127.49
***	2.390	***

Failure Surface Specified By 7 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	47.34	90.45
2	55.44	85.56
3	66.39	80.86
4	99.20	83.97
5	109.20	95.15
6	118.85	106.64
7	124.13	112.00
***	2.416	***

Failure Surface Specified By 8 Coordinate Points

Point	X-Surf	Y-Surf
No.	(ft)	(ft)
1	44.86	89.62
2	55.31	86.27
3	68.11	83.57
4	135.13	84.74
5	144.61	96.37
6	154.27	107.84
7	161.68	120.88

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      8      162.77      122.25
    ***      2.431      ***
Failure Surface Specified By 9 Coordinate Points
Point      X-Surf      Y-Surf
No.        (ft)        (ft)
  1         50.96         91.66
  2         57.61         85.73
  3         69.62         81.62
  4        169.08         82.87
  5        176.54         95.89
  6        187.00        106.63
  7        197.52        117.33
  8        207.99        128.07
  9        208.14        128.54
    ***      2.443      ***

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Failure Surface Specified By 8 Coordinate Points
Point      X-Surf      Y-Surf
No.        (ft)        (ft)
  1         44.75         89.59
  2         51.51         84.90
  3         67.77         84.59
  4        171.22         81.98
  5        181.52         92.89
  6        184.86        107.51
  7        192.47        120.44
  8        199.85        128.13
    ***      2.454      ***

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      Y      A      X      I      S      F      T
      .00      75.17      150.33      225.50      300.66      375.83
X      .00 +-----+-----+-----+-----+-----+
      -      *
      -      *
      -      **
      -      4*
      -      *.
      75.17 +      2 .
      -      ....
      -      3 ..
      -      .37**
      -      ....3
      -      8...**
A      150.33 +      ..88..
      -      1... 8.
      -      001.4**1/1
      -      ...1.122/2
      -      .....91
      -      .....9
X      225.50 +      .....
      -      .....
      -      .....
      -      . ....
      -      ..
      -      *
I      300.66 +      *
      -      **      **
      -      *
      -      *
S      375.83 +
      -      *
      -      *
      450.99 +
      -      **
F      526.16 +      *
      -      *
T      601.32 +      *****      *

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FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
JAN 18 2011
SOUTHWEST DISTRICT
TAMPA

ATTACHMENT C

Revised Part M of the Engineering Report [Revised Ground Water
Monitoring Plan, Attachment M-1, prepared by SCS Engineers,
revised March 10, 2008] Tables M-3 and M-4, Figures M-1 and M-4

**Table M-3.
Revised Groundwater and Surface Water Level Monitoring Points**

Monitoring Location	Current Permit Designation	Permit Designation Phase II Section I	Permit Designation Phase II Section II
MW-1	Background	Background	Background
MW-2	Detection	Detection	Detection
MW-3	Piezometer	Piezometer	Abandoned
MW-4	Background	Background	Background
MW-5	Detection	Detection	Abandoned
MW-6	Piezometer	Piezometer	Piezometer
MW-7	Piezometer	Piezometer	Piezometer
MW-8	Detection	Detection	Abandoned
MW-9	Detection Abandoned	Abandoned	Abandoned
MW-10	Proposed Detection Phase II Section I	Detection Abandoned	Detection Abandoned
MW-10R	Existing Detection Phase II Section I	Detection	Detection
MW-11	Proposed Existing Detection Phase II Section I	Detection	Detection
MW-12	Proposed Detection Phase II Section I	Detection Abandoned	Detection Abandoned
MW-12R	Existing Detection Phase II Section I	Detection	Detection
MW-13	Proposed Detection Phase II Section II	Proposed Detection Phase II Section II	Detection
MW-14	Proposed Detection Phase II Section II	Proposed Detection Phase II Section II	Detection
MW-15	Proposed Detection Phase II Section II	Proposed Detection Phase II Section II	Detection
P-1	Leachate Level Monitoring Abandoned	Leachate Level Monitoring Abandoned	Leachate Level Monitoring
P-2	Leachate Level Monitoring Abandoned	Leachate Level Monitoring Abandoned	Leachate Level Monitoring
P-3	Piezometer Abandoned	Abandoned	Abandoned
P-4	Piezometer Abandoned	Abandoned	Abandoned
P-5	Piezometer Abandoned	Abandoned	Abandoned
P-6	Abandoned	Abandoned	Abandoned
P-7	Piezometer	Piezometer	Piezometer
P-8	Piezometer	Piezometer	Piezometer
P-9	Leachate Level Monitoring	Leachate Level Monitoring	Leachate Level Monitoring
P-10	Leachate Level Monitoring	Leachate Level Monitoring	Leachate Level Monitoring
P-11	Piezometer	Piezometer	Piezometer
P-12	Piezometer Abandoned	Abandoned	Abandoned
P-13	Piezometer	Piezometer	Piezometer
P-14	Piezometer	Piezometer	Piezometer
P-15	Leachate Level Monitoring Abandoned	Leachate Level Monitoring Abandoned	Leachate Level Monitoring
P-16	Leachate Level Monitoring	Abandoned	Abandoned
P-16A	Leachate Level Monitoring	Leachate Level Monitoring	Leachate Level Monitoring
P-17	Proposed-Existing Piezometer	Piezometer	Piezometer
P-18	Proposed-Existing Piezometer	Piezometer	Piezometer
P-19	Proposed-Existing Piezometer	Piezometer	Piezometer
P-20	Proposed-Existing Piezometer	Piezometer	Piezometer
P-21	Proposed-Existing Piezometer	Piezometer	Piezometer
P-22	Proposed-Existing Piezometer	Piezometer	Piezometer
P-23	Proposed-Existing Piezometer	Piezometer	Piezometer
SW-2	Proposed	Surface Water	Surface Water
SG-1	Proposed	Staff Gauge	Staff Gauge
SG-2	Proposed	Staff Gauge	Staff Gauge

REVISED MARCH 10, 2008
REVISED JANUARY 18, 2011

TABLE M-4. REVISED PIEZOMETER CONSTRUCTION DETAILS

FLORIDA DEPARTMENT OF
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JAN 18 2011
SOUTHWEST DISTRICT
TAMPA

Piezometer ID	Diameter	Current Permit Designation	Permit Designation Phase II Section I	Permit Designation Phase II Section II	Total Depth (bls)	Casing Length (ft bls)	Screen Length	TOC Elevation (NGVD)	Ground Surface Elevation (Ft NGVD)	Screen top/bottom (ft. bls)	screen top/bottom (NGVD)	Maximum Water Level (NGVD)	Minimum Water Level (NGVD)	Average Water Level (NGVD)
P-1	2"	Leachate Level Monitoring Abandoned	Leachate Level Monitoring Abandoned	Leachate Level Monitoring	unknown	unknown	unknown	90.14	89.89	unknown	unknown	unknown	unknown	unknown
P-2	2"	Leachate Level Monitoring Abandoned	Leachate Level Monitoring Abandoned	Leachate Level Monitoring	unknown	unknown	unknown	90.64	unknown	unknown	unknown	unknown	unknown	unknown
P-3	2"	Piezometer Abandoned	Abandoned	Abandoned	13.50'	3.50'	10'	89.40	85.90	3.5/13.5	unknown	unknown	unknown	unknown
P-4	2"	Piezometer Abandoned	Abandoned	Abandoned	14.00'	3.50'	10'	88.36	85.90	4.0/13.5	unknown	unknown	unknown	unknown
P-5	2"	Piezometer Abandoned	Abandoned	Abandoned	13.50'	3.50'	10'	89.30	85.90	3.5/13.5	unknown	unknown	unknown	unknown
P-6	2"	Abandoned	Abandoned	Abandoned	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown
P-7	2"	Piezometer	Piezometer	Piezometer	unknown	unknown	unknown	84.16	unknown	unknown	unknown	unknown	unknown	unknown
P-8	2"	Piezometer	Piezometer	Piezometer	unknown	unknown	unknown	84.98	unknown	unknown	unknown	unknown	unknown	unknown
P-9	2"	Leachate Level Monitoring	Leachate Level Monitoring	Leachate Level Monitoring	unknown	unknown	unknown	87.17	85.12	unknown	unknown	unknown	unknown	unknown
P-10	2"	Leachate Level Monitoring	Leachate Level Monitoring	Leachate Level Monitoring	unknown	unknown	unknown	88.66	87.01	unknown	unknown	unknown	unknown	unknown
P-11	2"	Piezometer	Piezometer	Piezometer	unknown	unknown	unknown	88.25	85.03	unknown	unknown	unknown	unknown	unknown
P-12	2"	Piezometer Abandoned	Abandoned	Abandoned	15.00'	3.50'	10'	88.75	NA	3.50/13.5	unknown	unknown	unknown	unknown
P-13	2"	Piezometer	Piezometer	Piezometer	unknown	unknown	unknown	87.65	unknown	unknown	unknown	unknown	unknown	unknown
P-14	2"	Piezometer	Piezometer	Piezometer	unknown	unknown	unknown	86.99	unknown	unknown	unknown	unknown	unknown	unknown
P-15	2"	Leachate Level Monitoring Abandoned	Leachate Level Monitoring Abandoned	Leachate Level Monitoring	13.50'	3.50'	NA	89.23	85.90	3.5/13.5	unknown	unknown	unknown	unknown
P-16	2"	Leachate Level Monitoring	Abandoned	Abandoned	13.50'	3.50'	NA	88.92	85.90	3.5/13.5	unknown	unknown	unknown	unknown
P-16A	2"	Proposed	Leachate Level Monitoring	Leachate Level Monitoring	20.00	2.00'	18'	95	92.00	2.0/20.0	90.0/72.0**	unknown	unknown	unknown
P-17	2"	NA Existing Piezometer	Piezometer	Piezometer	12.00'	2.00'	10'	88.7088.2**	85.8885.2**	2.0/12.0	83.8883.2/73.8873.2**	83.5***	78.3 (MW-1 Jun00)	81***
P-18	2"	NA Existing Piezometer	Piezometer	Piezometer	12.00'	2.00'	10'	87.987.1**	84.4284.1**	2.0/12.0	82.4282.1/72.4272.1**	83.5***	78.3 (MW-1 Jun00)	81***
P-19	2"	NA Existing Piezometer	Piezometer	Piezometer	12.00'	2.00'	10'	86.7987.7**	84.1784.7**	2.0/12.0	82.1782.7/72.1772.7**	82***	76.6 (MW-4 Jun00)	80***
P-20	2"	NA Existing Piezometer	Piezometer	Piezometer	12.00'	2.00'	10'	87.6186.6**	84.6883.6**	2.0/12.0	82.6881.6/72.6871.6**	81.5***	76.6 (MW-4 Jun00)	79.5***
P-21	2"	NA Existing Piezometer	Piezometer	Piezometer	12.00'	2.00'	10'	86.6884.3**	83.5781.3**	2.0/12.0	81.5779.3/71.5769.3**	80.5***	75.6 (MW-2 Jun00)	78***
P-22	2"	NA Existing Piezometer	Piezometer	Piezometer	12.00'	2.00'	10'	87.1587.2**	84.0984.2**	2.0/12.0	82.0982.2/72.0972.2**	81.5***	74.4 (MW-7 Jun00)	78.5***
P-23	2"	NA Existing Piezometer	Piezometer	Piezometer	12.00'	2.00'	10'	86.6386.7**	83.7183.7**	2.0/12.0	81.7181.7/71.7171.7**	83***	74.4 (MW-7 Jun00)	77.5***

NOTES:

* = Proposed Monitoring Locations—Construction specifications based on average water levels observed on the site.

** = Approximate Elevation based upon March 2003 Aerial Topography Survey of the Site by I.F. Rooks and Associates

*** = Approximate based on potentiometric flow maps (Refer to Geotechnical Report attached to this Permit application)

TBD=To Be Determined

NA=Not Applicable

NM=Not Measured

REVISED MARCH 10, 2008

REVISED JANUARY 18, 2011

G:\PROJECT\091990.33.12\OPSMOD-PH2\RAI No. 2\FIGURES.dwg Jan 18, 2011 - 12:42pm Layout Name: MONITORING LOCATIONS By: 2483srf

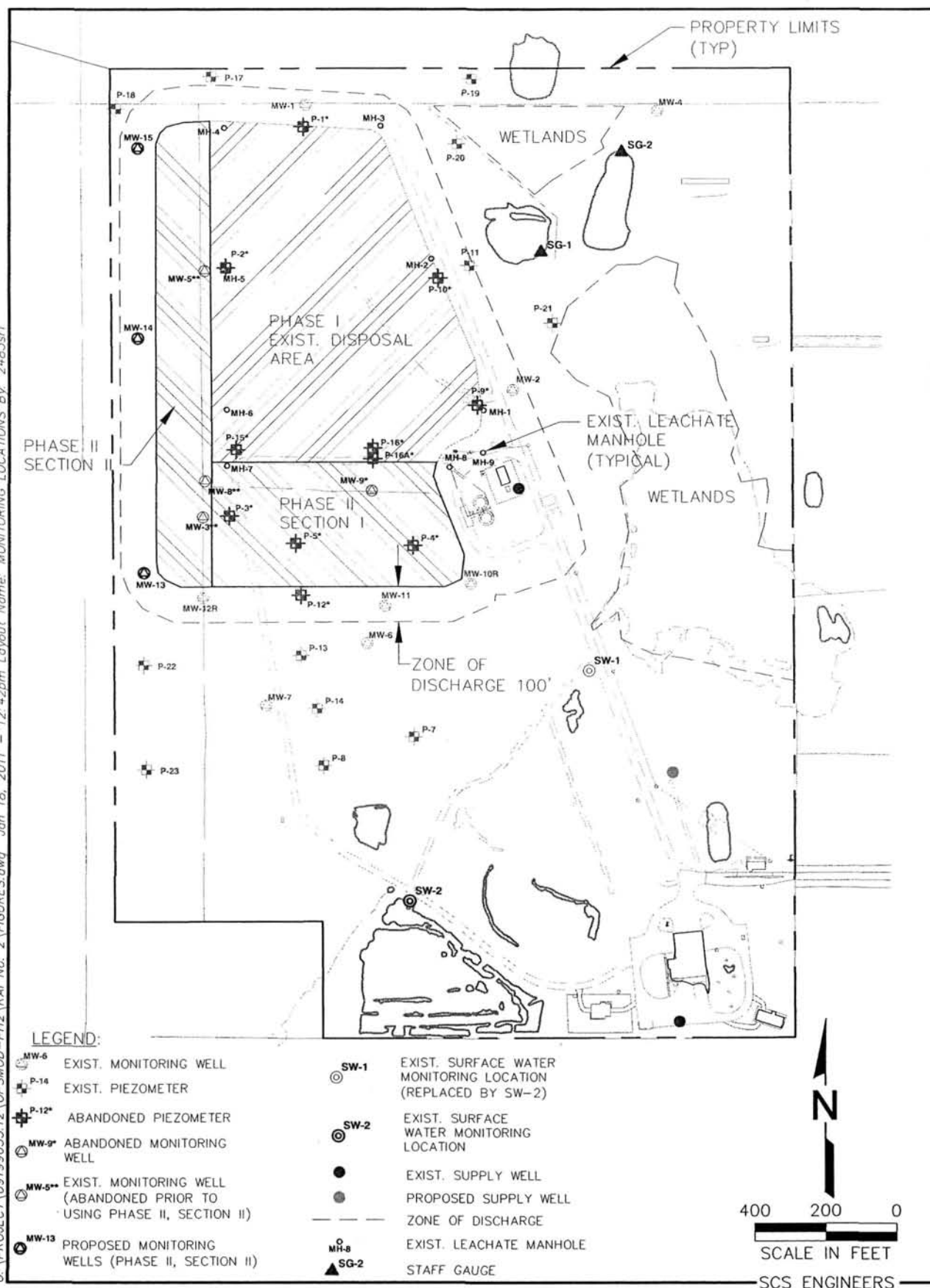


Figure M-1. Hardee County Solid Waste, Groundwater, Surface Water, and Leachate Monitoring Location Points, Hardee County, Florida.

REVISED MARCH 10, 2008
REVISED JANUARY 18, 2011

G:\PROJECT\09199033\12\OPSMOD-PH2\RAI No. 2\FIGURES.dwg Jan 18, 2011 - 12:42pm Layout Name: PiezoLoc By: 2483srf

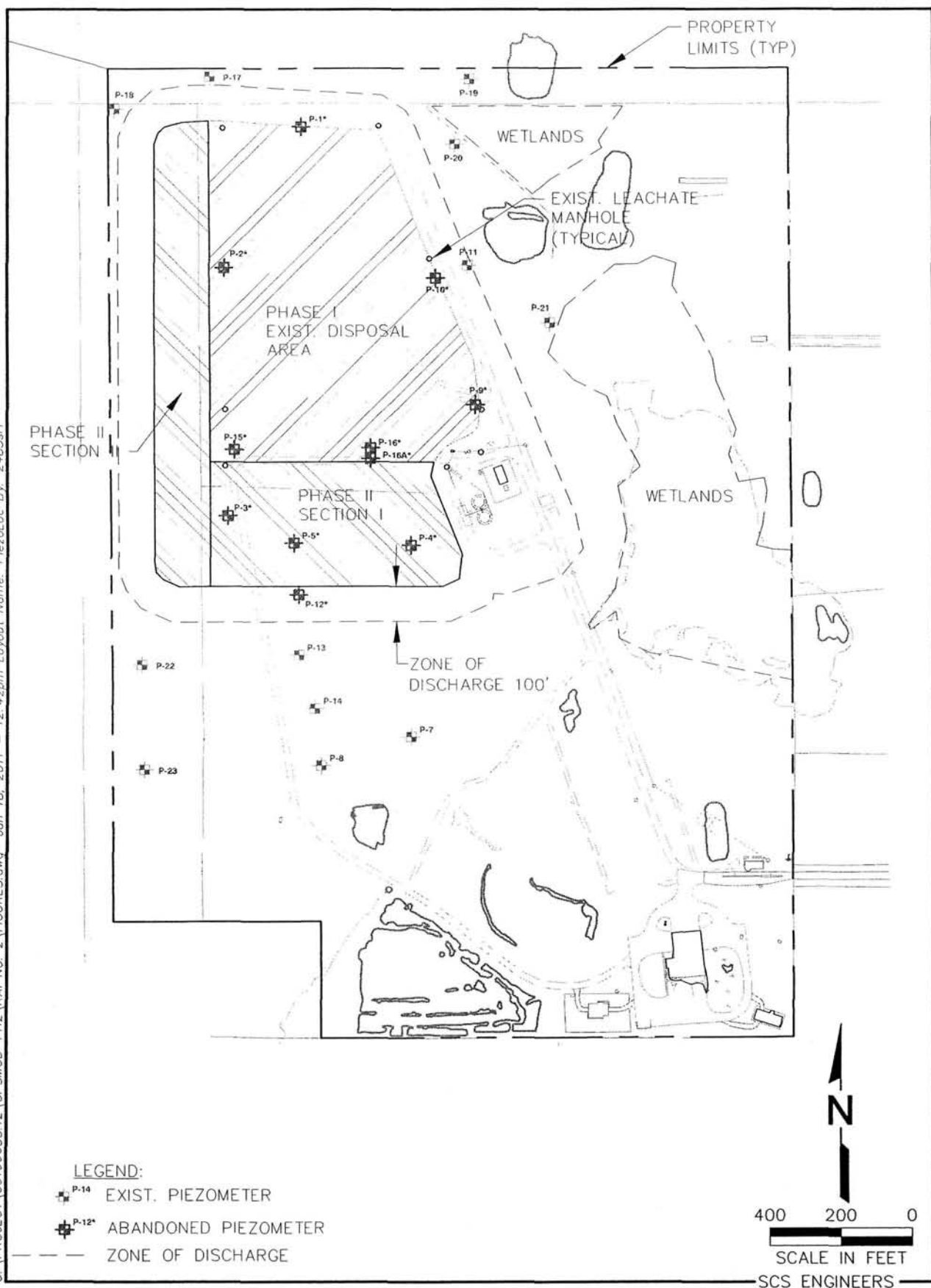


Figure M-4. Hardee County Solid Waste, Piezometer Location Map.

ATTACHMENT D

Revised Operations Plan - Section L.8.a.1 ["Leveling"]

erosion. The landfill operator will take appropriate measures to prevent and correct erosion problems on the site.

The fill sequence has been designed to minimize erosion of landfill sideslopes and washout of adjacent areas. The landfill surface will be inspected daily for cracks, eroded areas, and depressions in the landfill surface. In areas where standing water develops, the area will be filled, compacted, and graded to provide positive drainage. For intermediately covered areas, or other areas that discharge to the stormwater management system, which exhibit significant erosion, will be repaired as follows:

- If greater than 50 percent of the soil cover material has eroded, then the area will be repaired within 7 days.
- If waste is exposed, then the area will be repaired by the end of the next working day.
- If erosion cannot be corrected within seven days, the FDEP will be contacted with a corrective actions plan and schedule.

L.8 LEACHATE MANAGEMENT PROCEDURES

L.8.a Leachate Level Monitoring, Sampling, Analysis, and Data Results

The landfill operator is responsible for maintenance and monitoring of the leachate collection system. This includes leachate and groundwater level monitoring, biannual sampling and analysis of the landfill leachate.

L.8.a.1 Leveling

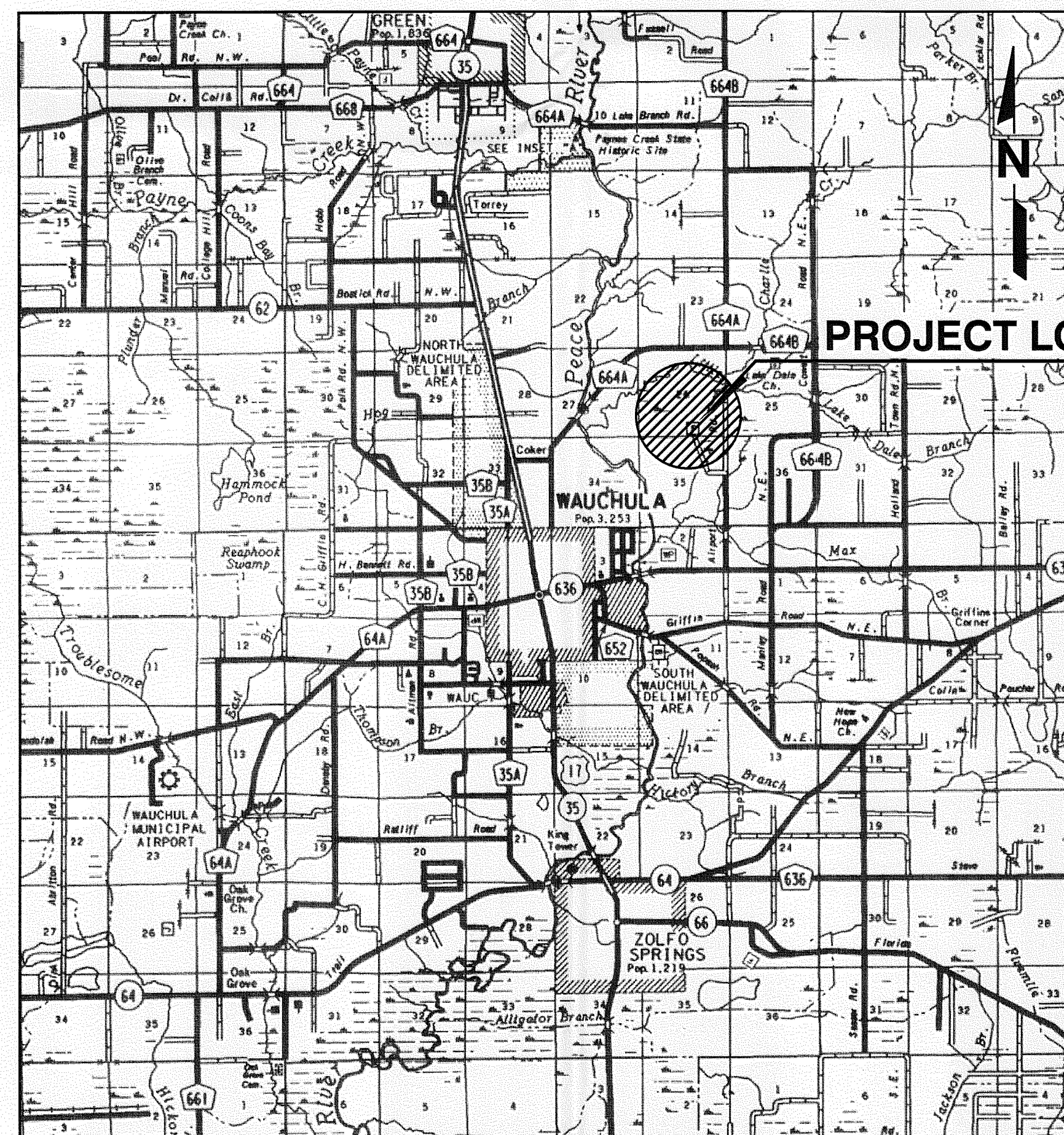
Phase I Leveling

The leachate levels within the Phase I landfill shall be maintained lower than the top of the perimeter liner and a general inward gradient will be maintained between the groundwater levels outside of the lined area and the leachate levels inside the lined area. ~~Leachate levels will be monitored using piezometers P-1, P-2, P-9, P-10, P-15, and P-16.~~ Outside groundwater water levels monitored by groundwater monitoring wells or piezometers (MW-1, MW-5, MW-2, P-11, and MW-8). The leachate levels within the landfill can be lowered by adjusting the pumping rate from Manhole Number 8; however leachate levels can only be lowered to the invert of the perimeter collection pipe. The lowest elevation of perimeter collection pipe is located on the southside of the disposal area at approximately Elevation 72.8 (source: PBS&J record drawings dated July, 2000).

HARDEE COUNTY LANDFILL MODIFIED OPERATIONS DRAWINGS TO INCLUDE PHASE II SECTION I

PREPARED FOR
BOARD OF COUNTY COMMISSIONERS
HARDEE COUNTY, FLORIDA

MAY 2007



LOCATION MAP
NOT TO SCALE



SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
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WWW.SCSENGINEERS.COM
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892
SCS PROJECT NO. 09199033.12

DRAWING INDEX

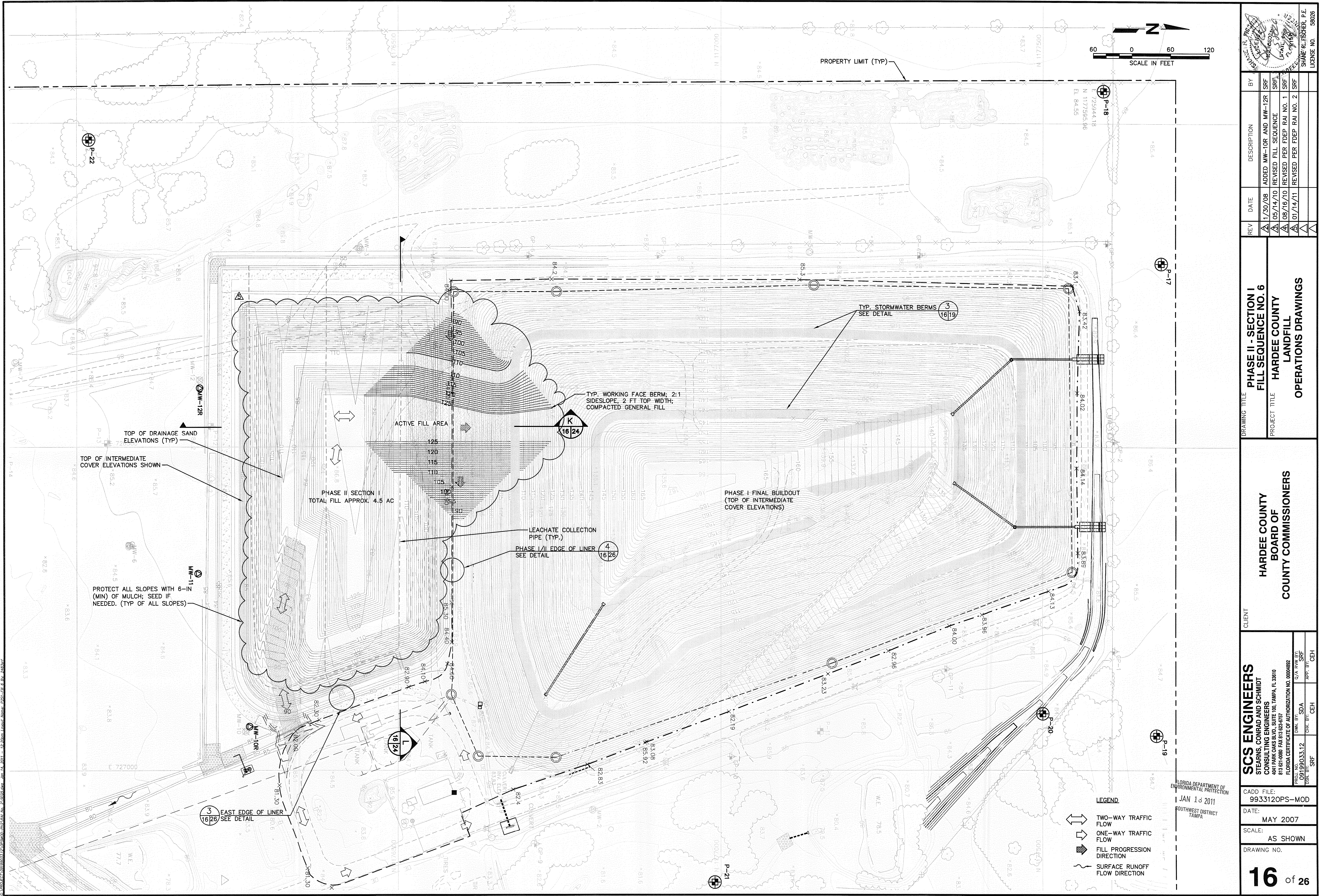
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2	AERIAL PHOTOGRAPHY - MAY 2003
3	AERIAL PHOTOGRAPHY - JUNE 2006
4	PHASE I EXISTING CONDITIONS - JUNE 2006
5	PHASE I FILL SEQUENCE NO. 1
6	PHASE I FILL SEQUENCE NO. 2
7	PHASE I FILL SEQUENCE NO. 3
8	PHASE I FINAL BUILDOUT (TOP OF INTERMEDIATE COVER)
9	PHASE I AND PHASE II SITE PLAN
10	PHASE II SECTION I GROUNDWATER CONTROL SYSTEM
11	PHASE II SECTION I FILL SEQUENCE NO. 1
12	PHASE II SECTION I FILL SEQUENCE NO. 2
13	PHASE II SECTION I FILL SEQUENCE NO. 3
14	PHASE II SECTION I FILL SEQUENCE NO. 4
15	PHASE II SECTION I FILL SEQUENCE NO. 5
16	PHASE II SECTION I FILL SEQUENCE NO. 6
17	PHASE II SECTION I FILL SEQUENCE NO. 7
18	PHASE I SECTIONS
19	PHASE I DETAILS - 1
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24	PHASE II SECTION I SECTIONS
25	PHASE II SECTION I SECTIONS
26	PHASE II SECTION I DETAILS

REVISED OCTOBER 1, 2007
PER FDEP RAI NO. 1
REVISED JANUARY 30, 2008
PER FDEP RAI NO. 2
REVISED MAY 14, 2010
REVISED FILL SEQUENCE
REVISED AUGUST 16, 2010
PER FDEP RAI NO. 1
REVISED JANUARY 14, 2011
PER FDEP RAI NO. 2

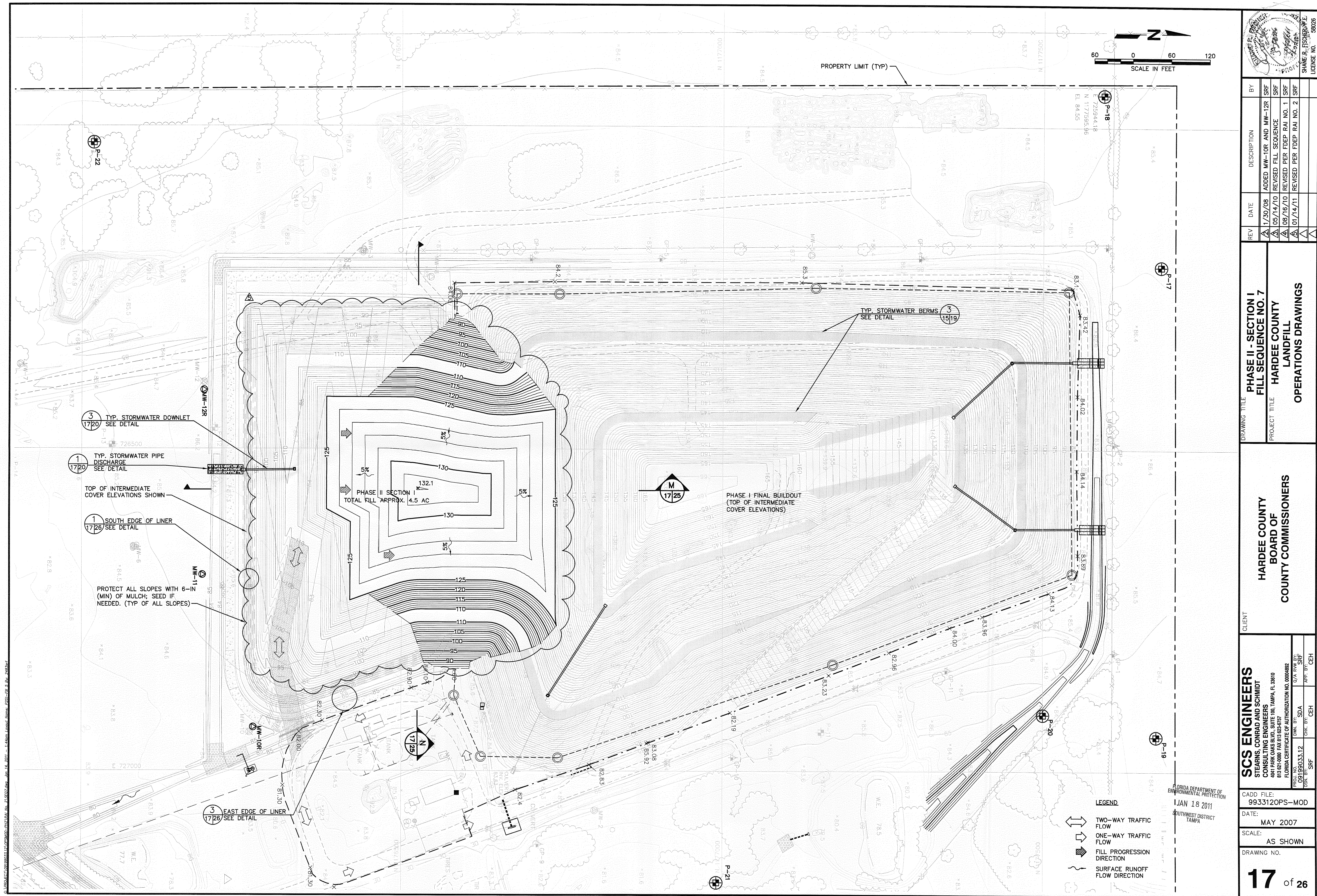
FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
JAN 18 2011
SOUTHWEST DISTRICT
TAMPA

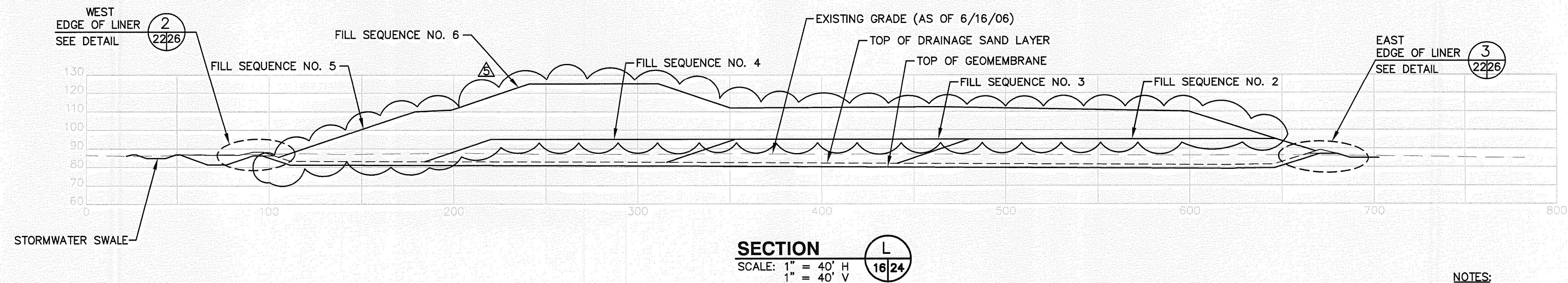
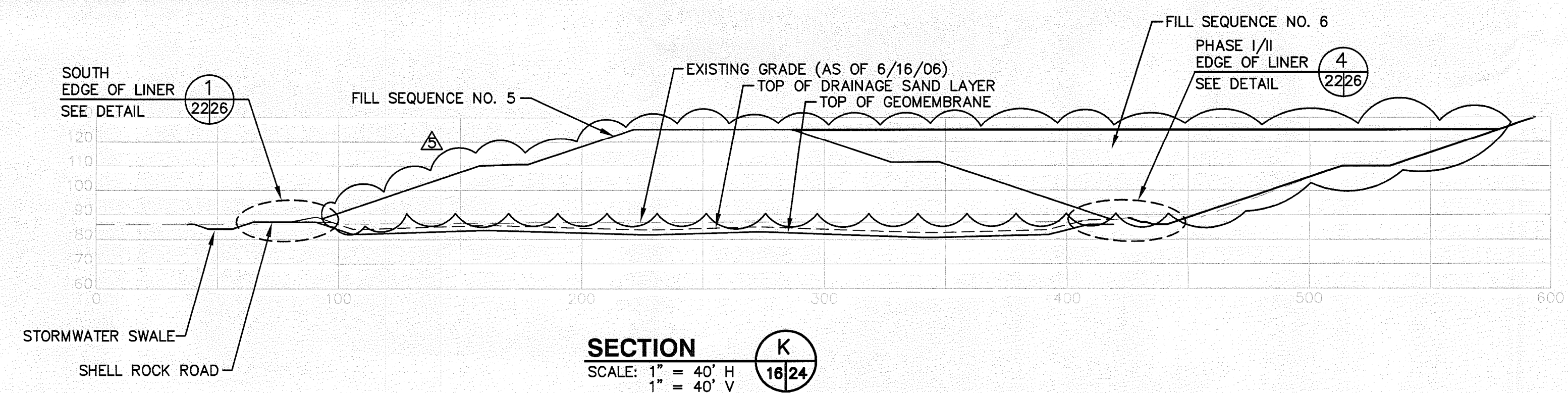
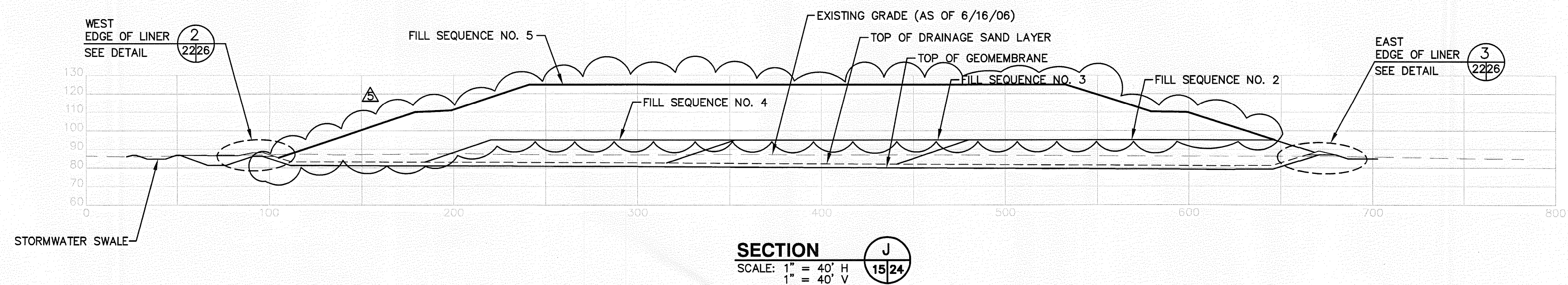
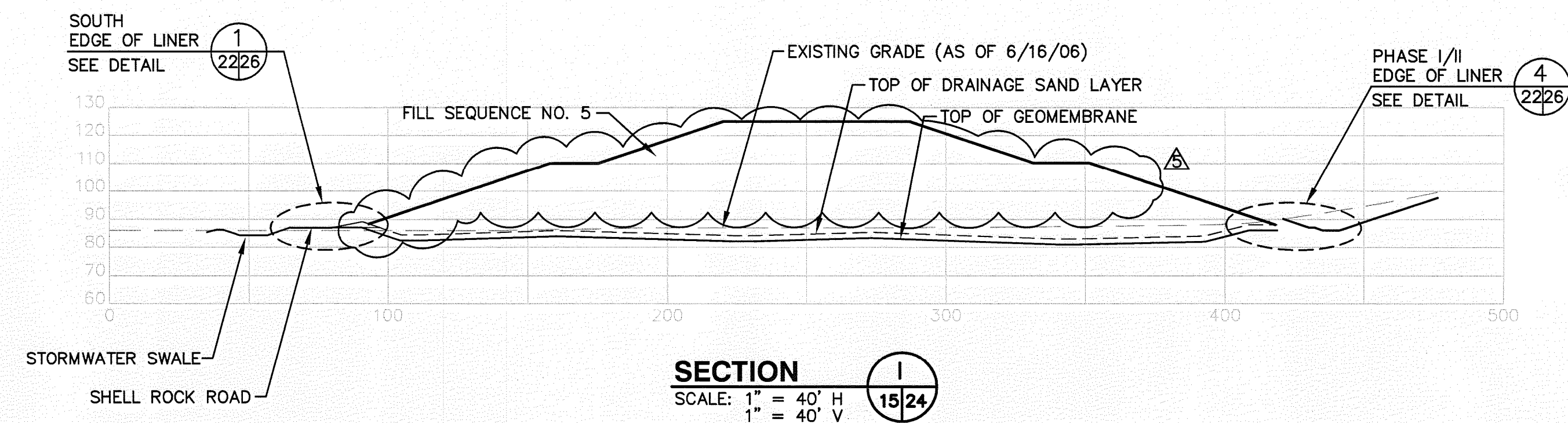
SHANE R. FISCHER, P.E.
FL. P.E. NO. 38006
REGIONAL ENGINEER





SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610 813 821-0080 FAX 813 823-6757 FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004892 PROJ. NO. 09199033.12 DSCR. BY: SRF		CLIENT HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS		DRAWING TITLE PHASE II - SECTION I FILL SEQUENCE NO. 6 PROJECT TITLE HARDEE COUNTY LANDFILL OPERATIONS DRAWINGS		REV 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 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NOTES:

1. SLOPES SHALL NOT EXCEED 3(H):1(V) AT ANY TIME, AFTER APPLICATION OF COVER SOILS. ALL FINAL SLOPES SHALL CONFORM TO THE DESIGN DIMENSIONS, SLOPES, AND ELEVATION.
2. ALL FILL SEQUENCE GRADES SHOWN ARE TOP OF INTERMEDIATE COVER.

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
JAN 18 2011
SOUTHWEST DISTRICT
TAMPA

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
604 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610
813-621-0080 FAX 813-623-5757
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004682

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

CADD FILE:
9993312P2S1SECTIONS

DATE: MAY 2007

PROJECT NO. 091990033.12
DWG. BY: SDA
CHKD. BY: CEH

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

CLIENT: HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

PHASE II SECTIONS I

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

PROJECT TITLE: HARDEE COUNTY LANDFILL

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

OPERATIONS DRAWINGS

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

REVISIONS

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

REVISIONS

DATE: 05/14/10
SCALE: AS SHOWN
DRAWING NO. 24 of 26

REVISIONS

DATE: 05/14/10
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DRAWING NO. 24 of 26

REVISIONS

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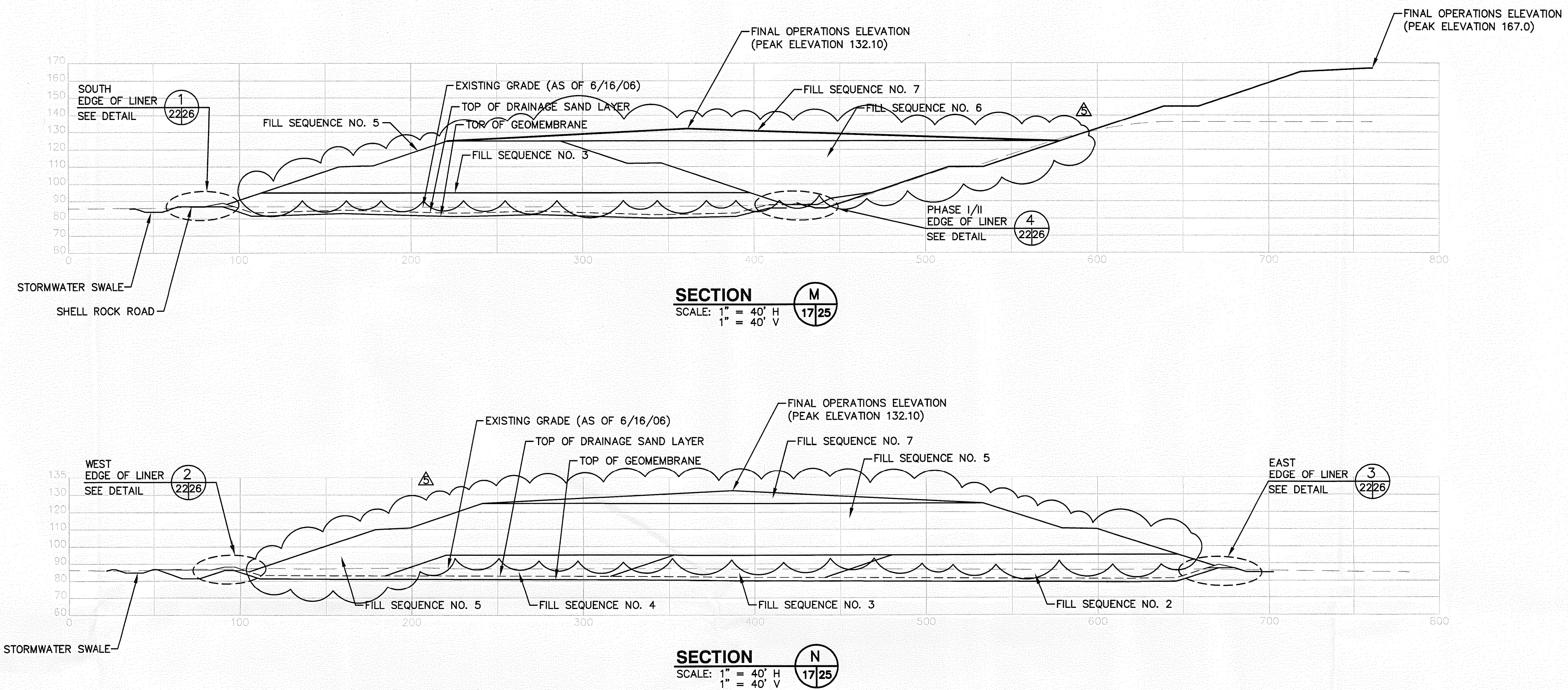
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NOTES:

1. SLOPES SHALL NOT EXCEED 3(H):1(V) AT ANY TIME, AFTER APPLICATION OF COVER SOILS. ALL FINAL SLOPES SHALL CONFORM TO THE DESIGN DIMENSIONS, SLOPES, AND ELEVATION.
2. ALL FILL SEQUENCE GRADES SHOWN ARE TOP OF INTERMEDIATE COVER.

SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 4041 PARK OAKS BLVD., SUITE 100, TAMPA, FL 33610 813 621-0080 FAX 813 625-5757 FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00004862	DWG. BY: SDA CHK. BY: CEH		I/O R/W BY: SRF APP. BY: CEH	
	PROJ. NO. 09199033.12 DIS. BY: SRF			
	CADD FILE: 993312P2S1SECTIONS			
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