

**130 ENVIRONMENTAL PARK**

**APPENDIX D5-B**

**SLOPE STABILITY ANALYSES**



Biggs & Mathews Environmental, Inc.  
Firm Registration No. F-256

11/6/2014

Includes pages D5-B-1 through D5-B-135

Technically Complete October 28, 2014

## APPENDIX D5-B SLOPE STABILITY ANALYSES

The stability of the excavation, retaining wall section, interim waste slope and final waste slope were analyzed with the PCSTABL6 computer program using the Janbu Simplified Method. PCSTABL6 is a two dimensional, limit equilibrium slope stability program that can analyze slope stability by three methods of slices: the Janbu Simplified Method, the Bishop Simplified Method, and the Spencer Method. PCSTABL6 uses random techniques to generate potential failure surfaces for the determination of the factors of safety. The Janbu Simplified Method assumes that the failure occurs by sliding a block of soil on a non-circular slip surface. This method assumes that interslice shear forces are zero and that each slice fails simultaneously. An example calculation for determining the factor of safety using the Janbu Simplified Method is provided on pages D5-B-2 and D5-B-3.

The results of the stability analyses indicate that the proposed slopes are stable under the conditions analyzed. The PCSTABL6 output files are presented on pages D5-B-17 through D5-B-135. The liner and final cover veneer stability calculations are provided on pages D5-B-11 through D5-B-16. Table D5-B-1 summarizes the results of the stability analyses and compares the calculated factor of safety to the recommended minimum factor of safety. The recommended minimum factors of safety were selected from the Corps of Engineers "Design and Construction of Levees" manual (EM 1110-2-1913).

**Table D5-B-1  
Summary of Slope Stability Analyses**

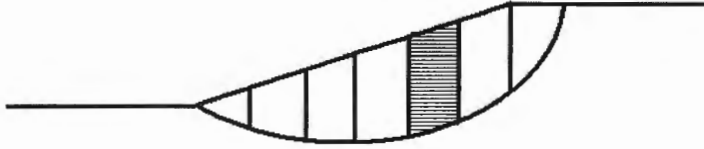
| Condition                              | Minimum Calculated Factor of Safety | Recommended Factor of Safety | Acceptable Factor of Safety |
|----------------------------------------|-------------------------------------|------------------------------|-----------------------------|
| <b>Excavation</b>                      |                                     |                              |                             |
| Short Term                             | 2.8                                 | 1.3                          | Yes                         |
| Long Term                              | 3.0                                 | 1.5                          | Yes                         |
| <b>Retaining Wall</b>                  |                                     |                              |                             |
| Short Term                             | 7.1                                 | 1.3                          | Yes                         |
| Long Term                              | 8.4                                 | 1.5                          | Yes                         |
| <b>Interim Waste Slope</b>             |                                     |                              |                             |
| Circular Arc Failure                   | 1.6                                 | 1.3                          | Yes                         |
| Sliding Block Failure                  | 2.1                                 | 1.3                          | Yes                         |
| <b>Final Waste Slope</b>               |                                     |                              |                             |
| Circular Arc Failure                   | 2.1                                 | 1.5                          | Yes                         |
| Sliding Block Failure                  | 1.8                                 | 1.5                          | Yes                         |
| <b>Liner Veneer</b>                    |                                     |                              |                             |
| Protective Cover/Geocomposite          | 3.2                                 | 1.3                          | Yes                         |
| Geocomposite/Geomembrane               | 3.1                                 | 1.3                          | Yes                         |
| Geomembrane/Soil Liner                 | 2.8                                 | 1.3                          | Yes                         |
| <b>Final Cover Veneer (side slope)</b> |                                     |                              |                             |
| Erosion Layer/Geocomposite             | 3.2                                 | 1.5                          | Yes                         |
| Geocomposite/FMC                       | 3.1                                 | 1.5                          | Yes                         |
| FMC/Infiltration Layer                 | 2.8                                 | 1.5                          | Yes                         |
| <b>Final Cover Veneer (top slope)</b>  |                                     |                              |                             |
| Erosion Layer/Geotextile               | 7.5                                 | 1.5                          | Yes                         |
| Geotextile/FMC                         | 8.7                                 | 1.5                          | Yes                         |
| FMC/Infiltration Layer                 | 12.1                                | 1.5                          | Yes                         |

# 130 Environmental Park Simplified Janbu Method Example Calculation

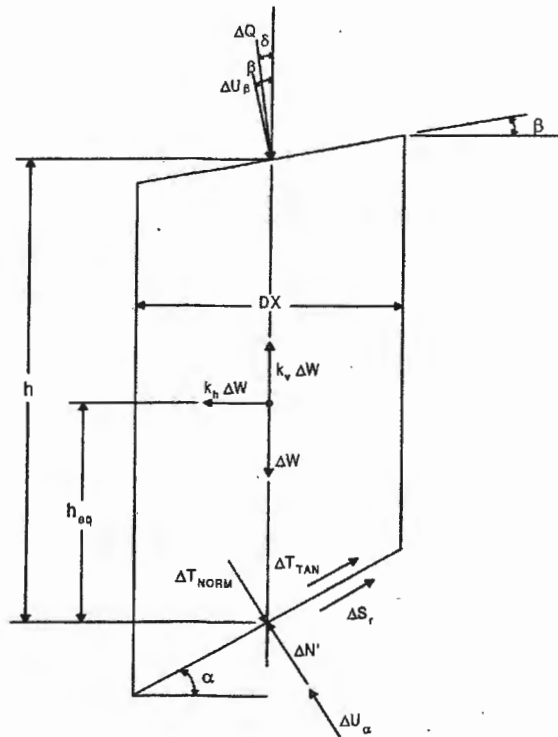
**Required:** Perform an example calculation for determining the factor of safety using the Simplified Janbu Method.

**Reference:** PCSTABL6 for Windows Version 1.16 User's Manual.

**Solution:** Divide the excavation slope into slices of equal width:



The forces on each slice are shown below:



where:

- $\Delta N'$  = total normal force
- $\Delta S_r$  = resisting force
- $C'$  = cohesion force at base
- FS = factor of safety
- $c'$  = cohesion
- $\phi'$  = angle of friction
- $Dx$  = slice width
- $h$  = slice height
- $\alpha$  = base inclination
- $\beta$  = top inclination
- $\delta$  = uniform surcharge inclination
- $\Delta W$  = weight of slice
- $k_h$  = horizontal earthquake coefficient
- $k_v$  = vertical earthquake coefficient
- $\Delta Q$  = uniform surcharge resultant at top
- $\Delta T_{NORM}$  = reinforcement normal force
- $\Delta T_{TAN}$  = reinforcement tangent force

# **130 Environmental Park Simplified Janbu Method Example Calculation**

and

$$C' = \frac{c' DX}{\cos \alpha} \quad \Delta S_r = \frac{C' + \Delta N' \tan \phi'}{FS} \quad FS = \frac{\sum_{i=1}^n \left| \frac{B_1}{1 + \frac{B_2}{FS}} \right|}{\sum_{i=1}^n B_3}$$

$$B_1 = \frac{C' + \tan \phi' \sec \alpha [\Delta W (1 - k_v) - \Delta T_{TAN} \sin \alpha + (\Delta T_{NORM} - \Delta U_\alpha) \cos \alpha + \Delta U_\beta \cos \beta + \Delta Q \cos \delta]}{\cos \alpha}$$

$$B_2 = \tan \alpha \tan \phi'$$

$$B_3 = \left[ \Delta W (\tan \alpha + k_h - k_v \tan \alpha) + \Delta U_\beta (\cos \beta \tan \alpha - \sin \beta) + \Delta Q (\cos \delta \tan \alpha - \sin \delta) - \frac{\Delta T_{TAN}}{\cos \alpha} \right]$$

Calculate the FS for a single slice where:

$$\begin{aligned} c' &= 300 \text{psf} \\ C' &= (300 \text{psf})(1 \text{ft})/(\cos 10^\circ) = 304.6 \text{lb/ft} \\ \phi' &= 13^\circ \\ DX &= 1 \text{ft} \\ \alpha &= 10^\circ \\ \beta &= 14^\circ \\ \delta &= 0 \\ h &= 20 \text{ft} \\ \Delta W &= (129.5 \text{pcf})(1 \text{ft})(20 \text{ft}) = 2,590 \text{lb/ft} \\ k_h &= 0 \\ k_v &= 0 \\ \Delta Q &= 0 \\ \Delta T_{NORM} &= 0 \\ \Delta T_{TAN} &= 0 \\ B_1 &= [304.6 \text{lb/ft} + (\tan 13^\circ)(\sec 10^\circ)(2,590 \text{lb/ft})]/\cos 10^\circ = 925.8 \\ B_2 &= (\tan 10^\circ)(\tan 13^\circ) = 0.04 \\ B_3 &= (2,590 \text{lb/ft})(\tan 10^\circ) = 456.7 \\ FS &= [925.8 / (1 + 0.04/FS)] / (1/456.7) \end{aligned}$$

|                 |
|-----------------|
| <b>FS = 2.0</b> |
|-----------------|

## 130 Environmental Park Slope Stability Parameters

**Required:** Select the appropriate soil parameters for the slope stability analyses.

- References:**
- 1) Attachment E - Geology Report, 130 Environmental Park Permit Application.
  - 2) Table 8-3.1 Typical Engineering Properties of Compacted Materials, *Geotechnical Engineering Procedures for Foundation Design of Buildings and Structures*, Naval Facilities Engineering Command,
  - 3) Tests performed by TRI for Biggs & Mathews Environmental (Pages D5-B-5 through D5-B-10).
  - 4) Qian, X, Koerner, R.M., and Gray, Donald H., *Geotechnical Aspects of Landfill Design and Construction*, Prentice Hall, 2002.

**Solution:** The following materials may be included in the slope stability analyses.

| Physical Properties |                |                            |                            |                            |
|---------------------|----------------|----------------------------|----------------------------|----------------------------|
| Material            | Description    | Moisture <sup>a</sup><br>% | Dry Wt <sup>a</sup><br>pcf | Wet Wt <sup>b</sup><br>pcf |
| Stratum II          | Clay           | 23.9                       | 99.7                       | 123.5                      |
| Stratum III         | Clay           | 24.8                       | 97.8                       | 122.1                      |
| Liner/Cover         | Compacted Clay | 26.3                       | 86.6                       | 109.4                      |
| Liner/Cover         | Geosynthetics  | N/A                        | N/A                        | 109.4                      |
| Solid Waste         | Solid Waste    | N/A                        | N/A                        | 60.0                       |

<sup>a</sup> Reference 1 average laboratory test values

<sup>b</sup> Wet Wt = Dry Wt x (1 + Moisture)

Total stress parameters will be used to analyze short-term stability and effective stress parameters will be used to analyze long-term stability.

| Strength Parameters for Circular and Sliding Block Slope Stability |                   |                   |                   |                  |
|--------------------------------------------------------------------|-------------------|-------------------|-------------------|------------------|
| Material                                                           | Total Stress      |                   | Effective Stress  |                  |
|                                                                    | cohesion (psf)    | friction (deg)    | cohesion (psf)    | friction (deg)   |
| Stratum II Clay                                                    | 1935 <sup>a</sup> | 11.1 <sup>a</sup> | 2381 <sup>a</sup> | 9.6 <sup>a</sup> |
| Stratum III Clay                                                   | 1935 <sup>a</sup> | 11.1 <sup>a</sup> | 2381 <sup>a</sup> | 9.6 <sup>a</sup> |
| Liner/Cover - Compacted Clay                                       | 1935 <sup>b</sup> | 11.1 <sup>b</sup> | 2381 <sup>b</sup> | 9.6 <sup>b</sup> |
| Geomembrane/Soil Liner                                             | 1361 <sup>c</sup> | 5.2 <sup>c</sup>  | 1361 <sup>c</sup> | 5.2 <sup>c</sup> |
| Solid Waste                                                        | 250 <sup>d</sup>  | 23 <sup>d</sup>   | 250 <sup>d</sup>  | 23 <sup>d</sup>  |

<sup>a</sup> Reference 1 average laboratory test values

<sup>b</sup> Same as Stratum II and III Clay

<sup>c</sup> Reference 3 Critical interface in composite liner or cover system used for calculation.

<sup>d</sup> Reference 4

Interface parameters for the geosynthetics will be used to evaluate the liner and cover veneer stability.

| Liner Strength Parameters for Veneer Slope Stability |                          |                 |
|------------------------------------------------------|--------------------------|-----------------|
| Material Interface                                   | Friction Angle (Degrees) | Cohesion (psf)  |
| Protective Cover/Geocomposite                        | 34.2 <sup>a</sup>        | 24 <sup>a</sup> |
| Geocomposite/Geomembrane                             | 25.2 <sup>a</sup>        | 61 <sup>a</sup> |
| Geomembrane/Soil Liner                               | 27.6 <sup>a</sup>        | 37 <sup>a</sup> |

<sup>a</sup> Reference 3

| Final Cover Strength Parameters for Veneer Slope Stability |                          |                 |
|------------------------------------------------------------|--------------------------|-----------------|
| Material Interface                                         | Friction Angle (Degrees) | Cohesion (psf)  |
| Erosion Layer/Geotextile or Geocomposite                   | 34.2 <sup>a</sup>        | 24 <sup>a</sup> |
| Geotextile or Geocomposite/Geomembrane                     | 25.2 <sup>a</sup>        | 61 <sup>a</sup> |
| Geomembrane/Infiltration Layer                             | 27.6 <sup>a</sup>        | 37 <sup>a</sup> |

<sup>a</sup> Reference 3



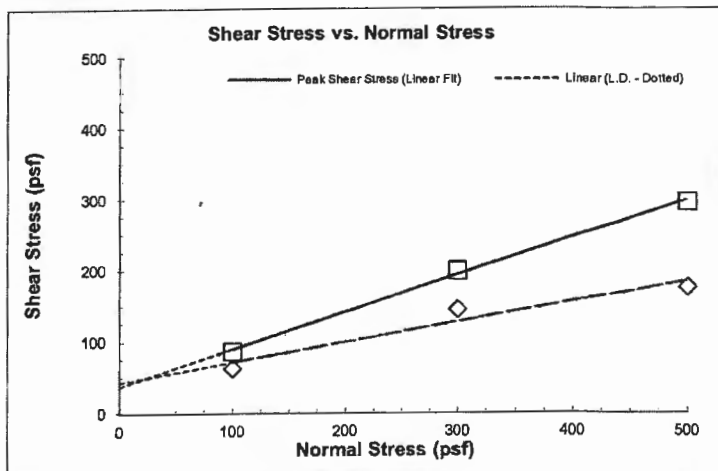
## Interface Friction Test Report

Client: **Biggs & Mathews Environmental**  
Project: **Subtitle D Liner**  
Test Date: 10/29/13-10/30/13

TRI Log#: E2373-96-09  
Test Method: ASTM D5321

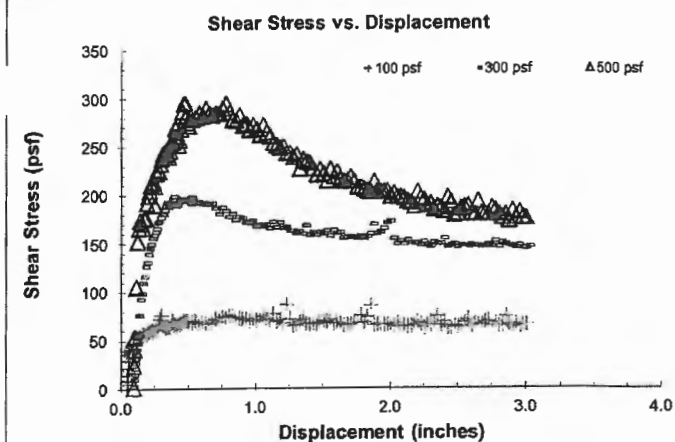
John M. Allen, P.E., 10/30/2013  
Quality Review/Date

### Tested Interface: BME-1 Soil vs. 60 mil HDPE Textured Geomembrane



| Test Results                   |      |                                |
|--------------------------------|------|--------------------------------|
|                                | Peak | Large Displacement (@ 3.0 in.) |
| Friction Angle (degrees):      | 27.6 | 15.8                           |
| Y-intercept or Adhesion (psf): | 37   | 43                             |

Shearing occurred at the interface.



| Test Conditions                   |                                                                                    |
|-----------------------------------|------------------------------------------------------------------------------------|
| Upper Box &                       | BME-1 Soil remolded to 87 pcf at the optimum moisture content or 87.0 pcf at 26.3% |
| Lower Box                         | 60 mil HDPE textured geomembrane                                                   |
| Box Dimensions: 12"x12"x4"        |                                                                                    |
| Interface Conditioning:           | Interface soaked and loading applied for a minimum of 16 hours prior to shear.     |
| Test Condition: Wet               |                                                                                    |
| Shearing Rate: 0.04 inches/minute |                                                                                    |

| Test Data                                       |      |      |      |
|-------------------------------------------------|------|------|------|
| Specimen No.                                    | 1    | 2    | 3    |
| Bearing Slide Resistance (lbs)                  | 9    | 3    | 13   |
| Normal Stress (psf)                             | 100  | 300  | 500  |
| Corrected Peak Shear Stress (psf)               | 87   | 199  | 296  |
| Corrected Large Displacement Shear Stress (psf) | 63   | 145  | 176  |
| Peak Secant Angle (degrees)                     | 40.9 | 33.6 | 30.6 |
| Large Displacement Secant Angle (degrees)       | 32.2 | 25.8 | 19.4 |
| Asperity (mils)                                 | 17.6 | 18.0 | 18.2 |

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

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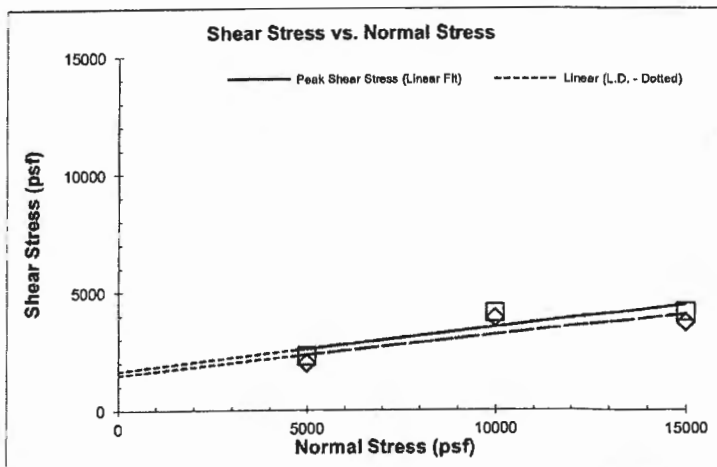
## Interface Friction Test Report

Client: **Biggs & Mathews Environmental**  
Project: **Subtitle D Liner**  
Test Date: **11/11/13-11/12/13**

TRI Log#: **E2373-96-09**  
Test Method: **ASTM D5321**

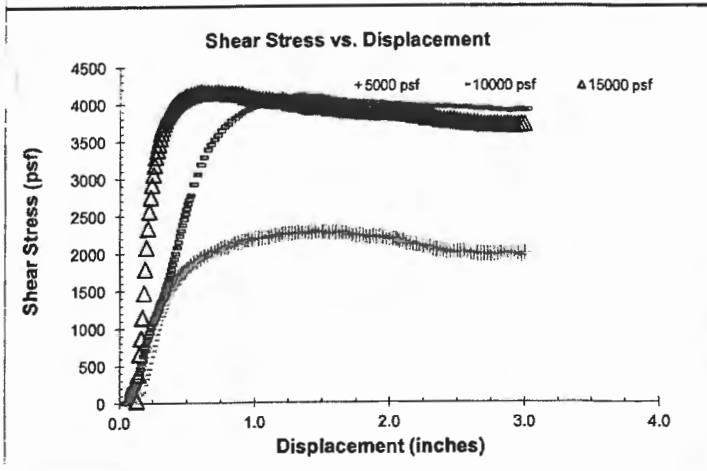
John M. Allen, P.E., 11/12/2013  
Quality Review/Date

### Tested Interface: BME-2 Soil vs. Double-sided Geocomposite



| Test Results                   |      |                                |
|--------------------------------|------|--------------------------------|
|                                | Peak | Large Displacement (@ 3.0 in.) |
| Friction Angle (degrees):      | 10.6 | 9.7                            |
| Y-intercept or Adhesion (psf): | 1653 | 1489                           |

Shearing occurred at the interface.



| Test Conditions         |                                                                              |
|-------------------------|------------------------------------------------------------------------------|
| Upper Box &             | BME-2 Soil remolded to 93 pcf at the as received moisture content of 12.9%   |
| Lower Box               | double-sided geocomposite                                                    |
| Box Dimensions:         | 12"x12"x4"                                                                   |
| Interface Conditioning: | Interface soaked and loading applied for a minimum of 1 hour prior to shear. |
| Test Condition:         | Wet                                                                          |
| Shearing Rate:          | 0.04 inches/minute                                                           |

| Test Data                                       |      |       |       |
|-------------------------------------------------|------|-------|-------|
| Specimen No.                                    | 1    | 2     | 3     |
| Bearing Slide Resistance (lbs)                  | 56   | 3     | 151   |
| Normal Stress (psf)                             | 5000 | 10000 | 15000 |
| Corrected Peak Shear Stress (psf)               | 2289 | 4116  | 4157  |
| Corrected Large Displacement Shear Stress (psf) | 1995 | 3904  | 3708  |
| Peak Secant Angle (degrees)                     | 24.6 | 22.4  | 15.5  |
| Large Displacement Secant Angle (degrees)       | 21.8 | 21.3  | 13.9  |

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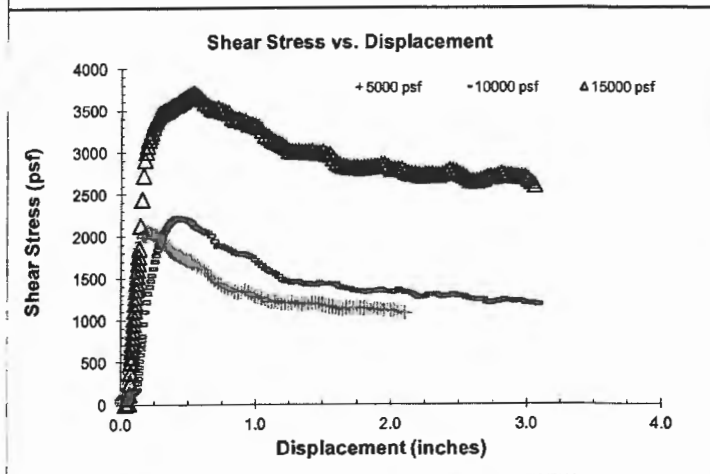
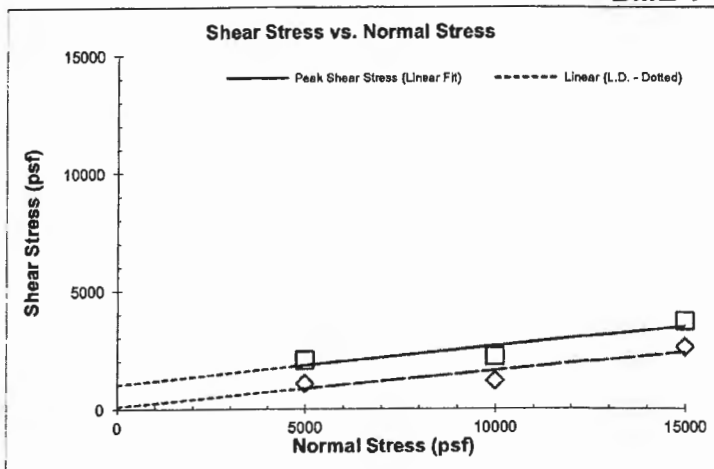
## Interface Friction Test Report

Client: **Biggs & Mathews Environmental**  
Project: **Subtitle D Liner**  
Test Date: **11/15/13-11/18/13**

TRI Log#: **E2373-96-09**  
Test Method: **ASTM D5321**

John M. Allen, P.E., 11/18/2013  
Quality Review/Date

**Tested Interface: Double-sided Geocomposite vs. 60 mil HDPE Textured Geomembrane vs. BME 1 Soil**



| Test Results                   |      |                                |
|--------------------------------|------|--------------------------------|
|                                | Peak | Large Displacement (@ 3.0 in.) |
| Friction Angle (degrees):      | 9.3  | 8.7                            |
| Y-intercept or Adhesion (psf): | 1017 | 97                             |

Shearing occurred at the geomembrane soil interface.

| Test Conditions         |                                                                                |
|-------------------------|--------------------------------------------------------------------------------|
| Upper Box & Floating    | double-sided geocomposite<br>60 mil HDPE textured geomembrane                  |
| Lower Box               | BME 1 Soil remolded to 87 pcf at 26.3% moisture content                        |
| Box Dimensions:         | 12"x12"x4"                                                                     |
| Interface Conditioning: | Interface soaked and loading applied for a minimum of 16 hours prior to shear. |
| Test Condition:         | Wet                                                                            |
| Shearing Rate:          | 0.04 inches/minute                                                             |

| Test Data                                       |      |       |       |
|-------------------------------------------------|------|-------|-------|
| Specimen No.                                    | 1    | 2     | 3     |
| Bearing Slide Resistance (lbs)                  | 56   | 3     | 151   |
| Normal Stress (psf)                             | 5000 | 10000 | 15000 |
| Corrected Peak Shear Stress (psf)               | 2058 | 2221  | 3700  |
| Corrected Large Displacement Shear Stress (psf) | 1077 | 1185  | 2601  |
| Peak Secant Angle (degrees)                     | 22.4 | 12.5  | 13.9  |
| Large Displacement Secant Angle (degrees)       | 12.2 | 6.8   | 9.8   |
| Asperity (mils)                                 | 20.4 | 19.6  | 19.8  |

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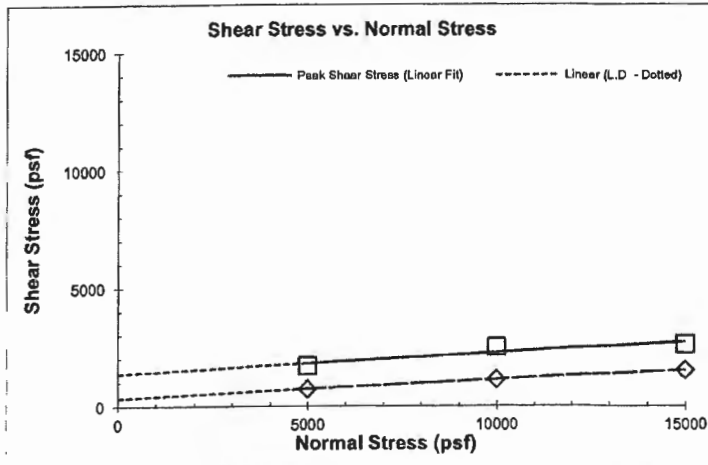
## Interface Friction Test Report

Client: **Biggs & Mathews Environmental**  
Project: **Subtitle D Liner**  
Test Date: **11/13/13-11/14/13**

TRI Log#: E2373-96-09  
Test Method: ASTM D5321

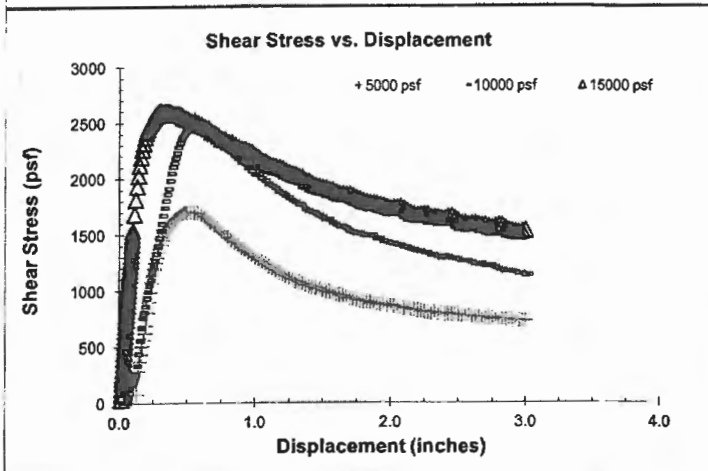
John M. Allen, P.E., 11/14/2013  
Quality Review/Date

### Tested Interface: BME-1 Soil vs. 60 mil HDPE Textured Geomembrane



| Test Results                   |      |                                |
|--------------------------------|------|--------------------------------|
|                                | Peak | Large Displacement (@ 3.0 in.) |
| Friction Angle (degrees):      | 5.2  | 4.5                            |
| Y-intercept or Adhesion (psf): | 1361 | 333                            |

Shearing occurred at the interface.



| Test Conditions                   |                                                                                    |
|-----------------------------------|------------------------------------------------------------------------------------|
| Upper Box &                       | BME-1 Soil remolded to 87 pcf at the optimum moisture content or 87.0 pcf at 26.3% |
| Lower Box                         | 60 mil HDPE textured geomembrane                                                   |
| Box Dimensions: 12"x12"x4"        |                                                                                    |
| Interface Conditioning:           | Interface soaked and loading applied for a minimum of 16 hours prior to shear.     |
| Test Condition: Wet               |                                                                                    |
| Shearing Rate: 0.04 inches/minute |                                                                                    |

| Test Data                                       |      |       |       |
|-------------------------------------------------|------|-------|-------|
| Specimen No.                                    | 1    | 2     | 3     |
| Bearing Slide Resistance (lbs)                  | 56   | 3     | 151   |
| Normal Stress (psf)                             | 5000 | 10000 | 15000 |
| Corrected Peak Shear Stress (psf)               | 1701 | 2490  | 2605  |
| Corrected Large Displacement Shear Stress (psf) | 724  | 1131  | 1514  |
| Peak Secant Angle (degrees)                     | 18.8 | 14.0  | 9.9   |
| Large Displacement Secant Angle (degrees)       | 8.2  | 6.5   | 5.8   |
| Asperity (mils)                                 | 23.2 | 24.4  | 23.0  |

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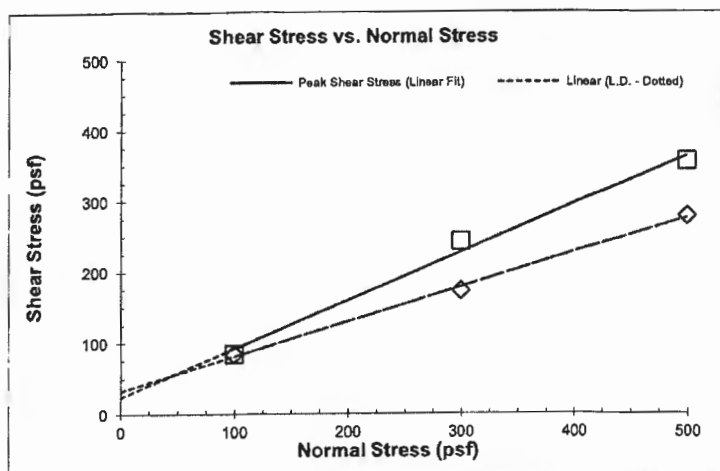
## Interface Friction Test Report

Client: **Biggs & Mathews Environmental**  
Project: **Subtitle D Liner**  
Test Date: 11/11/13-11/11/13

TRI Log#: E2373-96-09  
Test Method: ASTM D5321

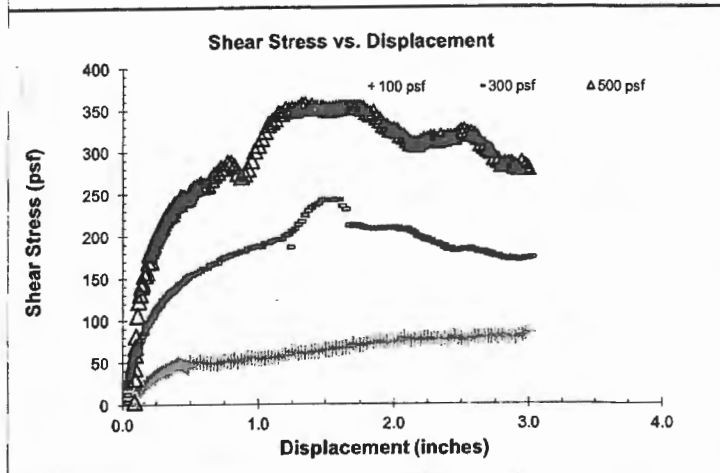
John M. Allen, P.E., 11/11/2013  
Quality Review/Date

### Tested Interface: BME-2 Soil vs. Double-sided Geocomposite



| Test Results                   |      |                                |
|--------------------------------|------|--------------------------------|
|                                | Peak | Large Displacement (@ 3.0 in.) |
| Friction Angle (degrees):      | 34.2 | 26.0                           |
| Y-intercept or Adhesion (psf): | 24   | 32                             |

Shearing occurred at the interface.



| Test Conditions                   |                                                                              |
|-----------------------------------|------------------------------------------------------------------------------|
| Upper Box &                       | BME-2 Soil remolded to 93 pcf at the as received moisture content of 12.9%   |
| Lower Box                         | double-sided geocomposite                                                    |
| Box Dimensions: 12"x12"x4"        |                                                                              |
| Interface Conditioning:           | Interface soaked and loading applied for a minimum of 1 hour prior to shear. |
| Test Condition: Wet               |                                                                              |
| Shearing Rate: 0.04 inches/minute |                                                                              |

| Test Data                                       |      |      |      |
|-------------------------------------------------|------|------|------|
| Specimen No.                                    | 1    | 2    | 3    |
| Bearing Slide Resistance (lbs)                  | 9    | 3    | 13   |
| Normal Stress (psf)                             | 100  | 300  | 500  |
| Corrected Peak Shear Stress (psf)               | 84   | 243  | 356  |
| Corrected Large Displacement Shear Stress (psf) | 84   | 173  | 279  |
| Peak Secant Angle (degrees)                     | 40.1 | 39.0 | 35.5 |
| Large Displacement Secant Angle (degrees)       | 40.0 | 30.0 | 29.2 |

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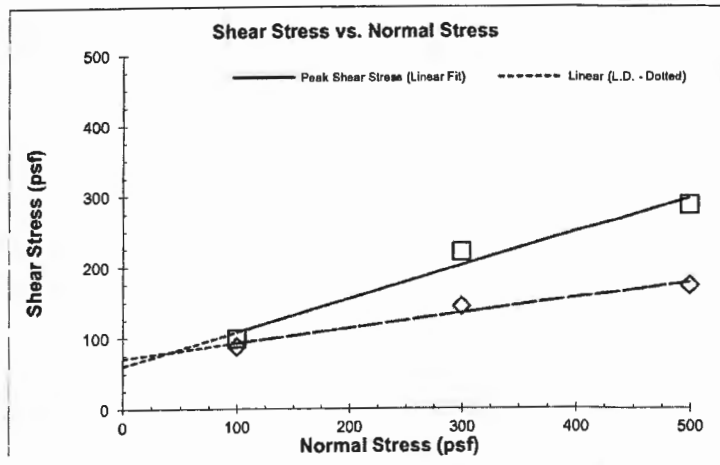
## Interface Friction Test Report

Client: **Biggs & Mathews Environmental**  
Project: **Subtitle D Liner**  
Test Date: 11/11/13-11/12/13

TRI Log#: E2373-96-09  
Test Method: ASTM D5321

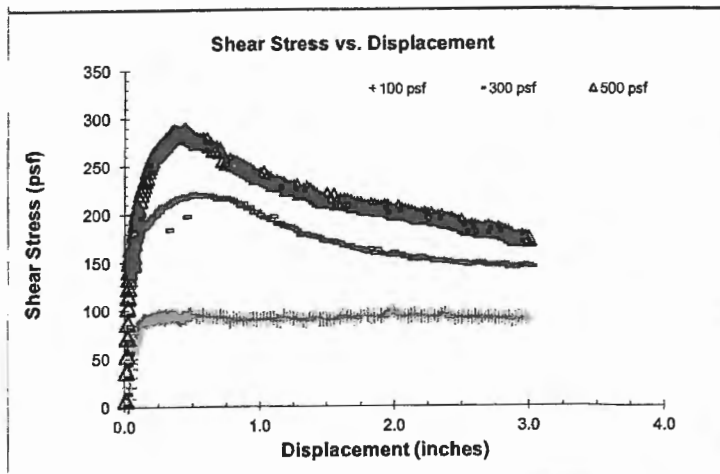
John M. Allen, P.E., 11/12/2013  
Quality Review/Date

**Tested Interface: Double-sided Geocomposite vs. 60 mil HDPE Textured Geomembrane vs. BME 1 Soil**



| Test Results                   |      |                                |
|--------------------------------|------|--------------------------------|
|                                | Peak | Large Displacement (@ 3.0 in.) |
| Friction Angle (degrees):      | 25.2 | 12.0                           |
| Y-intercept or Adhesion (psf): | 61   | 71                             |

Shearing occurred at the geomembrane soil interface.



| Test Conditions         |                                                                                |
|-------------------------|--------------------------------------------------------------------------------|
| Upper Box & Floating    | double-sided geocomposite<br>60 mil HDPE textured geomembrane                  |
| Lower Box               | BME 1 Soil remolded to 87 pcf at 26.3% moisture content                        |
| Box Dimensions:         | 12"x12"x4"                                                                     |
| Interface Conditioning: | Interface soaked and loading applied for a minimum of 16 hours prior to shear. |
| Test Condition:         | Wet                                                                            |
| Shearing Rate:          | 0.04 inches/minute                                                             |

| Test Data                                       |      |      |      |
|-------------------------------------------------|------|------|------|
| Specimen No.                                    | 1    | 2    | 3    |
| Bearing Slide Resistance (lbs)                  | 9    | 3    | 13   |
| Normal Stress (psf)                             | 100  | 300  | 500  |
| Corrected Peak Shear Stress (psf)               | 99   | 221  | 287  |
| Corrected Large Displacement Shear Stress (psf) | 88   | 144  | 173  |
| Peak Secant Angle (degrees)                     | 44.6 | 36.4 | 29.9 |
| Large Displacement Secant Angle (degrees)       | 41.3 | 25.6 | 19.1 |
| Asperity (mils)                                 | 25.4 | 26.4 | 29.2 |

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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D5-B-10

Technically Complete October 28, 2014

# 130 Environmental Park Slope Stability Parameters

## Geosynthetic Stability Analyses

**Required:**

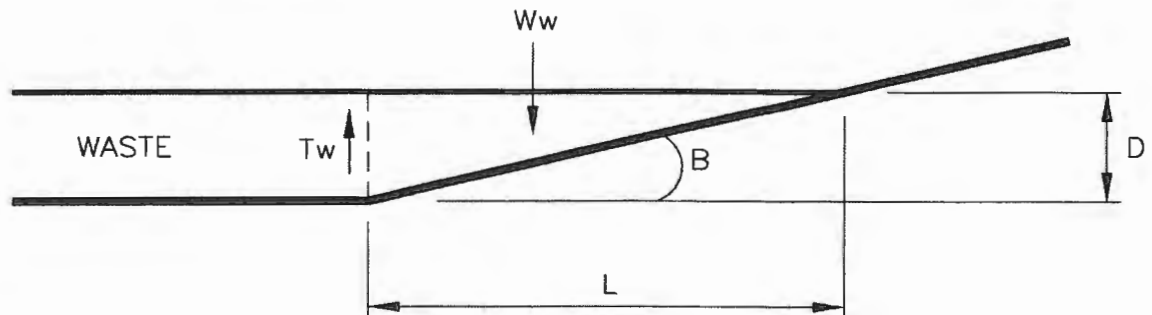
- 1) Check tensile stress in geosynthetics.
- 2) Size geosynthetics anchor trench.
- 3) Perform veneer stability analysis of liner and cover systems.

**References:**

- 1) *Designing with Geosynthetics*, 2nd Edition, Koerner, Prentice Hall.
- 2) *An Engineering Manual for Slope Stability Studies*, 2nd Edition, Duncan, Buchignani, Dept. of Civil Engineering, University of California.

## **Solution:** 1) *Tensile Stress in Geomembrane*

Forces on the liner are shown below:



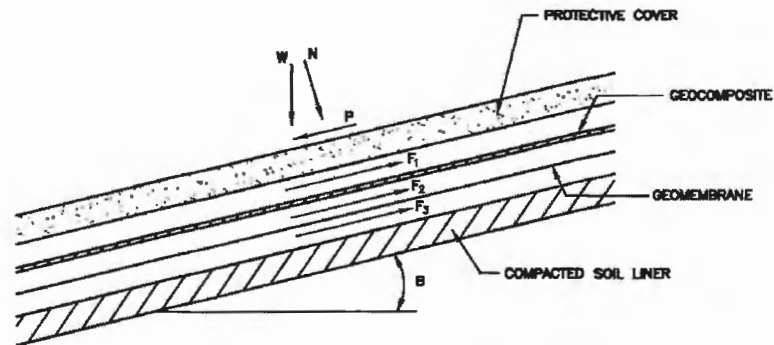
|              |                                              |           |
|--------------|----------------------------------------------|-----------|
| $\beta =$    | slope angle =                                | 14.04 deg |
| $\gamma_w =$ | unit weight of solid waste =                 | 60 pcf    |
| $\phi =$     | internal angle of friction for solid waste = | 23 deg    |
| $D =$        | waste lift thickness =                       | 20 ft     |
| $L =$        | length of lift =                             | 80 ft     |
| $k_o =$      | $1 - \sin F =$                               | 0.6093    |

Calculate the forces on the liner:

|         |                                                        |            |
|---------|--------------------------------------------------------|------------|
| $W_w =$ | weight of solid waste = $DL g_w/2 =$                   | 48,000 plf |
| $T_w =$ | friction at edge of waste = $k_o (D^2 g_w/2) \tan F =$ | 3,103 plf  |
| $W =$   | net force of waste = $W_w - T_w =$                     | 44,897 plf |

## 130 Environmental Park Slope Stability Parameters

Forces within the composite liner system are shown below:



|         |                                                              |          |
|---------|--------------------------------------------------------------|----------|
| $A_1$ = | friction angle between protective cover/geocomposite =       | 34.2 deg |
| $A_2$ = | friction angle between geocomposite/geomembrane/soil liner = | 25.2 deg |
| $A_3$ = | friction angle between geomembrane/soil liner =              | 27.6 deg |
| $C_1$ = | cohesion between protective cover/geocomposite =             | 24.0 psf |
| $C_2$ = | cohesion between geocomposite/geomembrane/soil liner =       | 61.0 psf |
| $C_3$ = | cohesion between geomembrane/soil liner =                    | 37.0 psf |

Calculate the forces within the liner system:

|       |                                        |            |
|-------|----------------------------------------|------------|
| $N$ = | normal force on liner = $W \cos b$ =   | 43,555 plf |
| $P$ = | shearing force on liner = $W \sin b$ = | 10,892 plf |

Calculate the resistance in the liner system:

|                                                                                                           |                                 |            |
|-----------------------------------------------------------------------------------------------------------|---------------------------------|------------|
| $F_1$ =                                                                                                   | $N \tan A_1 + C_1 L / \cos b$ = | 31,579 plf |
| Since $F_1 > P$ the protective cover is stable and the entire force $P$ is transferred to the next layer. |                                 |            |
| $F_2$ =                                                                                                   | $N \tan A_2 + C_2 L / \cos b$ = | 25,526 plf |
| Since $F_2 > P$ the geocomposite is stable and the entire force $P$ is transferred to the next layer.     |                                 |            |
| $F_3$ =                                                                                                   | $N \tan A_3 + C_3 L / \cos b$ = | 25,821 plf |
| Since $F_3 > P$ the geomembrane is stable and the entire force $P$ is transferred to the next layer.      |                                 |            |

**There is no tensile stress in the geocomposite or in the geomembrane.**

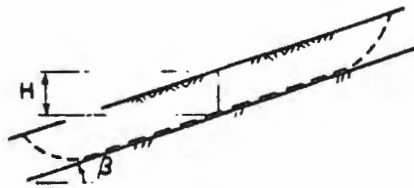
### 2) Anchor Trench

Since there is no tensile stress in the geosynthetics an anchor trench will not be required for stability. Anchor trenches will be sized to meet construction needs.

# 130 Environmental Park Slope Stability Parameters

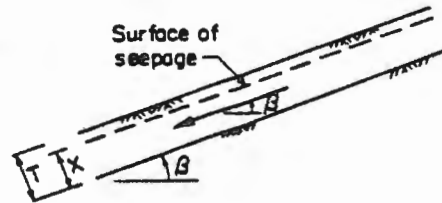
## 3) Veneer Slope Analysis

Use the procedures and charts from reference 2 to evaluate the stability of the liner and cover systems.

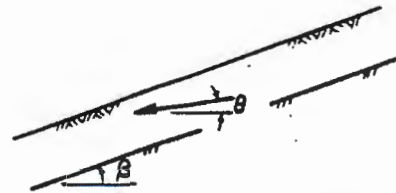


$\gamma$  = total unit weight of soil  
 $\gamma_w$  = unit weight of water  
 $c'$  = cohesion intercept  
 $\phi'$  = friction angle  
 $r_u$  = pore pressure ratio =  $\frac{u}{\gamma H}$   
 $u$  = pore pressure at depth H

Effective Stress



Seepage parallel to slope  
 $r_u = \frac{x}{T} \frac{\gamma_w}{\gamma} \cos^2 \beta$



Seepage emerging from slope  
 $r_u = \frac{\gamma_w}{\gamma} \frac{1}{1 + \tan \beta \tan \theta}$

### Steps:

- 1 Determine  $r_u$  from measured pore pressures or formulas at right
- 2 Determine  $a$  and  $b$  from charts below
- 3 Calculate  $F = a \frac{\tan \phi'}{\tan \beta} + b \frac{c'}{\gamma H}$

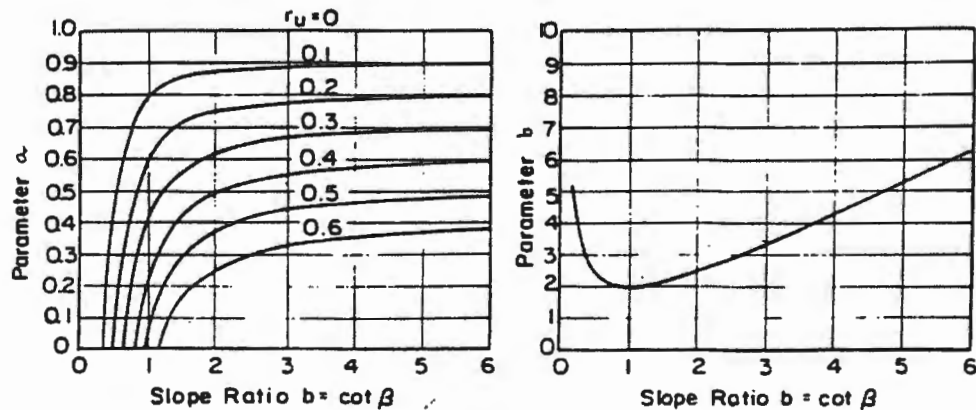


Fig.10 STABILITY CHARTS FOR INFINITE SLOPES.

# **130 Environmental Park Slope Stability Parameters**

Calculate the factor of safety at each interface in the composite liner system.

Protective cover/geocomposite

$\Phi =$  34.2 deg  
 $\beta =$  14.04 deg  
 $C =$  24 psf  
 $u =$  0.0  
 $\gamma =$  109.4 pcf  
 $r_u =$  0  
 $H =$  2 ft  
 $a =$  1.0  
 $b =$  4.2

|                                             |            |
|---------------------------------------------|------------|
| <b>FS @ protective cover/geocomposite =</b> | <b>3.2</b> |
|---------------------------------------------|------------|

Geocomposite/geomembrane

$\Phi =$  25.2 deg  
 $\beta =$  14.04 deg  
 $C =$  61 psf  
 $u =$  0.0  
 $\gamma =$  109.4 pcf  
 $r_u =$  0  
 $H =$  2 ft  
 $a =$  1.0  
 $b =$  4.2

|                                        |            |
|----------------------------------------|------------|
| <b>FS @ geocomposite/geomembrane =</b> | <b>3.1</b> |
|----------------------------------------|------------|

Geomembrane/soil liner

$\Phi =$  27.6 deg  
 $\beta =$  14.04 deg  
 $C =$  37 psf  
 $u =$  0.0  
 $\gamma =$  109.4 pcf  
 $r_u =$  0  
 $H =$  2 ft  
 $a =$  1.0  
 $b =$  4.2

|                                      |            |
|--------------------------------------|------------|
| <b>FS @ geomembrane/soil liner =</b> | <b>2.8</b> |
|--------------------------------------|------------|

## 130 Environmental Park Slope Stability Parameters

Calculate the factor of safety at each interface in the sideslope composite final cover system.

Erosion layer/geocomposite

$\Phi =$  34.2 deg  
 $\beta =$  14.04 deg  
 $C =$  24 psf  
 $u =$  0.0  
 $\gamma =$  109.4 pcf  
 $r_u =$  0  
 $H =$  2 ft  
 $a =$  1.0  
 $b =$  4.2

|                                          |            |
|------------------------------------------|------------|
| <b>FS @ erosion layer/geocomposite =</b> | <b>3.2</b> |
|------------------------------------------|------------|

Geocomposite/geomembrane

$\Phi =$  25.2 deg  
 $\beta =$  14.04 deg  
 $C =$  61 psf  
 $u =$  0.0  
 $\gamma =$  109.4 pcf  
 $r_u =$  0  
 $H =$  2 ft  
 $a =$  1.0  
 $b =$  4.2

|                                        |            |
|----------------------------------------|------------|
| <b>FS @ geocomposite/geomembrane =</b> | <b>3.1</b> |
|----------------------------------------|------------|

Geomembrane/infiltration layer

$\Phi =$  27.6 deg  
 $\beta =$  14.04 deg  
 $C =$  37 psf  
 $u =$  0.0  
 $\gamma =$  109.4 pcf  
 $r_u =$  0  
 $H =$  2 ft  
 $a =$  1.0  
 $b =$  4.2

|                                              |            |
|----------------------------------------------|------------|
| <b>FS @ geomembrane/infiltration layer =</b> | <b>2.8</b> |
|----------------------------------------------|------------|



## 130 Environmental Park Slope Stability Parameters

Calculate the factor of safety at each interface in the topslope composite final cover system.

### Erosion layer/geotextile

$$\phi = 34.2 \text{ deg}$$

$$\beta = 3.43 \text{ deg}$$

$$C = 24 \text{ psf}$$

$$u = 124.8$$

$$\gamma = 109.4 \text{ pcf}$$

$$r_u = 0.57$$

$$H = 2 \text{ ft}$$

$$a = 0.5$$

$$b = 17.0$$

### Pore Pressure (u):

$$u = \gamma_w H = (62.4)(2) = 124.8$$

### Pore Pressure ratio ( $r_u$ ):

$$r_u = u/(\gamma_s H) = 124.8/(109.4 \times 2) = 0.57$$

$$r_u = (X/T)(\gamma_w/\gamma_s)(\cos \beta)^2 = (2/2)(62.4/109.4)(\cos 3.43)^2 = 0.57$$

**FS @ erosion layer/geotextile =**

**7.5**

### Geotextile/geomembrane

$$\phi = 25.2 \text{ deg}$$

$$\beta = 3.43 \text{ deg}$$

$$C = 61 \text{ psf}$$

$$u = 124.8$$

$$\gamma = 109.4 \text{ pcf}$$

$$r_u = 0.57$$

$$H = 2 \text{ ft}$$

$$a = 0.5$$

$$b = 17.0$$

**FS @ geotextile/geomembrane =**

**8.7**

### Geomembrane/infiltration layer

$$\phi = 27.6 \text{ deg}$$

$$\beta = 3.43 \text{ deg}$$

$$C = 37 \text{ psf}$$

$$u = 0.0$$

$$\gamma = 109.4 \text{ pcf}$$

$$r_u = 0$$

$$H = 2 \text{ ft}$$

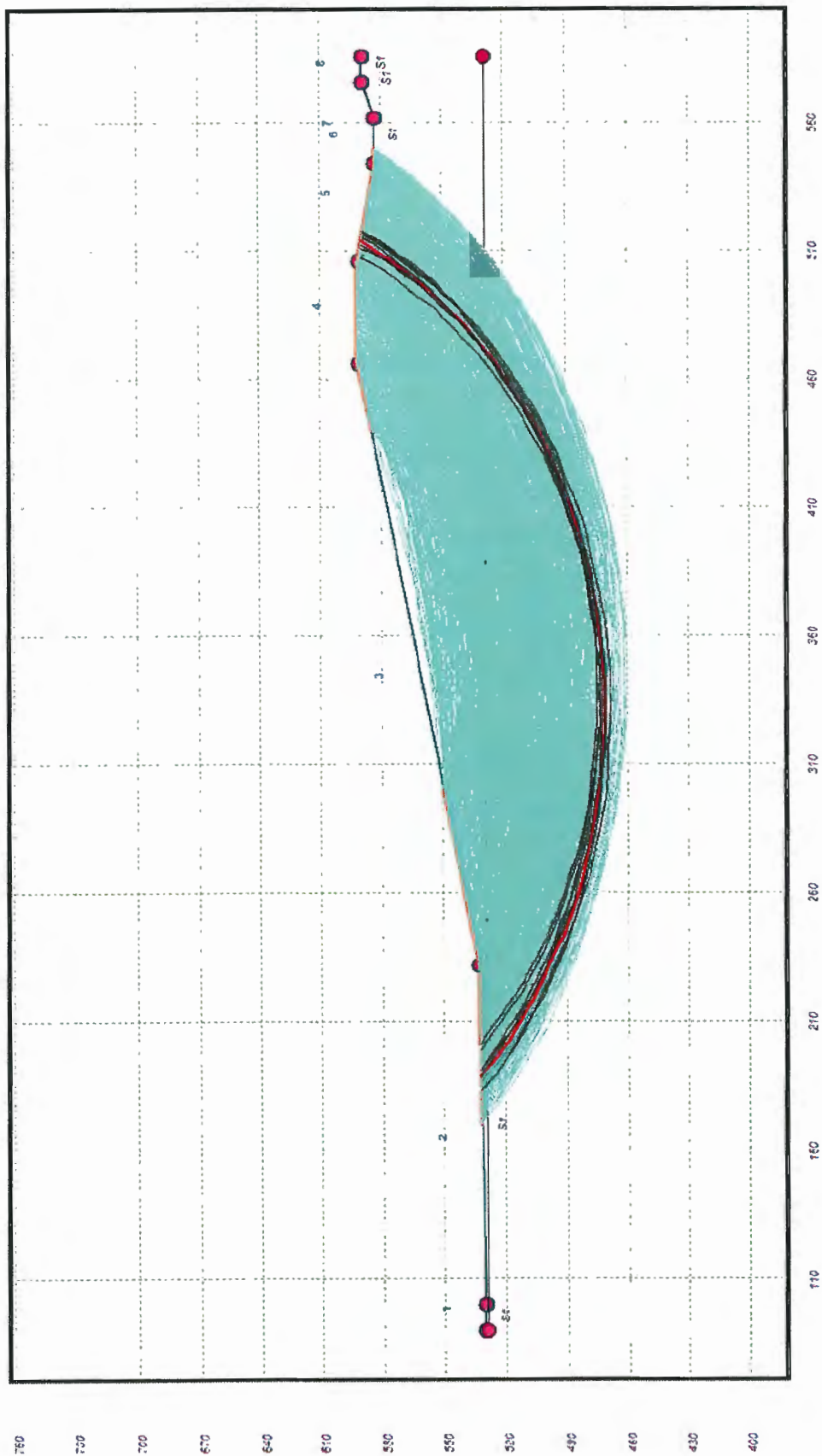
$$a = 1.0$$

$$b = 17.0$$

**FS @ geomembrane/infiltration layer =**

**11.6**

130 Environmental Park Excavation Short Term - FS Min = 2.778



02-Excavation Short Term.txt  
 \*\* PCSTABL6 \*\*

by  
 Purdue University

1

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

Run Date: 10:36 AM 12/3/2013

Time of Run:

Run By: GWA  
 Input Data Filename: run.in  
 Output Filename: result.out  
 Unit: ENGLISH  
 Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Excavation Short  
 Term

BOUNDARY COORDINATES

8 Top Boundaries  
 9 Total Boundaries

| Boundary<br>No. | X-Left<br>(ft) | Y-Left<br>(ft) | X-Right<br>(ft) | Y-Right<br>(ft) | Soil Type<br>Below Bnd |
|-----------------|----------------|----------------|-----------------|-----------------|------------------------|
| 1               | 90.00          | 530.20         | 100.00          | 530.00          | 1                      |
| 2               | 100.00         | 530.00         | 232.00          | 532.60          | 1                      |
| 3               | 232.00         | 532.60         | 466.00          | 591.10          | 1                      |
| 4               | 466.00         | 591.10         | 506.00          | 591.10          | 1                      |
| 5               | 506.00         | 591.10         | 544.00          | 583.00          | 1                      |
| 6               | 544.00         | 583.00         | 562.00          | 583.00          | 1                      |
| 7               | 562.00         | 583.00         | 576.00          | 589.00          | 1                      |
| 8               | 576.00         | 589.00         | 586.00          | 589.00          | 1                      |
| 9               | 90.00          | 529.00         | 586.00          | 529.00          | 2                      |

1

ISOTROPIC SOIL PARAMETERS

2 Type(s) of Soil

| Soil<br>Type<br>No. | Total<br>Unit Wt.<br>(pcf) | Saturated<br>Unit Wt.<br>(pcf) | Cohesion<br>Intercept<br>(psf) | Friction<br>Angle<br>(deg) | Pore<br>Pressure<br>Param. | Pressure<br>Constant<br>(psf) | Piez.<br>Surface<br>No. |
|---------------------|----------------------------|--------------------------------|--------------------------------|----------------------------|----------------------------|-------------------------------|-------------------------|
| 1                   | 123.5                      | 123.5                          | 1935.0                         | 11.1                       | 0.00                       | 0.0                           | 0                       |
| 2                   | 122.1                      | 122.1                          | 1935.0                         | 11.1                       | 0.00                       | 0.0                           | 0                       |

1

## 02-Excavation Short Term.txt

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

1000 Trial Surfaces Have Been Generated.

20 Surfaces Initiate From Each Of 50 Points Equally Spaced  
Along The Ground Surface Between X = 170.00 ft.  
and X = 300.00 ft.

Each Surface Terminates Between X = 440.00 ft.  
and X = 550.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation  
At Which A Surface Extends Is Y = 0.00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

1

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 40 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 188.57         | 531.74         |
| 2            | 195.69         | 524.72         |
| 3            | 203.15         | 518.06         |
| 4            | 210.94         | 511.79         |
| 5            | 219.03         | 505.91         |
| 6            | 227.40         | 500.45         |
| 7            | 236.05         | 495.42         |
| 8            | 244.93         | 490.82         |
| 9            | 254.03         | 486.68         |
| 10           | 263.33         | 483.01         |
| 11           | 272.80         | 479.80         |
| 12           | 282.43         | 477.08         |
| 13           | 292.17         | 474.84         |
| 14           | 302.02         | 473.10         |
| 15           | 311.94         | 471.85         |
| 16           | 321.91         | 471.10         |
| 17           | 331.91         | 470.86         |
| 18           | 341.91         | 471.12         |
| 19           | 351.88         | 471.88         |
| 20           | 361.80         | 473.14         |
| 21           | 371.64         | 474.90         |

Page 2

02-Excavation Short Term.txt

|    |        |        |
|----|--------|--------|
| 22 | 381.39 | 477.15 |
| 23 | 391.00 | 479.89 |
| 24 | 400.47 | 483.11 |
| 25 | 409.77 | 486.80 |
| 26 | 418.86 | 490.95 |
| 27 | 427.74 | 495.56 |
| 28 | 436.37 | 500.61 |
| 29 | 444.74 | 506.08 |
| 30 | 452.82 | 511.97 |
| 31 | 460.60 | 518.25 |
| 32 | 468.05 | 524.92 |
| 33 | 475.16 | 531.96 |
| 34 | 481.90 | 539.34 |
| 35 | 488.27 | 547.06 |
| 36 | 494.23 | 555.08 |
| 37 | 499.79 | 563.39 |
| 38 | 504.92 | 571.98 |
| 39 | 509.62 | 580.81 |
| 40 | 513.67 | 589.46 |

\*\*\* 2.778 \*\*\*

Individual data on the 44 slices

| slice<br>No. | width<br>(ft) | weight<br>(lbs) | Water<br>Force<br>Top<br>(lbs) | Water<br>Force<br>Bot<br>(lbs) | Force<br>Norm<br>(lbs) | Force<br>Tan<br>(lbs) | Earthquake<br>Force<br>Hor<br>(lbs) | Surcharge<br>Ver<br>(lbs) | Load<br>(lbs) |
|--------------|---------------|-----------------|--------------------------------|--------------------------------|------------------------|-----------------------|-------------------------------------|---------------------------|---------------|
| 1            | 2.8           | 480.6           | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 2            | 4.3           | 2655.2          | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 3            | 7.5           | 9658.1          | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 4            | 7.8           | 16371.5         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 5            | 8.1           | 23172.8         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 6            | 8.4           | 29955.0         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 7            | 4.6           | 18786.4         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 8            | 4.0           | 18060.4         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 9            | 8.9           | 45193.8         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 10           | 9.1           | 53691.3         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 11           | 9.3           | 61930.6         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 12           | 9.5           | 69808.0         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 13           | 9.6           | 77226.0         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 14           | 9.7           | 84094.0         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |
| 0.0          |               |                 |                                |                                |                        |                       |                                     |                           |               |
| 15           | 9.8           | 90329.8         | 0.0                            | 0.0                            | 0.0                    | 0.0                   | 0.0                                 | 0.0                       |               |

02-Excavation Short Term.txt

|     |      |          |     |     |     |     |     |     |
|-----|------|----------|-----|-----|-----|-----|-----|-----|
| 0.0 |      |          |     |     |     |     |     |     |
| 16  | 9.9  | 95859.6  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 17  | 10.0 | 100620.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 18  | 10.0 | 104557.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 19  | 10.0 | 107630.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 20  | 10.0 | 109806.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 21  | 9.9  | 111067.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 22  | 9.8  | 111404.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 23  | 9.7  | 110823.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 24  | 9.6  | 109340.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 25  | 9.5  | 106982.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 26  | 9.3  | 103790.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 27  | 9.1  | 99813.4  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 28  | 8.9  | 95112.1  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 29  | 8.6  | 89757.2  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 30  | 8.4  | 83828.2  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 31  | 8.1  | 77412.0  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 32  | 7.8  | 70603.3  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 33  | 5.4  | 46449.8  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 34  | 2.1  | 16987.6  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 35  | 4.1  | 32608.5  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 36  | 3.0  | 22370.9  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 37  | 6.7  | 46179.5  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 38  | 6.4  | 37645.6  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 39  | 6.0  | 29504.0  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 40  | 5.6  | 21866.1  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 41  | 5.1  | 14839.2  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 42  | 1.1  | 2411.8   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 43  | 3.6  | 5941.7   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |
| 44  | 4.1  | 2385.7   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |          |     |     |     |     |     |     |

Failure Surface Specified By 40 Coordinate Points

| 02-Excavation Short Term.txt |                |                |
|------------------------------|----------------|----------------|
| Point<br>No.                 | X-Surf<br>(ft) | Y-Surf<br>(ft) |
| 1                            | 191.22         | 531.80         |
| 2                            | 198.33         | 524.76         |
| 3                            | 205.79         | 518.11         |
| 4                            | 213.59         | 511.84         |
| 5                            | 221.69         | 505.97         |
| 6                            | 230.08         | 500.53         |
| 7                            | 238.74         | 495.53         |
| 8                            | 247.64         | 490.98         |
| 9                            | 256.76         | 486.88         |
| 10                           | 266.08         | 483.26         |
| 11                           | 275.58         | 480.12         |
| 12                           | 285.22         | 477.47         |
| 13                           | 294.99         | 475.32         |
| 14                           | 304.85         | 473.67         |
| 15                           | 314.78         | 472.53         |
| 16                           | 324.76         | 471.89         |
| 17                           | 334.76         | 471.77         |
| 18                           | 344.76         | 472.16         |
| 19                           | 354.72         | 473.06         |
| 20                           | 364.62         | 474.47         |
| 21                           | 374.43         | 476.38         |
| 22                           | 384.14         | 478.79         |
| 23                           | 393.70         | 481.70         |
| 24                           | 403.11         | 485.09         |
| 25                           | 412.33         | 488.95         |
| 26                           | 421.35         | 493.29         |
| 27                           | 430.12         | 498.08         |
| 28                           | 438.65         | 503.31         |
| 29                           | 446.89         | 508.97         |
| 30                           | 454.83         | 515.05         |
| 31                           | 462.45         | 521.52         |
| 32                           | 469.73         | 528.38         |
| 33                           | 476.65         | 535.60         |
| 34                           | 483.19         | 543.16         |
| 35                           | 489.34         | 551.05         |
| 36                           | 495.08         | 559.24         |
| 37                           | 500.38         | 567.72         |
| 38                           | 505.25         | 576.45         |
| 39                           | 509.67         | 585.42         |
| 40                           | 511.59         | 589.91         |
| *** 2.780 ***                |                |                |

1

Failure surface Specified By 39 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 199.18         | 531.95         |
| 2            | 206.30         | 524.93         |
| 3            | 213.77         | 518.28         |
| 4            | 221.58         | 512.04         |
| 5            | 229.71         | 506.21         |
| 6            | 238.14         | 500.82         |

Page 5

02-Excavation Short Term.txt

|    |        |        |
|----|--------|--------|
| 7  | 246.83 | 495.88 |
| 8  | 255.77 | 491.40 |
| 9  | 264.93 | 487.40 |
| 10 | 274.29 | 483.88 |
| 11 | 283.83 | 480.86 |
| 12 | 293.50 | 478.34 |
| 13 | 303.30 | 476.33 |
| 14 | 313.19 | 474.84 |
| 15 | 323.14 | 473.87 |
| 16 | 333.13 | 473.42 |
| 17 | 343.13 | 473.50 |
| 18 | 353.11 | 474.10 |
| 19 | 363.05 | 475.23 |
| 20 | 372.91 | 476.87 |
| 21 | 382.68 | 479.03 |
| 22 | 392.32 | 481.70 |
| 23 | 401.80 | 484.86 |
| 24 | 411.11 | 488.53 |
| 25 | 420.21 | 492.67 |
| 26 | 429.08 | 497.29 |
| 27 | 437.69 | 502.36 |
| 28 | 446.03 | 507.88 |
| 29 | 454.07 | 513.83 |
| 30 | 461.78 | 520.20 |
| 31 | 469.15 | 526.95 |
| 32 | 476.16 | 534.09 |
| 33 | 482.78 | 541.58 |
| 34 | 489.00 | 549.41 |
| 35 | 494.80 | 557.56 |
| 36 | 500.17 | 566.00 |
| 37 | 505.08 | 574.71 |
| 38 | 509.54 | 583.66 |
| 39 | 512.19 | 589.78 |

\*\*\* 2.781 \*\*\*

Failure Surface Specified By 42 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 183.27      | 531.64      |
| 2         | 190.34      | 524.57      |
| 3         | 197.76      | 517.86      |
| 4         | 205.49      | 511.52      |
| 5         | 213.52      | 505.57      |
| 6         | 221.84      | 500.01      |
| 7         | 230.41      | 494.87      |
| 8         | 239.23      | 490.15      |
| 9         | 248.26      | 485.87      |
| 10        | 257.50      | 482.03      |
| 11        | 266.91      | 478.65      |
| 12        | 276.48      | 475.73      |
| 13        | 286.17      | 473.29      |
| 14        | 295.98      | 471.32      |
| 15        | 305.87      | 469.83      |
| 16        | 315.82      | 468.83      |
| 17        | 325.80      | 468.31      |

Page 6



02-Excavation Short Term.txt

|    |        |        |
|----|--------|--------|
| 18 | 335.80 | 468.29 |
| 19 | 345.79 | 468.75 |
| 20 | 355.75 | 469.70 |
| 21 | 365.64 | 471.13 |
| 22 | 375.46 | 473.05 |
| 23 | 385.17 | 475.44 |
| 24 | 394.75 | 478.30 |
| 25 | 404.18 | 481.63 |
| 26 | 413.43 | 485.42 |
| 27 | 422.49 | 489.65 |
| 28 | 431.34 | 494.32 |
| 29 | 439.94 | 499.42 |
| 30 | 448.28 | 504.93 |
| 31 | 456.35 | 510.84 |
| 32 | 464.12 | 517.14 |
| 33 | 471.57 | 523.81 |
| 34 | 478.68 | 530.84 |
| 35 | 485.44 | 538.20 |
| 36 | 491.84 | 545.89 |
| 37 | 497.85 | 553.88 |
| 38 | 503.47 | 562.16 |
| 39 | 508.67 | 570.70 |
| 40 | 513.45 | 579.48 |
| 41 | 517.79 | 588.49 |
| 42 | 517.83 | 588.58 |

\*\*\* 2.782 \*\*\*

1

Failure Surface Specified By 41 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 183.27         | 531.64         |
| 2            | 190.45         | 524.69         |
| 3            | 197.97         | 518.09         |
| 4            | 205.79         | 511.86         |
| 5            | 213.91         | 506.02         |
| 6            | 222.30         | 500.59         |
| 7            | 230.95         | 495.56         |
| 8            | 239.83         | 490.96         |
| 9            | 248.92         | 486.80         |
| 10           | 258.20         | 483.08         |
| 11           | 267.66         | 479.82         |
| 12           | 277.26         | 477.02         |
| 13           | 286.98         | 474.68         |
| 14           | 296.81         | 472.83         |
| 15           | 306.71         | 471.45         |
| 16           | 316.67         | 470.55         |
| 17           | 326.66         | 470.14         |
| 18           | 336.66         | 470.21         |
| 19           | 346.65         | 470.76         |
| 20           | 356.59         | 471.80         |
| 21           | 366.48         | 473.32         |
| 22           | 376.27         | 475.32         |
| 23           | 385.96         | 477.79         |
| 24           | 395.52         | 480.73         |

Page 7

02-Excavation Short Term.txt

|    |        |        |
|----|--------|--------|
| 25 | 404.93 | 484.13 |
| 26 | 414.16 | 487.98 |
| 27 | 423.19 | 492.27 |
| 28 | 432.00 | 497.00 |
| 29 | 440.57 | 502.15 |
| 30 | 448.89 | 507.70 |
| 31 | 456.92 | 513.66 |
| 32 | 464.66 | 519.99 |
| 33 | 472.08 | 526.70 |
| 34 | 479.16 | 533.75 |
| 35 | 485.90 | 541.15 |
| 36 | 492.27 | 548.85 |
| 37 | 498.26 | 556.86 |
| 38 | 503.85 | 565.15 |
| 39 | 509.03 | 573.71 |
| 40 | 513.80 | 582.50 |
| 41 | 516.82 | 588.79 |

\*\*\* 2.783 \*\*\*

Failure surface Specified By 40 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 188.57      | 531.74      |
| 2         | 195.90      | 524.94      |
| 3         | 203.55      | 518.50      |
| 4         | 211.51      | 512.45      |
| 5         | 219.76      | 506.79      |
| 6         | 228.27      | 501.54      |
| 7         | 237.03      | 496.72      |
| 8         | 246.01      | 492.32      |
| 9         | 255.20      | 488.38      |
| 10        | 264.57      | 484.88      |
| 11        | 274.10      | 481.85      |
| 12        | 283.76      | 479.29      |
| 13        | 293.55      | 477.20      |
| 14        | 303.42      | 475.60      |
| 15        | 313.35      | 474.48      |
| 16        | 323.33      | 473.84      |
| 17        | 333.33      | 473.70      |
| 18        | 343.33      | 474.04      |
| 19        | 353.29      | 474.88      |
| 20        | 363.20      | 476.20      |
| 21        | 373.04      | 478.00      |
| 22        | 382.78      | 480.28      |
| 23        | 392.39      | 483.03      |
| 24        | 401.86      | 486.25      |
| 25        | 411.15      | 489.93      |
| 26        | 420.26      | 494.06      |
| 27        | 429.16      | 498.63      |
| 28        | 437.82      | 503.63      |
| 29        | 446.22      | 509.05      |
| 30        | 454.35      | 514.87      |
| 31        | 462.19      | 521.09      |
| 32        | 469.71      | 527.67      |
| 33        | 476.90      | 534.62      |

Page 8

|    |                              |        |
|----|------------------------------|--------|
|    | 02-Excavation Short Term.txt |        |
| 34 | 483.75                       | 541.91 |
| 35 | 490.22                       | 549.53 |
| 36 | 496.32                       | 557.46 |
| 37 | 502.03                       | 565.67 |
| 38 | 507.32                       | 574.15 |
| 39 | 512.20                       | 582.89 |
| 40 | 515.29                       | 589.12 |

\*\*\* 2.783 \*\*\*

1

# Failure Surface Specified By 39 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 201.84      | 532.01      |
| 2         | 208.96      | 524.99      |
| 3         | 216.45      | 518.36      |
| 4         | 224.27      | 512.13      |
| 5         | 232.42      | 506.33      |
| 6         | 240.86      | 500.97      |
| 7         | 249.57      | 496.06      |
| 8         | 258.53      | 491.62      |
| 9         | 267.71      | 487.66      |
| 10        | 277.09      | 484.19      |
| 11        | 286.64      | 481.23      |
| 12        | 296.34      | 478.77      |
| 13        | 306.15      | 476.83      |
| 14        | 316.05      | 475.42      |
| 15        | 326.01      | 474.52      |
| 16        | 336.00      | 474.16      |
| 17        | 346.00      | 474.33      |
| 18        | 355.98      | 475.02      |
| 19        | 365.90      | 476.25      |
| 20        | 375.75      | 478.00      |
| 21        | 385.49      | 480.26      |
| 22        | 395.09      | 483.04      |
| 23        | 404.54      | 486.32      |
| 24        | 413.80      | 490.10      |
| 25        | 422.84      | 494.36      |
| 26        | 431.65      | 499.10      |
| 27        | 440.19      | 504.30      |
| 28        | 448.45      | 509.94      |
| 29        | 456.40      | 516.01      |
| 30        | 464.01      | 522.49      |
| 31        | 471.27      | 529.37      |
| 32        | 478.16      | 536.62      |
| 33        | 484.65      | 544.23      |
| 34        | 490.73      | 552.17      |
| 35        | 496.38      | 560.42      |
| 36        | 501.59      | 568.95      |
| 37        | 506.34      | 577.75      |
| 38        | 510.61      | 586.79      |
| 39        | 511.86      | 589.85      |

\*\*\* 2.783 \*\*\*

Page 9

02-Excavation Short Term.txt

Failure Surface Specified By 40 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 191.22         | 531.80         |
| 2            | 198.54         | 524.97         |
| 3            | 206.17         | 518.52         |
| 4            | 214.11         | 512.44         |
| 5            | 222.34         | 506.76         |
| 6            | 230.84         | 501.49         |
| 7            | 239.59         | 496.65         |
| 8            | 248.56         | 492.23         |
| 9            | 257.74         | 488.27         |
| 10           | 267.11         | 484.75         |
| 11           | 276.63         | 481.70         |
| 12           | 286.29         | 479.12         |
| 13           | 296.07         | 477.02         |
| 14           | 305.94         | 475.40         |
| 15           | 315.87         | 474.26         |
| 16           | 325.85         | 473.61         |
| 17           | 335.85         | 473.45         |
| 18           | 345.84         | 473.78         |
| 19           | 355.81         | 474.60         |
| 20           | 365.72         | 475.91         |
| 21           | 375.56         | 477.70         |
| 22           | 385.30         | 479.97         |
| 23           | 394.92         | 482.71         |
| 24           | 404.39         | 485.92         |
| 25           | 413.69         | 489.60         |
| 26           | 422.80         | 493.72         |
| 27           | 431.69         | 498.29         |
| 28           | 440.36         | 503.28         |
| 29           | 448.77         | 508.69         |
| 30           | 456.90         | 514.51         |
| 31           | 464.74         | 520.72         |
| 32           | 472.26         | 527.31         |
| 33           | 479.45         | 534.26         |
| 34           | 486.30         | 541.55         |
| 35           | 492.78         | 549.17         |
| 36           | 498.87         | 557.09         |
| 37           | 504.58         | 565.31         |
| 38           | 509.87         | 573.79         |
| 39           | 514.74         | 582.52         |
| 40           | 517.75         | 588.60         |

\*\*\* 2.784 \*\*\*

1

Failure Surface Specified By 40 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
|--------------|----------------|----------------|

Page 10

02-Excavation Short Term.txt

|    |        |        |
|----|--------|--------|
| 1  | 191.22 | 531.80 |
| 2  | 198.30 | 524.73 |
| 3  | 205.73 | 518.04 |
| 4  | 213.50 | 511.74 |
| 5  | 221.59 | 505.86 |
| 6  | 229.97 | 500.41 |
| 7  | 238.63 | 495.41 |
| 8  | 247.54 | 490.86 |
| 9  | 256.67 | 486.78 |
| 10 | 266.00 | 483.19 |
| 11 | 275.51 | 480.09 |
| 12 | 285.16 | 477.48 |
| 13 | 294.94 | 475.39 |
| 14 | 304.81 | 473.81 |
| 15 | 314.76 | 472.74 |
| 16 | 324.74 | 472.20 |
| 17 | 334.74 | 472.17 |
| 18 | 344.73 | 472.67 |
| 19 | 354.68 | 473.69 |
| 20 | 364.56 | 475.23 |
| 21 | 374.35 | 477.28 |
| 22 | 384.01 | 479.84 |
| 23 | 393.53 | 482.90 |
| 24 | 402.88 | 486.45 |
| 25 | 412.03 | 490.48 |
| 26 | 420.96 | 494.99 |
| 27 | 429.64 | 499.96 |
| 28 | 438.05 | 505.37 |
| 29 | 446.16 | 511.21 |
| 30 | 453.96 | 517.47 |
| 31 | 461.42 | 524.13 |
| 32 | 468.53 | 531.16 |
| 33 | 475.26 | 538.56 |
| 34 | 481.59 | 546.30 |
| 35 | 487.51 | 554.36 |
| 36 | 493.00 | 562.72 |
| 37 | 498.05 | 571.35 |
| 38 | 502.64 | 580.23 |
| 39 | 506.76 | 589.34 |
| 40 | 507.34 | 590.82 |

\*\*\* 2.786 \*\*\*

Failure Surface Specified By 39 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 201.84         | 532.01         |
| 2            | 208.93         | 524.96         |
| 3            | 216.39         | 518.30         |
| 4            | 224.18         | 512.03         |
| 5            | 232.29         | 506.18         |
| 6            | 240.69         | 500.75         |
| 7            | 249.37         | 495.78         |
| 8            | 258.29         | 491.26         |
| 9            | 267.43         | 487.22         |

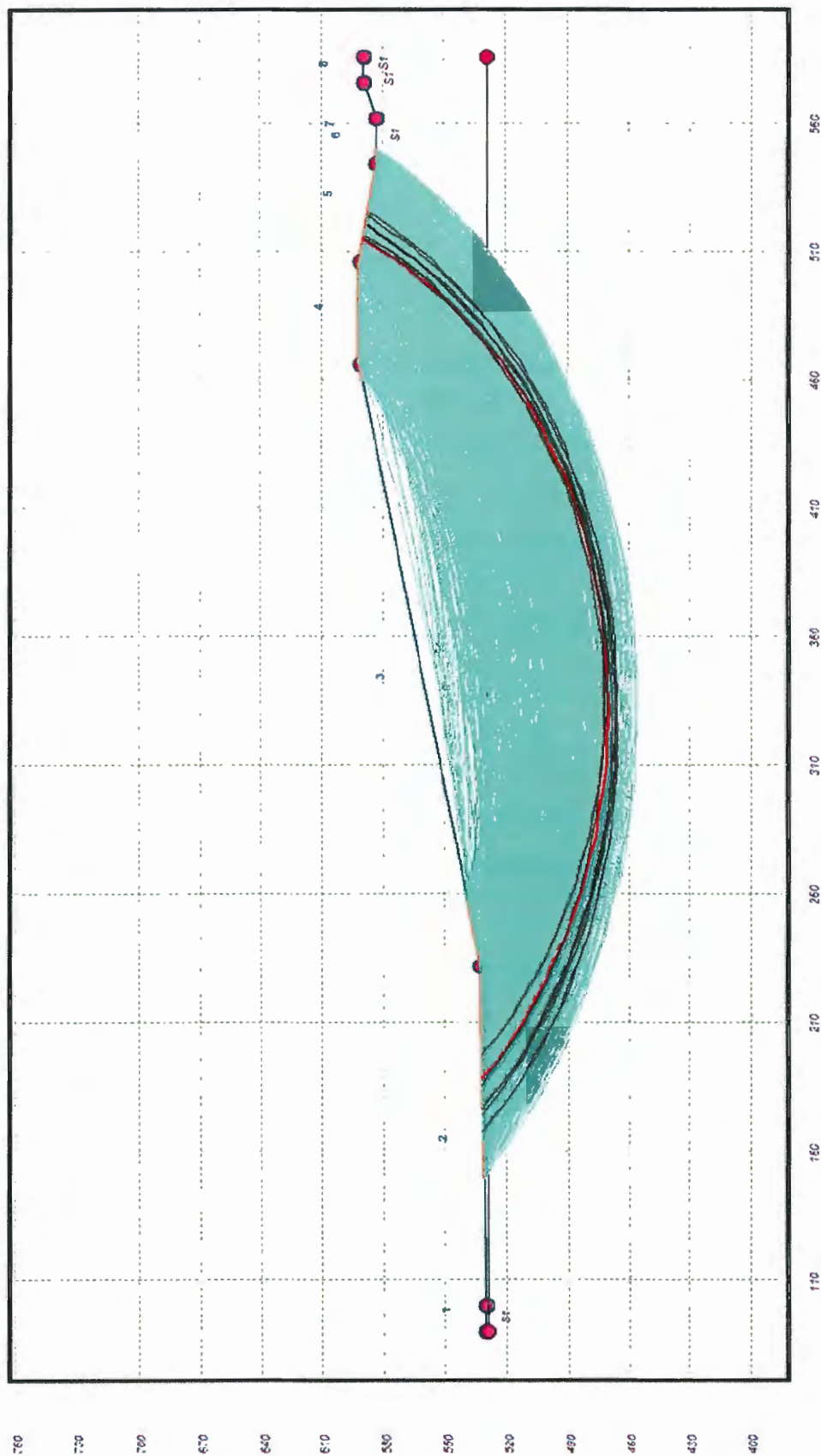
Page 11



02-Excavation Short Term.txt

|   |           |           |
|---|-----------|-----------|
|   | -         | ..12..... |
|   | -         | ..11..... |
|   | -         | ..1129.*  |
|   | -         | ...111*   |
| I | 520.17 +  | ...81     |
|   | -         | ..*       |
|   | -         | ..*       |
|   | -         | * *       |
|   | -         |           |
| S | 650.21 +  |           |
|   | -         |           |
|   | -         |           |
|   | -         |           |
|   | -         |           |
|   | 780.25 +  |           |
|   | -         |           |
|   | -         |           |
|   | -         |           |
| F | 910.29 +  |           |
|   | -         |           |
|   | -         |           |
|   | -         |           |
|   | -         |           |
| T | 1040.34 + |           |

130 Environmental Park Excavation Long Term - FS Min = 3.012





04-Excavation Long Term.txt  
 \*\* PCSTABL6 \*\*

by  
 Purdue University

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

Run Date: 10:47 AM 12/3/2013

Time of Run:  
 Run By: GWA  
 Input Data Filename: run.in  
 Output Filename: result.out  
 Unit: ENGLISH  
 Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Excavation Long T  
 erm

BOUNDARY COORDINATES

8 Top Boundaries  
 9 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 90.00       | 530.20      | 100.00       | 530.00       | 1                   |
| 2            | 100.00      | 530.00      | 232.00       | 532.60       | 1                   |
| 3            | 232.00      | 532.60      | 466.00       | 591.10       | 1                   |
| 4            | 466.00      | 591.10      | 506.00       | 591.10       | 1                   |
| 5            | 506.00      | 591.10      | 544.00       | 583.00       | 1                   |
| 6            | 544.00      | 583.00      | 562.00       | 583.00       | 1                   |
| 7            | 562.00      | 583.00      | 576.00       | 589.00       | 1                   |
| 8            | 576.00      | 589.00      | 586.00       | 589.00       | 1                   |
| 9            | 90.00       | 529.00      | 586.00       | 529.00       | 2                   |

ISOTROPIC SOIL PARAMETERS

2 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             | 123.5                | 123.5                    | 2381.0                   | 9.6                  | 0.00                 | 0.0                     | 0                 |
| 2             | 122.1                | 122.1                    | 2381.0                   | 9.6                  | 0.00                 | 0.0                     | 0                 |

#### 04-Excavation Long Term.txt

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

1000 Trial Surfaces Have Been Generated.

20 Surfaces Initiate From Each Of 50 Points Equally Spaced  
Along The Ground Surface Between X = 150.00 ft.  
and X = 260.00 ft.

Each Surface Terminates Between X = 460.00 ft.  
and X = 550.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation  
At Which A Surface Extends Is Y = 0.00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

1

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 41 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 188.16         | 531.74         |
| 2            | 195.24         | 524.67         |
| 3            | 202.66         | 517.96         |
| 4            | 210.40         | 511.64         |
| 5            | 218.46         | 505.71         |
| 6            | 226.80         | 500.20         |
| 7            | 235.41         | 495.11         |
| 8            | 244.26         | 490.46         |
| 9            | 253.34         | 486.26         |
| 10           | 262.61         | 482.53         |
| 11           | 272.06         | 479.26         |
| 12           | 281.67         | 476.47         |
| 13           | 291.40         | 474.17         |
| 14           | 301.23         | 472.36         |
| 15           | 311.15         | 471.05         |
| 16           | 321.11         | 470.23         |
| 17           | 331.11         | 469.92         |
| 18           | 341.11         | 470.11         |
| 19           | 351.08         | 470.80         |
| 20           | 361.01         | 471.99         |
| 21           | 370.87         | 473.68         |

Page 2

04-Excavation Long Term.txt

|    |        |        |
|----|--------|--------|
| 22 | 380.63 | 475.87 |
| 23 | 390.26 | 478.54 |
| 24 | 399.76 | 481.69 |
| 25 | 409.08 | 485.31 |
| 26 | 418.20 | 489.40 |
| 27 | 427.11 | 493.94 |
| 28 | 435.78 | 498.92 |
| 29 | 444.19 | 504.34 |
| 30 | 452.32 | 510.16 |
| 31 | 460.14 | 516.39 |
| 32 | 467.64 | 523.01 |
| 33 | 474.80 | 529.99 |
| 34 | 481.60 | 537.32 |
| 35 | 488.02 | 544.99 |
| 36 | 494.05 | 552.97 |
| 37 | 499.67 | 561.24 |
| 38 | 504.87 | 569.78 |
| 39 | 509.63 | 578.57 |
| 40 | 513.94 | 587.60 |
| 41 | 514.64 | 589.26 |

\*\*\* 3.012 \*\*\*

Individual data on the 45 slices

| Slice No. | width (ft) | weight (lbs) | Water Force Top (lbs) | Water Force Bot (lbs) | Force Norm (lbs) | Force Tan (lbs) | Earthquake Force Hor (lbs) | Earthquake Force Ver (lbs) | Surcharge Load (lbs) |
|-----------|------------|--------------|-----------------------|-----------------------|------------------|-----------------|----------------------------|----------------------------|----------------------|
| 1         | 2.7        | 471.8        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 2         | 4.3        | 2663.4       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 3         | 7.4        | 9663.7       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 4         | 7.7        | 16394.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 5         | 8.1        | 23224.9      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 6         | 8.3        | 30047.1      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 7         | 5.2        | 21540.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 8         | 3.4        | 15381.1      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 9         | 8.9        | 45225.9      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 10        | 9.1        | 53776.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 11        | 9.3        | 62079.8      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 12        | 9.5        | 70031.8      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 13        | 9.6        | 77534.2      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 14        | 9.7        | 84495.2      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |

| 04-Excavation Long Term.txt |      |          |     |     |     |     |     |     |
|-----------------------------|------|----------|-----|-----|-----|-----|-----|-----|
| 15                          | 9.8  | 90832.1  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 16                          | 9.9  | 96469.6  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 17                          | 10.0 | 101343.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 18                          | 10.0 | 105398.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 19                          | 10.0 | 108591.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 20                          | 10.0 | 110888.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 21                          | 9.9  | 112270.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 22                          | 9.9  | 112727.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 23                          | 9.8  | 112261.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 24                          | 9.6  | 110888.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 25                          | 9.5  | 108633.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 26                          | 9.3  | 105535.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 27                          | 9.1  | 101643.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 28                          | 8.9  | 97015.1  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 29                          | 8.7  | 91720.4  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 30                          | 8.4  | 85837.3  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 31                          | 8.1  | 79451.3  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 32                          | 7.8  | 72656.8  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 33                          | 5.9  | 51582.9  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 34                          | 1.6  | 13927.9  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 35                          | 6.1  | 49372.1  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 36                          | 1.0  | 7717.4   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 37                          | 6.8  | 48234.4  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 38                          | 6.4  | 39612.2  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 39                          | 6.0  | 31363.0  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 40                          | 5.6  | 23598.9  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 41                          | 5.2  | 16427.7  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 42                          | 1.1  | 2835.9   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 43                          | 3.6  | 6943.4   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 44                          | 4.3  | 3613.6   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |
| 45                          | 0.7  | 77.8     | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |      |          |     |     |     |     |     |     |

04-Excavation Long Term.txt  
Failure Surface Specified By 42 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 176.94      | 531.52      |
| 2         | 184.06      | 524.50      |
| 3         | 191.51      | 517.82      |
| 4         | 199.27      | 511.51      |
| 5         | 207.31      | 505.57      |
| 6         | 215.63      | 500.02      |
| 7         | 224.20      | 494.86      |
| 8         | 233.00      | 490.12      |
| 9         | 242.02      | 485.79      |
| 10        | 251.23      | 481.90      |
| 11        | 260.61      | 478.45      |
| 12        | 270.15      | 475.44      |
| 13        | 279.82      | 472.89      |
| 14        | 289.60      | 470.80      |
| 15        | 299.46      | 469.17      |
| 16        | 309.40      | 468.01      |
| 17        | 319.37      | 467.32      |
| 18        | 329.37      | 467.11      |
| 19        | 339.37      | 467.36      |
| 20        | 349.34      | 468.09      |
| 21        | 359.27      | 469.29      |
| 22        | 369.13      | 470.95      |
| 23        | 378.90      | 473.08      |
| 24        | 388.56      | 475.67      |
| 25        | 398.08      | 478.71      |
| 26        | 407.46      | 482.20      |
| 27        | 416.65      | 486.12      |
| 28        | 425.65      | 490.48      |
| 29        | 434.44      | 495.26      |
| 30        | 442.99      | 500.45      |
| 31        | 451.28      | 506.03      |
| 32        | 459.30      | 512.00      |
| 33        | 467.04      | 518.35      |
| 34        | 474.46      | 525.05      |
| 35        | 481.56      | 532.09      |
| 36        | 488.31      | 539.46      |
| 37        | 494.71      | 547.15      |
| 38        | 500.74      | 555.12      |
| 39        | 506.39      | 563.38      |
| 40        | 511.64      | 571.89      |
| 41        | 516.49      | 580.64      |
| 42        | 520.16      | 588.08      |

\*\*\* 3.014 \*\*\*

1

Failure Surface Specified By 43 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 174.69      | 531.47      |

Page 5

04-Excavation Long Term.txt

|    |        |        |
|----|--------|--------|
| 2  | 181.81 | 524.44 |
| 3  | 189.25 | 517.76 |
| 4  | 196.99 | 511.43 |
| 5  | 205.02 | 505.47 |
| 6  | 213.32 | 499.90 |
| 7  | 221.87 | 494.72 |
| 8  | 230.66 | 489.94 |
| 9  | 239.66 | 485.59 |
| 10 | 248.86 | 481.66 |
| 11 | 258.23 | 478.16 |
| 12 | 267.75 | 475.12 |
| 13 | 277.41 | 472.52 |
| 14 | 287.18 | 470.37 |
| 15 | 297.03 | 468.69 |
| 16 | 306.96 | 467.47 |
| 17 | 316.93 | 466.72 |
| 18 | 326.93 | 466.44 |
| 19 | 336.93 | 466.62 |
| 20 | 346.90 | 467.28 |
| 21 | 356.84 | 468.40 |
| 22 | 366.71 | 469.99 |
| 23 | 376.50 | 472.04 |
| 24 | 386.18 | 474.54 |
| 25 | 395.74 | 477.50 |
| 26 | 405.14 | 480.90 |
| 27 | 414.37 | 484.74 |
| 28 | 423.42 | 489.01 |
| 29 | 432.25 | 493.70 |
| 30 | 440.85 | 498.79 |
| 31 | 449.21 | 504.29 |
| 32 | 457.30 | 510.17 |
| 33 | 465.10 | 516.42 |
| 34 | 472.60 | 523.03 |
| 35 | 479.78 | 529.99 |
| 36 | 486.63 | 537.28 |
| 37 | 493.13 | 544.88 |
| 38 | 499.27 | 552.78 |
| 39 | 505.02 | 560.95 |
| 40 | 510.39 | 569.39 |
| 41 | 515.36 | 578.07 |
| 42 | 519.91 | 586.97 |
| 43 | 520.40 | 588.03 |

\*\*\* 3.014 \*\*\*

Failure Surface Specified By 43 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 176.94         | 531.52         |
| 2            | 184.04         | 524.47         |
| 3            | 191.46         | 517.77         |
| 4            | 199.18         | 511.41         |
| 5            | 207.19         | 505.43         |
| 6            | 215.48         | 499.83         |
| 7            | 224.01         | 494.62         |
| 8            | 232.78         | 489.82         |

Page 6

04-Excavation Long Term.txt

|    |        |        |
|----|--------|--------|
| 9  | 241.77 | 485.43 |
| 10 | 250.95 | 481.47 |
| 11 | 260.31 | 477.94 |
| 12 | 269.82 | 474.85 |
| 13 | 279.46 | 472.21 |
| 14 | 289.22 | 470.02 |
| 15 | 299.07 | 468.30 |
| 16 | 308.99 | 467.03 |
| 17 | 318.96 | 466.23 |
| 18 | 328.95 | 465.90 |
| 19 | 338.95 | 466.03 |
| 20 | 348.93 | 466.63 |
| 21 | 358.88 | 467.70 |
| 22 | 368.76 | 469.23 |
| 23 | 378.56 | 471.23 |
| 24 | 388.25 | 473.68 |
| 25 | 397.82 | 476.57 |
| 26 | 407.25 | 479.92 |
| 27 | 416.51 | 483.70 |
| 28 | 425.58 | 487.91 |
| 29 | 434.44 | 492.54 |
| 30 | 443.08 | 497.57 |
| 31 | 451.47 | 503.01 |
| 32 | 459.60 | 508.83 |
| 33 | 467.45 | 515.03 |
| 34 | 475.00 | 521.59 |
| 35 | 482.24 | 528.49 |
| 36 | 489.14 | 535.72 |
| 37 | 495.70 | 543.27 |
| 38 | 501.90 | 551.12 |
| 39 | 507.72 | 559.25 |
| 40 | 513.16 | 567.64 |
| 41 | 518.20 | 576.28 |
| 42 | 522.83 | 585.14 |
| 43 | 523.84 | 587.30 |

\*\*\* 3.017 \*\*\*

1

Failure Surface Specified By 41 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 185.92      | 531.69      |
| 2         | 193.17      | 524.80      |
| 3         | 200.74      | 518.28      |
| 4         | 208.63      | 512.13      |
| 5         | 216.80      | 506.37      |
| 6         | 225.25      | 501.01      |
| 7         | 233.95      | 496.08      |
| 8         | 242.87      | 491.57      |
| 9         | 252.01      | 487.50      |
| 10        | 261.33      | 483.89      |
| 11        | 270.82      | 480.73      |
| 12        | 280.45      | 478.04      |
| 13        | 290.20      | 475.82      |
| 14        | 300.05      | 474.07      |

Page 7

04-Excavation Long Term.txt

|    |        |        |
|----|--------|--------|
| 15 | 309.97 | 472.81 |
| 16 | 319.94 | 472.04 |
| 17 | 329.94 | 471.75 |
| 18 | 339.93 | 471.94 |
| 19 | 349.91 | 472.63 |
| 20 | 359.84 | 473.80 |
| 21 | 369.70 | 475.45 |
| 22 | 379.47 | 477.58 |
| 23 | 389.13 | 480.18 |
| 24 | 398.65 | 483.26 |
| 25 | 408.00 | 486.79 |
| 26 | 417.17 | 490.77 |
| 27 | 426.14 | 495.19 |
| 28 | 434.88 | 500.05 |
| 29 | 443.38 | 505.33 |
| 30 | 451.61 | 511.01 |
| 31 | 459.55 | 517.09 |
| 32 | 467.18 | 523.54 |
| 33 | 474.50 | 530.37 |
| 34 | 481.47 | 537.53 |
| 35 | 488.08 | 545.04 |
| 36 | 494.32 | 552.85 |
| 37 | 500.17 | 560.96 |
| 38 | 505.63 | 569.34 |
| 39 | 510.66 | 577.98 |
| 40 | 515.27 | 586.86 |
| 41 | 516.22 | 588.92 |

\*\*\* 3.018 \*\*\*

Failure Surface Specified By 42 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 174.69      | 531.47      |
| 2         | 181.84      | 524.47      |
| 3         | 189.30      | 517.82      |
| 4         | 197.08      | 511.53      |
| 5         | 205.15      | 505.63      |
| 6         | 213.49      | 500.11      |
| 7         | 222.08      | 495.00      |
| 8         | 230.91      | 490.30      |
| 9         | 239.96      | 486.03      |
| 10        | 249.19      | 482.20      |
| 11        | 258.60      | 478.81      |
| 12        | 268.16      | 475.87      |
| 13        | 277.85      | 473.40      |
| 14        | 287.64      | 471.39      |
| 15        | 297.52      | 469.84      |
| 16        | 307.47      | 468.78      |
| 17        | 317.45      | 468.18      |
| 18        | 327.45      | 468.07      |
| 19        | 337.44      | 468.43      |
| 20        | 347.41      | 469.27      |
| 21        | 357.32      | 470.58      |
| 22        | 367.16      | 472.37      |
| 23        | 376.90      | 474.62      |

Page 8



04-Excavation Long Term.txt

|    |        |        |
|----|--------|--------|
| 24 | 386.53 | 477.33 |
| 25 | 396.01 | 480.50 |
| 26 | 405.33 | 484.12 |
| 27 | 414.47 | 488.18 |
| 28 | 423.41 | 492.67 |
| 29 | 432.12 | 497.58 |
| 30 | 440.58 | 502.91 |
| 31 | 448.79 | 508.63 |
| 32 | 456.71 | 514.73 |
| 33 | 464.33 | 521.21 |
| 34 | 471.63 | 528.04 |
| 35 | 478.60 | 535.21 |
| 36 | 485.21 | 542.71 |
| 37 | 491.46 | 550.51 |
| 38 | 497.34 | 558.61 |
| 39 | 502.82 | 566.97 |
| 40 | 507.89 | 575.59 |
| 41 | 512.55 | 584.44 |
| 42 | 514.78 | 589.23 |

\*\*\* 3.018 \*\*\*

1

Failure Surface Specified By 43 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 176.94         | 531.52         |
| 2            | 184.03         | 524.47         |
| 3            | 191.45         | 517.75         |
| 4            | 199.16         | 511.40         |
| 5            | 207.17         | 505.40         |
| 6            | 215.45         | 499.79         |
| 7            | 223.97         | 494.57         |
| 8            | 232.74         | 489.75         |
| 9            | 241.72         | 485.35         |
| 10           | 250.89         | 481.37         |
| 11           | 260.24         | 477.82         |
| 12           | 269.74         | 474.71         |
| 13           | 279.38         | 472.04         |
| 14           | 289.13         | 469.83         |
| 15           | 298.98         | 468.08         |
| 16           | 308.89         | 466.78         |
| 17           | 318.86         | 465.95         |
| 18           | 328.85         | 465.59         |
| 19           | 338.85         | 465.69         |
| 20           | 348.84         | 466.25         |
| 21           | 358.78         | 467.28         |
| 22           | 368.67         | 468.78         |
| 23           | 378.48         | 470.73         |
| 24           | 388.18         | 473.13         |
| 25           | 397.77         | 475.99         |
| 26           | 407.21         | 479.29         |
| 27           | 416.48         | 483.03         |
| 28           | 425.57         | 487.19         |
| 29           | 434.46         | 491.77         |
| 30           | 443.13         | 496.77         |

Page 9

04-Excavation Long Term.txt

|    |        |        |
|----|--------|--------|
| 31 | 451.55 | 502.16 |
| 32 | 459.71 | 507.94 |
| 33 | 467.60 | 514.09 |
| 34 | 475.19 | 520.60 |
| 35 | 482.46 | 527.46 |
| 36 | 489.41 | 534.65 |
| 37 | 496.02 | 542.15 |
| 38 | 502.27 | 549.96 |
| 39 | 508.15 | 558.05 |
| 40 | 513.65 | 566.40 |
| 41 | 518.75 | 575.00 |
| 42 | 523.44 | 583.83 |
| 43 | 524.97 | 587.06 |

\*\*\* 3.019 \*\*\*

Failure Surface Specified By 43 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 167.96      | 531.34      |
| 2         | 175.07      | 524.31      |
| 3         | 182.50      | 517.61      |
| 4         | 190.22      | 511.26      |
| 5         | 198.23      | 505.28      |
| 6         | 206.51      | 499.66      |
| 7         | 215.04      | 494.44      |
| 8         | 223.80      | 489.62      |
| 9         | 232.77      | 485.20      |
| 10        | 241.93      | 481.20      |
| 11        | 251.27      | 477.63      |
| 12        | 260.77      | 474.49      |
| 13        | 270.40      | 471.79      |
| 14        | 280.14      | 469.54      |
| 15        | 289.98      | 467.74      |
| 16        | 299.89      | 466.40      |
| 17        | 309.85      | 465.51      |
| 18        | 319.84      | 465.08      |
| 19        | 329.84      | 465.11      |
| 20        | 339.83      | 465.61      |
| 21        | 349.78      | 466.56      |
| 22        | 359.68      | 467.97      |
| 23        | 369.51      | 469.83      |
| 24        | 379.23      | 472.15      |
| 25        | 388.85      | 474.91      |
| 26        | 398.32      | 478.11      |
| 27        | 407.64      | 481.74      |
| 28        | 416.78      | 485.80      |
| 29        | 425.72      | 490.27      |
| 30        | 434.45      | 495.15      |
| 31        | 442.94      | 500.43      |
| 32        | 451.18      | 506.10      |
| 33        | 459.15      | 512.13      |
| 34        | 466.84      | 518.53      |
| 35        | 474.22      | 525.28      |
| 36        | 481.28      | 532.36      |
| 37        | 488.02      | 539.75      |

Page 10

|    |                             |        |
|----|-----------------------------|--------|
|    | 04-Excavation Long Term.txt |        |
| 38 | 494.40                      | 547.45 |
| 39 | 500.42                      | 555.43 |
| 40 | 506.07                      | 563.69 |
| 41 | 511.33                      | 572.19 |
| 42 | 516.19                      | 580.93 |
| 43 | 519.79                      | 588.16 |

\*\*\* 3.019 \*\*\*

1

# Failure Surface Specified By 43 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 167.96         | 531.34         |
| 2            | 175.03         | 524.27         |
| 3            | 182.43         | 517.54         |
| 4            | 190.13         | 511.16         |
| 5            | 198.12         | 505.15         |
| 6            | 206.39         | 499.52         |
| 7            | 214.91         | 494.28         |
| 8            | 223.66         | 489.45         |
| 9            | 232.63         | 485.03         |
| 10           | 241.80         | 481.04         |
| 11           | 251.14         | 477.48         |
| 12           | 260.64         | 474.36         |
| 13           | 270.28         | 471.69         |
| 14           | 280.03         | 469.47         |
| 15           | 289.88         | 467.71         |
| 16           | 299.79         | 466.41         |
| 17           | 309.76         | 465.58         |
| 18           | 319.75         | 465.22         |
| 19           | 329.75         | 465.32         |
| 20           | 339.73         | 465.89         |
| 21           | 349.68         | 466.93         |
| 22           | 359.57         | 468.43         |
| 23           | 369.37         | 470.39         |
| 24           | 379.07         | 472.81         |
| 25           | 388.65         | 475.68         |
| 26           | 398.09         | 478.99         |
| 27           | 407.36         | 482.75         |
| 28           | 416.44         | 486.93         |
| 29           | 425.32         | 491.53         |
| 30           | 433.97         | 496.55         |
| 31           | 442.38         | 501.96         |
| 32           | 450.53         | 507.76         |
| 33           | 458.39         | 513.93         |
| 34           | 465.96         | 520.47         |
| 35           | 473.22         | 527.35         |
| 36           | 480.14         | 534.56         |
| 37           | 486.72         | 542.09         |
| 38           | 492.94         | 549.92         |
| 39           | 498.79         | 558.04         |
| 40           | 504.25         | 566.41         |
| 41           | 509.31         | 575.04         |
| 42           | 513.97         | 583.89         |
| 43           | 516.31         | 588.90         |

Page 11

04-Excavation Long Term.txt

\*\*\* 3.019 \*\*\*

Failure Surface Specified By 40 Coordinate Points

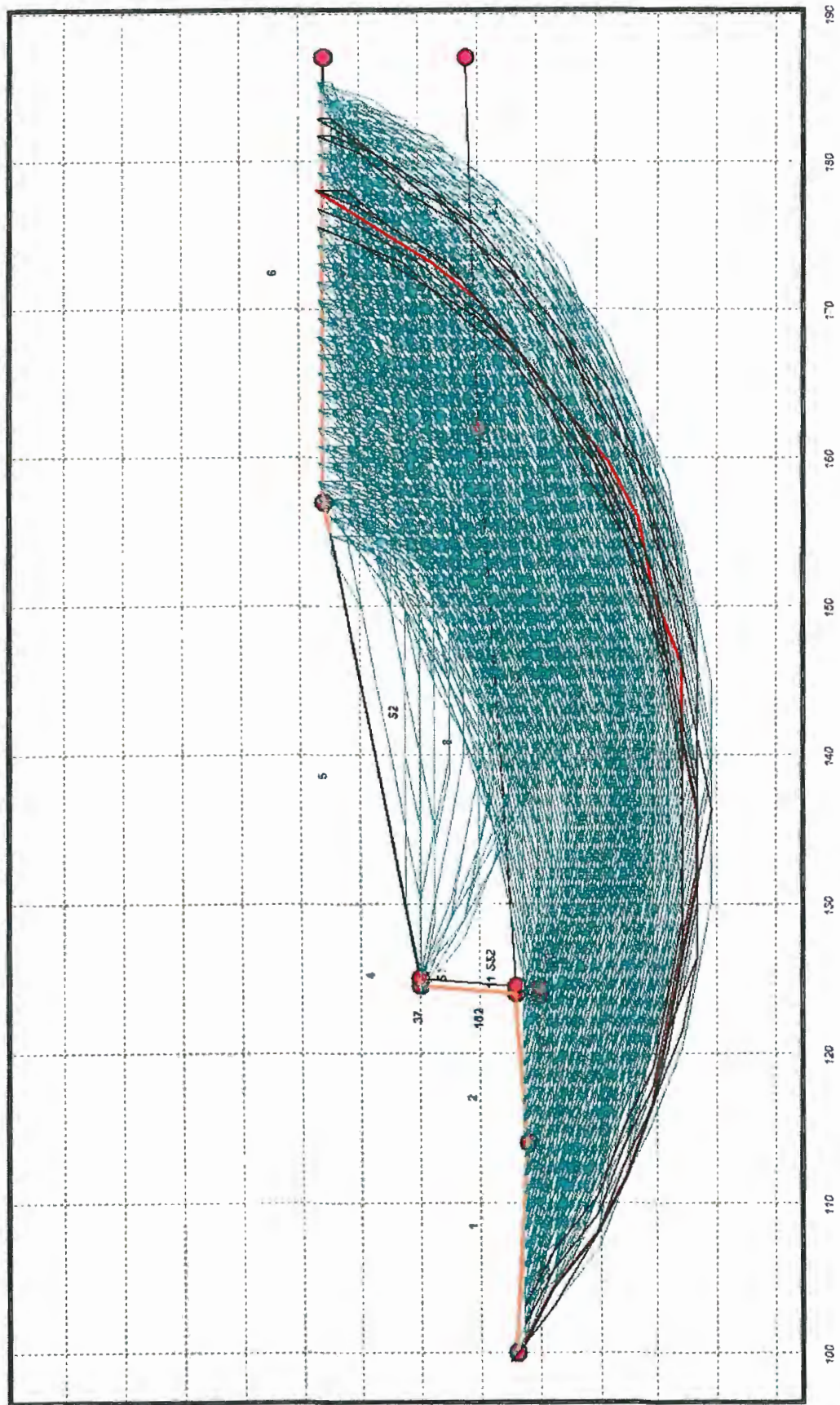
| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 197.14         | 531.91         |
| 2            | 204.25         | 524.87         |
| 3            | 211.69         | 518.20         |
| 4            | 219.47         | 511.92         |
| 5            | 227.56         | 506.03         |
| 6            | 235.93         | 500.57         |
| 7            | 244.57         | 495.53         |
| 8            | 253.46         | 490.94         |
| 9            | 262.56         | 486.81         |
| 10           | 271.87         | 483.14         |
| 11           | 281.34         | 479.95         |
| 12           | 290.97         | 477.24         |
| 13           | 300.72         | 475.03         |
| 14           | 310.57         | 473.31         |
| 15           | 320.50         | 472.09         |
| 16           | 330.47         | 471.38         |
| 17           | 340.47         | 471.17         |
| 18           | 350.47         | 471.47         |
| 19           | 360.43         | 472.28         |
| 20           | 370.35         | 473.59         |
| 21           | 380.18         | 475.40         |
| 22           | 389.91         | 477.71         |
| 23           | 399.51         | 480.50         |
| 24           | 408.96         | 483.78         |
| 25           | 418.23         | 487.54         |
| 26           | 427.29         | 491.76         |
| 27           | 436.14         | 496.43         |
| 28           | 444.73         | 501.55         |
| 29           | 453.05         | 507.09         |
| 30           | 461.08         | 513.05         |
| 31           | 468.80         | 519.41         |
| 32           | 476.19         | 526.15         |
| 33           | 483.22         | 533.25         |
| 34           | 489.89         | 540.71         |
| 35           | 496.17         | 548.49         |
| 36           | 502.05         | 556.58         |
| 37           | 507.51         | 564.96         |
| 38           | 512.53         | 573.60         |
| 39           | 517.12         | 582.49         |
| 40           | 519.70         | 588.18         |

\*\*\* 3.019 \*\*\*

04-Excavation Long Term.txt

|   | 0.00    | 130.04 | 260.08 | 390.13 | 520.17    | 650.21 |
|---|---------|--------|--------|--------|-----------|--------|
| X | 0.00    | +      | +      | +      | +         | +      |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        | *         |        |
|   | -       |        |        |        | *         |        |
|   | 130.04  | +      |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        | .22       |        |
|   | -       |        |        |        | .211      |        |
|   | -       |        |        |        | .110.     |        |
|   | -       |        |        |        | .21..*    |        |
| A | 260.08  | +      |        |        | 810....   |        |
|   | -       |        |        |        | .11.....  |        |
|   | -       |        |        |        | .10.....  |        |
|   | -       |        |        |        | .1.....   |        |
|   | -       |        |        |        | .1.....   |        |
|   | -       |        |        |        | .15.....  |        |
| X | 390.13  | +      |        |        | .31.....  |        |
|   | -       |        |        |        | .11.....  |        |
|   | -       |        |        |        | .711..... |        |
|   | -       |        |        |        | ..11..... |        |
|   | -       |        |        |        | ..116..*  |        |
|   | -       |        |        |        | ..2111*   |        |
| I | 520.17  | +      |        |        | ...11     |        |
|   | -       |        |        |        | ...*      |        |
|   | -       |        |        |        | ...*      |        |
|   | -       |        |        |        | * *       |        |
|   | -       |        |        |        |           |        |
| S | 650.21  | +      |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | 780.25  | +      |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        |           |        |
| F | 910.29  | +      |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        |           |        |
|   | -       |        |        |        |           |        |
| T | 1040.34 | +      |        |        |           |        |

130 Environmental Park Retaining Wall Long Term - FS Min = 8.402



Retaining Wall Long Term.txt  
 \*\* PCSTABL6 \*\*

by  
 Purdue University

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

Run Date: 12:33 PM 2/4/2014

Time of Run:  
 Run By: GWA  
 Input Data Filename: run.in  
 Output Filename: result.out  
 Unit: ENGLISH  
 Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Retaining Wall Long Term

BOUNDARY COORDINATES

6 Top Boundaries  
 12 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 100.00      | 542.00      | 114.00       | 541.00       | 3                   |
| 2            | 114.00      | 541.00      | 124.00       | 542.00       | 3                   |
| 3            | 124.00      | 542.00      | 124.50       | 550.00       | 1                   |
| 4            | 124.50      | 550.00      | 125.00       | 550.00       | 1                   |
| 5            | 125.00      | 550.00      | 157.00       | 558.00       | 2                   |
| 6            | 157.00      | 558.00      | 187.00       | 558.00       | 2                   |
| 7            | 124.50      | 542.00      | 125.00       | 550.00       | 2                   |
| 8            | 124.50      | 542.00      | 162.00       | 545.00       | 3                   |
| 9            | 162.00      | 545.00      | 187.00       | 546.00       | 3                   |
| 10           | 123.88      | 540.00      | 124.00       | 542.00       | 1                   |
| 11           | 123.88      | 540.00      | 124.38       | 540.00       | 3                   |
| 12           | 124.38      | 540.00      | 124.50       | 542.00       | 3                   |

ISOTROPIC SOIL PARAMETERS

3 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. |
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|

|   |       |       | Retaining Wall | Long Term.txt |      |     |   |
|---|-------|-------|----------------|---------------|------|-----|---|
| 1 | 109.4 | 109.4 | 100000.0       | 0.0           | 0.00 | 0.0 | 0 |
| 2 | 109.4 | 109.4 | 2381.0         | 9.6           | 0.00 | 0.0 | 0 |
| 3 | 123.5 | 123.5 | 2381.0         | 9.6           | 0.00 | 0.0 | 0 |

1

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

1000 Trial Surfaces Have Been Generated.

20 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 100.00 ft.  
and X = 125.00 ft.

Each Surface Terminates Between X = 155.00 ft.  
and X = 185.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00 ft.

5.00 ft. Line Segments Define Each Trial Failure Surface.

1

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 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 100.51      | 541.96      |
| 2         | 104.06      | 538.44      |
| 3         | 107.97      | 535.33      |
| 4         | 112.20      | 532.66      |
| 5         | 116.70      | 530.47      |
| 6         | 121.41      | 528.79      |
| 7         | 126.27      | 527.63      |
| 8         | 131.23      | 527.02      |
| 9         | 136.23      | 526.94      |
| 10        | 141.21      | 527.42      |
| 11        | 146.10      | 528.44      |
| 12        | 150.86      | 529.99      |
| 13        | 155.41      | 532.05      |
| 14        | 159.72      | 534.59      |
| 15        | 163.72      | 537.59      |
| 16        | 167.36      | 541.01      |
| 17        | 170.61      | 544.81      |

Page 2



Retaining Wall Long Term.txt

|    |        |        |
|----|--------|--------|
| 18 | 173.43 | 548.94 |
| 19 | 175.78 | 553.36 |
| 20 | 177.62 | 558.00 |

\*\*\* 8.402 \*\*\*

Individual data on the 28 slices

| Slice No. | Width (ft) | Weight (lbs) | Water Force Top (lbs) | Water Force Bot (lbs) | Force Norm (lbs) | Force Tan (lbs) | Earthquake Force Hor (lbs) | Earthquake Force Ver (lbs) | Surcharge Load (lbs) |
|-----------|------------|--------------|-----------------------|-----------------------|------------------|-----------------|----------------------------|----------------------------|----------------------|
| 1         | 3.5        | 716.3        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 2         | 3.9        | 2264.4       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 3         | 4.2        | 3805.6       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 4         | 1.8        | 1964.4       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 5         | 2.7        | 3332.5       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 6         | 4.7        | 6904.2       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 7         | 2.5        | 4077.0       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 8         | 0.1        | 211.4        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 9         | 0.4        | 754.9        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 10        | 0.1        | 309.0        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 11        | 0.5        | 1302.6       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 12        | 1.3        | 3363.7       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 13        | 5.0        | 13867.8      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 14        | 5.0        | 14895.2      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 15        | 5.0        | 15411.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 16        | 4.9        | 15393.8      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 17        | 4.8        | 14850.8      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 18        | 4.6        | 13821.8      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 19        | 1.6        | 4656.2       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 20        | 2.7        | 7617.5       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 21        | 2.3        | 5935.2       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 22        | 1.7        | 4150.6       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 23        | 3.6        | 7760.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 24        | 3.3        | 5474.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 25        | 0.4        | 528.8        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 26        | 2.4        | 2898.4       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 27        | 2.3        | 1758.0       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 28        | 1.8        | 468.9        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |

Failure Surface Specified By 22 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 100.00      | 542.00      |
| 2         | 103.58      | 538.51      |
| 3         | 107.49      | 535.39      |
| 4         | 111.70      | 532.70      |
| 5         | 116.16      | 530.44      |
| 6         | 120.83      | 528.64      |
| 7         | 125.65      | 527.33      |
| 8         | 130.59      | 526.51      |
| 9         | 135.58      | 526.20      |
| 10        | 140.57      | 526.40      |
| 11        | 145.52      | 527.10      |

Page 3

| Retaining wall Long Term.txt |        |        |
|------------------------------|--------|--------|
| 12                           | 150.38 | 528.30 |
| 13                           | 155.08 | 529.99 |
| 14                           | 159.60 | 532.14 |
| 15                           | 163.87 | 534.74 |
| 16                           | 167.85 | 537.76 |
| 17                           | 171.51 | 541.17 |
| 18                           | 174.80 | 544.94 |
| 19                           | 177.69 | 549.01 |
| 20                           | 180.16 | 553.36 |
| 21                           | 182.17 | 557.94 |
| 22                           | 182.19 | 558.00 |

\*\*\* 8.422 \*\*\*

1

#### Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 100.51      | 541.96      |
| 2         | 104.06      | 538.45      |
| 3         | 107.98      | 535.34      |
| 4         | 112.23      | 532.70      |
| 5         | 116.74      | 530.54      |
| 6         | 121.46      | 528.89      |
| 7         | 126.33      | 527.78      |
| 8         | 131.30      | 527.22      |
| 9         | 136.30      | 527.21      |
| 10        | 141.27      | 527.76      |
| 11        | 146.15      | 528.86      |
| 12        | 150.87      | 530.50      |
| 13        | 155.39      | 532.64      |
| 14        | 159.64      | 535.28      |
| 15        | 163.57      | 538.37      |
| 16        | 167.13      | 541.88      |
| 17        | 170.28      | 545.77      |
| 18        | 172.97      | 549.98      |
| 19        | 175.19      | 554.46      |
| 20        | 176.47      | 558.00      |

\*\*\* 8.426 \*\*\*

#### Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 100.00      | 542.00      |
| 2         | 103.54      | 538.46      |
| 3         | 107.44      | 535.34      |
| 4         | 111.67      | 532.68      |
| 5         | 116.17      | 530.50      |

Page 4

|               | Retaining Wall Long Term.txt |        |
|---------------|------------------------------|--------|
| 6             | 120.89                       | 528.84 |
| 7             | 125.76                       | 527.71 |
| 8             | 130.73                       | 527.13 |
| 9             | 135.73                       | 527.11 |
| 10            | 140.70                       | 527.64 |
| 11            | 145.58                       | 528.73 |
| 12            | 150.31                       | 530.35 |
| 13            | 154.83                       | 532.48 |
| 14            | 159.08                       | 535.11 |
| 15            | 163.02                       | 538.20 |
| 16            | 166.59                       | 541.70 |
| 17            | 169.74                       | 545.58 |
| 18            | 172.44                       | 549.78 |
| 19            | 174.66                       | 554.27 |
| 20            | 176.02                       | 558.00 |
| *** 8.426 *** |                              |        |

1

#### Failure Surface Specified By 22 Coordinate Points

| Point No.     | X-Surf (ft) | Y-Surf (ft) |
|---------------|-------------|-------------|
| 1             | 100.51      | 541.96      |
| 2             | 104.05      | 538.43      |
| 3             | 107.93      | 535.27      |
| 4             | 112.11      | 532.53      |
| 5             | 116.55      | 530.23      |
| 6             | 121.20      | 528.40      |
| 7             | 126.02      | 527.06      |
| 8             | 130.94      | 526.21      |
| 9             | 135.93      | 525.88      |
| 10            | 140.93      | 526.06      |
| 11            | 145.88      | 526.74      |
| 12            | 150.74      | 527.94      |
| 13            | 155.45      | 529.62      |
| 14            | 159.96      | 531.78      |
| 15            | 164.22      | 534.38      |
| 16            | 168.20      | 537.41      |
| 17            | 171.85      | 540.84      |
| 18            | 175.12      | 544.61      |
| 19            | 177.99      | 548.71      |
| 20            | 180.43      | 553.07      |
| 21            | 182.41      | 557.66      |
| 22            | 182.51      | 558.00      |
| *** 8.431 *** |             |             |

#### Failure Surface Specified By 21 Coordinate Points

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

Page 5

Retaining Wall Long Term.txt

|    |        |        |
|----|--------|--------|
| 1  | 101.02 | 541.93 |
| 2  | 104.57 | 538.41 |
| 3  | 108.47 | 535.28 |
| 4  | 112.67 | 532.56 |
| 5  | 117.12 | 530.29 |
| 6  | 121.79 | 528.49 |
| 7  | 126.62 | 527.19 |
| 8  | 131.55 | 526.38 |
| 9  | 136.54 | 526.09 |
| 10 | 141.54 | 526.32 |
| 11 | 146.48 | 527.06 |
| 12 | 151.33 | 528.30 |
| 13 | 156.01 | 530.04 |
| 14 | 160.50 | 532.25 |
| 15 | 164.73 | 534.91 |
| 16 | 168.67 | 537.99 |
| 17 | 172.27 | 541.46 |
| 18 | 175.49 | 545.29 |
| 19 | 178.30 | 549.42 |
| 20 | 180.67 | 553.82 |
| 21 | 182.39 | 558.00 |

\*\*\* 8.434 \*\*\*

1

Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 103.06      | 541.78      |
| 2         | 106.73      | 538.39      |
| 3         | 110.75      | 535.42      |
| 4         | 115.08      | 532.91      |
| 5         | 119.66      | 530.90      |
| 6         | 124.43      | 529.40      |
| 7         | 129.34      | 528.44      |
| 8         | 134.32      | 528.03      |
| 9         | 139.32      | 528.18      |
| 10        | 144.27      | 528.87      |
| 11        | 149.11      | 530.11      |
| 12        | 153.79      | 531.88      |
| 13        | 158.24      | 534.15      |
| 14        | 162.42      | 536.90      |
| 15        | 166.26      | 540.10      |
| 16        | 169.73      | 543.70      |
| 17        | 172.78      | 547.66      |
| 18        | 175.37      | 551.94      |
| 19        | 177.48      | 556.48      |
| 20        | 177.99      | 558.00      |

\*\*\* 8.435 \*\*\*

Retaining Wall Long Term.txt  
Failure Surface Specified By 20 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 102.04         | 541.85         |
| 2            | 105.58         | 538.33         |
| 3            | 109.50         | 535.22         |
| 4            | 113.74         | 532.57         |
| 5            | 118.25         | 530.41         |
| 6            | 122.98         | 528.77         |
| 7            | 127.85         | 527.68         |
| 8            | 132.82         | 527.14         |
| 9            | 137.82         | 527.16         |
| 10           | 142.79         | 527.74         |
| 11           | 147.66         | 528.88         |
| 12           | 152.37         | 530.55         |
| 13           | 156.86         | 532.75         |
| 14           | 161.08         | 535.43         |
| 15           | 164.97         | 538.58         |
| 16           | 168.48         | 542.13         |
| 17           | 171.57         | 546.07         |
| 18           | 174.20         | 550.32         |
| 19           | 176.34         | 554.84         |
| 20           | 177.42         | 558.00         |

\*\*\* 8.436 \*\*\*

1

Failure Surface Specified By 20 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 100.00         | 542.00         |
| 2            | 103.62         | 538.55         |
| 3            | 107.59         | 535.51         |
| 4            | 111.87         | 532.93         |
| 5            | 116.41         | 530.84         |
| 6            | 121.16         | 529.25         |
| 7            | 126.04         | 528.20         |
| 8            | 131.02         | 527.69         |
| 9            | 136.02         | 527.73         |
| 10           | 140.98         | 528.32         |
| 11           | 145.85         | 529.45         |
| 12           | 150.57         | 531.10         |
| 13           | 155.08         | 533.27         |
| 14           | 159.32         | 535.92         |
| 15           | 163.25         | 539.01         |
| 16           | 166.81         | 542.52         |
| 17           | 169.96         | 546.40         |
| 18           | 172.67         | 550.60         |
| 19           | 174.91         | 555.08         |
| 20           | 175.98         | 558.00         |

\*\*\* 8.438 \*\*\*

Page 7

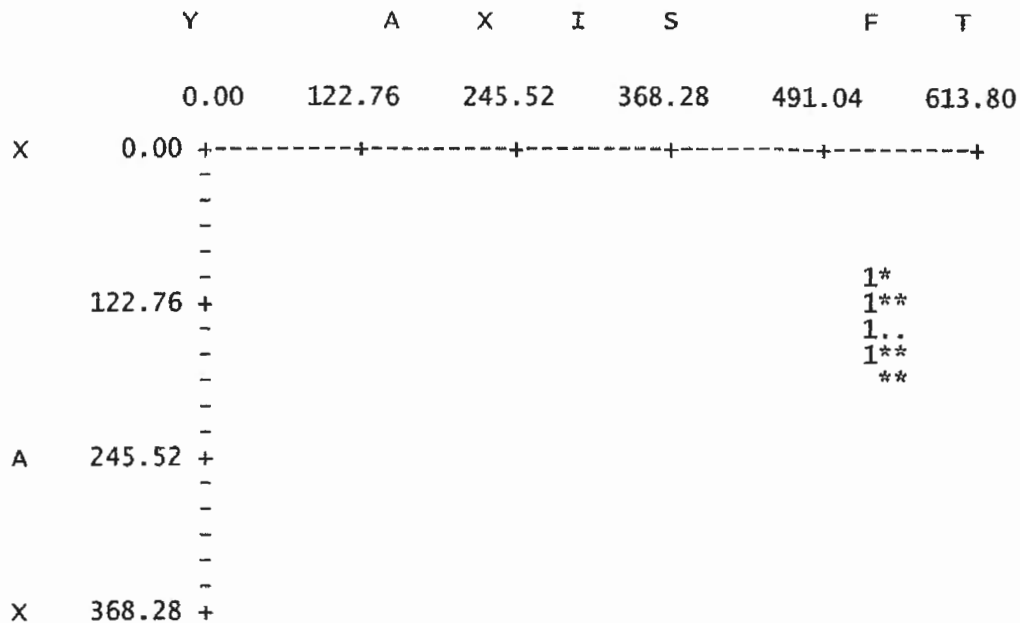
# Retaining Wall Long Term.txt

## Failure Surface Specified By 21 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 101.02      | 541.93      |
| 2         | 104.59      | 538.43      |
| 3         | 108.51      | 535.32      |
| 4         | 112.72      | 532.63      |
| 5         | 117.20      | 530.40      |
| 6         | 121.89      | 528.66      |
| 7         | 126.73      | 527.41      |
| 8         | 131.67      | 526.67      |
| 9         | 136.67      | 526.45      |
| 10        | 141.66      | 526.76      |
| 11        | 146.59      | 527.59      |
| 12        | 151.41      | 528.92      |
| 13        | 156.06      | 530.75      |
| 14        | 160.49      | 533.06      |
| 15        | 164.66      | 535.82      |
| 16        | 168.52      | 539.00      |
| 17        | 172.03      | 542.57      |
| 18        | 175.14      | 546.48      |
| 19        | 177.83      | 550.69      |
| 20        | 180.07      | 555.17      |
| 21        | 181.13      | 558.00      |

\*\*\* 8.439 \*\*\*

1



Retaining wall Long Term.txt

|   |        |   |
|---|--------|---|
|   |        | - |
|   |        | - |
|   |        | - |
|   |        | - |
| I | 491.04 | + |
|   |        | - |
|   |        | - |
|   |        | - |
| S | 613.80 | + |
|   |        | - |
|   |        | - |
|   |        | - |
|   | 736.56 | + |
|   |        | - |
|   |        | - |
|   |        | - |
| F | 859.32 | + |
|   |        | - |
|   |        | - |
|   |        | - |
| T | 982.08 | + |





Retaining Wall Short Term.txt  
 \*\* PCSTABL6 \*\*

by  
 Purdue University

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

Run Date: 12:10 PM 2/4/2014

Time of Run:  
 Run By: GWA  
 Input Data Filename: run.in  
 Output Filename: result.out  
 Unit: ENGLISH  
 Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Retaining Wall Short Term

BOUNDARY COORDINATES

6 Top Boundaries  
 12 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 100.00      | 542.00      | 114.00       | 541.00       | 3                   |
| 2            | 114.00      | 541.00      | 124.00       | 542.00       | 3                   |
| 3            | 124.00      | 542.00      | 124.50       | 550.00       | 1                   |
| 4            | 124.50      | 550.00      | 125.00       | 550.00       | 1                   |
| 5            | 125.00      | 550.00      | 157.00       | 558.00       | 2                   |
| 6            | 157.00      | 558.00      | 187.00       | 558.00       | 2                   |
| 7            | 124.50      | 542.00      | 125.00       | 550.00       | 2                   |
| 8            | 124.50      | 542.00      | 162.00       | 545.00       | 3                   |
| 9            | 162.00      | 545.00      | 187.00       | 546.00       | 3                   |
| 10           | 123.88      | 540.00      | 124.00       | 542.00       | 1                   |
| 11           | 123.88      | 540.00      | 124.38       | 540.00       | 3                   |
| 12           | 124.38      | 540.00      | 124.50       | 542.00       | 3                   |

ISOTROPIC SOIL PARAMETERS

3 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. |
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|

|   |       | Retaining Wall |          | Short Term.txt |      |     |   |
|---|-------|----------------|----------|----------------|------|-----|---|
| 1 | 109.4 | 109.4          | 100000.0 | 0.0            | 0.00 | 0.0 | 0 |
| 2 | 109.4 | 109.4          | 1935.0   | 11.1           | 0.00 | 0.0 | 0 |
| 3 | 123.5 | 123.5          | 1935.0   | 11.1           | 0.00 | 0.0 | 0 |

1

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

1000 Trial Surfaces Have Been Generated.

20 Surfaces Initiate From Each Of 50 Points Equally Spaced  
Along The Ground Surface Between X = 100.00 ft.  
and X = 125.00 ft.

Each Surface Terminates Between X = 155.00 ft.  
and X = 185.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation  
At Which A Surface Extends Is Y = 0.00 ft.

5.00 ft. Line Segments Define Each Trial Failure Surface.

1

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 19 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 102.04         | 541.85         |
| 2            | 105.58         | 538.32         |
| 3            | 109.51         | 535.23         |
| 4            | 113.78         | 532.62         |
| 5            | 118.32         | 530.55         |
| 6            | 123.09         | 529.02         |
| 7            | 127.99         | 528.07         |
| 8            | 132.98         | 527.71         |
| 9            | 137.98         | 527.95         |
| 10           | 142.91         | 528.77         |
| 11           | 147.71         | 530.17         |
| 12           | 152.31         | 532.13         |
| 13           | 156.64         | 534.63         |
| 14           | 160.65         | 537.62         |
| 15           | 164.27         | 541.06         |
| 16           | 167.46         | 544.91         |
| 17           | 170.17         | 549.11         |

Page 2

Retaining Wall Short Term.txt  
 18 172.37 553.61  
 19 173.90 558.00

\*\*\* 7.126 \*\*\*

Individual data on the 27 slices

| Slice No. | width (ft) | Weight (lbs) | Water Force Top (lbs) | Water Force Bot (lbs) | Force Norm (lbs) | Force Tan (lbs) | Earthquake Force Hor (lbs) | Earthquake Force Ver (lbs) | Surcharge Load (lbs) |
|-----------|------------|--------------|-----------------------|-----------------------|------------------|-----------------|----------------------------|----------------------------|----------------------|
| 1         | 3.5        | 716.7        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 2         | 3.9        | 2275.3       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 3         | 4.3        | 3818.2       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 4         | 0.2        | 233.3        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 5         | 4.3        | 5169.8       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 6         | 4.8        | 6990.5       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 7         | 0.8        | 1268.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 8         | 0.1        | 201.0        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 9         | 0.4        | 723.4        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 10        | 0.1        | 298.4        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 11        | 0.5        | 1259.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 12        | 3.0        | 7793.7       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 13        | 5.0        | 13836.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 14        | 5.0        | 14606.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 15        | 4.9        | 14797.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 16        | 4.8        | 14404.2      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 17        | 4.6        | 13463.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 18        | 4.3        | 12045.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 19        | 0.4        | 965.1        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 20        | 3.6        | 9110.7       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 21        | 1.4        | 3049.8       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 22        | 2.3        | 4639.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 23        | 3.2        | 5337.8       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 24        | 0.2        | 287.7        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 25        | 2.5        | 2972.2       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 26        | 2.2        | 1594.2       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |
| 27        | 1.5        | 368.3        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        | 0.0                  |

Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 101.02      | 541.93      |
| 2         | 104.58      | 538.42      |
| 3         | 108.52      | 535.33      |
| 4         | 112.76      | 532.70      |
| 5         | 117.28      | 530.55      |
| 6         | 122.01      | 528.91      |
| 7         | 126.88      | 527.82      |
| 8         | 131.85      | 527.27      |
| 9         | 136.85      | 527.27      |
| 10        | 141.82      | 527.83      |
| 11        | 146.70      | 528.94      |
| 12        | 151.42      | 530.58      |
| 13        | 155.93      | 532.73      |

|    | Retaining Wall Short Term.txt |        |
|----|-------------------------------|--------|
| 14 | 160.18                        | 535.37 |
| 15 | 164.10                        | 538.47 |
| 16 | 167.66                        | 541.98 |
| 17 | 170.81                        | 545.87 |
| 18 | 173.50                        | 550.08 |
| 19 | 175.72                        | 554.56 |
| 20 | 176.96                        | 558.00 |

\*\*\* 7.127 \*\*\*

1

#### Failure Surface Specified By 19 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 101.53      | 541.89      |
| 2         | 105.14      | 538.43      |
| 3         | 109.14      | 535.42      |
| 4         | 113.45      | 532.90      |
| 5         | 118.04      | 530.90      |
| 6         | 122.82      | 529.45      |
| 7         | 127.74      | 528.57      |
| 8         | 132.73      | 528.27      |
| 9         | 137.72      | 528.56      |
| 10        | 142.65      | 529.43      |
| 11        | 147.44      | 530.87      |
| 12        | 152.02      | 532.86      |
| 13        | 156.35      | 535.38      |
| 14        | 160.34      | 538.38      |
| 15        | 163.96      | 541.83      |
| 16        | 167.15      | 545.68      |
| 17        | 169.87      | 549.87      |
| 18        | 172.08      | 554.36      |
| 19        | 173.37      | 558.00      |

\*\*\* 7.131 \*\*\*

#### Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 100.00      | 542.00      |
| 2         | 103.57      | 538.50      |
| 3         | 107.51      | 535.42      |
| 4         | 111.77      | 532.80      |
| 5         | 116.29      | 530.67      |
| 6         | 121.02      | 529.05      |
| 7         | 125.90      | 527.97      |
| 8         | 130.88      | 527.44      |
| 9         | 135.88      | 527.46      |
| 10        | 140.84      | 528.04      |

Page 4

|    | Retaining Wall Short Term.txt |        |
|----|-------------------------------|--------|
| 11 | 145.71                        | 529.17 |
| 12 | 150.43                        | 530.84 |
| 13 | 154.93                        | 533.01 |
| 14 | 159.16                        | 535.68 |
| 15 | 163.07                        | 538.80 |
| 16 | 166.61                        | 542.33 |
| 17 | 169.73                        | 546.23 |
| 18 | 172.40                        | 550.46 |
| 19 | 174.58                        | 554.96 |
| 20 | 175.66                        | 558.00 |

\*\*\* 7.132 \*\*\*

1

#### Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 100.00      | 542.00      |
| 2         | 103.69      | 538.63      |
| 3         | 107.72      | 535.66      |
| 4         | 112.03      | 533.14      |
| 5         | 116.59      | 531.08      |
| 6         | 121.34      | 529.51      |
| 7         | 126.23      | 528.46      |
| 8         | 131.20      | 527.92      |
| 9         | 136.20      | 527.91      |
| 10        | 141.17      | 528.43      |
| 11        | 146.06      | 529.46      |
| 12        | 150.82      | 531.01      |
| 13        | 155.38      | 533.05      |
| 14        | 159.71      | 535.55      |
| 15        | 163.75      | 538.50      |
| 16        | 167.45      | 541.86      |
| 17        | 170.78      | 545.59      |
| 18        | 173.70      | 549.65      |
| 19        | 176.18      | 553.99      |
| 20        | 177.94      | 558.00      |

\*\*\* 7.134 \*\*\*

#### Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 103.06      | 541.78      |
| 2         | 106.82      | 538.49      |
| 3         | 110.92      | 535.62      |
| 4         | 115.30      | 533.21      |
| 5         | 119.92      | 531.30      |
| 6         | 124.72      | 529.90      |

Page 5

|    | Retaining Wall Short Term.txt |        |
|----|-------------------------------|--------|
| 7  | 129.64                        | 529.03 |
| 8  | 134.63                        | 528.69 |
| 9  | 139.63                        | 528.91 |
| 10 | 144.57                        | 529.66 |
| 11 | 149.40                        | 530.95 |
| 12 | 154.07                        | 532.75 |
| 13 | 158.51                        | 535.05 |
| 14 | 162.67                        | 537.82 |
| 15 | 166.51                        | 541.02 |
| 16 | 169.98                        | 544.62 |
| 17 | 173.03                        | 548.58 |
| 18 | 175.64                        | 552.85 |
| 19 | 177.77                        | 557.37 |
| 20 | 177.99                        | 558.00 |

\*\*\* 7.134 \*\*\*

1

#### Failure Surface Specified By 21 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 100.51      | 541.96      |
| 2         | 104.08      | 538.46      |
| 3         | 107.99      | 535.35      |
| 4         | 112.22      | 532.67      |
| 5         | 116.70      | 530.46      |
| 6         | 121.39      | 528.74      |
| 7         | 126.24      | 527.53      |
| 8         | 131.20      | 526.83      |
| 9         | 136.19      | 526.67      |
| 10        | 141.18      | 527.04      |
| 11        | 146.10      | 527.93      |
| 12        | 150.90      | 529.35      |
| 13        | 155.51      | 531.26      |
| 14        | 159.90      | 533.66      |
| 15        | 164.01      | 536.50      |
| 16        | 167.80      | 539.77      |
| 17        | 171.22      | 543.42      |
| 18        | 174.23      | 547.41      |
| 19        | 176.80      | 551.70      |
| 20        | 178.90      | 556.24      |
| 21        | 179.49      | 558.00      |

\*\*\* 7.142 \*\*\*

#### Failure Surface Specified By 20 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 102.04      | 541.85      |

Page 6

|    | Retaining Wall Short Term.txt |        |
|----|-------------------------------|--------|
| 2  | 105.80                        | 538.56 |
| 3  | 109.89                        | 535.68 |
| 4  | 114.26                        | 533.25 |
| 5  | 118.86                        | 531.30 |
| 6  | 123.65                        | 529.85 |
| 7  | 128.56                        | 528.92 |
| 8  | 133.54                        | 528.52 |
| 9  | 138.54                        | 528.65 |
| 10 | 143.50                        | 529.31 |
| 11 | 148.36                        | 530.49 |
| 12 | 153.06                        | 532.19 |
| 13 | 157.56                        | 534.37 |
| 14 | 161.80                        | 537.03 |
| 15 | 165.73                        | 540.11 |
| 16 | 169.31                        | 543.60 |
| 17 | 172.50                        | 547.45 |
| 18 | 175.26                        | 551.62 |
| 19 | 177.57                        | 556.06 |
| 20 | 178.32                        | 558.00 |

\*\*\* 7.146 \*\*\*

1

#### Failure Surface Specified By 18 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 106.63      | 541.53      |
| 2         | 110.59      | 538.47      |
| 3         | 114.88      | 535.91      |
| 4         | 119.45      | 533.88      |
| 5         | 124.23      | 532.41      |
| 6         | 129.15      | 531.52      |
| 7         | 134.14      | 531.23      |
| 8         | 139.14      | 531.54      |
| 9         | 144.05      | 532.44      |
| 10        | 148.83      | 533.93      |
| 11        | 153.39      | 535.97      |
| 12        | 157.68      | 538.55      |
| 13        | 161.62      | 541.62      |
| 14        | 165.17      | 545.14      |
| 15        | 168.27      | 549.06      |
| 16        | 170.89      | 553.32      |
| 17        | 172.97      | 557.87      |
| 18        | 173.01      | 558.00      |

\*\*\* 7.148 \*\*\*

#### Failure Surface Specified By 18 Coordinate Points

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

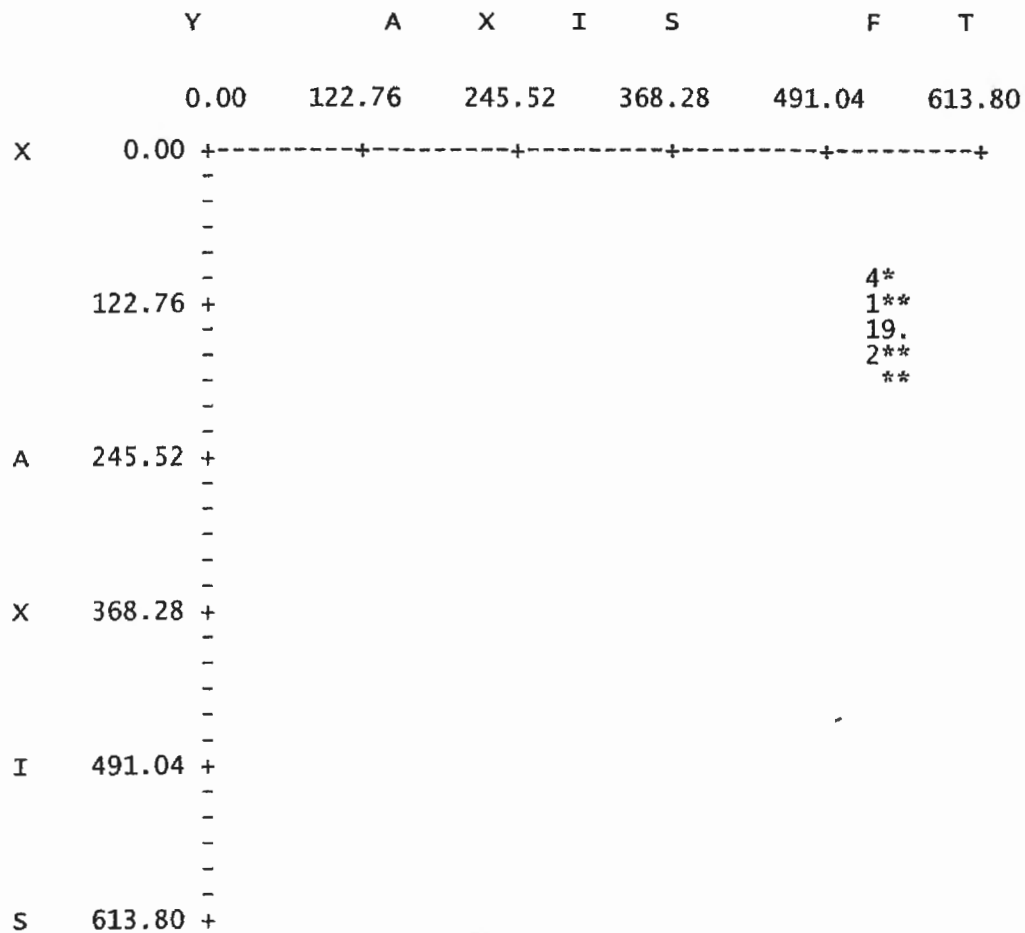
Page 7

# Retaining Wall Short Term.txt

|    |        |        |
|----|--------|--------|
| 1  | 102.55 | 541.82 |
| 2  | 106.43 | 538.67 |
| 3  | 110.65 | 535.98 |
| 4  | 115.15 | 533.79 |
| 5  | 119.86 | 532.13 |
| 6  | 124.74 | 531.02 |
| 7  | 129.71 | 530.47 |
| 8  | 134.71 | 530.49 |
| 9  | 139.67 | 531.09 |
| 10 | 144.54 | 532.25 |
| 11 | 149.24 | 533.95 |
| 12 | 153.71 | 536.18 |
| 13 | 157.90 | 538.91 |
| 14 | 161.76 | 542.09 |
| 15 | 165.22 | 545.70 |
| 16 | 168.25 | 549.68 |
| 17 | 170.80 | 553.97 |
| 18 | 172.61 | 558.00 |

\*\*\* 7.150 \*\*\*

1

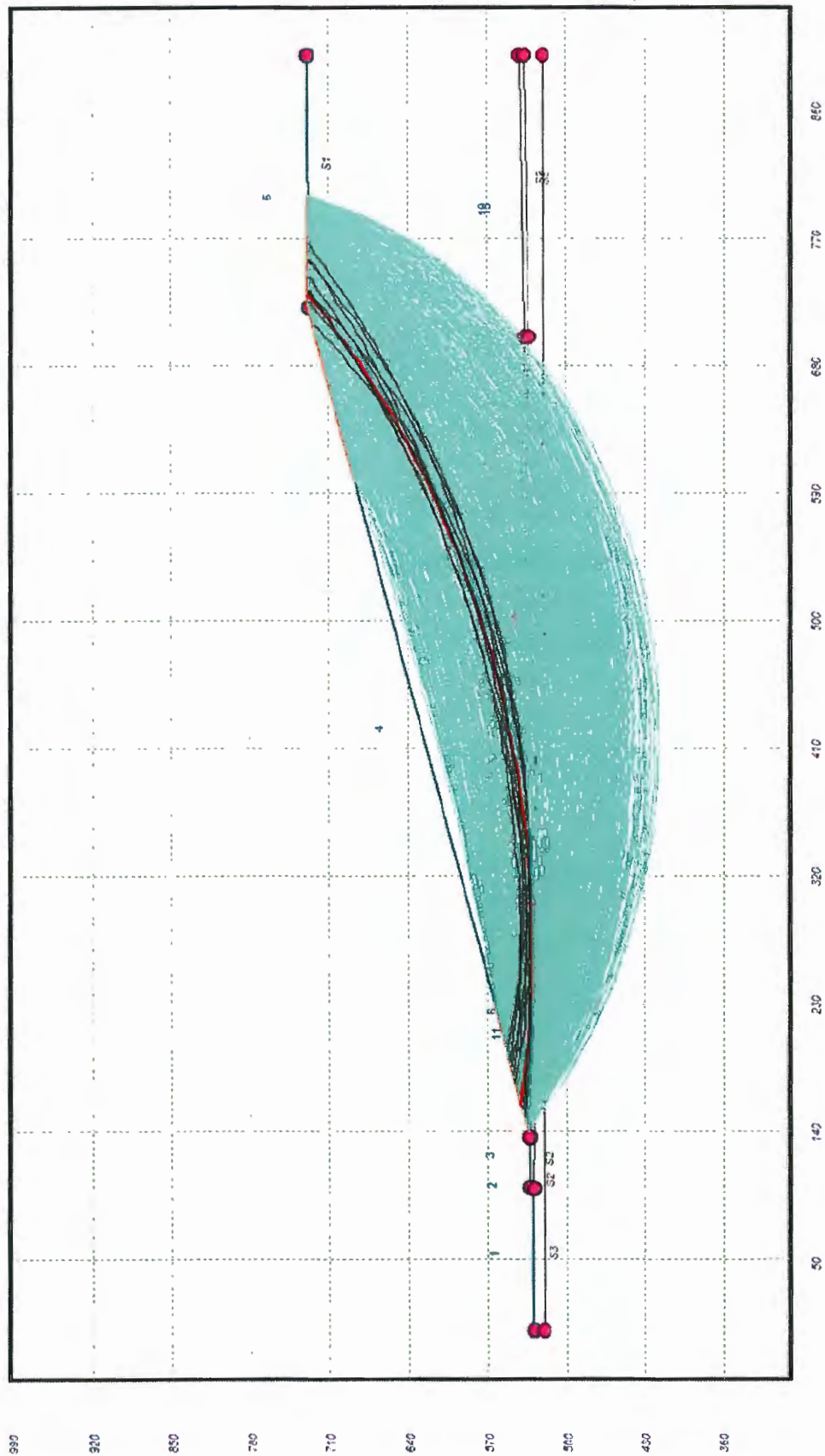




Retaining Wall Short Term.txt

|   |        |   |
|---|--------|---|
|   |        | - |
|   |        | - |
|   |        | - |
|   |        | - |
|   | 736.56 | + |
|   |        | - |
|   |        | - |
|   |        | - |
|   |        | - |
| F | 859.32 | + |
|   |        | - |
|   |        | - |
|   |        | - |
|   |        | - |
| T | 982.08 | + |

130 Environmental Park Interim Waste Circular - FS Min = 1.623



06-Interim Waste Circular.txt  
\*\* PCSTABL6 \*\*

by  
Purdue University

1

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

Run Date: 2:39 PM 12/3/2013

Time of Run:

Run By: GWA  
Input Data Filename: run.in  
Output Filename: result.out  
Unit: ENGLISH  
Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Interim Waste Circular

BOUNDARY COORDINATES

5 Top Boundaries  
16 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 0.00        | 529.00      | 100.00       | 529.00       | 3                   |
| 2            | 100.00      | 529.00      | 100.50       | 533.00       | 2                   |
| 3            | 100.50      | 533.00      | 136.00       | 532.30       | 2                   |
| 4            | 136.00      | 532.30      | 721.00       | 727.30       | 1                   |
| 5            | 721.00      | 727.30      | 900.00       | 729.00       | 1                   |
| 6            | 136.00      | 532.30      | 300.00       | 529.00       | 2                   |
| 7            | 300.00      | 529.00      | 466.00       | 532.30       | 2                   |
| 8            | 466.00      | 532.30      | 500.00       | 540.80       | 2                   |
| 9            | 500.00      | 540.80      | 700.00       | 536.80       | 2                   |
| 10           | 700.00      | 536.80      | 900.00       | 540.80       | 2                   |
| 11           | 100.00      | 529.00      | 300.00       | 525.00       | 3                   |
| 12           | 300.00      | 525.00      | 466.00       | 528.30       | 3                   |
| 13           | 466.00      | 528.30      | 500.00       | 536.80       | 3                   |
| 14           | 500.00      | 536.80      | 700.00       | 532.80       | 3                   |
| 15           | 700.00      | 532.80      | 900.00       | 536.80       | 3                   |
| 16           | 0.00        | 520.00      | 900.00       | 520.00       | 4                   |

1

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

| 06-Interim Waste Circular.txt |                      |                          |                          |                      |                      |                         |                   |
|-------------------------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|
| 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                             | 60.0                 | 60.0                     | 250.0                    | 23.0                 | 0.00                 | 0.0                     | 0                 |
| 2                             | 109.4                | 109.4                    | 2381.0                   | 9.6                  | 0.00                 | 0.0                     | 0                 |
| 3                             | 123.5                | 123.5                    | 2381.0                   | 9.6                  | 0.00                 | 0.0                     | 0                 |
| 4                             | 122.1                | 122.1                    | 2381.0                   | 9.6                  | 0.00                 | 0.0                     | 0                 |

1

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

800 Trial Surfaces Have Been Generated.

20 Surfaces Initiate From Each Of 40 Points Equally Spaced Along The Ground Surface Between X = 140.00 ft. and X = 230.00 ft.

Each Surface Terminates Between X = 600.00 ft. and X = 800.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

1

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 64 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 158.46      | 539.79      |
| 2         | 168.34      | 538.21      |
| 3         | 178.23      | 536.78      |
| 4         | 188.15      | 535.51      |
| 5         | 198.09      | 534.38      |
| 6         | 208.04      | 533.42      |
| 7         | 218.01      | 532.60      |
| 8         | 227.99      | 531.94      |
| 9         | 237.97      | 531.44      |
| 10        | 247.97      | 531.09      |
| 11        | 257.97      | 530.89      |
| 12        | 267.97      | 530.85      |

Page 2

06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 13 | 277.97 | 530.96 |
| 14 | 287.96 | 531.22 |
| 15 | 297.95 | 531.65 |
| 16 | 307.94 | 532.22 |
| 17 | 317.91 | 532.95 |
| 18 | 327.87 | 533.83 |
| 19 | 337.82 | 534.87 |
| 20 | 347.75 | 536.06 |
| 21 | 357.66 | 537.40 |
| 22 | 367.54 | 538.89 |
| 23 | 377.41 | 540.54 |
| 24 | 387.24 | 542.34 |
| 25 | 397.05 | 544.29 |
| 26 | 406.83 | 546.40 |
| 27 | 416.57 | 548.65 |
| 28 | 426.28 | 551.05 |
| 29 | 435.95 | 553.61 |
| 30 | 445.57 | 556.31 |
| 31 | 455.16 | 559.16 |
| 32 | 464.70 | 562.16 |
| 33 | 474.19 | 565.30 |
| 34 | 483.63 | 568.59 |
| 35 | 493.03 | 572.03 |
| 36 | 502.36 | 575.61 |
| 37 | 511.64 | 579.34 |
| 38 | 520.86 | 583.20 |
| 39 | 530.03 | 587.21 |
| 40 | 539.12 | 591.36 |
| 41 | 548.16 | 595.65 |
| 42 | 557.12 | 600.08 |
| 43 | 566.02 | 604.65 |
| 44 | 574.84 | 609.35 |
| 45 | 583.59 | 614.19 |
| 46 | 592.27 | 619.17 |
| 47 | 600.87 | 624.28 |
| 48 | 609.38 | 629.51 |
| 49 | 617.82 | 634.89 |
| 50 | 626.17 | 640.39 |
| 51 | 634.44 | 646.01 |
| 52 | 642.61 | 651.77 |
| 53 | 650.70 | 657.65 |
| 54 | 658.70 | 663.65 |
| 55 | 666.60 | 669.78 |
| 56 | 674.41 | 676.03 |
| 57 | 682.12 | 682.40 |
| 58 | 689.73 | 688.89 |
| 59 | 697.24 | 695.49 |
| 60 | 704.64 | 702.21 |
| 61 | 711.95 | 709.04 |
| 62 | 719.14 | 715.99 |
| 63 | 726.23 | 723.04 |
| 64 | 730.47 | 727.39 |

\*\*\* 1.623 \*\*\*

Individual data on the 64 slices

Water Water  
Page 3

Earthquake

| 06-Interim Waste Circular.txt |            |              |                 |                 |                  |                 |                 |                 |                      |
|-------------------------------|------------|--------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|----------------------|
| Slice No.                     | width (ft) | Weight (lbs) | Force Top (lbs) | Force Bot (lbs) | Force Norm (lbs) | Force Tan (lbs) | Force Hor (lbs) | Force Ver (lbs) | Surcharge Load (lbs) |
| 1                             | 9.9        | 1443.0       | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 2                             | 9.9        | 4296.3       | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 3                             | 9.9        | 7074.6       | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 4                             | 9.9        | 9774.9       | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 5                             | 10.0       | 12394.0      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 6                             | 10.0       | 14929.2      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 7                             | 10.0       | 17377.4      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 8                             | 10.0       | 19736.2      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 9                             | 10.0       | 22003.1      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 10                            | 10.0       | 24175.7      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 11                            | 10.0       | 26252.0      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 12                            | 10.0       | 28229.7      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 13                            | 10.0       | 30107.1      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 14                            | 10.0       | 31882.4      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 15                            | 10.0       | 33554.2      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 16                            | 10.0       | 35120.8      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 17                            | 10.0       | 36581.4      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 18                            | 9.9        | 37934.6      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 19                            | 9.9        | 39179.6      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 20                            | 9.9        | 40315.5      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 21                            | 9.9        | 41341.9      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 22                            | 9.9        | 42258.4      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 23                            | 9.8        | 43064.8      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 24                            | 9.8        | 43760.8      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 25                            | 9.8        | 44346.8      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 26                            | 9.7        | 44822.7      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 27                            | 9.7        | 45189.1      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 28                            | 9.7        | 45446.5      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 29                            | 9.6        | 45595.8      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |
| 0.0                           |            |              |                 |                 |                  |                 |                 |                 |                      |
| 30                            | 9.6        | 45637.7      | 0.0             | 0.0             | 0.0              | 0.0             | 0.0             | 0.0             |                      |

06-Interim Waste Circular.txt

|     |     |         |     |     |     |     |     |     |
|-----|-----|---------|-----|-----|-----|-----|-----|-----|
| 0.0 |     |         |     |     |     |     |     |     |
| 31  | 9.5 | 45573.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 32  | 9.5 | 45404.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 33  | 9.4 | 45131.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 34  | 9.4 | 44756.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 35  | 9.3 | 44281.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 36  | 9.3 | 43707.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 37  | 9.2 | 43037.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 38  | 9.2 | 42272.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 39  | 9.1 | 41416.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 40  | 9.0 | 40469.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 41  | 9.0 | 39436.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 42  | 8.9 | 38319.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 43  | 8.8 | 37120.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 44  | 8.8 | 35843.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 45  | 8.7 | 34490.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 46  | 8.6 | 33065.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 47  | 8.5 | 31572.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 48  | 8.4 | 30013.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 49  | 8.4 | 28393.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 50  | 8.3 | 26715.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 51  | 8.2 | 24983.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 52  | 8.1 | 23201.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 53  | 8.0 | 21373.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 54  | 7.9 | 19502.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 55  | 7.8 | 17594.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 56  | 7.7 | 15653.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 57  | 7.6 | 13682.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 58  | 7.5 | 11687.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 59  | 7.4 | 9671.7  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 60  | 7.3 | 7640.6  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 61  | 7.2 | 5598.6  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |

|     |     |        |                               |     |     |     |     |  |
|-----|-----|--------|-------------------------------|-----|-----|-----|-----|--|
|     |     |        | 06-Interim Waste Circular.txt |     |     |     |     |  |
| 62  | 1.9 | 1123.6 | 0.0                           | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |        |                               |     |     |     |     |  |
| 63  | 5.2 | 2161.0 | 0.0                           | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |        |                               |     |     |     |     |  |
| 64  | 4.2 | 547.7  | 0.0                           | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |        |                               |     |     |     |     |  |

Failure Surface Specified By 65 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 174.62         | 545.17         |
| 2            | 184.41         | 543.15         |
| 3            | 194.23         | 541.29         |
| 4            | 204.09         | 539.59         |
| 5            | 213.97         | 538.05         |
| 6            | 223.87         | 536.67         |
| 7            | 233.80         | 535.45         |
| 8            | 243.74         | 534.39         |
| 9            | 253.70         | 533.50         |
| 10           | 263.68         | 532.76         |
| 11           | 273.66         | 532.19         |
| 12           | 283.65         | 531.78         |
| 13           | 293.65         | 531.54         |
| 14           | 303.65         | 531.46         |
| 15           | 313.65         | 531.53         |
| 16           | 323.65         | 531.78         |
| 17           | 333.64         | 532.18         |
| 18           | 343.62         | 532.75         |
| 19           | 353.59         | 533.48         |
| 20           | 363.55         | 534.37         |
| 21           | 373.50         | 535.42         |
| 22           | 383.42         | 536.63         |
| 23           | 393.33         | 538.01         |
| 24           | 403.21         | 539.55         |
| 25           | 413.07         | 541.24         |
| 26           | 422.89         | 543.10         |
| 27           | 432.69         | 545.12         |
| 28           | 442.45         | 547.29         |
| 29           | 452.17         | 549.63         |
| 30           | 461.86         | 552.12         |
| 31           | 471.50         | 554.77         |
| 32           | 481.10         | 557.57         |
| 33           | 490.65         | 560.53         |
| 34           | 500.15         | 563.65         |
| 35           | 509.60         | 566.92         |
| 36           | 519.00         | 570.34         |
| 37           | 528.34         | 573.92         |
| 38           | 537.61         | 577.65         |
| 39           | 546.83         | 581.52         |
| 40           | 555.99         | 585.55         |
| 41           | 565.07         | 589.72         |
| 42           | 574.09         | 594.05         |
| 43           | 583.04         | 598.52         |
| 44           | 591.91         | 603.13         |
| 45           | 600.71         | 607.89         |
| 46           | 609.42         | 612.78         |
| 47           | 618.06         | 617.83         |
| 48           | 626.61         | 623.01         |
| 49           | 635.08         | 628.32         |
| 50           | 643.46         | 633.78         |



06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 51 | 651.75 | 639.37 |
| 52 | 659.95 | 645.10 |
| 53 | 668.06 | 650.95 |
| 54 | 676.07 | 656.94 |
| 55 | 683.98 | 663.06 |
| 56 | 691.79 | 669.31 |
| 57 | 699.49 | 675.68 |
| 58 | 707.09 | 682.17 |
| 59 | 714.59 | 688.79 |
| 60 | 721.98 | 695.53 |
| 61 | 729.25 | 702.39 |
| 62 | 736.42 | 709.37 |
| 63 | 743.47 | 716.46 |
| 64 | 750.40 | 723.67 |
| 65 | 754.07 | 727.61 |

\*\*\* 1.623 \*\*\*

1

#### Failure Surface Specified By 66 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 156.15         | 539.02         |
| 2            | 166.09         | 537.92         |
| 3            | 176.05         | 536.95         |
| 4            | 186.01         | 536.11         |
| 5            | 195.99         | 535.40         |
| 6            | 205.97         | 534.82         |
| 7            | 215.96         | 534.37         |
| 8            | 225.95         | 534.05         |
| 9            | 235.95         | 533.85         |
| 10           | 245.95         | 533.79         |
| 11           | 255.95         | 533.86         |
| 12           | 265.95         | 534.06         |
| 13           | 275.94         | 534.39         |
| 14           | 285.93         | 534.85         |
| 15           | 295.92         | 535.44         |
| 16           | 305.89         | 536.16         |
| 17           | 315.85         | 537.01         |
| 18           | 325.81         | 537.99         |
| 19           | 335.74         | 539.09         |
| 20           | 345.67         | 540.33         |
| 21           | 355.57         | 541.70         |
| 22           | 365.46         | 543.19         |
| 23           | 375.33         | 544.81         |
| 24           | 385.17         | 546.57         |
| 25           | 395.00         | 548.45         |
| 26           | 404.79         | 550.45         |
| 27           | 414.56         | 552.59         |
| 28           | 424.30         | 554.85         |
| 29           | 434.01         | 557.23         |
| 30           | 443.69         | 559.75         |
| 31           | 453.34         | 562.39         |
| 32           | 462.95         | 565.15         |
| 33           | 472.52         | 568.04         |
| 34           | 482.06         | 571.06         |

Page 7

06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 35 | 491.55 | 574.19 |
| 36 | 501.01 | 577.45 |
| 37 | 510.42 | 580.84 |
| 38 | 519.78 | 584.34 |
| 39 | 529.10 | 587.97 |
| 40 | 538.37 | 591.72 |
| 41 | 547.59 | 595.59 |
| 42 | 556.76 | 599.57 |
| 43 | 565.88 | 603.68 |
| 44 | 574.95 | 607.91 |
| 45 | 583.95 | 612.25 |
| 46 | 592.90 | 616.71 |
| 47 | 601.80 | 621.28 |
| 48 | 610.63 | 625.97 |
| 49 | 619.40 | 630.78 |
| 50 | 628.10 | 635.70 |
| 51 | 636.75 | 640.73 |
| 52 | 645.32 | 645.87 |
| 53 | 653.83 | 651.13 |
| 54 | 662.27 | 656.49 |
| 55 | 670.64 | 661.97 |
| 56 | 678.93 | 667.55 |
| 57 | 687.16 | 673.24 |
| 58 | 695.30 | 679.04 |
| 59 | 703.38 | 684.94 |
| 60 | 711.37 | 690.95 |
| 61 | 719.29 | 697.06 |
| 62 | 727.12 | 703.27 |
| 63 | 734.88 | 709.58 |
| 64 | 742.55 | 716.00 |
| 65 | 750.14 | 722.51 |
| 66 | 755.95 | 727.63 |

\*\*\* 1.631 \*\*\*

Failure Surface Specified By 65 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 151.54      | 537.48      |
| 2         | 161.48      | 536.41      |
| 3         | 171.44      | 535.48      |
| 4         | 181.41      | 534.68      |
| 5         | 191.38      | 534.02      |
| 6         | 201.37      | 533.50      |
| 7         | 211.36      | 533.11      |
| 8         | 221.36      | 532.85      |
| 9         | 231.36      | 532.74      |
| 10        | 241.36      | 532.75      |
| 11        | 251.36      | 532.91      |
| 12        | 261.35      | 533.20      |
| 13        | 271.34      | 533.63      |
| 14        | 281.33      | 534.19      |
| 15        | 291.30      | 534.89      |
| 16        | 301.27      | 535.72      |
| 17        | 311.22      | 536.69      |
| 18        | 321.16      | 537.80      |

Page 8

|    | 06-Interim Waste Circular.txt |        |
|----|-------------------------------|--------|
| 19 | 331.08                        | 539.04 |
| 20 | 340.99                        | 540.41 |
| 21 | 350.87                        | 541.92 |
| 22 | 360.74                        | 543.56 |
| 23 | 370.58                        | 545.34 |
| 24 | 380.40                        | 547.25 |
| 25 | 390.18                        | 549.30 |
| 26 | 399.94                        | 551.47 |
| 27 | 409.67                        | 553.79 |
| 28 | 419.37                        | 556.23 |
| 29 | 429.03                        | 558.80 |
| 30 | 438.66                        | 561.51 |
| 31 | 448.25                        | 564.34 |
| 32 | 457.80                        | 567.31 |
| 33 | 467.31                        | 570.41 |
| 34 | 476.77                        | 573.63 |
| 35 | 486.19                        | 576.98 |
| 36 | 495.57                        | 580.47 |
| 37 | 504.90                        | 584.07 |
| 38 | 514.17                        | 587.81 |
| 39 | 523.40                        | 591.67 |
| 40 | 532.57                        | 595.66 |
| 41 | 541.68                        | 599.77 |
| 42 | 550.74                        | 604.00 |
| 43 | 559.74                        | 608.36 |
| 44 | 568.68                        | 612.84 |
| 45 | 577.56                        | 617.44 |
| 46 | 586.38                        | 622.16 |
| 47 | 595.13                        | 627.00 |
| 48 | 603.81                        | 631.96 |
| 49 | 612.43                        | 637.03 |
| 50 | 620.98                        | 642.23 |
| 51 | 629.45                        | 647.54 |
| 52 | 637.85                        | 652.96 |
| 53 | 646.18                        | 658.50 |
| 54 | 654.43                        | 664.15 |
| 55 | 662.60                        | 669.91 |
| 56 | 670.70                        | 675.78 |
| 57 | 678.71                        | 681.77 |
| 58 | 686.64                        | 687.86 |
| 59 | 694.49                        | 694.05 |
| 60 | 702.25                        | 700.36 |
| 61 | 709.93                        | 706.77 |
| 62 | 717.51                        | 713.28 |
| 63 | 725.01                        | 719.90 |
| 64 | 732.42                        | 726.61 |
| 65 | 733.28                        | 727.42 |

\*\*\* 1.632 \*\*\*

1

Failure Surface Specified By 61 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 197.69      | 552.86      |
| 2         | 207.35      | 550.26      |

Page 9

06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 3  | 217.05 | 547.86 |
| 4  | 226.81 | 545.64 |
| 5  | 236.60 | 543.62 |
| 6  | 246.43 | 541.79 |
| 7  | 256.30 | 540.15 |
| 8  | 266.19 | 538.71 |
| 9  | 276.11 | 537.47 |
| 10 | 286.06 | 536.42 |
| 11 | 296.02 | 535.57 |
| 12 | 306.00 | 534.91 |
| 13 | 315.99 | 534.46 |
| 14 | 325.99 | 534.20 |
| 15 | 335.99 | 534.13 |
| 16 | 345.99 | 534.27 |
| 17 | 355.98 | 534.60 |
| 18 | 365.97 | 535.13 |
| 19 | 375.94 | 535.85 |
| 20 | 385.90 | 536.78 |
| 21 | 395.83 | 537.90 |
| 22 | 405.75 | 539.21 |
| 23 | 415.63 | 540.72 |
| 24 | 425.49 | 542.43 |
| 25 | 435.30 | 544.33 |
| 26 | 445.08 | 546.42 |
| 27 | 454.82 | 548.71 |
| 28 | 464.51 | 551.18 |
| 29 | 474.14 | 553.85 |
| 30 | 483.73 | 556.71 |
| 31 | 493.25 | 559.76 |
| 32 | 502.71 | 562.99 |
| 33 | 512.11 | 566.41 |
| 34 | 521.44 | 570.02 |
| 35 | 530.69 | 573.80 |
| 36 | 539.87 | 577.78 |
| 37 | 548.97 | 581.93 |
| 38 | 557.98 | 586.26 |
| 39 | 566.91 | 590.76 |
| 40 | 575.75 | 595.44 |
| 41 | 584.49 | 600.30 |
| 42 | 593.13 | 605.33 |
| 43 | 601.68 | 610.53 |
| 44 | 610.11 | 615.89 |
| 45 | 618.45 | 621.42 |
| 46 | 626.67 | 627.11 |
| 47 | 634.77 | 632.97 |
| 48 | 642.76 | 638.98 |
| 49 | 650.63 | 645.15 |
| 50 | 658.38 | 651.48 |
| 51 | 666.00 | 657.95 |
| 52 | 673.49 | 664.58 |
| 53 | 680.85 | 671.35 |
| 54 | 688.07 | 678.27 |
| 55 | 695.16 | 685.32 |
| 56 | 702.10 | 692.52 |
| 57 | 708.90 | 699.85 |
| 58 | 715.56 | 707.31 |
| 59 | 722.06 | 714.91 |
| 60 | 728.42 | 722.63 |
| 61 | 732.19 | 727.41 |

\*\*\* 1.632 \*\*\*

06-Interim Waste Circular.txt

Failure Surface Specified By 66 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 151.54         | 537.48         |
| 2            | 161.44         | 536.10         |
| 3            | 171.37         | 534.86         |
| 4            | 181.31         | 533.77         |
| 5            | 191.26         | 532.81         |
| 6            | 201.23         | 532.00         |
| 7            | 211.21         | 531.33         |
| 8            | 221.19         | 530.80         |
| 9            | 231.18         | 530.41         |
| 10           | 241.18         | 530.17         |
| 11           | 251.18         | 530.06         |
| 12           | 261.18         | 530.10         |
| 13           | 271.18         | 530.28         |
| 14           | 281.17         | 530.60         |
| 15           | 291.16         | 531.07         |
| 16           | 301.14         | 531.68         |
| 17           | 311.12         | 532.42         |
| 18           | 321.08         | 533.31         |
| 19           | 331.02         | 534.34         |
| 20           | 340.95         | 535.52         |
| 21           | 350.87         | 536.83         |
| 22           | 360.76         | 538.28         |
| 23           | 370.63         | 539.88         |
| 24           | 380.48         | 541.61         |
| 25           | 390.30         | 543.48         |
| 26           | 400.10         | 545.50         |
| 27           | 409.87         | 547.65         |
| 28           | 419.60         | 549.94         |
| 29           | 429.30         | 552.37         |
| 30           | 438.97         | 554.94         |
| 31           | 448.59         | 557.64         |
| 32           | 458.18         | 560.48         |
| 33           | 467.73         | 563.45         |
| 34           | 477.23         | 566.57         |
| 35           | 486.69         | 569.81         |
| 36           | 496.10         | 573.19         |
| 37           | 505.47         | 576.70         |
| 38           | 514.78         | 580.35         |
| 39           | 524.04         | 584.13         |
| 40           | 533.24         | 588.04         |
| 41           | 542.39         | 592.08         |
| 42           | 551.48         | 596.24         |
| 43           | 560.51         | 600.54         |
| 44           | 569.48         | 604.97         |
| 45           | 578.38         | 609.52         |
| 46           | 587.22         | 614.20         |
| 47           | 595.99         | 619.00         |
| 48           | 604.69         | 623.93         |
| 49           | 613.32         | 628.98         |
| 50           | 621.88         | 634.15         |
| 51           | 630.36         | 639.44         |
| 52           | 638.77         | 644.86         |
| 53           | 647.10         | 650.39         |
| 54           | 655.35         | 656.04         |

Page 11

06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 55 | 663.52 | 661.81 |
| 56 | 671.61 | 667.69 |
| 57 | 679.61 | 673.69 |
| 58 | 687.53 | 679.80 |
| 59 | 695.36 | 686.02 |
| 60 | 703.10 | 692.35 |
| 61 | 710.75 | 698.79 |
| 62 | 718.30 | 705.34 |
| 63 | 725.77 | 712.00 |
| 64 | 733.13 | 718.76 |
| 65 | 740.40 | 725.62 |
| 66 | 742.34 | 727.50 |

\*\*\* 1.634 \*\*\*

1

Failure Surface Specified By 66 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 174.62      | 545.17      |
| 2         | 184.50      | 543.63      |
| 3         | 194.40      | 542.23      |
| 4         | 204.32      | 540.97      |
| 5         | 214.26      | 539.86      |
| 6         | 224.21      | 538.89      |
| 7         | 234.17      | 538.06      |
| 8         | 244.15      | 537.37      |
| 9         | 254.14      | 536.83      |
| 10        | 264.13      | 536.44      |
| 11        | 274.13      | 536.18      |
| 12        | 284.12      | 536.07      |
| 13        | 294.12      | 536.11      |
| 14        | 304.12      | 536.28      |
| 15        | 314.12      | 536.61      |
| 16        | 324.11      | 537.07      |
| 17        | 334.09      | 537.68      |
| 18        | 344.06      | 538.43      |
| 19        | 354.02      | 539.33      |
| 20        | 363.97      | 540.37      |
| 21        | 373.90      | 541.55      |
| 22        | 383.81      | 542.88      |
| 23        | 393.70      | 544.34      |
| 24        | 403.57      | 545.95      |
| 25        | 413.41      | 547.71      |
| 26        | 423.23      | 549.60      |
| 27        | 433.02      | 551.63      |
| 28        | 442.78      | 553.81      |
| 29        | 452.51      | 556.12      |
| 30        | 462.21      | 558.58      |
| 31        | 471.87      | 561.17      |
| 32        | 481.48      | 563.90      |
| 33        | 491.06      | 566.77      |
| 34        | 500.60      | 569.78      |
| 35        | 510.09      | 572.93      |
| 36        | 519.54      | 576.21      |
| 37        | 528.94      | 579.62      |

Page 12

06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 38 | 538.29 | 583.18 |
| 39 | 547.58 | 586.86 |
| 40 | 556.82 | 590.68 |
| 41 | 566.01 | 594.63 |
| 42 | 575.14 | 598.72 |
| 43 | 584.21 | 602.93 |
| 44 | 593.21 | 607.28 |
| 45 | 602.16 | 611.75 |
| 46 | 611.04 | 616.35 |
| 47 | 619.85 | 621.08 |
| 48 | 628.59 | 625.93 |
| 49 | 637.26 | 630.92 |
| 50 | 645.86 | 636.02 |
| 51 | 654.38 | 641.25 |
| 52 | 662.83 | 646.60 |
| 53 | 671.20 | 652.07 |
| 54 | 679.49 | 657.66 |
| 55 | 687.70 | 663.37 |
| 56 | 695.83 | 669.20 |
| 57 | 703.87 | 675.14 |
| 58 | 711.83 | 681.20 |
| 59 | 719.70 | 687.37 |
| 60 | 727.47 | 693.66 |
| 61 | 735.16 | 700.05 |
| 62 | 742.76 | 706.56 |
| 63 | 750.26 | 713.17 |
| 64 | 757.66 | 719.89 |
| 65 | 764.97 | 726.72 |
| 66 | 766.01 | 727.73 |

\*\*\* 1.635 \*\*\*

Failure Surface Specified By 61 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 188.46      | 549.79      |
| 2         | 198.28      | 547.90      |
| 3         | 208.14      | 546.19      |
| 4         | 218.02      | 544.65      |
| 5         | 227.92      | 543.29      |
| 6         | 237.85      | 542.10      |
| 7         | 247.80      | 541.08      |
| 8         | 257.76      | 540.24      |
| 9         | 267.74      | 539.57      |
| 10        | 277.73      | 539.08      |
| 11        | 287.73      | 538.76      |
| 12        | 297.72      | 538.62      |
| 13        | 307.72      | 538.65      |
| 14        | 317.72      | 538.86      |
| 15        | 327.71      | 539.24      |
| 16        | 337.70      | 539.80      |
| 17        | 347.67      | 540.54      |
| 18        | 357.63      | 541.44      |
| 19        | 367.57      | 542.53      |
| 20        | 377.49      | 543.78      |
| 21        | 387.39      | 545.21      |

Page 13

|    | 06-Interim waste Circular.txt |        |
|----|-------------------------------|--------|
| 22 | 397.26                        | 546.81 |
| 23 | 407.10                        | 548.59 |
| 24 | 416.91                        | 550.54 |
| 25 | 426.68                        | 552.66 |
| 26 | 436.42                        | 554.95 |
| 27 | 446.11                        | 557.41 |
| 28 | 455.76                        | 560.04 |
| 29 | 465.36                        | 562.84 |
| 30 | 474.91                        | 565.80 |
| 31 | 484.40                        | 568.94 |
| 32 | 493.84                        | 572.24 |
| 33 | 503.23                        | 575.70 |
| 34 | 512.54                        | 579.33 |
| 35 | 521.80                        | 583.12 |
| 36 | 530.98                        | 587.07 |
| 37 | 540.10                        | 591.18 |
| 38 | 549.14                        | 595.45 |
| 39 | 558.11                        | 599.88 |
| 40 | 566.99                        | 604.47 |
| 41 | 575.80                        | 609.21 |
| 42 | 584.52                        | 614.10 |
| 43 | 593.15                        | 619.15 |
| 44 | 601.69                        | 624.35 |
| 45 | 610.15                        | 629.69 |
| 46 | 618.50                        | 635.19 |
| 47 | 626.76                        | 640.83 |
| 48 | 634.92                        | 646.61 |
| 49 | 642.98                        | 652.53 |
| 50 | 650.93                        | 658.60 |
| 51 | 658.77                        | 664.80 |
| 52 | 666.50                        | 671.14 |
| 53 | 674.13                        | 677.61 |
| 54 | 681.63                        | 684.22 |
| 55 | 689.02                        | 690.96 |
| 56 | 696.29                        | 697.82 |
| 57 | 703.44                        | 704.82 |
| 58 | 710.47                        | 711.93 |
| 59 | 717.37                        | 719.17 |
| 60 | 724.14                        | 726.53 |
| 61 | 724.86                        | 727.34 |

\*\*\* 1.636 \*\*\*

1

Failure Surface Specified By 60 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 186.15      | 549.02      |
| 2         | 195.85      | 546.56      |
| 3         | 205.59      | 544.29      |
| 4         | 215.37      | 542.22      |
| 5         | 225.19      | 540.34      |
| 6         | 235.05      | 538.66      |
| 7         | 244.94      | 537.18      |
| 8         | 254.86      | 535.89      |
| 9         | 264.80      | 534.80      |

Page 14



06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 10 | 274.76 | 533.91 |
| 11 | 284.73 | 533.21 |
| 12 | 294.72 | 532.72 |
| 13 | 304.72 | 532.42 |
| 14 | 314.71 | 532.32 |
| 15 | 324.71 | 532.42 |
| 16 | 334.71 | 532.72 |
| 17 | 344.70 | 533.22 |
| 18 | 354.67 | 533.92 |
| 19 | 364.63 | 534.81 |
| 20 | 374.57 | 535.90 |
| 21 | 384.49 | 537.19 |
| 22 | 394.38 | 538.68 |
| 23 | 404.24 | 540.37 |
| 24 | 414.06 | 542.24 |
| 25 | 423.84 | 544.32 |
| 26 | 433.58 | 546.59 |
| 27 | 443.27 | 549.05 |
| 28 | 452.91 | 551.70 |
| 29 | 462.50 | 554.55 |
| 30 | 472.03 | 557.58 |
| 31 | 481.49 | 560.81 |
| 32 | 490.89 | 564.22 |
| 33 | 500.22 | 567.82 |
| 34 | 509.48 | 571.60 |
| 35 | 518.66 | 575.57 |
| 36 | 527.76 | 579.72 |
| 37 | 536.77 | 584.04 |
| 38 | 545.70 | 588.55 |
| 39 | 554.54 | 593.23 |
| 40 | 563.28 | 598.09 |
| 41 | 571.92 | 603.12 |
| 42 | 580.46 | 608.33 |
| 43 | 588.90 | 613.70 |
| 44 | 597.22 | 619.23 |
| 45 | 605.44 | 624.94 |
| 46 | 613.54 | 630.80 |
| 47 | 621.52 | 636.82 |
| 48 | 629.38 | 643.01 |
| 49 | 637.12 | 649.34 |
| 50 | 644.72 | 655.83 |
| 51 | 652.20 | 662.47 |
| 52 | 659.55 | 669.26 |
| 53 | 666.75 | 676.19 |
| 54 | 673.82 | 683.26 |
| 55 | 680.75 | 690.47 |
| 56 | 687.53 | 697.82 |
| 57 | 694.17 | 705.31 |
| 58 | 700.65 | 712.92 |
| 59 | 706.98 | 720.66 |
| 60 | 709.07 | 723.32 |

\*\*\* 1.640 \*\*\*

Failure surface Specified By 62 Coordinate Points

|              |                |                |
|--------------|----------------|----------------|
| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|

Page 15

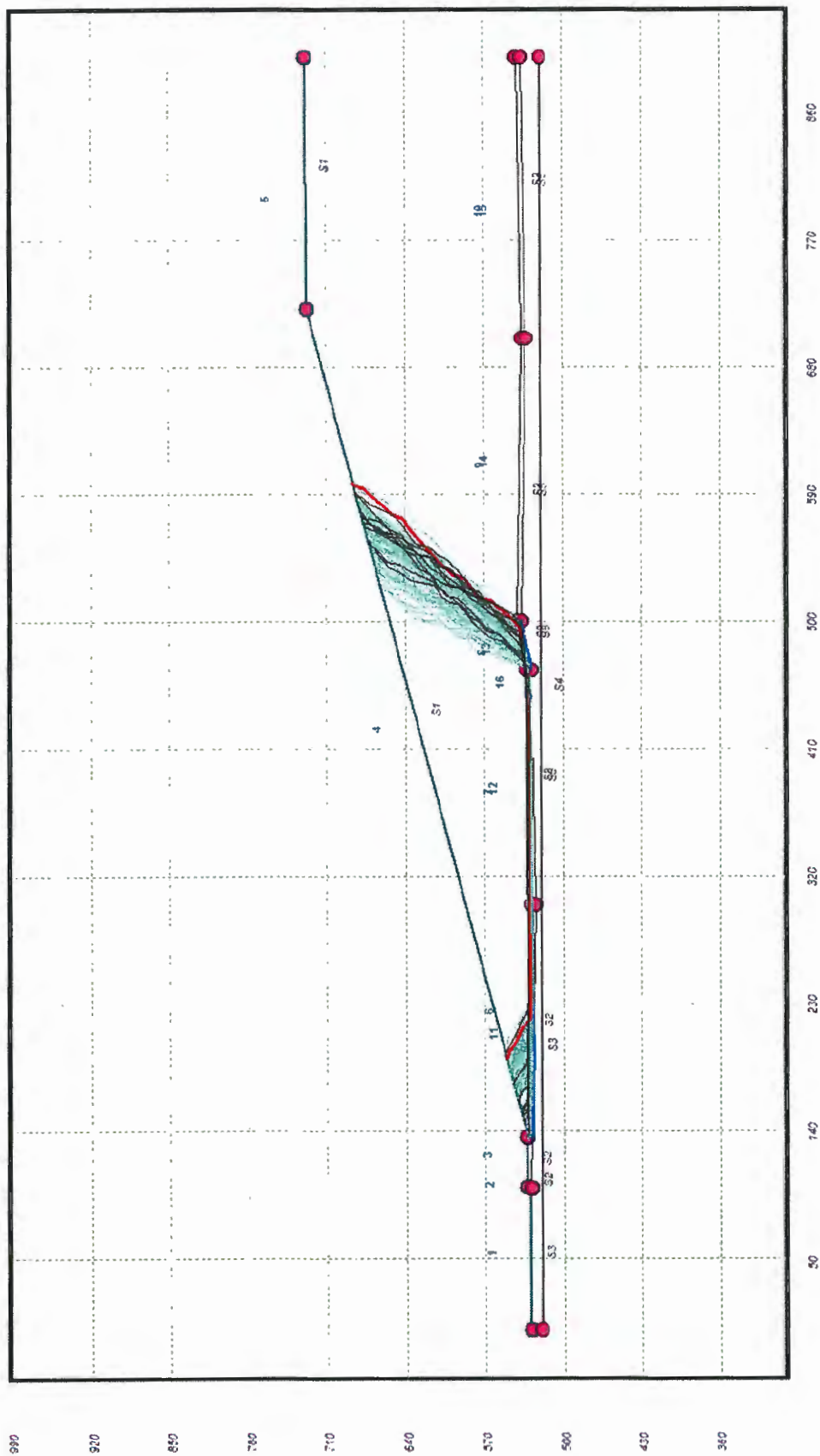
06-Interim Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 1  | 179.23 | 546.71 |
| 2  | 189.15 | 545.47 |
| 3  | 199.09 | 544.38 |
| 4  | 209.05 | 543.43 |
| 5  | 219.02 | 542.64 |
| 6  | 229.00 | 541.99 |
| 7  | 238.98 | 541.49 |
| 8  | 248.98 | 541.14 |
| 9  | 258.98 | 540.94 |
| 10 | 268.98 | 540.89 |
| 11 | 278.98 | 540.99 |
| 12 | 288.97 | 541.24 |
| 13 | 298.96 | 541.63 |
| 14 | 308.95 | 542.18 |
| 15 | 318.93 | 542.87 |
| 16 | 328.89 | 543.72 |
| 17 | 338.84 | 544.71 |
| 18 | 348.78 | 545.85 |
| 19 | 358.69 | 547.13 |
| 20 | 368.59 | 548.57 |
| 21 | 378.46 | 550.15 |
| 22 | 388.31 | 551.88 |
| 23 | 398.14 | 553.76 |
| 24 | 407.93 | 555.78 |
| 25 | 417.69 | 557.95 |
| 26 | 427.42 | 560.26 |
| 27 | 437.11 | 562.72 |
| 28 | 446.77 | 565.32 |
| 29 | 456.38 | 568.07 |
| 30 | 465.96 | 570.96 |
| 31 | 475.49 | 573.99 |
| 32 | 484.97 | 577.16 |
| 33 | 494.40 | 580.48 |
| 34 | 503.79 | 583.93 |
| 35 | 513.12 | 587.52 |
| 36 | 522.40 | 591.26 |
| 37 | 531.62 | 595.13 |
| 38 | 540.78 | 599.14 |
| 39 | 549.88 | 603.28 |
| 40 | 558.92 | 607.56 |
| 41 | 567.89 | 611.97 |
| 42 | 576.80 | 616.52 |
| 43 | 585.64 | 621.20 |
| 44 | 594.40 | 626.01 |
| 45 | 603.10 | 630.95 |
| 46 | 611.72 | 636.02 |
| 47 | 620.26 | 641.22 |
| 48 | 628.73 | 646.54 |
| 49 | 637.11 | 651.99 |
| 50 | 645.41 | 657.56 |
| 51 | 653.63 | 663.26 |
| 52 | 661.76 | 669.08 |
| 53 | 669.81 | 675.02 |
| 54 | 677.76 | 681.08 |
| 55 | 685.63 | 687.26 |
| 56 | 693.40 | 693.55 |
| 57 | 701.08 | 699.96 |
| 58 | 708.66 | 706.48 |
| 59 | 716.14 | 713.12 |
| 60 | 723.52 | 719.86 |
| 61 | 730.80 | 726.72 |
| 62 | 731.50 | 727.40 |

\*\*\* 1.642 \*\*\*

|   | Y       | A      | X      | I      | S         | F      | T |
|---|---------|--------|--------|--------|-----------|--------|---|
|   | 0.00    | 160.38 | 320.76 | 481.14 | 641.52    | 801.90 |   |
| X | 0.00    | +      | +      | +      | +         | +      | + |
|   |         |        |        |        | *         |        |   |
|   |         |        |        |        | *         |        |   |
|   | 160.38  | +      |        |        | .41       |        |   |
|   |         |        |        |        | ...12.    |        |   |
|   |         |        |        |        | ...12.    |        |   |
|   |         |        |        |        | ...15.    |        |   |
|   |         |        |        |        | ...15.    |        |   |
|   |         |        |        |        | ...8.     |        |   |
| A | 320.76  | +      |        |        | ...13.    |        |   |
|   |         |        |        |        | ...11.    |        |   |
|   |         |        |        |        | ...21.    |        |   |
|   |         |        |        |        | ...14.    |        |   |
|   |         |        |        |        | ...11.    |        |   |
|   |         |        |        |        | *214.     |        |   |
| X | 481.14  | +      |        |        | ...11.    |        |   |
|   |         |        |        |        | ...214.   |        |   |
|   |         |        |        |        | ...21.    |        |   |
|   |         |        |        |        | ...511.   |        |   |
|   |         |        |        |        | ...211.   |        |   |
|   |         |        |        |        | ...211.   |        |   |
| I | 641.52  | +      |        |        | ...2114.  |        |   |
|   |         |        |        |        | *...22119 |        |   |
|   |         |        |        |        | ...721*   |        |   |
|   |         |        |        |        | ...22     |        |   |
|   |         |        |        |        | ...7      |        |   |
| S | 801.90  | +      |        |        |           |        |   |
|   |         |        |        |        |           |        |   |
|   |         |        |        |        | ***       |        | * |
|   | 962.28  | +      |        |        |           |        |   |
|   |         |        |        |        |           |        |   |
|   |         |        |        |        |           |        |   |
| F | 1122.66 | +      |        |        |           |        |   |
|   |         |        |        |        |           |        |   |
|   |         |        |        |        |           |        |   |
| T | 1283.04 | +      |        |        |           |        |   |

130 Environmental Park Interim Waste Block - FS Min = 2.147



08-Interim Waste Block.txt  
 \*\* PCSTABL6 \*\*

by  
 Purdue University

1

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

Run Date: 3:02 PM 12/3/2013

Time of Run:

Run By: GWA  
 Input Data Filename: run.in  
 Output Filename: result.out  
 Unit: ENGLISH  
 Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Interim waste Block

BOUNDARY COORDINATES

5 Top Boundaries  
 16 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 0.00        | 529.00      | 100.00       | 529.00       | 3                   |
| 2            | 100.00      | 529.00      | 100.50       | 533.00       | 2                   |
| 3            | 100.50      | 533.00      | 136.00       | 532.30       | 2                   |
| 4            | 136.00      | 532.30      | 721.00       | 727.30       | 1                   |
| 5            | 721.00      | 727.30      | 900.00       | 729.00       | 1                   |
| 6            | 136.00      | 532.30      | 300.00       | 529.00       | 2                   |
| 7            | 300.00      | 529.00      | 466.00       | 532.30       | 2                   |
| 8            | 466.00      | 532.30      | 500.00       | 540.80       | 2                   |
| 9            | 500.00      | 540.80      | 700.00       | 536.80       | 2                   |
| 10           | 700.00      | 536.80      | 900.00       | 540.80       | 2                   |
| 11           | 100.00      | 529.00      | 300.00       | 525.00       | 3                   |
| 12           | 300.00      | 525.00      | 466.00       | 528.30       | 3                   |
| 13           | 466.00      | 528.30      | 500.00       | 536.80       | 3                   |
| 14           | 500.00      | 536.80      | 700.00       | 532.80       | 3                   |
| 15           | 700.00      | 532.80      | 900.00       | 536.80       | 3                   |
| 16           | 0.00        | 520.00      | 900.00       | 520.00       | 4                   |

1

ISOTROPIC SOIL PARAMETERS

4 Type(s) of soil

08-Interim Waste Block.txt

| Soil<br>Type<br>No. | Total<br>Unit Wt.<br>(pcf) | Saturated<br>Unit Wt.<br>(pcf) | Cohesion<br>Intercept<br>(psf) | Friction<br>Angle<br>(deg) | Pore<br>Pressure<br>Param. | Pressure<br>Constant<br>(psf) | Piez.<br>Surface<br>No. |
|---------------------|----------------------------|--------------------------------|--------------------------------|----------------------------|----------------------------|-------------------------------|-------------------------|
| 1                   | 60.0                       | 60.0                           | 250.0                          | 23.0                       | 0.00                       | 0.0                           | 0                       |
| 2                   | 109.4                      | 109.4                          | 2381.0                         | 9.6                        | 0.00                       | 0.0                           | 0                       |
| 3                   | 123.5                      | 123.5                          | 1361.0                         | 5.2                        | 0.00                       | 0.0                           | 0                       |
| 4                   | 122.1                      | 122.1                          | 2381.0                         | 9.6                        | 0.00                       | 0.0                           | 0                       |

1

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<br>No. | X-Left<br>(ft) | Y-Left<br>(ft) | X-Right<br>(ft) | Y-Right<br>(ft) | Height<br>(ft) |
|------------|----------------|----------------|-----------------|-----------------|----------------|
| 1          | 136.00         | 530.20         | 230.00          | 528.30          | 4.00           |
| 2          | 446.00         | 529.90         | 456.00          | 530.10          | 4.00           |
| 3          | 466.00         | 530.30         | 500.00          | 538.80          | 4.00           |

1

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 26 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 191.32         | 550.74         |
| 2            | 195.63         | 548.33         |
| 3            | 202.98         | 541.55         |
| 4            | 211.77         | 536.78         |
| 5            | 219.16         | 530.04         |
| 6            | 454.76         | 531.65         |
| 7            | 496.56         | 539.59         |
| 8            | 503.18         | 547.08         |
| 9            | 508.50         | 555.55         |
| 10           | 514.16         | 563.80         |
| 11           | 516.23         | 573.58         |
| 12           | 523.27         | 580.68         |
| 13           | 530.33         | 587.76         |
| 14           | 532.01         | 597.62         |

Page 2

08-Interim waste Block.txt

|    |        |        |
|----|--------|--------|
| 15 | 538.69 | 605.06 |
| 16 | 544.42 | 613.26 |
| 17 | 551.49 | 620.33 |
| 18 | 558.26 | 627.69 |
| 19 | 565.00 | 635.08 |
| 20 | 572.05 | 642.17 |
| 21 | 575.03 | 651.72 |
| 22 | 581.65 | 659.21 |
| 23 | 587.41 | 667.38 |
| 24 | 593.65 | 675.20 |
| 25 | 596.73 | 684.71 |
| 26 | 598.21 | 686.37 |

\*\*\* 2.147 \*\*\*

Individual data on the 31 slices

| Slice No. | width (ft) | weight (lbs) | Water Force Top (lbs) | Water Force Bot (lbs) | Force Norm (lbs) | Force Tan (lbs) | Earthquake Force Hor (lbs) | Force Ver (lbs) | Surcharge Load (lbs) |
|-----------|------------|--------------|-----------------------|-----------------------|------------------|-----------------|----------------------------|-----------------|----------------------|
| 0.0 1     | 4.3        | 497.9        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 2     | 7.3        | 3731.3       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 3     | 8.8        | 8930.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 4     | 6.7        | 10095.2      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 5     | 0.7        | 1168.7       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 6     | 21.6       | 43798.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 7     | 181.0      | 723442.4     | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 8     | 32.9       | 200897.7     | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 9     | 2.5        | 16292.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 10    | 33.4       | 219800.3     | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 11    | 5.9        | 39623.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 12    | 0.4        | 2700.3       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 13    | 6.2        | 41089.8      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 14    | 5.3        | 33322.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 15    | 5.7        | 33144.3      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 16    | 2.1        | 11191.1      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 17    | 7.0        | 35103.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0 18    | 7.1        | 33188.1      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |

|     |     |         |                            |     |     |     |     |  |
|-----|-----|---------|----------------------------|-----|-----|-----|-----|--|
|     |     |         | 08-Interim Waste Block.txt |     |     |     |     |  |
| 19  | 1.7 | 7208.7  | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 20  | 6.7 | 25671.8 | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 21  | 5.7 | 20038.5 | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 22  | 7.1 | 22407.1 | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 23  | 6.8 | 19458.4 | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 24  | 6.7 | 17296.7 | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 25  | 7.1 | 16030.2 | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 26  | 3.0 | 5564.5  | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 27  | 6.6 | 9644.3  | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 28  | 5.8 | 6403.2  | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 29  | 6.2 | 4688.9  | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 30  | 3.1 | 1001.4  | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |
| 31  | 1.5 | 51.9    | 0.0                        | 0.0 | 0.0 | 0.0 | 0.0 |  |
| 0.0 |     |         |                            |     |     |     |     |  |

Failure Surface Specified By 23 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 173.96      | 544.95      |
| 2         | 177.47      | 542.43      |
| 3         | 185.04      | 535.90      |
| 4         | 193.51      | 530.57      |
| 5         | 451.38      | 530.68      |
| 6         | 487.62      | 536.48      |
| 7         | 493.05      | 544.88      |
| 8         | 500.06      | 552.01      |
| 9         | 505.78      | 560.22      |
| 10        | 512.39      | 567.72      |
| 11        | 518.72      | 575.46      |
| 12        | 524.25      | 583.79      |
| 13        | 530.83      | 591.32      |
| 14        | 536.32      | 599.68      |
| 15        | 538.87      | 609.35      |
| 16        | 545.05      | 617.21      |
| 17        | 547.16      | 626.99      |
| 18        | 551.13      | 636.16      |
| 19        | 554.42      | 645.61      |
| 20        | 558.33      | 654.81      |
| 21        | 562.36      | 663.97      |
| 22        | 566.45      | 673.09      |
| 23        | 567.12      | 676.01      |

\*\*\* 2.238 \*\*\*



08-Interim Waste Block.txt

Failure Surface Specified By 23 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 146.99         | 535.96         |
| 2            | 150.43         | 532.53         |
| 3            | 160.32         | 531.01         |
| 4            | 453.07         | 532.00         |
| 5            | 499.40         | 537.35         |
| 6            | 505.05         | 545.60         |
| 7            | 509.71         | 554.45         |
| 8            | 513.49         | 563.71         |
| 9            | 516.18         | 573.34         |
| 10           | 523.01         | 580.64         |
| 11           | 530.08         | 587.71         |
| 12           | 536.73         | 595.18         |
| 13           | 543.45         | 602.58         |
| 14           | 547.62         | 611.68         |
| 15           | 553.72         | 619.59         |
| 16           | 555.00         | 629.51         |
| 17           | 561.96         | 636.69         |
| 18           | 569.02         | 643.78         |
| 19           | 576.08         | 650.85         |
| 20           | 578.21         | 660.62         |
| 21           | 582.62         | 669.59         |
| 22           | 587.82         | 678.14         |
| 23           | 589.03         | 683.31         |

\*\*\* 2.239 \*\*\*

Failure Surface Specified By 22 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 151.04         | 537.31         |
| 2            | 157.51         | 530.85         |
| 3            | 450.36         | 531.01         |
| 4            | 481.39         | 535.29         |
| 5            | 487.64         | 543.09         |
| 6            | 494.68         | 550.19         |
| 7            | 501.41         | 557.59         |
| 8            | 506.60         | 566.13         |
| 9            | 513.65         | 573.23         |
| 10           | 519.48         | 581.35         |
| 11           | 522.09         | 591.01         |
| 12           | 526.32         | 600.07         |
| 13           | 532.06         | 608.25         |
| 14           | 536.69         | 617.11         |
| 15           | 543.70         | 624.25         |
| 16           | 550.28         | 631.78         |
| 17           | 554.61         | 640.79         |
| 18           | 560.70         | 648.73         |
| 19           | 563.41         | 658.35         |
| 20           | 566.85         | 667.74         |

Page 5

08-Interim Waste Block.txt  
 21 573.90 674.83  
 22 578.77 679.89

\*\*\* 2.265 \*\*\*

1

# Failure Surface Specified By 25 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 152.25      | 537.72      |
| 2         | 155.07      | 536.01      |
| 3         | 164.15      | 531.83      |
| 4         | 174.09      | 530.73      |
| 5         | 447.25      | 530.58      |
| 6         | 489.41      | 538.13      |
| 7         | 495.90      | 545.73      |
| 8         | 501.96      | 553.68      |
| 9         | 508.75      | 561.03      |
| 10        | 514.03      | 569.52      |
| 11        | 518.06      | 578.67      |
| 12        | 521.44      | 588.09      |
| 13        | 528.03      | 595.61      |
| 14        | 532.76      | 604.42      |
| 15        | 539.20      | 612.07      |
| 16        | 545.83      | 619.55      |
| 17        | 547.56      | 629.40      |
| 18        | 554.62      | 636.49      |
| 19        | 561.64      | 643.61      |
| 20        | 564.35      | 653.23      |
| 21        | 571.40      | 660.33      |
| 22        | 577.13      | 668.52      |
| 23        | 584.06      | 675.73      |
| 24        | 590.81      | 683.11      |
| 25        | 591.95      | 684.28      |

\*\*\* 2.271 \*\*\*

# Failure Surface Specified By 22 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 136.63      | 532.51      |
| 2         | 138.01      | 531.46      |
| 3         | 450.74      | 530.66      |
| 4         | 478.42      | 535.19      |
| 5         | 481.60      | 544.67      |
| 6         | 488.08      | 552.29      |
| 7         | 493.08      | 560.94      |
| 8         | 497.30      | 570.01      |
| 9         | 503.45      | 577.90      |

Page 6

08-Interim Waste Block.txt

|    |        |        |
|----|--------|--------|
| 10 | 510.51 | 584.98 |
| 11 | 515.67 | 593.55 |
| 12 | 518.63 | 603.10 |
| 13 | 525.36 | 610.50 |
| 14 | 531.76 | 618.18 |
| 15 | 537.01 | 626.69 |
| 16 | 544.03 | 633.81 |
| 17 | 550.95 | 641.03 |
| 18 | 557.80 | 648.32 |
| 19 | 562.01 | 657.39 |
| 20 | 566.38 | 666.38 |
| 21 | 571.76 | 674.81 |
| 22 | 575.69 | 678.86 |

\*\*\* 2.325 \*\*\*

1

#### Failure Surface Specified By 21 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 146.66         | 535.85         |
| 2            | 152.06         | 531.78         |
| 3            | 451.22         | 529.96         |
| 4            | 471.14         | 533.42         |
| 5            | 477.73         | 540.94         |
| 6            | 484.71         | 548.11         |
| 7            | 490.02         | 556.58         |
| 8            | 493.10         | 566.09         |
| 9            | 498.20         | 574.70         |
| 10           | 504.20         | 582.69         |
| 11           | 511.21         | 589.82         |
| 12           | 513.03         | 599.65         |
| 13           | 518.77         | 607.84         |
| 14           | 525.81         | 614.94         |
| 15           | 527.92         | 624.72         |
| 16           | 529.69         | 634.56         |
| 17           | 533.85         | 643.65         |
| 18           | 537.56         | 652.94         |
| 19           | 544.24         | 660.38         |
| 20           | 551.10         | 667.65         |
| 21           | 555.50         | 672.13         |

\*\*\* 2.332 \*\*\*

#### Failure Surface Specified By 21 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 154.88         | 538.59         |
| 2            | 161.82         | 531.66         |

Page 7

08-Interim waste Block.txt

|    |        |        |
|----|--------|--------|
| 3  | 447.41 | 529.01 |
| 4  | 491.63 | 538.57 |
| 5  | 497.33 | 546.78 |
| 6  | 501.67 | 555.80 |
| 7  | 505.32 | 565.10 |
| 8  | 511.60 | 572.89 |
| 9  | 516.72 | 581.48 |
| 10 | 523.71 | 588.64 |
| 11 | 524.16 | 598.62 |
| 12 | 527.86 | 607.92 |
| 13 | 532.49 | 616.78 |
| 14 | 539.13 | 624.26 |
| 15 | 546.14 | 631.38 |
| 16 | 549.83 | 640.68 |
| 17 | 556.88 | 647.77 |
| 18 | 563.74 | 655.05 |
| 19 | 570.41 | 662.50 |
| 20 | 572.26 | 672.33 |
| 21 | 573.19 | 678.03 |

\*\*\* 2.354 \*\*\*

1

#### Failure Surface Specified By 24 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 193.78      | 551.56      |
| 2         | 201.50      | 546.42      |
| 3         | 210.09      | 541.29      |
| 4         | 219.29      | 537.38      |
| 5         | 226.36      | 530.31      |
| 6         | 455.52      | 530.93      |
| 7         | 493.89      | 535.51      |
| 8         | 500.96      | 542.58      |
| 9         | 503.47      | 552.26      |
| 10        | 508.68      | 560.80      |
| 11        | 515.22      | 568.36      |
| 12        | 521.57      | 576.09      |
| 13        | 523.35      | 585.93      |
| 14        | 530.42      | 593.00      |
| 15        | 537.50      | 600.07      |
| 16        | 539.85      | 609.79      |
| 17        | 546.59      | 617.17      |
| 18        | 551.56      | 625.85      |
| 19        | 555.42      | 635.08      |
| 20        | 559.56      | 644.18      |
| 21        | 559.91      | 654.17      |
| 22        | 566.33      | 661.85      |
| 23        | 568.92      | 671.50      |
| 24        | 569.25      | 676.72      |

\*\*\* 2.362 \*\*\*

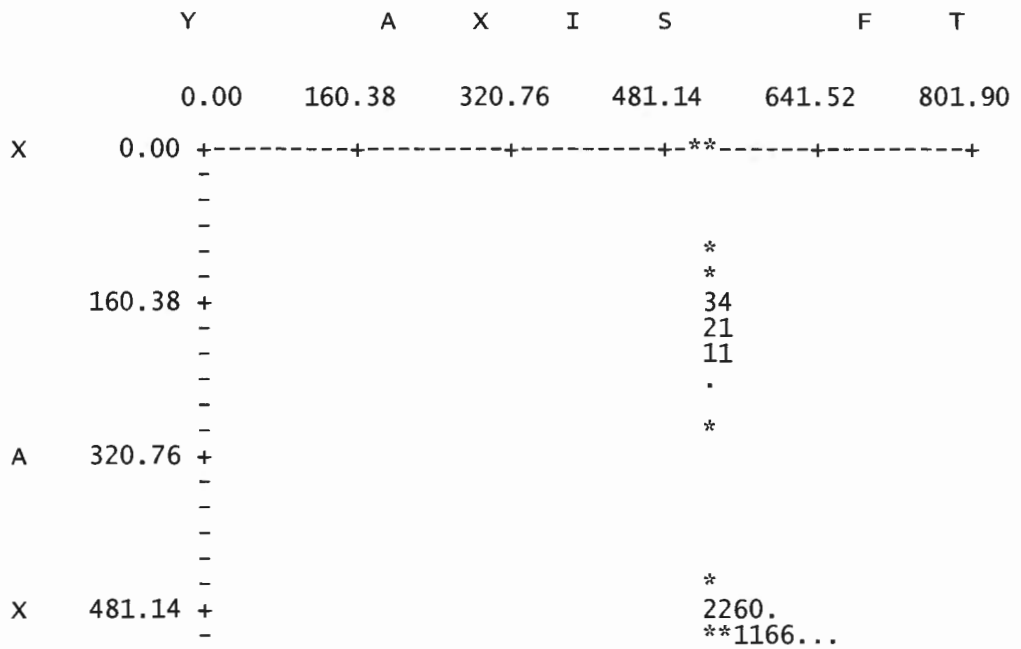
08-Interim Waste Block.txt

Failure Surface Specified By 23 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 160.01      | 540.30      |
| 2         | 166.24      | 538.36      |
| 3         | 173.31      | 531.29      |
| 4         | 448.70      | 530.51      |
| 5         | 467.17      | 529.60      |
| 6         | 473.46      | 537.37      |
| 7         | 479.60      | 545.26      |
| 8         | 486.25      | 552.73      |
| 9         | 487.15      | 562.69      |
| 10        | 492.02      | 571.42      |
| 11        | 499.08      | 578.51      |
| 12        | 505.75      | 585.95      |
| 13        | 512.48      | 593.35      |
| 14        | 517.25      | 602.14      |
| 15        | 524.04      | 609.48      |
| 16        | 529.64      | 617.77      |
| 17        | 531.80      | 627.53      |
| 18        | 535.59      | 636.79      |
| 19        | 540.56      | 645.46      |
| 20        | 541.81      | 655.38      |
| 21        | 548.51      | 662.81      |
| 22        | 555.55      | 669.92      |
| 23        | 557.43      | 672.78      |

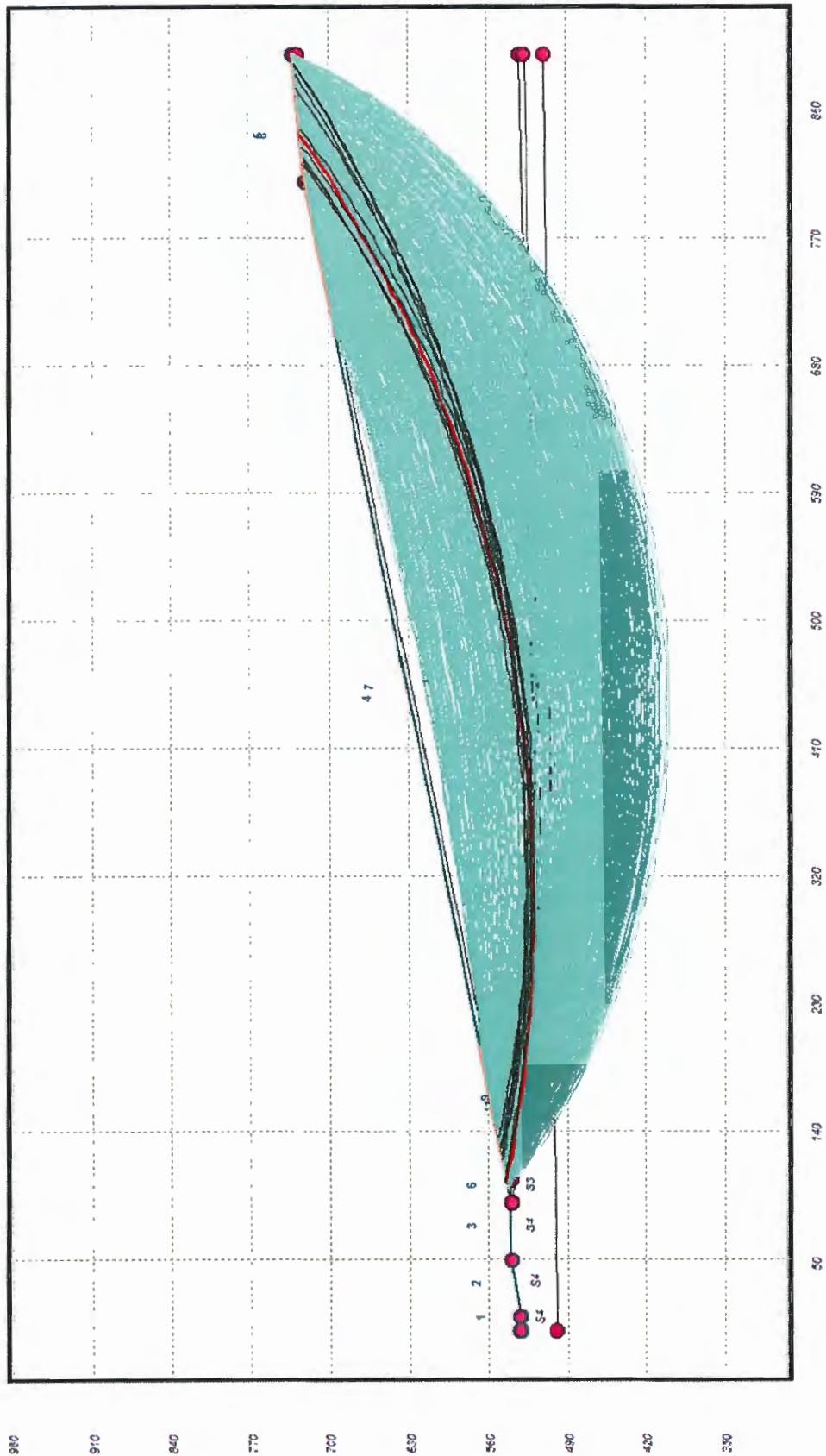
\*\*\* 2.374 \*\*\*

1



|   |         |                            |          |
|---|---------|----------------------------|----------|
|   |         | 08-Interim waste Block.txt | .111267. |
|   |         |                            | .1122    |
|   |         |                            | .111     |
|   |         |                            | .        |
| I | 641.52  | +                          |          |
|   |         |                            | *        |
|   |         |                            | *        |
|   |         |                            |          |
| S | 801.90  | +                          |          |
|   |         |                            |          |
|   |         |                            | ***      |
|   |         |                            | *        |
|   | 962.28  | +                          |          |
|   |         |                            |          |
|   |         |                            |          |
| F | 1122.66 | +                          |          |
|   |         |                            |          |
|   |         |                            |          |
|   |         |                            |          |
| T | 1283.04 | +                          |          |

130 Environmental Park Final Waste Circular - FS Min = 2.123



10-Final Waste Circular.txt  
 \*\* PCSTABL6 \*\*

by  
 Purdue University

1

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

Run Date: 4:22 PM 12/3/2013

Time of Run:

Run By: GWA  
 Input Data Filename: run.in  
 Output Filename: result.out  
 Unit: ENGLISH  
 Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Final Waste Circular

BOUNDARY COORDINATES

5 Top Boundaries  
 13 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 0.00        | 532.00      | 10.00        | 532.00       | 4                   |
| 2            | 10.00       | 532.00      | 50.00        | 540.00       | 4                   |
| 3            | 50.00       | 540.00      | 90.00        | 540.00       | 4                   |
| 4            | 90.00       | 540.00      | 810.00       | 720.00       | 1                   |
| 5            | 810.00      | 720.00      | 900.00       | 731.00       | 1                   |
| 6            | 90.00       | 540.00      | 106.00       | 540.00       | 3                   |
| 7            | 106.00      | 540.00      | 810.00       | 716.50       | 2                   |
| 8            | 810.00      | 716.50      | 900.00       | 727.50       | 2                   |
| 9            | 106.00      | 540.00      | 210.00       | 514.00       | 3                   |
| 10           | 210.00      | 514.00      | 900.00       | 531.30       | 3                   |
| 11           | 90.00       | 540.00      | 210.00       | 510.00       | 4                   |
| 12           | 210.00      | 510.00      | 900.00       | 527.30       | 4                   |
| 13           | 0.00        | 500.00      | 900.00       | 510.00       | 5                   |

1

ISOTROPIC SOIL PARAMETERS

5 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. |
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|

Page 1



10-Final Waste Circular.txt

|   |       |       |        |      |      |     |   |
|---|-------|-------|--------|------|------|-----|---|
| 1 | 109.4 | 109.4 | 2381.0 | 9.6  | 0.00 | 0.0 | 0 |
| 2 | 60.0  | 60.0  | 250.0  | 23.0 | 0.00 | 0.0 | 0 |
| 3 | 109.4 | 109.4 | 2381.0 | 9.6  | 0.00 | 0.0 | 0 |
| 4 | 123.5 | 123.5 | 2381.0 | 9.6  | 0.00 | 0.0 | 0 |
| 5 | 122.1 | 122.1 | 2381.0 | 9.6  | 0.00 | 0.0 | 0 |

1

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

800 Trial Surfaces Have Been Generated.

20 Surfaces Initiate From Each Of 40 Points Equally Spaced  
Along The Ground Surface Between X = 100.00 ft.  
and X = 200.00 ft.

Each Surface Terminates Between X = 700.00 ft.  
and X = 900.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation  
At Which A Surface Extends Is Y = 0.00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

1

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 80 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 105.13         | 543.78         |
| 2            | 114.85         | 541.42         |
| 3            | 124.59         | 539.18         |
| 4            | 134.36         | 537.05         |
| 5            | 144.16         | 535.05         |
| 6            | 153.98         | 533.17         |
| 7            | 163.82         | 531.40         |
| 8            | 173.69         | 529.76         |
| 9            | 183.57         | 528.24         |
| 10           | 193.47         | 526.84         |
| 11           | 203.39         | 525.57         |
| 12           | 213.33         | 524.41         |
| 13           | 223.27         | 523.38         |
| 14           | 233.23         | 522.47         |

Page 2

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 15 | 243.20 | 521.68 |
| 16 | 253.18 | 521.01 |
| 17 | 263.16 | 520.46 |
| 18 | 273.15 | 520.04 |
| 19 | 283.15 | 519.74 |
| 20 | 293.15 | 519.57 |
| 21 | 303.15 | 519.51 |
| 22 | 313.15 | 519.58 |
| 23 | 323.14 | 519.77 |
| 24 | 333.14 | 520.09 |
| 25 | 343.13 | 520.52 |
| 26 | 353.11 | 521.08 |
| 27 | 363.09 | 521.76 |
| 28 | 373.06 | 522.57 |
| 29 | 383.02 | 523.49 |
| 30 | 392.96 | 524.54 |
| 31 | 402.89 | 525.71 |
| 32 | 412.81 | 527.00 |
| 33 | 422.71 | 528.42 |
| 34 | 432.59 | 529.95 |
| 35 | 442.45 | 531.61 |
| 36 | 452.29 | 533.38 |
| 37 | 462.11 | 535.28 |
| 38 | 471.91 | 537.30 |
| 39 | 481.67 | 539.44 |
| 40 | 491.42 | 541.69 |
| 41 | 501.13 | 544.07 |
| 42 | 510.81 | 546.56 |
| 43 | 520.47 | 549.18 |
| 44 | 530.09 | 551.91 |
| 45 | 539.67 | 554.76 |
| 46 | 549.22 | 557.73 |
| 47 | 558.73 | 560.81 |
| 48 | 568.21 | 564.01 |
| 49 | 577.64 | 567.33 |
| 50 | 587.03 | 570.76 |
| 51 | 596.38 | 574.31 |
| 52 | 605.69 | 577.97 |
| 53 | 614.95 | 581.75 |
| 54 | 624.16 | 585.64 |
| 55 | 633.32 | 589.64 |
| 56 | 642.44 | 593.75 |
| 57 | 651.50 | 597.98 |
| 58 | 660.51 | 602.31 |
| 59 | 669.47 | 606.76 |
| 60 | 678.37 | 611.32 |
| 61 | 687.22 | 615.98 |
| 62 | 696.01 | 620.75 |
| 63 | 704.73 | 625.63 |
| 64 | 713.40 | 630.62 |
| 65 | 722.01 | 635.71 |
| 66 | 730.55 | 640.91 |
| 67 | 739.03 | 646.22 |
| 68 | 747.44 | 651.62 |
| 69 | 755.79 | 657.13 |
| 70 | 764.06 | 662.74 |
| 71 | 772.27 | 668.45 |
| 72 | 780.41 | 674.27 |
| 73 | 788.47 | 680.18 |
| 74 | 796.47 | 686.19 |
| 75 | 804.39 | 692.30 |
| 76 | 812.23 | 698.50 |
| 77 | 819.99 | 704.80 |

10-Final Waste Circular.txt  
78 827.68 711.20  
79 835.29 717.68  
80 842.48 723.97

\*\*\* 2.123 \*\*\*

Individual data on the 82 slices

| Slice No. | width (ft) | Weight (lbs) | Water Force Top (lbs) | Water Force Bot (lbs) | Force Norm (lbs) | Force Tan (lbs) | Earthquake Force Hor (lbs) | Force Ver (lbs) | Surcharge Load (lbs) |
|-----------|------------|--------------|-----------------------|-----------------------|------------------|-----------------|----------------------------|-----------------|----------------------|
| 1         | 8.1        | 1770.2       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 2         | 1.6        | 744.8        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 3         | 9.7        | 6090.8       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 4         | 9.8        | 8814.6       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 5         | 9.8        | 11485.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 6         | 9.8        | 14099.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 7         | 9.8        | 16656.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 8         | 9.9        | 19153.9      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 9         | 9.9        | 21589.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 10        | 9.9        | 23961.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 11        | 9.9        | 26268.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 12        | 9.9        | 28508.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 13        | 9.9        | 30679.9      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 14        | 10.0       | 32781.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 15        | 10.0       | 34810.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 16        | 10.0       | 36766.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 17        | 10.0       | 38648.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 18        | 10.0       | 40454.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 19        | 10.0       | 42183.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 20        | 10.0       | 43834.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 21        | 10.0       | 45406.4      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 22        | 10.0       | 46898.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                 |                      |
| 23        | 10.0       | 48308.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0             |                      |

Page 4

10-Final Waste Circular.txt

|     |      |         |     |     |     |     |     |     |
|-----|------|---------|-----|-----|-----|-----|-----|-----|
| 0.0 |      |         |     |     |     |     |     |     |
| 24  | 10.0 | 49637.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 25  | 10.0 | 50883.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 26  | 10.0 | 52046.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 27  | 10.0 | 53125.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 28  | 10.0 | 54120.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 29  | 10.0 | 55030.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 30  | 9.9  | 55856.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 31  | 9.9  | 56595.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 32  | 9.9  | 57250.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 33  | 9.9  | 57818.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 34  | 9.9  | 58301.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 35  | 9.9  | 58699.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 36  | 9.8  | 59011.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 37  | 9.8  | 59238.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 38  | 9.8  | 59380.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 39  | 9.8  | 59438.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 40  | 9.7  | 59412.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 41  | 9.7  | 59302.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 42  | 9.7  | 59110.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 43  | 9.7  | 58835.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 44  | 9.6  | 58480.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 45  | 9.6  | 58044.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 46  | 9.5  | 57528.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 47  | 9.5  | 56934.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 48  | 9.5  | 56263.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 49  | 9.4  | 55516.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 50  | 9.4  | 54693.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 51  | 9.3  | 53797.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 52  | 9.3  | 52829.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 53  | 9.3  | 51791.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |
| 54  | 9.2  | 50683.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |      |         |     |     |     |     |     |     |

| 10-Final Waste Circular.txt |     |         |     |     |     |     |     |     |
|-----------------------------|-----|---------|-----|-----|-----|-----|-----|-----|
| 55                          | 9.2 | 49507.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 56                          | 9.1 | 48266.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 57                          | 9.1 | 46960.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 58                          | 9.0 | 45593.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 59                          | 9.0 | 44164.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 60                          | 8.9 | 42677.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 61                          | 8.8 | 41134.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 62                          | 8.8 | 39536.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 63                          | 8.7 | 37886.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 64                          | 8.7 | 36185.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 65                          | 8.6 | 34437.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 66                          | 8.5 | 32643.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 67                          | 8.5 | 30806.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 68                          | 8.4 | 28928.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 69                          | 8.3 | 27011.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 70                          | 8.3 | 25059.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 71                          | 8.2 | 23073.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 72                          | 8.1 | 21056.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 73                          | 8.1 | 19011.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 74                          | 8.0 | 16940.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 75                          | 7.9 | 14846.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 76                          | 5.6 | 9320.0  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 77                          | 2.2 | 3394.4  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 78                          | 7.8 | 10240.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 79                          | 7.7 | 7645.3  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 80                          | 7.6 | 5052.5  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 81                          | 2.5 | 1115.4  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |
| 82                          | 4.7 | 891.0   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0                         |     |         |     |     |     |     |     |     |

Failure Surface Specified By 78 Coordinate Points

|              |                |                |
|--------------|----------------|----------------|
| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|

10-Final waste Circular.txt

|    |        |        |
|----|--------|--------|
| 1  | 123.08 | 548.27 |
| 2  | 132.70 | 545.53 |
| 3  | 142.35 | 542.93 |
| 4  | 152.04 | 540.45 |
| 5  | 161.76 | 538.11 |
| 6  | 171.51 | 535.90 |
| 7  | 181.30 | 533.83 |
| 8  | 191.11 | 531.89 |
| 9  | 200.94 | 530.08 |
| 10 | 210.80 | 528.41 |
| 11 | 220.68 | 526.88 |
| 12 | 230.58 | 525.48 |
| 13 | 240.50 | 524.21 |
| 14 | 250.44 | 523.08 |
| 15 | 260.39 | 522.09 |
| 16 | 270.35 | 521.23 |
| 17 | 280.33 | 520.51 |
| 18 | 290.31 | 519.93 |
| 19 | 300.30 | 519.48 |
| 20 | 310.30 | 519.17 |
| 21 | 320.30 | 519.00 |
| 22 | 330.30 | 518.96 |
| 23 | 340.29 | 519.06 |
| 24 | 350.29 | 519.30 |
| 25 | 360.28 | 519.67 |
| 26 | 370.27 | 520.18 |
| 27 | 380.25 | 520.83 |
| 28 | 390.22 | 521.61 |
| 29 | 400.18 | 522.53 |
| 30 | 410.12 | 523.59 |
| 31 | 420.05 | 524.78 |
| 32 | 429.96 | 526.11 |
| 33 | 439.85 | 527.57 |
| 34 | 449.73 | 529.17 |
| 35 | 459.57 | 530.91 |
| 36 | 469.40 | 532.77 |
| 37 | 479.20 | 534.78 |
| 38 | 488.97 | 536.91 |
| 39 | 498.70 | 539.18 |
| 40 | 508.41 | 541.58 |
| 41 | 518.08 | 544.12 |
| 42 | 527.72 | 546.79 |
| 43 | 537.32 | 549.59 |
| 44 | 546.88 | 552.52 |
| 45 | 556.40 | 555.58 |
| 46 | 565.88 | 558.77 |
| 47 | 575.31 | 562.09 |
| 48 | 584.70 | 565.54 |
| 49 | 594.04 | 569.11 |
| 50 | 603.33 | 572.82 |
| 51 | 612.56 | 576.65 |
| 52 | 621.75 | 580.61 |
| 53 | 630.88 | 584.69 |
| 54 | 639.95 | 588.89 |
| 55 | 648.96 | 593.23 |
| 56 | 657.92 | 597.68 |
| 57 | 666.81 | 602.25 |
| 58 | 675.64 | 606.95 |
| 59 | 684.40 | 611.77 |
| 60 | 693.10 | 616.71 |
| 61 | 701.72 | 621.76 |
| 62 | 710.28 | 626.93 |
| 63 | 718.77 | 632.22 |

Page 7

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 64 | 727.18 | 637.63 |
| 65 | 735.52 | 643.15 |
| 66 | 743.78 | 648.78 |
| 67 | 751.97 | 654.53 |
| 68 | 760.07 | 660.38 |
| 69 | 768.10 | 666.35 |
| 70 | 776.04 | 672.43 |
| 71 | 783.90 | 678.61 |
| 72 | 791.67 | 684.91 |
| 73 | 799.35 | 691.30 |
| 74 | 806.95 | 697.81 |
| 75 | 814.46 | 704.41 |
| 76 | 821.88 | 711.12 |
| 77 | 829.20 | 717.93 |
| 78 | 834.51 | 723.00 |

\*\*\* 2.127 \*\*\*

1

#### Failure Surface Specified By 79 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 107.69      | 544.42      |
| 2         | 117.39      | 541.98      |
| 3         | 127.12      | 539.66      |
| 4         | 136.87      | 537.47      |
| 5         | 146.66      | 535.40      |
| 6         | 156.47      | 533.46      |
| 7         | 166.30      | 531.65      |
| 8         | 176.16      | 529.96      |
| 9         | 186.04      | 528.40      |
| 10        | 195.93      | 526.96      |
| 11        | 205.85      | 525.66      |
| 12        | 215.78      | 524.48      |
| 13        | 225.72      | 523.43      |
| 14        | 235.68      | 522.50      |
| 15        | 245.65      | 521.71      |
| 16        | 255.62      | 521.04      |
| 17        | 265.61      | 520.50      |
| 18        | 275.60      | 520.10      |
| 19        | 285.60      | 519.81      |
| 20        | 295.60      | 519.66      |
| 21        | 305.60      | 519.64      |
| 22        | 315.60      | 519.74      |
| 23        | 325.59      | 519.98      |
| 24        | 335.59      | 520.34      |
| 25        | 345.57      | 520.83      |
| 26        | 355.56      | 521.45      |
| 27        | 365.53      | 522.20      |
| 28        | 375.49      | 523.08      |
| 29        | 385.44      | 524.08      |
| 30        | 395.37      | 525.21      |
| 31        | 405.29      | 526.47      |
| 32        | 415.20      | 527.86      |
| 33        | 425.08      | 529.38      |
| 34        | 434.95      | 531.02      |

Page 8

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 35 | 444.79 | 532.79 |
| 36 | 454.61 | 534.68 |
| 37 | 464.40 | 536.70 |
| 38 | 474.17 | 538.85 |
| 39 | 483.91 | 541.12 |
| 40 | 493.61 | 543.52 |
| 41 | 503.29 | 546.04 |
| 42 | 512.93 | 548.69 |
| 43 | 522.54 | 551.46 |
| 44 | 532.12 | 554.36 |
| 45 | 541.65 | 557.37 |
| 46 | 551.14 | 560.51 |
| 47 | 560.60 | 563.77 |
| 48 | 570.01 | 567.16 |
| 49 | 579.37 | 570.66 |
| 50 | 588.69 | 574.28 |
| 51 | 597.97 | 578.03 |
| 52 | 607.19 | 581.89 |
| 53 | 616.36 | 585.87 |
| 54 | 625.49 | 589.97 |
| 55 | 634.55 | 594.19 |
| 56 | 643.57 | 598.52 |
| 57 | 652.52 | 602.96 |
| 58 | 661.42 | 607.53 |
| 59 | 670.26 | 612.20 |
| 60 | 679.04 | 616.99 |
| 61 | 687.75 | 621.90 |
| 62 | 696.41 | 626.91 |
| 63 | 704.99 | 632.04 |
| 64 | 713.51 | 637.27 |
| 65 | 721.97 | 642.62 |
| 66 | 730.35 | 648.07 |
| 67 | 738.66 | 653.63 |
| 68 | 746.90 | 659.30 |
| 69 | 755.07 | 665.07 |
| 70 | 763.16 | 670.94 |
| 71 | 771.17 | 676.92 |
| 72 | 779.11 | 683.01 |
| 73 | 786.97 | 689.19 |
| 74 | 794.74 | 695.48 |
| 75 | 802.44 | 701.86 |
| 76 | 810.05 | 708.35 |
| 77 | 817.58 | 714.93 |
| 78 | 825.03 | 721.60 |
| 79 | 825.32 | 721.87 |

\*\*\* 2.128 \*\*\*

Failure Surface Specified By 79 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 130.77      | 550.19      |
| 2         | 140.36      | 547.38      |
| 3         | 150.00      | 544.69      |
| 4         | 159.67      | 542.14      |
| 5         | 169.37      | 539.72      |

Page 9



10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 6  | 179.11 | 537.44 |
| 7  | 188.87 | 535.28 |
| 8  | 198.67 | 533.27 |
| 9  | 208.49 | 531.39 |
| 10 | 218.33 | 529.64 |
| 11 | 228.20 | 528.03 |
| 12 | 238.09 | 526.55 |
| 13 | 248.00 | 525.21 |
| 14 | 257.93 | 524.01 |
| 15 | 267.87 | 522.94 |
| 16 | 277.83 | 522.01 |
| 17 | 287.80 | 521.21 |
| 18 | 297.78 | 520.56 |
| 19 | 307.76 | 520.04 |
| 20 | 317.76 | 519.65 |
| 21 | 327.75 | 519.41 |
| 22 | 337.75 | 519.30 |
| 23 | 347.75 | 519.33 |
| 24 | 357.75 | 519.50 |
| 25 | 367.75 | 519.80 |
| 26 | 377.74 | 520.24 |
| 27 | 387.72 | 520.82 |
| 28 | 397.69 | 521.53 |
| 29 | 407.66 | 522.39 |
| 30 | 417.61 | 523.38 |
| 31 | 427.54 | 524.50 |
| 32 | 437.46 | 525.76 |
| 33 | 447.37 | 527.16 |
| 34 | 457.25 | 528.70 |
| 35 | 467.11 | 530.36 |
| 36 | 476.94 | 532.17 |
| 37 | 486.75 | 534.11 |
| 38 | 496.54 | 536.18 |
| 39 | 506.29 | 538.39 |
| 40 | 516.01 | 540.73 |
| 41 | 525.70 | 543.21 |
| 42 | 535.35 | 545.82 |
| 43 | 544.97 | 548.56 |
| 44 | 554.55 | 551.43 |
| 45 | 564.09 | 554.43 |
| 46 | 573.58 | 557.57 |
| 47 | 583.04 | 560.83 |
| 48 | 592.44 | 564.23 |
| 49 | 601.80 | 567.75 |
| 50 | 611.11 | 571.40 |
| 51 | 620.37 | 575.18 |
| 52 | 629.58 | 579.09 |
| 53 | 638.73 | 583.12 |
| 54 | 647.82 | 587.27 |
| 55 | 656.86 | 591.56 |
| 56 | 665.84 | 595.96 |
| 57 | 674.75 | 600.49 |
| 58 | 683.61 | 605.14 |
| 59 | 692.39 | 609.91 |
| 60 | 701.12 | 614.80 |
| 61 | 709.77 | 619.81 |
| 62 | 718.35 | 624.94 |
| 63 | 726.87 | 630.19 |
| 64 | 735.31 | 635.55 |
| 65 | 743.67 | 641.03 |
| 66 | 751.96 | 646.62 |
| 67 | 760.18 | 652.33 |
| 68 | 768.31 | 658.15 |

Page 10

10-Final waste Circular.txt

|    |        |        |
|----|--------|--------|
| 69 | 776.36 | 664.07 |
| 70 | 784.33 | 670.11 |
| 71 | 792.22 | 676.26 |
| 72 | 800.02 | 682.52 |
| 73 | 807.73 | 688.88 |
| 74 | 815.36 | 695.35 |
| 75 | 822.90 | 701.92 |
| 76 | 830.34 | 708.60 |
| 77 | 837.70 | 715.37 |
| 78 | 844.96 | 722.25 |
| 79 | 847.33 | 724.56 |

\*\*\* 2.128 \*\*\*

1

# Failure Surface Specified By 82 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 123.08      | 548.27      |
| 2         | 132.75      | 545.73      |
| 3         | 142.45      | 543.31      |
| 4         | 152.18      | 541.01      |
| 5         | 161.94      | 538.82      |
| 6         | 171.73      | 536.76      |
| 7         | 181.54      | 534.82      |
| 8         | 191.37      | 533.00      |
| 9         | 201.23      | 531.31      |
| 10        | 211.10      | 529.73      |
| 11        | 220.99      | 528.28      |
| 12        | 230.91      | 526.94      |
| 13        | 240.83      | 525.74      |
| 14        | 250.77      | 524.65      |
| 15        | 260.73      | 523.68      |
| 16        | 270.69      | 522.84      |
| 17        | 280.66      | 522.12      |
| 18        | 290.65      | 521.53      |
| 19        | 300.64      | 521.06      |
| 20        | 310.63      | 520.71      |
| 21        | 320.63      | 520.48      |
| 22        | 330.63      | 520.38      |
| 23        | 340.63      | 520.40      |
| 24        | 350.63      | 520.54      |
| 25        | 360.62      | 520.81      |
| 26        | 370.61      | 521.20      |
| 27        | 380.60      | 521.72      |
| 28        | 390.58      | 522.35      |
| 29        | 400.55      | 523.11      |
| 30        | 410.51      | 524.00      |
| 31        | 420.46      | 525.00      |
| 32        | 430.40      | 526.13      |
| 33        | 440.32      | 527.38      |
| 34        | 450.22      | 528.76      |
| 35        | 460.11      | 530.25      |
| 36        | 469.98      | 531.87      |
| 37        | 479.83      | 533.61      |
| 38        | 489.65      | 535.47      |

Page 11

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 39 | 499.46 | 537.45 |
| 40 | 509.23 | 539.55 |
| 41 | 518.98 | 541.77 |
| 42 | 528.70 | 544.12 |
| 43 | 538.40 | 546.58 |
| 44 | 548.06 | 549.16 |
| 45 | 557.69 | 551.86 |
| 46 | 567.28 | 554.68 |
| 47 | 576.84 | 557.62 |
| 48 | 586.36 | 560.67 |
| 49 | 595.84 | 563.84 |
| 50 | 605.29 | 567.13 |
| 51 | 614.69 | 570.54 |
| 52 | 624.05 | 574.06 |
| 53 | 633.37 | 577.69 |
| 54 | 642.64 | 581.44 |
| 55 | 651.86 | 585.31 |
| 56 | 661.03 | 589.29 |
| 57 | 670.16 | 593.38 |
| 58 | 679.23 | 597.58 |
| 59 | 688.25 | 601.89 |
| 60 | 697.22 | 606.32 |
| 61 | 706.13 | 610.85 |
| 62 | 714.99 | 615.50 |
| 63 | 723.79 | 620.25 |
| 64 | 732.53 | 625.12 |
| 65 | 741.20 | 630.09 |
| 66 | 749.82 | 635.16 |
| 67 | 758.37 | 640.35 |
| 68 | 766.86 | 645.63 |
| 69 | 775.28 | 651.02 |
| 70 | 783.64 | 656.52 |
| 71 | 791.92 | 662.12 |
| 72 | 800.14 | 667.82 |
| 73 | 808.28 | 673.62 |
| 74 | 816.36 | 679.52 |
| 75 | 824.36 | 685.52 |
| 76 | 832.28 | 691.62 |
| 77 | 840.13 | 697.81 |
| 78 | 847.91 | 704.10 |
| 79 | 855.60 | 710.49 |
| 80 | 863.22 | 716.97 |
| 81 | 870.75 | 723.55 |
| 82 | 875.78 | 728.04 |

\*\*\* 2.130 \*\*\*

Failure Surface Specified By 85 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 110.26      | 545.06      |
| 2         | 119.99      | 542.76      |
| 3         | 129.74      | 540.57      |
| 4         | 139.52      | 538.48      |
| 5         | 149.33      | 536.51      |
| 6         | 159.15      | 534.64      |

Page 12

|    | 10-Final Waste Circular.txt |        |
|----|-----------------------------|--------|
| 7  | 169.00                      | 532.89 |
| 8  | 178.86                      | 531.25 |
| 9  | 188.74                      | 529.72 |
| 10 | 198.64                      | 528.29 |
| 11 | 208.56                      | 526.99 |
| 12 | 218.48                      | 525.79 |
| 13 | 228.43                      | 524.70 |
| 14 | 238.38                      | 523.73 |
| 15 | 248.34                      | 522.87 |
| 16 | 258.31                      | 522.12 |
| 17 | 268.29                      | 521.48 |
| 18 | 278.28                      | 520.95 |
| 19 | 288.27                      | 520.54 |
| 20 | 298.27                      | 520.24 |
| 21 | 308.26                      | 520.05 |
| 22 | 318.26                      | 519.98 |
| 23 | 328.26                      | 520.01 |
| 24 | 338.26                      | 520.16 |
| 25 | 348.26                      | 520.43 |
| 26 | 358.25                      | 520.80 |
| 27 | 368.24                      | 521.29 |
| 28 | 378.22                      | 521.88 |
| 29 | 388.20                      | 522.60 |
| 30 | 398.16                      | 523.42 |
| 31 | 408.12                      | 524.35 |
| 32 | 418.06                      | 525.40 |
| 33 | 428.00                      | 526.56 |
| 34 | 437.92                      | 527.83 |
| 35 | 447.82                      | 529.21 |
| 36 | 457.71                      | 530.70 |
| 37 | 467.58                      | 532.31 |
| 38 | 477.43                      | 534.02 |
| 39 | 487.26                      | 535.85 |
| 40 | 497.07                      | 537.79 |
| 41 | 506.86                      | 539.83 |
| 42 | 516.63                      | 541.99 |
| 43 | 526.37                      | 544.25 |
| 44 | 536.08                      | 546.63 |
| 45 | 545.77                      | 549.11 |
| 46 | 555.42                      | 551.71 |
| 47 | 565.05                      | 554.41 |
| 48 | 574.65                      | 557.22 |
| 49 | 584.21                      | 560.14 |
| 50 | 593.74                      | 563.16 |
| 51 | 603.24                      | 566.29 |
| 52 | 612.70                      | 569.53 |
| 53 | 622.13                      | 572.88 |
| 54 | 631.51                      | 576.33 |
| 55 | 640.86                      | 579.88 |
| 56 | 650.16                      | 583.55 |
| 57 | 659.43                      | 587.31 |
| 58 | 668.65                      | 591.18 |
| 59 | 677.83                      | 595.15 |
| 60 | 686.96                      | 599.23 |
| 61 | 696.04                      | 603.41 |
| 62 | 705.08                      | 607.69 |
| 63 | 714.07                      | 612.07 |
| 64 | 723.01                      | 616.55 |
| 65 | 731.90                      | 621.13 |
| 66 | 740.74                      | 625.81 |
| 67 | 749.52                      | 630.59 |
| 68 | 758.25                      | 635.47 |
| 69 | 766.92                      | 640.45 |

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 70 | 775.54 | 645.53 |
| 71 | 784.10 | 650.70 |
| 72 | 792.60 | 655.96 |
| 73 | 801.04 | 661.33 |
| 74 | 809.42 | 666.78 |
| 75 | 817.74 | 672.33 |
| 76 | 825.99 | 677.98 |
| 77 | 834.18 | 683.71 |
| 78 | 842.31 | 689.54 |
| 79 | 850.37 | 695.46 |
| 80 | 858.36 | 701.47 |
| 81 | 866.28 | 707.57 |
| 82 | 874.14 | 713.76 |
| 83 | 881.93 | 720.03 |
| 84 | 889.64 | 726.40 |
| 85 | 894.27 | 730.30 |

\*\*\* 2.132 \*\*\*

1

#### Failure Surface Specified By 84 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 120.51      | 547.63      |
| 2         | 130.25      | 545.35      |
| 3         | 140.01      | 543.18      |
| 4         | 149.80      | 541.12      |
| 5         | 159.61      | 539.18      |
| 6         | 169.44      | 537.34      |
| 7         | 179.29      | 535.62      |
| 8         | 189.16      | 534.01      |
| 9         | 199.04      | 532.51      |
| 10        | 208.95      | 531.12      |
| 11        | 218.87      | 529.85      |
| 12        | 228.80      | 528.69      |
| 13        | 238.74      | 527.64      |
| 14        | 248.70      | 526.71      |
| 15        | 258.67      | 525.88      |
| 16        | 268.64      | 525.18      |
| 17        | 278.62      | 524.58      |
| 18        | 288.61      | 524.10      |
| 19        | 298.60      | 523.73      |
| 20        | 308.60      | 523.48      |
| 21        | 318.60      | 523.34      |
| 22        | 328.60      | 523.31      |
| 23        | 338.60      | 523.40      |
| 24        | 348.60      | 523.60      |
| 25        | 358.59      | 523.91      |
| 26        | 368.58      | 524.34      |
| 27        | 378.57      | 524.88      |
| 28        | 388.55      | 525.53      |
| 29        | 398.52      | 526.30      |
| 30        | 408.48      | 527.18      |
| 31        | 418.43      | 528.18      |
| 32        | 428.37      | 529.28      |
| 33        | 438.29      | 530.50      |

Page 14

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 34 | 448.20 | 531.84 |
| 35 | 458.10 | 533.28 |
| 36 | 467.98 | 534.84 |
| 37 | 477.84 | 536.51 |
| 38 | 487.68 | 538.29 |
| 39 | 497.50 | 540.18 |
| 40 | 507.29 | 542.19 |
| 41 | 517.07 | 544.30 |
| 42 | 526.82 | 546.53 |
| 43 | 536.54 | 548.87 |
| 44 | 546.23 | 551.32 |
| 45 | 555.90 | 553.87 |
| 46 | 565.54 | 556.54 |
| 47 | 575.15 | 559.32 |
| 48 | 584.72 | 562.20 |
| 49 | 594.26 | 565.20 |
| 50 | 603.77 | 568.30 |
| 51 | 613.24 | 571.51 |
| 52 | 622.67 | 574.83 |
| 53 | 632.07 | 578.25 |
| 54 | 641.42 | 581.78 |
| 55 | 650.74 | 585.42 |
| 56 | 660.01 | 589.17 |
| 57 | 669.24 | 593.01 |
| 58 | 678.43 | 596.97 |
| 59 | 687.57 | 601.02 |
| 60 | 696.66 | 605.18 |
| 61 | 705.71 | 609.45 |
| 62 | 714.70 | 613.81 |
| 63 | 723.65 | 618.28 |
| 64 | 732.54 | 622.85 |
| 65 | 741.39 | 627.52 |
| 66 | 750.18 | 632.29 |
| 67 | 758.91 | 637.16 |
| 68 | 767.59 | 642.13 |
| 69 | 776.21 | 647.20 |
| 70 | 784.77 | 652.36 |
| 71 | 793.28 | 657.62 |
| 72 | 801.72 | 662.98 |
| 73 | 810.10 | 668.44 |
| 74 | 818.42 | 673.98 |
| 75 | 826.68 | 679.63 |
| 76 | 834.87 | 685.36 |
| 77 | 842.99 | 691.19 |
| 78 | 851.05 | 697.11 |
| 79 | 859.04 | 703.12 |
| 80 | 866.97 | 709.23 |
| 81 | 874.82 | 715.42 |
| 82 | 882.60 | 721.70 |
| 83 | 890.31 | 728.07 |
| 84 | 892.72 | 730.11 |

\*\*\* 2.138 \*\*\*

Failure Surface Specified By 75 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
|--------------|----------------|----------------|

Page 15

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 1  | 135.90 | 551.47 |
| 2  | 145.52 | 548.76 |
| 3  | 155.19 | 546.18 |
| 4  | 164.88 | 543.74 |
| 5  | 174.61 | 541.44 |
| 6  | 184.38 | 539.28 |
| 7  | 194.17 | 537.26 |
| 8  | 203.99 | 535.37 |
| 9  | 213.84 | 533.63 |
| 10 | 223.71 | 532.02 |
| 11 | 233.60 | 530.55 |
| 12 | 243.51 | 529.23 |
| 13 | 253.44 | 528.05 |
| 14 | 263.39 | 527.00 |
| 15 | 273.35 | 526.10 |
| 16 | 283.32 | 525.34 |
| 17 | 293.30 | 524.72 |
| 18 | 303.29 | 524.25 |
| 19 | 313.28 | 523.91 |
| 20 | 323.28 | 523.72 |
| 21 | 333.28 | 523.67 |
| 22 | 343.28 | 523.76 |
| 23 | 353.28 | 523.99 |
| 24 | 363.27 | 524.37 |
| 25 | 373.26 | 524.88 |
| 26 | 383.23 | 525.54 |
| 27 | 393.20 | 526.34 |
| 28 | 403.16 | 527.28 |
| 29 | 413.10 | 528.36 |
| 30 | 423.02 | 529.59 |
| 31 | 432.93 | 530.95 |
| 32 | 442.82 | 532.45 |
| 33 | 452.68 | 534.10 |
| 34 | 462.52 | 535.88 |
| 35 | 472.33 | 537.81 |
| 36 | 482.12 | 539.87 |
| 37 | 491.87 | 542.07 |
| 38 | 501.60 | 544.41 |
| 39 | 511.28 | 546.89 |
| 40 | 520.94 | 549.50 |
| 41 | 530.55 | 552.26 |
| 42 | 540.12 | 555.14 |
| 43 | 549.66 | 558.17 |
| 44 | 559.14 | 561.33 |
| 45 | 568.59 | 564.62 |
| 46 | 577.98 | 568.04 |
| 47 | 587.33 | 571.60 |
| 48 | 596.62 | 575.30 |
| 49 | 605.86 | 579.12 |
| 50 | 615.04 | 583.07 |
| 51 | 624.17 | 587.16 |
| 52 | 633.24 | 591.37 |
| 53 | 642.25 | 595.71 |
| 54 | 651.20 | 600.18 |
| 55 | 660.08 | 604.78 |
| 56 | 668.89 | 609.50 |
| 57 | 677.64 | 614.34 |
| 58 | 686.32 | 619.31 |
| 59 | 694.93 | 624.40 |
| 60 | 703.46 | 629.62 |
| 61 | 711.92 | 634.95 |
| 62 | 720.30 | 640.41 |

Page 16

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 63 | 728.60 | 645.98 |
| 64 | 736.83 | 651.67 |
| 65 | 744.97 | 657.47 |
| 66 | 753.03 | 663.39 |
| 67 | 761.00 | 669.43 |
| 68 | 768.89 | 675.57 |
| 69 | 776.69 | 681.83 |
| 70 | 784.40 | 688.20 |
| 71 | 792.02 | 694.68 |
| 72 | 799.54 | 701.26 |
| 73 | 806.98 | 707.95 |
| 74 | 814.31 | 714.75 |
| 75 | 821.27 | 721.38 |

\*\*\* 2.139 \*\*\*

1

# Failure Surface Specified By 76 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 128.21         | 549.55         |
| 2            | 137.92         | 547.19         |
| 3            | 147.67         | 544.95         |
| 4            | 157.44         | 542.84         |
| 5            | 167.24         | 540.85         |
| 6            | 177.07         | 539.00         |
| 7            | 186.92         | 537.27         |
| 8            | 196.79         | 535.67         |
| 9            | 206.68         | 534.20         |
| 10           | 216.59         | 532.85         |
| 11           | 226.52         | 531.64         |
| 12           | 236.46         | 530.56         |
| 13           | 246.41         | 529.60         |
| 14           | 256.38         | 528.78         |
| 15           | 266.35         | 528.08         |
| 16           | 276.34         | 527.52         |
| 17           | 286.33         | 527.08         |
| 18           | 296.32         | 526.78         |
| 19           | 306.32         | 526.60         |
| 20           | 316.32         | 526.55         |
| 21           | 326.32         | 526.64         |
| 22           | 336.32         | 526.85         |
| 23           | 346.31         | 527.20         |
| 24           | 356.30         | 527.68         |
| 25           | 366.28         | 528.28         |
| 26           | 376.26         | 529.02         |
| 27           | 386.22         | 529.88         |
| 28           | 396.17         | 530.87         |
| 29           | 406.11         | 532.00         |
| 30           | 416.03         | 533.25         |
| 31           | 425.93         | 534.63         |
| 32           | 435.82         | 536.14         |
| 33           | 445.68         | 537.78         |
| 34           | 455.53         | 539.55         |
| 35           | 465.34         | 541.45         |
| 36           | 475.14         | 543.47         |

Page 17



10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 37 | 484.90 | 545.62 |
| 38 | 494.64 | 547.90 |
| 39 | 504.35 | 550.30 |
| 40 | 514.02 | 552.83 |
| 41 | 523.66 | 555.48 |
| 42 | 533.27 | 558.27 |
| 43 | 542.84 | 561.17 |
| 44 | 552.37 | 564.20 |
| 45 | 561.86 | 567.35 |
| 46 | 571.30 | 570.63 |
| 47 | 580.71 | 574.03 |
| 48 | 590.07 | 577.55 |
| 49 | 599.38 | 581.19 |
| 50 | 608.65 | 584.96 |
| 51 | 617.86 | 588.84 |
| 52 | 627.02 | 592.85 |
| 53 | 636.14 | 596.97 |
| 54 | 645.19 | 601.21 |
| 55 | 654.19 | 605.57 |
| 56 | 663.13 | 610.04 |
| 57 | 672.02 | 614.63 |
| 58 | 680.84 | 619.34 |
| 59 | 689.60 | 624.16 |
| 60 | 698.30 | 629.10 |
| 61 | 706.93 | 634.14 |
| 62 | 715.50 | 639.30 |
| 63 | 724.00 | 644.57 |
| 64 | 732.43 | 649.95 |
| 65 | 740.79 | 655.44 |
| 66 | 749.07 | 661.04 |
| 67 | 757.29 | 666.74 |
| 68 | 765.42 | 672.56 |
| 69 | 773.49 | 678.47 |
| 70 | 781.47 | 684.49 |
| 71 | 789.37 | 690.62 |
| 72 | 797.20 | 696.85 |
| 73 | 804.94 | 703.17 |
| 74 | 812.60 | 709.60 |
| 75 | 820.18 | 716.13 |
| 76 | 826.88 | 722.06 |

\*\*\* 2.140 \*\*\*

Failure Surface Specified By 83 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 123.08      | 548.27      |
| 2         | 132.84      | 546.09      |
| 3         | 142.62      | 544.03      |
| 4         | 152.43      | 542.07      |
| 5         | 162.26      | 540.22      |
| 6         | 172.10      | 538.49      |
| 7         | 181.97      | 536.86      |
| 8         | 191.86      | 535.35      |
| 9         | 201.76      | 533.95      |
| 10        | 211.67      | 532.66      |

Page 18

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 11 | 221.61 | 531.48 |
| 12 | 231.55 | 530.42 |
| 13 | 241.50 | 529.46 |
| 14 | 251.47 | 528.62 |
| 15 | 261.44 | 527.89 |
| 16 | 271.42 | 527.28 |
| 17 | 281.41 | 526.77 |
| 18 | 291.40 | 526.38 |
| 19 | 301.40 | 526.10 |
| 20 | 311.40 | 525.93 |
| 21 | 321.40 | 525.88 |
| 22 | 331.40 | 525.94 |
| 23 | 341.39 | 526.11 |
| 24 | 351.39 | 526.40 |
| 25 | 361.38 | 526.79 |
| 26 | 371.37 | 527.30 |
| 27 | 381.35 | 527.93 |
| 28 | 391.32 | 528.66 |
| 29 | 401.29 | 529.51 |
| 30 | 411.24 | 530.47 |
| 31 | 421.18 | 531.54 |
| 32 | 431.11 | 532.72 |
| 33 | 441.03 | 534.02 |
| 34 | 450.93 | 535.42 |
| 35 | 460.81 | 536.94 |
| 36 | 470.68 | 538.57 |
| 37 | 480.53 | 540.31 |
| 38 | 490.35 | 542.17 |
| 39 | 500.16 | 544.13 |
| 40 | 509.94 | 546.20 |
| 41 | 519.70 | 548.38 |
| 42 | 529.43 | 550.68 |
| 43 | 539.14 | 553.08 |
| 44 | 548.82 | 555.59 |
| 45 | 558.47 | 558.21 |
| 46 | 568.09 | 560.94 |
| 47 | 577.68 | 563.78 |
| 48 | 587.24 | 566.72 |
| 49 | 596.76 | 569.77 |
| 50 | 606.25 | 572.93 |
| 51 | 615.70 | 576.20 |
| 52 | 625.11 | 579.57 |
| 53 | 634.49 | 583.05 |
| 54 | 643.82 | 586.64 |
| 55 | 653.12 | 590.33 |
| 56 | 662.37 | 594.12 |
| 57 | 671.58 | 598.02 |
| 58 | 680.75 | 602.02 |
| 59 | 689.86 | 606.12 |
| 60 | 698.94 | 610.33 |
| 61 | 707.96 | 614.64 |
| 62 | 716.94 | 619.05 |
| 63 | 725.86 | 623.56 |
| 64 | 734.73 | 628.17 |
| 65 | 743.55 | 632.88 |
| 66 | 752.32 | 637.69 |
| 67 | 761.03 | 642.60 |
| 68 | 769.69 | 647.61 |
| 69 | 778.29 | 652.71 |
| 70 | 786.83 | 657.91 |
| 71 | 795.31 | 663.21 |
| 72 | 803.74 | 668.60 |
| 73 | 812.10 | 674.09 |

10-Final Waste Circular.txt

|    |        |        |
|----|--------|--------|
| 74 | 820.39 | 679.67 |
| 75 | 828.63 | 685.34 |
| 76 | 836.80 | 691.10 |
| 77 | 844.91 | 696.96 |
| 78 | 852.94 | 702.91 |
| 79 | 860.91 | 708.95 |
| 80 | 868.82 | 715.08 |
| 81 | 876.65 | 721.29 |
| 82 | 884.41 | 727.60 |
| 83 | 886.52 | 729.35 |

\*\*\* 2.140 \*\*\*

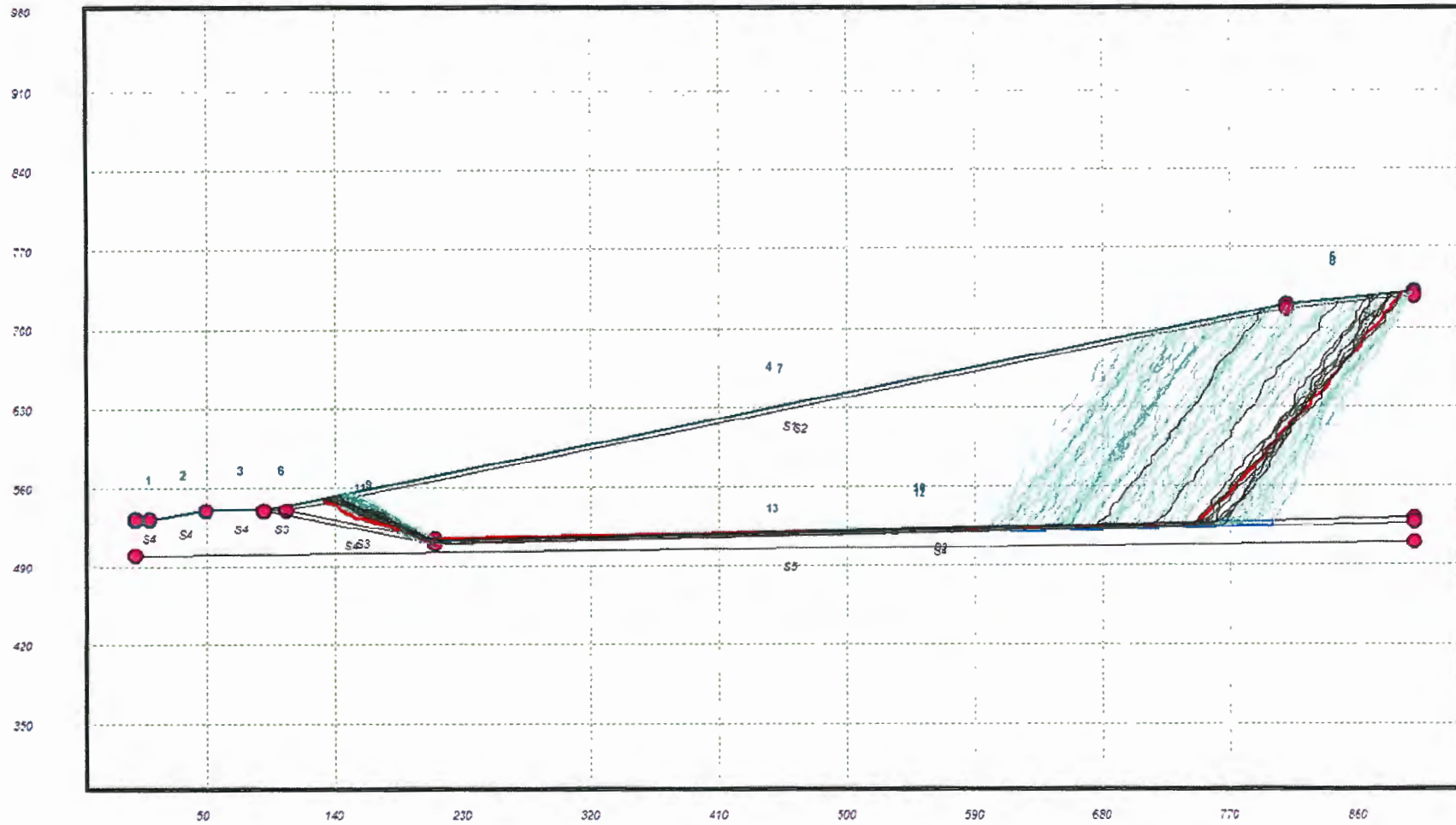
1

|   | Y      | A      | X      | I      | S            | F      | T |
|---|--------|--------|--------|--------|--------------|--------|---|
|   | 0.00   | 160.82 | 321.64 | 482.46 | 643.28       | 804.10 |   |
| X | 0.00   | +      | +      | +      | +            | +      | + |
|   | -      |        |        |        | *            |        |   |
|   | -      |        |        |        | *            |        |   |
|   | -      |        |        |        | *            |        |   |
|   | -      |        |        |        | ..11         |        |   |
|   | 160.82 | +      |        |        | ...12.       |        |   |
|   | -      |        |        |        | ....18.      |        |   |
|   | -      |        |        |        | ....*1.      |        |   |
|   | -      |        |        |        | .....12...   |        |   |
|   | -      |        |        |        | .....14...   |        |   |
|   | -      |        |        |        | .....17...   |        |   |
| A | 321.64 | +      |        |        | .....17...   |        |   |
|   | -      |        |        |        | .....17...   |        |   |
|   | -      |        |        |        | .....11...   |        |   |
|   | -      |        |        |        | .....21...   |        |   |
|   | -      |        |        |        | .....1.      |        |   |
|   | -      |        |        |        | .....19...   |        |   |
| X | 482.46 | +      |        |        | .....11...   |        |   |
|   | -      |        |        |        | .....41...   |        |   |
|   | -      |        |        |        | .....11...   |        |   |
|   | -      |        |        |        | .....41...   |        |   |
|   | -      |        |        |        | .....11...   |        |   |
|   | -      |        |        |        | .....513...  |        |   |
| I | 643.28 | +      |        |        | .....219...  |        |   |
|   | -      |        |        |        | .....119...  |        |   |
|   | -      |        |        |        | .....511...  |        |   |
|   | -      |        |        |        | .....5118... |        |   |
|   | -      |        |        |        | .....5113... |        |   |
|   | -      |        |        |        | .....5113.   |        |   |
| S | 804.10 | +      |        |        | .....5412*   |        |   |
|   | -      |        |        |        | .....6511    |        |   |
|   | -      |        |        |        | .....654     |        |   |
|   | -      |        |        |        | ...65        |        |   |
|   | -      |        |        |        | **           |        | * |
|   | 964.92 | +      |        |        |              |        |   |
|   | -      |        |        |        |              |        |   |
|   | -      |        |        |        |              |        |   |

10-Final waste Circular.txt

|   |           |
|---|-----------|
|   | -         |
|   | -         |
| F | 1125.74 + |
|   | -         |
|   | -         |
|   | -         |
|   | -         |
|   | -         |
| T | 1286.56 + |

130 Environmental Park Final Waste Block - FS Min = 1.819



12-Final Waste Block.txt  
 \*\* PCSTABL6 \*\*

by  
 Purdue University

1

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

Run Date: 4:37 PM 12/3/2013

Time of Run:

Run By: GWA  
 Input Data Filename: run.in  
 Output Filename: result.out  
 Unit: ENGLISH  
 Plotted Output Filename: result.plt

PROBLEM DESCRIPTION 130 Environmental Park Final Waste Block

BOUNDARY COORDINATES

5 Top Boundaries  
 13 Total Boundaries

| Boundary No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Soil Type Below Bnd |
|--------------|-------------|-------------|--------------|--------------|---------------------|
| 1            | 0.00        | 532.00      | 10.00        | 532.00       | 4                   |
| 2            | 10.00       | 532.00      | 50.00        | 540.00       | 4                   |
| 3            | 50.00       | 540.00      | 90.00        | 540.00       | 4                   |
| 4            | 90.00       | 540.00      | 810.00       | 720.00       | 1                   |
| 5            | 810.00      | 720.00      | 900.00       | 731.00       | 1                   |
| 6            | 90.00       | 540.00      | 106.00       | 540.00       | 3                   |
| 7            | 106.00      | 540.00      | 810.00       | 716.50       | 2                   |
| 8            | 810.00      | 716.50      | 900.00       | 727.50       | 2                   |
| 9            | 106.00      | 540.00      | 210.00       | 514.00       | 3                   |
| 10           | 210.00      | 514.00      | 900.00       | 531.30       | 3                   |
| 11           | 90.00       | 540.00      | 210.00       | 510.00       | 4                   |
| 12           | 210.00      | 510.00      | 900.00       | 527.30       | 4                   |
| 13           | 0.00        | 500.00      | 900.00       | 510.00       | 5                   |

1

ISOTROPIC SOIL PARAMETERS

5 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. |
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|
|---------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|-------------------------|-------------------|

Page 1

12-Final Waste Block.txt

|   |       |       |        |      |      |     |   |
|---|-------|-------|--------|------|------|-----|---|
| 1 | 109.4 | 109.4 | 2381.0 | 9.6  | 0.00 | 0.0 | 0 |
| 2 | 60.0  | 60.0  | 250.0  | 23.0 | 0.00 | 0.0 | 0 |
| 3 | 109.4 | 109.4 | 1361.0 | 5.2  | 0.00 | 0.0 | 0 |
| 4 | 123.5 | 123.5 | 2381.0 | 9.6  | 0.00 | 0.0 | 0 |
| 5 | 122.1 | 122.1 | 2381.0 | 9.6  | 0.00 | 0.0 | 0 |

1

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 5.0

| Box No. | X-Left (ft) | Y-Left (ft) | X-Right (ft) | Y-Right (ft) | Height (ft) |
|---------|-------------|-------------|--------------|--------------|-------------|
| 1       | 200.00      | 514.50      | 210.00       | 512.00       | 4.00        |
| 2       | 211.00      | 512.00      | 221.00       | 512.30       | 4.00        |
| 3       | 600.00      | 521.80      | 800.00       | 526.80       | 4.00        |

1

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 72 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 131.68      | 550.42      |
| 2         | 134.85      | 547.56      |
| 3         | 139.30      | 545.28      |
| 4         | 143.11      | 542.04      |
| 5         | 147.00      | 538.89      |
| 6         | 151.08      | 536.00      |
| 7         | 154.63      | 532.49      |
| 8         | 159.63      | 532.37      |
| 9         | 164.19      | 530.31      |
| 10        | 169.14      | 529.63      |
| 11        | 173.86      | 527.99      |
| 12        | 178.67      | 526.62      |
| 13        | 182.21      | 523.09      |
| 14        | 187.07      | 521.91      |
| 15        | 191.62      | 519.83      |
| 16        | 195.99      | 517.40      |

Page 2

12-Final waste Block.txt

|    |        |        |
|----|--------|--------|
| 17 | 199.76 | 514.12 |
| 18 | 204.75 | 513.75 |
| 19 | 220.53 | 514.08 |
| 20 | 744.69 | 523.97 |
| 21 | 747.79 | 527.89 |
| 22 | 750.48 | 532.10 |
| 23 | 753.80 | 535.84 |
| 24 | 756.72 | 539.90 |
| 25 | 760.24 | 543.45 |
| 26 | 763.50 | 547.25 |
| 27 | 767.03 | 550.79 |
| 28 | 770.34 | 554.53 |
| 29 | 772.91 | 558.83 |
| 30 | 775.18 | 563.28 |
| 31 | 778.69 | 566.84 |
| 32 | 782.01 | 570.58 |
| 33 | 785.54 | 574.11 |
| 34 | 788.75 | 577.95 |
| 35 | 791.25 | 582.28 |
| 36 | 794.35 | 586.21 |
| 37 | 795.44 | 591.09 |
| 38 | 798.25 | 595.22 |
| 39 | 801.70 | 598.84 |
| 40 | 804.56 | 602.94 |
| 41 | 806.76 | 607.43 |
| 42 | 810.28 | 610.98 |
| 43 | 812.93 | 615.22 |
| 44 | 816.41 | 618.81 |
| 45 | 819.33 | 622.87 |
| 46 | 822.79 | 626.48 |
| 47 | 826.27 | 630.07 |
| 48 | 826.96 | 635.02 |
| 49 | 830.44 | 638.61 |
| 50 | 833.87 | 642.26 |
| 51 | 837.19 | 645.99 |
| 52 | 839.52 | 650.42 |
| 53 | 840.38 | 655.34 |
| 54 | 843.68 | 659.10 |
| 55 | 847.03 | 662.80 |
| 56 | 848.92 | 667.43 |
| 57 | 852.36 | 671.06 |
| 58 | 855.28 | 675.12 |
| 59 | 858.47 | 678.97 |
| 60 | 862.00 | 682.51 |
| 61 | 863.71 | 687.21 |
| 62 | 864.85 | 692.08 |
| 63 | 868.00 | 695.95 |
| 64 | 871.14 | 699.85 |
| 65 | 874.52 | 703.53 |
| 66 | 877.43 | 707.60 |
| 67 | 879.46 | 712.17 |
| 68 | 882.37 | 716.23 |
| 69 | 884.83 | 720.59 |
| 70 | 888.31 | 724.17 |
| 71 | 890.41 | 728.71 |
| 72 | 891.51 | 729.96 |

\*\*\* 1.819 \*\*\*



12-Final Waste Block.txt  
Individual data on the 77 slices

| Slice No. | Width (ft) | Weight (lbs) | Water Force Top (lbs) | Water Force Bot (lbs) | Force Norm (lbs) | Force Tan (lbs) | Earthquake Force Hor (lbs) | Earthquake Force Ver (lbs) | Surcharge Load (lbs) |
|-----------|------------|--------------|-----------------------|-----------------------|------------------|-----------------|----------------------------|----------------------------|----------------------|
| 1         | 3.2        | 633.9        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 2         | 0.4        | 179.8        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 3         | 4.0        | 2118.8       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 4         | 3.8        | 2831.8       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 5         | 3.9        | 3866.0       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 6         | 4.1        | 5038.0       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 7         | 3.6        | 5275.9       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 8         | 5.0        | 8283.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 9         | 4.6        | 8175.1       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 10        | 5.0        | 9644.0       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 11        | 4.7        | 9873.4       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 12        | 4.8        | 10820.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 13        | 3.5        | 8715.7       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 14        | 4.9        | 12947.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 15        | 4.5        | 12882.9      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 16        | 4.0        | 12213.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 17        | 0.3        | 1043.3       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 18        | 3.8        | 12564.2      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 19        | 5.0        | 17655.6      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 20        | 5.3        | 18735.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 21        | 10.5       | 38366.0      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 22        | 524.2      | *****        | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 23        | 2.8        | 30403.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 24        | 0.3        | 3528.8       | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 25        | 2.7        | 28697.2      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 26        | 3.3        | 34723.9      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 27        | 2.9        | 30051.5      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |
| 0.0       |            |              |                       |                       |                  |                 |                            |                            |                      |
| 28        | 3.5        | 35533.7      | 0.0                   | 0.0                   | 0.0              | 0.0             | 0.0                        | 0.0                        |                      |

## 12-Final Waste Block.txt

|     |     |         |     |     |     |     |     |     |
|-----|-----|---------|-----|-----|-----|-----|-----|-----|
| 0.0 |     |         |     |     |     |     |     |     |
| 29  | 3.3 | 32350.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 30  | 3.5 | 34496.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 31  | 3.3 | 31734.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 32  | 2.6 | 24134.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 33  | 2.3 | 20832.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 34  | 3.5 | 31547.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 35  | 3.3 | 29200.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 36  | 3.5 | 30537.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 37  | 3.2 | 27139.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 38  | 2.5 | 20674.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 39  | 3.1 | 24971.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 40  | 1.1 | 8558.1  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 41  | 2.8 | 21298.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 42  | 3.5 | 25575.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 43  | 2.9 | 20612.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 44  | 2.2 | 15384.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 45  | 3.2 | 22068.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 46  | 0.3 | 1860.6  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 47  | 2.7 | 17520.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 48  | 3.5 | 22241.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 49  | 2.9 | 18029.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 50  | 3.5 | 20665.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 51  | 3.5 | 20111.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 52  | 0.7 | 3842.9  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 53  | 3.5 | 18461.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 54  | 3.4 | 17475.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 55  | 3.3 | 16322.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 56  | 2.3 | 10938.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 57  | 0.9 | 3784.8  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 58  | 3.3 | 13783.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |
| 59  | 3.4 | 13341.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |     |     |     |     |     |     |

|     |     |         |                          |     |     |     |     |     |
|-----|-----|---------|--------------------------|-----|-----|-----|-----|-----|
|     |     |         | 12-Final waste Block.txt |     |     |     |     |     |
| 60  | 1.9 | 7069.6  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 61  | 3.4 | 12098.0 | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 62  | 2.9 | 9655.1  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 63  | 3.2 | 9863.3  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 64  | 3.5 | 10241.5 | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 65  | 1.7 | 4554.1  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 66  | 1.1 | 2715.0  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 67  | 3.2 | 6774.3  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 68  | 3.1 | 6072.7  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 69  | 3.4 | 5853.1  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 70  | 2.9 | 4436.7  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 71  | 2.0 | 2604.9  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 72  | 2.9 | 3029.6  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 73  | 2.5 | 1982.7  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 74  | 3.5 | 2060.8  | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 75  | 0.9 | 409.8   | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 76  | 1.2 | 295.6   | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |
| 77  | 1.1 | 66.7    | 0.0                      | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 |     |         |                          |     |     |     |     |     |

Failure Surface Specified By 69 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 134.26      | 551.06      |
| 2         | 136.50      | 549.12      |
| 3         | 141.50      | 549.12      |
| 4         | 145.23      | 545.79      |
| 5         | 150.15      | 544.92      |
| 6         | 155.08      | 544.07      |
| 7         | 158.91      | 540.85      |
| 8         | 162.81      | 537.73      |
| 9         | 167.81      | 537.58      |
| 10        | 172.09      | 535.00      |
| 11        | 176.04      | 531.94      |
| 12        | 179.74      | 528.57      |
| 13        | 183.79      | 525.64      |
| 14        | 187.63      | 522.44      |
| 15        | 191.40      | 519.15      |
| 16        | 196.39      | 518.90      |
| 17        | 201.31      | 518.02      |
| 18        | 204.86      | 514.49      |
| 19        | 214.71      | 512.49      |
| 20        | 716.38      | 526.30      |

Page 6

12-Final waste Block.txt

|    |        |        |
|----|--------|--------|
| 21 | 719.74 | 530.01 |
| 22 | 723.18 | 533.64 |
| 23 | 726.71 | 537.18 |
| 24 | 728.53 | 541.83 |
| 25 | 731.15 | 546.09 |
| 26 | 732.75 | 550.83 |
| 27 | 734.64 | 555.46 |
| 28 | 738.16 | 559.01 |
| 29 | 741.31 | 562.89 |
| 30 | 744.80 | 566.47 |
| 31 | 746.42 | 571.20 |
| 32 | 749.05 | 575.45 |
| 33 | 752.32 | 579.24 |
| 34 | 754.54 | 583.72 |
| 35 | 758.01 | 587.31 |
| 36 | 761.38 | 591.02 |
| 37 | 764.43 | 594.97 |
| 38 | 767.00 | 599.26 |
| 39 | 769.58 | 603.55 |
| 40 | 770.06 | 608.52 |
| 41 | 773.13 | 612.48 |
| 42 | 776.11 | 616.49 |
| 43 | 777.71 | 621.23 |
| 44 | 781.00 | 624.99 |
| 45 | 784.49 | 628.57 |
| 46 | 787.75 | 632.37 |
| 47 | 789.53 | 637.04 |
| 48 | 791.36 | 641.69 |
| 49 | 793.38 | 646.26 |
| 50 | 795.06 | 650.97 |
| 51 | 798.59 | 654.51 |
| 52 | 801.81 | 658.34 |
| 53 | 803.12 | 663.16 |
| 54 | 806.60 | 666.75 |
| 55 | 810.13 | 670.30 |
| 56 | 813.05 | 674.35 |
| 57 | 816.30 | 678.15 |
| 58 | 819.84 | 681.69 |
| 59 | 823.24 | 685.35 |
| 60 | 826.03 | 689.50 |
| 61 | 828.83 | 693.64 |
| 62 | 832.34 | 697.20 |
| 63 | 833.57 | 702.05 |
| 64 | 834.11 | 707.02 |
| 65 | 837.58 | 710.63 |
| 66 | 840.95 | 714.32 |
| 67 | 844.00 | 718.28 |
| 68 | 845.70 | 722.98 |
| 69 | 847.28 | 724.56 |

\*\*\* 1.895 \*\*\*

1

Failure Surface Specified By 67 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
|--------------|----------------|----------------|

Page 7

12-Final waste Block.txt

|    |        |        |
|----|--------|--------|
| 1  | 137.62 | 551.91 |
| 2  | 141.36 | 550.74 |
| 3  | 145.75 | 548.34 |
| 4  | 149.29 | 544.81 |
| 5  | 153.85 | 542.76 |
| 6  | 158.57 | 541.11 |
| 7  | 163.47 | 540.12 |
| 8  | 168.29 | 538.80 |
| 9  | 172.92 | 536.90 |
| 10 | 176.64 | 533.56 |
| 11 | 180.72 | 530.67 |
| 12 | 184.54 | 527.45 |
| 13 | 188.40 | 524.27 |
| 14 | 191.97 | 520.77 |
| 15 | 196.05 | 517.88 |
| 16 | 200.18 | 515.05 |
| 17 | 215.14 | 513.82 |
| 18 | 746.56 | 523.85 |
| 19 | 750.09 | 527.39 |
| 20 | 753.46 | 531.09 |
| 21 | 756.88 | 534.74 |
| 22 | 757.99 | 539.61 |
| 23 | 760.81 | 543.74 |
| 24 | 762.96 | 548.25 |
| 25 | 766.45 | 551.84 |
| 26 | 768.07 | 556.57 |
| 27 | 770.80 | 560.76 |
| 28 | 774.26 | 564.37 |
| 29 | 776.08 | 569.02 |
| 30 | 779.32 | 572.83 |
| 31 | 782.59 | 576.61 |
| 32 | 785.21 | 580.87 |
| 33 | 787.16 | 585.48 |
| 34 | 790.30 | 589.37 |
| 35 | 792.27 | 593.96 |
| 36 | 794.80 | 598.27 |
| 37 | 798.12 | 602.01 |
| 38 | 798.81 | 606.97 |
| 39 | 802.34 | 610.51 |
| 40 | 805.43 | 614.44 |
| 41 | 807.41 | 619.03 |
| 42 | 810.92 | 622.59 |
| 43 | 813.44 | 626.91 |
| 44 | 816.52 | 630.85 |
| 45 | 819.94 | 634.49 |
| 46 | 823.48 | 638.03 |
| 47 | 825.94 | 642.37 |
| 48 | 826.24 | 647.37 |
| 49 | 827.52 | 652.20 |
| 50 | 831.06 | 655.74 |
| 51 | 834.42 | 659.44 |
| 52 | 835.76 | 664.25 |
| 53 | 836.31 | 669.22 |
| 54 | 838.94 | 673.47 |
| 55 | 842.06 | 677.39 |
| 56 | 844.51 | 681.74 |
| 57 | 848.04 | 685.28 |
| 58 | 849.13 | 690.16 |
| 59 | 852.57 | 693.79 |
| 60 | 855.39 | 697.92 |
| 61 | 857.11 | 702.61 |
| 62 | 860.32 | 706.45 |
| 63 | 862.85 | 710.76 |

12-Final Waste Block.txt

|    |        |        |
|----|--------|--------|
| 64 | 865.30 | 715.12 |
| 65 | 868.09 | 719.27 |
| 66 | 868.97 | 724.19 |
| 67 | 871.70 | 727.54 |

\*\*\* 1.904 \*\*\*

# Failure Surface Specified By 68 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 139.93      | 552.48      |
| 2         | 142.88      | 549.67      |
| 3         | 146.45      | 546.16      |
| 4         | 151.37      | 545.30      |
| 5         | 154.93      | 541.78      |
| 6         | 159.22      | 539.22      |
| 7         | 164.21      | 539.03      |
| 8         | 168.06      | 535.84      |
| 9         | 172.64      | 533.81      |
| 10        | 176.19      | 530.30      |
| 11        | 180.83      | 528.43      |
| 12        | 185.05      | 525.75      |
| 13        | 189.34      | 523.17      |
| 14        | 193.99      | 521.34      |
| 15        | 198.11      | 518.51      |
| 16        | 202.99      | 517.43      |
| 17        | 206.54      | 513.91      |
| 18        | 216.11      | 513.46      |
| 19        | 756.87      | 525.22      |
| 20        | 760.12      | 529.02      |
| 21        | 760.51      | 534.00      |
| 22        | 762.45      | 538.61      |
| 23        | 765.98      | 542.15      |
| 24        | 769.10      | 546.06      |
| 25        | 770.46      | 550.87      |
| 26        | 773.87      | 554.53      |
| 27        | 776.10      | 559.00      |
| 28        | 779.56      | 562.61      |
| 29        | 782.22      | 566.85      |
| 30        | 785.75      | 570.39      |
| 31        | 789.17      | 574.03      |
| 32        | 792.60      | 577.68      |
| 33        | 794.51      | 582.30      |
| 34        | 796.46      | 586.90      |
| 35        | 799.53      | 590.85      |
| 36        | 801.86      | 595.27      |
| 37        | 803.83      | 599.87      |
| 38        | 805.49      | 604.58      |
| 39        | 808.92      | 608.23      |
| 40        | 812.00      | 612.16      |
| 41        | 813.49      | 616.94      |
| 42        | 816.87      | 620.61      |
| 43        | 819.90      | 624.59      |
| 44        | 822.31      | 628.98      |
| 45        | 824.53      | 633.46      |
| 46        | 827.70      | 637.32      |

Page 9

|    |        |                          |
|----|--------|--------------------------|
|    |        | 12-Final waste block.txt |
| 47 | 829.19 | 642.09                   |
| 48 | 831.98 | 646.24                   |
| 49 | 835.30 | 649.98                   |
| 50 | 836.11 | 654.91                   |
| 51 | 839.09 | 658.93                   |
| 52 | 842.50 | 662.58                   |
| 53 | 845.76 | 666.38                   |
| 54 | 848.76 | 670.38                   |
| 55 | 851.22 | 674.73                   |
| 56 | 854.14 | 678.79                   |
| 57 | 857.55 | 682.44                   |
| 58 | 860.71 | 686.31                   |
| 59 | 863.34 | 690.56                   |
| 60 | 866.49 | 694.45                   |
| 61 | 867.36 | 699.37                   |
| 62 | 869.85 | 703.71                   |
| 63 | 872.75 | 707.78                   |
| 64 | 876.07 | 711.52                   |
| 65 | 877.95 | 716.15                   |
| 66 | 879.76 | 720.81                   |
| 67 | 883.12 | 724.51                   |
| 68 | 883.88 | 729.03                   |

\*\*\* 1.910 \*\*\*

1

#### Failure Surface Specified By 68 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 143.09      | 553.27      |
| 2         | 146.28      | 550.33      |
| 3         | 150.12      | 547.14      |
| 4         | 153.81      | 543.76      |
| 5         | 157.35      | 540.23      |
| 6         | 162.27      | 539.32      |
| 7         | 167.05      | 537.88      |
| 8         | 170.60      | 534.35      |
| 9         | 174.51      | 531.24      |
| 10        | 178.71      | 528.53      |
| 11        | 182.99      | 525.95      |
| 12        | 187.14      | 523.16      |
| 13        | 192.13      | 522.87      |
| 14        | 196.44      | 520.32      |
| 15        | 200.87      | 518.01      |
| 16        | 204.46      | 514.53      |
| 17        | 208.00      | 511.00      |
| 18        | 215.90      | 510.99      |
| 19        | 758.80      | 527.49      |
| 20        | 762.21      | 531.15      |
| 21        | 765.48      | 534.93      |
| 22        | 769.00      | 538.48      |
| 23        | 772.51      | 542.03      |
| 24        | 775.79      | 545.81      |
| 25        | 778.43      | 550.06      |
| 26        | 780.49      | 554.61      |
| 27        | 782.76      | 559.07      |

Page 10

12-Final waste Block.txt

|    |        |        |
|----|--------|--------|
| 28 | 785.40 | 563.31 |
| 29 | 788.19 | 567.46 |
| 30 | 791.71 | 571.02 |
| 31 | 793.00 | 575.85 |
| 32 | 794.88 | 580.48 |
| 33 | 797.08 | 584.97 |
| 34 | 800.08 | 588.97 |
| 35 | 803.61 | 592.51 |
| 36 | 807.03 | 596.16 |
| 37 | 808.22 | 601.02 |
| 38 | 811.29 | 604.96 |
| 39 | 812.61 | 609.78 |
| 40 | 812.72 | 614.78 |
| 41 | 815.69 | 618.80 |
| 42 | 816.95 | 623.64 |
| 43 | 820.39 | 627.26 |
| 44 | 821.34 | 632.17 |
| 45 | 822.79 | 636.96 |
| 46 | 825.97 | 640.82 |
| 47 | 829.50 | 644.36 |
| 48 | 830.43 | 649.27 |
| 49 | 833.71 | 653.04 |
| 50 | 835.93 | 657.53 |
| 51 | 838.45 | 661.84 |
| 52 | 841.67 | 665.67 |
| 53 | 844.43 | 669.84 |
| 54 | 847.86 | 673.48 |
| 55 | 849.31 | 678.26 |
| 56 | 852.76 | 681.88 |
| 57 | 856.29 | 685.42 |
| 58 | 858.76 | 689.77 |
| 59 | 860.97 | 694.25 |
| 60 | 863.06 | 698.79 |
| 61 | 863.15 | 703.79 |
| 62 | 866.67 | 707.34 |
| 63 | 869.99 | 711.09 |
| 64 | 873.46 | 714.68 |
| 65 | 876.81 | 718.39 |
| 66 | 879.91 | 722.32 |
| 67 | 881.96 | 726.88 |
| 68 | 883.83 | 729.02 |

\*\*\* 1.917 \*\*\*

Failure Surface Specified By 70 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 136.55      | 551.64      |
| 2         | 140.31      | 548.75      |
| 3         | 144.44      | 545.93      |
| 4         | 149.29      | 544.71      |
| 5         | 153.06      | 541.43      |
| 6         | 157.51      | 539.14      |
| 7         | 161.88      | 536.72      |
| 8         | 166.39      | 534.55      |
| 9         | 169.96      | 531.05      |

Page 11



12-Final waste Block.txt

|    |        |        |
|----|--------|--------|
| 10 | 174.95 | 530.80 |
| 11 | 178.97 | 527.83 |
| 12 | 183.67 | 526.12 |
| 13 | 187.21 | 522.58 |
| 14 | 191.66 | 520.31 |
| 15 | 195.94 | 517.72 |
| 16 | 199.48 | 514.18 |
| 17 | 204.25 | 512.70 |
| 18 | 209.00 | 511.15 |
| 19 | 213.39 | 513.22 |
| 20 | 749.98 | 523.93 |
| 21 | 753.42 | 527.56 |
| 22 | 756.65 | 531.37 |
| 23 | 758.65 | 535.95 |
| 24 | 761.82 | 539.82 |
| 25 | 762.85 | 544.72 |
| 26 | 765.25 | 549.10 |
| 27 | 767.66 | 553.48 |
| 28 | 770.21 | 557.78 |
| 29 | 773.49 | 561.56 |
| 30 | 776.03 | 565.86 |
| 31 | 779.09 | 569.82 |
| 32 | 782.30 | 573.65 |
| 33 | 785.28 | 577.67 |
| 34 | 788.74 | 581.28 |
| 35 | 792.07 | 585.01 |
| 36 | 793.50 | 589.80 |
| 37 | 796.78 | 593.57 |
| 38 | 799.95 | 597.43 |
| 39 | 802.72 | 601.60 |
| 40 | 803.01 | 606.59 |
| 41 | 804.57 | 611.34 |
| 42 | 807.19 | 615.60 |
| 43 | 810.72 | 619.14 |
| 44 | 813.81 | 623.07 |
| 45 | 817.34 | 626.61 |
| 46 | 820.86 | 630.17 |
| 47 | 824.22 | 633.87 |
| 48 | 827.27 | 637.83 |
| 49 | 830.00 | 642.01 |
| 50 | 830.26 | 647.01 |
| 51 | 833.39 | 650.91 |
| 52 | 835.42 | 655.48 |
| 53 | 838.71 | 659.24 |
| 54 | 841.93 | 663.07 |
| 55 | 844.91 | 667.08 |
| 56 | 846.61 | 671.78 |
| 57 | 846.67 | 676.78 |
| 58 | 850.20 | 680.32 |
| 59 | 853.69 | 683.91 |
| 60 | 856.82 | 687.80 |
| 61 | 859.46 | 692.05 |
| 62 | 860.00 | 697.02 |
| 63 | 861.54 | 701.77 |
| 64 | 862.78 | 706.62 |
| 65 | 864.22 | 711.41 |
| 66 | 867.09 | 715.50 |
| 67 | 868.11 | 720.39 |
| 68 | 871.51 | 724.05 |
| 69 | 875.03 | 727.61 |
| 70 | 875.36 | 727.99 |

12-Final Waste Block.txt  
 \*\*\* 1.917 \*\*\*

1

Failure Surface Specified By 69 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 132.62         | 550.65         |
| 2            | 135.34         | 548.29         |
| 3            | 139.98         | 546.41         |
| 4            | 144.79         | 545.05         |
| 5            | 148.87         | 542.16         |
| 6            | 153.54         | 540.37         |
| 7            | 157.65         | 537.52         |
| 8            | 161.18         | 533.99         |
| 9            | 166.04         | 532.78         |
| 10           | 170.48         | 530.49         |
| 11           | 175.43         | 529.82         |
| 12           | 180.43         | 529.63         |
| 13           | 183.98         | 526.11         |
| 14           | 188.07         | 523.23         |
| 15           | 193.02         | 522.55         |
| 16           | 197.42         | 520.17         |
| 17           | 201.01         | 516.69         |
| 18           | 204.87         | 513.51         |
| 19           | 212.20         | 513.30         |
| 20           | 742.61         | 526.02         |
| 21           | 746.09         | 529.61         |
| 22           | 748.87         | 533.76         |
| 23           | 752.40         | 537.30         |
| 24           | 755.25         | 541.41         |
| 25           | 755.71         | 546.39         |
| 26           | 759.24         | 549.92         |
| 27           | 762.73         | 553.51         |
| 28           | 765.92         | 557.36         |
| 29           | 766.99         | 562.24         |
| 30           | 770.50         | 565.80         |
| 31           | 772.51         | 570.38         |
| 32           | 775.73         | 574.21         |
| 33           | 778.83         | 578.13         |
| 34           | 779.97         | 583.00         |
| 35           | 783.23         | 586.79         |
| 36           | 786.49         | 590.58         |
| 37           | 789.55         | 594.53         |
| 38           | 793.08         | 598.08         |
| 39           | 796.14         | 602.03         |
| 40           | 799.67         | 605.57         |
| 41           | 801.23         | 610.33         |
| 42           | 804.76         | 613.86         |
| 43           | 805.78         | 618.76         |
| 44           | 809.13         | 622.47         |
| 45           | 812.64         | 626.04         |
| 46           | 815.37         | 630.22         |
| 47           | 815.50         | 635.22         |
| 48           | 816.05         | 640.19         |
| 49           | 817.78         | 644.88         |
| 50           | 821.28         | 648.45         |
| 51           | 823.75         | 652.80         |

Page 13

12-Final waste Block.txt

|    |        |        |
|----|--------|--------|
| 52 | 826.85 | 656.72 |
| 53 | 830.08 | 660.54 |
| 54 | 832.92 | 664.65 |
| 55 | 834.62 | 669.36 |
| 56 | 836.73 | 673.89 |
| 57 | 838.91 | 678.39 |
| 58 | 842.07 | 682.26 |
| 59 | 844.96 | 686.34 |
| 60 | 847.38 | 690.72 |
| 61 | 850.29 | 694.79 |
| 62 | 853.59 | 698.54 |
| 63 | 855.23 | 703.26 |
| 64 | 858.77 | 706.80 |
| 65 | 859.28 | 711.77 |
| 66 | 862.31 | 715.75 |
| 67 | 864.05 | 720.44 |
| 68 | 866.09 | 725.00 |
| 69 | 868.01 | 727.09 |

\*\*\* 1.937 \*\*\*

Failure Surface Specified By 68 Coordinate Points

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 139.08         | 552.27         |
| 2            | 142.96         | 549.38         |
| 3            | 146.62         | 545.97         |
| 4            | 150.73         | 543.12         |
| 5            | 155.65         | 542.24         |
| 6            | 160.42         | 540.74         |
| 7            | 164.46         | 537.79         |
| 8            | 168.76         | 535.25         |
| 9            | 172.56         | 531.99         |
| 10           | 177.51         | 531.30         |
| 11           | 182.28         | 529.79         |
| 12           | 186.41         | 526.98         |
| 13           | 190.32         | 523.86         |
| 14           | 194.17         | 520.66         |
| 15           | 198.94         | 519.19         |
| 16           | 202.48         | 515.66         |
| 17           | 206.33         | 512.46         |
| 18           | 217.68         | 513.80         |
| 19           | 761.41         | 527.58         |
| 20           | 764.83         | 531.22         |
| 21           | 768.20         | 534.92         |
| 22           | 771.72         | 538.47         |
| 23           | 774.91         | 542.32         |
| 24           | 776.88         | 546.91         |
| 25           | 780.41         | 550.45         |
| 26           | 783.00         | 554.73         |
| 27           | 786.26         | 558.52         |
| 28           | 788.82         | 562.82         |
| 29           | 791.26         | 567.18         |
| 30           | 794.56         | 570.94         |
| 31           | 796.90         | 575.36         |
| 32           | 797.78         | 580.28         |

Page 14

12-Final waste Block.txt

|    |        |        |
|----|--------|--------|
| 33 | 799.12 | 585.10 |
| 34 | 802.03 | 589.16 |
| 35 | 803.44 | 593.96 |
| 36 | 806.90 | 597.57 |
| 37 | 808.01 | 602.44 |
| 38 | 811.50 | 606.02 |
| 39 | 811.79 | 611.01 |
| 40 | 815.33 | 614.55 |
| 41 | 818.82 | 618.12 |
| 42 | 821.39 | 622.41 |
| 43 | 824.88 | 625.99 |
| 44 | 828.41 | 629.53 |
| 45 | 831.26 | 633.64 |
| 46 | 834.78 | 637.19 |
| 47 | 834.89 | 642.19 |
| 48 | 835.96 | 647.07 |
| 49 | 838.77 | 651.21 |
| 50 | 841.94 | 655.08 |
| 51 | 844.95 | 659.07 |
| 52 | 848.30 | 662.78 |
| 53 | 850.53 | 667.26 |
| 54 | 853.15 | 671.52 |
| 55 | 856.36 | 675.35 |
| 56 | 856.68 | 680.34 |
| 57 | 857.84 | 685.21 |
| 58 | 859.99 | 689.72 |
| 59 | 863.40 | 693.38 |
| 60 | 865.53 | 697.90 |
| 61 | 868.85 | 701.64 |
| 62 | 871.12 | 706.09 |
| 63 | 873.23 | 710.62 |
| 64 | 875.68 | 714.99 |
| 65 | 878.13 | 719.35 |
| 66 | 881.27 | 723.23 |
| 67 | 884.75 | 726.83 |
| 68 | 887.28 | 729.45 |

\*\*\* 1.940 \*\*\*

1

Failure Surface Specified By 68 Coordinate Points

| Point No. | X-Surf (ft) | Y-Surf (ft) |
|-----------|-------------|-------------|
| 1         | 140.29      | 552.57      |
| 2         | 143.47      | 549.40      |
| 3         | 147.86      | 547.00      |
| 4         | 151.67      | 543.76      |
| 5         | 155.25      | 540.27      |
| 6         | 159.05      | 537.02      |
| 7         | 163.89      | 535.78      |
| 8         | 168.36      | 533.53      |
| 9         | 172.10      | 530.22      |
| 10        | 177.05      | 529.50      |
| 11        | 181.63      | 527.50      |
| 12        | 185.22      | 524.03      |
| 13        | 189.29      | 521.12      |

Page 15

12-Final waste block.txt

|    |        |        |
|----|--------|--------|
| 14 | 194.09 | 519.70 |
| 15 | 197.63 | 516.18 |
| 16 | 202.59 | 515.54 |
| 17 | 218.56 | 510.52 |
| 18 | 763.58 | 524.46 |
| 19 | 767.06 | 528.05 |
| 20 | 768.01 | 532.95 |
| 21 | 771.53 | 536.50 |
| 22 | 773.35 | 541.16 |
| 23 | 776.78 | 544.80 |
| 24 | 779.22 | 549.16 |
| 25 | 780.42 | 554.02 |
| 26 | 782.82 | 558.40 |
| 27 | 783.79 | 563.31 |
| 28 | 786.75 | 567.34 |
| 29 | 787.38 | 572.30 |
| 30 | 787.50 | 577.30 |
| 31 | 789.52 | 581.87 |
| 32 | 792.66 | 585.76 |
| 33 | 795.93 | 589.54 |
| 34 | 799.31 | 593.23 |
| 35 | 802.74 | 596.86 |
| 36 | 806.00 | 600.65 |
| 37 | 808.60 | 604.92 |
| 38 | 810.18 | 609.67 |
| 39 | 813.10 | 613.73 |
| 40 | 816.52 | 617.37 |
| 41 | 819.18 | 621.60 |
| 42 | 821.38 | 626.10 |
| 43 | 822.73 | 630.91 |
| 44 | 825.68 | 634.95 |
| 45 | 828.96 | 638.72 |
| 46 | 831.79 | 642.84 |
| 47 | 834.43 | 647.09 |
| 48 | 837.86 | 650.73 |
| 49 | 841.35 | 654.31 |
| 50 | 844.88 | 657.85 |
| 51 | 845.90 | 662.74 |
| 52 | 848.55 | 666.98 |
| 53 | 851.85 | 670.74 |
| 54 | 855.26 | 674.39 |
| 55 | 856.78 | 679.16 |
| 56 | 860.30 | 682.70 |
| 57 | 863.82 | 686.26 |
| 58 | 867.20 | 689.94 |
| 59 | 870.74 | 693.48 |
| 60 | 872.80 | 698.03 |
| 61 | 876.34 | 701.57 |
| 62 | 879.86 | 705.11 |
| 63 | 880.42 | 710.08 |
| 64 | 883.73 | 713.82 |
| 65 | 886.70 | 717.85 |
| 66 | 887.01 | 722.84 |
| 67 | 888.52 | 727.61 |
| 68 | 890.61 | 729.85 |

\*\*\* 1.950 \*\*\*

Failure Surface Specified By 67 Coordinate Points  
Page 16

12-Final waste Block.txt

| Point<br>No. | X-Surf<br>(ft) | Y-Surf<br>(ft) |
|--------------|----------------|----------------|
| 1            | 135.82         | 551.45         |
| 2            | 137.62         | 549.92         |
| 3            | 141.17         | 546.41         |
| 4            | 146.13         | 545.76         |
| 5            | 150.06         | 542.67         |
| 6            | 153.89         | 539.45         |
| 7            | 157.44         | 535.93         |
| 8            | 162.43         | 535.65         |
| 9            | 167.43         | 535.46         |
| 10           | 171.00         | 531.96         |
| 11           | 175.82         | 530.63         |
| 12           | 180.22         | 528.26         |
| 13           | 183.78         | 524.75         |
| 14           | 187.34         | 521.23         |
| 15           | 192.01         | 519.45         |
| 16           | 196.27         | 516.84         |
| 17           | 200.99         | 515.18         |
| 18           | 205.77         | 513.72         |
| 19           | 217.15         | 510.62         |
| 20           | 674.97         | 522.92         |
| 21           | 677.63         | 527.15         |
| 22           | 680.99         | 530.85         |
| 23           | 684.36         | 534.55         |
| 24           | 685.17         | 539.48         |
| 25           | 688.70         | 543.02         |
| 26           | 691.27         | 547.31         |
| 27           | 693.72         | 551.67         |
| 28           | 696.39         | 555.90         |
| 29           | 699.21         | 560.02         |
| 30           | 702.13         | 564.08         |
| 31           | 705.64         | 567.64         |
| 32           | 707.45         | 572.30         |
| 33           | 710.66         | 576.14         |
| 34           | 714.16         | 579.71         |
| 35           | 714.57         | 584.70         |
| 36           | 716.77         | 589.18         |
| 37           | 720.30         | 592.73         |
| 38           | 723.45         | 596.61         |
| 39           | 726.26         | 600.74         |
| 40           | 727.43         | 605.60         |
| 41           | 730.41         | 609.62         |
| 42           | 733.74         | 613.35         |
| 43           | 735.29         | 618.10         |
| 44           | 738.71         | 621.76         |
| 45           | 740.87         | 626.27         |
| 46           | 744.38         | 629.83         |
| 47           | 747.91         | 633.37         |
| 48           | 750.13         | 637.85         |
| 49           | 751.25         | 642.72         |
| 50           | 753.68         | 647.09         |
| 51           | 755.57         | 651.72         |
| 52           | 756.90         | 656.54         |
| 53           | 759.87         | 660.57         |
| 54           | 761.18         | 665.39         |
| 55           | 763.59         | 669.77         |
| 56           | 766.71         | 673.68         |
| 57           | 769.95         | 677.49         |
| 58           | 772.99         | 681.46         |

Page 17

|    |        |        |
|----|--------|--------|
| 59 | 776.50 | 685.02 |
| 60 | 778.71 | 689.51 |
| 61 | 780.16 | 694.29 |
| 62 | 783.20 | 698.26 |
| 63 | 786.63 | 701.90 |
| 64 | 789.33 | 706.11 |
| 65 | 789.73 | 711.09 |
| 66 | 792.73 | 715.09 |
| 67 | 793.24 | 715.81 |

12-Final waste Block.txt

|   |         |   |
|---|---------|---|
| F | 1125.74 | - |
|   |         | + |
|   |         | - |
|   |         | - |
|   |         | - |
|   |         | - |
|   |         | - |
| T | 1286.56 | + |



**130 ENVIRONMENTAL PARK  
CALDWELL COUNTY, TEXAS  
TCEQ PERMIT APPLICATION NO. MSW 2383**

**TYPE I PERMIT APPLICATION**

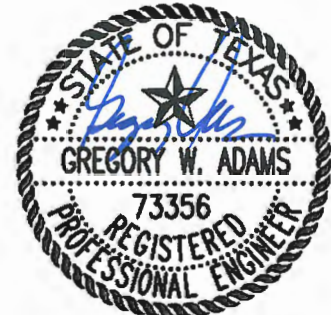
**PART III – FACILITY INVESTIGATION AND DESIGN**

**ATTACHMENT D6  
LEACHATE AND CONTAMINATED WATER MANAGEMENT PLAN**

Prepared for

**130 ENVIRONMENTAL PARK, LLC**

Technically Complete October 28, 2014



Biggs & Mathews Environmental, Inc.  
Firm Registration No. F-256

11/6/2014

Prepared by

**BIGGS & MATHEWS ENVIRONMENTAL**

1700 Robert Road, Suite 100 ♦ Mansfield, Texas 76063 ♦ 817-563-1144

TEXAS BOARD OF PROFESSIONAL ENGINEERS  
FIRM REGISTRATION NO. F-256

TEXAS BOARD OF PROFESSIONAL GEOSCIENTISTS  
FIRM REGISTRATION NO. 50222

And

**BIGGS & MATHEWS, INC.**

2500 Brook Avenue ♦ Wichita Falls, Texas 76301 ♦ 940-766-0156

TEXAS BOARD OF PROFESSIONAL ENGINEERS  
FIRM REGISTRATION NO. F-834

# CONTENTS

30 TAC §§330.65(c), 330.177, 330.207, 330.227, 330.331(a)(2), 330.333, 330.337(d)

|          |                                                               |             |
|----------|---------------------------------------------------------------|-------------|
| <b>1</b> | <b>INTRODUCTION .....</b>                                     | <b>D6-1</b> |
| 1.1      | Purpose .....                                                 | D6-1        |
| 1.2      | Definitions .....                                             | D6-1        |
| <b>2</b> | <b>LEACHATE MANAGEMENT .....</b>                              | <b>D6-2</b> |
| 2.1      | Leachate Generation.....                                      | D6-2        |
| 2.2      | Leachate Collection .....                                     | D6-2        |
| 2.2.1    | Leachate Collection System Design .....                       | D6-2        |
| 2.2.2    | Leachate Collection Layer .....                               | D6-3        |
| 2.2.3    | Geotextile .....                                              | D6-3        |
| 2.2.4    | Leachate Aggregate .....                                      | D6-4        |
| 2.2.5    | Leachate Collection Trenches and Piping.....                  | D6-4        |
| 2.2.6    | Leachate Sumps .....                                          | D6-5        |
| 2.3      | Leachate Storage.....                                         | D6-5        |
| 2.4      | Leachate Disposal .....                                       | D6-5        |
| <b>3</b> | <b>CONTAMINATED WATER MANAGEMENT .....</b>                    | <b>D6-6</b> |
| 3.1      | Contaminated Water Generation.....                            | D6-6        |
| 3.2      | Contaminated Water Collection, Containment, and Storage ..... | D6-6        |
| 3.3      | Contaminated Water Disposal.....                              | D6-6        |
| <b>4</b> | <b>GAS CONDENSATE MANAGEMENT .....</b>                        | <b>D6-7</b> |
| 4.1      | Gas Condensate Generation.....                                | D6-7        |
| 4.2      | Gas Condensate Collection, Storage, and Disposal.....         | D6-7        |

## APPENDIX D6-A

Leachate Collection System Design Calculations

## APPENDIX D6-B

Leachate Generation Model

## APPENDIX D6-C

Containment/Diversion Berm Design

## APPENDIX D6-D

Secondary Containment Volume Calculations



Biggs & Mathews Environmental, Inc.  
Firm Registration No. F-256

11/6/2014

# **1 INTRODUCTION**

*30 TAC §§330.65(c), 330.177, 330.207, 330.227, 330.331(a)(2), 330.333, 330.337(d)*

---

## **1.1 Purpose**

This Leachate and Contaminated Water Management Plan has been prepared for 130 Environmental Park consistent with 30 TAC §§330.65(c), 330.177, 330.207, 330.227, 330.331(a)(2), 330.333, and 330.337(d). This plan provides the details of the collection, storage, treatment, and disposal of contaminated water, leachate, and gas condensate from the leachate collection system, gas monitoring and collection systems, and site operations.

## **1.2 Definitions**

Leachate is defined in §330.3(78) as a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

Contaminated water is defined in §330.3(36) as leachate, gas condensate, or water that has come into contact with waste.

Gas condensate is defined in §330.3(57) as the liquid generated as a result of any gas recovery process at a municipal solid waste facility.

## **2 LEACHATE MANAGEMENT**

*30 TAC §§330.227, 330.331(a)(2), 330.333, 330.337(d)*

### **2.1 Leachate Generation**

The capacity of solid waste to absorb moisture is known as field capacity. Leachate is generated as water infiltrates and percolates through layers of solid waste and the field capacity is exceeded. The quantity of leachate that is generated depends upon rainfall, site topography, type of cover, operating procedures, and waste characteristics.

The Hydrologic Evaluation of Landfill Performance (HELP) model was used to predict the quantity of leachate that will be generated at 130 Environmental Park. The HELP model is a water balance model that uses climate, soil, and landfill design data to perform a solution technique that accounts for the effects of surface storage, runoff, infiltration, percolation, soil moisture storage, evapotranspiration, and lateral drainage. Leachate generation was evaluated for proposed landfill conditions. An explanation and results of the HELP model are included in Appendix D6-B – Leachate Generation Model.

### **2.2 Leachate Collection**

#### **2.2.1 Leachate Collection System Design**

The leachate collection system (LCS) will consist of the following:

- A geocomposite leachate collection layer
- The leachate collection trenches and piping
- Leachate collection pipe cleanout risers
- The leachate collection sumps and pumps

Each cell will have the configuration described below:

- Leachate collection pipes will have a maximum spacing of 200 feet.
- Leachate collection trenches will have a minimum slope of 1.5 percent (pre-settlement), and 1.4 percent (post-settlement).
- Cross-slopes to the leachate collection trench will be a minimum of 2.0 percent (pre-settlement and post-settlement).

The LCS plan and details are provided in Attachment D3 – Construction Design Details.

The LCS will be designed in accordance with 30 TAC §§330.331(a)(2) and 330.333(3)(A-G) to:

- Maintain less than 30 cm (12 inches) depth of leachate over the liner (see Appendix D6-B).
- Be constructed of materials that are chemically resistant to the leachate expected to be generated. The components of the leachate collection system have been designed with materials that are inert to leachates typically produced by municipal solid waste facilities. Drainage nets and pipes will be high density polyethylene (HDPE). Aggregates will be resistant to carbonate loss. Geotextiles have been designed with factors of safety for biological and chemical clogging (see Appendix D6-A – Leachate Collection System Design Calculations).
- Be constructed of materials that have sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the landfill (see Appendix D6-A).
- Function through the scheduled closure and postclosure care period of the landfill considering:
  - Estimated rate of leachate removal (page D6-A-4)
  - Capacity of sumps (page D6-A-6)
  - Pipe material and strength (pages D6-A-9 through D6-A-12)
  - Pipe network spacing and grading (Appendix D3, Drawing D3.3)
  - Collection sump materials and strength (pages D6-A-13 through D6-A-16)
  - Drainage media specifications and performance (pages D6-A-7 through D6-A-8)
  - Demonstration that pipes and perforations will be resistant to clogging and can be cleaned (Sections 2.2.3 through 2.2.5)

## **2.2.2 Leachate Collection Layer**

The leachate collection layer consists of double-sided geocomposite installed above the geomembrane. The double-sided geocomposite consists of an HDPE drainage net with a geotextile bonded to both sides. Leachate collection layer design calculations are presented in Appendix D6-A. The geocomposite properties are provided in Attachment D7 – Liner Quality Control Plan.

## **2.2.3 Geotextile**

The drainage aggregate will be covered by a geotextile filter to prevent migration of the protective cover soil into the LCS. The geotextile will be inert to commonly encountered

chemicals, hydrocarbons, and mildew, and will be rot resistant. Geotextile design calculations are presented in Appendix D6-A. The geotextile properties are provided in Attachment D7 – Liner Quality Control Plan.

#### **2.2.4 Leachate Aggregate**

Leachate aggregate will be placed in the collection trenches and in the sumps. The aggregate shall consist of manufactured or natural materials having the properties listed in Attachment D7 – Liner Quality Control Plan.

In addition, aggregates must meet the following criteria:

For circular pipe perforations, the ratio:

$$\frac{\text{85 Percent Size of Aggregate}}{\text{Perforation Hole Diameter}} > 1.7$$

For slotted pipe perforations, the ratio:

$$\frac{\text{85 Percent of Aggregate Material}}{\text{Perforation Slot Width}} > 2.0$$

Chimney drains will be installed above the leachate collection pipes and will extend through the protective cover. The chimney drains will be constructed from the same drainage aggregate described above. Details illustrating the construction of the chimney drains are included in Attachment D3 – Construction Design Details.

#### **2.2.5 Leachate Collection Trenches and Piping**

The leachate collection layer will slope toward the leachate collection trenches. The leachate piping includes perforated collection trench pipes and the solid sidewall riser pipes. Sidewall risers will extend to the top of the perimeter berm to provide access for cleaning the leachate collection pipes and sump risers. The leachate piping shall meet the criteria listed in Attachment D7 – Liner Quality Control Plan.

Each collection trench will contain an 8-inch-diameter perforated leachate collection pipe surrounded by drainage aggregate. The leachate collection trench will convey the leachate to sumps located along the toe of the sideslopes. The leachate collection pipes have been designed for the critical loading condition expected at the site. Both the overburden load (due to the weight of the waste and soil layers over the pipe) and the construction load (due to the weight of equipment and operations layers) were considered. Leachate collection system details are provided in Attachment D3 – Construction Design Details. Leachate collection pipe design calculations are provided in Appendix D6-A.

### **2.2.6 Leachate Sumps**

The leachate sumps will consist of a 3-foot-deep rectangular area. Details of the leachate sumps are provided in Attachment D3 – Construction Design Details. Each sump will be backfilled with leachate drainage aggregate. Sump capacity and strength calculations are presented in Appendix D6-A. Leachate will be transferred from the sumps by submersible pumps, as discussed in Section 2.4. The submersible pumps will be equipped with internal pressure transducers to measure the depth of the leachate in the sumps. A leachate level readout will be provided in the pump control panel. The pumps may be operated manually or by an automatic start switch. In either case, the pumps will be operated to maintain the leachate level at or below the top of the sump (36 inches above the bottom of the sump). The allowable maximum leachate level is 12 inches on the liner (48 inches above the bottom of the sump). Leachate sump material requirements are provided in Attachment D7 – Liner Quality Control Plan.

### **2.3 Leachate Storage**

Primary leachate storage will be provided by the leachate sumps, which will be located within each landfill cell. Leachate will be pumped from the sumps directly to transport trucks through a dual contained leachate forcemain to the leachate storage facility. The leachate storage facility will be located near the maintenance shop, as shown in Attachment D1 – Site Layout Plans, Drawing D1.2. The storage facility will consist of up to two 250,000-gallon storage tanks which will be installed individually as needed based on leachate generation. The calculations in Appendix D6-D – Secondary Containment Volume Calculations demonstrate that the secondary containment structure provides containment, with 12 inches of freeboard, for one leachate storage tank and precipitation from the 100-year, 24-hour storm event or 110 percent of the capacity of one tank.

### **2.4 Leachate Disposal**

Off-site disposal will be at a publicly owned treatment works (POTW) or other TCEQ approved treatment/disposal facility. Leachate sampling and analysis will be in accordance with the treatment/disposal facility's requirements. The results of any monitoring required by such facility will be placed in the site operating record.

## **3 CONTAMINATED WATER MANAGEMENT**

---

30 TAC §330.207

### **3.1 Contaminated Water Generation**

Surface water and groundwater that comes into contact with waste, leachate, or gas condensate is considered to be contaminated water. Best management practices will be used to minimize contaminated water generation. Temporary diversion berms will be constructed around areas of exposed waste to minimize the amount of surface water that comes into contact with waste. Design calculations and typical details for temporary diversion berms are presented in Appendix D6-C – Containment/Diversion Berm Design. Daily cover and intermediate cover will be placed over filled areas to minimize the area of exposed waste. Procedures for verifying the adequacy of daily and intermediate cover placement are provided in Part IV – Site Operating Plan. If waste is exposed in areas where daily or intermediate cover has been previously placed, runoff from these areas will be considered to be contaminated water. Leachate will be collected and segregated from contaminated water and surface water by the LCS as described in Section 2. Secondary containment will be provided around the leachate storage tank facility to contain leachate in case of a spill or leak. Gas condensate will be collected and segregated from surface water as described in Section 4.

### **3.2 Contaminated Water Collection, Containment, and Storage**

Temporary containment berms will be constructed around the active face to collect and contain surface water that has come into contact with waste. In addition to the planned containment berms around the active face, temporary containment berms will be constructed wherever needed to collect contaminated surface water. The design calculations and typical details for containment berms for a 25-year, 24-hour storm event are provided in Appendix D6-C. Primary contaminated surface water storage will be provided by the containment berms, which will provide storage for the 25-year, 24-hour storm event. Containment berms will be inspected and maintained until the contaminated water is pumped into a transport truck. Contaminated groundwater will be collected and stored in drums until transported for offsite disposal.

### **3.3 Contaminated Water Disposal**

Contaminated surface water and groundwater will not be allowed to discharge into waters of the United States. Contaminated water will be transported to a POTW for treatment and disposal in accordance with §330.207(f). Sampling and analysis will meet the individual POTW's requirements. The results of any monitoring required by the disposal facility will be placed in the site operating record.



## **4 GAS CONDENSATE MANAGEMENT**

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*30 TAC §330.207*

### **4.1 Gas Condensate Generation**

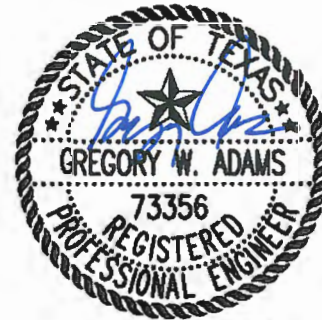
Gas condensate is the liquid generated during the gas recovery process at a municipal solid waste facility.

### **4.2 Gas Condensate Collection, Storage, and Disposal**

Gas condensate will be collected in the gas recovery system as described in Attachment G – Landfill Gas Management Plan. The gas condensate will be hauled from the gas recovery system to the on-site leachate storage tank facility. Gas condensate will be recirculated with leachate or disposed of per Section 2.4.

**130 ENVIRONMENTAL PARK**

**APPENDIX D6-A**  
**LEACHATE COLLECTION SYSTEM**  
**DESIGN CALCULATIONS**



Biggs & Mathews Environmental, Inc.  
Firm Registration No. F-256

11/6/2014

Includes pages D6-A-1 through D6-A-17

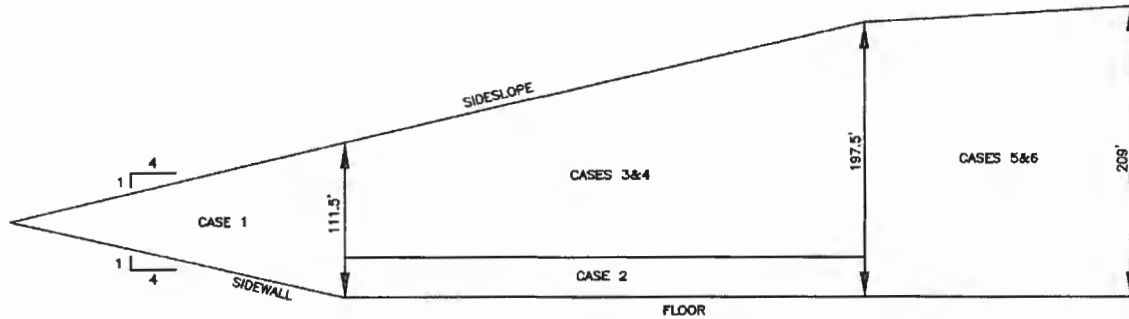
Technically Complete October 28, 2014

# 130 Environmental Park Geocomposite Design

**Required:** Determine the minimum hydraulic conductivity for the sidewall and floor geocomposite.

**References:** 1) *Designing with Geosynthetics*, Fourth Edition; Robert M. Koerner.

**Solution:** 1) Develop cases to represent the disposal area.



| Case                | Waste Depth<br>ft | Cover Type                      |
|---------------------|-------------------|---------------------------------|
| <b>Sidewall LCS</b> |                   |                                 |
| 1                   | 56                | daily cover                     |
| <b>Floor LCS</b>    |                   |                                 |
| 2                   | 20                | active face - no cover          |
| 3                   | 151               | intermediate cover - side slope |
| 4                   | 151               | final cover - side slope        |
| 5                   | 195               | intermediate cover - top slope  |
| 6                   | 195               | final cover - top slope         |

## 130 Environmental Park Geocomposite Design

- 2) Adjust the thickness of the geonet for the overburden of each case. Typical compressibility of geonet is 50% @ 20,000 psf. Assume linear compression between 0 and 20,000 psf.

Sidewall geonet 0.275 inch

Floor geonet 0.275 inch

| Case | Layer                                                | Depth<br>ft | Unit Wt<br>pcf | Load<br>psf | t<br>inch |
|------|------------------------------------------------------|-------------|----------------|-------------|-----------|
| 1    | protective cover<br>waste/daily cover                | 2.0         | 109.0          | 218.0       | 0.250     |
|      |                                                      | 56.0        | 60.0           | 3,360.0     |           |
|      |                                                      | 58.0        |                | 3,578.0     |           |
| 2    | protective cover<br>waste/daily cover                | 2.0         | 109.0          | 218.0       | 0.265     |
|      |                                                      | 20.0        | 60.0           | 1,200.0     |           |
|      |                                                      | 22.0        |                | 1,418.0     |           |
| 3    | protective cover<br>waste/daily cover                | 2.0         | 109.0          | 218.0       | 0.211     |
|      |                                                      | 151.0       | 60.0           | 9,060.0     |           |
|      |                                                      | 153.0       |                | 9,278.0     |           |
| 4    | protective cover<br>waste/daily cover<br>final cover | 2.0         | 109.0          | 218.0       | 0.209     |
|      |                                                      | 151.0       | 60.0           | 9,060.0     |           |
|      |                                                      | 3.5         | 109.0          | 381.5       |           |
|      |                                                      | 156.5       |                | 9,659.5     |           |
| 5    | protective cover<br>waste/daily cover                | 2.0         | 109.0          | 218.0       | 0.193     |
|      |                                                      | 195.0       | 60.0           | 11,700.0    |           |
|      |                                                      | 197.0       |                | 11,918.0    |           |
| 6    | protective cover<br>waste/daily cover<br>final cover | 2.0         | 109.0          | 218.0       | 0.190     |
|      |                                                      | 195.0       | 60.0           | 11,700.0    |           |
|      |                                                      | 3.5         | 109.0          | 381.5       |           |
|      |                                                      | 200.5       |                | 12,299.5    |           |

- 3) Specify the ultimate transmissivity for the geocomposite.

| Transmissivity, m <sup>2</sup> /sec |           |
|-------------------------------------|-----------|
| Sidewall LCS                        | Floor LCS |
| 7.00E-04                            | 7.00E-04  |

- 4) Calculate the allowable transmissivity of the geocomposite from Reference 1, Equation 4.5 and Table 4.2.

$$T_{all} = T_{ult} (1 / RF_{SCB} \times RF_{CR} \times RF_{IN} \times RF_{CC} \times RF_{BC})$$

$RF_{CR}$  = creep reduction factor

$RF_{IN}$  = intrusion reduction factor

$RF_{CC}$  = chemical clogging reduction factor

$RF_{BC}$  = biological clogging reduction factor

| Case         | $RF_{CR}$ | $RF_{IN}$ | $RF_{CC}$ | $RF_{BC}$ | $T_{all}$<br>m <sup>2</sup> /sec |
|--------------|-----------|-----------|-----------|-----------|----------------------------------|
| Sidewall LCS |           |           |           |           |                                  |
| 1            | 1.4       | 1.5       | 1.5       | 1.5       | 1.48E-04                         |
| Floor LCS    |           |           |           |           |                                  |
| 2            | 1.0       | 1.0       | 1.0       | 1.0       | 7.00E-04                         |
| 3            | 1.4       | 1.5       | 1.5       | 1.5       | 1.48E-04                         |
| 4            | 2.0       | 2.0       | 2.0       | 2.0       | 4.38E-05                         |
| 5            | 1.7       | 1.7       | 1.7       | 1.7       | 8.38E-05                         |
| 6            | 2.0       | 2.0       | 2.0       | 2.0       | 4.38E-05                         |

## 130 Environmental Park Geocomposite Design

- 5) Calculate the allowable hydraulic conductivity of the geocomposite from Reference 1, Equation 4.2.

$$k_{all} = T_{all} / t$$

| Case                | t<br>inch | $T_{all}$<br>m <sup>2</sup> /sec | $k_{all}$<br>cm/sec |
|---------------------|-----------|----------------------------------|---------------------|
| <b>Sidewall LCS</b> |           |                                  |                     |
| 1                   | 0.250     | 1.48E-04                         | 2.33                |
| <b>Floor LCS</b>    |           |                                  |                     |
| 2                   | 0.265     | 7.00E-04                         | 10.39               |
| 3                   | 0.211     | 1.48E-04                         | 2.76                |
| 4                   | 0.209     | 4.38E-05                         | 0.83                |
| 5                   | 0.193     | 8.38E-05                         | 1.71                |
| 6                   | 0.190     | 4.38E-05                         | 0.90                |

Minimum geonet thickness = 0.275 in  
 Minimum geocomposite transmissivity = 7.00E-04 m<sup>2</sup>/sec

## 130 Environmental Park Leachate Collection System Flow Rates

- Required:** Determine the design flowrates for the following components of the leachate system.  
 1) Chimney, Collection Pipe, and Sump  
 2) Geotextile
- References:** 1) Appendix D6-B HELP Model Analyses.
- Approach:** 1) The leachate collection system will conservatively be sized for the largest cell, Cell 11.  
 2) The maximum flowrate for the geotextile, collection pipe, and sump will occur in Cell 11 due to its largest contributing area. The flowrates are calculated from the areas within Cell 11 that correspond to each case.
- Solution:** 1) Cell 11 - Geotextile, Collection Pipe, and Sump Flow Rate
- |                                                     |           |
|-----------------------------------------------------|-----------|
| Case 1, Daily cover over 54 feet of waste =         | 8.2 acres |
| Case 2, Active face with 18 feet of waste =         | 1.0 acres |
| Case 3, Intermediate cover over 149 feet of waste = | 4.9 acres |
| Case 5, Intermediate cover over 193 feet of waste = | 3.2 acres |

Calculate the leachate generation rate for the critical configuration.

| CONDITION | AREA<br>acres | AVERAGE<br>RATE<br>cf/yr/ac | AVERAGE<br>cfs | PEAK<br>RATE<br>cf/day/ac | PEAK<br>cfs |
|-----------|---------------|-----------------------------|----------------|---------------------------|-------------|
| Case 1    | 8.2           | 24,073                      | 0.006          | 159                       | 0.015       |
| Case 2    | 1.0           | 15,752                      | 0.000          | 130                       | 0.002       |
| Case 3    | 4.9           | 24,068                      | 0.004          | 127                       | 0.007       |
| Case 5    | 3.2           | 24,069                      | 0.002          | 127                       | 0.005       |
| TOTAL     | 17.3          |                             | 0.013          |                           | 0.028       |

## 130 Environmental Park Leachate Collection System Design

**Required:** Size the following elements of the leachate collection system:

- 1) Leachate Chimney
- 2) Leachate Collection Pipe
- 3) Leachate Sump

**Assumptions:**

- 1) The leachate chimney will extend the length of the collection trench.
- 2) Minimum leachate aggregate permeability shall be 0.01 cm/sec.
- 3) The leachate chimney should be sized to convey the peak flow rate to the sumps.
- 4) The collection pipe should be sized to convey the peak flow rate.
- 5) The leachate sump should be sized to store the average flow rate for 12 hours.

**Solution:**

### 1) *Leachate Chimney*

Use Darcy's Equation to determine the width of the leachate chimney.

$$Q = KiA$$

where:  $Q$  = design flowrate = 0.028 cfs  
 $K$  = hydraulic conductivity of aggregate = 0.01 cm/sec  
 $i$  = hydraulic gradient =  $Dh/L$   
for vertical flow  $Dh = 1$   
 $L$  = length of trench = 1,300 ft  
 $A$  = cross section area =  $L \times W$   
= 3.28E-04 fps

**Substitute and solve for  $W$  = 0.1 ft**

### 2) *Leachate Collection Pipe*

Use Manning's Equation to size the leachate collection pipe.

$$Q = (1.486/n)AR^{2/3}S^{1/2}$$

where:  $Q$  = design flowrate = 0.028 cfs  
 $n$  = Manning's number = 0.009  
 $A$  = cross section area of pipe =  $\pi \text{dia}^2/4$  sf  
 $R$  = hydraulic radius of pipe =  $\text{dia}/4$  ft  
 $S$  = slope of pipe = 0.01 ft/ft

**Substitute and solve for diameter = 0.14 ft**  
**= 1.7 in**

## 130 Environmental Park Leachate Collection System Design

Determine the inflow capacity of the perforated leachate collection pipe using the following equation:

$$Q = Ca(2g\Delta h)^2$$

|        |                                                                       |                          |
|--------|-----------------------------------------------------------------------|--------------------------|
| where: | C = coefficient of discharge =                                        | 0.61                     |
|        | g = acceleration of gravity =                                         | 32.2 ft/sec <sup>2</sup> |
|        | $\Delta h$ = maximum head on leachate pipe (ft) =                     | 1.0 ft                   |
|        | p = perforations per linear foot of pipe =                            | 5 /ft                    |
|        | d = diameter of perforations =                                        | 3/8 in                   |
|        | a = orifice area ( $p \times \pi (d/12)^2/4$ ) =                      | 0.004 sf/ft              |
|        | q = inflow capacity per linear foot of pipe =                         | 0.019 cfs/ft             |
|        | L = linear feet of collection pipe =                                  | 1,300 ft                 |
|        | Q = design flowrate =                                                 | 0.03 cfs                 |
|        | <b>Inflow capacity provided by perforated leachate pipe = q x L =</b> | <b>24.4 cfs</b>          |

### 3) Leachate Collection Sump

Size a square 3-foot deep sump with 3:1 side slopes from the following equation.

$$V = 1/3(L_t^2 h_t) - 1/3(L_b^2 h_b)$$

|        |                                                      |
|--------|------------------------------------------------------|
|        | V = required sump volume (cf)                        |
| where: | $L_t$ = length of top side (ft)                      |
|        | $L_b$ = length of bottom side (ft)                   |
|        | $h_t$ = height of 3:1 pyramid with length $L_t$ (ft) |
|        | $h_b$ = height of 3:1 pyramid with length $L_b$ (ft) |

|                                    |           |
|------------------------------------|-----------|
| Q = average flowrate to the sump = | 0.013 cfs |
| P = porosity of aggregate =        | 0.350     |
| V = Q x 12 hr / P =                | 1,593 cf  |

Substitute and solve for  $L_t$  = 31.4 ft



## 130 Environmental Park Geotextile Design

**Required:** Determine the minimum properties for:  
 1) Geotextile around leachate trench aggregate.  
 2) Geotextile component of geocomposite.

**References:** 1) *Designing with Geosynthetics*, Fourth Edition; Robert M. Koerner.

**Assumptions:** 1) The protective cover will have at least 50% finer than the No. 200 sieve.  
 2) The leachate aggregate will be subangular, open graded stone.

**Solution:** 1) **Leachate trench geotextile**  
 Calculate the allowable permittivity from the equation:

$$\Psi_{all} = q / \Delta h A$$

where:  $\Psi_{all}$  = allowable permittivity  
 $q$  = peak inflow rate for leachate trench geotextile = 0.028 cfs  
 $\Delta h$  = maximum allowable head = 1.0 ft  
 $L$  = trench length = 440.0 ft  
 $W$  = trench width = 5.0 ft  
 $A$  = inflow area = 2200.0 sf

Substitute and solve for allowable permittivity = 1.3E-05 sec<sup>-1</sup>

1a) Calculate the ultimate permittivity from Reference 1, Equation 2.25a.

$$\Psi_{all} = \Psi_{ult} (1 / RF_{SCB} \times RF_{CR} \times RF_{IN} \times RF_{CC} \times RF_{BC})$$

where:  $RF_{SCB}$  = soil clogging/binding reduction factor = 3.0 (Ref. 1, Table 2.12)  
 $RF_{CR}$  = creep reduction factor = 1.5 (Ref. 1, Table 2.12)  
 $RF_{IN}$  = intrusion reduction factor = 1.2 (Ref. 1, Table 2.12)  
 $RF_{CC}$  = chemical clogging reduction factor = 1.5 (Ref. 1, Table 2.12)  
 $RF_{BC}$  = biological clogging reduction factor = 3.0 (Ref. 1, Table 2.12)

Substitute and solve for ultimate permittivity = 3.1E-04 sec<sup>-1</sup>

Determine the appropriate soil retention criteria from Reference 1, Figure 2.4.

The AOS must be less than 0.22 mm for fine-grained, non-dispersive soils.

**Leachate trench geotextile:** calculated minimum permittivity = 3.1E-04 sec<sup>-1</sup>  
 required permittivity = 0.10 sec<sup>-1</sup>  
 maximum AOS = 0.22 mm

## 130 Environmental Park Geotextile Design

### 2) **Geocomposite geotextile**

Calculate the allowable permittivity from the equation:

$$\Psi_{all} = q / \Delta h A$$

where:  $\Psi_{all}$  = allowable permittivity

$q$  = peak inflow rate for critical condition = 0.028 cfs

$\Delta h$  = maximum allowable head = 1.0 ft

$A$  = area = 422,532 sf

Substitute and solve for allowable permittivity = 6.728E-08 sec<sup>-1</sup>

Calculate the ultimate permittivity from Reference 1, Equation 2.25a.

$$\Psi_{all} = \Psi_{ult} (1 / RF_{SCB} \times RF_{CR} \times RF_{IN} \times RF_{CC} \times RF_{BC})$$

where:  $RF_{SCB}$  = soil clogging/binding reduction factor = 3.0 (Ref. 1, Table 2.12)

$RF_{CR}$  = creep reduction factor = 1.5 (Ref. 1, Table 2.12)

$RF_{IN}$  = intrusion reduction factor = 1.2 (Ref. 1, Table 2.12)

$RF_{CC}$  = chemical clogging reduction factor = 1.5 (Ref. 1, Table 2.12)

$RF_{BC}$  = biological clogging reduction factor = 3.0 (Ref. 1, Table 2.12)

Substitute and solve for ultimate permittivity = 1.6E-06 sec<sup>-1</sup>

Determine the appropriate soil retention criteria from Reference 1, Figure 2.4.

The AOS must be less than 0.22 mm for fine-grained, non-dispersive soils.

|                                 |                                |                                 |
|---------------------------------|--------------------------------|---------------------------------|
| <b>Geocomposite geotextile:</b> | <b>minimum permittivity =</b>  | <b>1.6E-06 sec<sup>-1</sup></b> |
|                                 | <b>required permittivity =</b> | <b>0.10 sec<sup>-1</sup></b>    |
|                                 | <b>maximum AOS =</b>           | <b>0.22 mm</b>                  |

## 130 Environmental Park Leachate Collection Pipe Design

**Required:** Analyze the structural stability of the leachate collection and header pipes.

**References:** 1) *Essentials of Soil Mechanics and Foundations*, Second Edition; McCarthy, David F.; Reston Publishing Company, Inc.  
2) *Handbook of PE Pipe, Second Edition*; Plastics Pipe Institute (PPI).

**Assumptions:** 1) The leachate collection pipe size of 8-inch (HDPE material) will be evaluated in this calculation.  
2) Heaviest construction load will be a CAT 836H compactor.  
3) Maximum overburden load will occur after final closure.

**Solution:** **Construction Load**

Critical construction load occurs from drum load of CAT 836H compactor driving over leachate collection trench.

$$F = W/n \quad \text{and} \quad p = F/\pi r^2$$

where:  $F$  = force per drum (lbs)  
 $W$  = equipment weight = 122,600 lbs  
 $n$  = number of drums = 4  
 $p$  = contact pressure = 46 psi  
 $r$  = radius of contact (in)

Substitute and solve for  $r$  = 14.6 inches

Determine the construction load from:  $P_c = P_o + 1.5P_L$

where:  $P_c$  = total construction load (psi)  
 $P_o$  = overburden load (psi)  
 $P_L$  = live load (psi)

Determine the overburden load from:  $P_o = z\gamma$

where:  $z$  = backfill depth = 24.0 in  
 $\gamma$  = backfill unit weight = 125.0 pcf

Substitute and solve for  $P_o$  = 1.7 psi

Determine the live load from Boussinesq equation for uniform circular loads.

$$P_L = p(1 - (1 + (r/z)^2)^{-3/2})$$

Substitute and solve for  $P_L$  = 17.3 psi

Substitute and solve for  $P_c$  = 27.6 psi

|                                     |                 |
|-------------------------------------|-----------------|
| <b>Critical construction load =</b> | <b>27.6 psi</b> |
|-------------------------------------|-----------------|

## 130 Environmental Park Leachate Collection Pipe Design

### Overburden Load

Critical overburden load occurs at the center of landfill after final cover has been constructed. Since the pipe is a flexible positive projecting conduit, use Martson's theory to estimate the overburden load.

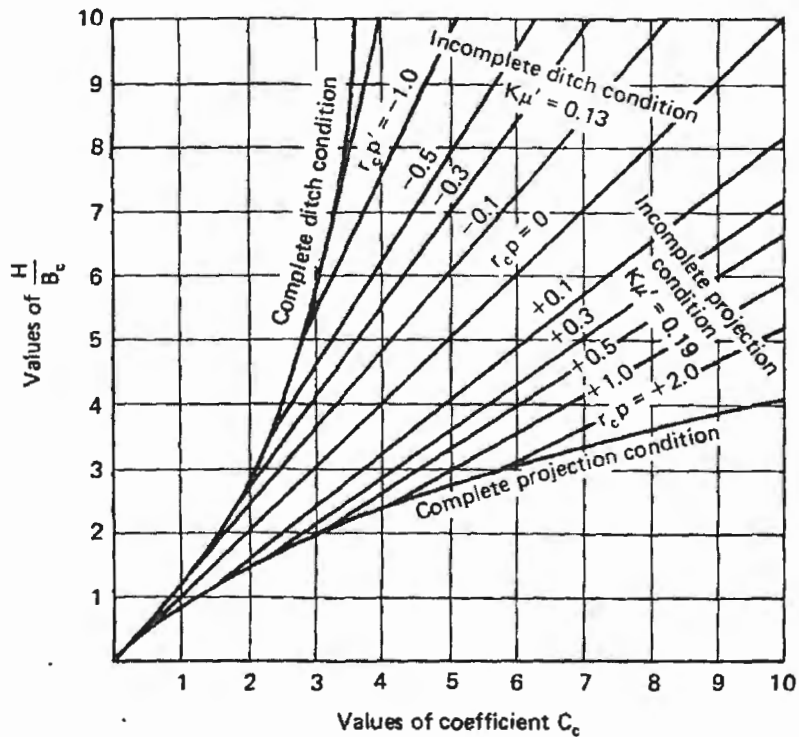
$$W_c = \gamma B_c^2 C_c \quad (\text{Ref. 1, Equation 17-4a})$$

where:  $W_c$  = overburden load per ft of pipe (plf)  
 $\gamma$  = unit weight of overburden (pcf)

| Layer            | Thickness (ft) | $\gamma$ (pcf) | Load (psf) |
|------------------|----------------|----------------|------------|
| cover            | 3.5            | 109            | 381.5      |
| solid waste      | 209            | 60             | 12,540.0   |
| aggregate        | 2              | 125            | 250.0      |
| Total            | 214.5          | 294            | 13,171.5   |
| Average $\gamma$ |                | 61             |            |

$$B_c = \text{pipe OD} = 0.71875 \text{ ft}$$

Estimate  $C_c$  from Reference 1, Figure 17-8.



# 130 Environmental Park Leachate Collection Pipe Design

|                                                        |          |
|--------------------------------------------------------|----------|
| where: $r_c$ = settlement ratio (Ref. 1, Table 17-1) = | -0.2     |
| $pB_c$ = height of conduit above ground                |          |
| $p$ =                                                  | 1        |
| $r_c p$ =                                              | -0.2     |
| $H$ = height of embankment =                           | 214.5 ft |
| $H/B_c$ =                                              | 298.4    |
| From Fig. 17-8, $H/B_c = mC_c + b$                     |          |
| $m$ =                                                  | 1.35     |
| $b$ =                                                  | 0        |
| $C_c$ =                                                | 221      |

|                                        |           |
|----------------------------------------|-----------|
| Substitute and solve for $W_c$ =       | 7,013 plf |
| Overburden load = $W_c / \text{Dia}$ = | 67.8 psi  |

|                                   |                 |
|-----------------------------------|-----------------|
| <b>Critical overburden load =</b> | <b>67.8 psi</b> |
|-----------------------------------|-----------------|

The overburden load shall be used for the design stress. Adjust the design stress to account for loss of strength due to perforations using the following equation.

$$P_D = 12P / (12 - I_p)$$

|                                                            |          |
|------------------------------------------------------------|----------|
| where: $P_D$ = design stress                               |          |
| $P$ = critical stress =                                    | 67.8 psi |
| $I_p$ = cumulative length of perforations per foot of pipe |          |
| perforation diameter =                                     | 3/8 in   |
| number of holes per foot =                                 | 5        |

|                                  |           |
|----------------------------------|-----------|
| Substitute and solve for $I_p$ = | 1.9 in/ft |
|----------------------------------|-----------|

|                                  |          |
|----------------------------------|----------|
| Substitute and solve for $P_D$ = | 80.3 psi |
|----------------------------------|----------|

|                                      |                 |
|--------------------------------------|-----------------|
| <b>Leachate pipe design stress =</b> | <b>80.3 psi</b> |
|--------------------------------------|-----------------|

## 130 Environmental Park Leachate Collection Pipe Design

### Structural Stability

Assume a standard dimension ratio of 11 for the analysis and predict the factor of safety for 1) wall crushing, 2) wall buckling, and 3) ring deflection.

- 1) Estimate the factor of safety against wall crushing from the following equation.

$$FS = S_Y / S_A$$

where:  $S_Y$  = compressive yield strength of pipe = 1,500 psi

and  $S_A = P_D (SDR - 1) / 2$

$P_D$  = 80.3 psi

$SDR$  = 11

Substitute and solve for  $S_A$  = 401.5 psi

**Factor of safety against wall crushing = 3.7**

- 2) Estimate the factor of safety against wall buckling from the following equation.

$$FS = P_{cb} / P_D$$

where:  $P_{cb}$  = critical buckling pressure

$$P_{cb}^2 = 0.64(E')(P_c)$$

and  $P_c$  = critical collapse pressure

$$P_c = 2.32E / (SDR)^3$$

$E$  = modulus of elasticity = 20,000 psi (typical for HDPE)

$E'$  = backfill modulus = 3,000 psi (typical for crushed stone)

Substitute and solve for:  $P_c$  = 34.9 psi

$P_{cb}$  = 258.7 psi

**Factor of safety against wall buckling = 3.2**

- 3) Estimate the factor of safety against ring deflection from the following equation.

$$FS = RD_{allow} / RD_{actual}$$

where:  $RD_{allow}$  for SDR 11 pipe = 5 % (Ref. 2)

and  $RD_{actual}$  = soil strain around the pipe =  $\epsilon_s$

$$\epsilon_s = P_D / E' (100\%) = 2.7 \%$$

**Factor of safety against ring deflection = 1.9**

## 130 Environmental Park Leachate Riser Pipe Design

**Required:** Analyze the structural stability for the riser pipe.

**References:** 1) *Essentials of Soil Mechanics and Foundations*, Second Edition; McCarthy, David F.; Reston Publishing Company, Inc.  
2) *Handbook of PE Pipe, Second Edition*; Plastics Pipe Institute (PPI).

**Assumptions:** 1) The riser pipe will be 24-inch HDPE.  
2) Heaviest construction load will be a CAT 836H compactor.  
3) Maximum overburden load will occur after final closure.

**Solution:** **Construction Load**

Critical construction load occurs from drum load of CAT 836H compactor driving over the riser pipe on the 4H:1V sidewall slope.

$$b = \text{sidewall slope} = 14.4 \text{ deg}$$

The equipment forces acting on the 4H:1V sidewall are:

$W_V$  = vertical equipment weight

$W_N$  = normal equipment weight

$$F = W_N/n \quad \text{and} \quad p = F/\pi r^2$$

where:  $F$  = force per drum (lbs)

$$W_V = 122,600 \text{ lbs}$$

$$W_N = W_V \cos b = 118,748 \text{ lbs}$$

$$n = \text{number of drums} = 4$$

$$p = \text{contact pressure} = 48.5 \text{ psi}$$

$$r = \text{radius of contact (in)}$$

$$\text{Substitute and solve for } r = 14.0 \text{ inches}$$

$$\text{Determine the construction load from: } P_c = P_o + 1.5P_L$$

where:  $P_c$  = total construction load (psi)

$P_o$  = overburden load (psi)

$P_L$  = live load (psi)

$$\text{Determine the overburden load from: } P_o = z\gamma$$

$$\text{where: } z = \text{backfill depth} = 24.0 \text{ in}$$

$$\gamma = \text{backfill unit weight} = 125.0 \text{ pcf}$$

$$\text{Substitute and solve for } P_o = 1.7 \text{ psi}$$

Determine the live load from Boussinesq equation for uniform circular loads.

$$P_L = p(1 - (r/z)^2)^{-3/2}$$

$$\text{Substitute and solve for } P_L = 17.2 \text{ psi}$$

$$\text{Substitute and solve for } P_c = 27.5 \text{ psi}$$

|                                              |
|----------------------------------------------|
| <b>Critical construction load = 27.5 psi</b> |
|----------------------------------------------|

# 130 Environmental Park Leachate Riser Pipe Design

## Normal Load

Since the riser pipe is placed on the 4H:1V sidewall slope, the design load will be normal to the riser pipe ( $L_N$ ) and is calculated based on the vertical overburden load ( $L_V$ ).

Critical overburden load occurs at toe of the slope after final cover has been constructed. Since the pipe is a flexible positive projecting conduit, use Martson's theory to estimate the overburden load.

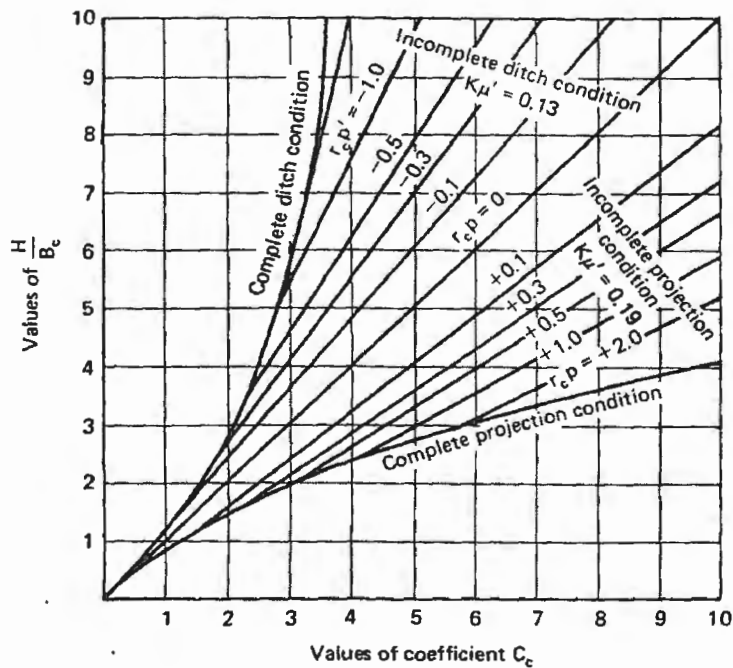
$$W_c = \gamma B_c^2 C_c \quad (\text{Ref. 1, Equation 17-4a})$$

where:  $W_c$  = overburden load per ft of pipe (plf)  
 $\gamma$  = unit weight of overburden (pcf)

| Layer            | Thickness (ft) | $\gamma$ (pcf) | Load (psf) |
|------------------|----------------|----------------|------------|
| cover            | 3.5            | 109            | 381.5      |
| solid waste      | 111.5          | 60             | 6,690.0    |
| clay             | 2              | 125            | 250.0      |
| Total            | 117            | 294            | 7,321.5    |
| Average $\gamma$ |                | 63             |            |

$B_c$  = pipe OD = 2 ft

Estimate  $C_c$  from Figure 17-8.





## 130 Environmental Park Leachate Riser Pipe Design

where:  $r_c$  = settlement ratio (Ref. 1, Table 17-1) = -0.2  
 $pB_c$  = height of conduit above ground  
 $p$  = 1  
 $r_c p$  = -0.2  
 $H$  = height of embankment = 117 ft  
 $H/B_c$  = 58.5

From Fig. 17-1,  $H/B_c = mC_c + b$   
 $m$  = 1.35  
 $b$  = 0  
 $C_c$  = 43

Substitute and solve for  $W_c$  = 10,847 plf  
 Overburden load =  $W_c / \text{Dia}$  = 37.7 psi

$b$  = sidewall slope = 14.4 deg

$L_v$  = 37.7 psi  
 $L_N = L_v \cos \beta$  = 36.5 psi

|                               |                 |
|-------------------------------|-----------------|
| <b>Critical normal load =</b> | <b>36.5 psi</b> |
|-------------------------------|-----------------|

The construction load shall be used for the design stress.

### Structural Stability

Assume a standard dimension ratio of 11 for the analysis and predict the factor of safety for 1) wall crushing, 2) wall buckling, and 3) ring deflection.

- 1) Estimate the factor of safety against wall crushing from the following equation.

$$FS = S_y / S_A$$

where:  $S_y$  = compressive yield strength of pipe = 1,500 psi

and  $S_A = P(\text{SDR} - 1)/2$   
 $P$  = critical stress = 27.5 psi  
 $\text{SDR}$  = 11

Substitute and solve for  $S_A$  = 137.5 psi

|                                                 |             |
|-------------------------------------------------|-------------|
| <b>Factor of safety against wall crushing =</b> | <b>10.9</b> |
|-------------------------------------------------|-------------|

## 130 Environmental Park Leachate Riser Pipe Design

2) Estimate the factor of safety against wall buckling from the following equation.

$$FS = P_{cb}/P_D$$

where:  $P_{cb}$  = critical buckling pressure

$$P_{cb}^2 = 0.64(E')(P_c)$$

and  $P_c$  = critical collapse pressure

$$P_c = 2.32E/(SDR)^3$$

$E$  = modulus of elasticity =

20,000 psi (typical for HDPE)

$E'$  = backfill modulus =

700 psi (typical for fine grained soils)

Substitute and solve for:

$$P_c = 34.9 \text{ psi}$$

$$P_{cb} = 125.0 \text{ psi}$$

|                                                 |            |
|-------------------------------------------------|------------|
| <b>Factor of safety against wall buckling =</b> | <b>4.5</b> |
|-------------------------------------------------|------------|

3) Estimate the factor of safety against ring deflection from the following equation.

$$FS = RD_{allow}/RD_{actual}$$

where:  $RD_{allow}$  for SDR 11 pipe =

5 % (Ref. 2)

and  $RD_{actual}$  = soil strain around the pipe =  $\epsilon_s$

$$\epsilon_s = P_D/E'(100\%) =$$

3.9 %

|                                                   |            |
|---------------------------------------------------|------------|
| <b>Factor of safety against ring deflection =</b> | <b>1.3</b> |
|---------------------------------------------------|------------|

**Table 2.1 Coefficient of Permeability of Various Soils**

| $k$ (cm/sec)                                              | Drainage                             | Soil Type                                                                                                                                  | Determination of $k$                                  |                                           |                          |                                   |
|-----------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| $10^2$<br>$10^1$                                          | Good<br>Good                         | Clean gravels<br>Clean gravels                                                                                                             | Pumping tests,<br>Reliable if prop-<br>erly conducted | Constant head<br>permeameter-<br>reliable | Falling-head permeameter | Computation<br>from<br>grain size |
| $1.0$<br>$10^{-1}$<br>$10^{-2}$<br>$10^{-3}$<br>$10^{-4}$ | Good<br>Good<br>Good<br>Good<br>Good | Clean sands<br>Clean sand and<br>gravel mixtures                                                                                           |                                                       |                                           |                          |                                   |
| $10^{-5}$<br>$10^{-6}$                                    | Poor<br>Poor                         | Very fine sands<br>Organic and inor-<br>ganic silts, mix-<br>tures of sand silt<br>and clay, glacial<br>till, stratified<br>clay deposits. |                                                       |                                           |                          |                                   |
| $10^{-7}$<br>$10^{-8}$<br>$10^{-9}$                       | Practically<br>imper-<br>vious       | Impervious soils,<br>for example, ho-<br>mogeneous clays<br>below zone of<br>weathering.                                                   |                                                       |                                           |                          |                                   |
|                                                           |                                      |                                                                                                                                            |                                                       |                                           |                          |                                   |

After Casagrande and Fadum (1940).

Source: Peck, R.B., Hanson, W.E, Thornburn, T.H, *Foundation Engineering, Second Edition*; page 43; John Wiley & Sons

**TABLE 5-1. TYPICAL RANGES OF PERMEABILITY FOR DIFFERENT SOIL TYPES**

| Soil Type                                    | Relative Degree<br>of Permeability        | $k$ , Coeff. of<br>Permeability (cm/sec) | Drainage<br>Properties                    |
|----------------------------------------------|-------------------------------------------|------------------------------------------|-------------------------------------------|
| Clean gravel                                 | High                                      | 1 to 10                                  | Good                                      |
| Clean sand, sand<br>and gravel<br>mixtures   | Medium                                    | 1 to $10^{-3}$                           | Good                                      |
| Fine sands,<br>silts                         | Low                                       | $10^{-3}$ to $10^{-5}$                   | Fair through<br>poor                      |
| Sand-silt-clay<br>mixtures,<br>glacial tills | Very low                                  | $10^{-4}$ to $10^{-7}$                   | Poor through<br>practically<br>impervious |
| Homogeneous<br>clays                         | Very low to<br>practically<br>impermeable | Less than $10^{-7}$                      | Practically<br>impervious                 |

Note: To convert cm/sec to ft/min, multiply cm/sec by 2; i.e., 1 cm/sec = 2 ft/min; also ft/day = cm/sec  $\times 3 \times 10^3$ .

Source: McCarthy, D.F., *Essentials of Soil Mechanics and Foundations, Second Edition*; page 94; Reston Publishing Company, Inc.

**130 ENVIRONMENTAL PARK**

**APPENDIX D6-B**

**LEACHATE GENERATION MODEL**



Biggs & Mathews Environmental, Inc.  
Firm Registration No. F-256

11/6/2014

Includes pages D6-B-1 through D6-B-166

Technically Complete October 28, 2014

## LEACHATE GENERATION MODEL

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### HELP MODEL

The Hydrologic Evaluation of Landfill Performance (HELP) Model, Version 3.07, was used to predict the amount of runoff, evapotranspiration, drainage, leachate collection, and percolation through the liner. The HELP Model is a water balance model that uses climate, soil, and landfill design data to perform a solution technique that accounts for the effects of surface storage, runoff, recirculation, infiltration, percolation, soil moisture storage, evapotranspiration, and lateral drainage.

The following stages of landfill development were modeled:

- Case 1** – Intermediate cover over 56 feet of waste; 10 years
- Case 2** – Daily cover over 20 feet of waste; 5 years
- Case 3** – Intermediate cover on sideslope over 15 feet of waste; 10 years
- Case 4** – Final cover on sideslope over 151 feet of waste; 30 years
- Case 5** – Intermediate cover on topslope over 195 feet of waste; 10 years
- Case 6** – Final cover on topslope over 195 feet of waste; 30 years

### INPUT PARAMETERS

The HELP model input parameters for each case are summarized on page D6-B-4. The selection of each parameter is briefly described below.

#### Evapotranspiration Data

Default evapotranspiration data for Austin, Texas were used in the model. The default evaporative zone depth and maximum leaf area index for bare ground was selected for Case 2. The default evaporative zone depth and maximum leaf area index for fair cover was selected for Cases 1, 3 and 5. The default evaporative zone depth and maximum leaf area index for good cover was selected for Cases 5 and 6.

#### Climate Data

The climate data used for the HELP model was synthetically generated using climate coefficients for Austin, Texas. To improve the statistical characteristics of the daily values, the normal mean values for temperature and precipitation from the nearest weather station located in Caldwell County, Texas, as published by the National Oceanic Atmospheric Administration, were entered.

## **Runoff Potential**

The runoff potential was assumed as zero for the areas with daily cover. Runoff will be allowed from intermediate cover, but the surface may be only rough graded; therefore, the runoff potential was designated 90 percent for these cases. The final cover will be designed and constructed to promote runoff; therefore, the runoff potential was designated as 100 percent for this case.

## **Runoff Curve Number**

Default curve numbers were chosen based on the soil data, ground cover, surface slope, and slope length of the selected case.

## **Erosion Layer**

The erosion layer will consist of a 24-inch-thick layer of soils that are capable of sustaining vegetation. Geotechnical information provided in Attachment D5 – Geotechnical Design indicates that CH soils will be available for use as erosion layer.

## **Drainage Layer**

The drainage layer will consist of a double-sided drainage geocomposite on sideslopes; a cushion geotextile will be used on topslopes. Since the sideslopes will not yield as much infiltration as the topslopes, the model reflects the topslope configuration.

## **Flexible Membrane Cover**

The flexible membrane cover consists of a 40-mil LLDPE geomembrane. The cover will be installed and tested in accordance with the requirements of Attachment D8 – Final Cover Quality Control Plan; therefore, the liner was modeled for good installation quality, one defect per acre, and a pinhole density of one-half hole per acre.

## **Infiltration Layer**

The infiltration layer will consist of an 18-inch-thick layer of compacted clay with hydraulic conductivity of  $1 \times 10^{-5}$  cm/sec or less.

## **Daily and Intermediate Cover**

The daily cover will consist of a 6-inch-thick layer of on-site soils, and the intermediate cover consists of a total 12-inch-thick layer of on-site soils. Geotechnical information provided in Attachment D5 – Geotechnical Design indicates that CH soils will be available for use as daily and intermediate cover.

## **Waste Layers**

Waste layers of 20, 56, 151, and 195 feet were used to represent the stages of landfill development. The waste column was designated as a vertical percolation layer (except the bottom 2 feet) to simulate a material that drains vertically primarily as unsaturated

flow. The bottom 2 feet of the waste column was designated as a lateral drainage layer to simulate a material that drains vertically primarily as unsaturated flow and laterally as saturated flow. This method allows the program to estimate the lateral flow that occurs through the bottom of the waste column above the protective cover and to the leachate chimney. The lateral drainage from the bottom of the waste column is added to the lateral drainage from the geocomposite layer to predict the total lateral drainage. These layer designations were selected to accurately simulate the moisture flow patterns that will occur in the waste column.

### **Protective Cover**

The protective cover will consist of a 24-inch-thick layer of on-site soils. Geotechnical information provided in Attachment D5 – Geotechnical Design indicates that CH soils will be available for use as protective cover. Since the help model will not allow a vertical percolation layer to immediately underlie a lateral drainage layer, the top 0.08 feet (1 inch) of the protective cover layer was designated as a barrier soil layer to simulate a material that drains vertically as saturated flow. The remaining 1.92 ft (23 inches) of the protective cover was designated as a vertical percolation layer to simulate a material the drains vertically primarily as unsaturated flow. These layer designations were selected to accurately simulate the moisture flow patterns that will occur in the waste column.

Highly plastic CH soils have a hydraulic conductivity of  $10^{-7}$  cm/sec or less (see page D6-A-17). Since the protective cover will be placed in a two foot thick lift with minimal compactive effort, a hydraulic conductivity value of  $10^{-6}$  cm/sec was selected for the entire protective cover layer.

### **Leachate Collection Layer**

The leachate collection layer will consist of a drainage geocomposite. The thickness and hydraulic conductivity values are calculated in Appendix D6-A. The critical slope and drainage distance for the leachate collection system were determined from Attachment D3 – Construction Design Details, Drawing D33 – Leachate Collection System Plan.

### **Geomembrane**

The geomembrane liner will consist of a 60-mil HDPE geomembrane. The liner will be installed and tested in accordance with the requirements of Attachment D7 – Liner Quality Control Plan; therefore, the liner was modeled for good installation quality, one defect per acre, and a pinhole density of one-half hole per acre.

### **Compacted Soil Liner**

The compacted soil layer will consist of a 24-inch-thick layer of compacted soil with a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec or less.

## **HELP MODEL OUTPUT**

Output files for the HELP model are provided on pages D6-B-5 through D6-B-177. The output for each case is summarized on page D6-B-4.

# 130 Environmental Park HELP SUMMARY

| Case No.                         | 1                    | 2                    | 3                    | 4                    | 5                    | 6                    |
|----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Cover                            | Intermediate         | None                 | Intermediate         | Final                | Intermediate         | Final                |
| Top                              | Sideslope            | Sideslope            | Sideslope            | Sideslope            | Topslope             | Topslope             |
| Bottom                           | Sidewall             | Floor                | Floor                | Floor                | Floor                | Floor                |
| Waste Thickness (ft)             | 54                   | 18                   | 149                  | 149                  | 193                  | 193                  |
| Years                            | 10                   | 5                    | 10                   | 30                   | 10                   | 30                   |
| Ground Cover                     | Good                 | Bare                 | Good                 | Good                 | Good                 | Good                 |
| Model Area (acre)                | 1                    | 1                    | 1                    | 1                    | 1                    | 1                    |
| Runoff Area (%)                  | 100                  | 0                    | 100                  | 100                  | 100                  | 100                  |
| Maximum Leaf Area Index          | 4.5                  | 0                    | 4.5                  | 4.5                  | 4.5                  | 4.5                  |
| Evaporative Zone Depth (in)      | 10                   | 10                   | 10                   | 22                   | 10                   | 22                   |
| <b>Erosion Layer</b>             |                      |                      |                      |                      |                      |                      |
| Layer No.                        |                      |                      |                      | 1                    |                      | 1                    |
| Type                             |                      |                      |                      | vertical percolation |                      | vertical percolation |
| Thickness (ft)                   |                      |                      |                      | 2.0                  |                      | 2.0                  |
| <b>Geomembrane</b>               |                      |                      |                      |                      |                      |                      |
| Layer No.                        |                      |                      |                      | 2                    |                      | 2                    |
| Type                             |                      |                      |                      | geomembrane          |                      | geomembrane          |
| Thickness (in)                   |                      |                      |                      | 0.04                 |                      | 0.04                 |
| Defects per acre                 |                      |                      |                      | 1                    |                      | 1                    |
| Pinholes per acre                |                      |                      |                      | 0.5                  |                      | 0.5                  |
| <b>Infiltration Layer</b>        |                      |                      |                      |                      |                      |                      |
| Layer No.                        |                      |                      |                      | 3                    |                      | 3                    |
| Type                             |                      |                      |                      | barrier soil         |                      | barrier soil         |
| Thickness (ft)                   |                      |                      |                      | 1.5                  |                      | 1.5                  |
| <b>Intermediate/Daily Cover</b>  |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 1                    |                      | 1                    | 4                    | 1                    | 4                    |
| Type                             | vertical percolation |                      | vertical percolation | vertical percolation | vertical percolation | vertical percolation |
| Thickness (ft)                   | 1.0                  |                      | 1.0                  | 1.0                  | 1.0                  | 1.0                  |
| <b>Solid Waste</b>               |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 2                    | 1                    | 2                    | 5                    | 2                    | 5                    |
| Type                             | vertical percolation | vertical percolation | vertical percolation | vertical percolation | vertical percolation | vertical percolation |
| Thickness (ft)                   | 54.0                 | 18.0                 | 149.0                | 149.0                | 193.0                | 193.0                |
| <b>Solid Waste</b>               |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 3                    | 2                    | 3                    | 6                    | 3                    | 6                    |
| Type                             | lateral drainage     | lateral drainage     | lateral drainage     | lateral drainage     | lateral drainage     | lateral drainage     |
| Thickness (ft)                   | 2.0                  | 2.0                  | 2.0                  | 2.0                  | 2.0                  | 2.0                  |
| Slope (%)                        | 25.0                 | 2.5                  | 2.5                  | 2.5                  | 2.5                  | 2.5                  |
| Flow Distance (ft)               | 247                  | 246                  | 246                  | 246                  | 246                  | 246                  |
| <b>Protective Cover</b>          |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 4                    | 3                    | 4                    | 7                    | 4                    | 7                    |
| Type                             | barrier soil         | barrier soil         | barrier soil         | barrier soil         | barrier soil         | barrier soil         |
| Thickness (ft)                   | 0.08                 | 0.08                 | 0.08                 | 0.08                 | 0.08                 | 0.08                 |
| <b>Protective Cover</b>          |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 5                    | 4                    | 5                    | 8                    | 5                    | 8                    |
| Type                             | vertical percolation | vertical percolation | vertical percolation | vertical percolation | vertical percolation | vertical percolation |
| Thickness (ft)                   | 1.92                 | 1.92                 | 1.92                 | 1.92                 | 1.92                 | 1.92                 |
| <b>LCS</b>                       |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 6                    | 5                    | 6                    | 9                    | 6                    | 9                    |
| Type                             | lateral drainage     | lateral drainage     | lateral drainage     | lateral drainage     | lateral drainage     | lateral drainage     |
| Thickness (in)                   | 0.250                | 0.265                | 0.211                | 0.209                | 0.193                | 0.190                |
| Slope (%)                        | 25                   | 2.5                  | 2.5                  | 2.5                  | 2.5                  | 2.5                  |
| Flow Distance (ft)               | 247                  | 246                  | 246                  | 246                  | 246                  | 246                  |
| Hydraulic Conductivity (cm/sec)  | 2.33                 | 10.39                | 2.76                 | 0.83                 | 1.71                 | 0.90                 |
| <b>Geomembrane</b>               |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 7                    | 6                    | 7                    | 10                   | 7                    | 10                   |
| Type                             | geomembrane          | geomembrane          | geomembrane          | geomembrane          | geomembrane          | geomembrane          |
| Thickness (in)                   | 0.06                 | 0.06                 | 0.06                 | 0.06                 | 0.06                 | 0.06                 |
| Defects per acre                 | 1                    | 1                    | 1                    | 1                    | 1                    | 1                    |
| Pinholes per acre                | 0.5                  | 0.5                  | 0.5                  | 0.5                  | 0.5                  | 0.5                  |
| <b>Clay Liner</b>                |                      |                      |                      |                      |                      |                      |
| Layer No.                        | 8                    | 7                    | 8                    | 11                   | 8                    | 11                   |
| Type                             | barrier soil         | barrier soil         | barrier soil         | barrier soil         | barrier soil         | barrier soil         |
| Thickness (ft)                   | 2.0                  | 2.0                  | 2.0                  | 2.0                  | 2.0                  | 2.0                  |
| Average Lateral Drainage (cf/yr) | 24,073               | 15,752               | 24,068               | 10                   | 24,069               | 10                   |
| Peak Lateral Drainage (cf/day)   | 159                  | 130                  | 127                  | 3                    | 127                  | 3                    |
| Peak Daily Head on Liner (in)    | 0.005                | 0.011                | 0.043                | 0.003                | 0.069                | 0.003                |
| Average Daily Head on Liner(in)  | 0.005                | 0.006                | 0.021                | 0.001                | 0.035                | 0.001                |



## Case 1

```
*****
*****
**                                     **
**                                     **
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE      **
**      HELP MODEL VERSION 3.07 (1 November 1997)          **
**      DEVELOPED BY ENVIRONMENTAL LABORATORY                **
**      USAE WATERWAYS EXPERIMENT STATION                   **
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY      **
**                                     **
**                                     **
*****
```

PRECIPITATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather1.dat  
TEMPERATURE DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather2.dat  
SOLAR RADIATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather3.dat  
EVAPOTRANSPIRATION DATA: C:\WHI\UNSAT22\data\P922.VHP\weather4.dat  
SOIL AND DESIGN DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\I\_387388.inp  
OUTPUT DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\O\_387388.prt

TIME: 16:25 DATE: 8/6/2014

```
*****
TITLE: Case 1
*****
```

NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE  
COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.

### LAYER 1

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 130  
THICKNESS = 30.48 CM  
POROSITY = 0.4570 VOL/VOL  
FIELD CAPACITY = 0.1310 VOL/VOL  
WILTING POINT = 0.0580 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.1508 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC

### LAYER 2

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 18  
THICKNESS = 1645.92 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2925 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000224000E-02 CM/SEC

### LAYER 3

-----  
TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 201  
THICKNESS = 60.96 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.3061 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC  
SLOPE = 25.00 PERCENT  
DRAINAGE LENGTH = 75.3 METERS

## Case 1 (Continued)

### LAYER 4

TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 16  
THICKNESS = 2.44 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 5

TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 230  
THICKNESS = 58.52 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4267 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 6

TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 221  
THICKNESS = 0.63 CM  
POROSITY = 0.8500 VOL/VOL  
FIELD CAPACITY = 0.0100 VOL/VOL  
WILTING POINT = 0.0050 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0441 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 2.330000000000 CM/SEC  
SLOPE = 25.00 PERCENT  
DRAINAGE LENGTH = 75.3 METERS

### LAYER 7

TYPE 4 - FLEXIBLE MEMBRANE LINER  
MATERIAL TEXTURE NUMBER 235  
THICKNESS = 0.15 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.200000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

### LAYER 8

TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 15  
THICKNESS = 60.96 CM  
POROSITY = 0.4750 VOL/VOL  
FIELD CAPACITY = 0.3780 VOL/VOL  
WILTING POINT = 0.2650 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4750 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-06 CM/SEC

### GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT  
SOIL DATA BASE USING SOIL TEXTURE #\*\* WITH A  
GOOD STAND OF GRASS, A SURFACE SLOPE OF 30.0%  
AND A SLOPE LENGTH OF 30. METERS.

## Case 1 (Continued)

SCS RUNOFF CURVE NUMBER = 0.00  
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT  
AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES  
EVAPORATIVE ZONE DEPTH = 25.4 CM  
INITIAL WATER IN EVAPORATIVE ZONE = 3.641 CM  
UPPER LIMIT OF EVAPORATIVE STORAGE = 11.608 CM  
LOWER LIMIT OF EVAPORATIVE STORAGE = 1.473 CM  
INITIAL SNOW WATER = 0.000 CM  
INITIAL WATER IN LAYER MATERIALS = 559.603 CM  
TOTAL INITIAL WATER = 559.603 CM  
TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

### EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM  
Austin TX

STATION LATITUDE = 30.31 DEGREES  
MAXIMUM LEAF AREA INDEX = 4.50  
START OF GROWING SEASON (JULIAN DATE) = 44  
END OF GROWING SEASON (JULIAN DATE) = 346  
EVAPORATIVE ZONE DEPTH = 10.0 INCHES  
AVERAGE ANNUAL WIND SPEED = 9.30 MPH  
AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %  
AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 67.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

### NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 1.60    | 2.49    | 1.68    | 3.11    | 4.19    | 3.06    |
| 1.89    | 2.24    | 3.60    | 3.38    | 2.20    | 2.06    |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

### NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 49.10   | 53.20   | 60.50   | 68.70   | 74.90   | 81.60   |
| 84.70   | 84.50   | 79.20   | 69.80   | 58.70   | 52.10   |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX  
AND STATION LATITUDE = 29.88 DEGREES

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 1

|               | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION | 0.65    | 2.56    | 0.82    | 0.03    | 1.74    | 0.00    |
|               | 0.45    | 4.41    | 2.37    | 5.47    | 0.62    | 3.40    |

## Case 1 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| RUNOFF                      | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                             | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| EVAPOTRANSPIRATION          | 0.771  | 1.435  | 2.192  | 0.029  | 1.736  | 0.003  |
|                             | 0.448  | 4.070  | 2.206  | 2.563  | 1.337  | 1.944  |
| LATERAL DRAINAGE COLLECTED  | 0.0335 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 |
| FROM LAYER 3                | 0.0000 | 0.0007 | 0.0007 | 0.0009 | 0.0678 | 0.0072 |
| PERCOLATION/LEAKAGE THROUGH | 0.7130 | 0.0617 | 0.3137 | 0.0660 | 0.0191 | 0.0105 |
| LAYER 4                     | 0.0076 | 0.1827 | 0.1207 | 0.2835 | 1.3842 | 0.6064 |
| LATERAL DRAINAGE COLLECTED  | 0.9417 | 0.1600 | 0.1912 | 0.1918 | 0.0954 | 0.0108 |
| FROM LAYER 6                | 0.0076 | 0.0100 | 0.2032 | 0.0976 | 0.9073 | 0.9282 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 8                     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON   | 0.201 | 0.001 | 0.003 | 0.001 | 0.000 | 0.000 |
| TOP OF LAYER 4          | 0.000 | 0.004 | 0.005 | 0.006 | 0.419 | 0.043 |
| STD. DEVIATION OF DAILY | 0.297 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 4  | 0.000 | 0.012 | 0.020 | 0.012 | 0.357 | 0.070 |
| AVERAGE DAILY HEAD ON   | 0.005 | 0.002 | 0.001 | 0.002 | 0.001 | 0.000 |
| TOP OF LAYER 7          | 0.000 | 0.000 | 0.002 | 0.001 | 0.004 | 0.004 |
| STD. DEVIATION OF DAILY | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.001 |

### ANNUAL TOTALS FOR YEAR 1

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 22.52    | 81745.818  | 100.00  |
| RUNOFF                          | 0.000    | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 18.735   | 68004.810  | 83.19   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.1112   | 403.583    | 0.49    |
| PERC./LEAKAGE THROUGH LAYER 4   | 3.769089 | 13681.495  | 16.74   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0568   |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 3.7446   | 13592.507  | 16.63   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000001 | 0.003      | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0019   |            |         |
| CHANGE IN WATER STORAGE         | -0.070   | -255.084   | -0.31   |
| SOIL WATER AT START OF YEAR     | 220.316  | 799730.674 |         |
| SOIL WATER AT END OF YEAR       | 220.246  | 799475.590 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000      | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000      | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001     | 0.00    |

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7

## Case 1 (Continued)

DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 2

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.00    | 6.11    | 2.35    | 3.42    | 3.62    | 2.33    |
|                                         | 0.26    | 8.15    | 6.72    | 4.76    | 2.03    | 1.05    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 0.659   | 2.103   | 2.901   | 3.495   | 2.995   | 2.481   |
|                                         | 0.226   | 4.227   | 2.601   | 2.757   | 1.019   | 1.140   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0289  | 0.0036  | 0.0643  | 0.0970  | 0.0018  | 0.0023  |
|                                         | 0.0000  | 0.0005  | 0.0833  | 0.1087  | 0.1980  | 0.2479  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.6599  | 0.4923  | 1.2825  | 1.4173  | 0.4209  | 0.1844  |
|                                         | 0.0187  | 0.0752  | 1.4349  | 1.7679  | 2.3195  | 2.6811  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.9066  | 0.3571  | 0.7864  | 1.0205  | 1.0545  | 0.6439  |
|                                         | 0.1228  | 0.0237  | 0.5714  | 1.0545  | 1.0205  | 1.0545  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.173 | 0.024 | 0.384 | 0.599 | 0.011 | 0.014 |
|                                                | 0.000 | 0.003 | 0.514 | 0.649 | 1.222 | 1.481 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.275 | 0.029 | 0.394 | 0.537 | 0.020 | 0.043 |
|                                                | 0.000 | 0.012 | 0.548 | 0.281 | 0.420 | 0.318 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.005 | 0.002 | 0.004 | 0.005 | 0.005 | 0.004 |
|                                                | 0.001 | 0.000 | 0.003 | 0.005 | 0.005 | 0.005 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.001 | 0.001 | 0.002 | 0.000 | 0.000 | 0.001 |
|                                                | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 2

|                                 | INCHES    | CU. FEET   | PERCENT |
|---------------------------------|-----------|------------|---------|
| PRECIPITATION                   | 40.80     | 148100.772 | 100.00  |
| RUNOFF                          | 0.000     | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 26.604    | 96571.321  | 65.21   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.8364    | 3036.242   | 2.05    |
| PERC./LEAKAGE THROUGH LAYER 4   | 12.754612 | 46298.231  | 31.26   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.4231    |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 8.6162    | 31276.187  | 21.12   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000001  | 0.005      | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0037    |            |         |
| CHANGE IN WATER STORAGE         | 4.743     | 17217.019  | 11.63   |
| SOIL WATER AT START OF YEAR     | 220.246   | 799475.590 |         |
| SOIL WATER AT END OF YEAR       | 224.989   | 816692.608 |         |

D6-B-9

## Case 1 (Continued)

|                             |        |        |      |
|-----------------------------|--------|--------|------|
| SNOW WATER AT START OF YEAR | 0.000  | 0.000  | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000  | 0.000  | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000 | -0.002 | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 3

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.36    | 3.57    | 0.83    | 1.69    | 5.59    | 4.55    |
|                                         | 1.68    | 2.44    | 0.38    | 1.03    | 0.61    | 3.14    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 0.693   | 1.572   | 1.104   | 1.968   | 2.982   | 4.773   |
|                                         | 1.680   | 2.439   | 0.378   | 1.028   | 0.346   | 1.043   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0919  | 0.0011  | 0.0784  | 0.0000  | 0.0000  | 0.0626  |
|                                         | 0.0625  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0065  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 1.3270  | 0.2090  | 1.4447  | 0.0339  | 0.0125  | 1.3569  |
|                                         | 0.8911  | 0.0150  | 0.0095  | 0.0075  | 0.0056  | 0.5483  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 1.0545  | 0.9524  | 1.0545  | 1.0205  | 1.0545  | 1.0205  |
|                                         | 1.0545  | 1.0545  | 1.0205  | 0.5079  | 0.0884  | 0.1193  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.549 | 0.007 | 0.469 | 0.000 | 0.000 | 0.386 |
|                                                | 0.374 | 0.000 | 0.000 | 0.000 | 0.000 | 0.039 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.552 | 0.020 | 0.396 | 0.000 | 0.000 | 0.368 |
|                                                | 0.538 | 0.000 | 0.000 | 0.000 | 0.000 | 0.093 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
|                                                | 0.005 | 0.005 | 0.005 | 0.003 | 0.001 | 0.001 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 |

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### ANNUAL TOTALS FOR YEAR 3

|                                 | INCHES   | CU. FEET  | PERCENT |
|---------------------------------|----------|-----------|---------|
| PRECIPITATION                   | 25.87    | 93906.053 | 100.00  |
| RUNOFF                          | 0.000    | 0.000     | 0.00    |
| EVAPOTRANSPIRATION              | 20.006   | 72620.544 | 77.33   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.3030   | 1099.913  | 1.17    |
| PERC./LEAKAGE THROUGH LAYER 4   | 5.860988 | 21274.923 | 22.66   |

D6-B-10

## Case 1 (Continued)

|                                 |          |            |        |  |
|---------------------------------|----------|------------|--------|--|
| AVG. HEAD ON TOP OF LAYER 4     | 0.1521   |            |        |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 10.0017  | 36305.336  | 38.66  |  |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000002 | 0.006      | 0.00   |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0042   |            |        |  |
| CHANGE IN WATER STORAGE         | -4.441   | -16119.745 | -17.17 |  |
| SOIL WATER AT START OF YEAR     | 224.989  | 816692.608 |        |  |
| SOIL WATER AT END OF YEAR       | 220.548  | 800572.864 |        |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000      | 0.00   |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000      | 0.00   |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001     | 0.00   |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 4

|                             | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION               | 2.85    | 3.06    | 1.65    | 3.84    | 3.05    | 1.18    |
|                             | 1.76    | 0.97    | 3.09    | 2.66    | 2.71    | 1.27    |
| RUNOFF                      | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                             | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION          | 2.057   | 1.968   | 2.312   | 2.868   | 4.206   | 1.177   |
|                             | 1.761   | 0.726   | 2.764   | 1.824   | 0.906   | 0.900   |
| LATERAL DRAINAGE COLLECTED  | 0.0133  | 0.0016  | 0.0462  | 0.0000  | 0.0001  | 0.0000  |
| FROM LAYER 3                | 0.0000  | 0.0000  | 0.0052  | 0.0193  | 0.0075  | 0.0086  |
| PERCOLATION/LEAKAGE THROUGH | 0.9648  | 0.4315  | 1.1333  | 0.0543  | 0.1477  | 0.0246  |
| LAYER 4                     | 0.0130  | 0.0089  | 0.5026  | 0.8176  | 0.6359  | 0.3527  |
| LATERAL DRAINAGE COLLECTED  | 0.9544  | 0.6133  | 0.9235  | 0.4297  | 0.1367  | 0.1130  |
| FROM LAYER 6                | 0.0274  | 0.0089  | 0.3145  | 0.5019  | 0.7097  | 0.6457  |
| PERCOLATION/LEAKAGE THROUGH | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| LAYER 8                     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON   | 0.080 | 0.011 | 0.276 | 0.000 | 0.001 | 0.000 |
| TOP OF LAYER 4          | 0.000 | 0.000 | 0.033 | 0.115 | 0.046 | 0.052 |
| STD. DEVIATION OF DAILY | 0.079 | 0.019 | 0.296 | 0.000 | 0.002 | 0.000 |
| HEAD ON TOP OF LAYER 4  | 0.000 | 0.000 | 0.070 | 0.155 | 0.084 | 0.128 |
| AVERAGE DAILY HEAD ON   | 0.005 | 0.003 | 0.004 | 0.003 | 0.001 | 0.001 |
| TOP OF LAYER 7          | 0.000 | 0.000 | 0.002 | 0.003 | 0.004 | 0.004 |
| STD. DEVIATION OF DAILY | 0.001 | 0.001 | 0.002 | 0.001 | 0.001 | 0.000 |
| HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.002 | 0.002 | 0.002 | 0.001 |

## Case 1 (Continued)

### ANNUAL TOTALS FOR YEAR 4

|                                 | INCHES  | CU. FEET   | PERCENT         |
|---------------------------------|---------|------------|-----------------|
| PRECIPITATION                   | 28.09   | 101964.478 | 100.00          |
| RUNOFF                          | 0.000   | 0.000      | 0.00            |
| EVAPOTRANSPIRATION              | 23.469  | 85190.002  | 83.55           |
| DRAINAGE COLLECTED FROM LAYER 3 |         | 0.1018     | 369.518 0.36    |
| PERC./LEAKAGE THROUGH LAYER 4   |         | 5.086798   | 18464.674 18.11 |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0513  |            |                 |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 5.3786     | 19523.857 19.15 |
| PERC./LEAKAGE THROUGH LAYER 8   |         | 0.000001   | 0.004 0.00      |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0025  |            |                 |
| CHANGE IN WATER STORAGE         | -0.859  | -3118.901  | -3.06           |
| SOIL WATER AT START OF YEAR     | 220.548 | 800572.864 |                 |
| SOIL WATER AT END OF YEAR       | 219.689 | 797453.963 |                 |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000      | 0.00            |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000      | 0.00            |
| ANNUAL WATER BUDGET BALANCE     | 0.0000  | -0.002     | 0.00            |

\*\*\*\*\*

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 5

|                                         | JAN/JUL                                   | FEB/AUG                                   | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|-------------------------------------------|-------------------------------------------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.42 2.70 1.93 2.42 3.77 2.00             | 0.84 1.25 3.04 1.13 1.04 0.78             |         |         |         |         |
| RUNOFF                                  | 0.000 0.000 0.000 0.000 0.000 0.000       | 0.000 0.000 0.000 0.000 0.000 0.000       |         |         |         |         |
| EVAPOTRANSPIRATION                      | 2.056 2.093 2.326 3.020 3.641 1.319       | 1.351 1.420 2.889 0.983 0.977 0.595       |         |         |         |         |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000 0.0000 0.0000 0.0000 0.0001 0.0000 | 0.0000 0.0000 0.0001 0.0000 0.0000 0.0000 |         |         |         |         |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.0831 0.0280 0.0274 0.0327 0.1039 0.0351 | 0.0149 0.0094 0.0972 0.0322 0.0150 0.0098 |         |         |         |         |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.1478 0.0936 0.0316 0.0351 0.0265 0.1038 | 0.0236 0.0094 0.0274 0.1013 0.0155 0.0100 |         |         |         |         |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 | 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 |         |         |         |         |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)



# Case 1 (Continued)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 |
|                                                | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 |
|                                                | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 |
|                                                | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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## ANNUAL TOTALS FOR YEAR 5

|                                 | INCHES  | CU. FEET   | PERCENT       |
|---------------------------------|---------|------------|---------------|
| PRECIPITATION                   | 22.32   | 81019.834  | 100.00        |
| RUNOFF                          | 0.000   | 0.000      | 0.00          |
| EVAPOTRANSPIRATION              | 22.668  | 82282.843  | 101.56        |
| DRAINAGE COLLECTED FROM LAYER 3 |         | 0.0002     | 0.793 0.00    |
| PERC./LEAKAGE THROUGH LAYER 4   |         | 0.488437   | 1772.987 2.19 |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0004  |            |               |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 0.6257     | 2271.124 2.80 |
| PERC./LEAKAGE THROUGH LAYER 8   |         | 0.000000   | 0.002 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0005  |            |               |
| CHANGE IN WATER STORAGE         | -0.974  | -3534.927  | -4.36         |
| SOIL WATER AT START OF YEAR     | 219.689 | 797453.963 |               |
| SOIL WATER AT END OF YEAR       | 218.715 | 793919.036 |               |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000      | 0.00          |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000      | 0.00          |
| ANNUAL WATER BUDGET BALANCE     | 0.0000  | -0.001     | 0.00          |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 6

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 2.84    | 3.09    | 4.52    | 0.95    | 5.99    | 3.95    |
|                                         | 1.57    | 4.88    | 3.80    | 6.63    | 2.35    | 0.40    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.171   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.442   | 2.018   | 3.139   | 2.059   | 3.697   | 4.667   |
|                                         | 1.575   | 3.906   | 3.862   | 2.136   | 1.425   | 1.001   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0018  | 0.0456  | 0.0295  | 0.0121  | 0.0011  | 0.0526  |
|                                         | 0.0000  | 0.0011  | 0.0184  | 0.0226  | 0.1906  | 0.0165  |

## Case 1 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.4272 | 1.2519 | 0.6696 | 0.6532 | 0.2227 | 1.2984 |
|                                         | 0.0230 | 0.2672 | 0.6080 | 0.7529 | 2.2709 | 0.7634 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0381 | 0.9461 | 1.0545 | 0.7830 | 0.1626 | 0.8343 |
|                                         | 0.6228 | 0.0979 | 0.7258 | 0.3675 | 1.0205 | 1.0545 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.011 | 0.302 | 0.176 | 0.075 | 0.007 | 0.325 |
|                                                | 0.000 | 0.007 | 0.114 | 0.135 | 1.176 | 0.099 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.019 | 0.191 | 0.333 | 0.110 | 0.018 | 0.336 |
|                                                | 0.000 | 0.013 | 0.189 | 0.187 | 0.357 | 0.118 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000 | 0.005 | 0.005 | 0.004 | 0.001 | 0.004 |
|                                                | 0.004 | 0.001 | 0.004 | 0.002 | 0.005 | 0.005 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.001 | 0.000 | 0.000 | 0.001 | 0.001 | 0.002 |
|                                                | 0.002 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 |

### ANNUAL TOTALS FOR YEAR 6

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 40.97    | 148717.858 | 100.00  |
| RUNOFF                          | 0.171    | 619.841    | 0.42    |
| EVAPOTRANSPIRATION              | 30.927   | 112262.405 | 75.49   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.3918   | 1422.029   | 0.96    |
| PERC./LEAKAGE THROUGH LAYER 4   | 9.208274 | 33425.306  | 22.48   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2022   |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 7.7075   | 27977.551  | 18.81   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000001 | 0.005      | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0034   |            |         |
| CHANGE IN WATER STORAGE         | 1.773    | 6436.030   | 4.33    |
| SOIL WATER AT START OF YEAR     | 218.715  | 793919.036 |         |
| SOIL WATER AT END OF YEAR       | 220.488  | 800355.066 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000      | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000      | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002     | 0.00    |

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

### MONTHLY TOTALS (IN INCHES) FOR YEAR 7

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC  
 D6-B-14

Technically Complete October 28, 2014

## Case 1 (Continued)

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-----
PRECIPITATION      1.24 0.57 0.63 4.49 4.20 6.40
                   0.64 4.20 4.71 6.58 0.00 3.56

RUNOFF             0.000 0.000 0.000 0.000 0.000 0.000
                   0.000 0.000 0.000 0.000 0.000 0.000

EVAPOTRANSPIRATION 1.121 0.622 1.157 2.875 4.601 4.100
                   1.036 4.194 3.786 3.523 1.079 1.385

LATERAL DRAINAGE COLLECTED 0.0001 0.0000 0.0000 0.0002 0.0238 0.0000
FROM LAYER 3           0.0878 0.0243 0.0000 0.0018 0.0735 0.0498

PERCOLATION/LEAKAGE THROUGH 0.1357 0.0409 0.0173 0.0947 0.8871 0.0236
LAYER 4                1.5113 0.4586 0.0352 0.3948 1.4355 1.2223

LATERAL DRAINAGE COLLECTED 1.0545 0.5146 0.1162 0.0245 0.7048 0.2232
FROM LAYER 6           0.6132 1.0545 0.3174 0.2765 0.7593 1.0545

PERCOLATION/LEAKAGE THROUGH 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
LAYER 8                0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
  
```

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

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-----
AVERAGE DAILY HEAD ON      0.001 0.000 0.000 0.001 0.142 0.000
TOP OF LAYER 4             0.525 0.145 0.000 0.011 0.454 0.298

STD. DEVIATION OF DAILY     0.001 0.000 0.000 0.004 0.187 0.001
HEAD ON TOP OF LAYER 4     0.523 0.305 0.000 0.018 0.418 0.451

AVERAGE DAILY HEAD ON      0.005 0.003 0.001 0.000 0.003 0.002
TOP OF LAYER 7             0.003 0.005 0.002 0.002 0.004 0.005

STD. DEVIATION OF DAILY     0.000 0.001 0.000 0.000 0.002 0.001
HEAD ON TOP OF LAYER 7     0.002 0.000 0.001 0.002 0.002 0.000
  
```

### ANNUAL TOTALS FOR YEAR 7

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-----
                INCHES    CU. FEET    PERCENT
PRECIPITATION      37.22    135105.655  100.00
RUNOFF              0.000      0.000    0.00
EVAPOTRANSPIRATION 29.479    107008.164  79.20
DRAINAGE COLLECTED FROM LAYER 3  0.2613    948.382  0.70
PERC./LEAKAGE THROUGH LAYER 4  6.257111  22712.816  16.81
AVG. HEAD ON TOP OF LAYER 4  0.1315
DRAINAGE COLLECTED FROM LAYER 6  6.7132    24368.350  18.04
PERC./LEAKAGE THROUGH LAYER 8  0.000001    0.004  0.00
AVG. HEAD ON TOP OF LAYER 7  0.0030
CHANGE IN WATER STORAGE  0.766    2780.757  2.06
SOIL WATER AT START OF YEAR  220.488    800355.066
SOIL WATER AT END OF YEAR  221.254    803135.823
SNOW WATER AT START OF YEAR  0.000      0.000  0.00
SNOW WATER AT END OF YEAR  0.000      0.000  0.00
ANNUAL WATER BUDGET BALANCE  0.0000    -0.002  0.00
  
```

## Case 1 (Continued)

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 8

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.45    | 4.17    | 0.68    | 2.95    | 7.17    | 2.71    |
|                                         | 1.05    | 0.80    | 1.04    | 1.46    | 1.78    | 1.94    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.419   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.419   | 1.397   | 1.966   | 1.521   | 4.471   | 2.220   |
|                                         | 1.049   | 0.800   | 0.838   | 1.082   | 1.333   | 1.494   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0018  | 0.0004  | 0.0657  | 0.0176  | 0.0163  | 0.2018  |
|                                         | 0.0336  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0001  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.4478  | 0.1293  | 1.3121  | 0.4243  | 0.9999  | 2.3444  |
|                                         | 0.5840  | 0.0161  | 0.0097  | 0.0074  | 0.0055  | 0.1469  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 1.0545  | 0.4122  | 0.6508  | 1.0004  | 0.7845  | 1.0205  |
|                                         | 1.0545  | 1.0543  | 0.2275  | 0.0605  | 0.0055  | 0.0064  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.012 | 0.003 | 0.392 | 0.109 | 0.098 | 1.246 |
|                                                | 0.201 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.021 | 0.008 | 0.424 | 0.236 | 0.126 | 0.295 |
|                                                | 0.368 | 0.000 | 0.000 | 0.000 | 0.000 | 0.002 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.005 | 0.003 | 0.003 | 0.005 | 0.004 | 0.005 |
|                                                | 0.005 | 0.005 | 0.002 | 0.001 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000 | 0.001 | 0.002 | 0.000 | 0.002 | 0.000 |
|                                                | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 8

|                                 | INCHES   | CU. FEET  | PERCENT |
|---------------------------------|----------|-----------|---------|
| PRECIPITATION                   | 26.20    | 95103.927 | 100.00  |
| RUNOFF                          | 0.419    | 1519.388  | 1.60    |
| EVAPOTRANSPIRATION              | 19.590   | 71108.926 | 74.77   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.3373   | 1224.294  | 1.29    |
| PERC./LEAKAGE THROUGH LAYER 4   | 6.427333 | 23330.712 | 24.53   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1718   |           |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 7.3315   | 26612.894 | 27.98   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000001 | 0.005     | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0031   |           |         |
| CHANGE IN WATER STORAGE         | -1.477   | -5361.579 | -5.64   |

D6-B-16

## Case 1 (Continued)

|                             |         |            |      |
|-----------------------------|---------|------------|------|
| SOIL WATER AT START OF YEAR | 221.254 | 803135.823 |      |
| SOIL WATER AT END OF YEAR   | 219.777 | 797774.244 |      |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000      | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000      | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.001     | 0.00 |

\*\*\*\*\*

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

\*\*\*\*\*

### MONTHLY TOTALS (IN INCHES) FOR YEAR 9

|                             | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION               | 0.51    | 3.06    | 2.77    | 6.60    | 0.23    | 3.79    |
|                             | 0.13    | 7.61    | 2.81    | 3.80    | 0.40    | 2.03    |
| RUNOFF                      | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                             | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION          | 1.235   | 1.621   | 2.951   | 3.437   | 0.348   | 2.326   |
|                             | 0.506   | 4.434   | 3.510   | 3.651   | 0.540   | 1.067   |
| LATERAL DRAINAGE COLLECTED  | 0.0002  | 0.0037  | 0.0401  | 0.0000  | 0.0947  | 0.1084  |
| FROM LAYER 3                | 0.0420  | 0.0000  | 0.0708  | 0.0693  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH | 0.2221  | 0.3916  | 0.8797  | 0.0369  | 1.6214  | 1.6175  |
| LAYER 4                     | 0.8942  | 0.0154  | 1.3545  | 0.9492  | 0.0154  | 0.0102  |
| LATERAL DRAINAGE COLLECTED  | 0.1968  | 0.1567  | 1.0453  | 0.2093  | 0.6713  | 1.0205  |
| FROM LAYER 6                | 1.0545  | 1.0545  | 0.9081  | 1.0545  | 0.6540  | 0.1165  |
| PERCOLATION/LEAKAGE THROUGH | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| LAYER 8                     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON   | 0.002 | 0.025 | 0.240 | 0.000 | 0.566 | 0.669 |
| TOP OF LAYER 4          | 0.251 | 0.000 | 0.437 | 0.414 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY | 0.001 | 0.042 | 0.306 | 0.000 | 0.527 | 0.681 |
| HEAD ON TOP OF LAYER 4  | 0.319 | 0.000 | 0.429 | 0.583 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON   | 0.002 | 0.001 | 0.005 | 0.002 | 0.003 | 0.005 |
| TOP OF LAYER 7          | 0.005 | 0.005 | 0.004 | 0.005 | 0.004 | 0.001 |
| STD. DEVIATION OF DAILY | 0.001 | 0.001 | 0.000 | 0.001 | 0.002 | 0.000 |
| HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 |

### ANNUAL TOTALS FOR YEAR 9

|                    | INCHES | CU. FEET   | PERCENT |
|--------------------|--------|------------|---------|
| PRECIPITATION      | 33.74  | 122473.531 | 100.00  |
| RUNOFF             | 0.000  | 0.000      | 0.00    |
| EVAPOTRANSPIRATION | 25.626 | 93018.954  | 75.95   |

D6-B-17

# Case 1 (Continued)

|                                 |          |            |       |
|---------------------------------|----------|------------|-------|
| DRAINAGE COLLECTED FROM LAYER 3 | 0.4293   | 1558.156   | 1.27  |
| PERC./LEAKAGE THROUGH LAYER 4   | 8.008055 | 29068.607  | 23.73 |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2171   |            |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 8.1417   | 29553.881  | 24.13 |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000001 | 0.005      | 0.00  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0036   |            |       |
| CHANGE IN WATER STORAGE         | -0.457   | -1657.464  | -1.35 |
| SOIL WATER AT START OF YEAR     | 219.777  | 797774.244 |       |
| SOIL WATER AT END OF YEAR       | 219.321  | 796116.780 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000      | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000      | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002     | 0.00  |

\*\*\*\*\*

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 10

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.69    | 3.20    | 1.58    | 2.60    | 3.46    | 2.01    |
|                                         | 2.79    | 1.18    | 8.51    | 0.14    | 2.97    | 1.29    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.923   | 0.588   | 2.616   | 2.722   | 3.114   | 2.527   |
|                                         | 2.729   | 1.238   | 5.501   | 0.656   | 0.902   | 0.983   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000  | 0.0001  | 0.0488  | 0.0404  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0034  | 0.0825  | 0.0148  | 0.0132  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.0362  | 0.1221  | 1.0990  | 0.6606  | 0.0186  | 0.0106  |
|                                         | 0.0082  | 0.0065  | 0.5026  | 1.5765  | 0.6734  | 0.5575  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0205  | 0.0579  | 0.4751  | 1.0205  | 0.3070  | 0.0731  |
|                                         | 0.0083  | 0.0065  | 0.1928  | 0.9514  | 1.0205  | 0.9496  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.000 | 0.001 | 0.292 | 0.250 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.021 | 0.493 | 0.092 | 0.080 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.001 | 0.001 | 0.325 | 0.422 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.039 | 0.463 | 0.171 | 0.122 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000 | 0.001 | 0.002 | 0.005 | 0.002 | 0.001 |
|                                                | 0.000 | 0.000 | 0.001 | 0.005 | 0.005 | 0.005 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 |
|                                                | 0.000 | 0.000 | 0.001 | 0.001 | 0.000 | 0.001 |

D6-B-18

# Case 1 (Continued)

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## ANNUAL TOTALS FOR YEAR 10

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 31.42    | 114052.114 | 100.00  |
| RUNOFF                          | 0.000    | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 25.499   | 92559.920  | 81.16   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.2032   | 737.618    | 0.65    |
| PERC./LEAKAGE THROUGH LAYER 4   | 5.271882 | 19136.514  | 16.78   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1023   |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 5.0830   | 18450.740  | 16.18   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000001 | 0.005      | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0022   |            |         |
| CHANGE IN WATER STORAGE         | 0.635    | 2303.833   | 2.02    |
| SOIL WATER AT START OF YEAR     | 219.321  | 796116.780 |         |
| SOIL WATER AT END OF YEAR       | 219.955  | 798420.613 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000      | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000      | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002     | 0.00    |

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## AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 10

|                                         | JAN/JUL       | FEB/AUG       | MAR/SEP       | APR/OCT       | MAY/NOV       | JUN/DEC       |
|-----------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PRECIPITATION                           |               |               |               |               |               |               |
| TOTALS                                  | 1.20 1.12     | 3.21 3.59     | 1.78 3.65     | 2.90 3.37     | 3.88 1.45     | 2.89 1.89     |
| STD. DEVIATIONS                         | 1.01 0.83     | 1.38 2.73     | 1.21 2.47     | 1.86 2.42     | 2.03 1.05     | 1.83 1.13     |
| RUNOFF                                  |               |               |               |               |               |               |
| TOTALS                                  | 0.000 0.000   | 0.000 0.000   | 0.000 0.000   | 0.000 0.017   | 0.042 0.000   | 0.000 0.000   |
| STD. DEVIATIONS                         | 0.000 0.000   | 0.000 0.000   | 0.000 0.000   | 0.000 0.054   | 0.132 0.000   | 0.000 0.000   |
| EVAPOTRANSPIRATION                      |               |               |               |               |               |               |
| TOTALS                                  | 1.338 1.236   | 1.542 2.745   | 2.266 2.834   | 2.399 2.020   | 3.179 0.986   | 2.559 1.155   |
| STD. DEVIATIONS                         | 0.542 0.751   | 0.560 1.572   | 0.702 1.491   | 1.049 1.086   | 1.308 0.344   | 1.559 0.372   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 |               |               |               |               |               |               |
| TOTALS                                  | 0.0172 0.0226 | 0.0056 0.0027 | 0.0373 0.0182 | 0.0167 0.0305 | 0.0138 0.0552 | 0.0428 0.0350 |
| STD. DEVIATIONS                         | 0.0292 0.0323 | 0.0141 0.0076 | 0.0292 0.0317 | 0.0311 0.0408 | 0.0296 0.0784 | 0.0674 0.0762 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     |               |               |               |               |               |               |

## Case 1 (Continued)

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.5017 | 0.3158 | 0.8179 | 0.3474 | 0.4454 | 0.6906 |
|                 | 0.3966 | 0.1055 | 0.4675 | 0.6589 | 0.8761 | 0.6899 |
| STD. DEVIATIONS | 0.4187 | 0.3702 | 0.5351 | 0.4552 | 0.5469 | 0.8760 |
|                 | 0.5423 | 0.1529 | 0.5384 | 0.6362 | 0.9248 | 0.7910 |

### LATERAL DRAINAGE COLLECTED FROM LAYER 6

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.6369 | 0.4264 | 0.6329 | 0.5735 | 0.4998 | 0.5064 |
|                 | 0.4589 | 0.4374 | 0.4508 | 0.4974 | 0.6201 | 0.5939 |
| STD. DEVIATIONS | 0.4668 | 0.3308 | 0.4059 | 0.4366 | 0.3997 | 0.4409 |
|                 | 0.4726 | 0.5317 | 0.3362 | 0.3944 | 0.4240 | 0.4734 |

### PERCOLATION/LEAKAGE THROUGH LAYER 8

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

#### DAILY AVERAGE HEAD ON TOP OF LAYER 4

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.1030 | 0.0375 | 0.2233 | 0.1036 | 0.0826 | 0.2641 |
|                 | 0.1351 | 0.0160 | 0.1125 | 0.1824 | 0.3409 | 0.2092 |
| STD. DEVIATIONS | 0.1741 | 0.0934 | 0.1741 | 0.1919 | 0.1768 | 0.4159 |
|                 | 0.1931 | 0.0455 | 0.1954 | 0.2438 | 0.4838 | 0.4553 |

#### DAILY AVERAGE HEAD ON TOP OF LAYER 7

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.0032 | 0.0027 | 0.0032 | 0.0031 | 0.0027 | 0.0028 |
|                 | 0.0024 | 0.0022 | 0.0025 | 0.0027 | 0.0032 | 0.0030 |
| STD. DEVIATIONS | 0.0021 | 0.0016 | 0.0018 | 0.0020 | 0.0017 | 0.0020 |
|                 | 0.0022 | 0.0025 | 0.0015 | 0.0017 | 0.0020 | 0.0022 |

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### AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 10

|                                         | INCHES             | CU. FEET  | PERCENT  |  |
|-----------------------------------------|--------------------|-----------|----------|--|
| PRECIPITATION                           | 30.92 ( 7.046)     | 112219.0  | 100.00   |  |
| RUNOFF                                  | 0.059 ( 0.1373)    | 213.92    | 0.191    |  |
| EVAPOTRANSPIRATION                      | 24.260 ( 4.1391)   | 88062.79  | 78.474   |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.29754 ( 0.23331) | 1080.053  | 0.96245  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 6.31326 ( 3.26522) | 22916.627 | 20.42134 |  |
| AVERAGE HEAD ON TOP OF LAYER 4          | 0.151 ( 0.118)     |           |          |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 6.33436 ( 2.72278) | 22993.243 | 20.48962 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.00000 ( 0.00000) | 0.004     | 0.00000  |  |
| AVERAGE HEAD ON TOP OF LAYER 7          | 0.003 ( 0.001)     |           |          |  |
| CHANGE IN WATER STORAGE                 | -0.036 ( 2.3669)   | -131.01   | -0.117   |  |

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## Case 1 (Continued)

PEAK DAILY VALUES FOR YEARS 1 THROUGH 10 and their dates (DDDDYYYY)

|                                                              | (INCHES) | (CU. FT.)   |           |         |
|--------------------------------------------------------------|----------|-------------|-----------|---------|
| PRECIPITATION                                                | 5.09     | 18476.29728 | 1290008   |         |
| RUNOFF                                                       | 0.419    | 1519.38840  | 1290008   |         |
| DRAINAGE COLLECTED FROM LAYER 3                              |          | 0.00970     | 35.21570  | 3500002 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4                          |          | 0.097669    | 354.53178 | 3500002 |
| AVERAGE HEAD ON TOP OF LAYER 4                               |          | 1.796       |           |         |
| MAXIMUM HEAD ON TOP OF LAYER 4                               |          | 3.518       |           |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 3<br>(DISTANCE FROM DRAIN) |          | 0.0 FEET    |           |         |
| DRAINAGE COLLECTED FROM LAYER 6                              |          | 0.03402     | 123.47247 | 10001   |
| PERCOLATION/LEAKAGE THROUGH LAYER 8                          |          | 0.000000    | 0.00003   | 2570002 |
| AVERAGE HEAD ON TOP OF LAYER 7                               |          | 0.005       |           |         |
| MAXIMUM HEAD ON TOP OF LAYER 7                               |          | 0.005       |           |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 6<br>(DISTANCE FROM DRAIN) |          | 0.0 FEET    |           |         |
| SNOW WATER                                                   | 1.95     | 7072.4948   | 3430003   |         |
| MAXIMUM VEG. SOIL WATER (VOL/VOL)                            |          | 0.4570      |           |         |
| MINIMUM VEG. SOIL WATER (VOL/VOL)                            |          | 0.0580      |           |         |

\*\*\* Maximum heads are computed using McEnroe's equations. \*\*\*

Reference: Maximum Saturated Depth over Landfill Liner  
by Bruce M. McEnroe, University of Kansas  
ASCE Journal of Environmental Engineering  
Vol. 119, No. 2, March 1993, pp. 262-270.

\*\*\*\*\*

FINAL WATER STORAGE AT END OF YEAR 10

| LAYER      | (INCHES) | (VOL/VOL) |
|------------|----------|-----------|
| 1          | 2.2911   | 0.1909    |
| 2          | 189.2160 | 0.2920    |
| 3          | 7.0080   | 0.2920    |
| 4          | 0.4099   | 0.4270    |
| 5          | 9.6252   | 0.4178    |
| 6          | 0.0051   | 0.0206    |
| 7          | 0.0000   | 0.0000    |
| 8          | 11.4000  | 0.4750    |
| SNOW WATER |          | 0.000     |

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## Case 2

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*****
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**
**
**
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE      **
**      HELP MODEL VERSION 3.07 (1 November 1997)          **
**      DEVELOPED BY ENVIRONMENTAL LABORATORY                **
**      USAE WATERWAYS EXPERIMENT STATION                   **
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY      **
**
**
*****
*****
```

PRECIPITATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather1.dat  
TEMPERATURE DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather2.dat  
SOLAR RADIATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather3.dat  
EVAPOTRANSPIRATION DATA: C:\WHI\UNSAT22\data\P922.VHP\weather4.dat  
SOIL AND DESIGN DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\O\_386042.inp  
OUTPUT DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\O\_386042.prt

TIME: 16:20 DATE: 8/6/2014

\*\*\*\*\*

TITLE: Case 2

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NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE  
COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.

### LAYER 1

-----

TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 18  
THICKNESS = 548.64 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2868 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC  
NOTE: SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY 5.00  
FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.

### LAYER 2

-----

TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 201  
THICKNESS = 60.96 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2961 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### LAYER 3

-----

TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 16  
THICKNESS = 2.44 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL

## Case 2 (Continued)

INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 4

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 230  
THICKNESS = 58.52 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4267 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 5

-----  
TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 222  
THICKNESS = 0.67 CM  
POROSITY = 0.8500 VOL/VOL  
FIELD CAPACITY = 0.0100 VOL/VOL  
WILTING POINT = 0.0050 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0280 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 10.3900000000 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### LAYER 6

-----  
TYPE 4 - FLEXIBLE MEMBRANE LINER  
MATERIAL TEXTURE NUMBER 235  
THICKNESS = 0.15 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.200000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

### LAYER 7

-----  
TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 15  
THICKNESS = 60.96 CM  
POROSITY = 0.4750 VOL/VOL  
FIELD CAPACITY = 0.3780 VOL/VOL  
WILTING POINT = 0.2650 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4750 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.170000000000E-04 CM/SEC

### GENERAL DESIGN AND EVAPORATIVE ZONE DATA

-----  
NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT  
SOIL DATA BASE USING SOIL TEXTURE #18 WITH A  
GOOD STAND OF GRASS, A SURFACE SLOPE OF 0.0%  
AND A SLOPE LENGTH OF 0.0 METERS.

SCS RUNOFF CURVE NUMBER = 0.00  
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT

## Case 2 (Continued)

AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES  
EVAPORATIVE ZONE DEPTH = 25.4 CM  
INITIAL WATER IN EVAPORATIVE ZONE = 4.572 CM  
UPPER LIMIT OF EVAPORATIVE STORAGE = 17.043 CM  
LOWER LIMIT OF EVAPORATIVE STORAGE = 1.956 CM  
INITIAL SNOW WATER = 0.000 CM  
INITIAL WATER IN LAYER MATERIALS = 230.396 CM  
TOTAL INITIAL WATER = 230.396 CM  
TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

### EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM  
Austin TX

STATION LATITUDE = 30.31 DEGREES  
MAXIMUM LEAF AREA INDEX = 4.50  
START OF GROWING SEASON (JULIAN DATE) = 44  
END OF GROWING SEASON (JULIAN DATE) = 346  
EVAPORATIVE ZONE DEPTH = 10.0 INCHES  
AVERAGE ANNUAL WIND SPEED = 9.30 MPH  
AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %  
AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 67.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

### NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 1.60    | 2.49    | 1.68    | 3.11    | 4.19    | 3.06    |
| 1.89    | 2.24    | 3.60    | 3.38    | 2.20    | 2.06    |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

### NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 49.10   | 53.20   | 60.50   | 68.70   | 74.90   | 81.60   |
| 84.70   | 84.50   | 79.20   | 69.80   | 58.70   | 52.10   |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX  
AND STATION LATITUDE = 29.88 DEGREES

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 3  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 2 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 6  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 5 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 1

|               | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |      |
|---------------|---------|---------|---------|---------|---------|---------|------|
| PRECIPITATION |         | 0.65    | 2.56    | 0.82    | 0.03    | 1.74    | 0.00 |

D6-B-24

Technically Complete October 28, 2014

## Case 2 (Continued)

|                             |        |        |        |        |        |        |  |
|-----------------------------|--------|--------|--------|--------|--------|--------|--|
|                             | 0.45   | 4.41   | 2.37   | 5.47   | 0.62   | 3.40   |  |
| RUNOFF                      | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                             | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| EVAPOTRANSPIRATION          | 1.309  | 1.202  | 2.535  | 0.030  | 1.537  | 0.202  |  |
|                             | 0.450  | 4.409  | 2.232  | 2.494  | 2.044  | 2.025  |  |
| LATERAL DRAINAGE COLLECTED  | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
| FROM LAYER 2                | 0.0000 | 0.0000 | 0.0000 | 0.0004 | 0.0044 | 0.0015 |  |
| PERCOLATION/LEAKAGE THROUGH | 0.0992 | 0.0000 | 0.0141 | 0.0000 | 0.0004 | 0.0000 |  |
| LAYER 3                     | 0.0000 | 0.0015 | 0.0000 | 0.3999 | 0.8601 | 0.6559 |  |
| LATERAL DRAINAGE COLLECTED  | 0.4333 | 0.0691 | 0.0141 | 0.0000 | 0.0004 | 0.0000 |  |
| FROM LAYER 5                | 0.0000 | 0.0015 | 0.0000 | 0.0242 | 0.9934 | 0.4214 |  |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
| LAYER 7                     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |  |
|-------------------------|-------|-------|-------|-------|-------|-------|--|
| AVERAGE DAILY HEAD ON   | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  |
| TOP OF LAYER 3          | 0.000 | 0.000 | 0.000 | 0.024 | 0.257 | 0.083 |  |
| STD. DEVIATION OF DAILY | 0.044 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  |
| HEAD ON TOP OF LAYER 3  | 0.000 | 0.000 | 0.000 | 0.040 | 0.333 | 0.144 |  |
| AVERAGE DAILY HEAD ON   | 0.003 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |  |
| TOP OF LAYER 6          | 0.000 | 0.000 | 0.000 | 0.000 | 0.006 | 0.003 |  |
| STD. DEVIATION OF DAILY | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |  |
| HEAD ON TOP OF LAYER 6  | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.002 |  |

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### ANNUAL TOTALS FOR YEAR 1

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 22.52    | 81745.818  | 100.00  |
| RUNOFF                          | 0.000    | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 20.468   | 74296.848  | 90.89   |
| DRAINAGE COLLECTED FROM LAYER 2 | 0.0065   | 23.774     | 0.03    |
| PERC./LEAKAGE THROUGH LAYER 3   | 2.031177 | 7373.011   | 9.02    |
| AVG. HEAD ON TOP OF LAYER 3     | 0.0313   |            |         |
| DRAINAGE COLLECTED FROM LAYER 5 | 1.9574   | 7105.030   | 8.69    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.000019 | 0.070      | 0.00    |
| AVG. HEAD ON TOP OF LAYER 6     | 0.0010   |            |         |
| CHANGE IN WATER STORAGE         | 0.088    | 320.098    | 0.39    |
| SOIL WATER AT START OF YEAR     | 90.707   | 329260.087 |         |
| SOIL WATER AT END OF YEAR       | 90.795   | 329580.185 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000      | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000      | 0.00    |

## Case 2 (Continued)

ANNUAL WATER BUDGET BALANCE      0.0000      -0.001      0.00

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 3  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 2 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 6  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 5 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 2

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.00    | 6.11    | 2.35    | 3.42    | 3.62    | 2.33    |
|                                         | 0.26    | 8.15    | 6.72    | 4.76    | 2.03    | 1.05    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.024   | 1.961   | 3.956   | 3.549   | 3.387   | 2.507   |
|                                         | 0.234   | 4.265   | 2.957   | 3.149   | 1.240   | 1.074   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 2 | 0.0003  | 0.0002  | 0.0130  | 0.0018  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0168  | 0.0238  | 0.0347  | 0.0044  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.1195  | 0.2467  | 1.7894  | 0.3570  | 0.0617  | 0.0000  |
|                                         | 0.0000  | 0.0633  | 1.9682  | 2.5207  | 3.1568  | 0.9275  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 5 | 0.5147  | 0.0828  | 0.8621  | 1.0204  | 0.4377  | 0.1219  |
|                                         | 0.0117  | 0.0019  | 0.6119  | 1.0545  | 1.0204  | 1.0545  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 3           | 0.016 | 0.014 | 0.727 | 0.104 | 0.001 | 0.000 |
|                                                | 0.000 | 0.003 | 0.971 | 1.335 | 2.010 | 0.244 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 3 | 0.056 | 0.044 | 0.643 | 0.232 | 0.003 | 0.000 |
|                                                | 0.000 | 0.010 | 0.803 | 0.469 | 0.344 | 0.400 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 6           | 0.003 | 0.001 | 0.005 | 0.006 | 0.003 | 0.001 |
|                                                | 0.000 | 0.000 | 0.003 | 0.006 | 0.006 | 0.006 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 6 | 0.002 | 0.000 | 0.002 | 0.000 | 0.002 | 0.000 |
|                                                | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 2

|                                 | INCHES | CU. FEET   | PERCENT |
|---------------------------------|--------|------------|---------|
| PRECIPITATION                   | 40.80  | 148100.772 | 100.00  |
| RUNOFF                          | 0.000  | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 29.303 | 106368.085 | 71.82   |
| DRAINAGE COLLECTED FROM LAYER 2 | 0.0950 | 344.815    | 0.23    |

D6-B-26

Technically Complete October 28, 2014

## Case 2 (Continued)

|                                 |           |            |       |
|---------------------------------|-----------|------------|-------|
| PERC./LEAKAGE THROUGH LAYER 3   | 11.210901 | 40694.685  | 27.48 |
| AVG. HEAD ON TOP OF LAYER 3     | 0.4520    |            |       |
| DRAINAGE COLLECTED FROM LAYER 5 | 6.7945    | 24663.448  | 16.65 |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.000066  | 0.238      | 0.00  |
| AVG. HEAD ON TOP OF LAYER 6     | 0.0033    |            |       |
| CHANGE IN WATER STORAGE         | 4.607     | 16724.188  | 11.29 |
| SOIL WATER AT START OF YEAR     | 90.795    | 329580.185 |       |
| SOIL WATER AT END OF YEAR       | 95.403    | 346304.373 |       |
| SNOW WATER AT START OF YEAR     | 0.000     | 0.000      | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000     | 0.000      | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000    | -0.002     | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 3  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 2 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 6  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 5 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 3

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.36    | 3.57    | 0.83    | 1.69    | 5.59    | 4.55    |
|                                         | 1.68    | 2.44    | 0.38    | 1.03    | 0.61    | 3.14    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.453   | 1.718   | 1.603   | 1.803   | 2.933   | 5.318   |
|                                         | 1.681   | 2.428   | 0.380   | 1.030   | 0.363   | 0.977   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 2 | 0.0000  | 0.0001  | 0.0054  | 0.0000  | 0.0000  | 0.0117  |
|                                         | 0.0008  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0006  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0124  | 0.2321  | 0.9581  | 0.0000  | 0.0000  | 1.6596  |
|                                         | 0.2162  | 0.0125  | 0.0000  | 0.0000  | 0.0000  | 0.4403  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 5 | 1.0545  | 0.9524  | 1.0545  | 1.0204  | 1.0545  | 1.0204  |
|                                         | 1.0545  | 0.6554  | 0.1133  | 0.0043  | 0.0000  | 0.0805  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 3           | 0.000 | 0.003 | 0.301 | 0.000 | 0.000 | 0.679 |
|                                                | 0.044 | 0.000 | 0.000 | 0.000 | 0.000 | 0.031 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 3 | 0.002 | 0.006 | 0.382 | 0.000 | 0.000 | 0.566 |
|                                                | 0.123 | 0.002 | 0.000 | 0.000 | 0.000 | 0.066 |

D6-B-27

Technically Complete October 28, 2014

## Case 2 (Continued)

|                                      |       |       |       |       |       |       |
|--------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 6 | 0.006 | 0.006 | 0.006 | 0.006 | 0.006 | 0.006 |
|                                      | 0.006 | 0.004 | 0.001 | 0.000 | 0.000 | 0.000 |

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 6 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.001 |

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### ANNUAL TOTALS FOR YEAR 3

|                                 | INCHES | CU. FEET  | PERCENT    |           |       |
|---------------------------------|--------|-----------|------------|-----------|-------|
| PRECIPITATION                   | 25.87  | 93906.053 | 100.00     |           |       |
| RUNOFF                          | 0.000  | 0.000     | 0.00       |           |       |
| EVAPOTRANSPIRATION              |        | 21.686    | 78719.109  | 83.83     |       |
| DRAINAGE COLLECTED FROM LAYER 2 |        |           | 0.0185     | 67.175    | 0.07  |
| PERC./LEAKAGE THROUGH LAYER 3   |        |           | 3.531124   | 12817.702 | 13.65 |
| AVG. HEAD ON TOP OF LAYER 3     |        | 0.0883    |            |           |       |
| DRAINAGE COLLECTED FROM LAYER 5 |        |           | 8.0646     | 29274.002 | 31.17 |
| PERC./LEAKAGE THROUGH LAYER 7   |        |           | 0.000077   | 0.281     | 0.00  |
| AVG. HEAD ON TOP OF LAYER 6     |        | 0.0038    |            |           |       |
| CHANGE IN WATER STORAGE         |        | -3.899    | -14154.512 | -15.07    |       |
| SOIL WATER AT START OF YEAR     |        | 95.403    | 346304.373 |           |       |
| SOIL WATER AT END OF YEAR       |        | 91.503    | 332149.861 |           |       |
| SNOW WATER AT START OF YEAR     |        | 0.000     | 0.000      | 0.00      |       |
| SNOW WATER AT END OF YEAR       |        | 0.000     | 0.000      | 0.00      |       |
| ANNUAL WATER BUDGET BALANCE     |        | 0.0000    | -0.001     | 0.00      |       |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 3  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 2 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 6  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 5 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 4

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 2.85    | 3.06    | 1.65    | 3.84    | 3.05    | 1.18    |
|                                         | 1.76    | 0.97    | 3.09    | 2.66    | 2.71    | 1.27    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.959   | 2.745   | 2.930   | 2.572   | 4.390   | 1.175   |
|                                         | 1.765   | 0.726   | 3.271   | 2.261   | 0.900   | 1.371   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 2 | 0.0015  | 0.0029  | 0.0010  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0006  | 0.0005  | 0.0000  |



### Case 2 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| PERCOLATION/LEAKAGE THROUGH | 0.7426 | 0.7533 | 0.3159 | 0.0050 | 0.0010 | 0.0000 |
| LAYER 3                     | 0.0000 | 0.0000 | 0.0585 | 0.4026 | 0.3984 | 0.1354 |

|                            |        |        |        |        |        |        |
|----------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED | 0.6270 | 0.8703 | 0.5762 | 0.1030 | 0.0010 | 0.0000 |
| FROM LAYER 5               | 0.0000 | 0.0000 | 0.0554 | 0.2329 | 0.2205 | 0.3878 |

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 7                     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                       |       |       |       |       |       |       |
|-----------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON | 0.087 | 0.176 | 0.059 | 0.000 | 0.000 | 0.000 |
| TOP OF LAYER 3        | 0.000 | 0.000 | 0.001 | 0.033 | 0.027 | 0.002 |

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY | 0.145 | 0.250 | 0.130 | 0.001 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 3  | 0.000 | 0.000 | 0.003 | 0.077 | 0.055 | 0.004 |

|                       |       |       |       |       |       |       |
|-----------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON | 0.004 | 0.005 | 0.004 | 0.001 | 0.000 | 0.000 |
| TOP OF LAYER 6        | 0.000 | 0.000 | 0.001 | 0.001 | 0.002 | 0.003 |

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY | 0.002 | 0.001 | 0.002 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 6  | 0.000 | 0.000 | 0.000 | 0.002 | 0.001 | 0.001 |

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## ANNUAL TOTALS FOR YEAR 4

|                                 | INCHES | CU. FEET   | PERCENT   |       |
|---------------------------------|--------|------------|-----------|-------|
| PRECIPITATION                   | 28.09  | 101964.478 | 100.00    |       |
| RUNOFF                          | 0.000  | 0.000      | 0.00      |       |
| EVAPOTRANSPIRATION              | 26.065 | 94614.288  | 92.79     |       |
| DRAINAGE COLLECTED FROM LAYER 2 |        | 0.0066     | 23.970    | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 3   |        | 2.812673   | 10209.781 | 10.01 |
| AVG. HEAD ON TOP OF LAYER 3     | 0.0319 |            |           |       |
| DRAINAGE COLLECTED FROM LAYER 5 |        | 3.0742     | 11158.983 | 10.94 |
| PERC./LEAKAGE THROUGH LAYER 7   |        | 0.000030   | 0.110     | 0.00  |
| AVG. HEAD ON TOP OF LAYER 6     | 0.0016 |            |           |       |
| CHANGE IN WATER STORAGE         | -1.056 | -3832.872  | -3.76     |       |
| SOIL WATER AT START OF YEAR     | 91.503 | 332149.861 |           |       |
| SOIL WATER AT END OF YEAR       | 90.447 | 328316.989 |           |       |
| SNOW WATER AT START OF YEAR     | 0.000  | 0.000      | 0.00      |       |
| SNOW WATER AT END OF YEAR       | 0.000  | 0.000      | 0.00      |       |
| ANNUAL WATER BUDGET BALANCE     | 0.0000 | -0.002     | 0.00      |       |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 3  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 2 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 6  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 5 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7

## Case 2 (Continued)

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 5

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.42    | 2.70    | 1.93    | 2.42    | 3.77    | 2.00    |
|                                         | 0.84    | 1.25    | 3.04    | 1.13    | 1.04    | 0.78    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 2.160   | 2.262   | 2.307   | 2.899   | 3.771   | 1.286   |
|                                         | 1.372   | 1.432   | 3.003   | 0.946   | 0.955   | 0.624   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 2 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0113  | 0.0002  | 0.0011  | 0.0023  | 0.0003  | 0.0000  |
|                                         | 0.0000  | 0.0002  | 0.0373  | 0.0000  | 0.0005  | 0.0000  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 5 | 0.1059  | 0.0038  | 0.0011  | 0.0022  | 0.0003  | 0.0000  |
|                                         | 0.0000  | 0.0002  | 0.0314  | 0.0060  | 0.0005  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 3           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 3 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 6           | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 6 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 5

|                                 | INCHES   | CU. FEET  | PERCENT |
|---------------------------------|----------|-----------|---------|
| PRECIPITATION                   | 22.32    | 81019.834 | 100.00  |
| RUNOFF                          | 0.000    | 0.000     | 0.00    |
| EVAPOTRANSPIRATION              | 23.017   | 83551.628 | 103.12  |
| DRAINAGE COLLECTED FROM LAYER 2 | 0.0000   | 0.051     | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.053121 | 192.824   | 0.24    |
| AVG. HEAD ON TOP OF LAYER 3     | 0.0001   |           |         |
| DRAINAGE COLLECTED FROM LAYER 5 | 0.1514   | 549.393   | 0.68    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.000002 | 0.006     | 0.00    |
| AVG. HEAD ON TOP OF LAYER 6     | 0.0001   |           |         |

## Case 2 (Continued)

|                             |        |            |       |
|-----------------------------|--------|------------|-------|
| CHANGE IN WATER STORAGE     | -0.849 | -3081.242  | -3.80 |
| SOIL WATER AT START OF YEAR | 90.447 | 328316.989 |       |
| SOIL WATER AT END OF YEAR   | 89.599 | 325235.746 |       |
| SNOW WATER AT START OF YEAR | 0.000  | 0.000      | 0.00  |
| SNOW WATER AT END OF YEAR   | 0.000  | 0.000      | 0.00  |
| ANNUAL WATER BUDGET BALANCE | 0.0000 | -0.001     | 0.00  |

\*\*\*\*\*

### AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 5

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

#### PRECIPITATION

|                 |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|
| TOTALS          | 1.06 | 3.60 | 1.52 | 2.28 | 3.55 | 2.01 |
|                 | 1.00 | 3.44 | 3.12 | 3.01 | 1.40 | 1.93 |
| STD. DEVIATIONS | 1.13 | 1.46 | 0.68 | 1.51 | 1.39 | 1.68 |
|                 | 0.69 | 2.96 | 2.29 | 2.04 | 0.93 | 1.24 |

#### RUNOFF

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| TOTALS          | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATIONS | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

#### EVAPOTRANSPIRATION

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| TOTALS          | 1.581 | 1.977 | 2.666 | 2.171 | 3.204 | 2.098 |
|                 | 1.100 | 2.652 | 2.369 | 1.976 | 1.100 | 1.214 |
| STD. DEVIATIONS | 0.469 | 0.578 | 0.867 | 1.352 | 1.074 | 1.978 |
|                 | 0.712 | 1.653 | 1.177 | 0.959 | 0.615 | 0.526 |

#### LATERAL DRAINAGE COLLECTED FROM LAYER 2

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0004 | 0.0006 | 0.0039 | 0.0004 | 0.0000 | 0.0023 |
|                 | 0.0002 | 0.0000 | 0.0034 | 0.0050 | 0.0079 | 0.0013 |
| STD. DEVIATIONS | 0.0006 | 0.0013 | 0.0055 | 0.0008 | 0.0000 | 0.0052 |
|                 | 0.0004 | 0.0000 | 0.0075 | 0.0105 | 0.0151 | 0.0018 |

#### PERCOLATION/LEAKAGE THROUGH LAYER 3

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.1970 | 0.2464 | 0.6157 | 0.0729 | 0.0127 | 0.3319 |
|                 | 0.0432 | 0.0155 | 0.4128 | 0.6646 | 0.8832 | 0.4318 |
| STD. DEVIATIONS | 0.3090 | 0.3076 | 0.7623 | 0.1589 | 0.0274 | 0.7422 |
|                 | 0.0967 | 0.0272 | 0.8699 | 1.0568 | 1.3195 | 0.3776 |

#### LATERAL DRAINAGE COLLECTED FROM LAYER 5

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.5471 | 0.3957 | 0.5016 | 0.4292 | 0.2988 | 0.2285 |
|                 | 0.2132 | 0.1318 | 0.1624 | 0.2644 | 0.4470 | 0.3888 |
| STD. DEVIATIONS | 0.3437 | 0.4726 | 0.4820 | 0.5413 | 0.4629 | 0.4459 |
|                 | 0.4703 | 0.2927 | 0.2547 | 0.4520 | 0.5191 | 0.4154 |

#### PERCOLATION/LEAKAGE THROUGH LAYER 7

## Case 2 (Continued)

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

#### DAILY AVERAGE HEAD ON TOP OF LAYER 3

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.0229 | 0.0385 | 0.2174 | 0.0209 | 0.0002 | 0.1358 |
|                 | 0.0088 | 0.0006 | 0.1945 | 0.2783 | 0.4586 | 0.0720 |
| STD. DEVIATIONS | 0.0363 | 0.0768 | 0.3109 | 0.0466 | 0.0004 | 0.3037 |
|                 | 0.0198 | 0.0012 | 0.4340 | 0.5908 | 0.8738 | 0.1018 |

#### DAILY AVERAGE HEAD ON TOP OF LAYER 6

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.0033 | 0.0025 | 0.0028 | 0.0025 | 0.0017 | 0.0014 |
|                 | 0.0012 | 0.0008 | 0.0011 | 0.0015 | 0.0026 | 0.0023 |
| STD. DEVIATIONS | 0.0017 | 0.0027 | 0.0026 | 0.0030 | 0.0025 | 0.0025 |
|                 | 0.0025 | 0.0018 | 0.0014 | 0.0024 | 0.0029 | 0.0022 |

\*\*\*\*\*

### AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 5

|                                         | INCHES             | CU. FEET  | PERCENT  |  |  |
|-----------------------------------------|--------------------|-----------|----------|--|--|
| PRECIPITATION                           | 27.92 ( 7.594)     | 101347.4  | 100.00   |  |  |
| RUNOFF                                  | 0.000 ( 0.0000)    | 0.00      | 0.000    |  |  |
| EVAPOTRANSPIRATION                      | 24.108 ( 3.5751)   | 87509.99  | 86.347   |  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 2 | 0.02533 ( 0.03951) | 91.957    | 0.09073  |  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 3.92780 ( 4.27360) | 14257.601 | 14.06805 |  |  |
| AVERAGE HEAD ON TOP OF LAYER 3          | 0.121 ( 0.188)     |           |          |  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 5 | 4.00840 ( 3.32309) | 14550.171 | 14.35673 |  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.00004 ( 0.00003) | 0.141     | 0.00014  |  |  |
| AVERAGE HEAD ON TOP OF LAYER 6          | 0.002 ( 0.002)     |           |          |  |  |
| CHANGE IN WATER STORAGE                 | -0.222 ( 3.0834)   | -804.87   | -0.794   |  |  |

\*\*\*\*\*

### PEAK DAILY VALUES FOR YEARS 1 THROUGH 5 and their dates (DDDDYYYY)

|                                 | (INCHES) | (CU. FT.)  |         |  |  |
|---------------------------------|----------|------------|---------|--|--|
| PRECIPITATION                   | 2.30     | 8348.81803 | 2340002 |  |  |
| RUNOFF                          | 0.000    | 0.00000    | 0       |  |  |
| DRAINAGE COLLECTED FROM LAYER 2 | 0.00140  | 5.07487    | 3300002 |  |  |

## Case 2 (Continued)

PERCOLATION/LEAKAGE THROUGH LAYER 3    0.120054    435.78715    3300002

AVERAGE HEAD ON TOP OF LAYER 3            2.428

MAXIMUM HEAD ON TOP OF LAYER 3           4.227

LOCATION OF MAXIMUM HEAD IN LAYER 2  
(DISTANCE FROM DRAIN)            31.8 FEET

DRAINAGE COLLECTED FROM LAYER 5        0.03410        123.76816    260004

PERCOLATION/LEAKAGE THROUGH LAYER 7    0.000000        0.00118    260004

AVERAGE HEAD ON TOP OF LAYER 6        0.006

MAXIMUM HEAD ON TOP OF LAYER 6        0.011

LOCATION OF MAXIMUM HEAD IN LAYER 5  
(DISTANCE FROM DRAIN)            0.1 FEET

SNOW WATER                            1.95        7072.4948    3430003

MAXIMUM VEG. SOIL WATER (VOL/VOL)            0.4068

MINIMUM VEG. SOIL WATER (VOL/VOL)           0.0770

\*\*\* Maximum heads are computed using McEnroe's equations. \*\*\*

Reference: Maximum Saturated Depth over Landfill Liner  
by Bruce M. McEnroe, University of Kansas  
ASCE Journal of Environmental Engineering  
Vol. 119, No. 2, March 1993, pp. 262-270.

\*\*\*\*\*

### FINAL WATER STORAGE AT END OF YEAR 5

| LAYER      | (INCHES) | (VOL/VOL) |
|------------|----------|-----------|
| 1          | 61.3460  | 0.2840    |
| 2          | 7.0080   | 0.2920    |
| 3          | 0.4099   | 0.4270    |
| 4          | 9.4320   | 0.4094    |
| 5          | 0.0027   | 0.0100    |
| 6          | 0.0000   | 0.0000    |
| 7          | 11.4000  | 0.4750    |
| SNOW WATER | 0.000    |           |

\*\*\*\*\*

### Case 3

```
*****
*****
**                                     **
**                                     **
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE      **
**      HELP MODEL VERSION 3.07 (1 November 1997)          **
**      DEVELOPED BY ENVIRONMENTAL LABORATORY              **
**      USAE WATERWAYS EXPERIMENT STATION                  **
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY     **
**                                     **
**                                     **
*****
*****
```

PRECIPITATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather1.dat  
TEMPERATURE DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather2.dat  
SOLAR RADIATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather3.dat  
EVAPOTRANSPIRATION DATA: C:\WHI\UNSAT22\data\P922.VHP\weather4.dat  
SOIL AND DESIGN DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\386791.inp  
OUTPUT DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\O\_386791.prt

TIME: 16:16 DATE: 8/6/2014

```
*****
TITLE: Case 3
*****
```

NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE  
COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.

#### LAYER 1

##### TYPE 1 - VERTICAL PERCOLATION LAYER MATERIAL TEXTURE NUMBER 130

THICKNESS = 30.48 CM  
POROSITY = 0.4570 VOL/VOL  
FIELD CAPACITY = 0.1310 VOL/VOL  
WILTING POINT = 0.0580 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.1508 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC

#### LAYER 2

##### TYPE 1 - VERTICAL PERCOLATION LAYER MATERIAL TEXTURE NUMBER 18

THICKNESS = 4541.52 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2922 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000224000E-02 CM/SEC

#### LAYER 3

##### TYPE 2 - LATERAL DRAINAGE LAYER MATERIAL TEXTURE NUMBER 201

THICKNESS = 60.96 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.3055 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### Case 3 (Continued)

#### LAYER 4

-----  
TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 16  
THICKNESS = 2.44 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

#### LAYER 5

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 230  
THICKNESS = 58.52 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4267 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

#### LAYER 6

-----  
TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 223  
THICKNESS = 0.54 CM  
POROSITY = 0.8500 VOL/VOL  
FIELD CAPACITY = 0.0100 VOL/VOL  
WILTING POINT = 0.0050 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0951 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 2.760000000000 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

#### LAYER 7

-----  
TYPE 4 - FLEXIBLE MEMBRANE LINER  
MATERIAL TEXTURE NUMBER 235  
THICKNESS = 0.15 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.200000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

#### LAYER 8

-----  
TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 15  
THICKNESS = 60.96 CM  
POROSITY = 0.4750 VOL/VOL  
FIELD CAPACITY = 0.3780 VOL/VOL  
WILTING POINT = 0.2650 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4750 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-06 CM/SEC

#### GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT  
SOIL DATA BASE USING SOIL TEXTURE #\*\* WITH A  
GOOD STAND OF GRASS, A SURFACE SLOPE OF 30.%

### Case 3 (Continued)

AND A SLOPE LENGTH OF 30. METERS.

SCS RUNOFF CURVE NUMBER = 0.00  
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT  
AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES  
EVAPORATIVE ZONE DEPTH = 25.4 CM  
INITIAL WATER IN EVAPORATIVE ZONE = 3.641 CM  
UPPER LIMIT OF EVAPORATIVE STORAGE = 11.608 CM  
LOWER LIMIT OF EVAPORATIVE STORAGE = 1.473 CM  
INITIAL SNOW WATER = 0.000 CM  
INITIAL WATER IN LAYER MATERIALS = 1405.156 CM  
TOTAL INITIAL WATER = 1405.156 CM  
TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

#### EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM  
Austin TX

STATION LATITUDE = 30.31 DEGREES  
MAXIMUM LEAF AREA INDEX = 4.50  
START OF GROWING SEASON (JULIAN DATE) = 44  
END OF GROWING SEASON (JULIAN DATE) = 346  
EVAPORATIVE ZONE DEPTH = 10.0 INCHES  
AVERAGE ANNUAL WIND SPEED = 9.30 MPH  
AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %  
AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 67.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

#### NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 1.60    | 2.49    | 1.68    | 3.11    | 4.19    | 3.06    |
| 1.89    | 2.24    | 3.60    | 3.38    | 2.20    | 2.06    |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

#### NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 49.10   | 53.20   | 60.50   | 68.70   | 74.90   | 81.60   |
| 84.70   | 84.50   | 79.20   | 69.80   | 58.70   | 52.10   |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX  
AND STATION LATITUDE = 29.88 DEGREES

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

\*\*\*\*\*

#### MONTHLY TOTALS (IN INCHES) FOR YEAR 1

|               | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION | 0.65    | 2.56    | 0.82    | 0.03    | 1.74    | 0.00    |

D6-B-35

Technically Complete October 28, 2014



### Case 3 (Continued)

|                                         |        |        |        |        |        |        |  |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|--|
|                                         | 0.45   | 4.41   | 2.37   | 5.47   | 0.62   | 3.40   |  |
| RUNOFF                                  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| EVAPOTRANSPIRATION                      | 0.771  | 1.435  | 2.192  | 0.029  | 1.736  | 0.003  |  |
|                                         | 0.448  | 4.070  | 2.206  | 2.563  | 1.337  | 1.944  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0038 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0078 | 0.0008 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.7484 | 0.0621 | 0.3117 | 0.0681 | 0.0189 | 0.0106 |  |
|                                         | 0.0075 | 0.1867 | 0.1182 | 0.2742 | 1.4551 | 0.6042 |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.9648 | 0.0764 | 0.2739 | 0.0925 | 0.0804 | 0.0547 |  |
|                                         | 0.0437 | 0.0315 | 0.1316 | 0.1579 | 0.9282 | 0.9951 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |  |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.214 | 0.001 | 0.003 | 0.001 | 0.000 | 0.000 |  |
|                                                | 0.000 | 0.004 | 0.004 | 0.004 | 0.450 | 0.043 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.305 | 0.000 | 0.003 | 0.001 | 0.000 | 0.000 |  |
|                                                | 0.000 | 0.010 | 0.018 | 0.009 | 0.365 | 0.071 |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.020 | 0.002 | 0.006 | 0.002 | 0.002 | 0.001 |  |
|                                                | 0.001 | 0.001 | 0.003 | 0.003 | 0.019 | 0.020 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.005 | 0.000 | 0.004 | 0.002 | 0.001 | 0.000 |  |
|                                                | 0.000 | 0.000 | 0.004 | 0.003 | 0.005 | 0.003 |  |

#### ANNUAL TOTALS FOR YEAR 1

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 22.52    | 81745.818   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 18.735   | 68004.810   | 83.19   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0126   | 45.671      | 0.06    |
| PERC./LEAKAGE THROUGH LAYER 4   | 3.865597 | 14031.810   | 17.17   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0603   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 3.8307   | 13905.021   | 17.01   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000005 | 0.019       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0066   |             |         |
| CHANGE IN WATER STORAGE         | -0.058   | -209.702    | -0.26   |
| SOIL WATER AT START OF YEAR     | 553.211  | 2008112.343 |         |
| SOIL WATER AT END OF YEAR       | 553.153  | 2007902.641 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

### Case 3 (Continued)

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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#### MONTHLY TOTALS (IN INCHES) FOR YEAR 2

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.00<br>0.26   | 6.11<br>8.15     | 2.35<br>6.72     | 3.42<br>4.76     | 3.62<br>2.03     | 2.33<br>1.05     |
| RUNOFF                                  | 0.000<br>0.000 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      |                | 0.659<br>0.226   | 2.103<br>2.601   | 2.901<br>2.757   | 3.495<br>1.019   | 2.995<br>1.140   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 |                | 0.0033<br>0.0000 | 0.0004<br>0.0001 | 0.0066<br>0.0100 | 0.0119<br>0.0179 | 0.0002<br>0.0268 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     |                | 0.6932<br>0.0189 | 0.4953<br>1.3834 | 1.2666<br>1.6688 | 1.5762<br>2.1223 | 0.4227<br>2.7015 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.9430<br>0.0820 | 0.3603<br>0.0540 | 0.7944<br>1.0545 | 1.0205<br>1.0205 | 1.0545<br>1.0545 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                |                |                |                |                |                |
|------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.186<br>0.000 | 0.025<br>0.003 | 0.367<br>0.478 | 0.687<br>0.559 | 0.013<br>1.037 | 0.014<br>1.499 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.283<br>0.000 | 0.029<br>0.011 | 0.380<br>0.515 | 0.542<br>0.230 | 0.021<br>0.398 | 0.043<br>0.279 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.019<br>0.002 | 0.008<br>0.001 | 0.016<br>0.013 | 0.021<br>0.021 | 0.021<br>0.021 | 0.015<br>0.021 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.005<br>0.000 | 0.008<br>0.000 | 0.008<br>0.010 | 0.000<br>0.000 | 0.000<br>0.000 | 0.009<br>0.000 |

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#### ANNUAL TOTALS FOR YEAR 2

|                                 | INCHES    | CU. FEET   | PERCENT |
|---------------------------------|-----------|------------|---------|
| PRECIPITATION                   | 40.80     | 148100.772 | 100.00  |
| RUNOFF                          | 0.000     | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 26.604    | 96571.321  | 65.21   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0856    | 310.583    | 0.21    |
| PERC./LEAKAGE THROUGH LAYER 4   | 12.607525 | 45764.316  | 30.90   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.4058    |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 8.7847    | 31887.860  | 21.53   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000009  | 0.031      | 0.00    |

### Case 3 (Continued)

|                             |         |             |       |
|-----------------------------|---------|-------------|-------|
| AVG. HEAD ON TOP OF LAYER 7 | 0.0151  |             |       |
| CHANGE IN WATER STORAGE     | 5.325   | 19330.979   | 13.05 |
| SOIL WATER AT START OF YEAR | 553.153 | 2007902.641 |       |
| SOIL WATER AT END OF YEAR   | 558.479 | 2027233.621 |       |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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#### MONTHLY TOTALS (IN INCHES) FOR YEAR 3

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.36<br>1.68     | 3.57<br>2.44     | 0.83<br>0.38     | 1.69<br>1.03     | 5.59<br>0.61     | 4.55<br>3.14     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 0.693<br>1.680   | 1.572<br>2.439   | 1.104<br>0.378   | 1.968<br>1.028   | 2.982<br>0.346   | 4.773<br>1.043   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0202<br>0.0079 | 0.0002<br>0.0000 | 0.0091<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0064<br>0.0007 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 2.2965<br>1.0256 | 0.2100<br>0.0150 | 1.5214<br>0.0095 | 0.0344<br>0.0075 | 0.0125<br>0.0056 | 1.3333<br>0.5461 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 1.0545<br>1.0545 | 0.9524<br>1.0545 | 1.0545<br>1.0205 | 1.0205<br>1.0545 | 1.0545<br>0.2617 | 1.0205<br>0.2405 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                |                |                |                |                |                |
|------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 1.131<br>0.443 | 0.010<br>0.000 | 0.507<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.369<br>0.040 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.451<br>0.572 | 0.024<br>0.000 | 0.403<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.359<br>0.093 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.021<br>0.021 | 0.021<br>0.021 | 0.021<br>0.021 | 0.021<br>0.021 | 0.021<br>0.005 | 0.021<br>0.005 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.000<br>0.008 | 0.000<br>0.007 |

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#### ANNUAL TOTALS FOR YEAR 3

| INCHES | CU. FEET | PERCENT |
|--------|----------|---------|
|--------|----------|---------|

D6-B-38

Technically Complete October 28, 2014

### Case 3 (Continued)

|                                 |          |             |        |
|---------------------------------|----------|-------------|--------|
| PRECIPITATION                   | 25.87    | 93906.053   | 100.00 |
| RUNOFF                          | 0.000    | 0.000       | 0.00   |
| EVAPOTRANSPIRATION              | 20.006   | 72620.544   | 77.33  |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0444   | 161.051     | 0.17   |
| PERC./LEAKAGE THROUGH LAYER 4   | 7.017442 | 25472.759   | 27.13  |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2083   |             |        |
| DRAINAGE COLLECTED FROM LAYER 6 | 10.8429  | 39358.724   | 41.91  |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000010 | 0.036       | 0.00   |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0187   |             |        |
| CHANGE IN WATER STORAGE         | -5.023   | -18234.300  | -19.42 |
| SOIL WATER AT START OF YEAR     | 558.479  | 2027233.621 |        |
| SOIL WATER AT END OF YEAR       | 553.455  | 2008999.321 |        |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00   |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00   |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00   |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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#### MONTHLY TOTALS (IN INCHES) FOR YEAR 4

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 2.85<br>1.76     | 3.06<br>0.97     | 1.65<br>3.09     | 3.84<br>2.66     | 3.05<br>2.71     | 1.18<br>1.27     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 2.057<br>1.761   | 1.968<br>0.726   | 2.312<br>2.764   | 2.868<br>1.824   | 4.206<br>0.906   | 1.177<br>0.900   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0016<br>0.0000 | 0.0001<br>0.0000 | 0.0053<br>0.0006 | 0.0000<br>0.0022 | 0.0000<br>0.0007 | 0.0000<br>0.0010 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.9845<br>0.0131 | 0.4280<br>0.0087 | 1.1791<br>0.5073 | 0.0543<br>0.8319 | 0.1478<br>0.6391 | 0.0246<br>0.3665 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.9673<br>0.0652 | 0.6113<br>0.0487 | 0.9306<br>0.3772 | 0.3867<br>0.4921 | 0.1468<br>0.7319 | 0.0621<br>0.6134 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                      |       |       |       |       |       |       |
|--------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4 | 0.087 | 0.008 | 0.297 | 0.001 | 0.002 | 0.000 |
|                                      | 0.000 | 0.000 | 0.037 | 0.123 | 0.043 | 0.056 |

### Case 3 (Continued)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.084 | 0.014 | 0.304 | 0.000 | 0.005 | 0.000 |
|                                                | 0.000 | 0.000 | 0.077 | 0.161 | 0.081 | 0.135 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.020 | 0.013 | 0.019 | 0.008 | 0.003 | 0.001 |
|                                                | 0.001 | 0.001 | 0.008 | 0.010 | 0.015 | 0.012 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.004 | 0.008 | 0.006 | 0.010 | 0.003 | 0.001 |
|                                                | 0.001 | 0.000 | 0.009 | 0.009 | 0.007 | 0.009 |

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#### ANNUAL TOTALS FOR YEAR 4

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 28.09    | 101964.478  | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 23.469   | 85190.002   | 83.55   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0116   | 41.971      | 0.04    |
| PERC./LEAKAGE THROUGH LAYER 4   | 5.184961 | 18821.000   | 18.46   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0546   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 5.4333   | 19722.624   | 19.34   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000006 | 0.023       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0094   |             |         |
| CHANGE IN WATER STORAGE         | -0.824   | -2990.141   | -2.93   |
| SOIL WATER AT START OF YEAR     | 553.455  | 2008999.321 |         |
| SOIL WATER AT END OF YEAR       | 552.632  | 2006009.180 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

365 0.18 0.000 0.041 0.0971 0.0000 .4063E-09 .2019E-03 0.0008 .1256E-02 .7947E-08

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#### MONTHLY TOTALS (IN INCHES) FOR YEAR 5

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.42    | 2.70    | 1.93    | 2.42    | 3.77    | 2.00    |
|                                         | 0.84    | 1.25    | 3.04    | 1.13    | 1.04    | 0.78    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 2.056   | 2.093   | 2.326   | 3.020   | 3.641   | 1.319   |
|                                         | 1.351   | 1.420   | 2.889   | 0.983   | 0.977   | 0.595   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### Case 3 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.0831 | 0.0280 | 0.0269 | 0.0332 | 0.1045 | 0.0344 |
|                                         | 0.0151 | 0.0094 | 0.0977 | 0.0317 | 0.0149 | 0.0099 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0837 | 0.0620 | 0.0670 | 0.0553 | 0.0517 | 0.0631 |
|                                         | 0.0533 | 0.0421 | 0.0357 | 0.0545 | 0.0440 | 0.0366 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 |
|                                                | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.002 | 0.000 |
|                                                | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
|                                                | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

#### ANNUAL TOTALS FOR YEAR 5

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 22.32    | 81019.834   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 22.668   | 82282.843   | 101.56  |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0000   | 0.088       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 4   | 0.488631 | 1773.692    | 2.19    |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0004   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.6492   | 2356.524    | 2.91    |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000003 | 0.011       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0011   |             |         |
| CHANGE IN WATER STORAGE         | -0.997   | -3619.632   | -4.47   |
| SOIL WATER AT START OF YEAR     | 552.632  | 2006009.180 |         |
| SOIL WATER AT END OF YEAR       | 551.634  | 2002389.548 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

#### MONTHLY TOTALS (IN INCHES) FOR YEAR 6

### Case 3 (Continued)

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PRECIPITATION                           | 2.84   | 3.09   | 4.52   | 0.95   | 5.99   | 3.95   |
|                                         | 1.57   | 4.88   | 3.80   | 6.63   | 2.35   | 0.40   |
| RUNOFF                                  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                         | 0.000  | 0.000  | 0.000  | 0.171  | 0.000  | 0.000  |
| EVAPOTRANSPIRATION                      | 1.442  | 2.018  | 3.139  | 2.059  | 3.697  | 4.667  |
|                                         | 1.575  | 3.906  | 3.862  | 2.136  | 1.425  | 1.001  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0002 | 0.0050 | 0.0037 | 0.0014 | 0.0001 | 0.0060 |
|                                         | 0.0000 | 0.0001 | 0.0021 | 0.0023 | 0.0215 | 0.0035 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.4210 | 1.2584 | 0.7372 | 0.6639 | 0.2216 | 1.3447 |
|                                         | 0.0252 | 0.2653 | 0.6270 | 0.7363 | 2.3420 | 0.9097 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0576 | 0.9416 | 1.0545 | 0.8671 | 0.1479 | 0.8457 |
|                                         | 0.6274 | 0.0799 | 0.7832 | 0.3922 | 1.0205 | 1.0545 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.011 | 0.308 | 0.208 | 0.083 | 0.007 | 0.347 |
|                                                | 0.000 | 0.006 | 0.119 | 0.127 | 1.243 | 0.199 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.020 | 0.177 | 0.365 | 0.116 | 0.018 | 0.343 |
|                                                | 0.000 | 0.012 | 0.194 | 0.164 | 0.338 | 0.232 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.001 | 0.021 | 0.021 | 0.018 | 0.003 | 0.018 |
|                                                | 0.013 | 0.002 | 0.016 | 0.008 | 0.021 | 0.021 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.002 | 0.001 | 0.000 | 0.005 | 0.004 | 0.006 |
|                                                | 0.010 | 0.001 | 0.008 | 0.009 | 0.000 | 0.000 |

#### ANNUAL TOTALS FOR YEAR 6

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 40.97    | 148717.858  | 100.00  |
| RUNOFF                          | 0.171    | 619.841     | 0.42    |
| EVAPOTRANSPIRATION              | 30.927   | 112262.405  | 75.49   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0458   | 166.420     | 0.11    |
| PERC./LEAKAGE THROUGH LAYER 4   | 9.552406 | 34674.479   | 23.32   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2216   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 7.8721   | 28574.949   | 19.21   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000008 | 0.029       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0137   |             |         |
| CHANGE IN WATER STORAGE         | 1.954    | 7094.216    | 4.77    |
| SOIL WATER AT START OF YEAR     | 551.634  | 2002389.548 |         |
| SOIL WATER AT END OF YEAR       | 553.589  | 2009483.765 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |

### Case 3 (Continued)

ANNUAL WATER BUDGET BALANCE                      0.0000                      -0.002                      0.00

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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#### MONTHLY TOTALS (IN INCHES) FOR YEAR 7

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.24    | 0.57    | 0.63    | 4.49    | 4.20    | 6.40    |
|                                         | 0.64    | 4.20    | 4.71    | 6.58    | 0.00    | 3.56    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.121   | 0.622   | 1.157   | 2.875   | 4.601   | 4.100   |
|                                         | 1.036   | 4.194   | 3.786   | 3.523   | 1.079   | 1.385   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0027  | 0.0000  |
|                                         | 0.0093  | 0.0036  | 0.0000  | 0.0002  | 0.0075  | 0.0067  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.1368  | 0.0417  | 0.0172  | 0.0863  | 0.9169  | 0.0236  |
|                                         | 1.5027  | 0.5666  | 0.0350  | 0.3917  | 1.4087  | 1.3595  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 1.0545  | 0.6556  | 0.0763  | 0.0510  | 0.7836  | 0.1657  |
|                                         | 0.6822  | 1.0545  | 0.3527  | 0.3588  | 0.7455  | 1.0545  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.001 | 0.000 | 0.000 | 0.001 | 0.150 | 0.000 |
|                                                | 0.523 | 0.200 | 0.000 | 0.014 | 0.434 | 0.374 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.001 | 0.000 | 0.000 | 0.003 | 0.194 | 0.001 |
|                                                | 0.525 | 0.382 | 0.000 | 0.024 | 0.399 | 0.513 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.021 | 0.015 | 0.002 | 0.001 | 0.016 | 0.003 |
|                                                | 0.014 | 0.021 | 0.007 | 0.007 | 0.016 | 0.021 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000 | 0.009 | 0.001 | 0.000 | 0.009 | 0.005 |
|                                                | 0.010 | 0.000 | 0.009 | 0.007 | 0.008 | 0.000 |

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#### ANNUAL TOTALS FOR YEAR 7

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 37.22    | 135105.655 | 100.00  |
| RUNOFF                          | 0.000    | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 29.479   | 107008.164 | 79.20   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0300   | 109.048    | 0.08    |
| PERC./LEAKAGE THROUGH LAYER 4   | 6.486641 | 23545.992  | 17.43   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1417   |            |         |



### Case 3 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| DRAINAGE COLLECTED FROM LAYER 6 | 7.0349   | 25536.197   | 18.90 |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000007 | 0.027       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0121   |             |       |
| CHANGE IN WATER STORAGE         | 0.676    | 2452.220    | 1.82  |
| SOIL WATER AT START OF YEAR     | 553.589  | 2009483.765 |       |
| SOIL WATER AT END OF YEAR       | 554.264  | 2011935.985 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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#### MONTHLY TOTALS (IN INCHES) FOR YEAR 8

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.45<br>1.05     | 4.17<br>0.80     | 0.68<br>1.04     | 2.95<br>1.46     | 7.17<br>1.78     | 2.71<br>1.94     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.419<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.419<br>1.049   | 1.397<br>0.800   | 1.966<br>0.838   | 1.521<br>1.082   | 4.471<br>1.333   | 2.220<br>1.494   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0002<br>0.0057 | 0.0000<br>0.0000 | 0.0069<br>0.0000 | 0.0025<br>0.0000 | 0.0016<br>0.0000 | 0.0216<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.4529<br>0.8196 | 0.1296<br>0.0160 | 1.3073<br>0.0098 | 0.5028<br>0.0073 | 0.9818<br>0.0055 | 2.3498<br>0.1471 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 1.0545<br>1.0545 | 0.4615<br>1.0545 | 0.7129<br>0.3827 | 1.0171<br>0.0588 | 0.8315<br>0.0439 | 1.0205<br>0.0303 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                |                |                |                |                |                |
|------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.012<br>0.317 | 0.003<br>0.000 | 0.389<br>0.000 | 0.147<br>0.000 | 0.092<br>0.000 | 1.251<br>0.001 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.022<br>0.457 | 0.008<br>0.000 | 0.430<br>0.000 | 0.293<br>0.000 | 0.111<br>0.000 | 0.332<br>0.002 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.021<br>0.021 | 0.010<br>0.021 | 0.014<br>0.008 | 0.021<br>0.001 | 0.017<br>0.001 | 0.021<br>0.001 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000<br>0.000 | 0.009<br>0.000 | 0.009<br>0.009 | 0.000<br>0.000 | 0.005<br>0.000 | 0.000<br>0.000 |

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### Case 3 (Continued)

| ANNUAL TOTALS FOR YEAR 8        |          |             |         |
|---------------------------------|----------|-------------|---------|
|                                 | INCHES   | CU. FEET    | PERCENT |
| PRECIPITATION                   | 26.20    | 95103.927   | 100.00  |
| RUNOFF                          | 0.419    | 1519.388    | 1.60    |
| EVAPOTRANSPIRATION              | 19.590   | 71108.926   | 74.77   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0386   | 140.226     | 0.15    |
| PERC./LEAKAGE THROUGH LAYER 4   | 6.729451 | 24427.374   | 25.68   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1844   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 7.7226   | 28032.543   | 29.48   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000008 | 0.029       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0133   |             |         |
| CHANGE IN WATER STORAGE         | -1.570   | -5697.183   | -5.99   |
| SOIL WATER AT START OF YEAR     | 554.264  | 2011935.985 |         |
| SOIL WATER AT END OF YEAR       | 552.695  | 2006238.802 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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| MONTHLY TOTALS (IN INCHES) FOR YEAR 9   |                  |                  |                  |                  |                  |                  |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
| PRECIPITATION                           | 0.51<br>0.13     | 3.06<br>7.61     | 2.77<br>2.81     | 6.60<br>3.80     | 0.23<br>0.40     | 3.79<br>2.03     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.235<br>0.506   | 1.621<br>4.434   | 2.951<br>3.510   | 3.437<br>3.651   | 0.348<br>0.540   | 2.326<br>1.067   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000<br>0.0048 | 0.0004<br>0.0000 | 0.0046<br>0.0071 | 0.0000<br>0.0087 | 0.0095<br>0.0000 | 0.0139<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.2232<br>0.9350 | 0.3911<br>0.0156 | 0.9181<br>1.3396 | 0.0369<br>1.0884 | 1.5724<br>0.0154 | 1.8423<br>0.0101 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.2010<br>1.0545 | 0.1644<br>1.0545 | 1.0541<br>1.0205 | 0.1513<br>1.0545 | 0.7613<br>0.8335 | 1.0205<br>0.0741 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

### Case 3 (Continued)

|                                                   |       |       |       |       |       |       |
|---------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 4           | 0.002 | 0.025 | 0.256 | 0.000 | 0.532 | 0.807 |
|                                                   | 0.267 | 0.000 | 0.412 | 0.488 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 4 | 0.001 | 0.043 | 0.314 | 0.000 | 0.507 | 0.698 |
|                                                   | 0.328 | 0.000 | 0.416 | 0.618 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7           | 0.004 | 0.004 | 0.021 | 0.003 | 0.015 | 0.021 |
|                                                   | 0.021 | 0.021 | 0.021 | 0.021 | 0.017 | 0.002 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7 | 0.002 | 0.005 | 0.000 | 0.005 | 0.008 | 0.000 |
|                                                   | 0.000 | 0.000 | 0.000 | 0.000 | 0.008 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 9        |         |             |                 |
|---------------------------------|---------|-------------|-----------------|
|                                 | INCHES  | CU. FEET    | PERCENT         |
| PRECIPITATION                   | 33.74   | 122473.531  | 100.00          |
| RUNOFF                          | 0.000   | 0.000       | 0.00            |
| EVAPOTRANSPIRATION              | 25.626  | 93018.954   | 75.95           |
| DRAINAGE COLLECTED FROM LAYER 3 |         | 0.0490      | 177.927 0.15    |
| PERC./LEAKAGE THROUGH LAYER 4   |         | 8.388224    | 30448.589 24.86 |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2326  |             |                 |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 8.4439      | 30650.792 25.03 |
| PERC./LEAKAGE THROUGH LAYER 8   |         | 0.000008    | 0.030 0.00      |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0145  |             |                 |
| CHANGE IN WATER STORAGE         | -0.379  | -1374.172   | -1.12           |
| SOIL WATER AT START OF YEAR     | 552.695 | 2006238.802 |                 |
| SOIL WATER AT END OF YEAR       | 552.316 | 2004864.630 |                 |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000       | 0.00            |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000       | 0.00            |
| ANNUAL WATER BUDGET BALANCE     | 0.0000  | -0.002      | 0.00            |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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| MONTHLY TOTALS (IN INCHES) FOR YEAR 10 |       |       |         |         |         |         |         |
|----------------------------------------|-------|-------|---------|---------|---------|---------|---------|
|                                        | JAN   | JUL   | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
| PRECIPITATION                          | 1.69  | 3.20  | 1.58    | 2.60    | 3.46    | 2.01    |         |
|                                        | 2.79  | 1.18  | 8.51    | 0.14    | 2.97    | 1.29    |         |
| RUNOFF                                 | 0.000 | 0.000 | 0.000   | 0.000   | 0.000   | 0.000   |         |
|                                        | 0.000 | 0.000 | 0.000   | 0.000   | 0.000   | 0.000   |         |
| EVAPOTRANSPIRATION                     | 1.923 | 0.588 | 2.616   | 2.722   | 3.114   | 2.527   |         |
|                                        | 2.729 | 1.238 | 5.501   | 0.656   | 0.902   | 0.983   |         |

### Case 3 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED  | 0.0000 | 0.0000 | 0.0051 | 0.0050 | 0.0000 | 0.0000 |
| FROM LAYER 3                | 0.0000 | 0.0000 | 0.0004 | 0.0087 | 0.0022 | 0.0015 |
| PERCOLATION/LEAKAGE THROUGH | 0.0342 | 0.1243 | 1.0955 | 0.7433 | 0.0187 | 0.0106 |
| LAYER 4                     | 0.0083 | 0.0064 | 0.4970 | 1.5763 | 0.7695 | 0.5666 |
| LATERAL DRAINAGE COLLECTED  | 0.0499 | 0.0571 | 0.5538 | 1.0205 | 0.3058 | 0.0590 |
| FROM LAYER 6                | 0.0462 | 0.0351 | 0.2227 | 0.9452 | 1.0205 | 1.0342 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 8                     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON   | 0.000 | 0.001 | 0.283 | 0.291 | 0.000 | 0.000 |
| TOP OF LAYER 4          | 0.000 | 0.000 | 0.021 | 0.488 | 0.129 | 0.082 |
| STD. DEVIATION OF DAILY | 0.001 | 0.001 | 0.321 | 0.451 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 4  | 0.000 | 0.000 | 0.038 | 0.491 | 0.236 | 0.124 |
| AVERAGE DAILY HEAD ON   | 0.001 | 0.001 | 0.011 | 0.021 | 0.006 | 0.001 |
| TOP OF LAYER 7          | 0.001 | 0.001 | 0.005 | 0.019 | 0.021 | 0.021 |
| STD. DEVIATION OF DAILY | 0.000 | 0.000 | 0.010 | 0.000 | 0.008 | 0.000 |
| HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.007 | 0.005 | 0.000 | 0.002 |

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#### ANNUAL TOTALS FOR YEAR 10

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 31.42    | 114052.114  | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 25.499   | 92559.920   | 81.16   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0228   | 82.940      | 0.07    |
| PERC./LEAKAGE THROUGH LAYER 4   | 5.450608 | 19785.275   | 17.35   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1081   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 5.3500   | 19420.118   | 17.03   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000006 | 0.023       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0092   |             |         |
| CHANGE IN WATER STORAGE         | 0.548    | 1989.114    | 1.74    |
| SOIL WATER AT START OF YEAR     | 552.316  | 2004864.630 |         |
| SOIL WATER AT END OF YEAR       | 552.864  | 2006853.744 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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#### AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 10

|               | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION |         |         |         |         |         |         |

### Case 3 (Continued)

|                 |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|
| TOTALS          | 1.20 | 3.21 | 1.78 | 2.90 | 3.88 | 2.89 |
|                 | 1.12 | 3.59 | 3.65 | 3.37 | 1.45 | 1.89 |
| STD. DEVIATIONS | 1.01 | 1.38 | 1.21 | 1.86 | 2.03 | 1.83 |
|                 | 0.83 | 2.73 | 2.47 | 2.42 | 1.05 | 1.13 |

#### RUNOFF

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| TOTALS          | 0.000 | 0.000 | 0.000 | 0.000 | 0.042 | 0.000 |
|                 | 0.000 | 0.000 | 0.000 | 0.017 | 0.000 | 0.000 |
| STD. DEVIATIONS | 0.000 | 0.000 | 0.000 | 0.000 | 0.132 | 0.000 |
|                 | 0.000 | 0.000 | 0.000 | 0.054 | 0.000 | 0.000 |

#### EVAPOTRANSPIRATION

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| TOTALS          | 1.338 | 1.542 | 2.266 | 2.399 | 3.179 | 2.559 |
|                 | 1.236 | 2.745 | 2.834 | 2.020 | 0.986 | 1.155 |
| STD. DEVIATIONS | 0.542 | 0.560 | 0.702 | 1.049 | 1.308 | 1.559 |
|                 | 0.751 | 1.572 | 1.491 | 1.086 | 0.344 | 0.372 |

#### LATERAL DRAINAGE COLLECTED FROM LAYER 3

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0029 | 0.0006 | 0.0041 | 0.0021 | 0.0014 | 0.0048 |
|                 | 0.0028 | 0.0004 | 0.0018 | 0.0032 | 0.0058 | 0.0041 |
| STD. DEVIATIONS | 0.0062 | 0.0015 | 0.0032 | 0.0038 | 0.0030 | 0.0075 |
|                 | 0.0038 | 0.0011 | 0.0032 | 0.0042 | 0.0080 | 0.0082 |

#### PERCOLATION/LEAKAGE THROUGH LAYER 4

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.6074 | 0.3168 | 0.8381 | 0.3799 | 0.4418 | 0.7160 |
|                 | 0.4371 | 0.1162 | 0.4624 | 0.6614 | 0.8778 | 0.7221 |
| STD. DEVIATIONS | 0.6711 | 0.3718 | 0.5456 | 0.5061 | 0.5361 | 0.9075 |
|                 | 0.5722 | 0.1818 | 0.5262 | 0.6275 | 0.9060 | 0.8096 |

#### LATERAL DRAINAGE COLLECTED FROM LAYER 6

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.6431 | 0.4343 | 0.6572 | 0.5682 | 0.5218 | 0.5032 |
|                 | 0.4763 | 0.4509 | 0.4954 | 0.5623 | 0.6650 | 0.6188 |
| STD. DEVIATIONS | 0.4725 | 0.3487 | 0.3963 | 0.4556 | 0.4126 | 0.4555 |
|                 | 0.4647 | 0.5196 | 0.3522 | 0.4247 | 0.3975 | 0.4724 |

#### PERCOLATION/LEAKAGE THROUGH LAYER 8

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

#### AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

##### DAILY AVERAGE HEAD ON TOP OF LAYER 4

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.1646 | 0.0382 | 0.2310 | 0.1211 | 0.0799 | 0.2789 |
|                 | 0.1551 | 0.0214 | 0.1073 | 0.1805 | 0.3337 | 0.2296 |
| STD. DEVIATIONS | 0.3490 | 0.0954 | 0.1785 | 0.2208 | 0.1669 | 0.4339 |
|                 | 0.2110 | 0.0628 | 0.1824 | 0.2346 | 0.4614 | 0.4612 |

##### DAILY AVERAGE HEAD ON TOP OF LAYER 7

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.0131 | 0.0097 | 0.0133 | 0.0119 | 0.0106 | 0.0106 |
|                 | 0.0097 | 0.0092 | 0.0104 | 0.0114 | 0.0139 | 0.0126 |
| STD. DEVIATIONS | 0.0096 | 0.0078 | 0.0080 | 0.0096 | 0.0084 | 0.0096 |
|                 | 0.0094 | 0.0105 | 0.0074 | 0.0086 | 0.0083 | 0.0096 |

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### Case 3 (Continued)

| AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 10 |                    |           |          |  |
|------------------------------------------------------------------|--------------------|-----------|----------|--|
|                                                                  | INCHES             | CU. FEET  | PERCENT  |  |
| PRECIPITATION                                                    | 30.92 ( 7.046)     | 112219.0  | 100.00   |  |
| RUNOFF                                                           | 0.059 ( 0.1373)    | 213.92    | 0.191    |  |
| EVAPOTRANSPIRATION                                               | 24.260 ( 4.1391)   | 88062.79  | 78.474   |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3                          | 0.03405 ( 0.02452) | 123.593   | 0.11014  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4                              | 6.57715 ( 3.27198) | 23874.529 | 21.27494 |  |
| AVERAGE HEAD ON TOP OF LAYER 4                                   | 0.162 ( 0.116)     |           |          |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6                          | 6.59643 ( 2.89151) | 23944.535 | 21.33733 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8                              | 0.00001 ( 0.00000) | 0.026     | 0.00002  |  |
| AVERAGE HEAD ON TOP OF LAYER 7                                   | 0.011 ( 0.005)     |           |          |  |
| CHANGE IN WATER STORAGE                                          | -0.035 ( 2.6340)   | -125.86   | -0.112   |  |

| PEAK DAILY VALUES FOR YEARS 1 THROUGH 10 and their dates (DDDDYY) |          |             |           |         |
|-------------------------------------------------------------------|----------|-------------|-----------|---------|
|                                                                   | (INCHES) | (CU. FT.)   |           |         |
| PRECIPITATION                                                     | 5.09     | 18476.29728 | 1290008   |         |
| RUNOFF                                                            | 0.419    | 1519.38840  | 1290008   |         |
| DRAINAGE COLLECTED FROM LAYER 3                                   |          | 0.00108     | 3.93578   | 3280006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4                               |          | 0.100742    | 365.68628 | 3280006 |
| AVERAGE HEAD ON TOP OF LAYER 4                                    |          | 1.883       |           |         |
| MAXIMUM HEAD ON TOP OF LAYER 4                                    |          | 3.348       |           |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 3 (DISTANCE FROM DRAIN)         |          | 27.2 FEET   |           |         |
| DRAINAGE COLLECTED FROM LAYER 6                                   |          | 0.03402     | 123.47238 | 10001   |
| PERCOLATION/LEAKAGE THROUGH LAYER 8                               |          | 0.000000    | 0.00011   | 10001   |
| AVERAGE HEAD ON TOP OF LAYER 7                                    |          | 0.021       |           |         |
| MAXIMUM HEAD ON TOP OF LAYER 7                                    |          | 0.043       |           |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 6 (DISTANCE FROM DRAIN)         |          | 0.8 FEET    |           |         |
| SNOW WATER                                                        | 1.95     | 7072.4948   | 3430003   |         |
| MAXIMUM VEG. SOIL WATER (VOL/VOL)                                 |          | 0.4570      |           |         |
| MINIMUM VEG. SOIL WATER (VOL/VOL)                                 |          | 0.0580      |           |         |

\*\*\* Maximum heads are computed using McEnroe's equations. \*\*\*

Reference: Maximum Saturated Depth over Landfill Liner  
by Bruce M. McEnroe, University of Kansas  
ASCE Journal of Environmental Engineering  
Vol. 119, No. 2, March 1993, pp. 262-270.

### Case 3 (Continued)

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FINAL WATER STORAGE AT END OF YEAR 10

| LAYER | (INCHES) | (VOL/VOL) |
|-------|----------|-----------|
| 1     | 2.2911   | 0.1909    |
| 2     | 522.0960 | 0.2920    |
| 3     | 7.0097   | 0.2921    |
| 4     | 0.4099   | 0.4270    |
| 5     | 9.6455   | 0.4186    |
| 6     | 0.0121   | 0.0574    |
| 7     | 0.0000   | 0.0000    |
| 8     | 11.4000  | 0.4750    |

SNOW WATER 0.000

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\*\*\*\*\*

## Case 4

```
*****
*****
**                                     **
**                                     **
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE      **
**      HELP MODEL VERSION 3.07 (1 November 1997)          **
**      DEVELOPED BY ENVIRONMENTAL LABORATORY               **
**      USAE WATERWAYS EXPERIMENT STATION                  **
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY     **
**                                     **
*****

PRECIPITATION DATA FILE:  C:\WHI\UNSAT22\data\P922.VHP\_weather1.dat
TEMPERATURE DATA FILE:   C:\WHI\UNSAT22\data\P922.VHP\_weather2.dat
SOLAR RADIATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\_weather3.dat
EVAPOTRANSPIRATION DATA:  C:\WHI\UNSAT22\data\P922.VHP\_weather4.dat
SOIL AND DESIGN DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\I_386099.inp
OUTPUT DATA FILE:        C:\WHI\UNSAT22\data\P922.VHP\O_386099.prt
```

TIME: 16:11 DATE: 8/6/2014

TITLE: Case 4

NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE  
COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.

### LAYER 1

#### TYPE 1 - VERTICAL PERCOLATION LAYER

##### MATERIAL TEXTURE NUMBER 130

THICKNESS = 60.96 CM  
POROSITY = 0.4570 VOL/VOL  
FIELD CAPACITY = 0.1310 VOL/VOL  
WILTING POINT = 0.0580 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2919 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC

### LAYER 2

#### TYPE 4 - FLEXIBLE MEMBRANE LINER

##### MATERIAL TEXTURE NUMBER 236

THICKNESS = 0.10 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.400000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

### LAYER 3

#### TYPE 3 - BARRIER SOIL LINER

##### MATERIAL TEXTURE NUMBER 16

THICKNESS = 45.72 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-06 CM/SEC



## Case 4 (Continued)

### LAYER 4

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 130  
THICKNESS = 30.48 CM  
POROSITY = 0.4570 VOL/VOL  
FIELD CAPACITY = 0.1310 VOL/VOL  
WILTING POINT = 0.0580 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.1310 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC

### LAYER 5

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 18  
THICKNESS = 4541.52 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2920 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.10000224000E-02 CM/SEC

### LAYER 6

-----  
TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 201  
THICKNESS = 60.96 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2920 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### LAYER 7

-----  
TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 16  
THICKNESS = 2.44 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 8

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 230  
THICKNESS = 58.52 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4107 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 9

-----  
TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 224  
THICKNESS = 0.53 CM  
POROSITY = 0.8500 VOL/VOL  
FIELD CAPACITY = 0.0100 VOL/VOL  
WILTING POINT = 0.0050 VOL/VOL

## Case 4 (Continued)

INITIAL SOIL WATER CONTENT = 0.0104 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.830000000000 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### LAYER 10

#### TYPE 4 - FLEXIBLE MEMBRANE LINER

##### MATERIAL TEXTURE NUMBER 235

THICKNESS = 0.15 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.200000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

### LAYER 11

#### TYPE 3 - BARRIER SOIL LINER

##### MATERIAL TEXTURE NUMBER 15

THICKNESS = 60.96 CM  
POROSITY = 0.4750 VOL/VOL  
FIELD CAPACITY = 0.3780 VOL/VOL  
WILTING POINT = 0.2650 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4750 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-06 CM/SEC

### GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT  
SOIL DATA BASE USING SOIL TEXTURE #\*\* WITH A  
GOOD STAND OF GRASS, A SURFACE SLOPE OF 0.0%  
AND A SLOPE LENGTH OF 0.0 METERS.

SCS RUNOFF CURVE NUMBER = 0.00  
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT  
AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES  
EVAPORATIVE ZONE DEPTH = 25.4 CM  
INITIAL WATER IN EVAPORATIVE ZONE = 3.641 CM  
UPPER LIMIT OF EVAPORATIVE STORAGE = 11.608 CM  
LOWER LIMIT OF EVAPORATIVE STORAGE = 1.473 CM  
INITIAL SNOW WATER = 0.000 CM  
INITIAL WATER IN LAYER MATERIALS = 1439.268 CM  
TOTAL INITIAL WATER = 1439.268 CM  
TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

### EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM  
Austin TX

STATION LATITUDE = 30.31 DEGREES  
MAXIMUM LEAF AREA INDEX = 4.50  
START OF GROWING SEASON (JULIAN DATE) = 44  
END OF GROWING SEASON (JULIAN DATE) = 346  
EVAPORATIVE ZONE DEPTH = 10.0 INCHES  
AVERAGE ANNUAL WIND SPEED = 9.30 MPH  
AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %  
AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 67.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

## Case 4 (Continued)

### NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 1.60    | 2.49    | 1.68    | 3.11    | 4.19    | 3.06    |
| 1.89    | 2.24    | 3.60    | 3.38    | 2.20    | 2.06    |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

### NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 49.10   | 53.20   | 60.50   | 68.70   | 74.90   | 81.60   |
| 84.70   | 84.50   | 79.20   | 69.80   | 58.70   | 52.10   |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX  
AND STATION LATITUDE = 29.88 DEGREES

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 1

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.65    | 2.56    | 0.82    | 0.03    | 1.74    | 0.00    |
|                                         | 0.45    | 4.41    | 2.37    | 5.47    | 0.62    | 3.40    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.400   |
| EVAPOTRANSPIRATION                      | 0.771   | 1.435   | 2.192   | 0.029   | 1.736   | 0.003   |
|                                         | 0.448   | 4.070   | 2.207   | 2.564   | 1.339   | 1.946   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0003  | 0.0003  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0006  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0003  | 0.0003  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0005  | 0.0007  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0048  | 0.0048  | 0.0045  | 0.0035  | 0.0027  | 0.0022  |
|                                         | 0.0022  | 0.0017  | 0.0013  | 0.0010  | 0.0012  | 0.0012  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                      |        |        |        |        |        |        |
|--------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2 | 11.632 | 11.803 | 12.581 | 12.953 | 12.954 | 12.953 |
|                                      | 12.952 | 13.206 | 13.998 | 16.999 | 19.376 | 22.063 |
| STD. DEVIATION OF DAILY              | 0.078  | 0.037  | 0.307  | 0.001  | 0.001  | 0.000  |

# Case 4 (Continued)

|                                                 |       |       |       |       |       |       |
|-------------------------------------------------|-------|-------|-------|-------|-------|-------|
| HEAD ON TOP OF LAYER 2                          | 0.000 | 0.408 | 0.000 | 2.812 | 0.489 | 1.699 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 1        |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 22.52    | 81745.818   | 100.00  |  |
| RUNOFF                          | 0.400    | 1450.513    | 1.77    |  |
| EVAPOTRANSPIRATION              | 18.740   | 68024.158   | 83.21   |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005039 | 18.290      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 14.4558  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005039 | 18.290      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0312   | 113.333     | 0.14    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0002   |             |         |  |
| CHANGE IN WATER STORAGE         | 3.349    | 12157.807   | 14.87   |  |
| SOIL WATER AT START OF YEAR     | 566.641  | 2056861.275 |         |  |
| SOIL WATER AT END OF YEAR       | 569.990  | 2069019.082 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

\*\*\*\*\*

| MONTHLY TOTALS (IN INCHES) FOR YEAR 2 |         |         |         |         |         |  |
|---------------------------------------|---------|---------|---------|---------|---------|--|
| JAN/JUL                               | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |

# Case 4 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PRECIPITATION                           | 0.00   | 6.11   | 2.35   | 3.42   | 3.62   | 2.33   |
|                                         | 0.26   | 8.15   | 6.72   | 4.76   | 2.03   | 1.05   |
| RUNOFF                                  | 0.000  | 2.968  | 0.264  | 0.000  | 0.000  | 0.000  |
|                                         | 0.000  | 0.992  | 1.144  | 1.949  | 0.175  | 0.468  |
| EVAPOTRANSPIRATION                      | 0.659  | 2.107  | 2.955  | 5.008  | 4.795  | 2.474  |
|                                         | 0.227  | 4.267  | 4.999  | 3.180  | 1.061  | 0.938  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006 | 0.0006 | 0.0007 | 0.0006 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0005 | 0.0005 | 0.0006 | 0.0006 | 0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0006 | 0.0007 | 0.0006 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0005 | 0.0005 | 0.0006 | 0.0006 | 0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0009 | 0.0006 | 0.0008 | 0.0006 | 0.0007 | 0.0006 |
|                                         | 0.0007 | 0.0006 | 0.0004 | 0.0006 | 0.0005 | 0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.273 | 23.009 | 22.353 | 19.808 | 14.579 | 14.000 |
|                                                 | 13.999 | 16.289 | 17.576 | 21.479 | 21.109 | 23.443 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.483  | 0.994  | 0.724  | 1.138  | 0.772  | 0.000  |
|                                                 | 0.000  | 3.807  | 3.548  | 1.486  | 0.928  | 0.380  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## ANNUAL TOTALS FOR YEAR 2

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 40.80    | 148100.772 | 100.00  |
| RUNOFF                          | 7.959    | 28888.859  | 19.51   |
| EVAPOTRANSPIRATION              | 32.671   | 118591.721 | 80.08   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006595 | 23.938     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 19.0763  |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006589 | 23.918     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |            |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0076   | 27.717     | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009      | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |            |         |

## Case 4 (Continued)

|                             |         |             |      |
|-----------------------------|---------|-------------|------|
| CHANGE IN WATER STORAGE     | 0.163   | 592.469     | 0.40 |
| SOIL WATER AT START OF YEAR | 569.990 | 2069019.082 |      |
| SOIL WATER AT END OF YEAR   | 570.153 | 2069611.551 |      |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.002      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 3

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
| PRECIPITATION                           | 0.36    | 3.57    | 0.83    | 1.69    | 5.59    | 4.55    |  |
|                                         | 1.68    | 2.44    | 0.38    | 1.03    | 0.61    | 3.14    |  |
| RUNOFF                                  | 0.000   | 1.924   | 0.000   | 0.000   | 0.000   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
| EVAPOTRANSPIRATION                      | 0.827   | 1.566   | 1.113   | 4.584   | 2.982   | 7.157   |  |
|                                         | 1.680   | 2.439   | 0.380   | 1.030   | 0.353   | 0.928   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0005  | 0.0005  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0005  | 0.0005  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0007  | 0.0005  | 0.0007  | 0.0006  | 0.0006  | 0.0006  |  |
|                                         | 0.0006  | 0.0005  | 0.0004  | 0.0005  | 0.0003  | 0.0004  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |        |        |        |        |        |        |  |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 21.486 | 22.084 | 21.325 | 17.680 | 15.317 | 17.159 |  |
|                                                | 13.999 | 13.999 | 14.000 | 13.999 | 13.999 | 15.795 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.488  | 1.194  | 0.351  | 2.694  | 2.972  | 2.787  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 1.475  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10          | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

# Case 4 (Continued)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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## ANNUAL TOTALS FOR YEAR 3

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 25.87    | 93906.053   | 100.00  |
| RUNOFF                          | 1.924    | 6984.322    | 7.44    |
| EVAPOTRANSPIRATION              | 25.039   | 90887.971   | 96.79   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005795 | 21.037      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.7369  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005801 | 21.056      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0065   | 23.640      | 0.03    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -1.099   | -3989.888   | -4.25   |
| SOIL WATER AT START OF YEAR     | 570.153  | 2069611.551 |         |
| SOIL WATER AT END OF YEAR       | 569.054  | 2065621.663 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 19.965 | 21.858 | 21.851 | 18.431 | 14.743 | 13.998 |
|                                                 | 13.998 | 13.997 | 14.584 | 15.456 | 16.304 | 17.674 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 1.504  | 1.055  | 0.729  | 2.139  | 0.957  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.778  | 1.028  | 1.648  | 0.121  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## Case 4 (Continued)

| ANNUAL TOTALS FOR YEAR 4        |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 28.09    | 101964.478  | 100.00  |  |
| RUNOFF                          | 0.862    | 3130.310    | 3.07    |  |
| EVAPOTRANSPIRATION              | 27.449   | 99638.605   | 97.72   |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005874 | 21.322      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.9049  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005870 | 21.307      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.878      | 0.02    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | -0.228   | -826.323    | -0.81   |  |
| SOIL WATER AT START OF YEAR     | 569.054  | 2065621.663 |         |  |
| SOIL WATER AT END OF YEAR       | 568.827  | 2064795.340 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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| MONTHLY TOTALS (IN INCHES) FOR YEAR 5   |         |         |         |         |         |         |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
| PRECIPITATION                           | 1.42    | 2.70    | 1.93    | 2.42    | 3.77    | 2.00    |  |
|                                         | 0.84    | 1.25    | 3.04    | 1.13    | 1.04    | 0.78    |  |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
| EVAPOTRANSPIRATION                      | 1.949   | 2.052   | 2.386   | 4.312   | 3.779   | 1.320   |  |
|                                         | 1.352   | 1.417   | 3.039   | 1.013   | 0.937   | 0.804   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005  | 0.0005  | 0.0005  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005  | 0.0005  | 0.0005  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |  |



# Case 4 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED  | 0.0004 | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0005 |
| FROM LAYER 9                | 0.0004 | 0.0004 | 0.0005 | 0.0004 | 0.0004 | 0.0005 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 11                    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |        |        |        |        |        |        |
|-------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON   | 17.863 | 18.130 | 17.828 | 16.048 | 14.050 | 13.999 |
| TOP OF LAYER 2          | 13.999 | 13.999 | 14.080 | 13.999 | 14.000 | 14.000 |
| STD. DEVIATION OF DAILY | 0.228  | 0.443  | 0.391  | 1.443  | 0.144  | 0.000  |
| HEAD ON TOP OF LAYER 2  | 0.000  | 0.000  | 0.176  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON   | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| TOP OF LAYER 7          | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON   | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| TOP OF LAYER 10         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## ANNUAL TOTALS FOR YEAR 5

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 22.32    | 81019.834   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 24.360   | 88425.367   | 109.14  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005266 | 19.117      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 15.1662  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005267 | 19.120      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0054   | 19.432      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -2.045   | -7424.972   | -9.16   |
| SOIL WATER AT START OF YEAR     | 568.827  | 2064795.340 |         |
| SOIL WATER AT END OF YEAR       | 566.781  | 2057370.367 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3

## Case 4 (Continued)

HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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 MONTHLY TOTALS (IN INCHES) FOR YEAR 6

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 2.84<br>1.57     | 3.09<br>4.88     | 4.52<br>3.80     | 0.95<br>6.63     | 5.99<br>2.35     | 3.95<br>0.40     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.689<br>0.000   | 0.000<br>0.861   | 0.000<br>0.526   | 0.000<br>0.089   |
| EVAPOTRANSPIRATION                      | 1.319<br>1.583   | 2.029<br>4.280   | 3.118<br>4.398   | 4.437<br>2.279   | 3.699<br>1.368   | 6.227<br>0.847   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0006 | 0.0005<br>0.0007 | 0.0005<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0006 | 0.0005<br>0.0007 | 0.0005<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0005 | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0007 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

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 MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 15.606<br>13.999 | 21.182<br>14.911 | 21.589<br>14.039 | 16.779<br>20.504 | 15.747<br>23.043 | 15.814<br>23.446 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 1.651<br>0.000   | 1.180<br>1.181   | 1.287<br>0.173   | 3.003<br>3.086   | 2.407<br>0.861   | 2.074<br>0.477   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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| ANNUAL TOTALS FOR YEAR 6      |          |            |         |
|-------------------------------|----------|------------|---------|
|                               | INCHES   | CU. FEET   | PERCENT |
| PRECIPITATION                 | 40.97    | 148717.858 | 100.00  |
| RUNOFF                        | 2.165    | 7859.674   | 5.28    |
| EVAPOTRANSPIRATION            | 35.585   | 129171.073 | 86.86   |
| PERC./LEAKAGE THROUGH LAYER 3 | 0.006248 | 22.681     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2   | 18.0550  |            |         |

# Case 4 (Continued)

|                                 |          |             |      |
|---------------------------------|----------|-------------|------|
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00 |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006246 | 22.674      | 0.02 |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |      |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0058   | 21.139      | 0.01 |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00 |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |      |
| CHANGE IN WATER STORAGE         | 3.214    | 11665.965   | 7.84 |
| SOIL WATER AT START OF YEAR     | 566.781  | 2057370.367 |      |
| SOIL WATER AT END OF YEAR       | 569.995  | 2069036.333 |      |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 7

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.24<br>0.64     | 0.57<br>4.20     | 0.63<br>4.71     | 4.49<br>6.58     | 4.20<br>0.00     | 6.40<br>3.56     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.089   | 0.000<br>0.000   | 0.000<br>1.356   |
| EVAPOTRANSPIRATION                      | 1.265<br>3.100   | 0.644<br>4.201   | 1.711<br>3.839   | 5.136<br>3.393   | 5.597<br>1.027   | 4.120<br>1.192   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0006 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0006 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005<br>0.0006 | 0.0004<br>0.0003 | 0.0007<br>0.0005 | 0.0005<br>0.0004 | 0.0004<br>0.0006 | 0.0004<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                      |        |        |        |        |        |        |
|--------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2 | 21.947 | 21.789 | 21.038 | 17.121 | 14.762 | 15.206 |
|                                      | 14.836 | 13.999 | 14.016 | 17.701 | 22.383 | 23.360 |

# Case 4 (Continued)

|                                                    |       |       |       |       |       |       |
|----------------------------------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 2  | 0.150 | 0.162 | 0.893 | 2.033 | 1.005 | 2.711 |
|                                                    | 1.637 | 0.000 | 0.052 | 3.990 | 0.806 | 0.768 |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7            | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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## ANNUAL TOTALS FOR YEAR 7

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 37.22    | 135105.655  | 100.00  |
| RUNOFF                          | 1.445    | 5245.682    | 3.88    |
| EVAPOTRANSPIRATION              | 35.224   | 127862.032  | 94.64   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006291 | 22.835      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 18.1798  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006296 | 22.854      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.645      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 0.544    | 1976.289    | 1.46    |
| SOIL WATER AT START OF YEAR     | 569.995  | 2069036.333 |         |
| SOIL WATER AT END OF YEAR       | 570.539  | 2071012.622 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 8

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

# Case 4 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PRECIPITATION                           | 0.45   | 4.17   | 0.68   | 2.95   | 7.17   | 2.71   |
|                                         | 1.05   | 0.80   | 1.04   | 1.46   | 1.78   | 1.94   |
| RUNOFF                                  | 0.000  | 1.859  | 0.016  | 0.000  | 1.431  | 0.000  |
|                                         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| EVAPOTRANSPIRATION                      | 1.383  | 1.381  | 2.438  | 3.736  | 7.035  | 2.801  |
|                                         | 1.050  | 0.799  | 0.852  | 0.919  | 1.071  | 1.282  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007 | 0.0006 | 0.0006 | 0.0004 | 0.0005 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0006 | 0.0006 | 0.0004 | 0.0005 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0008 | 0.0006 | 0.0005 | 0.0006 | 0.0006 | 0.0005 |
|                                         | 0.0006 | 0.0006 | 0.0004 | 0.0004 | 0.0004 | 0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.332 | 21.950 | 21.542 | 15.509 | 18.285 | 14.324 |
|                                                 | 13.999 | 13.999 | 13.998 | 13.997 | 14.015 | 16.076 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.687  | 1.136  | 1.099  | 1.754  | 2.663  | 0.621  |
|                                                 | 0.000  | 0.001  | 0.000  | 0.000  | 0.086  | 1.111  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## ANNUAL TOTALS FOR YEAR 8

|                                 | INCHES   | CU. FEET  | PERCENT |
|---------------------------------|----------|-----------|---------|
| PRECIPITATION                   | 26.20    | 95103.927 | 100.00  |
| RUNOFF                          | 3.306    | 11999.495 | 12.62   |
| EVAPOTRANSPIRATION              | 24.747   | 89827.938 | 94.45   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005798 | 21.045    | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.6689  |           |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000     | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005794 | 21.030    | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |           |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0064   | 23.183    | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009     | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |           |         |
| CHANGE IN WATER STORAGE         | -1.859   | -6746.697 | -7.09   |

# Case 4 (Continued)

|                             |         |             |      |
|-----------------------------|---------|-------------|------|
| SOIL WATER AT START OF YEAR | 570.539 | 2071012.622 |      |
| SOIL WATER AT END OF YEAR   | 568.681 | 2064265.925 |      |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.001      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 9

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.51<br>0.13     | 3.06<br>7.61     | 2.77<br>2.81     | 6.60<br>3.80     | 0.23<br>0.40     | 3.79<br>2.03     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 1.058<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.267<br>0.496   | 1.425<br>4.427   | 3.015<br>5.972   | 5.559<br>3.518   | 2.805<br>0.702   | 3.556<br>0.810   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0005 | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0005 | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0006 | 0.0005<br>0.0004 | 0.0005<br>0.0003 | 0.0007<br>0.0005 | 0.0003<br>0.0004 | 0.0005<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                  |                  |                  |                  |                  |                  |
|------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 17.607<br>13.999 | 19.825<br>15.289 | 21.602<br>16.450 | 18.957<br>13.999 | 15.195<br>13.999 | 15.122<br>13.998 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.204<br>0.000   | 2.229<br>3.131   | 0.943<br>2.781   | 2.694<br>0.000   | 2.009<br>0.000   | 1.726<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10          | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

## Case 4 (Continued)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 9

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 33.74    | 122473.531  | 100.00  |
| RUNOFF                          | 1.058    | 3838.798    | 3.13    |
| EVAPOTRANSPIRATION              | 33.552   | 121790.436  | 99.44   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005661 | 20.550      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.3369  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005666 | 20.566      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0057   | 20.644      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.875   | -3176.354   | -2.59   |
| SOIL WATER AT START OF YEAR     | 568.681  | 2064265.925 |         |
| SOIL WATER AT END OF YEAR       | 567.806  | 2061089.570 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 10

|                                     | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                       | 1.69    | 3.20    | 1.58    | 2.60    | 3.46    | 2.01    |
|                                     | 2.79    | 1.18    | 8.51    | 0.14    | 2.97    | 1.29    |
| RUNOFF                              | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                     | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                  | 1.785   | 0.640   | 2.804   | 4.887   | 3.118   | 2.523   |
|                                     | 2.733   | 1.236   | 5.759   | 2.031   | 1.024   | 0.887   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3 | 0.0004  | 0.0004  | 0.0006  | 0.0004  | 0.0004  | 0.0004  |
|                                     | 0.0004  | 0.0004  | 0.0005  | 0.0005  | 0.0005  | 0.0006  |

# Case 4 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0004 | 0.0004 | 0.0006 | 0.0004 | 0.0004 | 0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0004 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 15.185 | 15.841 | 20.899 | 15.683 | 13.999 | 13.999 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.718  | 0.186  | 0.948  | 2.031  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## ANNUAL TOTALS FOR YEAR 10

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 31.42    | 114052.114  | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 29.428   | 106820.656  | 93.66   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005674 | 20.597      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.3428  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005674 | 20.597      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0056   | 20.250      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 1.987    | 7211.201    | 6.32    |
| SOIL WATER AT START OF YEAR     | 567.806  | 2061089.570 |         |
| SOIL WATER AT END OF YEAR       | 569.792  | 2068300.771 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |



## Case 4 (Continued)

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 11

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.69<br>2.10     | 1.89<br>3.79     | 2.95<br>3.06     | 4.16<br>3.14     | 1.97<br>0.70     | 3.80<br>3.90     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.118<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.183<br>4.185   | 1.586<br>3.894   | 3.050<br>2.786   | 6.377<br>2.235   | 2.548<br>0.842   | 1.610<br>0.991   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0005 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0005 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005<br>0.0006 | 0.0004<br>0.0006 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0005 | 0.0006<br>0.0004 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 20.471<br>15.460 | 20.500<br>14.064 | 21.233<br>14.492 | 17.344<br>15.369 | 14.042<br>15.904 | 14.208<br>18.011 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.570<br>1.812   | 0.568<br>0.142   | 1.497<br>0.678   | 1.162<br>1.425   | 0.174<br>0.341   | 0.813<br>1.790   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 11

|               | INCHES | CU. FEET   | PERCENT |
|---------------|--------|------------|---------|
| PRECIPITATION | 32.15  | 116701.956 | 100.00  |
| RUNOFF        | 0.118  | 427.452    | 0.37    |

# Case 4 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| EVAPOTRANSPIRATION              | 31.288   | 113572.868  | 97.32 |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005807 | 21.080      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.7581  |             |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005807 | 21.080      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |       |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.663      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | 0.738    | 2679.965    | 2.30  |
| SOIL WATER AT START OF YEAR     | 569.792  | 2068300.771 |       |
| SOIL WATER AT END OF YEAR       | 570.531  | 2070980.736 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 12

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
| PRECIPITATION                           | 0.39    | 1.56    | 2.18    | 4.56    | 5.35    | 9.42    |  |
|                                         | 3.20    | 1.34    | 1.45    | 2.27    | 3.35    | 1.80    |  |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.787   | 0.000   | 1.962   |  |
|                                         | 1.118   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
| EVAPOTRANSPIRATION                      | 1.167   | 1.340   | 2.881   | 5.487   | 5.322   | 4.822   |  |
|                                         | 5.716   | 1.339   | 1.172   | 1.991   | 1.268   | 1.001   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0005  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0005  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0005  | 0.0005  | 0.0006  | 0.0004  | 0.0005  |  |
|                                         | 0.0006  | 0.0004  | 0.0004  | 0.0005  | 0.0004  | 0.0006  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

## Case 4 (Continued)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.198 | 21.905 | 21.948 | 19.281 | 14.450 | 14.540 |
|                                                 | 16.996 | 14.000 | 13.999 | 13.999 | 17.995 | 21.237 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.750  | 0.439  | 0.647  | 2.148  | 0.494  | 2.000  |
|                                                 | 3.325  | 0.000  | 0.000  | 0.000  | 2.677  | 1.688  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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| ANNUAL TOTALS FOR YEAR 12       |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 36.87    | 133835.183  | 100.00  |  |
| RUNOFF                          | 3.867    | 14036.843   | 10.49   |  |
| EVAPOTRANSPIRATION              | 33.506   | 121622.838  | 90.88   |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006152 | 22.330      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 17.7123  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006152 | 22.330      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.501      | 0.02    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | -0.509   | -1846.007   | -1.38   |  |
| SOIL WATER AT START OF YEAR     | 570.531  | 2070980.736 |         |  |
| SOIL WATER AT END OF YEAR       | 570.022  | 2069134.729 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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MONTHLY TOTALS (IN INCHES) FOR YEAR 13

D6-B-70

Technically Complete October 28, 2014

## Case 4 (Continued)

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 2.47<br>1.53     | 1.76<br>0.07     | 1.54<br>2.18     | 1.39<br>2.65     | 4.57<br>1.55     | 6.70<br>0.52     |
| RUNOFF                                  | 0.205<br>0.000   | 0.456<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.073<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.710<br>1.553   | 1.809<br>0.070   | 1.650<br>2.090   | 4.763<br>1.253   | 3.841<br>0.819   | 7.332<br>1.142   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0006<br>0.0004 | 0.0006<br>0.0006 | 0.0006<br>0.0004 | 0.0005<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.679<br>14.000 | 22.870<br>13.999 | 20.994<br>13.999 | 16.881<br>15.242 | 13.999<br>16.633 | 16.842<br>17.606 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.807<br>0.000   | 0.744<br>0.000   | 0.517<br>0.001   | 2.485<br>1.331   | 0.000<br>0.271   | 3.509<br>0.202   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 13

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 26.93    | 97753.769  | 100.00  |
| RUNOFF                          | 0.733    | 2662.482   | 2.72    |
| EVAPOTRANSPIRATION              | 28.033   | 101756.385 | 104.09  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005933 | 21.537     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.1454  |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005933 | 21.537     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |            |         |

# Case 4 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0061   | 21.996      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | -1.842   | -6687.102   | -6.84 |
| SOIL WATER AT START OF YEAR     | 570.022  | 2069134.729 |       |
| SOIL WATER AT END OF YEAR       | 568.180  | 2062447.628 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 14

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
| PRECIPITATION                           | 0.89    | 2.96    | 0.73    | 2.65    | 3.30    | 2.95    |  |
|                                         | 0.00    | 1.87    | 0.82    | 2.84    | 3.36    | 1.96    |  |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.719   |  |
| EVAPOTRANSPIRATION                      | 1.226   | 0.885   | 2.101   | 4.586   | 2.302   | 2.676   |  |
|                                         | 1.294   | 1.869   | 0.820   | 1.277   | 1.354   | 1.321   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005  | 0.0005  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0007  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005  | 0.0005  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0007  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0005  |  |
|                                         | 0.0005  | 0.0004  | 0.0005  | 0.0005  | 0.0004  | 0.0004  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |        |        |        |        |        |        |  |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 17.224 | 16.931 | 19.715 | 17.037 | 14.037 | 14.297 |  |
|                                                | 14.212 | 14.000 | 13.999 | 13.998 | 15.925 | 22.741 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.107  | 0.323  | 0.781  | 2.232  | 0.144  | 0.683  |  |
|                                                | 0.592  | 0.000  | 0.000  | 0.001  | 1.921  | 0.596  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

# Case 4 (Continued)

|                                                 |       |       |       |       |       |       |
|-------------------------------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 14       |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 24.33    | 88315.975   | 100.00  |  |
| RUNOFF                          | 0.719    | 2608.386    | 2.95    |  |
| EVAPOTRANSPIRATION              | 21.712   | 78811.439   | 89.24   |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005617 | 20.388      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.1763  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005617 | 20.388      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0056   | 20.436      | 0.02    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | 1.894    | 6875.706    | 7.79    |  |
| SOIL WATER AT START OF YEAR     | 568.180  | 2062447.628 |         |  |
| SOIL WATER AT END OF YEAR       | 570.074  | 2069323.334 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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| MONTHLY TOTALS (IN INCHES) FOR YEAR 15 |       |       |       |       |       |       |     |
|----------------------------------------|-------|-------|-------|-------|-------|-------|-----|
|                                        | JAN   | FEB   | MAR   | APR   | MAY   | JUN   | JUL |
| PRECIPITATION                          | 0.79  | 2.22  | 0.83  | 4.07  | 8.34  | 2.21  |     |
|                                        | 3.64  | 0.11  | 4.65  | 0.17  | 1.38  | 5.66  |     |
| RUNOFF                                 | 0.000 | 0.160 | 0.000 | 0.000 | 0.000 | 0.000 |     |
|                                        | 0.000 | 0.000 | 0.032 | 0.000 | 0.000 | 2.951 |     |

# Case 4 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| EVAPOTRANSPIRATION                      | 1.206  | 1.868  | 1.322  | 6.052  | 6.269  | 5.039  |
|                                         | 3.668  | 0.109  | 1.652  | 1.633  | 0.578  | 1.147  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0005 | 0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0005 | 0.0006 | 0.0005 | 0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0004 |
|                                         | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0005 | 0.0006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.129 | 22.382 | 21.600 | 16.743 | 14.814 | 15.072 |
|                                                 | 14.512 | 13.999 | 15.951 | 18.579 | 17.285 | 22.604 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.480  | 0.838  | 0.416  | 2.815  | 1.301  | 1.735  |
|                                                 | 0.849  | 0.000  | 3.618  | 1.075  | 0.025  | 1.781  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## ANNUAL TOTALS FOR YEAR 15

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 34.07    | 123671.404  | 100.00  |
| RUNOFF                          | 3.144    | 11410.681   | 9.23    |
| EVAPOTRANSPIRATION              | 30.544   | 110871.837  | 89.65   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006220 | 22.579      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.9724  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006220 | 22.579      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.640      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 0.377    | 1367.240    | 1.11    |
| SOIL WATER AT START OF YEAR     | 570.074  | 2069323.334 |         |
| SOIL WATER AT END OF YEAR       | 570.451  | 2070690.574 |         |

# Case 4 (Continued)

|                             |        |        |      |
|-----------------------------|--------|--------|------|
| SNOW WATER AT START OF YEAR | 0.000  | 0.000  | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000  | 0.000  | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000 | -0.002 | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 16

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.50<br>2.57   | 2.01<br>1.68     | 1.02<br>3.46     | 1.85<br>3.02     | 0.81<br>1.80     | 1.45<br>3.03     |
| RUNOFF                                  | 0.000<br>0.000 | 0.747<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      |                | 1.187<br>2.618   | 1.285<br>3.004   | 1.756<br>3.247   | 4.266<br>1.195   | 0.810<br>1.484   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     |                | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     |                | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 |                | 0.0005<br>0.0005 | 0.0005<br>0.0004 | 0.0006<br>0.0004 | 0.0007<br>0.0004 | 0.0005<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.198<br>14.273 | 21.978<br>13.999 | 21.078<br>14.379 | 15.677<br>14.918 | 13.999<br>14.012 | 13.999<br>16.206 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.678<br>0.583   | 0.778<br>0.000   | 0.411<br>0.594   | 2.221<br>0.430   | 0.000<br>0.040   | 0.000<br>1.640   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |



## Case 4 (Continued)

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| ANNUAL TOTALS FOR YEAR 16       |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 23.20    | 84214.164   | 100.00  |  |
| RUNOFF                          | 0.747    | 2711.325    | 3.22    |  |
| EVAPOTRANSPIRATION              | 23.933   | 86874.126   | 103.16  |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005702 | 20.697      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.3931  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005702 | 20.697      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.574      | 0.03    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | -1.486   | -5392.868   | -6.40   |  |
| SOIL WATER AT START OF YEAR     | 570.451  | 2070690.574 |         |  |
| SOIL WATER AT END OF YEAR       | 568.965  | 2065297.706 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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| MONTHLY TOTALS (IN INCHES) FOR YEAR 17 |         |         |         |         |         |         |  |
|----------------------------------------|---------|---------|---------|---------|---------|---------|--|
|                                        | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
| PRECIPITATION                          | 1.54    | 2.81    | 0.67    | 2.06    | 4.74    | 0.08    |  |
|                                        | 4.57    | 4.38    | 0.27    | 0.15    | 3.89    | 0.70    |  |
| RUNOFF                                 | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
|                                        | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
| EVAPOTRANSPIRATION                     | 1.491   | 2.590   | 1.562   | 3.006   | 5.547   | 0.080   |  |
|                                        | 3.268   | 5.681   | 0.268   | 0.134   | 0.704   | 1.179   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3    | 0.0006  | 0.0005  | 0.0006  | 0.0004  | 0.0005  | 0.0004  |  |
|                                        | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  |  |
| LATERAL DRAINAGE COLLECTED             | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

# Case 4 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| FROM LAYER 6                            | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0005 | 0.0006 | 0.0004 | 0.0005 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006 | 0.0004 | 0.0005 | 0.0006 | 0.0004 | 0.0006 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0003 | 0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 18.946 | 20.033 | 19.326 | 14.873 | 16.459 | 13.999 |
|                                                 | 14.198 | 14.304 | 13.999 | 14.000 | 18.869 | 21.503 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.320  | 0.779  | 0.369  | 1.390  | 2.820  | 0.000  |
|                                                 | 0.504  | 0.673  | 0.000  | 0.000  | 4.061  | 0.450  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## ANNUAL TOTALS FOR YEAR 17

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 25.86    | 93869.754   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 25.511   | 92601.841   | 98.65   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005792 | 21.025      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.7091  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005792 | 21.025      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0055   | 20.069      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 0.344    | 1247.836    | 1.33    |
| SOIL WATER AT START OF YEAR     | 568.965  | 2065297.706 |         |
| SOIL WATER AT END OF YEAR       | 569.309  | 2066545.541 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

## Case 4 (Continued)

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 18

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.45    | 6.39    | 1.46    | 2.44    | 1.58    | 3.26    |
|                                         | 6.60    | 1.37    | 4.62    | 0.76    | 1.92    | 1.20    |
| RUNOFF                                  | 0.000   | 3.433   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.105   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 0.519   | 1.618   | 2.947   | 4.853   | 1.669   | 3.260   |
|                                         | 6.494   | 1.369   | 3.631   | 1.637   | 1.135   | 1.021   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0005  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0005  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006  | 0.0005  | 0.0005  | 0.0004  | 0.0006  | 0.0004  |
|                                         | 0.0005  | 0.0006  | 0.0005  | 0.0004  | 0.0005  | 0.0005  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 20.188 | 22.809 | 21.816 | 17.165 | 13.999 | 14.348 |
|                                                 | 16.105 | 14.000 | 15.124 | 14.237 | 14.041 | 14.499 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.234  | 1.229  | 0.880  | 1.772  | 0.000  | 0.540  |
|                                                 | 2.580  | 0.000  | 1.748  | 0.525  | 0.108  | 0.075  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 18

|               | INCHES | CU. FEET   | PERCENT |
|---------------|--------|------------|---------|
| PRECIPITATION | 32.05  | 116338.964 | 100.00  |

# Case 4 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| RUNOFF                          | 3.539    | 12844.773   | 11.04 |
| EVAPOTRANSPIRATION              | 30.153   | 109454.110  | 94.08 |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005723 | 20.774      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.5276  |             |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005719 | 20.761      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |       |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.618      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | -1.648   | -5981.544   | -5.14 |
| SOIL WATER AT START OF YEAR     | 569.309  | 2066545.541 |       |
| SOIL WATER AT END OF YEAR       | 567.661  | 2060563.998 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 19

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.83<br>2.03     | 3.34<br>2.25     | 1.75<br>1.40     | 1.47<br>0.66     | 2.04<br>2.57     | 0.58<br>0.01     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.338<br>2.014   | 2.122<br>2.268   | 1.918<br>1.394   | 2.932<br>0.663   | 2.192<br>0.839   | 0.577<br>0.803   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0005 | 0.0004<br>0.0005 | 0.0004<br>0.0004 | 0.0006<br>0.0003 | 0.0005<br>0.0004 | 0.0005<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

## Case 4 (Continued)

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                    |        |        |        |        |        |        |
|----------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 2            | 14.565 | 16.643 | 17.914 | 15.149 | 14.000 | 13.999 |
|                                                    | 14.000 | 13.999 | 13.999 | 14.000 | 14.611 | 16.632 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 2  | 0.029  | 1.119  | 0.492  | 1.351  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 1.081  | 0.208  |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 19

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 18.93    | 68714.402   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 19.061   | 69189.471   | 100.69  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005199 | 18.873      | 0.03    |
| AVG. HEAD ON TOP OF LAYER 2     | 14.9592  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005203 | 18.886      | 0.03    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0055   | 19.834      | 0.03    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.136   | -494.911    | -0.72   |
| SOIL WATER AT START OF YEAR     | 567.661  | 2060563.998 |         |
| SOIL WATER AT END OF YEAR       | 567.525  | 2060069.086 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

## Case 4 (Continued)

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 20

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.68<br>0.56     | 0.42<br>1.46     | 1.80<br>6.19     | 3.35<br>2.35     | 4.36<br>1.02     | 1.32<br>1.69     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.429<br>0.560   | 0.538<br>1.441   | 1.529<br>4.326   | 4.687<br>3.016   | 4.364<br>1.127   | 1.320<br>1.494   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0005 | 0.0004<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0004 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 15.797<br>13.999 | 15.595<br>13.999 | 15.943<br>16.439 | 15.535<br>16.460 | 14.080<br>15.024 | 13.999<br>14.934 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.148<br>0.000   | 0.014<br>0.001   | 0.690<br>3.210   | 1.126<br>0.795   | 0.193<br>0.071   | 0.000<br>0.053   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 20

|                                 | INCHES   | CU. FEET  | PERCENT |
|---------------------------------|----------|-----------|---------|
| PRECIPITATION                   | 26.20    | 95103.927 | 100.00  |
| RUNOFF                          | 0.000    | 0.000     | 0.00    |
| EVAPOTRANSPIRATION              | 25.830   | 93760.014 | 98.59   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005280 | 19.166    | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 15.1504  |           |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000     | 0.00    |

### Case 4 (Continued)

|                                 |          |             |      |
|---------------------------------|----------|-------------|------|
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005277 | 19.153      | 0.02 |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |      |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0053   | 19.240      | 0.02 |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00 |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |      |
| CHANGE IN WATER STORAGE         | 0.365    | 1324.665    | 1.39 |
| SOIL WATER AT START OF YEAR     | 567.525  | 2060069.086 |      |
| SOIL WATER AT END OF YEAR       | 567.889  | 2061393.752 |      |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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#### MONTHLY TOTALS (IN INCHES) FOR YEAR 21

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.29<br>3.46     | 0.99<br>3.30     | 2.08<br>4.64     | 8.53<br>3.35     | 5.62<br>0.85     | 0.70<br>3.51     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 1.082<br>0.000   | 1.743<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.649<br>2.596   | 1.229<br>4.170   | 2.421<br>3.886   | 5.319<br>2.877   | 5.938<br>0.921   | 1.124<br>1.019   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0005 | 0.0006<br>0.0005 | 0.0005<br>0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0004 | 0.0004<br>0.0005 | 0.0005<br>0.0005 | 0.0003<br>0.0004 | 0.0005<br>0.0004 | 0.0005<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

#### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                      |                  |                  |                  |                  |                  |                  |
|--------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2 | 15.200<br>14.675 | 15.460<br>14.339 | 15.373<br>14.158 | 19.960<br>17.274 | 18.020<br>16.360 | 14.000<br>21.194 |
|--------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|

# Case 4 (Continued)

|                                                 |       |       |       |       |       |       |
|-------------------------------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.041 | 0.188 | 0.219 | 3.732 | 3.296 | 0.000 |
|                                                 | 1.458 | 0.501 | 0.375 | 1.198 | 0.232 | 2.015 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 21       |          |             |         |
|---------------------------------|----------|-------------|---------|
|                                 | INCHES   | CU. FEET    | PERCENT |
| PRECIPITATION                   | 38.32    | 139098.568  | 100.00  |
| RUNOFF                          | 2.825    | 10254.818   | 7.37    |
| EVAPOTRANSPIRATION              | 33.149   | 120326.790  | 86.50   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005672 | 20.591      | 0.01    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.3342  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005671 | 20.585      | 0.01    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0054   | 19.517      | 0.01    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 2.341    | 8497.436    | 6.11    |
| SOIL WATER AT START OF YEAR     | 567.889  | 2061393.752 |         |
| SOIL WATER AT END OF YEAR       | 570.230  | 2069891.188 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

| MONTHLY TOTALS (IN INCHES) FOR YEAR 22 |         |         |         |         |         |         |  |
|----------------------------------------|---------|---------|---------|---------|---------|---------|--|
|                                        | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
| PRECIPITATION                          | 1.31    | 1.42    | 0.65    | 2.58    | 1.28    | 0.00    |  |
|                                        | 2.65    | 1.83    | 5.20    | 0.74    | 0.40    | 0.06    |  |



# Case 4 (Continued)

|                                         |        |        |        |        |        |        |  |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|--|
| RUNOFF                                  | 0.072  | 0.032  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| EVAPOTRANSPIRATION                      | 1.756  | 1.363  | 1.258  | 5.120  | 1.281  | 0.000  |  |
|                                         | 2.561  | 1.918  | 2.875  | 2.683  | 0.774  | 0.035  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |  |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |  |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005 | 0.0006 | 0.0003 | 0.0006 | 0.0005 | 0.0005 |  |
|                                         | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0004 | 0.0005 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |  |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.533 | 22.168 | 20.555 | 18.687 | 13.999 | 13.998 |  |
|                                                 | 13.997 | 13.999 | 14.303 | 15.186 | 13.999 | 13.999 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.603  | 0.670  | 0.738  | 3.361  | 0.000  | 0.000  |  |
|                                                 | 0.001  | 0.000  | 0.817  | 1.188  | 0.000  | 0.000  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

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## ANNUAL TOTALS FOR YEAR 22

|                                 | INCHES   | CU. FEET   | PERCENT |  |
|---------------------------------|----------|------------|---------|--|
| PRECIPITATION                   | 18.12    | 65774.166  | 100.00  |  |
| RUNOFF                          | 0.103    | 375.144    | 0.57    |  |
| EVAPOTRANSPIRATION              | 21.624   | 78492.667  | 119.34  |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005699 | 20.685     | 0.03    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.4521  |            |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005704 | 20.703     | 0.03    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |            |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.559     | 0.03    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009      | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |            |         |  |
| CHANGE IN WATER STORAGE         | -3.613   | -13115.211 | -19.94  |  |

# Case 4 (Continued)

|                             |         |             |      |
|-----------------------------|---------|-------------|------|
| SOIL WATER AT START OF YEAR | 570.230 | 2069891.188 |      |
| SOIL WATER AT END OF YEAR   | 566.617 | 2056775.977 |      |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.001      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 23

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.22<br>5.01     | 3.41<br>0.00     | 2.97<br>1.28     | 5.31<br>0.85     | 7.63<br>5.34     | 3.88<br>2.15     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.304<br>0.436   | 0.330<br>1.172   |
| EVAPOTRANSPIRATION                      | 0.608<br>5.010   | 1.743<br>0.000   | 3.209<br>1.280   | 5.391<br>0.850   | 6.131<br>1.156   | 6.733<br>1.042   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0005 | 0.0004<br>0.0005 | 0.0004<br>0.0005 | 0.0004<br>0.0005 | 0.0005<br>0.0004 | 0.0005<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                  |                  |                  |                  |                  |                  |
|------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 13.999<br>14.375 | 16.488<br>13.999 | 18.928<br>13.999 | 17.407<br>13.998 | 17.277<br>18.720 | 19.290<br>23.606 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.000<br>0.594   | 2.505<br>0.000   | 0.579<br>0.000   | 2.335<br>0.000   | 2.757<br>4.799   | 3.321<br>0.248   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10          | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

## Case 4 (Continued)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 23

|                                 | INCHES  | CU. FEET    | PERCENT |      |
|---------------------------------|---------|-------------|---------|------|
| PRECIPITATION                   | 39.05   | 141748.410  | 100.00  |      |
| RUNOFF                          | 2.242   | 8137.582    | 5.74    |      |
| EVAPOTRANSPIRATION              | 33.152  | 120338.420  | 84.90   |      |
| PERC./LEAKAGE THROUGH LAYER 3   |         | 0.005841    | 21.202  | 0.01 |
| AVG. HEAD ON TOP OF LAYER 2     | 16.8404 |             |         |      |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 0.0000      | 0.000   | 0.00 |
| PERC./LEAKAGE THROUGH LAYER 7   |         | 0.005841    | 21.202  | 0.01 |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000  |             |         |      |
| DRAINAGE COLLECTED FROM LAYER 9 |         | 0.0056      | 20.176  | 0.01 |
| PERC./LEAKAGE THROUGH LAYER 11  |         | 0.000003    | 0.009   | 0.00 |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000  |             |         |      |
| CHANGE IN WATER STORAGE         | 3.651   | 13252.227   | 9.35    |      |
| SOIL WATER AT START OF YEAR     | 566.617 | 2056775.977 |         |      |
| SOIL WATER AT END OF YEAR       | 570.268 | 2070028.203 |         |      |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000       | 0.00    |      |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000       | 0.00    |      |
| ANNUAL WATER BUDGET BALANCE     |         | 0.0000      | -0.002  | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 24

|                             | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION               | 0.17    | 0.58    | 1.58    | 4.22    | 6.64    | 2.26    |
|                             | 1.30    | 1.70    | 1.57    | 2.09    | 3.32    | 2.15    |
| RUNOFF                      | 0.000   | 0.000   | 0.000   | 0.000   | 0.811   | 0.000   |
|                             | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.456   |
| EVAPOTRANSPIRATION          | 0.939   | 0.408   | 2.037   | 4.426   | 7.512   | 2.995   |
|                             | 0.941   | 2.058   | 1.569   | 1.002   | 1.354   | 1.262   |
| PERCOLATION/LEAKAGE THROUGH | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0006  | 0.0004  |

# Case 4 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| LAYER 3                                 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0006 | 0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0006 | 0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.927 | 20.707 | 21.370 | 16.595 | 19.607 | 14.102 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.577  | 0.140  | 0.678  | 2.495  | 2.385  | 0.225  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

## ANNUAL TOTALS FOR YEAR 24

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 27.58    | 100113.218  | 100.00  |
| RUNOFF                          | 1.268    | 4601.339    | 4.60    |
| EVAPOTRANSPIRATION              | 26.504   | 96209.185   | 96.10   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006096 | 22.128      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.5383  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006096 | 22.128      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.584      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.198   | -718.897    | -0.72   |
| SOIL WATER AT START OF YEAR     | 570.268  | 2070028.203 |         |
| SOIL WATER AT END OF YEAR       | 570.070  | 2069309.306 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |

## Case 4 (Continued)

ANNUAL WATER BUDGET BALANCE                      0.0000                      -0.002                      0.00

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

### MONTHLY TOTALS (IN INCHES) FOR YEAR 25

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.25    | 3.25    | 0.79    | 2.87    | 4.75    | 2.48    |
|                                         | 4.21    | 1.75    | 3.02    | 0.89    | 2.33    | 2.37    |
| RUNOFF                                  | 0.000   | 1.851   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.373   | 1.667   | 1.070   | 5.359   | 3.827   | 2.073   |
|                                         | 5.840   | 1.501   | 2.343   | 1.786   | 0.929   | 1.191   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0004  | 0.0007  | 0.0006  | 0.0005  | 0.0005  |
|                                         | 0.0004  | 0.0006  | 0.0005  | 0.0004  | 0.0003  | 0.0005  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.881 | 22.606 | 21.296 | 17.221 | 14.089 | 14.247 |
|                                                 | 14.460 | 13.999 | 14.000 | 13.999 | 14.516 | 17.412 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.272  | 0.821  | 0.294  | 1.974  | 0.262  | 0.579  |
|                                                 | 0.804  | 0.000  | 0.000  | 0.000  | 0.688  | 1.225  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 25

| INCHES | CU. FEET | PERCENT |
|--------|----------|---------|
|--------|----------|---------|

# Case 4 (Continued)

|                                 |          |             |        |
|---------------------------------|----------|-------------|--------|
| PRECIPITATION                   | 29.96    | 108752.430  | 100.00 |
| RUNOFF                          | 1.851    | 6719.632    | 6.18   |
| EVAPOTRANSPIRATION              | 28.961   | 105124.999  | 96.66  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005764 | 20.924      | 0.02   |
| AVG. HEAD ON TOP OF LAYER 2     | 16.6439  |             |        |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00   |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005764 | 20.924      | 0.02   |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |        |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.452      | 0.02   |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00   |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |        |
| CHANGE IN WATER STORAGE         | -0.858   | -3113.661   | -2.86  |
| SOIL WATER AT START OF YEAR     | 570.070  | 2069309.306 |        |
| SOIL WATER AT END OF YEAR       | 569.212  | 2066195.645 |        |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00   |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00   |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00   |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 26

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.89<br>1.42     | 0.86<br>4.56     | 1.30<br>4.16     | 1.41<br>6.97     | 5.60<br>1.58     | 1.47<br>3.85     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>1.085   | 0.000<br>0.295   | 0.000<br>2.520   |
| EVAPOTRANSPIRATION                      | 1.473<br>1.420   | 0.734<br>4.560   | 2.606<br>3.462   | 2.271<br>2.829   | 4.771<br>1.135   | 2.298<br>1.284   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0004 | 0.0005<br>0.0006 | 0.0004<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0004 | 0.0005<br>0.0006 | 0.0004<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0005 | 0.0004<br>0.0005 |

# Case 4 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 11                    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 18.984 | 18.295 | 17.607 | 14.153 | 14.034 | 14.000 |
|                                                 | 13.999 | 15.728 | 14.248 | 21.143 | 23.491 | 23.592 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.281  | 0.137  | 0.455  | 0.434  | 0.087  | 0.000  |
|                                                 | 0.000  | 2.305  | 0.486  | 2.461  | 0.317  | 0.274  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

## ANNUAL TOTALS FOR YEAR 26

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 34.07    | 123671.404  | 100.00  |
| RUNOFF                          | 3.899    | 14153.889   | 11.44   |
| EVAPOTRANSPIRATION              | 28.843   | 104697.606  | 84.66   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006047 | 21.949      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.4395  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006047 | 21.949      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0056   | 20.330      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 1.322    | 4799.572    | 3.88    |
| SOIL WATER AT START OF YEAR     | 569.212  | 2066195.645 |         |
| SOIL WATER AT END OF YEAR       | 570.535  | 2070995.217 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7

## Case 4 (Continued)

HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 27

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.15<br>1.20   | 1.94<br>7.30     | 0.59<br>0.74     | 1.39<br>6.22     | 4.74<br>4.05     | 3.79<br>0.04     |
| RUNOFF                                  | 0.000<br>0.000 | 0.357<br>0.000   | 0.000<br>0.000   | 0.000<br>0.350   | 0.000<br>2.767   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.940<br>1.200 | 1.327<br>4.016   | 1.344<br>4.024   | 3.478<br>1.933   | 5.309<br>1.304   | 3.790<br>0.916   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     |                | 0.0007<br>0.0004 | 0.0006<br>0.0005 | 0.0006<br>0.0005 | 0.0005<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     |                | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 |                | 0.0005<br>0.0005 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0007<br>0.0005 | 0.0006<br>0.0006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.515<br>13.999 | 22.211<br>14.173 | 21.035<br>15.866 | 16.325<br>17.336 | 14.982<br>23.542 | 14.250<br>22.501 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.554<br>0.000   | 0.880<br>0.440   | 0.533<br>2.403   | 2.507<br>3.700   | 0.866<br>0.306   | 0.502<br>0.694   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 27

|                               | INCHES   | CU. FEET   | PERCENT |
|-------------------------------|----------|------------|---------|
| PRECIPITATION                 | 33.15    | 120331.877 | 100.00  |
| RUNOFF                        | 3.474    | 12610.789  | 10.48   |
| EVAPOTRANSPIRATION            | 30.579   | 111000.643 | 92.25   |
| PERC./LEAKAGE THROUGH LAYER 3 | 0.006305 | 22.888     | 0.02    |



# Case 4 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| AVG. HEAD ON TOP OF LAYER 2     | 18.2279  |             |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006305 | 22.888      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |       |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0064   | 23.369      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | -0.910   | -3302.931   | -2.74 |
| SOIL WATER AT START OF YEAR     | 570.535  | 2070995.217 |       |
| SOIL WATER AT END OF YEAR       | 569.625  | 2067692.286 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 28

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
| PRECIPITATION                           | 2.62    | 0.67    | 2.47    | 1.67    | 2.99    | 0.47    |  |
|                                         | 0.47    | 5.39    | 4.00    | 4.98    | 4.30    | 1.75    |  |
| RUNOFF                                  | 0.471   | 0.000   | 0.518   | 0.000   | 0.000   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 0.085   | 0.609   | 0.424   |  |
| EVAPOTRANSPIRATION                      | 1.196   | 1.386   | 2.477   | 4.325   | 2.927   | 0.602   |  |
|                                         | 0.492   | 5.144   | 3.832   | 3.390   | 1.923   | 1.053   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0007  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0006  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0007  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0006  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0006  | 0.0005  | 0.0006  | 0.0005  | 0.0006  |  |
|                                         | 0.0006  | 0.0005  | 0.0004  | 0.0005  | 0.0005  | 0.0004  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

# Case 4 (Continued)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.849 | 22.099 | 22.323 | 18.415 | 14.000 | 14.000 |
|                                                 | 13.999 | 14.013 | 15.108 | 16.416 | 22.506 | 22.111 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.905  | 0.708  | 1.001  | 1.812  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.045  | 1.190  | 3.125  | 1.123  | 0.719  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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| ANNUAL TOTALS FOR YEAR 28       |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 31.78    | 115358.886  | 100.00  |  |
| RUNOFF                          | 2.107    | 7649.110    | 6.63    |  |
| EVAPOTRANSPIRATION              | 28.747   | 104349.963  | 90.46   |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006272 | 22.765      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 18.0697  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006266 | 22.744      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0063   | 22.715      | 0.02    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | 0.919    | 3337.090    | 2.89    |  |
| SOIL WATER AT START OF YEAR     | 569.625  | 2067692.286 |         |  |
| SOIL WATER AT END OF YEAR       | 570.544  | 2071029.376 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 29

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

## Case 4 (Continued)

|                                         |        |        |        |        |        |        |  |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|--|
| PRECIPITATION                           | 0.87   | 2.16   | 3.83   | 1.40   | 1.36   | 9.35   |  |
|                                         | 3.18   | 3.09   | 2.36   | 4.34   | 2.64   | 2.73   |  |
| RUNOFF                                  | 0.273  | 0.158  | 1.350  | 0.000  | 0.000  | 1.502  |  |
|                                         | 0.000  | 0.000  | 0.000  | 0.000  | 0.394  | 2.201  |  |
| EVAPOTRANSPIRATION                      | 1.539  | 1.259  | 3.645  | 3.981  | 1.338  | 4.458  |  |
|                                         | 6.600  | 3.090  | 1.619  | 2.432  | 0.994  | 1.206  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007 | 0.0006 | 0.0007 | 0.0005 | 0.0004 | 0.0004 |  |
|                                         | 0.0005 | 0.0004 | 0.0004 | 0.0004 | 0.0007 | 0.0007 |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007 | 0.0006 | 0.0007 | 0.0005 | 0.0004 | 0.0004 |  |
|                                         | 0.0005 | 0.0004 | 0.0004 | 0.0004 | 0.0007 | 0.0007 |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005 | 0.0005 | 0.0005 | 0.0007 | 0.0006 | 0.0005 |  |
|                                         | 0.0007 | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0005 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |  |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.546 | 22.204 | 22.496 | 16.894 | 14.000 | 15.738 |  |
|                                                 | 16.451 | 14.792 | 13.999 | 14.955 | 22.971 | 23.297 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.874  | 1.016  | 1.100  | 2.560  | 0.000  | 2.829  |  |
|                                                 | 2.928  | 1.391  | 0.000  | 1.347  | 1.091  | 0.707  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

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### ANNUAL TOTALS FOR YEAR 29

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 37.31    | 135432.348 | 100.00  |
| RUNOFF                          | 5.879    | 21339.102  | 15.76   |
| EVAPOTRANSPIRATION              | 32.160   | 116739.881 | 86.20   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006352 | 23.059     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 18.3620  |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006358 | 23.079     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |            |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0064   | 23.192     | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009      | 0.00    |

# Case 4 (Continued)

|                              |         |             |       |
|------------------------------|---------|-------------|-------|
| AVG. HEAD ON TOP OF LAYER 10 | 0.0000  |             |       |
| CHANGE IN WATER STORAGE      | -0.736  | -2669.834   | -1.97 |
| SOIL WATER AT START OF YEAR  | 570.544 | 2071029.376 |       |
| SOIL WATER AT END OF YEAR    | 569.808 | 2068359.542 |       |
| SNOW WATER AT START OF YEAR  | 0.000   | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR    | 0.000   | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE  | 0.0000  | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 30

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
| PRECIPITATION                           | 1.42    | 2.35    | 1.86    | 5.85    | 7.21    | 1.03    |  |
|                                         | 2.19    | 1.98    | 1.22    | 3.07    | 1.17    | 2.89    |  |
| RUNOFF                                  | 0.000   | 1.073   | 0.297   | 0.000   | 0.725   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
| EVAPOTRANSPIRATION                      | 1.480   | 1.119   | 2.535   | 6.334   | 6.953   | 2.322   |  |
|                                         | 1.877   | 2.393   | 1.220   | 2.443   | 1.015   | 1.203   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007  | 0.0006  | 0.0006  | 0.0005  | 0.0006  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0006  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0005  | 0.0007  | 0.0006  | 0.0006  | 0.0006  |  |
|                                         | 0.0005  | 0.0005  | 0.0004  | 0.0004  | 0.0005  | 0.0005  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |        |        |        |        |        |        |  |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 22.252 | 21.865 | 21.623 | 18.254 | 19.919 | 14.254 |  |
|                                                | 14.000 | 13.999 | 13.999 | 13.999 | 14.045 | 16.204 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.610  | 0.728  | 0.977  | 1.908  | 2.473  | 0.720  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.054  | 1.935  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

# Case 4 (Continued)

|                                                 |       |       |       |       |       |       |
|-------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

\*\*\*\*\*

## ANNUAL TOTALS FOR YEAR 30

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 32.24    | 117028.649  | 100.00  |
| RUNOFF                          | 2.096    | 7607.255    | 6.50    |
| EVAPOTRANSPIRATION              | 30.893   | 112139.762  | 95.82   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005901 | 21.421      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.0345  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005901 | 21.421      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0063   | 22.812      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.755   | -2741.187   | -2.34   |
| SOIL WATER AT START OF YEAR     | 569.808  | 2068359.542 |         |
| SOIL WATER AT END OF YEAR       | 569.053  | 2065618.355 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

\*\*\*\*\*

## AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 30

|                    | JAN/JUL        | FEB/AUG        | MAR/SEP        | APR/OCT        | MAY/NOV        | JUN/DEC        |
|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PRECIPITATION      |                |                |                |                |                |                |
| TOTALS             | 1.15<br>2.10   | 2.50<br>2.84   | 1.69<br>3.09   | 3.07<br>2.84   | 4.12<br>2.07   | 2.87<br>2.03   |
| STD. DEVIATIONS    | 0.76<br>1.60   | 1.44<br>2.21   | 0.99<br>2.00   | 1.85<br>2.10   | 2.16<br>1.33   | 2.46<br>1.35   |
| RUNOFF             |                |                |                |                |                |                |
| TOTALS             | 0.034<br>0.041 | 0.529<br>0.033 | 0.108<br>0.039 | 0.098<br>0.147 | 0.167<br>0.173 | 0.129<br>0.425 |
| STD. DEVIATIONS    | 0.103<br>0.204 | 0.940<br>0.181 | 0.287<br>0.209 | 0.301<br>0.424 | 0.436<br>0.521 | 0.444<br>0.809 |
| EVAPOTRANSPIRATION |                |                |                |                |                |                |
| TOTALS             | 1.319<br>2.478 | 1.438<br>2.548 | 2.245<br>2.734 | 4.525<br>2.057 | 4.040<br>1.041 | 2.862<br>1.079 |

# Case 4 (Continued)

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATIONS | 0.387 | 0.524 | 0.702 | 1.273 | 1.877 | 2.111 |
|                 | 1.863 | 1.631 | 1.548 | 0.930 | 0.295 | 0.314 |

## PERCOLATION/LEAKAGE THROUGH LAYER 3

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0006 | 0.0005 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0006 |
| STD. DEVIATIONS | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0001 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |

## LATERAL DRAINAGE COLLECTED FROM LAYER 6

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## PERCOLATION/LEAKAGE THROUGH LAYER 7

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0006 | 0.0005 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0006 |
| STD. DEVIATIONS | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0001 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |

## LATERAL DRAINAGE COLLECTED FROM LAYER 9

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0007 | 0.0006 | 0.0007 | 0.0006 | 0.0006 | 0.0006 |
|                 | 0.0006 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 |
| STD. DEVIATIONS | 0.0008 | 0.0008 | 0.0007 | 0.0006 | 0.0004 | 0.0003 |
|                 | 0.0003 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0001 |

## PERCOLATION/LEAKAGE THROUGH LAYER 11

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

### DAILY AVERAGE HEAD ON TOP OF LAYER 2

|                 |         |         |         |         |         |         |
|-----------------|---------|---------|---------|---------|---------|---------|
| AVERAGES        | 19.4991 | 20.1073 | 20.2261 | 16.9522 | 15.1145 | 14.6585 |
|                 | 14.3829 | 14.2364 | 14.6666 | 15.8269 | 17.4882 | 19.3892 |
| STD. DEVIATIONS | 3.2219  | 2.9248  | 2.3522  | 1.6281  | 1.7728  | 1.2478  |
|                 | 0.8341  | 0.6029  | 1.0559  | 2.2589  | 3.3843  | 3.5089  |

### DAILY AVERAGE HEAD ON TOP OF LAYER 7

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### DAILY AVERAGE HEAD ON TOP OF LAYER 10

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

\*\*\*\*\*

## AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 30

|        |          |         |
|--------|----------|---------|
| INCHES | CU. FEET | PERCENT |
|--------|----------|---------|

D6-B-97

Technically Complete October 28, 2014

# Case 4 (Continued)

|                                         |                    |           |         |
|-----------------------------------------|--------------------|-----------|---------|
| PRECIPITATION                           | 30.38 ( 6.302)     | 110267.3  | 100.00  |
| RUNOFF                                  | 1.924 ( 1.8881)    | 6984.94   | 6.335   |
| EVAPOTRANSPIRATION                      | 28.366 ( 4.5812)   | 102965.83 | 93.378  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.00585 ( 0.00036) | 21.249    | 0.01927 |
| AVERAGE HEAD ON TOP OF LAYER 2          | 16.879 ( 1.077)    |           |         |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.00000 ( 0.00000) | 0.000     | 0.00000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.00585 ( 0.00036) | 21.249    | 0.01927 |
| AVERAGE HEAD ON TOP OF LAYER 7          | 0.000 ( 0.000)     |           |         |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.00679 ( 0.00464) | 24.638    | 0.02234 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.00000 ( 0.00000) | 0.009     | 0.00001 |
| AVERAGE HEAD ON TOP OF LAYER 10         | 0.000 ( 0.000)     |           |         |
| CHANGE IN WATER STORAGE                 | 0.080 ( 1.7178)    | 291.90    | 0.265   |

\*\*\*\*\*

| PEAK DAILY VALUES FOR YEARS 1 THROUGH 30                     |          | and their dates (DDDDYYYY) |         |
|--------------------------------------------------------------|----------|----------------------------|---------|
|                                                              | (INCHES) | (CU. FT.)                  |         |
| PRECIPITATION                                                | 5.09     | 18476.29728                | 1290008 |
| RUNOFF                                                       | 2.667    | 9681.04748                 | 3620015 |
| PERCOLATION/LEAKAGE THROUGH LAYER 3                          | 0.000023 | 0.08234                    | 3440001 |
| AVERAGE HEAD ON TOP OF LAYER 2                               | 24.000   |                            |         |
| DRAINAGE COLLECTED FROM LAYER 6                              | 0.00000  | 0.00000                    | 3440001 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7                          | 0.000028 | 0.10280                    | 3580026 |
| AVERAGE HEAD ON TOP OF LAYER 7                               | 0.000    |                            |         |
| MAXIMUM HEAD ON TOP OF LAYER 7                               | 0.000    |                            |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 6<br>(DISTANCE FROM DRAIN) | 0.0 FEET |                            |         |
| DRAINAGE COLLECTED FROM LAYER 9                              | 0.00055  | 1.99375                    | 680001  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11                         | 0.000000 | 0.00003                    | 680001  |
| AVERAGE HEAD ON TOP OF LAYER 10                              | 0.001    |                            |         |
| MAXIMUM HEAD ON TOP OF LAYER 10                              | 0.002    |                            |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 9<br>(DISTANCE FROM DRAIN) | 0.0 FEET |                            |         |
| SNOW WATER                                                   | 1.95     | 7072.4948                  | 3430003 |
| MAXIMUM VEG. SOIL WATER (VOL/VOL)                            |          | 0.4570                     |         |
| MINIMUM VEG. SOIL WATER (VOL/VOL)                            |          | 0.0580                     |         |

## Case 4 (Continued)

\*\*\* Maximum heads are computed using McEnroe's equations. \*\*\*

Reference: Maximum Saturated Depth over Landfill Liner  
by Bruce M. McEnroe, University of Kansas  
ASCE Journal of Environmental Engineering  
Vol. 119, No. 2, March 1993, pp. 262-270.

\*\*\*\*\*

### FINAL WATER STORAGE AT END OF YEAR 30

| LAYER | (INCHES) | (VOL/VOL) |
|-------|----------|-----------|
| 1     | 9.4452   | 0.3935    |
| 2     | 0.0000   | 0.0000    |
| 3     | 7.6860   | 0.4270    |
| 4     | 1.5720   | 0.1310    |
| 5     | 522.0960 | 0.2920    |
| 6     | 7.0080   | 0.2920    |
| 7     | 0.4099   | 0.4270    |
| 8     | 9.4341   | 0.4095    |
| 9     | 0.0021   | 0.0100    |
| 10    | 0.0000   | 0.0000    |
| 11    | 11.4000  | 0.4750    |

SNOW WATER 0.000

\*\*\*\*\*  
\*\*\*\*\*



## Case 5

```
*****
*****
**                                     **
**                                     **
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE      **
**      HELP MODEL VERSION 3.07 (1 November 1997)          **
**      DEVELOPED BY ENVIRONMENTAL LABORATORY                **
**      USAE WATERWAYS EXPERIMENT STATION                    **
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY      **
**      **                                                    **
**      **                                                    **
*****
*****
```

PRECIPITATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\\_weather1.dat  
TEMPERATURE DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\\_weather2.dat  
SOLAR RADIATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\\_weather3.dat  
EVAPOTRANSPIRATION DATA: C:\WHI\UNSAT22\data\P922.VHP\\_weather4.dat  
SOIL AND DESIGN DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\\_387045.inp  
OUTPUT DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\\_O\_387045.prt

TIME: 16: 5     DATE: 8/ 6/2014

```
*****
TITLE: Case 5
*****
```

NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE  
COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.

### LAYER 1

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 130  
THICKNESS                = 30.48 CM  
POROSITY                = 0.4570 VOL/VOL  
FIELD CAPACITY           = 0.1310 VOL/VOL  
WILTING POINT           = 0.0580 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.1508 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC

### LAYER 2

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 18  
THICKNESS                = 5882.64 CM  
POROSITY                = 0.6710 VOL/VOL  
FIELD CAPACITY           = 0.2920 VOL/VOL  
WILTING POINT           = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2921 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000224000E-02 CM/SEC

### LAYER 3

-----  
TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 201  
THICKNESS                = 60.96 CM  
POROSITY                = 0.6710 VOL/VOL  
FIELD CAPACITY           = 0.2920 VOL/VOL  
WILTING POINT           = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.3055 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC  
SLOPE                    = 2.50 PERCENT

## Case 5 (Continued)

DRAINAGE LENGTH = 75.0 METERS

### LAYER 4

TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 16

THICKNESS = 2.44 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 5

TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 230

THICKNESS = 58.52 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4267 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 6

TYPE 2 - LATERAL DRAINAGE LAYER  
MATERIAL TEXTURE NUMBER 225

THICKNESS = 0.49 CM  
POROSITY = 0.8500 VOL/VOL  
FIELD CAPACITY = 0.0100 VOL/VOL  
WILTING POINT = 0.0050 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.1602 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 1.71000000000 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### LAYER 7

TYPE 4 - FLEXIBLE MEMBRANE LINER  
MATERIAL TEXTURE NUMBER 235

THICKNESS = 0.15 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.200000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

### LAYER 8

TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 15

THICKNESS = 60.96 CM  
POROSITY = 0.4750 VOL/VOL  
FIELD CAPACITY = 0.3780 VOL/VOL  
WILTING POINT = 0.2650 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4750 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-06 CM/SEC

### GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT

## Case 5 (Continued)

SOIL DATA BASE USING SOIL TEXTURE #\*\* WITH A  
GOOD STAND OF GRASS, A SURFACE SLOPE OF 30.0%  
AND A SLOPE LENGTH OF 30. METERS.

SCS RUNOFF CURVE NUMBER = 0.00  
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT  
AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES  
EVAPORATIVE ZONE DEPTH = 25.4 CM  
INITIAL WATER IN EVAPORATIVE ZONE = 3.641 CM  
UPPER LIMIT OF EVAPORATIVE STORAGE = 11.608 CM  
LOWER LIMIT OF EVAPORATIVE STORAGE = 1.473 CM  
INITIAL SNOW WATER = 0.000 CM  
INITIAL WATER IN LAYER MATERIALS = 1796.797 CM  
TOTAL INITIAL WATER = 1796.797 CM  
TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

### EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM  
Austin TX

STATION LATITUDE = 30.31 DEGREES  
MAXIMUM LEAF AREA INDEX = 4.50  
START OF GROWING SEASON (JULIAN DATE) = 44  
END OF GROWING SEASON (JULIAN DATE) = 346  
EVAPORATIVE ZONE DEPTH = 10.0 INCHES  
AVERAGE ANNUAL WIND SPEED = 9.30 MPH  
AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %  
AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 67.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

### NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 1.60    | 2.49    | 1.68    | 3.11    | 4.19    | 3.06    |
| 1.89    | 2.24    | 3.60    | 3.38    | 2.20    | 2.06    |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX

### NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 49.10   | 53.20   | 60.50   | 68.70   | 74.90   | 81.60   |
| 84.70   | 84.50   | 79.20   | 69.80   | 58.70   | 52.10   |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR Austin TX  
AND STATION LATITUDE = 29.88 DEGREES

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

\*\*\*\*\*

### MONTHLY TOTALS (IN INCHES) FOR YEAR 1

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
|---------|---------|---------|---------|---------|---------|

## Case 5 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| PRECIPITATION               | 0.65   | 2.56   | 0.82   | 0.03   | 1.74   | 0.00   |
|                             | 0.45   | 4.41   | 2.37   | 5.47   | 0.62   | 3.40   |
| RUNOFF                      | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                             | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| EVAPOTRANSPIRATION          | 0.771  | 1.435  | 2.192  | 0.029  | 1.736  | 0.003  |
|                             | 0.448  | 4.070  | 2.206  | 2.563  | 1.337  | 1.944  |
| LATERAL DRAINAGE COLLECTED  | 0.0038 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| FROM LAYER 3                | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0078 | 0.0007 |
| PERCOLATION/LEAKAGE THROUGH | 0.7509 | 0.0617 | 0.3140 | 0.0662 | 0.0189 | 0.0106 |
| LAYER 4                     | 0.0075 | 0.1831 | 0.1217 | 0.2679 | 1.4604 | 0.6053 |
| LATERAL DRAINAGE COLLECTED  | 0.9774 | 0.0625 | 0.2945 | 0.0865 | 0.0197 | 0.0553 |
| FROM LAYER 6                | 0.0428 | 0.0311 | 0.1930 | 0.1588 | 0.9106 | 1.0021 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 8                     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON   | 0.215 | 0.001 | 0.003 | 0.001 | 0.000 | 0.000 |
| TOP OF LAYER 4          | 0.000 | 0.004 | 0.005 | 0.006 | 0.453 | 0.041 |
| STD. DEVIATION OF DAILY | 0.305 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 4  | 0.000 | 0.011 | 0.020 | 0.013 | 0.361 | 0.070 |
| AVERAGE DAILY HEAD ON   | 0.032 | 0.002 | 0.010 | 0.003 | 0.001 | 0.002 |
| TOP OF LAYER 7          | 0.001 | 0.001 | 0.007 | 0.005 | 0.031 | 0.033 |
| STD. DEVIATION OF DAILY | 0.007 | 0.001 | 0.006 | 0.003 | 0.000 | 0.001 |
| HEAD ON TOP OF LAYER 7  | 0.001 | 0.001 | 0.009 | 0.006 | 0.009 | 0.004 |

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### ANNUAL TOTALS FOR YEAR 1

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 22.52    | 81745.818   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 18.735   | 68004.810   | 83.19   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0127   | 46.063      | 0.06    |
| PERC./LEAKAGE THROUGH LAYER 4   | 3.868302 | 14041.629   | 17.18   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0608   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 3.8342   | 13917.915   | 17.03   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000007 | 0.024       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0106   |             |         |
| CHANGE IN WATER STORAGE         | -0.061   | -222.993    | -0.27   |
| SOIL WATER AT START OF YEAR     | 707.400  | 2567807.781 |         |
| SOIL WATER AT END OF YEAR       | 707.339  | 2567584.787 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

## Case 5 (Continued)

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 HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8  
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### MONTHLY TOTALS (IN INCHES) FOR YEAR 2

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.00<br>0.26     | 6.11<br>8.15     | 2.35<br>6.72     | 3.42<br>4.76     | 3.62<br>2.03     | 2.33<br>1.05     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 0.659<br>0.226   | 2.103<br>4.227   | 2.901<br>2.601   | 3.495<br>2.757   | 2.995<br>1.019   | 2.481<br>1.140   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0033<br>0.0000 | 0.0004<br>0.0000 | 0.0065<br>0.0081 | 0.0119<br>0.0096 | 0.0002<br>0.0172 | 0.0002<br>0.0262 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.6930<br>0.0189 | 0.4952<br>0.0720 | 1.2616<br>1.3737 | 1.5888<br>1.6440 | 0.4114<br>2.0792 | 0.1900<br>2.6667 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.9512<br>0.0239 | 0.3497<br>0.0532 | 0.7934<br>0.6721 | 1.0205<br>1.0545 | 1.0545<br>1.0205 | 0.7330<br>1.0545 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                |                |                |                |                |                |
|------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.185<br>0.000 | 0.026<br>0.002 | 0.366<br>0.471 | 0.687<br>0.537 | 0.014<br>0.996 | 0.013<br>1.468 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.282<br>0.000 | 0.030<br>0.007 | 0.374<br>0.506 | 0.539<br>0.224 | 0.023<br>0.388 | 0.040<br>0.274 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.031<br>0.001 | 0.013<br>0.002 | 0.026<br>0.023 | 0.035<br>0.035 | 0.035<br>0.035 | 0.025<br>0.035 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.008<br>0.001 | 0.013<br>0.001 | 0.012<br>0.014 | 0.000<br>0.000 | 0.000<br>0.000 | 0.015<br>0.000 |

### ANNUAL TOTALS FOR YEAR 2

|                                 | INCHES    | CU. FEET   | PERCENT |
|---------------------------------|-----------|------------|---------|
| PRECIPITATION                   | 40.80     | 148100.772 | 100.00  |
| RUNOFF                          | 0.000     | 0.000      | 0.00    |
| EVAPOTRANSPIRATION              | 26.604    | 96571.321  | 65.21   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0837    | 303.855    | 0.21    |
| PERC./LEAKAGE THROUGH LAYER 4   | 12.494606 | 45354.432  | 30.62   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.3970    |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 8.7809    | 31873.803  | 21.52   |

## Case 5 (Continued)

|                               |          |             |       |
|-------------------------------|----------|-------------|-------|
| PERC./LEAKAGE THROUGH LAYER 8 | 0.000012 | 0.043       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 7   | 0.0244   |             |       |
| CHANGE IN WATER STORAGE       | 5.331    | 19351.752   | 13.07 |
| SOIL WATER AT START OF YEAR   | 707.339  | 2567584.787 |       |
| SOIL WATER AT END OF YEAR     | 712.670  | 2586936.539 |       |
| SNOW WATER AT START OF YEAR   | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR     | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE   | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 3

|                                            | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|--------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                              | 0.36<br>1.68     | 3.57<br>2.44     | 0.83<br>0.38     | 1.69<br>1.03     | 5.59<br>0.61     | 4.55<br>3.14     |
| RUNOFF                                     | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                         | 0.693<br>1.680   | 1.572<br>2.439   | 1.104<br>0.378   | 1.968<br>1.028   | 2.982<br>0.346   | 4.773<br>1.043   |
| LATERAL DRAINAGE COLLECTED<br>FROM LAYER 3 | 0.0212<br>0.0080 | 0.0002<br>0.0000 | 0.0090<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0063<br>0.0007 |
| PERCOLATION/LEAKAGE THROUGH<br>LAYER 4     | 2.3600<br>1.0317 | 0.2593<br>0.0151 | 1.5225<br>0.0094 | 0.0339<br>0.0075 | 0.0125<br>0.0056 | 1.3272<br>0.5467 |
| LATERAL DRAINAGE COLLECTED<br>FROM LAYER 6 | 1.0545<br>1.0545 | 0.9524<br>1.0545 | 1.0545<br>1.0205 | 1.0205<br>1.0545 | 1.0545<br>0.2547 | 1.0205<br>0.2523 |
| PERCOLATION/LEAKAGE THROUGH<br>LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                   |                |                |                |                |                |                |
|---------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 4           | 1.189<br>0.446 | 0.015<br>0.000 | 0.506<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.363<br>0.039 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 4 | 0.391<br>0.571 | 0.031<br>0.000 | 0.401<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.355<br>0.092 |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7           | 0.035<br>0.035 | 0.035<br>0.035 | 0.035<br>0.035 | 0.035<br>0.035 | 0.035<br>0.009 | 0.035<br>0.008 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7 | 0.000<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.000<br>0.000 | 0.000<br>0.013 | 0.000<br>0.011 |

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### ANNUAL TOTALS FOR YEAR 3

D6-B-104

Technically Complete October 28, 2014

# Case 5 (Continued)

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 25.87    | 93906.053   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 20.006   | 72620.544   | 77.33   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0454   | 164.781     | 0.18    |
| PERC./LEAKAGE THROUGH LAYER 4   | 7.131401 | 25886.423   | 27.57   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2132   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 10.8476  | 39375.925   | 41.93   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000014 | 0.051       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0302   |             |         |
| CHANGE IN WATER STORAGE         | -5.029   | -18255.247  | -19.44  |
| SOIL WATER AT START OF YEAR     | 712.670  | 2586936.539 |         |
| SOIL WATER AT END OF YEAR       | 707.641  | 2568681.293 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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## MONTHLY TOTALS (IN INCHES) FOR YEAR 4

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 2.85<br>1.76     | 3.06<br>0.97     | 1.65<br>3.09     | 3.84<br>2.66     | 3.05<br>2.71     | 1.18<br>1.27     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 2.057<br>1.761   | 1.968<br>0.726   | 2.312<br>2.764   | 2.868<br>1.824   | 4.206<br>0.906   | 1.177<br>0.900   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0015<br>0.0000 | 0.0001<br>0.0000 | 0.0053<br>0.0006 | 0.0000<br>0.0022 | 0.0000<br>0.0008 | 0.0000<br>0.0010 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.9841<br>0.0130 | 0.4246<br>0.0088 | 1.1825<br>0.5073 | 0.0543<br>0.8320 | 0.1478<br>0.6386 | 0.0246<br>0.3671 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.9663<br>0.0445 | 0.6203<br>0.0473 | 0.9188<br>0.4334 | 0.3999<br>0.4847 | 0.1470<br>0.7309 | 0.0254<br>0.6234 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

## Case 5 (Continued)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.087 | 0.009 | 0.299 | 0.000 | 0.002 | 0.000 |
|                                                | 0.000 | 0.000 | 0.037 | 0.122 | 0.044 | 0.056 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.083 | 0.014 | 0.303 | 0.000 | 0.005 | 0.000 |
|                                                | 0.000 | 0.000 | 0.077 | 0.161 | 0.080 | 0.135 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.032 | 0.022 | 0.030 | 0.014 | 0.005 | 0.001 |
|                                                | 0.001 | 0.002 | 0.015 | 0.016 | 0.025 | 0.020 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.007 | 0.013 | 0.010 | 0.015 | 0.005 | 0.000 |
|                                                | 0.001 | 0.001 | 0.015 | 0.015 | 0.011 | 0.015 |

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### ANNUAL TOTALS FOR YEAR 4

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 28.09    | 101964.478  | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 23.469   | 85190.002   | 83.55   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0116   | 42.115      | 0.04    |
| PERC./LEAKAGE THROUGH LAYER 4   | 5.184462 | 18819.187   | 18.46   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0547   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 5.4418   | 19753.146   | 19.37   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000008 | 0.031       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0151   |             |         |
| CHANGE IN WATER STORAGE         | -0.832   | -3020.815   | -2.96   |
| SOIL WATER AT START OF YEAR     | 707.641  | 2568681.293 |         |
| SOIL WATER AT END OF YEAR       | 706.809  | 2565660.478 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 5

|                    | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|--------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION      | 1.42    | 2.70    | 1.93    | 2.42    | 3.77    | 2.00    |
|                    | 0.84    | 1.25    | 3.04    | 1.13    | 1.04    | 0.78    |
| RUNOFF             | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                    | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION | 2.056   | 2.093   | 2.326   | 3.020   | 3.641   | 1.319   |
|                    | 1.351   | 1.420   | 2.889   | 0.983   | 0.977   | 0.595   |



## Case 5 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED  | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| FROM LAYER 3                | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH | 0.0831 | 0.0280 | 0.0274 | 0.0327 | 0.1045 | 0.0345 |
| LAYER 4                     | 0.0148 | 0.0095 | 0.0972 | 0.0320 | 0.0151 | 0.0099 |
| LATERAL DRAINAGE COLLECTED  | 0.0846 | 0.0479 | 0.0503 | 0.0464 | 0.0476 | 0.0359 |
| FROM LAYER 6                | 0.0362 | 0.0502 | 0.0419 | 0.0576 | 0.0459 | 0.0389 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 8                     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON   | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 |
| TOP OF LAYER 4          | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY | 0.000 | 0.000 | 0.000 | 0.000 | 0.002 | 0.000 |
| HEAD ON TOP OF LAYER 4  | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON   | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 | 0.001 |
| TOP OF LAYER 7          | 0.001 | 0.002 | 0.001 | 0.002 | 0.002 | 0.001 |
| STD. DEVIATION OF DAILY | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.000 |
| HEAD ON TOP OF LAYER 7  | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |

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### ANNUAL TOTALS FOR YEAR 5

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 22.32    | 81019.834   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 22.668   | 82282.843   | 101.56  |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0000   | 0.086       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 4   | 0.488699 | 1773.937    | 2.19    |
| AVG. HEAD ON TOP OF LAYER 4     | 0.0004   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.5833   | 2117.406    | 2.61    |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000003 | 0.012       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0016   |             |         |
| CHANGE IN WATER STORAGE         | -0.931   | -3380.511   | -4.17   |
| SOIL WATER AT START OF YEAR     | 706.809  | 2565660.478 |         |
| SOIL WATER AT END OF YEAR       | 705.878  | 2562279.967 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

## Case 5 (Continued)

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 6

|                                            | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|--------------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                              | 2.84<br>1.57   | 3.09<br>4.88     | 4.52<br>3.80     | 0.95<br>6.63     | 5.99<br>2.35     | 3.95<br>0.40     |
| RUNOFF                                     | 0.000<br>0.000 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.171   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                         |                | 1.442<br>1.575   | 2.018<br>3.906   | 3.139<br>2.136   | 2.059<br>1.425   | 3.697<br>1.001   |
| LATERAL DRAINAGE COLLECTED<br>FROM LAYER 3 |                | 0.0002<br>0.0000 | 0.0049<br>0.0001 | 0.0037<br>0.0021 | 0.0014<br>0.0213 | 0.0001<br>0.0037 |
| PERCOLATION/LEAKAGE THROUGH<br>LAYER 4     |                | 0.4200<br>0.0264 | 1.2559<br>0.6292 | 0.7407<br>0.7336 | 0.6636<br>2.3331 | 0.2215<br>0.9230 |
| LATERAL DRAINAGE COLLECTED<br>FROM LAYER 6 |                | 0.1122<br>0.6102 | 0.9423<br>0.0896 | 1.0545<br>0.8022 | 0.8775<br>0.3795 | 0.1423<br>1.0205 |
| PERCOLATION/LEAKAGE THROUGH<br>LAYER 8     |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                   |                |                |                |                |                |                |
|---------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 4           | 0.013<br>0.000 | 0.306<br>0.007 | 0.209<br>0.120 | 0.082<br>0.126 | 0.007<br>1.235 | 0.347<br>0.207 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 4 | 0.023<br>0.000 | 0.174<br>0.013 | 0.366<br>0.194 | 0.117<br>0.162 | 0.018<br>0.336 | 0.342<br>0.241 |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7           | 0.004<br>0.020 | 0.034<br>0.003 | 0.035<br>0.027 | 0.030<br>0.012 | 0.005<br>0.035 | 0.028<br>0.035 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7 | 0.006<br>0.016 | 0.001<br>0.003 | 0.000<br>0.012 | 0.008<br>0.015 | 0.006<br>0.000 | 0.010<br>0.000 |

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### ANNUAL TOTALS FOR YEAR 6

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 40.97    | 148717.858  | 100.00  |
| RUNOFF                          | 0.171    | 619.841     | 0.42    |
| EVAPOTRANSPIRATION              | 30.927   | 112262.405  | 75.49   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0459   | 166.547     | 0.11    |
| PERC./LEAKAGE THROUGH LAYER 4   | 9.554077 | 34680.545   | 23.32   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2217   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 7.9264   | 28772.071   | 19.35   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000011 | 0.040       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0222   |             |         |
| CHANGE IN WATER STORAGE         | 1.900    | 6896.957    | 4.64    |
| SOIL WATER AT START OF YEAR     | 705.878  | 2562279.967 |         |

## Case 5 (Continued)

|                             |         |             |      |
|-----------------------------|---------|-------------|------|
| SOIL WATER AT END OF YEAR   | 707.778 | 2569176.924 |      |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.002      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 7

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.24    | 0.57    | 0.63    | 4.49    | 4.20    | 6.40    |
|                                         | 0.64    | 4.20    | 4.71    | 6.58    | 0.00    | 3.56    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.121   | 0.622   | 1.157   | 2.875   | 4.601   | 4.100   |
|                                         | 1.036   | 4.194   | 3.786   | 3.523   | 1.079   | 1.385   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0026  | 0.0000  |
|                                         | 0.0092  | 0.0036  | 0.0000  | 0.0002  | 0.0074  | 0.0067  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.1358  | 0.0411  | 0.0171  | 0.0857  | 0.9172  | 0.0239  |
|                                         | 1.4978  | 0.5716  | 0.0346  | 0.3915  | 1.4024  | 1.3662  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 1.0545  | 0.6579  | 0.0320  | 0.0486  | 0.8344  | 0.1335  |
|                                         | 0.7128  | 1.0545  | 0.3319  | 0.3814  | 0.7393  | 1.0545  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.001 | 0.000 | 0.000 | 0.001 | 0.144 | 0.000 |
|                                                | 0.514 | 0.203 | 0.000 | 0.014 | 0.430 | 0.378 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.001 | 0.000 | 0.000 | 0.003 | 0.193 | 0.001 |
|                                                | 0.521 | 0.386 | 0.000 | 0.024 | 0.393 | 0.514 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.035 | 0.024 | 0.001 | 0.002 | 0.027 | 0.005 |
|                                                | 0.023 | 0.035 | 0.011 | 0.012 | 0.025 | 0.035 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000 | 0.015 | 0.001 | 0.001 | 0.012 | 0.009 |
|                                                | 0.014 | 0.000 | 0.015 | 0.011 | 0.013 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 7

|                    | INCHES | CU. FEET   | PERCENT |
|--------------------|--------|------------|---------|
| PRECIPITATION      | 37.22  | 135105.655 | 100.00  |
| RUNOFF             | 0.000  | 0.000      | 0.00    |
| EVAPOTRANSPIRATION | 29.479 | 107008.164 | 79.20   |

## Case 5 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0298   | 108.178     | 0.08  |
| PERC./LEAKAGE THROUGH LAYER 4   | 6.484874 | 23539.579   | 17.42 |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1405   |             |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 7.0351   | 25537.037   | 18.90 |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000010 | 0.037       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0195   |             |       |
| CHANGE IN WATER STORAGE         | 0.676    | 2452.241    | 1.82  |
| SOIL WATER AT START OF YEAR     | 707.778  | 2569176.924 |       |
| SOIL WATER AT END OF YEAR       | 708.453  | 2571629.165 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

### MONTHLY TOTALS (IN INCHES) FOR YEAR 8

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.45<br>1.05     | 4.17<br>0.80     | 0.68<br>1.04     | 2.95<br>1.46     | 7.17<br>1.78     | 2.71<br>1.94     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.419<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.419<br>1.049   | 1.397<br>0.800   | 1.966<br>0.838   | 1.521<br>1.082   | 4.471<br>1.333   | 2.220<br>1.494   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0002<br>0.0058 | 0.0000<br>0.0000 | 0.0070<br>0.0000 | 0.0026<br>0.0000 | 0.0017<br>0.0000 | 0.0214<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.4545<br>0.8379 | 0.1282<br>0.0161 | 1.3026<br>0.0096 | 0.5074<br>0.0074 | 0.9789<br>0.0055 | 2.3344<br>0.1471 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 1.0545<br>1.0545 | 0.4703<br>1.0545 | 0.6992<br>0.3757 | 1.0182<br>0.0475 | 0.8345<br>0.0360 | 1.0205<br>0.0253 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                |                |                |                |                |                |
|------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.013<br>0.325 | 0.003<br>0.000 | 0.393<br>0.000 | 0.149<br>0.000 | 0.097<br>0.000 | 1.236<br>0.001 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.021<br>0.460 | 0.008<br>0.000 | 0.425<br>0.000 | 0.296<br>0.000 | 0.110<br>0.000 | 0.332<br>0.002 |

## Case 5 (Continued)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.035 | 0.016 | 0.023 | 0.034 | 0.027 | 0.035 |
|                                                | 0.035 | 0.035 | 0.013 | 0.002 | 0.001 | 0.001 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000 | 0.015 | 0.014 | 0.000 | 0.008 | 0.000 |
|                                                | 0.000 | 0.000 | 0.015 | 0.001 | 0.001 | 0.001 |

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### ANNUAL TOTALS FOR YEAR 8

|                                 | INCHES  | CU. FEET    | PERCENT   |
|---------------------------------|---------|-------------|-----------|
| PRECIPITATION                   | 26.20   | 95103.927   | 100.00    |
| RUNOFF                          | 0.419   | 1519.388    | 1.60      |
| EVAPOTRANSPIRATION              | 19.590  | 71108.926   | 74.77     |
| DRAINAGE COLLECTED FROM LAYER 3 |         | 0.0387      | 140.589   |
|                                 |         |             | 0.15      |
| PERC./LEAKAGE THROUGH LAYER 4   |         | 6.729584    | 24427.859 |
|                                 |         |             | 25.69     |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1848  |             |           |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 7.6907      | 27916.517 |
|                                 |         |             | 29.35     |
| PERC./LEAKAGE THROUGH LAYER 8   |         | 0.000011    | 0.039     |
|                                 |         |             | 0.00      |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0213  |             |           |
| CHANGE IN WATER STORAGE         | -1.538  | -5581.531   | -5.87     |
| SOIL WATER AT START OF YEAR     | 708.453 | 2571629.165 |           |
| SOIL WATER AT END OF YEAR       | 706.916 | 2566047.634 |           |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000       | 0.00      |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000       | 0.00      |
| ANNUAL WATER BUDGET BALANCE     | 0.0000  | -0.001      | 0.00      |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 9

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.51    | 3.06    | 2.77    | 6.60    | 0.23    | 3.79    |
|                                         | 0.13    | 7.61    | 2.81    | 3.80    | 0.40    | 2.03    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.235   | 1.621   | 2.951   | 3.437   | 0.348   | 2.326   |
|                                         | 0.506   | 4.434   | 3.510   | 3.651   | 0.540   | 1.067   |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000  | 0.0004  | 0.0045  | 0.0000  | 0.0094  | 0.0140  |
|                                         | 0.0047  | 0.0000  | 0.0070  | 0.0087  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.2223  | 0.3919  | 0.9182  | 0.0371  | 1.5619  | 1.8572  |
|                                         | 0.9309  | 0.0154  | 1.3344  | 1.0935  | 0.0155  | 0.0102  |

## Case 5 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED  | 0.2444 | 0.1548 | 1.0535 | 0.1543 | 0.7536 | 1.0205 |
| FROM LAYER 6                | 1.0545 | 1.0545 | 1.0205 | 1.0545 | 0.8382 | 0.0557 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 8                     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON   | 0.002 | 0.026 | 0.255 | 0.000 | 0.528 | 0.810 |
| TOP OF LAYER 4          | 0.263 | 0.000 | 0.407 | 0.490 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY | 0.001 | 0.043 | 0.313 | 0.000 | 0.498 | 0.695 |
| HEAD ON TOP OF LAYER 4  | 0.326 | 0.000 | 0.410 | 0.616 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON   | 0.008 | 0.006 | 0.035 | 0.005 | 0.025 | 0.035 |
| TOP OF LAYER 7          | 0.035 | 0.035 | 0.035 | 0.035 | 0.028 | 0.002 |
| STD. DEVIATION OF DAILY | 0.003 | 0.008 | 0.000 | 0.009 | 0.013 | 0.000 |
| HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.012 | 0.001 |

### ANNUAL TOTALS FOR YEAR 9

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 33.74    | 122473.531  | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 25.626   | 93018.954   | 75.95   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0489   | 177.415     | 0.14    |
| PERC./LEAKAGE THROUGH LAYER 4   | 8.388433 | 30449.348   | 24.86   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.2319   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 8.4589   | 30705.243   | 25.07   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000012 | 0.042       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0234   |             |         |
| CHANGE IN WATER STORAGE         | -0.393   | -1428.122   | -1.17   |
| SOIL WATER AT START OF YEAR     | 706.916  | 2566047.634 |         |
| SOIL WATER AT END OF YEAR       | 706.522  | 2564619.512 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 4  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 3 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 4  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 8

### MONTHLY TOTALS (IN INCHES) FOR YEAR 10

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

## Case 5 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PRECIPITATION                           | 1.69   | 3.20   | 1.58   | 2.60   | 3.46   | 2.01   |
|                                         | 2.79   | 1.18   | 8.51   | 0.14   | 2.97   | 1.29   |
| RUNOFF                                  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| EVAPOTRANSPIRATION                      | 1.923  | 0.588  | 2.616  | 2.722  | 3.114  | 2.527  |
|                                         | 2.729  | 1.238  | 5.501  | 0.656  | 0.902  | 0.983  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 0.0000 | 0.0000 | 0.0050 | 0.0050 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0003 | 0.0087 | 0.0023 | 0.0015 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4     | 0.0342 | 0.1243 | 1.0929 | 0.7459 | 0.0187 | 0.0107 |
|                                         | 0.0082 | 0.0064 | 0.4960 | 1.5712 | 0.7754 | 0.5668 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0422 | 0.0655 | 0.5711 | 1.0205 | 0.2734 | 0.0530 |
|                                         | 0.0436 | 0.0310 | 0.2734 | 0.9349 | 1.0205 | 1.0407 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8     | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |       |       |       |       |       |       |
|------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 4           | 0.000 | 0.001 | 0.282 | 0.292 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.021 | 0.489 | 0.132 | 0.082 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 4 | 0.001 | 0.001 | 0.318 | 0.451 | 0.000 | 0.000 |
|                                                | 0.000 | 0.000 | 0.038 | 0.487 | 0.241 | 0.124 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.001 | 0.002 | 0.019 | 0.035 | 0.009 | 0.002 |
|                                                | 0.001 | 0.001 | 0.009 | 0.031 | 0.035 | 0.034 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.001 | 0.002 | 0.016 | 0.000 | 0.014 | 0.001 |
|                                                | 0.001 | 0.001 | 0.011 | 0.007 | 0.000 | 0.002 |

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### ANNUAL TOTALS FOR YEAR 10

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 31.42    | 114052.114  | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 25.499   | 92559.920   | 81.16   |
| DRAINAGE COLLECTED FROM LAYER 3 | 0.0229   | 83.092      | 0.07    |
| PERC./LEAKAGE THROUGH LAYER 4   | 5.450498 | 19784.875   | 17.35   |
| AVG. HEAD ON TOP OF LAYER 4     | 0.1083   |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 5.3697   | 19491.488   | 17.09   |
| PERC./LEAKAGE THROUGH LAYER 8   | 0.000008 | 0.030       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0149   |             |         |
| CHANGE IN WATER STORAGE         | 0.528    | 1917.585    | 1.68    |
| SOIL WATER AT START OF YEAR     | 706.522  | 2564619.512 |         |
| SOIL WATER AT END OF YEAR       | 707.050  | 2566537.098 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

\*\*\*\*\*

## Case 5 (Continued)

AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 10

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

### PRECIPITATION

|                 |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|
| TOTALS          | 1.20 | 3.21 | 1.78 | 2.90 | 3.88 | 2.89 |
|                 | 1.12 | 3.59 | 3.65 | 3.37 | 1.45 | 1.89 |
| STD. DEVIATIONS | 1.01 | 1.38 | 1.21 | 1.86 | 2.03 | 1.83 |
|                 | 0.83 | 2.73 | 2.47 | 2.42 | 1.05 | 1.13 |

### RUNOFF

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| TOTALS          | 0.000 | 0.000 | 0.000 | 0.000 | 0.042 | 0.000 |
|                 | 0.000 | 0.000 | 0.000 | 0.017 | 0.000 | 0.000 |
| STD. DEVIATIONS | 0.000 | 0.000 | 0.000 | 0.000 | 0.132 | 0.000 |
|                 | 0.000 | 0.000 | 0.000 | 0.054 | 0.000 | 0.000 |

### EVAPOTRANSPIRATION

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| TOTALS          | 1.338 | 1.542 | 2.266 | 2.399 | 3.179 | 2.559 |
|                 | 1.236 | 2.745 | 2.834 | 2.020 | 0.986 | 1.155 |
| STD. DEVIATIONS | 0.542 | 0.560 | 0.702 | 1.049 | 1.308 | 1.559 |
|                 | 0.751 | 1.572 | 1.491 | 1.086 | 0.344 | 0.372 |

### LATERAL DRAINAGE COLLECTED FROM LAYER 3

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0030 | 0.0006 | 0.0041 | 0.0021 | 0.0014 | 0.0048 |
|                 | 0.0028 | 0.0004 | 0.0018 | 0.0032 | 0.0057 | 0.0041 |
| STD. DEVIATIONS | 0.0065 | 0.0015 | 0.0032 | 0.0038 | 0.0030 | 0.0074 |
|                 | 0.0038 | 0.0011 | 0.0031 | 0.0041 | 0.0078 | 0.0081 |

### PERCOLATION/LEAKAGE THROUGH LAYER 4

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.6138 | 0.3210 | 0.8379 | 0.3815 | 0.4393 | 0.7157 |
|                 | 0.4387 | 0.1161 | 0.4613 | 0.6581 | 0.8731 | 0.7209 |
| STD. DEVIATIONS | 0.6891 | 0.3699 | 0.5446 | 0.5100 | 0.5334 | 0.9057 |
|                 | 0.5728 | 0.1828 | 0.5233 | 0.6230 | 0.8977 | 0.8011 |

### LATERAL DRAINAGE COLLECTED FROM LAYER 6

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.6542 | 0.4324 | 0.6522 | 0.5693 | 0.5161 | 0.4939 |
|                 | 0.4677 | 0.4520 | 0.5164 | 0.5608 | 0.6617 | 0.6202 |
| STD. DEVIATIONS | 0.4633 | 0.3529 | 0.4027 | 0.4577 | 0.4268 | 0.4661 |
|                 | 0.4756 | 0.5188 | 0.3438 | 0.4243 | 0.3981 | 0.4754 |

### PERCOLATION/LEAKAGE THROUGH LAYER 8

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

#### DAILY AVERAGE HEAD ON TOP OF LAYER 4

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.1706 | 0.0386 | 0.2314 | 0.1214 | 0.0793 | 0.2771 |
|                 | 0.1549 | 0.0216 | 0.1063 | 0.1785 | 0.3291 | 0.2273 |
| STD. DEVIATIONS | 0.3667 | 0.0944 | 0.1786 | 0.2209 | 0.1655 | 0.4307 |
|                 | 0.2103 | 0.0637 | 0.1799 | 0.2309 | 0.4526 | 0.4517 |

#### DAILY AVERAGE HEAD ON TOP OF LAYER 7

|          |        |        |        |        |        |        |
|----------|--------|--------|--------|--------|--------|--------|
| AVERAGES | 0.0214 | 0.0155 | 0.0214 | 0.0193 | 0.0169 | 0.0167 |
|----------|--------|--------|--------|--------|--------|--------|



## Case 5 (Continued)

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
|                 | 0.0153 | 0.0148 | 0.0175 | 0.0184 | 0.0224 | 0.0203 |
| STD. DEVIATIONS | 0.0152 | 0.0128 | 0.0132 | 0.0155 | 0.0140 | 0.0158 |
|                 | 0.0156 | 0.0170 | 0.0116 | 0.0139 | 0.0135 | 0.0156 |

\*\*\*\*\*

| AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 10 |                    |           |          |  |
|------------------------------------------------------------------|--------------------|-----------|----------|--|
|                                                                  | INCHES             | CU. FEET  | PERCENT  |  |
| PRECIPITATION                                                    | 30.92 ( 7.046)     | 112219.0  | 100.00   |  |
| RUNOFF                                                           | 0.059 ( 0.1373)    | 213.92    | 0.191    |  |
| EVAPOTRANSPIRATION                                               | 24.260 ( 4.1391)   | 88062.79  | 78.474   |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3                          | 0.03396 ( 0.02412) | 123.272   | 0.10985  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 4                              | 6.57749 ( 3.25088) | 23875.781 | 21.27606 |  |
| AVERAGE HEAD ON TOP OF LAYER 4                                   | 0.161 ( 0.115)     |           |          |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6                          | 6.59685 ( 2.90779) | 23946.055 | 21.33868 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 8                              | 0.00001 ( 0.00000) | 0.035     | 0.00003  |  |
| AVERAGE HEAD ON TOP OF LAYER 7                                   | 0.018 ( 0.008)     |           |          |  |
| CHANGE IN WATER STORAGE                                          | -0.035 ( 2.6274)   | -127.07   | -0.113   |  |

\*\*\*\*\*

| PEAK DAILY VALUES FOR YEARS 1 THROUGH 10 and their dates (DDDDYYYY) |          |             |           |         |
|---------------------------------------------------------------------|----------|-------------|-----------|---------|
|                                                                     | (INCHES) | (CU. FT.)   |           |         |
| PRECIPITATION                                                       | 5.09     | 18476.29728 | 1290008   |         |
| RUNOFF                                                              | 0.419    | 1519.38840  | 1290008   |         |
| DRAINAGE COLLECTED FROM LAYER 3                                     |          | 0.00108     | 3.91735   | 3280006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 4                                 |          | 0.100430    | 364.55167 | 3280006 |
| AVERAGE HEAD ON TOP OF LAYER 4                                      |          | 1.874       |           |         |
| MAXIMUM HEAD ON TOP OF LAYER 4                                      |          | 3.334       |           |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 3 (DISTANCE FROM DRAIN)           |          | 27.1 FEET   |           |         |
| DRAINAGE COLLECTED FROM LAYER 6                                     |          | 0.03402     | 123.47233 | 10001   |
| PERCOLATION/LEAKAGE THROUGH LAYER 8                                 |          | 0.000000    | 0.00016   | 10001   |
| AVERAGE HEAD ON TOP OF LAYER 7                                      |          | 0.035       |           |         |
| MAXIMUM HEAD ON TOP OF LAYER 7                                      |          | 0.069       |           |         |
| LOCATION OF MAXIMUM HEAD IN LAYER 6 (DISTANCE FROM DRAIN)           |          | 1.2 FEET    |           |         |
| SNOW WATER                                                          | 1.95     | 7072.4948   | 3430003   |         |
| MAXIMUM VEG. SOIL WATER (VOL/VOL)                                   |          | 0.4570      |           |         |
| MINIMUM VEG. SOIL WATER (VOL/VOL)                                   |          | 0.0580      |           |         |

## Case 5 (Continued)

\*\*\* Maximum heads are computed using McEnroe's equations. \*\*\*

Reference: Maximum Saturated Depth over Landfill Liner  
by Bruce M. McEnroe, University of Kansas  
ASCE Journal of Environmental Engineering  
Vol. 119, No. 2, March 1993, pp. 262-270.

\*\*\*\*\*

| FINAL WATER STORAGE AT END OF YEAR 10 |          |           |
|---------------------------------------|----------|-----------|
| LAYER                                 | (INCHES) | (VOL/VOL) |
| 1                                     | 2.2911   | 0.1909    |
| 2                                     | 676.2720 | 0.2920    |
| 3                                     | 7.0097   | 0.2921    |
| 4                                     | 0.4099   | 0.4270    |
| 5                                     | 9.6476   | 0.4187    |
| 6                                     | 0.0202   | 0.1043    |
| 7                                     | 0.0000   | 0.0000    |
| 8                                     | 11.4000  | 0.4750    |
| SNOW WATER                            | 0.000    |           |

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## Case 6

```
*****
*****
**                                     **
**                                     **
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE      **
**      HELP MODEL VERSION 3.07 (1 November 1997)          **
**      DEVELOPED BY ENVIRONMENTAL LABORATORY               **
**      USAE WATERWAYS EXPERIMENT STATION                  **
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY     **
**                                     **
**                                     **
*****
*****
```

PRECIPITATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather1.dat  
TEMPERATURE DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather2.dat  
SOLAR RADIATION DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\weather3.dat  
EVAPOTRANSPIRATION DATA: C:\WHI\UNSAT22\data\P922.VHP\weather4.dat  
SOIL AND DESIGN DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\I\_386429.inp  
OUTPUT DATA FILE: C:\WHI\UNSAT22\data\P922.VHP\O\_386429.prt

TIME: 15:55 DATE: 8/6/2014

\*\*\*\*\*  
TITLE: Case 6  
\*\*\*\*\*

NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE  
COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.

### LAYER 1

-----  
TYPE 1 - VERTICAL PERCOLATION LAYER  
MATERIAL TEXTURE NUMBER 130  
THICKNESS = 60.96 CM  
POROSITY = 0.4570 VOL/VOL  
FIELD CAPACITY = 0.1310 VOL/VOL  
WILTING POINT = 0.0580 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2919 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC

### LAYER 2

-----  
TYPE 4 - FLEXIBLE MEMBRANE LINER  
MATERIAL TEXTURE NUMBER 236  
THICKNESS = 0.10 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.400000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

### LAYER 3

-----  
TYPE 3 - BARRIER SOIL LINER  
MATERIAL TEXTURE NUMBER 16  
THICKNESS = 45.72 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL

D6-B-117

Technically Complete October 28, 2014

## Case 6 (Continued)

INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-06 CM/SEC

### LAYER 4

-----

#### TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 130

THICKNESS = 30.48 CM  
POROSITY = 0.4570 VOL/VOL  
FIELD CAPACITY = 0.1310 VOL/VOL  
WILTING POINT = 0.0580 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.1310 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC

### LAYER 5

-----

#### TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 18

THICKNESS = 5882.64 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2920 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000224000E-02 CM/SEC

### LAYER 6

-----

#### TYPE 2 - LATERAL DRAINAGE LAYER

MATERIAL TEXTURE NUMBER 201

THICKNESS = 60.96 CM  
POROSITY = 0.6710 VOL/VOL  
FIELD CAPACITY = 0.2920 VOL/VOL  
WILTING POINT = 0.0770 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.2920 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-02 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### LAYER 7

-----

#### TYPE 3 - BARRIER SOIL LINER

MATERIAL TEXTURE NUMBER 16

THICKNESS = 2.44 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 8

-----

#### TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 230

THICKNESS = 58.52 CM  
POROSITY = 0.4270 VOL/VOL  
FIELD CAPACITY = 0.4180 VOL/VOL  
WILTING POINT = 0.3670 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4105 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-05 CM/SEC

### LAYER 9

-----

#### TYPE 2 - LATERAL DRAINAGE LAYER

MATERIAL TEXTURE NUMBER 226

## Case 6 (Continued)

THICKNESS = 0.48 CM  
POROSITY = 0.8500 VOL/VOL  
FIELD CAPACITY = 0.0100 VOL/VOL  
WILTING POINT = 0.0050 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0110 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.900000000000 CM/SEC  
SLOPE = 2.50 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

### LAYER 10

-----

#### TYPE 4 - FLEXIBLE MEMBRANE LINER MATERIAL TEXTURE NUMBER 235

THICKNESS = 0.15 CM  
POROSITY = 0.0000 VOL/VOL  
FIELD CAPACITY = 0.0000 VOL/VOL  
WILTING POINT = 0.0000 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.200000000000E-12 CM/SEC  
FML PINHOLE DENSITY = 1.24 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.47 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

### LAYER 11

-----

#### TYPE 3 - BARRIER SOIL LINER MATERIAL TEXTURE NUMBER 15

THICKNESS = 60.96 CM  
POROSITY = 0.4750 VOL/VOL  
FIELD CAPACITY = 0.3780 VOL/VOL  
WILTING POINT = 0.2650 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.4750 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000000000E-06 CM/SEC

### GENERAL DESIGN AND EVAPORATIVE ZONE DATA

-----

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT  
SOIL DATA BASE USING SOIL TEXTURE #\*\* WITH A  
GOOD STAND OF GRASS, A SURFACE SLOPE OF 0.0%  
AND A SLOPE LENGTH OF 0.0 METERS.

SCS RUNOFF CURVE NUMBER = 0.00  
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT  
AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES  
EVAPORATIVE ZONE DEPTH = 25.4 CM  
INITIAL WATER IN EVAPORATIVE ZONE = 3.641 CM  
UPPER LIMIT OF EVAPORATIVE STORAGE = 11.608 CM  
LOWER LIMIT OF EVAPORATIVE STORAGE = 1.473 CM  
INITIAL SNOW WATER = 0.000 CM  
INITIAL WATER IN LAYER MATERIALS = 1830.861 CM  
TOTAL INITIAL WATER = 1830.861 CM  
TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

### EVAPOTRANSPIRATION AND WEATHER DATA

-----

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM  
Austin TX

STATION LATITUDE = 30.31 DEGREES  
MAXIMUM LEAF AREA INDEX = 4.50  
START OF GROWING SEASON (JULIAN DATE) = 44  
END OF GROWING SEASON (JULIAN DATE) = 346  
EVAPORATIVE ZONE DEPTH = 10.0 INCHES  
AVERAGE ANNUAL WIND SPEED = 9.30 MPH  
AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %  
AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 66.00 %  
AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 67.00 %

## Case 6 (Continued)

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR     Austin                     TX

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 1.60    | 2.49    | 1.68    | 3.11    | 4.19    | 3.06    |
| 1.89    | 2.24    | 3.60    | 3.38    | 2.20    | 2.06    |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR     Austin                     TX

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 49.10   | 53.20   | 60.50   | 68.70   | 74.90   | 81.60   |
| 84.70   | 84.50   | 79.20   | 69.80   | 58.70   | 52.10   |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING  
COEFFICIENTS FOR     Austin                     TX  
AND STATION LATITUDE = 29.88 DEGREES

HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

\*\*\*\*\*

MONTHLY TOTALS (IN INCHES) FOR YEAR     1

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.65    | 2.56    | 0.82    | 0.03    | 1.74    | 0.00    |
|                                         | 0.45    | 4.41    | 2.37    | 5.47    | 0.62    | 3.40    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.400   |
| EVAPOTRANSPIRATION                      | 0.771   | 1.435   | 2.192   | 0.029   | 1.736   | 0.003   |
|                                         | 0.448   | 4.070   | 2.207   | 2.564   | 1.339   | 1.946   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0003  | 0.0003  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0006  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0003  | 0.0003  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0006  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0062  | 0.0037  | 0.0036  | 0.0025  | 0.0026  | 0.0020  |
|                                         | 0.0016  | 0.0013  | 0.0010  | 0.0011  | 0.0008  | 0.0009  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

## Case 6 (Continued)

|                                                    |        |        |        |        |        |        |
|----------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 2            | 11.632 | 11.803 | 12.581 | 12.953 | 12.954 | 12.953 |
|                                                    | 12.952 | 13.206 | 13.998 | 16.999 | 19.376 | 22.063 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 2  | 0.078  | 0.037  | 0.307  | 0.001  | 0.001  | 0.000  |
|                                                    | 0.000  | 0.408  | 0.000  | 2.812  | 0.489  | 1.699  |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

\*\*\*\*\*

| ANNUAL TOTALS FOR YEAR 1        |         |             |         |      |
|---------------------------------|---------|-------------|---------|------|
|                                 | INCHES  | CU. FEET    | PERCENT |      |
| PRECIPITATION                   | 22.52   | 81745.818   | 100.00  |      |
| RUNOFF                          | 0.400   | 1450.513    | 1.77    |      |
| EVAPOTRANSPIRATION              | 18.740  | 68024.158   | 83.21   |      |
| PERC./LEAKAGE THROUGH LAYER 3   |         | 0.005039    | 18.290  | 0.02 |
| AVG. HEAD ON TOP OF LAYER 2     | 14.4558 |             |         |      |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 0.0000      | 0.000   | 0.00 |
| PERC./LEAKAGE THROUGH LAYER 7   |         | 0.005039    | 18.290  | 0.02 |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000  |             |         |      |
| DRAINAGE COLLECTED FROM LAYER 9 |         | 0.0272      | 98.727  | 0.12 |
| PERC./LEAKAGE THROUGH LAYER 11  |         | 0.000003    | 0.009   | 0.00 |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0001  |             |         |      |
| CHANGE IN WATER STORAGE         | 3.353   | 12172.412   | 14.89   |      |
| SOIL WATER AT START OF YEAR     | 720.811 | 2616488.492 |         |      |
| SOIL WATER AT END OF YEAR       | 724.165 | 2628660.904 |         |      |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000       | 0.00    |      |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000       | 0.00    |      |
| ANNUAL WATER BUDGET BALANCE     | 0.0000  | -0.001      | 0.00    |      |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## Case 6 (Continued)

### MONTHLY TOTALS (IN INCHES) FOR YEAR 2

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.00<br>0.26   | 6.11<br>8.15     | 2.35<br>6.72     | 3.42<br>4.76     | 3.62<br>2.03     | 2.33<br>1.05     |
| RUNOFF                                  | 0.000<br>0.000 | 2.968<br>0.992   | 0.264<br>1.144   | 0.000<br>1.949   | 0.000<br>0.175   | 0.000<br>0.468   |
| EVAPOTRANSPIRATION                      |                | 0.659<br>0.227   | 2.107<br>4.267   | 2.955<br>4.999   | 5.008<br>1.061   | 4.795<br>0.938   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     |                | 0.0006<br>0.0004 | 0.0006<br>0.0005 | 0.0007<br>0.0006 | 0.0006<br>0.0006 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     |                | 0.0006<br>0.0004 | 0.0006<br>0.0005 | 0.0007<br>0.0006 | 0.0006<br>0.0006 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 |                | 0.0008<br>0.0005 | 0.0006<br>0.0005 | 0.0006<br>0.0004 | 0.0007<br>0.0006 | 0.0005<br>0.0006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.273<br>13.999 | 23.009<br>16.289 | 22.353<br>17.576 | 19.808<br>21.479 | 14.579<br>21.109 | 14.000<br>23.443 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.483<br>0.000   | 0.994<br>3.807   | 0.724<br>3.548   | 1.138<br>1.486   | 0.772<br>0.928   | 0.000<br>0.380   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

### ANNUAL TOTALS FOR YEAR 2

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 40.80    | 148100.772 | 100.00  |
| RUNOFF                          | 7.959    | 28888.859  | 19.51   |
| EVAPOTRANSPIRATION              | 32.671   | 118591.721 | 80.08   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006595 | 23.938     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 19.0763  |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006589 | 23.918     | 0.02    |



## Case 6 (Continued)

|                                 |          |             |      |
|---------------------------------|----------|-------------|------|
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |      |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0069   | 25.010      | 0.02 |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00 |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |      |
| CHANGE IN WATER STORAGE         | 0.164    | 595.176     | 0.40 |
| SOIL WATER AT START OF YEAR     | 724.165  | 2628660.904 |      |
| SOIL WATER AT END OF YEAR       | 724.329  | 2629256.079 |      |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 3

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.36<br>1.68     | 3.57<br>2.44     | 0.83<br>0.38     | 1.69<br>1.03     | 5.59<br>0.61     | 4.55<br>3.14     |
| RUNOFF                                  | 0.000<br>0.000   | 1.924<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 0.827<br>1.680   | 1.566<br>2.439   | 1.113<br>0.380   | 4.584<br>1.030   | 2.982<br>0.353   | 7.157<br>0.928   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0005<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0005<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0007<br>0.0006 | 0.0006<br>0.0005 | 0.0007<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0006<br>0.0004 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                      |                  |                  |                  |                  |                  |                  |
|--------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2 | 21.486<br>13.999 | 22.084<br>13.999 | 21.325<br>14.000 | 17.680<br>13.999 | 15.317<br>13.999 | 17.159<br>15.795 |
| STD. DEVIATION OF DAILY              | 0.488            | 1.194            | 0.351            | 2.694            | 2.972            | 2.787            |

## Case 6 (Continued)

|                                                 |       |       |       |       |       |       |
|-------------------------------------------------|-------|-------|-------|-------|-------|-------|
| HEAD ON TOP OF LAYER 2                          | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.475 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 3

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 25.87    | 93906.053   | 100.00  |
| RUNOFF                          | 1.924    | 6984.322    | 7.44    |
| EVAPOTRANSPIRATION              | 25.039   | 90887.971   | 96.79   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005795 | 21.037      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.7369  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005801 | 21.056      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0064   | 23.204      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -1.099   | -3989.452   | -4.25   |
| SOIL WATER AT START OF YEAR     | 724.329  | 2629256.079 |         |
| SOIL WATER AT END OF YEAR       | 723.230  | 2625266.628 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 4

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

# Case 6 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PRECIPITATION                           | 2.85   | 3.06   | 1.65   | 3.84   | 3.05   | 1.18   |
|                                         | 1.76   | 0.97   | 3.09   | 2.66   | 2.71   | 1.27   |
| RUNOFF                                  | 0.000  | 0.862  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| EVAPOTRANSPIRATION                      | 1.930  | 1.973  | 2.305  | 5.056  | 4.790  | 1.177  |
|                                         | 1.762  | 0.731  | 3.322  | 2.460  | 0.987  | 0.957  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004 | 0.0005 | 0.0006 | 0.0005 | 0.0006 | 0.0005 |
|                                         | 0.0005 | 0.0004 | 0.0005 | 0.0004 | 0.0004 | 0.0004 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 19.965 | 21.858 | 21.851 | 18.431 | 14.743 | 13.998 |
|                                                 | 13.998 | 13.997 | 14.584 | 15.456 | 16.304 | 17.674 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 1.504  | 1.055  | 0.729  | 2.139  | 0.957  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.778  | 1.028  | 1.648  | 0.121  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## ANNUAL TOTALS FOR YEAR 4

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 28.09    | 101964.478 | 100.00  |
| RUNOFF                          | 0.862    | 3130.310   | 3.07    |
| EVAPOTRANSPIRATION              | 27.449   | 99638.605  | 97.72   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005874 | 21.322     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.9049  |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005874 | 21.322     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |            |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0057   | 20.681     | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009      | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |            |         |
| CHANGE IN WATER STORAGE         | -0.227   | -825.127   | -0.81   |

## Case 6 (Continued)

|                             |         |             |      |
|-----------------------------|---------|-------------|------|
| SOIL WATER AT START OF YEAR | 723.230 | 2625266.628 |      |
| SOIL WATER AT END OF YEAR   | 723.002 | 2624441.501 |      |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.002      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 5

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.42    | 2.70    | 1.93    | 2.42    | 3.77    | 2.00    |
|                                         | 0.84    | 1.25    | 3.04    | 1.13    | 1.04    | 0.78    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.949   | 2.052   | 2.386   | 4.312   | 3.779   | 1.320   |
|                                         | 1.352   | 1.417   | 3.039   | 1.013   | 0.937   | 0.804   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005  | 0.0005  | 0.0005  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005  | 0.0005  | 0.0005  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0004  | 0.0004  | 0.0005  | 0.0004  | 0.0006  |
|                                         | 0.0005  | 0.0005  | 0.0003  | 0.0005  | 0.0005  | 0.0004  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |        |        |        |        |        |        |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 17.863 | 18.130 | 17.828 | 16.048 | 14.050 | 13.999 |
|                                                | 13.999 | 13.999 | 14.080 | 13.999 | 14.000 | 14.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.228  | 0.443  | 0.391  | 1.443  | 0.144  | 0.000  |
|                                                | 0.000  | 0.000  | 0.176  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10          | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

## Case 6 (Continued)

|                         |       |       |       |       |       |       |
|-------------------------|-------|-------|-------|-------|-------|-------|
| STD. DEVIATION OF DAILY | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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### ANNUAL TOTALS FOR YEAR 5

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 22.32    | 81019.834   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 24.360   | 88425.367   | 109.14  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005266 | 19.117      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 15.1662  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005263 | 19.105      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0056   | 20.271      | 0.03    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -2.046   | -7425.812   | -9.17   |
| SOIL WATER AT START OF YEAR     | 723.002  | 2624441.501 |         |
| SOIL WATER AT END OF YEAR       | 720.957  | 2617015.690 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 6

|                             | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION               | 2.84    | 3.09    | 4.52    | 0.95    | 5.99    | 3.95    |
|                             | 1.57    | 4.88    | 3.80    | 6.63    | 2.35    | 0.40    |
| RUNOFF                      | 0.000   | 0.000   | 0.689   | 0.000   | 0.000   | 0.000   |
|                             | 0.000   | 0.000   | 0.000   | 0.861   | 0.526   | 0.089   |
| EVAPOTRANSPIRATION          | 1.319   | 2.029   | 3.118   | 4.437   | 3.699   | 6.227   |
|                             | 1.583   | 4.280   | 4.398   | 2.279   | 1.368   | 0.847   |
| PERCOLATION/LEAKAGE THROUGH | 0.0005  | 0.0006  | 0.0006  | 0.0005  | 0.0005  | 0.0005  |

## Case 6 (Continued)

|                                         |        |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| LAYER 3                                 | 0.0004 | 0.0004 | 0.0004 | 0.0006 | 0.0007 | 0.0007 |        |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005 | 0.0006 | 0.0006 | 0.0005 | 0.0005 | 0.0005 | 0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004 | 0.0005 | 0.0004 | 0.0005 | 0.0005 | 0.0005 | 0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |  |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 15.606 | 21.182 | 21.589 | 16.779 | 15.747 | 15.814 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 1.651  | 1.180  | 1.287  | 3.003  | 2.407  | 2.074  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

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### ANNUAL TOTALS FOR YEAR 6

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 40.97    | 148717.858  | 100.00  |
| RUNOFF                          | 2.165    | 7859.674    | 5.28    |
| EVAPOTRANSPIRATION              | 35.585   | 129171.073  | 86.86   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006248 | 22.681      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 18.0550  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006246 | 22.674      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0057   | 20.795      | 0.01    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 3.214    | 11666.309   | 7.84    |
| SOIL WATER AT START OF YEAR     | 720.957  | 2617015.690 |         |
| SOIL WATER AT END OF YEAR       | 724.171  | 2628681.999 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |

## Case 6 (Continued)

ANNUAL WATER BUDGET BALANCE                      0.0000                      -0.002                      0.00

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 7

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.24    | 0.57    | 0.63    | 4.49    | 4.20    | 6.40    |
|                                         | 0.64    | 4.20    | 4.71    | 6.58    | 0.00    | 3.56    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.089   | 0.000   | 1.356   |
| EVAPOTRANSPIRATION                      | 1.265   | 0.644   | 1.711   | 5.136   | 5.597   | 4.120   |
|                                         | 3.100   | 4.201   | 3.839   | 3.393   | 1.027   | 1.192   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0007  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0007  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006  | 0.0005  | 0.0007  | 0.0006  | 0.0005  | 0.0006  |
|                                         | 0.0004  | 0.0005  | 0.0005  | 0.0004  | 0.0004  | 0.0006  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.947 | 21.789 | 21.038 | 17.121 | 14.762 | 15.206 |
|                                                 | 14.836 | 13.999 | 14.016 | 17.701 | 22.383 | 23.360 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.150  | 0.162  | 0.893  | 2.033  | 1.005  | 2.711  |
|                                                 | 1.637  | 0.000  | 0.052  | 3.990  | 0.806  | 0.768  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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ANNUAL TOTALS FOR YEAR 7

D6-B-129

Technically Complete October 28, 2014

## Case 6 (Continued)

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 37.22    | 135105.655  | 100.00  |
| RUNOFF                          | 1.445    | 5245.682    | 3.88    |
| EVAPOTRANSPIRATION              | 35.224   | 127862.032  | 94.64   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006291 | 22.835      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 18.1798  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006290 | 22.834      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0063   | 22.698      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 0.544    | 1975.236    | 1.46    |
| SOIL WATER AT START OF YEAR     | 724.171  | 2628681.999 |         |
| SOIL WATER AT END OF YEAR       | 724.715  | 2630657.235 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 8

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.45    | 4.17    | 0.68    | 2.95    | 7.17    | 2.71    |
|                                         | 1.05    | 0.80    | 1.04    | 1.46    | 1.78    | 1.94    |
| RUNOFF                                  | 0.000   | 1.859   | 0.016   | 0.000   | 1.431   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.383   | 1.381   | 2.438   | 3.736   | 7.035   | 2.801   |
|                                         | 1.050   | 0.799   | 0.852   | 0.919   | 1.071   | 1.282   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007  | 0.0006  | 0.0006  | 0.0004  | 0.0005  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007  | 0.0006  | 0.0006  | 0.0004  | 0.0005  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |



## Case 6 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED  | 0.0006 | 0.0005 | 0.0007 | 0.0006 | 0.0006 | 0.0005 |
| FROM LAYER 9                | 0.0005 | 0.0004 | 0.0005 | 0.0005 | 0.0004 | 0.0004 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 11                    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |        |        |        |        |        |        |
|-------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON   | 22.332 | 21.950 | 21.542 | 15.509 | 18.285 | 14.324 |
| TOP OF LAYER 2          | 13.999 | 13.999 | 13.998 | 13.997 | 14.015 | 16.076 |
| STD. DEVIATION OF DAILY | 0.687  | 1.136  | 1.099  | 1.754  | 2.663  | 0.621  |
| HEAD ON TOP OF LAYER 2  | 0.000  | 0.001  | 0.000  | 0.000  | 0.086  | 1.111  |
| AVERAGE DAILY HEAD ON   | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| TOP OF LAYER 7          | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON   | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| TOP OF LAYER 10         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 8

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 26.20    | 95103.927   | 100.00  |
| RUNOFF                          | 3.306    | 11999.495   | 12.62   |
| EVAPOTRANSPIRATION              | 24.747   | 89827.938   | 94.45   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005798 | 21.045      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.6689  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005799 | 21.051      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0062   | 22.475      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -1.858   | -6745.989   | -7.09   |
| SOIL WATER AT START OF YEAR     | 724.715  | 2630657.235 |         |
| SOIL WATER AT END OF YEAR       | 722.856  | 2623911.246 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3

## Case 6 (Continued)

HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 9

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.51<br>0.13     | 3.06<br>7.61     | 2.77<br>2.81     | 6.60<br>3.80     | 0.23<br>0.40     | 3.79<br>2.03     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 1.058<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.267<br>0.496   | 1.425<br>4.427   | 3.015<br>5.972   | 5.559<br>3.518   | 2.805<br>0.702   | 3.556<br>0.810   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005<br>0.0004 | 0.0005<br>0.0005 | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005<br>0.0004 | 0.0005<br>0.0005 | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004<br>0.0005 | 0.0005<br>0.0005 | 0.0006<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0004 | 0.0006<br>0.0004 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 17.607<br>13.999 | 19.825<br>15.289 | 21.602<br>16.450 | 18.957<br>13.999 | 15.195<br>13.999 | 15.122<br>13.998 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.204<br>0.000   | 2.229<br>3.131   | 0.943<br>2.781   | 2.694<br>0.000   | 2.009<br>0.000   | 1.726<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 9

|                               | INCHES   | CU. FEET   | PERCENT |
|-------------------------------|----------|------------|---------|
| PRECIPITATION                 | 33.74    | 122473.531 | 100.00  |
| RUNOFF                        | 1.058    | 3838.798   | 3.13    |
| EVAPOTRANSPIRATION            | 33.552   | 121790.436 | 99.44   |
| PERC./LEAKAGE THROUGH LAYER 3 | 0.005661 | 20.550     | 0.02    |

## Case 6 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| AVG. HEAD ON TOP OF LAYER 2     | 16.3369  |             |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005666 | 20.566      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |       |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0058   | 21.150      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | -0.875   | -3176.860   | -2.59 |
| SOIL WATER AT START OF YEAR     | 722.856  | 2623911.246 |       |
| SOIL WATER AT END OF YEAR       | 721.981  | 2620734.385 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 10

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.69    | 3.20    | 1.58    | 2.60    | 3.46    | 2.01    |
|                                         | 2.79    | 1.18    | 8.51    | 0.14    | 2.97    | 1.29    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.785   | 0.640   | 2.804   | 4.887   | 3.118   | 2.523   |
|                                         | 2.733   | 1.236   | 5.759   | 2.031   | 1.024   | 0.887   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0004  | 0.0004  | 0.0006  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0005  | 0.0005  | 0.0005  | 0.0006  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0004  | 0.0004  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0005  | 0.0005  | 0.0005  | 0.0006  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0004  |
|                                         | 0.0005  | 0.0004  | 0.0003  | 0.0005  | 0.0005  | 0.0004  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

## Case 6 (Continued)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 15.185 | 15.841 | 20.899 | 15.683 | 13.999 | 13.999 |
|                                                 | 13.999 | 13.999 | 17.198 | 17.562 | 17.534 | 20.215 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.718  | 0.186  | 0.948  | 2.031  | 0.000  | 0.000  |
|                                                 | 0.001  | 0.000  | 2.986  | 1.305  | 2.058  | 0.586  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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| ANNUAL TOTALS FOR YEAR 10       |          |             |         |
|---------------------------------|----------|-------------|---------|
|                                 | INCHES   | CU. FEET    | PERCENT |
| PRECIPITATION                   | 31.42    | 114052.114  | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 29.428   | 106820.656  | 93.66   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005674 | 20.597      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.3428  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005674 | 20.597      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0053   | 19.210      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 1.987    | 7212.241    | 6.32    |
| SOIL WATER AT START OF YEAR     | 721.981  | 2620734.385 |         |
| SOIL WATER AT END OF YEAR       | 723.968  | 2627946.626 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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## Case 6 (Continued)

### MONTHLY TOTALS (IN INCHES) FOR YEAR 11

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.69<br>2.10   | 1.89<br>3.79     | 2.95<br>3.06     | 4.16<br>3.14     | 1.97<br>0.70     | 3.80<br>3.90     |
| RUNOFF                                  | 0.000<br>0.000 | 0.000<br>0.000   | 0.118<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      |                | 1.183<br>4.185   | 1.586<br>2.786   | 3.050<br>2.235   | 6.377<br>0.842   | 2.548<br>0.991   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     |                | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     |                | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 |                | 0.0005<br>0.0005 | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0007<br>0.0005 | 0.0006<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 20.471<br>15.460 | 20.500<br>14.064 | 21.233<br>14.492 | 17.344<br>15.369 | 14.042<br>15.904 | 14.208<br>18.011 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.570<br>1.812   | 0.568<br>0.142   | 1.497<br>0.678   | 1.162<br>1.425   | 0.174<br>0.341   | 0.813<br>1.790   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 11

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 32.15    | 116701.956 | 100.00  |
| RUNOFF                          | 0.118    | 427.452    | 0.37    |
| EVAPOTRANSPIRATION              | 31.288   | 113572.868 | 97.32   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005807 | 21.080     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.7581  |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005802 | 21.059     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |            |         |

## Case 6 (Continued)

|                                 |          |             |      |
|---------------------------------|----------|-------------|------|
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.762      | 0.02 |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00 |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |      |
| CHANGE IN WATER STORAGE         | 0.738    | 2679.866    | 2.30 |
| SOIL WATER AT START OF YEAR     | 723.968  | 2627946.626 |      |
| SOIL WATER AT END OF YEAR       | 724.706  | 2630626.492 |      |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 12

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.39<br>3.20     | 1.56<br>1.34     | 2.18<br>1.45     | 4.56<br>2.27     | 5.35<br>3.35     | 9.42<br>1.80     |
| RUNOFF                                  | 0.000<br>1.118   | 0.000<br>0.000   | 0.000<br>0.000   | 0.787<br>0.000   | 0.000<br>0.000   | 1.962<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.167<br>5.716   | 1.340<br>1.339   | 2.881<br>1.172   | 5.487<br>1.991   | 5.322<br>1.268   | 4.822<br>1.001   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007<br>0.0005 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007<br>0.0005 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005<br>0.0004 | 0.0005<br>0.0005 | 0.0007<br>0.0004 | 0.0005<br>0.0005 | 0.0005<br>0.0004 | 0.0006<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |                  |                  |                  |                  |                  |                  |
|------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 22.198<br>16.996 | 21.905<br>14.000 | 21.948<br>13.999 | 19.281<br>13.999 | 14.450<br>17.995 | 14.540<br>21.237 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.750<br>3.325   | 0.439<br>0.000   | 0.647<br>0.000   | 2.148<br>0.000   | 0.494<br>2.677   | 2.000<br>1.688   |

## Case 6 (Continued)

|                                                    |       |       |       |       |       |       |
|----------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7            | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 12       |          |             |         |
|---------------------------------|----------|-------------|---------|
|                                 | INCHES   | CU. FEET    | PERCENT |
| PRECIPITATION                   | 36.87    | 133835.183  | 100.00  |
| RUNOFF                          | 3.867    | 14036.843   | 10.49   |
| EVAPOTRANSPIRATION              | 33.506   | 121622.838  | 90.88   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006152 | 22.330      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.7123  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006157 | 22.351      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0061   | 22.142      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.509   | -1846.647   | -1.38   |
| SOIL WATER AT START OF YEAR     | 724.706  | 2630626.492 |         |
| SOIL WATER AT END OF YEAR       | 724.198  | 2628779.845 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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| MONTHLY TOTALS (IN INCHES) FOR YEAR 13 |         |         |         |         |         |         |
|----------------------------------------|---------|---------|---------|---------|---------|---------|
|                                        | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
| PRECIPITATION                          | 2.47    | 1.76    | 1.54    | 1.39    | 4.57    | 6.70    |

# Case 6 (Continued)

|                                         |        |        |        |        |        |        |  |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|--|
|                                         | 1.53   | 0.07   | 2.18   | 2.65   | 1.55   | 0.52   |  |
| RUNOFF                                  | 0.205  | 0.456  | 0.000  | 0.000  | 0.000  | 0.073  |  |
|                                         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| EVAPOTRANSPIRATION                      | 1.710  | 1.809  | 1.650  | 4.763  | 3.841  | 7.332  |  |
|                                         | 1.553  | 0.070  | 2.090  | 1.253  | 0.819  | 1.142  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0005 |  |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0005 |  |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005 | 0.0005 | 0.0006 | 0.0007 | 0.0004 | 0.0006 |  |
|                                         | 0.0005 | 0.0004 | 0.0005 | 0.0004 | 0.0004 | 0.0005 |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |  |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |  |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.679 | 22.870 | 20.994 | 16.881 | 13.999 | 16.842 |  |
|                                                 | 14.000 | 13.999 | 13.999 | 15.242 | 16.633 | 17.606 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.807  | 0.744  | 0.517  | 2.485  | 0.000  | 3.509  |  |
|                                                 | 0.000  | 0.000  | 0.001  | 1.331  | 0.271  | 0.202  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

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## ANNUAL TOTALS FOR YEAR 13

|                                 | INCHES   | CU. FEET   | PERCENT |  |
|---------------------------------|----------|------------|---------|--|
| PRECIPITATION                   | 26.93    | 97753.769  | 100.00  |  |
| RUNOFF                          | 0.733    | 2662.482   | 2.72    |  |
| EVAPOTRANSPIRATION              | 28.033   | 101756.385 | 104.09  |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005933 | 21.537     | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 17.1454  |            |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005929 | 21.522     | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |            |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.595     | 0.02    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009      | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |            |         |  |



## Case 6 (Continued)

|                             |         |             |       |
|-----------------------------|---------|-------------|-------|
| CHANGE IN WATER STORAGE     | -1.842  | -6686.701   | -6.84 |
| SOIL WATER AT START OF YEAR | 724.198 | 2628779.845 |       |
| SOIL WATER AT END OF YEAR   | 722.355 | 2622093.145 |       |
| SNOW WATER AT START OF YEAR | 0.000   | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR   | 0.000   | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE | 0.0000  | -0.001      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 14

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
| PRECIPITATION                           | 0.89    | 2.96    | 0.73    | 2.65    | 3.30    | 2.95    |  |
|                                         | 0.00    | 1.87    | 0.82    | 2.84    | 3.36    | 1.96    |  |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.719   |  |
| EVAPOTRANSPIRATION                      | 1.226   | 0.885   | 2.101   | 4.586   | 2.302   | 2.676   |  |
|                                         | 1.294   | 1.869   | 0.820   | 1.277   | 1.354   | 1.321   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0005  | 0.0005  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0007  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0005  | 0.0005  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0007  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0004  | 0.0005  | 0.0006  | 0.0004  | 0.0003  |  |
|                                         | 0.0005  | 0.0005  | 0.0004  | 0.0006  | 0.0004  | 0.0005  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |        |        |        |        |        |        |  |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 17.224 | 16.931 | 19.715 | 17.037 | 14.037 | 14.297 |  |
|                                                | 14.212 | 14.000 | 13.999 | 13.998 | 15.925 | 22.741 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.107  | 0.323  | 0.781  | 2.232  | 0.144  | 0.683  |  |
|                                                | 0.592  | 0.000  | 0.000  | 0.001  | 1.921  | 0.596  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

## Case 6 (Continued)

|                                                 |       |       |       |       |       |       |
|-------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 14       |         |             |         |
|---------------------------------|---------|-------------|---------|
|                                 | INCHES  | CU. FEET    | PERCENT |
| PRECIPITATION                   | 24.33   | 88315.975   | 100.00  |
| RUNOFF                          | 0.719   | 2608.386    | 2.95    |
| EVAPOTRANSPIRATION              | 21.712  | 78811.439   | 89.24   |
| PERC./LEAKAGE THROUGH LAYER 3   |         | 0.005617    | 20.388  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.1763 |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 0.0000      | 0.000   |
| PERC./LEAKAGE THROUGH LAYER 7   |         | 0.005616    | 20.384  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000  |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 |         | 0.0057      | 20.664  |
| PERC./LEAKAGE THROUGH LAYER 11  |         | 0.000003    | 0.009   |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000  |             |         |
| CHANGE IN WATER STORAGE         | 1.894   | 6875.479    | 7.79    |
| SOIL WATER AT START OF YEAR     | 722.355 | 2622093.145 |         |
| SOIL WATER AT END OF YEAR       | 724.250 | 2628968.624 |         |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     |         | 0.0000      | -0.001  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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| MONTHLY TOTALS (IN INCHES) FOR YEAR 15 |         |         |         |         |         |         |  |
|----------------------------------------|---------|---------|---------|---------|---------|---------|--|
|                                        | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
| PRECIPITATION                          | 0.79    | 2.22    | 0.83    | 4.07    | 8.34    | 2.21    |  |
| RUNOFF                                 | 3.64    | 0.11    | 4.65    | 0.17    | 1.38    | 5.66    |  |
| EVAPOTRANSPIRATION                     | 1.206   | 1.868   | 1.322   | 6.052   | 6.269   | 5.039   |  |

# Case 6 (Continued)

|                                         |        |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|--------|
|                                         | 3.668  | 0.109  | 1.652  | 1.633  | 0.578  | 1.147  |        |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0005 | 0.0007 |        |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |        |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0004 | 0.0004 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0005 | 0.0006 | 0.0005 | 0.0007 |        |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006 | 0.0004 | 0.0006 | 0.0005 | 0.0006 | 0.0005 | 0.0005 |
|                                         | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0006 | 0.0004 |        |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |        |

## MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |  |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|--|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.129 | 22.382 | 21.600 | 16.743 | 14.814 | 15.072 |  |
|                                                 | 14.512 | 13.999 | 15.951 | 18.579 | 17.285 | 22.604 |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.480  | 0.838  | 0.416  | 2.815  | 1.301  | 1.735  |  |
|                                                 | 0.849  | 0.000  | 3.618  | 1.075  | 0.025  | 1.781  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |  |

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## ANNUAL TOTALS FOR YEAR 15

|                                 | INCHES   | CU. FEET    | PERCENT |  |
|---------------------------------|----------|-------------|---------|--|
| PRECIPITATION                   | 34.07    | 123671.404  | 100.00  |  |
| RUNOFF                          | 3.144    | 11410.681   | 9.23    |  |
| EVAPOTRANSPIRATION              | 30.544   | 110871.837  | 89.65   |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006220 | 22.579      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 17.9724  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006220 | 22.578      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.797      | 0.02    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | 0.377    | 1367.082    | 1.11    |  |
| SOIL WATER AT START OF YEAR     | 724.250  | 2628968.624 |         |  |
| SOIL WATER AT END OF YEAR       | 724.626  | 2630335.706 |         |  |

## Case 6 (Continued)

|                             |        |        |      |
|-----------------------------|--------|--------|------|
| SNOW WATER AT START OF YEAR | 0.000  | 0.000  | 0.00 |
| SNOW WATER AT END OF YEAR   | 0.000  | 0.000  | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000 | -0.002 | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 16

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.50    | 2.01    | 1.02    | 1.85    | 0.81    | 1.45    |
|                                         | 2.57    | 1.68    | 3.46    | 3.02    | 1.80    | 3.03    |
| RUNOFF                                  | 0.000   | 0.747   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.187   | 1.285   | 1.756   | 4.266   | 0.810   | 1.402   |
|                                         | 2.618   | 1.680   | 3.004   | 3.247   | 1.195   | 1.484   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007  | 0.0006  | 0.0006  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007  | 0.0006  | 0.0006  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0005  | 0.0006  | 0.0005  | 0.0006  | 0.0005  |
|                                         | 0.0005  | 0.0005  | 0.0005  | 0.0005  | 0.0004  | 0.0004  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.198 | 21.978 | 21.078 | 15.677 | 13.999 | 13.999 |
|                                                 | 14.273 | 13.999 | 14.379 | 14.918 | 14.012 | 16.206 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.678  | 0.778  | 0.411  | 2.221  | 0.000  | 0.000  |
|                                                 | 0.583  | 0.000  | 0.594  | 0.430  | 0.040  | 1.640  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## Case 6 (Continued)

| ANNUAL TOTALS FOR YEAR 16       |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 23.20    | 84214.164   | 100.00  |  |
| RUNOFF                          | 0.747    | 2711.325    | 3.22    |  |
| EVAPOTRANSPIRATION              | 23.933   | 86874.126   | 103.16  |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005702 | 20.697      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.3931  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005707 | 20.718      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.535      | 0.03    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | -1.486   | -5392.829   | -6.40   |  |
| SOIL WATER AT START OF YEAR     | 724.626  | 2630335.706 |         |  |
| SOIL WATER AT END OF YEAR       | 723.141  | 2624942.877 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 17

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.54<br>4.57     | 2.81<br>4.38     | 0.67<br>0.27     | 2.06<br>0.15     | 4.74<br>3.89     | 0.08<br>0.70     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.491<br>3.268   | 2.590<br>5.681   | 1.562<br>0.268   | 3.006<br>0.134   | 5.547<br>0.704   | 0.080<br>1.179   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0006<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH             | 0.0006           | 0.0005           | 0.0006           | 0.0004           | 0.0005           | 0.0004           |

## Case 6 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| LAYER 7                                 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0006 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0005 | 0.0004 | 0.0005 | 0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 18.946 | 20.033 | 19.326 | 14.873 | 16.459 | 13.999 |
|                                                 | 14.198 | 14.304 | 13.999 | 14.000 | 18.869 | 21.503 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.320  | 0.779  | 0.369  | 1.390  | 2.820  | 0.000  |
|                                                 | 0.504  | 0.673  | 0.000  | 0.000  | 4.061  | 0.450  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 17

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 25.86    | 93869.754   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 25.511   | 92601.841   | 98.65   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005792 | 21.025      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.7091  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005787 | 21.007      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0057   | 20.656      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 0.344    | 1247.249    | 1.33    |
| SOIL WATER AT START OF YEAR     | 723.141  | 2624942.877 |         |
| SOIL WATER AT END OF YEAR       | 723.484  | 2626190.125 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2

D6-B-144

Technically Complete October 28, 2014

## Case 6 (Continued)

DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 18

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 0.45    | 6.39    | 1.46    | 2.44    | 1.58    | 3.26    |
|                                         | 6.60    | 1.37    | 4.62    | 0.76    | 1.92    | 1.20    |
| RUNOFF                                  | 0.000   | 3.433   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.105   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 0.519   | 1.618   | 2.947   | 4.853   | 1.669   | 3.260   |
|                                         | 6.494   | 1.369   | 3.631   | 1.637   | 1.135   | 1.021   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0005  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0005  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004  | 0.0006  | 0.0006  | 0.0004  | 0.0005  | 0.0006  |
|                                         | 0.0004  | 0.0005  | 0.0005  | 0.0003  | 0.0004  | 0.0005  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 20.188 | 22.809 | 21.816 | 17.165 | 13.999 | 14.348 |
|                                                 | 16.105 | 14.000 | 15.124 | 14.237 | 14.041 | 14.499 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.234  | 1.229  | 0.880  | 1.772  | 0.000  | 0.540  |
|                                                 | 2.580  | 0.000  | 1.748  | 0.525  | 0.108  | 0.075  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 18

|               | INCHES | CU. FEET   | PERCENT |
|---------------|--------|------------|---------|
| PRECIPITATION | 32.05  | 116338.964 | 100.00  |
| RUNOFF        | 3.539  | 12844.773  | 11.04   |

## Case 6 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| EVAPOTRANSPIRATION              | 30.153   | 109454.110  | 94.08 |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005723 | 20.774      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.5276  |             |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005724 | 20.779      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |       |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0057   | 20.760      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | -1.648   | -5980.686   | -5.14 |
| SOIL WATER AT START OF YEAR     | 723.484  | 2626190.125 |       |
| SOIL WATER AT END OF YEAR       | 721.837  | 2620209.439 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 19

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.83<br>2.03     | 3.34<br>2.25     | 1.75<br>1.40     | 1.47<br>0.66     | 2.04<br>2.57     | 0.58<br>0.01     |
| RUNOFF                                  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.338<br>2.014   | 2.122<br>2.268   | 1.918<br>1.394   | 2.932<br>0.663   | 2.192<br>0.839   | 0.577<br>0.803   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0005 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006<br>0.0004 | 0.0003<br>0.0005 | 0.0004<br>0.0005 | 0.0004<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0004 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |



## Case 6 (Continued)

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 14.565 | 16.643 | 17.914 | 15.149 | 14.000 | 13.999 |
|                                                 | 14.000 | 13.999 | 13.999 | 14.000 | 14.611 | 16.632 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.029  | 1.119  | 0.492  | 1.351  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 1.081  | 0.208  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 19

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 18.93    | 68714.402   | 100.00  |
| RUNOFF                          | 0.000    | 0.000       | 0.00    |
| EVAPOTRANSPIRATION              | 19.061   | 69189.471   | 100.69  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005199 | 18.873      | 0.03    |
| AVG. HEAD ON TOP OF LAYER 2     | 14.9592  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005199 | 18.872      | 0.03    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0054   | 19.537      | 0.03    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.136   | -494.614    | -0.72   |
| SOIL WATER AT START OF YEAR     | 721.837  | 2620209.439 |         |
| SOIL WATER AT END OF YEAR       | 721.700  | 2619714.825 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)

## Case 6 (Continued)

LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 20

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.68<br>0.56   | 0.42<br>1.46     | 1.80<br>6.19     | 3.35<br>2.35     | 4.36<br>1.02     | 1.32<br>1.69     |
| RUNOFF                                  | 0.000<br>0.000 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.429<br>0.560 | 0.538<br>1.441   | 1.529<br>4.326   | 4.687<br>3.016   | 4.364<br>1.127   | 1.320<br>1.494   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     |                | 0.0005<br>0.0004 | 0.0004<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     |                | 0.0005<br>0.0004 | 0.0004<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 |                | 0.0005<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 | 0.0004<br>0.0004 | 0.0005<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 15.797<br>13.999 | 15.595<br>13.999 | 15.943<br>16.439 | 15.535<br>16.460 | 14.080<br>15.024 | 13.999<br>14.934 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.148<br>0.000   | 0.014<br>0.001   | 0.690<br>3.210   | 1.126<br>0.795   | 0.193<br>0.071   | 0.000<br>0.053   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 20

|                               | INCHES  | CU. FEET  | PERCENT |
|-------------------------------|---------|-----------|---------|
| PRECIPITATION                 | 26.20   | 95103.927 | 100.00  |
| RUNOFF                        | 0.000   | 0.000     | 0.00    |
| EVAPOTRANSPIRATION            | 25.830  | 93760.014 | 98.59   |
| PERC./LEAKAGE THROUGH LAYER 3 |         | 0.005280  | 19.166  |
| AVG. HEAD ON TOP OF LAYER 2   | 15.1504 |           |         |

## Case 6 (Continued)

|                                 |          |             |      |
|---------------------------------|----------|-------------|------|
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00 |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005280 | 19.167      | 0.02 |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |      |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0052   | 18.962      | 0.02 |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00 |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |      |
| CHANGE IN WATER STORAGE         | 0.365    | 1324.944    | 1.39 |
| SOIL WATER AT START OF YEAR     | 721.700  | 2619714.825 |      |
| SOIL WATER AT END OF YEAR       | 722.065  | 2621039.769 |      |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00 |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00 |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.001      | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 21

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |        |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--------|
| PRECIPITATION                           | 1.29    | 0.99    | 2.08    | 8.53    | 5.62    | 0.70    |        |
|                                         | 3.46    | 3.30    | 4.64    | 3.35    | 0.85    | 3.51    |        |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 1.082   | 1.743   | 0.000   |        |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |        |
| EVAPOTRANSPIRATION                      | 1.649   | 1.229   | 2.421   | 5.319   | 5.938   | 1.124   |        |
|                                         | 2.596   | 4.170   | 3.886   | 2.877   | 0.921   | 1.019   |        |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0005  | 0.0004 |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0005  | 0.0006  |        |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000 |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |        |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0005  | 0.0004  |        |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0005  | 0.0006  |        |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0004  | 0.0004  | 0.0005  | 0.0005  | 0.0005  | 0.0005 |
|                                         | 0.0006  | 0.0004  | 0.0003  | 0.0005  | 0.0005  | 0.0005  |        |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000 |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |        |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

## Case 6 (Continued)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 15.200 | 15.460 | 15.373 | 19.960 | 18.020 | 14.000 |
|                                                 | 14.675 | 14.339 | 14.158 | 17.274 | 16.360 | 21.194 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.041  | 0.188  | 0.219  | 3.732  | 3.296  | 0.000  |
|                                                 | 1.458  | 0.501  | 0.375  | 1.198  | 0.232  | 2.015  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 21

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 38.32    | 139098.568  | 100.00  |
| RUNOFF                          | 2.825    | 10254.818   | 7.37    |
| EVAPOTRANSPIRATION              | 33.149   | 120326.790  | 86.50   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005672 | 20.591      | 0.01    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.3342  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005676 | 20.604      | 0.01    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0056   | 20.363      | 0.01    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 2.341    | 8496.591    | 6.11    |
| SOIL WATER AT START OF YEAR     | 722.065  | 2621039.769 |         |
| SOIL WATER AT END OF YEAR       | 724.406  | 2629536.360 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

### MONTHLY TOTALS (IN INCHES) FOR YEAR 22

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## Case 6 (Continued)

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.31<br>2.65   | 1.42<br>1.83     | 0.65<br>5.20     | 2.58<br>0.74     | 1.28<br>0.40     | 0.00<br>0.06     |
| RUNOFF                                  | 0.072<br>0.000 | 0.032<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.756<br>2.561 | 1.363<br>1.918   | 1.258<br>2.875   | 5.120<br>2.683   | 1.281<br>0.774   | 0.000<br>0.035   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     |                | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     |                | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0004 | 0.0004<br>0.0004 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 |                | 0.0006<br>0.0005 | 0.0005<br>0.0005 | 0.0005<br>0.0003 | 0.0006<br>0.0004 | 0.0006<br>0.0005 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.533<br>13.997 | 22.168<br>13.999 | 20.555<br>14.303 | 18.687<br>15.186 | 13.999<br>13.999 | 13.998<br>13.999 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.603<br>0.001   | 0.670<br>0.000   | 0.738<br>0.817   | 3.361<br>1.188   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 22

|                                 | INCHES   | CU. FEET  | PERCENT |
|---------------------------------|----------|-----------|---------|
| PRECIPITATION                   | 18.12    | 65774.166 | 100.00  |
| RUNOFF                          | 0.103    | 375.144   | 0.57    |
| EVAPOTRANSPIRATION              | 21.624   | 78492.667 | 119.34  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005699 | 20.685    | 0.03    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.4521  |           |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000     | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005699 | 20.685    | 0.03    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |           |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0059   | 21.352    | 0.03    |

## Case 6 (Continued)

|                                |          |             |        |
|--------------------------------|----------|-------------|--------|
| PERC./LEAKAGE THROUGH LAYER 11 | 0.000003 | 0.009       | 0.00   |
| AVG. HEAD ON TOP OF LAYER 10   | 0.0000   |             |        |
| CHANGE IN WATER STORAGE        | -3.613   | -13115.005  | -19.94 |
| SOIL WATER AT START OF YEAR    | 724.406  | 2629536.360 |        |
| SOIL WATER AT END OF YEAR      | 720.793  | 2616421.355 |        |
| SNOW WATER AT START OF YEAR    | 0.000    | 0.000       | 0.00   |
| SNOW WATER AT END OF YEAR      | 0.000    | 0.000       | 0.00   |
| ANNUAL WATER BUDGET BALANCE    | 0.0000   | -0.001      | 0.00   |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

### MONTHLY TOTALS (IN INCHES) FOR YEAR 23

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.22    | 3.41    | 2.97    | 5.31    | 7.63    | 3.88    |
|                                         | 5.01    | 0.00    | 1.28    | 0.85    | 5.34    | 2.15    |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.304   | 0.330   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.436   | 1.172   |
| EVAPOTRANSPIRATION                      | 0.608   | 1.743   | 3.209   | 5.391   | 6.131   | 6.733   |
|                                         | 5.010   | 0.000   | 1.280   | 0.850   | 1.156   | 1.042   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0004  | 0.0004  | 0.0006  | 0.0005  | 0.0005  | 0.0005  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0007  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0004  | 0.0004  | 0.0006  | 0.0005  | 0.0005  | 0.0005  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0007  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0004  | 0.0004  | 0.0005  | 0.0004  | 0.0004  | 0.0004  |
|                                         | 0.0005  | 0.0004  | 0.0005  | 0.0004  | 0.0003  | 0.0006  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |        |        |        |        |        |        |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 13.999 | 16.488 | 18.928 | 17.407 | 17.277 | 19.290 |
|                                                | 14.375 | 13.999 | 13.999 | 13.998 | 18.720 | 23.606 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.000  | 2.505  | 0.579  | 2.335  | 2.757  | 3.321  |
|                                                | 0.594  | 0.000  | 0.000  | 0.000  | 4.799  | 0.248  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

## Case 6 (Continued)

|                                                 |       |       |       |       |       |       |
|-------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 23       |          |             |         |
|---------------------------------|----------|-------------|---------|
|                                 | INCHES   | CU. FEET    | PERCENT |
| PRECIPITATION                   | 39.05    | 141748.410  | 100.00  |
| RUNOFF                          | 2.242    | 8137.582    | 5.74    |
| EVAPOTRANSPIRATION              | 33.152   | 120338.420  | 84.90   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005841 | 21.202      | 0.01    |
| AVG. HEAD ON TOP OF LAYER 2     | 16.8404  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005835 | 21.182      | 0.01    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0052   | 18.717      | 0.01    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 3.651    | 13253.686   | 9.35    |
| SOIL WATER AT START OF YEAR     | 720.793  | 2616421.355 |         |
| SOIL WATER AT END OF YEAR       | 724.444  | 2629675.041 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

| MONTHLY TOTALS (IN INCHES) FOR YEAR 24 |         |         |         |         |         |         |  |
|----------------------------------------|---------|---------|---------|---------|---------|---------|--|
|                                        | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
| PRECIPITATION                          | 0.17    | 0.58    | 1.58    | 4.22    | 6.64    | 2.26    |  |
|                                        | 1.30    | 1.70    | 1.57    | 2.09    | 3.32    | 2.15    |  |
| RUNOFF                                 | 0.000   | 0.000   | 0.000   | 0.000   | 0.811   | 0.000   |  |
|                                        | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.456   |  |
| EVAPOTRANSPIRATION                     | 0.939   | 0.408   | 2.037   | 4.426   | 7.512   | 2.995   |  |
|                                        | 0.941   | 2.058   | 1.569   | 1.002   | 1.354   | 1.262   |  |

## Case 6 (Continued)

|                                         |        |        |        |        |        |        |
|-----------------------------------------|--------|--------|--------|--------|--------|--------|
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0006 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006 | 0.0006 | 0.0006 | 0.0005 | 0.0006 | 0.0004 |
|                                         | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0006 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0008 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 |
|                                         | 0.0007 | 0.0005 | 0.0004 | 0.0004 | 0.0005 | 0.0006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                                         | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

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### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

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|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.927 | 20.707 | 21.370 | 16.595 | 19.607 | 14.102 |
|                                                 | 13.999 | 13.998 | 13.999 | 13.999 | 18.435 | 21.719 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.577  | 0.140  | 0.678  | 2.495  | 2.385  | 0.225  |
|                                                 | 0.000  | 0.000  | 0.001  | 0.000  | 3.141  | 1.364  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 24

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 27.58    | 100113.218  | 100.00  |
| RUNOFF                          | 1.268    | 4601.339    | 4.60    |
| EVAPOTRANSPIRATION              | 26.504   | 96209.185   | 96.10   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006096 | 22.128      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.5383  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006096 | 22.128      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0064   | 23.277      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.199   | -720.591    | -0.72   |
| SOIL WATER AT START OF YEAR     | 724.444  | 2629675.041 |         |
| SOIL WATER AT END OF YEAR       | 724.246  | 2628954.450 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |

D6-B-154

Technically Complete October 28, 2014



## Case 6 (Continued)

|                             |        |        |      |
|-----------------------------|--------|--------|------|
| SNOW WATER AT END OF YEAR   | 0.000  | 0.000  | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 0.0000 | -0.002 | 0.00 |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 25

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 1.25    | 3.25    | 0.79    | 2.87    | 4.75    | 2.48    |
|                                         | 4.21    | 1.75    | 3.02    | 0.89    | 2.33    | 2.37    |
| RUNOFF                                  | 0.000   | 1.851   | 0.000   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| EVAPOTRANSPIRATION                      | 1.373   | 1.667   | 1.070   | 5.359   | 3.827   | 2.073   |
|                                         | 5.840   | 1.501   | 2.343   | 1.786   | 0.929   | 1.191   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006  | 0.0005  | 0.0005  | 0.0005  | 0.0005  | 0.0004  |
|                                         | 0.0007  | 0.0006  | 0.0004  | 0.0003  | 0.0004  | 0.0004  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |        |        |        |        |        |        |
|-------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 21.881 | 22.606 | 21.296 | 17.221 | 14.089 | 14.247 |
|                                                 | 14.460 | 13.999 | 14.000 | 13.999 | 14.516 | 17.412 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.272  | 0.821  | 0.294  | 1.974  | 0.262  | 0.579  |
|                                                 | 0.804  | 0.000  | 0.000  | 0.000  | 0.688  | 1.225  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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## Case 6 (Continued)

| ANNUAL TOTALS FOR YEAR 25       |          |             |         |  |
|---------------------------------|----------|-------------|---------|--|
|                                 | INCHES   | CU. FEET    | PERCENT |  |
| PRECIPITATION                   | 29.96    | 108752.430  | 100.00  |  |
| RUNOFF                          | 1.851    | 6719.632    | 6.18    |  |
| EVAPOTRANSPIRATION              | 28.961   | 105124.999  | 96.66   |  |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005764 | 20.924      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 2     | 16.6439  |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005770 | 20.943      | 0.02    |  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |  |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0060   | 21.655      | 0.02    |  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |  |
| CHANGE IN WATER STORAGE         | -0.858   | -3113.864   | -2.86   |  |
| SOIL WATER AT START OF YEAR     | 724.246  | 2628954.450 |         |  |
| SOIL WATER AT END OF YEAR       | 723.388  | 2625840.586 |         |  |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

| MONTHLY TOTALS (IN INCHES) FOR YEAR 26  |         |         |         |         |         |         |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
| PRECIPITATION                           | 0.89    | 0.86    | 1.30    | 1.41    | 5.60    | 1.47    |  |
|                                         | 1.42    | 4.56    | 4.16    | 6.97    | 1.58    | 3.85    |  |
| RUNOFF                                  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 1.085   | 0.295   | 2.520   |  |
| EVAPOTRANSPIRATION                      | 1.473   | 0.734   | 2.606   | 2.271   | 4.771   | 2.298   |  |
|                                         | 1.420   | 4.560   | 3.462   | 2.829   | 1.135   | 1.284   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0005  | 0.0005  | 0.0004  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0005  | 0.0004  | 0.0006  | 0.0007  | 0.0007  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0005  | 0.0005  | 0.0004  | 0.0004  | 0.0004  |  |
|                                         | 0.0004  | 0.0005  | 0.0004  | 0.0006  | 0.0007  | 0.0007  |  |

## Case 6 (Continued)

|                             |        |        |        |        |        |        |
|-----------------------------|--------|--------|--------|--------|--------|--------|
| LATERAL DRAINAGE COLLECTED  | 0.0004 | 0.0005 | 0.0006 | 0.0004 | 0.0005 | 0.0004 |
| FROM LAYER 9                | 0.0005 | 0.0005 | 0.0004 | 0.0005 | 0.0005 | 0.0006 |
| PERCOLATION/LEAKAGE THROUGH | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| LAYER 11                    | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                         |        |        |        |        |        |        |
|-------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON   | 18.984 | 18.295 | 17.607 | 14.153 | 14.034 | 14.000 |
| TOP OF LAYER 2          | 13.999 | 15.728 | 14.248 | 21.143 | 23.491 | 23.592 |
| STD. DEVIATION OF DAILY | 0.281  | 0.137  | 0.455  | 0.434  | 0.087  | 0.000  |
| HEAD ON TOP OF LAYER 2  | 0.000  | 2.305  | 0.486  | 2.461  | 0.317  | 0.274  |
| AVERAGE DAILY HEAD ON   | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| TOP OF LAYER 7          | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON   | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| TOP OF LAYER 10         | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 26

|                                 | INCHES   | CU. FEET    | PERCENT |
|---------------------------------|----------|-------------|---------|
| PRECIPITATION                   | 34.07    | 123671.404  | 100.00  |
| RUNOFF                          | 3.899    | 14153.889   | 11.44   |
| EVAPOTRANSPIRATION              | 28.843   | 104697.606  | 84.66   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006047 | 21.949      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.4395  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006047 | 21.949      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0057   | 20.658      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | 1.322    | 4799.245    | 3.88    |
| SOIL WATER AT START OF YEAR     | 723.388  | 2625840.586 |         |
| SOIL WATER AT END OF YEAR       | 724.710  | 2630639.830 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3

## Case 6 (Continued)

HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 27

|                                         | JAN/JUL          | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 1.15<br>1.20     | 1.94<br>7.30     | 0.59<br>0.74     | 1.39<br>6.22     | 4.74<br>4.05     | 3.79<br>0.04     |
| RUNOFF                                  | 0.000<br>0.000   | 0.357<br>0.000   | 0.000<br>0.350   | 0.000<br>2.767   | 0.000<br>0.000   | 0.000<br>0.000   |
| EVAPOTRANSPIRATION                      | 1.940<br>1.200   | 1.327<br>4.016   | 1.344<br>4.024   | 3.478<br>1.933   | 5.309<br>1.304   | 3.790<br>0.916   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0005 | 0.0005<br>0.0005 | 0.0004<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0007<br>0.0004 | 0.0006<br>0.0004 | 0.0006<br>0.0004 | 0.0005<br>0.0005 | 0.0004<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006<br>0.0005 | 0.0006<br>0.0006 | 0.0004<br>0.0005 | 0.0006<br>0.0004 | 0.0007<br>0.0004 | 0.0004<br>0.0006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.515<br>13.999 | 22.211<br>14.173 | 21.035<br>15.866 | 16.325<br>17.336 | 14.982<br>23.542 | 14.250<br>22.501 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.554<br>0.000   | 0.880<br>0.440   | 0.533<br>2.403   | 2.507<br>3.700   | 0.866<br>0.306   | 0.502<br>0.694   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 27

|                    | INCHES | CU. FEET   | PERCENT |
|--------------------|--------|------------|---------|
| PRECIPITATION      | 33.15  | 120331.877 | 100.00  |
| RUNOFF             | 3.474  | 12610.789  | 10.48   |
| EVAPOTRANSPIRATION | 30.579 | 111000.643 | 92.25   |

D6-B-158

Technically Complete October 28, 2014

## Case 6 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006305 | 22.888      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 2     | 18.2279  |             |       |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00  |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006300 | 22.869      | 0.02  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |       |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0063   | 23.023      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | -0.910   | -3302.585   | -2.74 |
| SOIL WATER AT START OF YEAR     | 724.710  | 2630639.830 |       |
| SOIL WATER AT END OF YEAR       | 723.800  | 2627337.245 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

### MONTHLY TOTALS (IN INCHES) FOR YEAR 28

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|
| PRECIPITATION                           | 2.62    | 0.67    | 2.47    | 1.67    | 2.99    | 0.47    |
|                                         | 0.47    | 5.39    | 4.00    | 4.98    | 4.30    | 1.75    |
| RUNOFF                                  | 0.471   | 0.000   | 0.518   | 0.000   | 0.000   | 0.000   |
|                                         | 0.000   | 0.000   | 0.000   | 0.085   | 0.609   | 0.424   |
| EVAPOTRANSPIRATION                      | 1.196   | 1.386   | 2.477   | 4.325   | 2.927   | 0.602   |
|                                         | 0.492   | 5.144   | 3.832   | 3.390   | 1.923   | 1.053   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0006  | 0.0006  | 0.0007  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0006  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0007  | 0.0005  | 0.0004  | 0.0004  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0005  | 0.0006  | 0.0006  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0006  | 0.0006  | 0.0006  | 0.0006  | 0.0006  | 0.0006  |
|                                         | 0.0004  | 0.0005  | 0.0005  | 0.0005  | 0.0004  | 0.0005  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

## Case 6 (Continued)

|                                                    |        |        |        |        |        |        |
|----------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 2            | 21.849 | 22.099 | 22.323 | 18.415 | 14.000 | 14.000 |
|                                                    | 13.999 | 14.013 | 15.108 | 16.416 | 22.506 | 22.111 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 2  | 0.905  | 0.708  | 1.001  | 1.812  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.045  | 1.190  | 3.125  | 1.123  | 0.719  |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7            | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 10           | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 10 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |
|                                                    | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |

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### ANNUAL TOTALS FOR YEAR 28

|                                 | INCHES  | CU. FEET    | PERCENT |
|---------------------------------|---------|-------------|---------|
| PRECIPITATION                   | 31.78   | 115358.886  | 100.00  |
| RUNOFF                          | 2.107   | 7649.110    | 6.63    |
| EVAPOTRANSPIRATION              | 28.747  | 104349.963  | 90.46   |
| PERC./LEAKAGE THROUGH LAYER 3   |         | 0.006272    | 22.765  |
| AVG. HEAD ON TOP OF LAYER 2     | 18.0697 |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 |         | 0.0000      | 0.000   |
| PERC./LEAKAGE THROUGH LAYER 7   |         | 0.006277    | 22.783  |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000  |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 |         | 0.0062      | 22.618  |
| PERC./LEAKAGE THROUGH LAYER 11  |         | 0.000003    | 0.009   |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000  |             |         |
| CHANGE IN WATER STORAGE         | 0.919   | 3337.188    | 2.89    |
| SOIL WATER AT START OF YEAR     | 723.800 | 2627337.245 |         |
| SOIL WATER AT END OF YEAR       | 724.719 | 2630674.433 |         |
| SNOW WATER AT START OF YEAR     | 0.000   | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000   | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     |         | 0.0000      | -0.002  |
|                                 |         |             | 0.00    |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
 DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
 LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
 HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
 DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
 LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
 HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
 DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
 LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

## Case 6 (Continued)

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### MONTHLY TOTALS (IN INCHES) FOR YEAR 29

|                                         | JAN/JUL        | FEB/AUG          | MAR/SEP          | APR/OCT          | MAY/NOV          | JUN/DEC          |
|-----------------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION                           | 0.87<br>3.18   | 2.16<br>3.09     | 3.83<br>2.36     | 1.40<br>4.34     | 1.36<br>2.64     | 9.35<br>2.73     |
| RUNOFF                                  | 0.273<br>0.000 | 0.158<br>0.000   | 1.350<br>0.000   | 0.000<br>0.000   | 0.000<br>0.394   | 1.502<br>2.201   |
| EVAPOTRANSPIRATION                      |                | 1.539<br>6.600   | 1.259<br>1.619   | 3.645<br>2.432   | 3.981<br>0.994   | 1.338<br>1.206   |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     |                | 0.0007<br>0.0005 | 0.0006<br>0.0004 | 0.0007<br>0.0004 | 0.0005<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     |                | 0.0007<br>0.0005 | 0.0006<br>0.0004 | 0.0007<br>0.0004 | 0.0005<br>0.0007 | 0.0004<br>0.0007 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 |                | 0.0006<br>0.0005 | 0.0005<br>0.0004 | 0.0005<br>0.0005 | 0.0006<br>0.0005 | 0.0006<br>0.0006 |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    |                | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 | 0.0000<br>0.0000 |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                 |                  |                  |                  |                  |                  |                  |
|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2            | 22.546<br>16.451 | 22.204<br>14.792 | 22.496<br>13.999 | 16.894<br>14.955 | 14.000<br>22.971 | 15.738<br>23.297 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2  | 0.874<br>2.928   | 1.016<br>1.391   | 1.100<br>0.000   | 2.560<br>1.347   | 0.000<br>1.091   | 2.829<br>0.707   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 7            | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 7  | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| AVERAGE DAILY HEAD ON TOP OF LAYER 10           | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 10 | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   | 0.000<br>0.000   |

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### ANNUAL TOTALS FOR YEAR 29

|                                 | INCHES   | CU. FEET   | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION                   | 37.31    | 135432.348 | 100.00  |
| RUNOFF                          | 5.879    | 21339.102  | 15.76   |
| EVAPOTRANSPIRATION              | 32.160   | 116739.881 | 86.20   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.006352 | 23.059     | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 18.3620  |            |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000      | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.006352 | 23.059     | 0.02    |

## Case 6 (Continued)

|                                 |          |             |       |
|---------------------------------|----------|-------------|-------|
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |       |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0063   | 22.859      | 0.02  |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00  |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |       |
| CHANGE IN WATER STORAGE         | -0.735   | -2669.502   | -1.97 |
| SOIL WATER AT START OF YEAR     | 724.719  | 2630674.433 |       |
| SOIL WATER AT END OF YEAR       | 723.984  | 2628004.931 |       |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00  |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00  |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00  |

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HEAD #1: AVERAGE HEAD ON TOP OF LAYER 2  
DRAIN #1: LATERAL DRAINAGE FROM LAYER 1 (RECIRCULATION AND COLLECTION)  
LEAK #1: PERCOLATION OR LEAKAGE THROUGH LAYER 3  
HEAD #2: AVERAGE HEAD ON TOP OF LAYER 7  
DRAIN #2: LATERAL DRAINAGE FROM LAYER 6 (RECIRCULATION AND COLLECTION)  
LEAK #2: PERCOLATION OR LEAKAGE THROUGH LAYER 7  
HEAD #3: AVERAGE HEAD ON TOP OF LAYER 10  
DRAIN #3: LATERAL DRAINAGE FROM LAYER 9 (RECIRCULATION AND COLLECTION)  
LEAK #3: PERCOLATION OR LEAKAGE THROUGH LAYER 11

### MONTHLY TOTALS (IN INCHES) FOR YEAR 30

|                                         | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |  |
|-----------------------------------------|---------|---------|---------|---------|---------|---------|--|
| PRECIPITATION                           | 1.42    | 2.35    | 1.86    | 5.85    | 7.21    | 1.03    |  |
|                                         | 2.19    | 1.98    | 1.22    | 3.07    | 1.17    | 2.89    |  |
| RUNOFF                                  | 0.000   | 1.073   | 0.297   | 0.000   | 0.725   | 0.000   |  |
|                                         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |  |
| EVAPOTRANSPIRATION                      | 1.480   | 1.119   | 2.535   | 6.334   | 6.953   | 2.322   |  |
|                                         | 1.877   | 2.393   | 1.220   | 2.443   | 1.015   | 1.203   |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 3     | 0.0007  | 0.0006  | 0.0006  | 0.0005  | 0.0006  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 7     | 0.0006  | 0.0006  | 0.0006  | 0.0005  | 0.0006  | 0.0004  |  |
|                                         | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0004  | 0.0005  |  |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9 | 0.0005  | 0.0006  | 0.0006  | 0.0005  | 0.0006  | 0.0006  |  |
|                                         | 0.0005  | 0.0006  | 0.0004  | 0.0005  | 0.0004  | 0.0003  |  |
| PERCOLATION/LEAKAGE THROUGH LAYER 11    | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |
|                                         | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 0.0000  |  |

### MONTHLY SUMMARIES FOR DAILY HEADS (INCHES)

|                                                |        |        |        |        |        |        |
|------------------------------------------------|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON TOP OF LAYER 2           | 22.252 | 21.865 | 21.623 | 18.254 | 19.919 | 14.254 |
|                                                | 14.000 | 13.999 | 13.999 | 13.999 | 14.045 | 16.204 |
| STD. DEVIATION OF DAILY HEAD ON TOP OF LAYER 2 | 0.610  | 0.728  | 0.977  | 1.908  | 2.473  | 0.720  |
|                                                | 0.000  | 0.000  | 0.000  | 0.000  | 0.054  | 1.935  |

D6-B-162

Technically Complete October 28, 2014



## Case 6 (Continued)

|                                                    |       |       |       |       |       |       |
|----------------------------------------------------|-------|-------|-------|-------|-------|-------|
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 7            | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 7  | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AVERAGE DAILY HEAD ON<br>TOP OF LAYER 10           | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| STD. DEVIATION OF DAILY<br>HEAD ON TOP OF LAYER 10 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
|                                                    | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| ANNUAL TOTALS FOR YEAR 30       |          |             |         |
|---------------------------------|----------|-------------|---------|
|                                 | INCHES   | CU. FEET    | PERCENT |
| PRECIPITATION                   | 32.24    | 117028.649  | 100.00  |
| RUNOFF                          | 2.096    | 7607.255    | 6.50    |
| EVAPOTRANSPIRATION              | 30.893   | 112139.762  | 95.82   |
| PERC./LEAKAGE THROUGH LAYER 3   | 0.005901 | 21.421      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 2     | 17.0345  |             |         |
| DRAINAGE COLLECTED FROM LAYER 6 | 0.0000   | 0.000       | 0.00    |
| PERC./LEAKAGE THROUGH LAYER 7   | 0.005901 | 21.421      | 0.02    |
| AVG. HEAD ON TOP OF LAYER 7     | 0.0000   |             |         |
| DRAINAGE COLLECTED FROM LAYER 9 | 0.0063   | 22.844      | 0.02    |
| PERC./LEAKAGE THROUGH LAYER 11  | 0.000003 | 0.009       | 0.00    |
| AVG. HEAD ON TOP OF LAYER 10    | 0.0000   |             |         |
| CHANGE IN WATER STORAGE         | -0.755   | -2741.219   | -2.34   |
| SOIL WATER AT START OF YEAR     | 723.984  | 2628004.931 |         |
| SOIL WATER AT END OF YEAR       | 723.229  | 2625263.713 |         |
| SNOW WATER AT START OF YEAR     | 0.000    | 0.000       | 0.00    |
| SNOW WATER AT END OF YEAR       | 0.000    | 0.000       | 0.00    |
| ANNUAL WATER BUDGET BALANCE     | 0.0000   | -0.002      | 0.00    |

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| AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 30 |                |                |                |                |                |                |
|---------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                                                         | JAN/JUL        | FEB/AUG        | MAR/SEP        | APR/OCT        | MAY/NOV        | JUN/DEC        |
| PRECIPITATION                                           |                |                |                |                |                |                |
| TOTALS                                                  | 1.15<br>2.10   | 2.50<br>2.84   | 1.69<br>3.09   | 3.07<br>2.84   | 4.12<br>2.07   | 2.87<br>2.03   |
| STD. DEVIATIONS                                         | 0.76<br>1.60   | 1.44<br>2.21   | 0.99<br>2.00   | 1.85<br>2.10   | 2.16<br>1.33   | 2.46<br>1.35   |
| RUNOFF                                                  |                |                |                |                |                |                |
| TOTALS                                                  | 0.034<br>0.041 | 0.529<br>0.033 | 0.108<br>0.039 | 0.098<br>0.147 | 0.167<br>0.173 | 0.129<br>0.425 |
| STD. DEVIATIONS                                         | 0.103          | 0.940          | 0.287          | 0.301          | 0.436          | 0.444          |

## Case 6 (Continued)

0.204   0.181   0.209   0.424   0.521   0.809

### EVAPOTRANSPIRATION

|                 |       |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
| TOTALS          | 1.319 | 1.438 | 2.245 | 4.525 | 4.040 | 2.862 |
|                 | 2.478 | 2.548 | 2.734 | 2.057 | 1.041 | 1.079 |
| STD. DEVIATIONS | 0.387 | 0.524 | 0.702 | 1.273 | 1.877 | 2.111 |
|                 | 1.863 | 1.631 | 1.548 | 0.930 | 0.295 | 0.314 |

### PERCOLATION/LEAKAGE THROUGH LAYER 3

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0006 | 0.0005 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0006 |
| STD. DEVIATIONS | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0001 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |

### LATERAL DRAINAGE COLLECTED FROM LAYER 6

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### PERCOLATION/LEAKAGE THROUGH LAYER 7

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0006 | 0.0005 | 0.0006 | 0.0005 | 0.0004 | 0.0004 |
|                 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0005 | 0.0006 |
| STD. DEVIATIONS | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0001 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |

### LATERAL DRAINAGE COLLECTED FROM LAYER 9

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0007 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 |
|                 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0005 |
| STD. DEVIATIONS | 0.0010 | 0.0006 | 0.0006 | 0.0004 | 0.0004 | 0.0003 |
|                 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |

### PERCOLATION/LEAKAGE THROUGH LAYER 11

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

### DAILY AVERAGE HEAD ON TOP OF LAYER 2

|                 |         |         |         |         |         |         |
|-----------------|---------|---------|---------|---------|---------|---------|
| AVERAGES        | 19.4991 | 20.1073 | 20.2261 | 16.9522 | 15.1145 | 14.6585 |
|                 | 14.3829 | 14.2364 | 14.6666 | 15.8269 | 17.4882 | 19.3892 |
| STD. DEVIATIONS | 3.2219  | 2.9248  | 2.3522  | 1.6281  | 1.7728  | 1.2478  |
|                 | 0.8341  | 0.6029  | 1.0559  | 2.2589  | 3.3843  | 3.5089  |

### DAILY AVERAGE HEAD ON TOP OF LAYER 7

|                 |        |        |        |        |        |        |
|-----------------|--------|--------|--------|--------|--------|--------|
| AVERAGES        | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|                 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

### DAILY AVERAGE HEAD ON TOP OF LAYER 10

|          |        |        |        |        |        |        |
|----------|--------|--------|--------|--------|--------|--------|
| AVERAGES | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
|          | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## Case 6 (Continued)

STD. DEVIATIONS      0.0001   0.0000   0.0000   0.0000   0.0000   0.0000  
                          0.0000   0.0000   0.0000   0.0000   0.0000   0.0000

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| AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS |                    |  |           | 1 THROUGH | 30 |
|-----------------------------------------------------|--------------------|--|-----------|-----------|----|
|                                                     | INCHES             |  | CU. FEET  | PERCENT   |    |
| PRECIPITATION                                       | 30.38 ( 6.302)     |  | 110267.3  | 100.00    |    |
| RUNOFF                                              | 1.924 ( 1.8881)    |  | 6984.94   | 6.335     |    |
| EVAPOTRANSPIRATION                                  | 28.366 ( 4.5812)   |  | 102965.83 | 93.378    |    |
| PERCOLATION/LEAKAGE THROUGH LAYER 3                 | 0.00585 ( 0.00036) |  | 21.249    | 0.01927   |    |
| AVERAGE HEAD ON TOP OF LAYER 2                      | 16.879 ( 1.077)    |  |           |           |    |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6             | 0.00000 ( 0.00000) |  | 0.000     | 0.00000   |    |
| PERCOLATION/LEAKAGE THROUGH LAYER 7                 | 0.00585 ( 0.00036) |  | 21.249    | 0.01927   |    |
| AVERAGE HEAD ON TOP OF LAYER 7                      | 0.000 ( 0.000)     |  |           |           |    |
| LATERAL DRAINAGE COLLECTED FROM LAYER 9             | 0.00662 ( 0.00391) |  | 24.033    | 0.02180   |    |
| PERCOLATION/LEAKAGE THROUGH LAYER 11                | 0.00000 ( 0.00000) |  | 0.009     | 0.00001   |    |
| AVERAGE HEAD ON TOP OF LAYER 10                     | 0.000 ( 0.000)     |  |           |           |    |
| CHANGE IN WATER STORAGE                             | 0.081 ( 1.7181)    |  | 292.51    | 0.265     |    |

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| PEAK DAILY VALUES FOR YEARS                                  |          |             |         | 1 THROUGH | 30 | and their dates (DDDDYYYY) |
|--------------------------------------------------------------|----------|-------------|---------|-----------|----|----------------------------|
|                                                              | (INCHES) | (CU. FT.)   |         |           |    |                            |
| PRECIPITATION                                                | 5.09     | 18476.29728 | 1290008 |           |    |                            |
| RUNOFF                                                       | 2.667    | 9681.04748  | 3620015 |           |    |                            |
| PERCOLATION/LEAKAGE THROUGH LAYER 3                          |          | 0.000023    | 0.08234 | 3440001   |    |                            |
| AVERAGE HEAD ON TOP OF LAYER 2                               | 24.000   |             |         |           |    |                            |
| DRAINAGE COLLECTED FROM LAYER 6                              |          | 0.00000     | 0.00000 | 3440001   |    |                            |
| PERCOLATION/LEAKAGE THROUGH LAYER 7                          |          | 0.000028    | 0.10287 | 3420029   |    |                            |
| AVERAGE HEAD ON TOP OF LAYER 7                               | 0.000    |             |         |           |    |                            |
| MAXIMUM HEAD ON TOP OF LAYER 7                               | 0.000    |             |         |           |    |                            |
| LOCATION OF MAXIMUM HEAD IN LAYER 6<br>(DISTANCE FROM DRAIN) | 0.0 FEET |             |         |           |    |                            |
| DRAINAGE COLLECTED FROM LAYER 9                              |          | 0.00064     | 2.32040 | 40001     |    |                            |
| PERCOLATION/LEAKAGE THROUGH LAYER 11                         |          | 0.000000    | 0.00003 | 40001     |    |                            |
| AVERAGE HEAD ON TOP OF LAYER 10                              | 0.001    |             |         |           |    |                            |
| MAXIMUM HEAD ON TOP OF LAYER 10                              | 0.002    |             |         |           |    |                            |

D6-B-165

Technically Complete October 28, 2014

## Case 6 (Continued)

LOCATION OF MAXIMUM HEAD IN LAYER 9  
(DISTANCE FROM DRAIN) 0.0 FEET

SNOW WATER 1.95 7072.4948 3430003

MAXIMUM VEG. SOIL WATER (VOL/VOL) 0.4570

MINIMUM VEG. SOIL WATER (VOL/VOL) 0.0580

\*\*\* Maximum heads are computed using McEnroe's equations. \*\*\*

Reference: Maximum Saturated Depth over Landfill Liner  
by Bruce M. McEnroe, University of Kansas  
ASCE Journal of Environmental Engineering  
Vol. 119, No. 2, March 1993, pp. 262-270.

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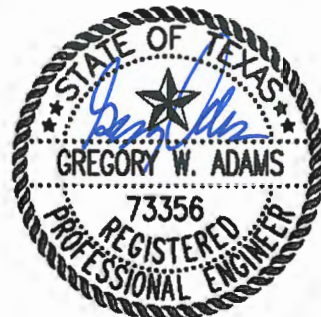
FINAL WATER STORAGE AT END OF YEAR 30

| LAYER      | (INCHES) | (VOL/VOL) |
|------------|----------|-----------|
| 1          | 9.4452   | 0.3935    |
| 2          | 0.0000   | 0.0000    |
| 3          | 7.6860   | 0.4270    |
| 4          | 1.5720   | 0.1310    |
| 5          | 676.2720 | 0.2920    |
| 6          | 7.0080   | 0.2920    |
| 7          | 0.4099   | 0.4270    |
| 8          | 9.4339   | 0.4095    |
| 9          | 0.0019   | 0.0102    |
| 10         | 0.0000   | 0.0000    |
| 11         | 11.4000  | 0.4750    |
| SNOW WATER | 0.000    |           |

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**130 ENVIRONMENTAL PARK**

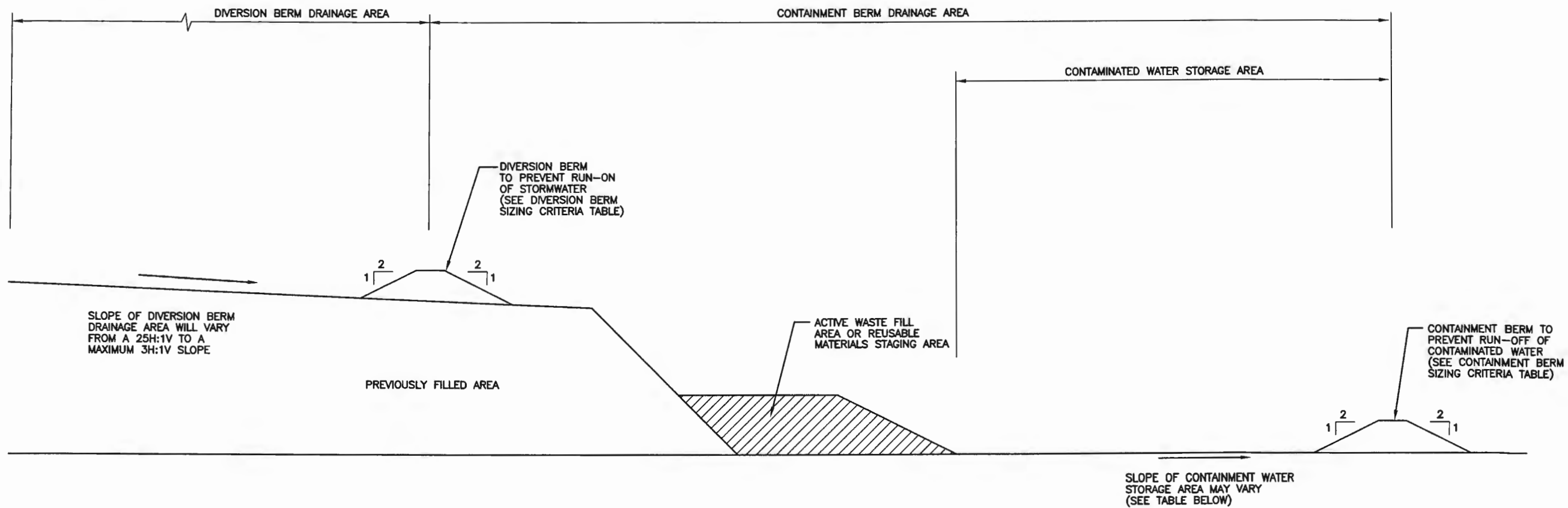
**APPENDIX D6-C**  
**CONTAINMENT/DIVERSION BERM DESIGN**



Biggs & Mathews Environmental, Inc.  
Firm Registration No. F-256

Includes pages D6-C-1 through D6-C-3

Technically Complete October 28, 2014

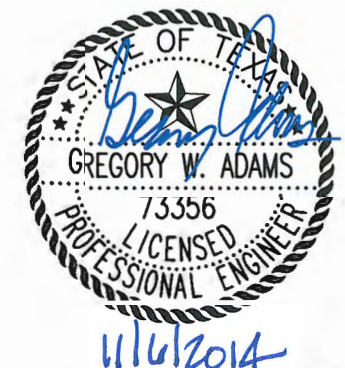


| CONTAINMENT BERM SIZING CRITERIA       |                                        |                                                |                                                  |
|----------------------------------------|----------------------------------------|------------------------------------------------|--------------------------------------------------|
| CONTAINMENT BERM DRAINAGE AREA (ACRES) | CONTAINMENT WATER STORAGE AREA (ACRES) | FLOOR SLOPE OF CONTAMINATED WATER STORAGE AREA | REQUIRED MINIMUM HEIGHT OF CONTAINMENT BERM (FT) |
| 0.5                                    | 0.35                                   | 1 %                                            | 2.2                                              |
|                                        | 0.25                                   | 2 %                                            | 3.1                                              |
|                                        | 0.20                                   | 4 %                                            | 4.0                                              |
| 1.0                                    | 0.50                                   | 1 %                                            | 2.9                                              |
|                                        | 0.35                                   | 2 %                                            | 4.0                                              |
|                                        | 0.25                                   | 4 %                                            | 5.7                                              |
| 1.5                                    | 0.60                                   | 1 %                                            | 3.5                                              |
|                                        | 0.40                                   | 2 %                                            | 4.9                                              |
|                                        | 0.30                                   | 4 %                                            | 6.6                                              |

NOTE: CONTAINMENT BERMS WILL BE SIZED TO CONTAIN STORMWATER FROM THE 25 YEAR, 24 HOUR STORM EVENT. THE CRITERIA ARE BASED ON A MINIMUM DOWNSLOPE CONTAINMENT BERM LENGTH OF 100 FEET AND A FREEBOARD OF 0.5 FT.

| DIVERSION BERM SIZING CRITERIA       |                 |                 |                                             |                 |                 |                                             |
|--------------------------------------|-----------------|-----------------|---------------------------------------------|-----------------|-----------------|---------------------------------------------|
| DIVERSION BERM DRAINAGE AREA (ACRES) | MINIMUM 4%      |                 |                                             | MAXIMUM 33%     |                 |                                             |
|                                      | FLOW RATE (CFS) | FLOW DEPTH (FT) | REQUIRED MINIMUM DIVERSION BERM HEIGHT (FT) | FLOW RATE (CFS) | FLOW DEPTH (FT) | REQUIRED MINIMUM DIVERSION BERM HEIGHT (FT) |
| 0.5                                  | 3.8             | 0.5             | 1.5                                         | 3.8             | 0.9             | 1.9                                         |
| 1.0                                  | 7.6             | 0.6             | 1.6                                         | 7.6             | 1.2             | 2.2                                         |
| 1.5                                  | 11.3            | 0.7             | 1.7                                         | 11.3            | 1.4             | 2.4                                         |

NOTE: DIVERSION BERMS WILL BE SIZED TO DIVERT STORMWATER FROM THE 25 YEAR, 24 HOUR STORM EVENT AND A FREEBOARD OF 1 FT.



|                                                                                    |                                                                                                       |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>CONTAMINATED WATER RUNON/RUNOFF DETAILS</b>                                     |                                                                                                       |
| 130 ENVIRONMENTAL PARK, LLC<br>130 ENVIRONMENTAL PARK<br>TYPE I PERMIT APPLICATION |                                                                                                       |
|                                                                                    | BIGGS & MATHEWS<br>ENVIRONMENTAL<br>CONSULTING ENGINEERS<br>MANSFIELD • WICHITA FALLS<br>817-563-1144 |
| ISSUED FOR PERMITTING PURPOSES ONLY                                                |                                                                                                       |
| TBPE FIRM NO. F-256 TBPG FIRM NO. 50222                                            |                                                                                                       |
| DSN. GWA                                                                           | DATE : 1/12                                                                                           |
| DWN. GLW                                                                           | SCALE : GRAPHIC                                                                                       |
| CHK. GWA                                                                           | DWG : D6_C1.dwg                                                                                       |
| DRAWING<br><b>D6-C.1</b>                                                           |                                                                                                       |

| REVISIONS |          |                      |        |        |        |        |
|-----------|----------|----------------------|--------|--------|--------|--------|
| REV       | DATE     | DESCRIPTION          | DWN BY | DES BY | CHK BY | APP BY |
| -         | 10/28/14 | TECHNICALLY COMPLETE | GLW    | GWA    | GWA    | GWA    |