

DUCKWORTH SLOPE LINER

Slope Stability Analysis - Rapid Drawdown

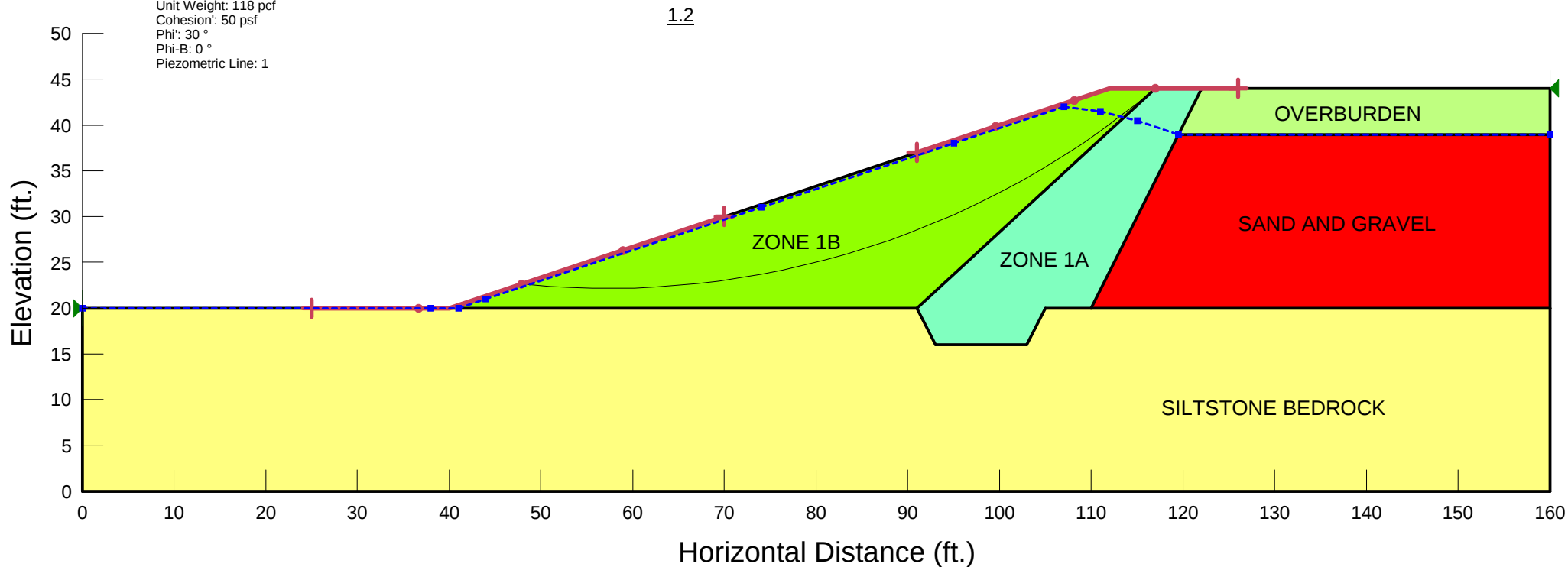
Name: Siltstone Bedrock
Model: Mohr-Coulomb
Unit Weight: 117 pcf
Cohesion: 250 psf
Phi: 30 °
Phi-B: 0 °
Piezometric Line: 1

Name: Overburden
Model: Mohr-Coulomb
Unit Weight: 114 pcf
Cohesion: 0 psf
Phi: 30 °
Phi-B: 0 °
Piezometric Line: 1

Name: Sand and Gravel
Model: Mohr-Coulomb
Unit Weight: 122 pcf
Cohesion: 0 psf
Phi: 38 °
Phi-B: 0 °
Piezometric Line: 1

Name: Zone 1A
Model: Mohr-Coulomb
Unit Weight: 118 pcf
Cohesion: 100 psf
Phi: 26 °
Phi-B: 0 °
Piezometric Line: 1

Name: Zone 1B
Model: Mohr-Coulomb
Unit Weight: 118 pcf
Cohesion: 50 psf
Phi: 30 °
Phi-B: 0 °
Piezometric Line: 1



Slope Stability Rapid Drawdown

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File Information

Title: [Duckworth Slope Liner Seepage and Stability Analysis](#)
Created By: [del Monte, Fernando](#)
Last Edited By: [del Monte, Fernando](#)
Revision Number: [100](#)
File Version: [8.0](#)
Tool Version: [8.0.2.5675](#)
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Time: [2:35:06 PM](#)
File Name: [Duckworth Seep and Slope Analysis.gsz](#)
Directory: [P:\24097\133-24097-14003\SupportDocs\Calcs\Geostudio\](#)

Project Settings

Length(L) Units: [feet](#)
Time(t) Units: [Seconds](#)
Force(F) Units: [lbf](#)
Pressure(p) Units: [psf](#)
Strength Units: [psf](#)
Unit Weight of Water: [62.4 pcf](#)
View: [2D](#)
Element Thickness: [1](#)

Analysis Settings

Slope Stability Rapid Drawdown

Kind: [SLOPE/W](#)

Method: [Spencer](#)

Settings

Lambda

Lambda 1: [-1](#)
Lambda 2: [-0.8](#)
Lambda 3: [-0.6](#)
Lambda 4: [-0.4](#)
Lambda 5: [-0.2](#)
Lambda 6: [0](#)
Lambda 7: [0.2](#)
Lambda 8: [0.4](#)
Lambda 9: [0.6](#)
Lambda 10: [0.8](#)

Lambda 11: 1
PWP Conditions Source: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: No
Tension Crack
Tension Crack Option: (none)
F of S Distribution
F of S Calculation Option: Constant
Advanced
Number of Slices: 30
F of S Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 ft
Optimization Maximum Iterations: 2,000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

Siltstone Bedrock

Model: Mohr-Coulomb
Unit Weight: 117 pcf
Cohesion': 250 psf
Phi': 30 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Overburden

Model: Mohr-Coulomb
Unit Weight: 114 pcf
Cohesion': 0 psf
Phi': 30 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand and Gravel

Model: [Mohr-Coulomb](#)
Unit Weight: [122 pcf](#)
Cohesion': [0 psf](#)
Phi': [38 °](#)
Phi-B: [0 °](#)
Pore Water Pressure
Piezometric Line: [1](#)

Zone 1A

Model: [Mohr-Coulomb](#)
Unit Weight: [118 pcf](#)
Cohesion': [100 psf](#)
Phi': [26 °](#)
Phi-B: [0 °](#)
Pore Water Pressure
Piezometric Line: [1](#)

Zone 1B

Model: [Mohr-Coulomb](#)
Unit Weight: [118 pcf](#)
Cohesion': [50 psf](#)
Phi': [30 °](#)
Phi-B: [0 °](#)
Pore Water Pressure
Piezometric Line: [1](#)

Slip Surface Entry and Exit

Left Projection: [Range](#)
Left-Zone Left Coordinate: [\(25, 20\) ft](#)
Left-Zone Right Coordinate: [\(70, 30\) ft](#)
Left-Zone Increment: [4](#)
Right Projection: [Range](#)
Right-Zone Left Coordinate: [\(91, 37\) ft](#)
Right-Zone Right Coordinate: [\(126, 44\) ft](#)
Right-Zone Increment: [4](#)
Radius Increments: [4](#)

Slip Surface Limits

Left Coordinate: [\(0, 20\) ft](#)
Right Coordinate: [\(160, 44\) ft](#)

Piezometric Lines

Piezometric Line 1

Coordinates

	X (ft)	Y (ft)
Coordinate 1	0	20
Coordinate 2	38	20
Coordinate 3	41	20
Coordinate 4	44	21
Coordinate 5	74	31
Coordinate 6	95	38
Coordinate 7	107	42
Coordinate 8	111	41.5
Coordinate 9	115	40.5
Coordinate 10	119.5	39
Coordinate 11	160	39

Points

	X (ft)	Y (ft)
Point 1	0	0
Point 2	0	20
Point 3	40	20
Point 4	91	20
Point 5	93	16
Point 6	103	16
Point 7	105	20
Point 8	110	20
Point 9	160	20
Point 10	160	0
Point 11	112	44
Point 12	117	44
Point 13	122	44
Point 14	119.5	39
Point 15	160	44

Point 16	160	39
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Regions

	Material	Points	Area (ft²)
Region 1	Siltstone Bedrock	1,2,3,4,5,6,7,8,9,10	3,152
Region 2	Zone 1B	3,11,12,4	672
Region 3	Zone 1A	12,13,14,8,7,6,5,4	336
Region 4	Overburden	13,15,16,14	196.25
Region 5	Sand and Gravel	16,14,8,9	859.75