ANÁLISIS DE ESTABILIDAD FÍSICA DE TALUDES
CANTERA N° 5

Análisis Estático

Slide Analysis Information

SLIDE - An Interactive Slope Stability Program

Project Summary

- File Name: Cantera_02.slim
- Slide Modeler Version: 6.02
- Project Title: SLIDE - An Interactive Slope Stability Program
- Date Created: 27/02/2015, 10:11:48 a.m.

General Settings

- Units of Measurement: Metric Units
- Time Units: days
- Permeability Units: meters/second
- Failure Direction: Right to Left
- Data Output: Standard
- Maximum Material Properties: 20
- Maximum Support Properties: 20
**Analysis Options**

**Analysis Methods Used**
- Bishop simplified
- Janbu simplified

- Number of slices: 25
- Tolerance: 0.005
- Maximum number of iterations: 50
- Check $\alpha < 0.2$: Yes
- Initial trial value of FS: 1
- Steffensen Iteration: Yes

**Groundwater Analysis**

- Groundwater Method: Water Surfaces
- Pore Fluid Unit Weight: 9.81 kN/m\(^3\)
- Advanced Groundwater Method: None

**Random Numbers**

- Pseudo-random Seed: 10116
- Random Number Generation Method: Park and Miller v.3

**Surface Options**

- Surface Type: Circular
- Search Method: Grid Search
- Radius Increment: 10
- Composite Surfaces: Disabled
- Reverse Curvature: Create Tension Crack
- Minimum Elevation: Not Defined
- Minimum Depth: Not Defined

**Material Properties**
### Análisis de Estabilidad de Taludes

#### Property Agregados

<table>
<thead>
<tr>
<th>Property</th>
<th>Agregados</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
</tr>
<tr>
<td>Strength Type</td>
<td>Mohr-Coulomb</td>
</tr>
<tr>
<td>Unit Weight [kN/m3]</td>
<td>26.509</td>
</tr>
<tr>
<td>Cohesion [kPa]</td>
<td>0.01</td>
</tr>
<tr>
<td>Friction Angle [deg]</td>
<td>39.5</td>
</tr>
<tr>
<td>Water Surface</td>
<td>None</td>
</tr>
<tr>
<td>Ru Value</td>
<td>0</td>
</tr>
</tbody>
</table>

### Global Minimums

#### Method: bishop simplified

- FS: 3.597630
- Center: 75.630, 103.038
- Radius: 63.473
- Left Slip Surface Endpoint: 68.211, 40.000
- Right Slip Surface Endpoint: 102.100, 45.348
- Resisting Moment=47957.7 kN-m
- Driving Moment=13330.4 kN-m
- Total Slice Area=35.2451 m²

#### Method: janbu simplified

- FS: 3.562900
- Center: 75.630, 103.038
- Radius: 63.473
- Left Slip Surface Endpoint: 68.211, 40.000
- Right Slip Surface Endpoint: 102.100, 45.348
- Resisting Horizontal Force=731.395 kN
- Driving Horizontal Force=205.281 kN
- Total Slice Area=35.2451 m²

### Valid / Invalid Surfaces

#### Method: bishop simplified

- Number of Valid Surfaces: 3927
• Number of Invalid Surfaces: 924

**Error Codes:**

- Error Code -101 reported for 64 surfaces
- Error Code -103 reported for 365 surfaces
- Error Code -1000 reported for 495 surfaces

**Method:Janbu simplified**

• Number of Valid Surfaces: 3920
• Number of Invalid Surfaces: 931

**Error Codes:**

- Error Code -101 reported for 64 surfaces
- Error Code -103 reported for 365 surfaces
- Error Code -108 reported for 7 surfaces
- Error Code -1000 reported for 495 surfaces

**Error Codes**

*The following errors were encountered during the computation:*

- -101 = Only one (or zero) surface / slope intersections.
- -103 = Two surface / slope intersections, but one or more surface / nonslope external polygon intersections lie between them. This usually occurs when the slip surface extends past the bottom of the soil region, but may also occur on a benched slope model with two sets of Slope Limits.
- -108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
- -1000 = No valid slip surfaces are generated at a grid center. Unable to draw a surface.
Análisis de Estabilidad de Taludes Arenera San Martín de Porras S.A.

Análisis Pseudoestático

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Analysis Options
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- Bishop simplified
- Janbu simplified

- Number of slices: 25
- Tolerance: 0.005
- Maximum number of iterations: 50
- Check malpha < 0.2: Yes
- Initial trial value of FS: 1
- Steffensen Iteration: Yes

**Groundwater Analysis**

- Groundwater Method: Water Surfaces
- Pore Fluid Unit Weight: 9.81 kN/m³
- Advanced Groundwater Method: None

**Random Numbers**

- Pseudo-random Seed: 10116
- Random Number Generation Method: Park and Miller v.3

**Surface Options**

- Surface Type: Circular
- Search Method: Grid Search
- Radius Increment: 10
- Composite Surfaces: Disabled
- Reverse Curvature: Create Tension Crack
- Minimum Elevation: Not Defined
- Minimum Depth: Not Defined

**Loading**

- Seismic Load Coefficient (Horizontal): 0.23
Material Properties

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<tr>
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<td>0</td>
</tr>
</tbody>
</table>

Global Minimums

Method: bishop simplified
- FS: 1.727470
- Center: 75.630, 103.038
- Radius: 63.473
- Left Slip Surface Endpoint: 68.211, 40.000
- Right Slip Surface Endpoint: 102.100, 45.348
- Resisting Moment=45512.8 kN-m
- Driving Moment=26346.5 kN-m
- Total Slice Area=35.2451 m²

Method: janbu simplified
- FS: 1.704210
- Center: 75.630, 103.038
- Radius: 63.473
- Left Slip Surface Endpoint: 68.211, 40.000
- Right Slip Surface Endpoint: 102.100, 45.348
- Resisting Horizontal Force=693.891 kN
- Driving Horizontal Force=407.163 kN
- Total Slice Area=35.2451 m²

Valid / Invalid Surfaces
Method: bishop simplified

- Number of Valid Surfaces: 3927
- Number of Invalid Surfaces: 924

Error Codes:

- Error Code -101 reported for 64 surfaces
- Error Code -103 reported for 365 surfaces
- Error Code -1000 reported for 495 surfaces

Method: janbu simplified

- Number of Valid Surfaces: 3918
- Number of Invalid Surfaces: 933

Error Codes:

- Error Code -101 reported for 64 surfaces
- Error Code -103 reported for 365 surfaces
- Error Code -108 reported for 9 surfaces
- Error Code -1000 reported for 495 surfaces

Error Codes

The following errors were encountered during the computation:

- -101 = Only one (or zero) surface / slope intersections.
- -103 = Two surface / slope intersections, but one or more surface / nonslope external polygon intersections lie between them. This usually occurs when the slip surface extends past the bottom of the soil region, but may also occur on a benched slope model with two sets of Slope Limits.
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