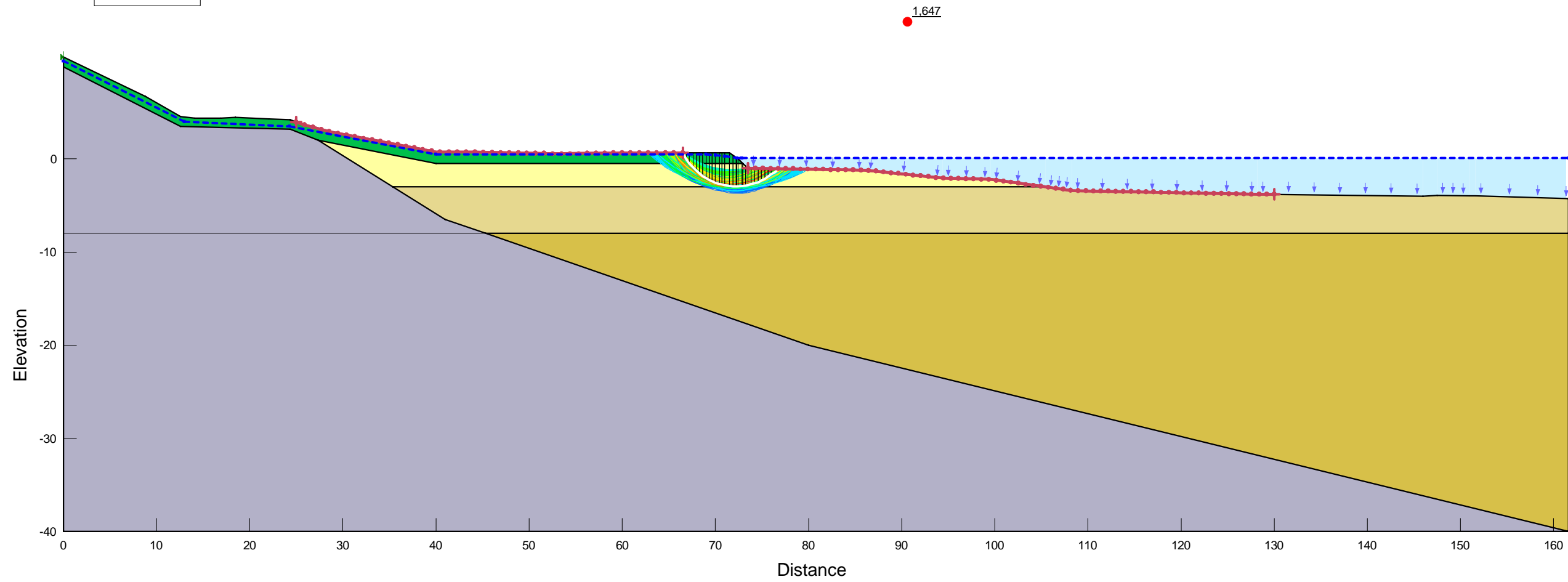
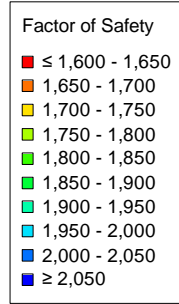


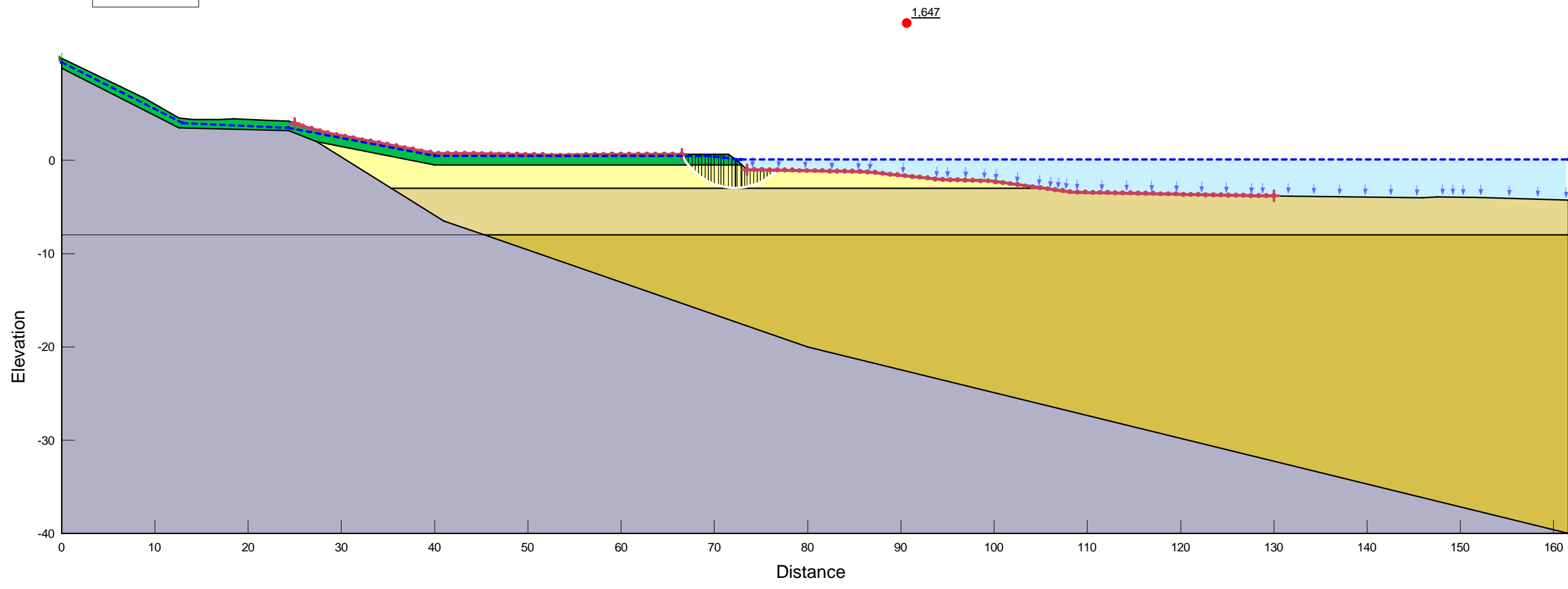
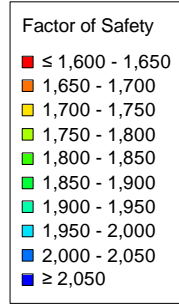
Title: Gamleby Hamn, section A odränerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)

Color	Name	Unit Weight (kN/m <sup>3</sup> )	C-Datum (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	C-Maximum (kPa)	Datum (Elevation) (m)	Cohesion (kPa)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20						0	32	0	18	1
■	Gyttja	12,5					6					1
■	Lera ovan -10	14					9					1
■	Lera under -10	14	9	2	50	-10						1
■	Morän	22						0	35	0	20	1



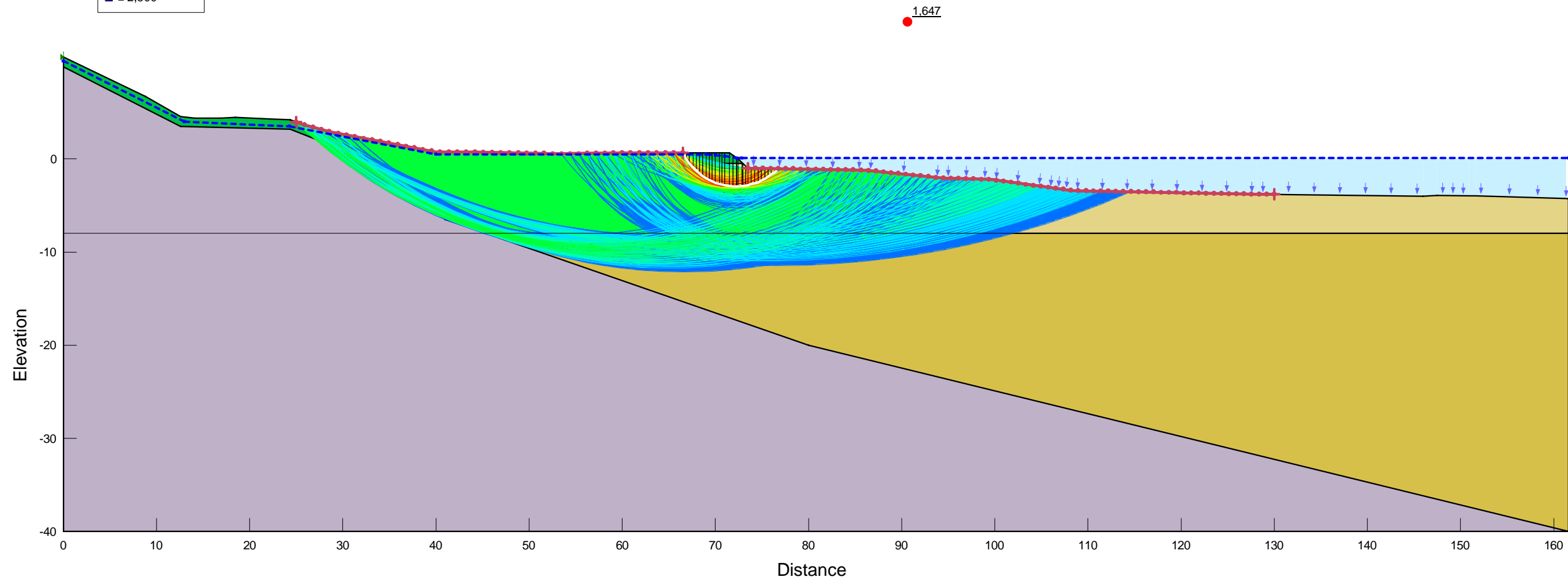
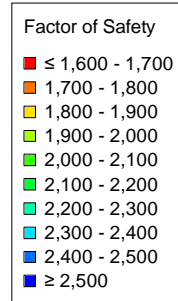
Title: Gamleby Hamn, section A odränerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)

Color	Name	Unit Weight (kN/m <sup>3</sup> )	C-Datum (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	C-Maximum (kPa)	Datum (Elevation) (m)	Cohesion (kPa)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20						0	32	0	18	1
■	Gyttja	12,5					6					1
■	Lera ovan -10	14					9					1
■	Lera under -10	14	9	2	50	-10						1
■	Morän	22						0	35	0	20	1



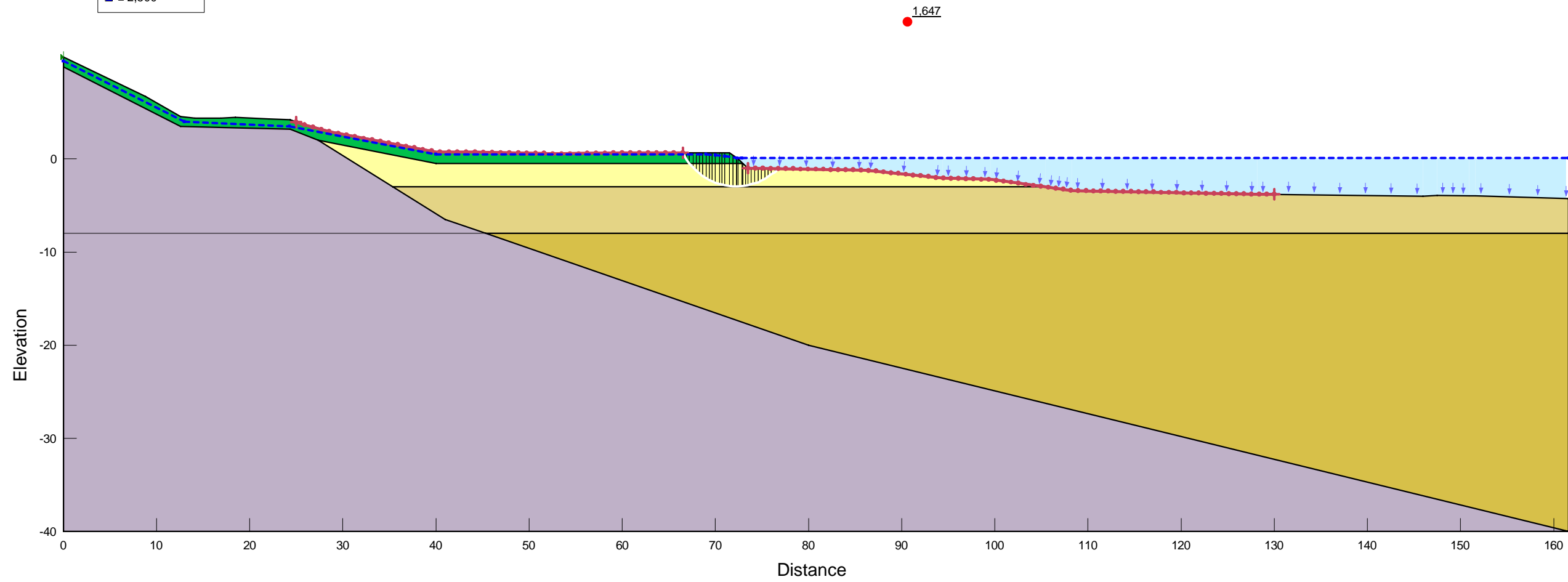
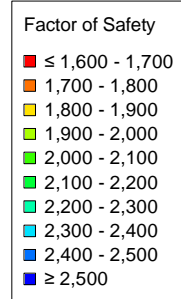
Title: Gamleby Hamn, section A kombinerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)

Color	Name	Unit Weight (kN/m <sup>3</sup> )	Cohesion' (kPa)	Phi' (°)	C-Datum (kPa)	Cu-Datum (kPa)	Cu-Rate of Change ((kN/m <sup>2</sup> )/m)	C/Cu Ratio	Datum (Elevation) (m)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20	0	32						0	18	1
■	Gyttja	12,5		20	0,6	6	0					1
■	Lera ovan -10	14		25	0,9	10	0					1
■	Lera under -10	14		25	0,9	9	2	0,1	-10			1
■	Morän	22	0	35						0	20	1



Title: Gamleby Hamn, section A kombinerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)

Color	Name	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	C-Datum (kPa)	Cu-Datum (kPa)	Cu-Rate of Change ((kN/m²)/m)	C/Cu Ratio	Datum (Elevation) (m)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m³)	Piezometric Line
■	Fyllning	20	0	32						0	18	1
■	Gyttja	12,5		20	0,6	6	0					1
■	Lera ovan -10	14		25	0,9	10	0					1
■	Lera under -10	14		25	0,9	9	2	0,1	-10			1
■	Morän	22	0	35						0	20	1



# Gamleby Hamn Sektion A odränerad

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## File Information

File Version: 9.01  
Title: Gamleby Hamn, section A odränerad analys  
Created By: Mattsson, Nina  
Last Edited By: Horndahl, Jacob  
Revision Number: 56  
Date: 2019-09-23  
Time: 11:34:45  
Tool Version: 9.1.1.16749  
File Name: Sektion A\_odrän.gsz  
Directory: O:\JKP\290261\G\\_Berakningar\Slope\Sektion A\  
Last Solved Date: 2019-09-23  
Last Solved Time: 11:35:54

## Project Settings

Unit System: International System of Units (SI)

## Analysis Settings

### Gamleby Hamn Sektion A odränerad

Kind: SLOPE/W

Method: Morgenstern-Price

#### Settings

##### Side Function

Interslice force function option: Half-Sine

PWP Conditions from: Piezometric Line

Apply Phreatic Correction: No

Use Staged Rapid Drawdown: No

Unit Weight of Water: 9,807 kN/m<sup>3</sup>

#### Slip Surface

Direction of movement: Left to Right

Use Passive Mode: No

Slip Surface Option: Entry and Exit

Critical slip surfaces saved: 1

Optimize Critical Slip Surface Location: No

Tension Crack Option: (none)

#### Distribution

F of S Calculation Option: Constant

#### Advanced

##### Geometry Settings

Minimum Slip Surface Depth: 0,1 m

Number of Slices: 30

##### Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0,001

##### Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

## Materials

### Fyllning

Model: Mohr-Coulomb  
Unit Weight: 20 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 32 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 18 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

### Gyttja

Model: Undrained (Phi=0)  
Unit Weight: 12,5 kN/m<sup>3</sup>  
Cohesion: 6 kPa  
Pore Water Pressure  
Piezometric Line: 1

### Lera ovan -10

Model: Undrained (Phi=0)  
Unit Weight: 14 kN/m<sup>3</sup>  
Cohesion: 9 kPa  
Pore Water Pressure  
Piezometric Line: 1

### Lera under -10

Model: S=f(datum)  
Unit Weight: 14 kN/m<sup>3</sup>  
C-Datum: 9 kPa  
C-Rate of Change: 2 (kN/m<sup>2</sup>)/m  
C-Maximum: 50 kPa  
Datum (Elevation): -10 m  
Pore Water Pressure  
Piezometric Line: 1

### Morän

Model: Mohr-Coulomb  
Unit Weight: 22 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 35 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 20 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

## Slip Surface Entry and Exit

Left Type: Range  
Left-Zone Left Coordinate: (25; 3,95578) m  
Left-Zone Right Coordinate: (66,5; 0,662841) m  
Left-Zone Increment: 45  
Right Type: Range  
Right-Zone Left Coordinate: (73,5; -0,997511) m  
Right-Zone Right Coordinate: (130; -3,813968) m  
Right-Zone Increment: 70  
Radius Increments: 8

## Slip Surface Limits

Left Coordinate: (0; 10,92594) m

Right Coordinate: (161,59307; -4,24846) m

## Piezometric Lines

### Piezometric Line 1

#### Coordinates

	X	Y
Coordinate 1	0 m	10,5 m
Coordinate 2	13 m	4 m
Coordinate 3	24,3 m	3,5 m
Coordinate 4	40 m	0,5 m
Coordinate 5	69 m	0,5 m
Coordinate 6	70 m	0,4 m
Coordinate 7	71 m	0,3 m
Coordinate 8	72,3 m	0,12 m
Coordinate 9	72,84 m	0,12 m
Coordinate 10	161,59 m	0,12 m

## Points

	X	Y
Point 1	0 m	10,92594 m
Point 2	8,77564 m	6,68738 m
Point 3	12,62496 m	4,52682 m
Point 4	14,11846 m	4,40254 m
Point 5	16,89119 m	4,38054 m
Point 6	18,44643 m	4,43116 m
Point 7	22,06688 m	4,32064 m
Point 8	24,33356 m	4,19252 m
Point 9	25,72052 m	3,69983 m
Point 10	28,70548 m	2,8917 m
Point 11	30,67998 m	2,51635 m
Point 12	39,99278 m	0,75769 m
Point 13	44,0794 m	0,72768 m
Point 14	52,64962 m	0,55652 m
Point 15	56,22862 m	0,57662 m
Point 16	59,81523 m	0,65161 m
Point 17	70,43937 m	0,66946 m
Point 18	71,5 m	0,67282 m
Point 19	72,44182 m	0 m
Point 20	73,50264 m	-1 m
Point 21	86,05555 m	-1,19372 m
Point 22	94,41746 m	-2,05378 m
Point 23	99,5339 m	-2,2151 m
Point 24	108,27675 m	-3,38427 m
Point 25	128,17989 m	-3,79278 m
Point 26	145,93188 m	-3,99943 m
Point 27	147,48042 m	-3,90317 m
Point 28	150,9243 m	-3,96608 m
Point 29	151,6227 m	-3,94238 m
Point 30	161,59307 m	-4,24846 m

Point 31	161,59307 m	-40 m
Point 32	0 m	-40 m
Point 33	27,33356 m	2 m
Point 34	39,99278 m	-0,5 m
Point 35	24,33356 m	3,2 m
Point 36	12,62496 m	3,5 m
Point 37	0 m	9,9 m
Point 38	41 m	-6,5 m
Point 39	80 m	-20 m
Point 40	72,97223 m	-0,5 m
Point 41	161,59307 m	-3 m
Point 42	105,40325 m	-3,000001 m
Point 43	35,37264 m	-2,999999 m
Point 44	45,33 m	-7,998846 m
Point 45	161,59307 m	-7,99 m

## Regions

	Material	Points	Area
Region 1	Lera ovan -10	30;29;28;27;26;25;24;42;43;38;44;45	564,46 m <sup>2</sup>
Region 2	Fyllning	1;37;36;35;33;34;40;19;18;17;16;15;14;13;12;11;10;9;8;7;6;5;4;3;2	82,017 m <sup>2</sup>
Region 3	Morän	37;32;31;39;44;38;43;33;35;36	3 600 m <sup>2</sup>
Region 4	Gyttja	33;43;42;23;22;21;20;40;34	153,15 m <sup>2</sup>
Region 5	Lera under -10	44;39;31;45	2 003,7 m <sup>2</sup>

## Slip Results

Slip Surfaces Analysed: 26978 of 29394 converged

## Current Slip Surface

Slip Surface: 28 797

Factor of Safety: 1,647

Volume: 21,337539 m<sup>3</sup>

Weight: 312,03868 kN

Resisting Moment: 434,45634 kN·m

Activating Moment: 263,88333 kN·m

Resisting Force: 59,180652 kN

Activating Force: 35,924824 kN

Slip Rank: 1 of 29 394 slip surfaces

Exit: (76,7347; -1,0498781) m

Entry: (66,5; 0,66284132) m

Radius: 6,3483731 m

Center: (72,221106; 3,4143475) m

## Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	66,540605 m	0,58142066 m	-0,79849243 kPa	0,83131162 kPa	0,51946115 kPa	0 kPa	0 kPa	Fyllning
Slice 2	66,741692 m	0,22434476 m	2,7033509 kPa	6,1557682 kPa	2,1573098 kPa	0 kPa	0 kPa	Fyllning
Slice 3	67,062653 m	-0,27565524 m	7,6068509 kPa	14,467751 kPa	4,2871659 kPa	0 kPa	0 kPa	Fyllning
Slice 4	67,400821 m	-0,70778103 m	11,844709 kPa	20,567764 kPa	0 kPa	6 kPa	0 kPa	Gyttja



Slice 5	67,756194 m	-1,0916293 m	15,609109 kPa	25,63675 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 6	68,111567 m	-1,418781 m	18,817485 kPa	29,913225 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 7	68,46694 m	-1,7002881 m	21,578225 kPa	33,609829 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 8	68,822313 m	-1,9434292 m	23,96271 kPa	36,859379 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 9	69,166667 m	-2,1476743 m	25,802292 kPa	39,613068 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 10	69,5 m	-2,3183121 m	27,148837 kPa	41,997326 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 11	69,833333 m	-2,4651102 m	28,261586 kPa	44,070026 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 12	70,219685 m	-2,6058318 m	29,262748 kPa	46,353332 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 13	70,579527 m	-2,7163954 m	29,994147 kPa	48,19403 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 14	70,859842 m	-2,7847017 m	30,389122 kPa	49,469665 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 15	71,25 m	-2,8542085 m	30,59385 kPa	50,953256 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 16	71,691889 m	-2,9089974 m	30,531128 kPa	49,885765 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 17	72,075666 m	-2,9294564 m	30,210641 kPa	45,818329 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 18	72,283777 m	-2,9336955 m	29,969621 kPa	43,537595 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 19	72,37091 m	-2,9318615 m	29,929606 kPa	43,03633 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 20	72,64091 m	-2,9169869 m	29,78373 kPa	41,026568 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 21	72,906115 m	-2,8966098 m	29,583892 kPa	38,767448 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 22	73,104833 m	-2,8707888 m	29,330666 kPa	37,841592 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 23	73,370037 m	-2,827737 m	28,908457 kPa	37,072046 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 24	73,682199 m	-2,760845 m	28,252447 kPa	35,537193 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 25	74,041317 m	-2,6645951 m	27,308524 kPa	34,637103 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 26	74,400435 m	-2,5451673 m	26,137295 kPa	33,372882 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 27	74,759552 m	-2,4011274 m	24,724696 kPa	31,727426 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 28	75,11867 m	-2,2305819 m	23,052157 kPa	29,684234 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 29	75,477788 m	-2,0310259 m	21,095111 kPa	27,226866 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 30	75,836906 m	-1,7991048 m	18,820661 kPa	24,337775 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 31	76,196024 m	-1,5302249 m	16,183755 kPa	20,99631 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 32	76,555141 m	-1,2178782 m	13,120571 kPa	17,175564 kPa	0 kPa	6 kPa	0 kPa	Gyttja

# Gamleby Hamn Sektion A kombinerad analys

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## File Information

File Version: 9.01  
Title: Gamleby Hamn, section A kombinerad analys  
Created By: Mattsson, Nina  
Last Edited By: Horndahl, Jacob  
Revision Number: 51  
Date: 2019-09-23  
Time: 11:22:27  
Tool Version: 9.1.1.16749  
File Name: Sektion A\_komb.gsz  
Directory: O:\JKP\290261\G\\_Berakningar\Slope\Sektion A\  
Last Solved Date: 2019-09-23  
Last Solved Time: 11:36:44

## Project Settings

Unit System: International System of Units (SI)

## Analysis Settings

### Gamleby Hamn Sektion A kombinerad analys

Kind: SLOPE/W

Method: Morgenstern-Price

#### Settings

##### Side Function

Interslice force function option: Half-Sine

PWP Conditions from: Piezometric Line

Apply Phreatic Correction: No

Use Staged Rapid Drawdown: No

Unit Weight of Water: 9,807 kN/m<sup>3</sup>

#### Slip Surface

Direction of movement: Left to Right

Use Passive Mode: No

Slip Surface Option: Entry and Exit

Critical slip surfaces saved: 1

Optimize Critical Slip Surface Location: No

Tension Crack Option: (none)

#### Distribution

F of S Calculation Option: Constant

#### Advanced

##### Geometry Settings

Minimum Slip Surface Depth: 0,1 m

Number of Slices: 30

##### Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0,001

##### Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

## Materials

### Fyllning

Model: Mohr-Coulomb  
 Unit Weight: 20 kN/m<sup>3</sup>  
 Cohesion: 0 kPa  
 Phi': 32 °  
 Phi-B: 0 °  
 Constant Unit Wt. Above Water Table: 18 kN/m<sup>3</sup>  
 Pore Water Pressure  
 Piezometric Line: 1

### Gyttja

Model: Combined, S=f(datum)  
 Unit Weight: 12,5 kN/m<sup>3</sup>  
 Phi': 20 °  
 C-Datum: 0,6 kPa  
 Cu-Datum: 6 kPa  
 Cu-Rate of Change: 0 (kN/m<sup>2</sup>)/m  
 Pore Water Pressure  
 Piezometric Line: 1

### Lera ovan -10

Model: Combined, S=f(datum)  
 Unit Weight: 14 kN/m<sup>3</sup>  
 Phi': 25 °  
 C-Datum: 0,9 kPa  
 Cu-Datum: 10 kPa  
 Cu-Rate of Change: 0 (kN/m<sup>2</sup>)/m  
 Pore Water Pressure  
 Piezometric Line: 1

### Lera under -10

Model: Combined, S=f(datum)  
 Unit Weight: 14 kN/m<sup>3</sup>  
 Phi': 25 °  
 C-Datum: 0,9 kPa  
 Cu-Datum: 9 kPa  
 Cu-Rate of Change: 2 (kN/m<sup>2</sup>)/m  
 C/Cu Ratio: 0,1  
 Datum (Elevation): -10 m  
 Pore Water Pressure  
 Piezometric Line: 1

### Morän

Model: Mohr-Coulomb  
 Unit Weight: 22 kN/m<sup>3</sup>  
 Cohesion: 0 kPa  
 Phi': 35 °  
 Phi-B: 0 °  
 Constant Unit Wt. Above Water Table: 20 kN/m<sup>3</sup>  
 Pore Water Pressure  
 Piezometric Line: 1

## Slip Surface Entry and Exit

Left Type: Range  
 Left-Zone Left Coordinate: (25; 3,95578) m

Left-Zone Right Coordinate: (66,5; 0,662841) m  
 Left-Zone Increment: 45  
 Right Type: Range  
 Right-Zone Left Coordinate: (73,5; -0,997511) m  
 Right-Zone Right Coordinate: (130; -3,813968) m  
 Right-Zone Increment: 70  
 Radius Increments: 8

## Slip Surface Limits

Left Coordinate: (0; 10,92594) m  
 Right Coordinate: (161,59307; -4,24846) m

## Piezometric Lines

### Piezometric Line 1

#### Coordinates

	X	Y
Coordinate 1	0 m	10,5 m
Coordinate 2	13 m	4 m
Coordinate 3	24,3 m	3,5 m
Coordinate 4	40 m	0,5 m
Coordinate 5	69 m	0,5 m
Coordinate 6	70 m	0,4 m
Coordinate 7	71 m	0,3 m
Coordinate 8	72,3 m	0,12 m
Coordinate 9	72,84 m	0,12 m
Coordinate 10	161,59 m	0,12 m

## Points

	X	Y
Point 1	0 m	10,92594 m
Point 2	8,77564 m	6,68738 m
Point 3	12,62496 m	4,52682 m
Point 4	14,11846 m	4,40254 m
Point 5	16,89119 m	4,38054 m
Point 6	18,44643 m	4,43116 m
Point 7	22,06688 m	4,32064 m
Point 8	24,33356 m	4,19252 m
Point 9	25,72052 m	3,69983 m
Point 10	28,70548 m	2,8917 m
Point 11	30,67998 m	2,51635 m
Point 12	39,99278 m	0,75769 m
Point 13	44,0794 m	0,72768 m
Point 14	52,64962 m	0,55652 m
Point 15	56,22862 m	0,57662 m
Point 16	59,81523 m	0,65161 m
Point 17	70,43937 m	0,66946 m
Point 18	71,5 m	0,67282 m
Point 19	72,44182 m	0 m
Point 20	73,50264 m	-1 m
Point 21	86,05555 m	-1,19372 m

Point 22	94,41746 m	-2,05378 m
Point 23	99,5339 m	-2,2151 m
Point 24	108,27675 m	-3,38427 m
Point 25	128,17989 m	-3,79278 m
Point 26	145,93188 m	-3,99943 m
Point 27	147,48042 m	-3,90317 m
Point 28	150,9243 m	-3,96608 m
Point 29	151,6227 m	-3,94238 m
Point 30	161,59307 m	-4,24846 m
Point 31	161,59307 m	-40 m
Point 32	0 m	-40 m
Point 33	27,33356 m	2 m
Point 34	39,99278 m	-0,5 m
Point 35	24,33356 m	3,2 m
Point 36	12,62496 m	3,5 m
Point 37	0 m	9,9 m
Point 38	41 m	-6,5 m
Point 39	80 m	-20 m
Point 40	72,97223 m	-0,5 m
Point 41	161,59307 m	-3 m
Point 42	105,40325 m	-3,000001 m
Point 43	35,37264 m	-2,999999 m
Point 44	45,33 m	-7,998846 m
Point 45	161,59307 m	-7,99 m

## Regions

	Material	Points	Area
Region 1	Lera ovan -10	30;29;28;27;26;25;24;42;43;38;44;45	564,46 m <sup>2</sup>
Region 2	Fyllning	1;37;36;35;33;34;40;19;18;17;16;15;14;13;12;11;10;9;8;7;6;5;4;3;2	82,017 m <sup>2</sup>
Region 3	Morän	37;32;31;39;44;38;43;33;35;36	3 600 m <sup>2</sup>
Region 4	Gyttja	33;43;42;23;22;21;20;40;34	153,15 m <sup>2</sup>
Region 5	Lera under -10	44;39;31;45	2 003,7 m <sup>2</sup>

## Slip Results

Slip Surfaces Analysed: 26917 of 29394 converged

## Current Slip Surface

Slip Surface: 28 797

Factor of Safety: 1,647

Volume: 21,337539 m<sup>3</sup>

Weight: 312,03868 kN

Resisting Moment: 434,45634 kN·m

Activating Moment: 263,88333 kN·m

Resisting Force: 59,180652 kN

Activating Force: 35,924824 kN

Slip Rank: 1 of 29 394 slip surfaces

Exit: (76,7347; -1,0498781) m

Entry: (66,5; 0,66284132) m

Radius: 6,3483731 m

Center: (72,221106; 3,4143475) m

## Slip Slices

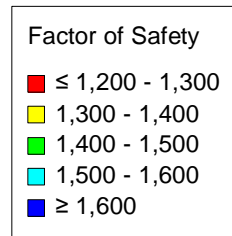
	X	Y	PWP	Base	Frictional	Cohesive	Suction	Base
--	---	---	-----	------	------------	----------	---------	------

2019-09-27

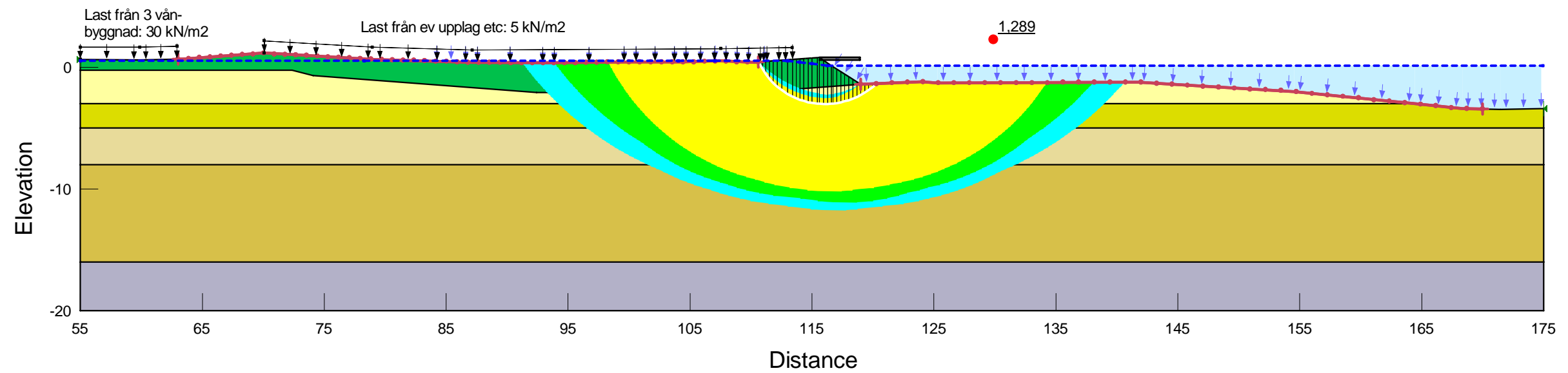
Gamleby Hamn Sektion A kombinerad analys

				Normal Stress	Strength	Strength	Strength	Material
Slice 1	66,540605 m	0,58142066 m	-0,79849243 kPa	0,83131162 kPa	0,51946115 kPa	0 kPa	0 kPa	<input type="checkbox"/>

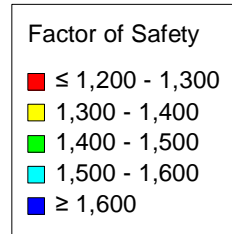
Title: Gamleby Hamn, section B odränerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-27  
 Method: Morgenstern-Price  
 Scale: 1:400 (A3)



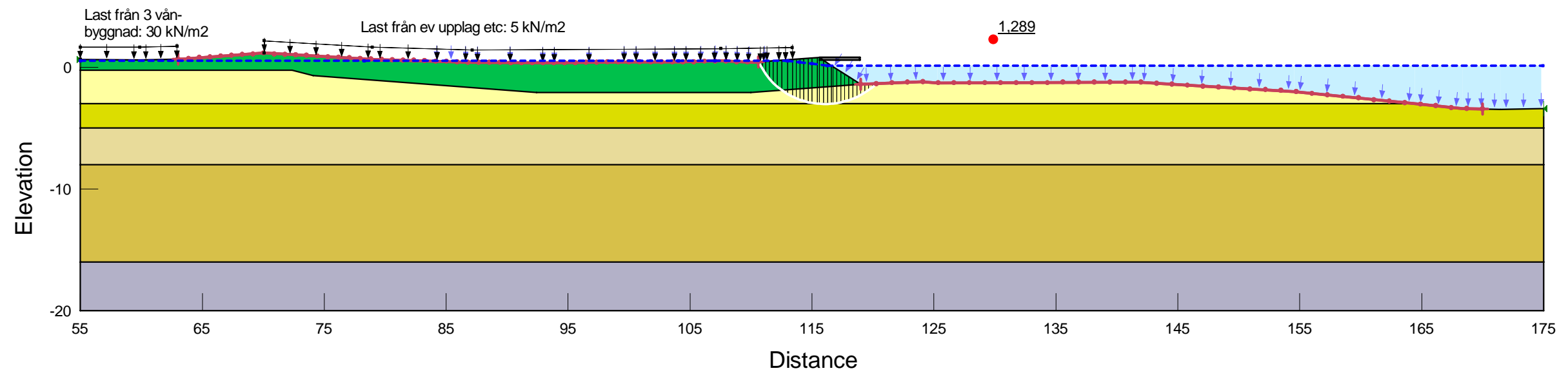
Color	Name	Unit Weight (kN/m <sup>3</sup> )	C-Datum (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	C-Maximum (kPa)	Datum (Elevation) (m)	Cohesion (kPa)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
	Fyllning	20						0	32	0	18	1
	Gyttja	12,5					6					1
	Gyttjig lera	14					9					1
	Lera ovan -10	14					9					1
	Lera under -10	14	9	2	50	-10						1
	Morän	22						0	35	0	20	1



Title: Gamleby Hamn, section B odränerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-27  
 Method: Morgenstern-Price  
 Scale: 1:400 (A3)

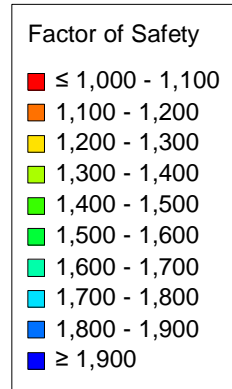


Color	Name	Unit Weight (kN/m <sup>3</sup> )	C-Datum (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	C-Maximum (kPa)	Datum (Elevation) (m)	Cohesion (kPa)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20						0	32	0	18	1
■	Gyttja	12,5					6					1
■	Gyttjig lera	14					9					1
■	Lera ovan -10	14					9					1
■	Lera under -10	14	9	2	50	-10						1
■	Morän	22						0	35	0	20	1

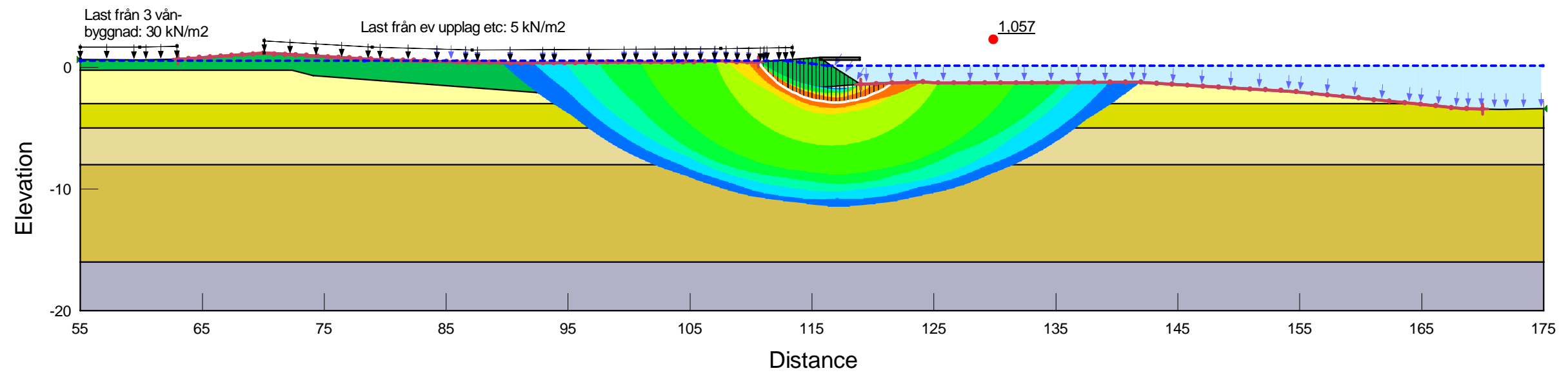




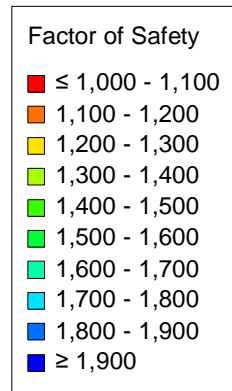
Title: Gamleby Hamn, section B kombinerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-27  
 Method: Morgenstern-Price  
 Scale: 1:400 (A3)



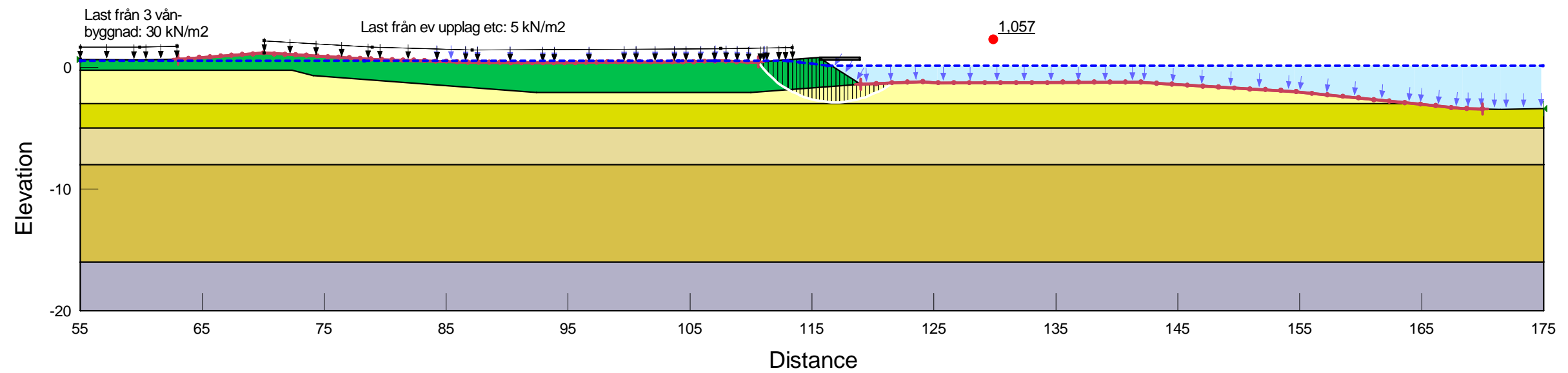
Color	Name	Unit Weight (kN/m <sup>3</sup> )	Cohesion' (kPa)	Phi' (°)	C-Top of Layer (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	Cu-Top of Layer (kPa)	Cu-Rate of Change ((kN/m <sup>2</sup> )/m)	C/Cu Ratio	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20	0	32						0	18	1
■	Gyttja	12,5		20	0,6		6	0	0,1			1
■	Gyttjig lera	14		25	0,9	0	9	0				1
■	Lera ovan -10	14		25	0,9	0	9	0				1
■	Lera under -10	14		25	0,9	0,2	9	2	0,1			1
■	Morän	22	0	35						0	20	1



Title: Gamleby Hamn, section B kombinerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-27  
 Method: Morgenstern-Price  
 Scale: 1:400 (A3)



Color	Name	Unit Weight (kN/m <sup>3</sup> )	Cohesion' (kPa)	Phi' (°)	C-Top of Layer (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	Cu-Top of Layer (kPa)	Cu-Rate of Change ((kN/m <sup>2</sup> )/m)	C/Cu Ratio	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20	0	32						0	18	1
■	Gyttja	12,5		20	0,6		6	0	0,1			1
■	Gyttjig lera	14		25	0,9	0	9	0				1
■	Lera ovan -10	14		25	0,9	0	9	0				1
■	Lera under -10	14		25	0,9	0,2	9	2	0,1			1
■	Morän	22	0	35						0	20	1



# Gamleby Hamn Sektion B odränerad

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## File Information

File Version: 9.01  
Title: Gamleby Hamn, section B odränerad analys  
Created By: Mattsson, Nina  
Last Edited By: Horndahl, Jacob  
Revision Number: 87  
Date: 2019-09-27  
Time: 16:09:39  
Tool Version: 9.1.1.16749  
File Name: Sektion B\_odrän.gsz  
Directory: O:\JKP\290261\G\\_Berakningar\Slope\Sektion B\

## Project Settings

Unit System: International System of Units (SI)

## Analysis Settings

### Gamleby Hamn Sektion B odränerad

Kind: SLOPE/W

Method: Morgenstern-Price

#### Settings

##### Side Function

Interslice force function option: Half-Sine

PWP Conditions from: Piezometric Line

Apply Phreatic Correction: No

Use Staged Rapid Drawdown: No

Unit Weight of Water: 9,807 kN/m<sup>3</sup>

#### Slip Surface

Direction of movement: Left to Right

Use Passive Mode: No

Slip Surface Option: Entry and Exit

Critical slip surfaces saved: 1

Optimize Critical Slip Surface Location: No

Tension Crack Option: (none)

#### Distribution

F of S Calculation Option: Constant

#### Advanced

##### Geometry Settings

Minimum Slip Surface Depth: 0,1 m

Number of Slices: 30

##### Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0,001

##### Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

## Materials

### Fyllning

Model: Mohr-Coulomb  
Unit Weight: 20 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 32 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 18 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

### Gyttja

Model: Undrained (Phi=0)  
Unit Weight: 12,5 kN/m<sup>3</sup>  
Cohesion: 6 kPa  
Pore Water Pressure  
Piezometric Line: 1

### Lera ovan -10

Model: Undrained (Phi=0)  
Unit Weight: 14 kN/m<sup>3</sup>  
Cohesion: 9 kPa  
Pore Water Pressure  
Piezometric Line: 1

### Lera under -10

Model: S=f(datum)  
Unit Weight: 14 kN/m<sup>3</sup>  
C-Datum: 9 kPa  
C-Rate of Change: 2 (kN/m<sup>2</sup>)/m  
C-Maximum: 50 kPa  
Datum (Elevation): -10 m  
Pore Water Pressure  
Piezometric Line: 1

### Morän

Model: Mohr-Coulomb  
Unit Weight: 22 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 35 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 20 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

### Gyttjig lera

Model: Undrained (Phi=0)  
Unit Weight: 14 kN/m<sup>3</sup>  
Cohesion: 9 kPa  
Pore Water Pressure  
Piezometric Line: 1

## Slip Surface Entry and Exit

Left Type: Range  
Left-Zone Left Coordinate: (62,99877; 0,685081) m

Left-Zone Right Coordinate: (110,6; 0,420656) m  
 Left-Zone Increment: 54  
 Right Type: Range  
 Right-Zone Left Coordinate: (119; -1,4) m  
 Right-Zone Right Coordinate: (170; -3,443154) m  
 Right-Zone Increment: 40  
 Radius Increments: 8

## Slip Surface Limits

Left Coordinate: (55; 0,639166) m  
 Right Coordinate: (175; -3,41892) m

## Piezometric Lines

### Piezometric Line 1

#### Coordinates

	X	Y
Coordinate 1	55 m	0,5 m
Coordinate 2	78,3 m	0,5 m
Coordinate 3	104,03 m	0,5 m
Coordinate 4	107,03 m	0,5 m
Coordinate 5	113 m	0,5 m
Coordinate 6	114 m	0,4 m
Coordinate 7	115 m	0,3 m
Coordinate 8	116,29913 m	0,12 m
Coordinate 9	174,94 m	0,12 m

## Surcharge Loads

### Surcharge Load 1

Surcharge (Unit Weight): 30 kN/m<sup>3</sup>  
 Direction: Vertical

#### Coordinates

	X	Y
	55 m	0,639166 m
	55 m	1,64 m
	59,89 m	1,64 m
	62,9 m	1,7 m

### Surcharge Load 2

Surcharge (Unit Weight): 5 kN/m<sup>3</sup>  
 Direction: Vertical

#### Coordinates

	X	Y
	70,06496 m	1,143249 m
	70,08 m	2,14 m
	78,96 m	1,65 m
	87,17 m	1,4 m

	107,5 m	1,5 m
	113,4 m	1,6 m

## Points

	X	Y
Point 1	55 m	0,639166 m
Point 2	59,87887 m	0,601251 m
Point 3	63,36127 m	0,694821 m
Point 4	70,06496 m	1,143249 m
Point 5	79,08449 m	0,649986 m
Point 6	87,07935 m	0,409469 m
Point 7	93,38796 m	0,341702 m
Point 8	100,08719 m	0,450296 m
Point 9	104,19761 m	0,421724 m
Point 10	107,49324 m	0,510626 m
Point 11	110,2876 m	0,4 m
Point 12	111,8 m	0,5 m
Point 13	115,6 m	0,784394 m
Point 14	116,6 m	0,12 m
Point 15	119 m	-1,4 m
Point 16	124 m	-1,189943 m
Point 17	125,29175 m	-1,288419 m
Point 18	141,7695 m	-1,240059 m
Point 19	154,56761 m	-1,998947 m
Point 20	168,3355 m	-3,396048 m
Point 21	171,43043 m	-3,483636 m
Point 22	175 m	-3,41892 m
Point 23	175 m	-5 m
Point 24	109,98 m	-2,08 m
Point 25	92,4 m	-2,08 m
Point 26	74,08 m	-0,67 m
Point 27	72,35 m	-0,23 m
Point 28	55 m	-0,25 m
Point 29	55 m	-8 m
Point 30	175 m	-8 m
Point 31	55 m	-20 m
Point 32	175 m	-20 m
Point 33	164,4326 m	-3 m
Point 34	55 m	-3 m
Point 35	55 m	-5 m
Point 36	55 m	-16 m
Point 37	175 m	-16 m

## Regions

	Material	Points	Area
Region 1	Fyllning	1;28;27;26;25;24;15;14;13;12;11;10;9;8;7;6;5;4;3;2	117,82 m <sup>2</sup>
Region 2	Lera under -10	29;36;37;30	960 m <sup>2</sup>
Region 3	Gyttja	28;27;26;25;24;15;16;17;18;19;33;34	171,61 m <sup>2</sup>
Region 4	Gyttjig lera	34;33;20;21;22;23;35	236,25 m <sup>2</sup>
Region 5	Lera ovan -10	35;23;30;29	360 m <sup>2</sup>
Region 6	Morän	36;31;32;37	480 m <sup>2</sup>

# Gamleby Hamn Sektion B kombinerad

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## File Information

File Version: 9.01  
Title: Gamleby Hamn, section B kombinerad analys  
Created By: Mattsson, Nina  
Last Edited By: Horndahl, Jacob  
Revision Number: 93  
Date: 2019-09-27  
Time: 16:34:03  
Tool Version: 9.1.1.16749  
File Name: Sektion B\_komb.gsz  
Directory: O:\JKP\290261\G\\_Berakningar\Slope\Sektion B\

## Project Settings

Unit System: International System of Units (SI)

## Analysis Settings

### Gamleby Hamn Sektion B kombinerad

Kind: SLOPE/W

Method: Morgenstern-Price

#### Settings

##### Side Function

Interslice force function option: Half-Sine

PWP Conditions from: Piezometric Line

Apply Phreatic Correction: No

Use Staged Rapid Drawdown: No

Unit Weight of Water: 9,807 kN/m<sup>3</sup>

#### Slip Surface

Direction of movement: Left to Right

Use Passive Mode: No

Slip Surface Option: Entry and Exit

Critical slip surfaces saved: 1

Optimize Critical Slip Surface Location: No

Tension Crack Option: (none)

#### Distribution

F of S Calculation Option: Constant

#### Advanced

##### Geometry Settings

Minimum Slip Surface Depth: 0,1 m

Number of Slices: 30

##### Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0,001

##### Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

# Materials

## Fyllning

Model: Mohr-Coulomb  
Unit Weight: 20 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 32 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 18 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

## Gyttja

Model: Combined, S=f(depth)  
Unit Weight: 12,5 kN/m<sup>3</sup>  
Phi': 20 °  
C-Top of Layer: 0,6 kPa  
Cu-Top of Layer: 6 kPa  
Cu-Rate of Change: 0 (kN/m<sup>2</sup>)/m  
C/Cu Ratio: 0,1  
Pore Water Pressure  
Piezometric Line: 1

## Lera ovan -10

Model: Combined, S=f(depth)  
Unit Weight: 14 kN/m<sup>3</sup>  
Phi': 25 °  
C-Top of Layer: 0,9 kPa  
C-Rate of Change: 0 (kN/m<sup>2</sup>)/m  
Cu-Top of Layer: 9 kPa  
Cu-Rate of Change: 0 (kN/m<sup>2</sup>)/m  
Pore Water Pressure  
Piezometric Line: 1

## Lera under -10

Model: Combined, S=f(depth)  
Unit Weight: 14 kN/m<sup>3</sup>  
Phi': 25 °  
C-Top of Layer: 0,9 kPa  
C-Rate of Change: 0,2 (kN/m<sup>2</sup>)/m  
Cu-Top of Layer: 9 kPa  
Cu-Rate of Change: 2 (kN/m<sup>2</sup>)/m  
C/Cu Ratio: 0,1  
Pore Water Pressure  
Piezometric Line: 1

## Morän

Model: Mohr-Coulomb  
Unit Weight: 22 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 35 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 20 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

## Gyttjig lera



Model: Combined,  $S=f(\text{depth})$   
 Unit Weight:  $14 \text{ kN/m}^3$   
 Phi':  $25^\circ$   
 C-Top of Layer:  $0,9 \text{ kPa}$   
 C-Rate of Change:  $0 \text{ (kN/m}^2\text{)/m}$   
 Cu-Top of Layer:  $9 \text{ kPa}$   
 Cu-Rate of Change:  $0 \text{ (kN/m}^2\text{)/m}$   
 Pore Water Pressure  
 Piezometric Line: 1

## Slip Surface Entry and Exit

Left Type: Range  
 Left-Zone Left Coordinate:  $(62,99877; 0,685081) \text{ m}$   
 Left-Zone Right Coordinate:  $(110,6; 0,420656) \text{ m}$   
 Left-Zone Increment: 54  
 Right Type: Range  
 Right-Zone Left Coordinate:  $(119; -1,4) \text{ m}$   
 Right-Zone Right Coordinate:  $(170; -3,443154) \text{ m}$   
 Right-Zone Increment: 40  
 Radius Increments: 8

## Slip Surface Limits

Left Coordinate:  $(55; 0,639166) \text{ m}$   
 Right Coordinate:  $(175; -3,41892) \text{ m}$

## Piezometric Lines

### Piezometric Line 1

#### Coordinates

	X	Y
Coordinate 1	55 m	0,5 m
Coordinate 2	78,3 m	0,5 m
Coordinate 3	104,03 m	0,5 m
Coordinate 4	107,03 m	0,5 m
Coordinate 5	113 m	0,5 m
Coordinate 6	114 m	0,4 m
Coordinate 7	115 m	0,3 m
Coordinate 8	116,29913 m	0,12 m
Coordinate 9	174,94 m	0,12 m

## Surcharge Loads

### Surcharge Load 1

Surcharge (Unit Weight):  $30 \text{ kN/m}^3$   
 Direction: Vertical

#### Coordinates

	X	Y
	55 m	0,639166 m

	55 m	1,64 m
	59,89 m	1,64 m
	62,9 m	1,7 m

## Surcharge Load 2

Surcharge (Unit Weight): 5 kN/m<sup>3</sup>

Direction: Vertical

### Coordinates

	X	Y
	70,06496 m	1,143249 m
	70,08 m	2,14 m
	78,96 m	1,65 m
	87,17 m	1,4 m
	107,5 m	1,5 m
	113,4 m	1,6 m

## Points

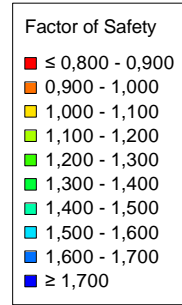
	X	Y
Point 1	55 m	0,639166 m
Point 2	59,87887 m	0,601251 m
Point 3	63,36127 m	0,694821 m
Point 4	70,06496 m	1,143249 m
Point 5	79,08449 m	0,649986 m
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Point 7	93,38796 m	0,341702 m
Point 8	100,08719 m	0,450296 m
Point 9	104,19761 m	0,421724 m
Point 10	107,49324 m	0,510626 m
Point 11	110,2876 m	0,4 m
Point 12	111,8 m	0,5 m
Point 13	115,6 m	0,784394 m
Point 14	116,6 m	0,12 m
Point 15	119 m	-1,4 m
Point 16	124 m	-1,189943 m
Point 17	125,29175 m	-1,288419 m
Point 18	141,7695 m	-1,240059 m
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Point 20	168,3355 m	-3,396048 m
Point 21	171,43043 m	-3,483636 m
Point 22	175 m	-3,41892 m
Point 23	175 m	-5 m
Point 24	109,98 m	-2,08 m
Point 25	92,4 m	-2,08 m
Point 26	74,08 m	-0,67 m
Point 27	72,35 m	-0,23 m
Point 28	55 m	-0,25 m
Point 29	55 m	-8 m
Point 30	175 m	-8 m
Point 31	55 m	-20 m
Point 32	175 m	-20 m
Point 33	164,4326 m	-3 m
Point 34	55 m	-3 m

Point 35	55 m	-5 m
Point 36	55 m	-16 m
Point 37	175 m	-16 m

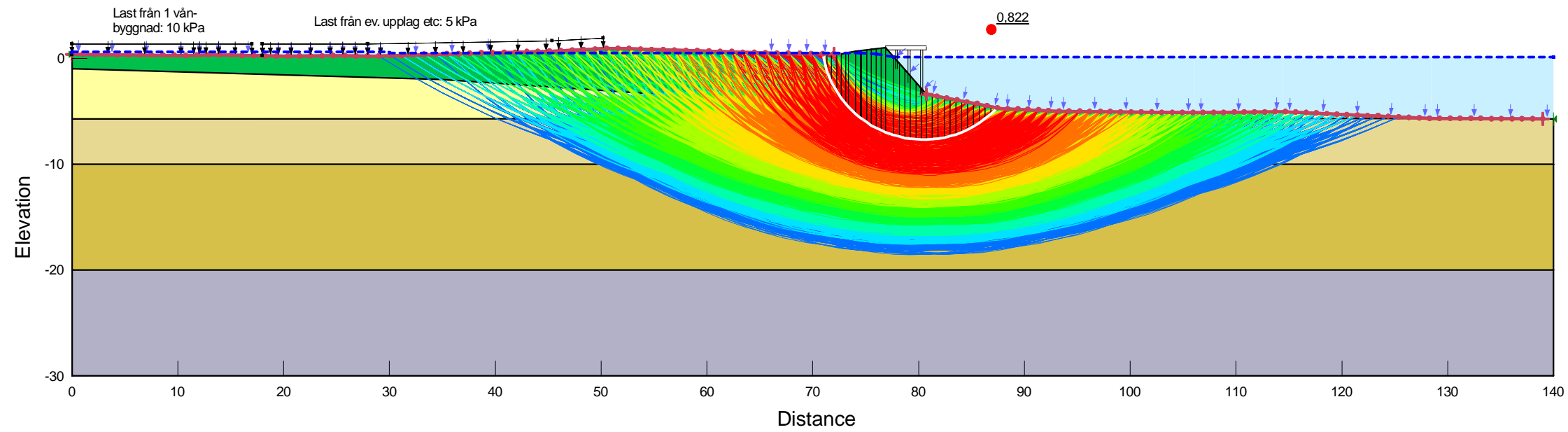
## Regions

	Material	Points	Area
Region 1	Fyllning	1;28;27;26;25;24;15;14;13;12;11;10;9;8;7;6;5;4;3;2	117,82 m <sup>2</sup>
Region 2	Lera under -10	29;36;37;30	960 m <sup>2</sup>
Region 3	Gyttja	28;27;26;25;24;15;16;17;18;19;33;34	171,61 m <sup>2</sup>
Region 4	Gyttjig lera	34;33;20;21;22;23;35	236,25 m <sup>2</sup>
Region 5	Lera ovan -10	35;23;30;29	360 m <sup>2</sup>
Region 6	Morän	36;31;32;37	480 m <sup>2</sup>

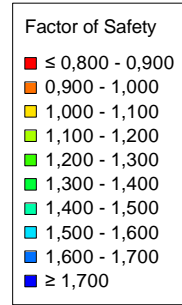
Title: Gamleby Hamn, section C odränerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)



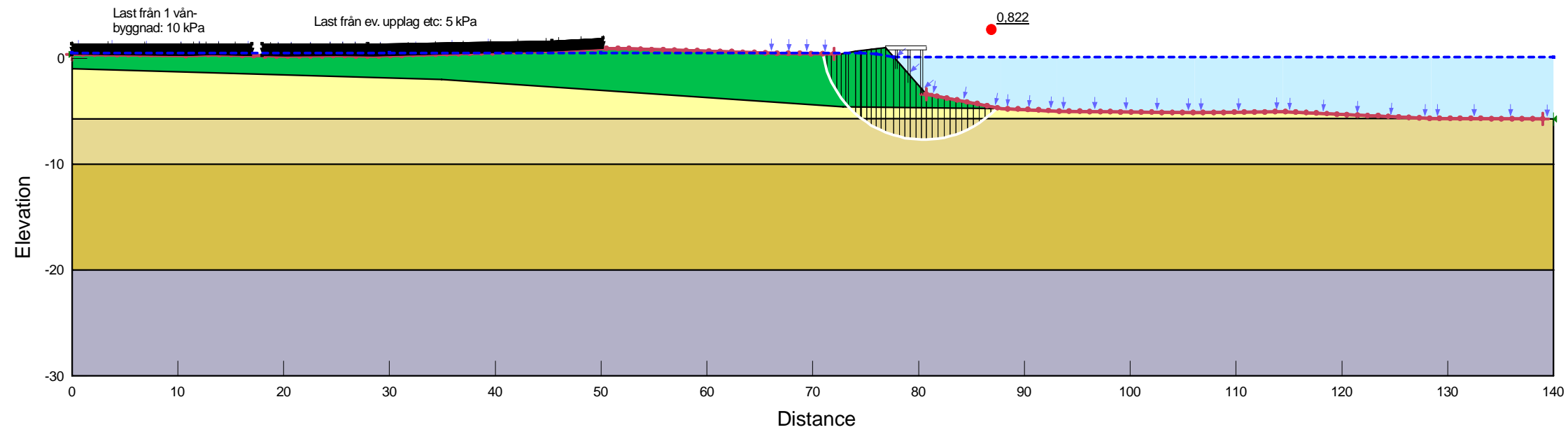
Color	Name	Unit Weight (kN/m <sup>3</sup> )	C-Datum (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	C-Maximum (kPa)	Datum (Elevation) (m)	Cohesion (kPa)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20						0	32	0	18	1
■	Gyttja	12,5					6					1
■	Lera ovan -10	14					9					1
■	Lera under -10	14	9	2	50	-10						1
■	Morän	22						0	35	0	20	1



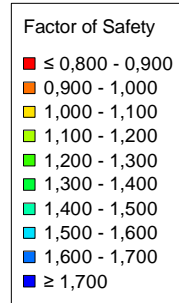
Title: Gamleby Hamn, section C odränerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)



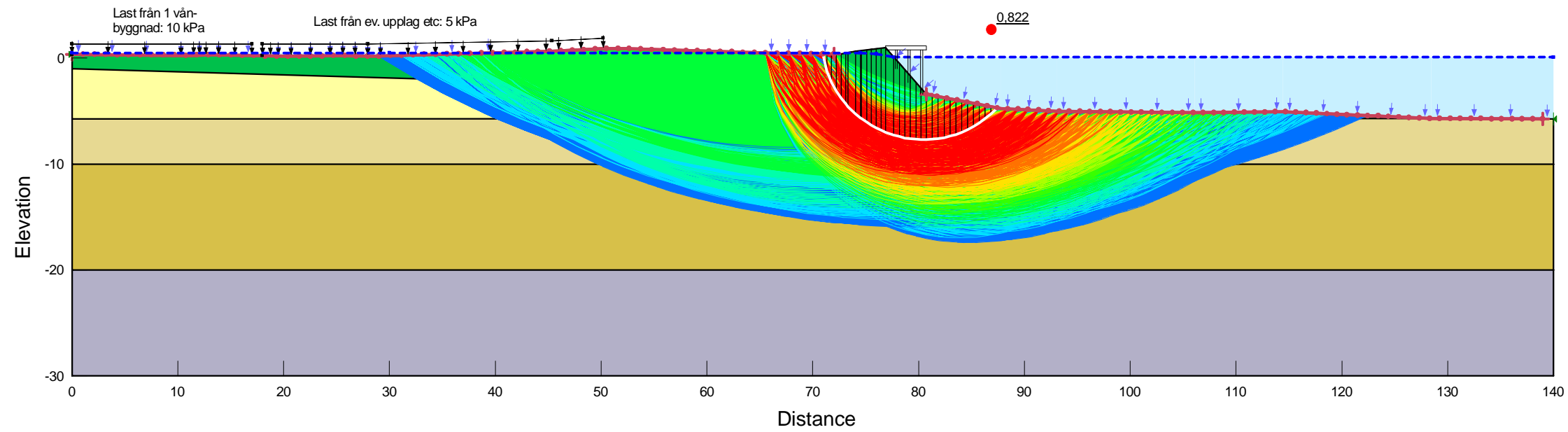
Color	Name	Unit Weight (kN/m <sup>3</sup> )	C-Datum (kPa)	C-Rate of Change ((kN/m <sup>2</sup> )/m)	C-Maximum (kPa)	Datum (Elevation) (m)	Cohesion (kPa)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
■	Fyllning	20						0	32	0	18	1
■	Gyttja	12,5					6					1
■	Lera ovan -10	14					9					1
■	Lera under -10	14	9	2	50	-10						1
■	Morän	22						0	35	0	20	1



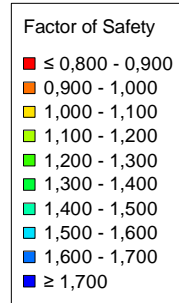
Title: Gamleby Hamn, section C kombinerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)



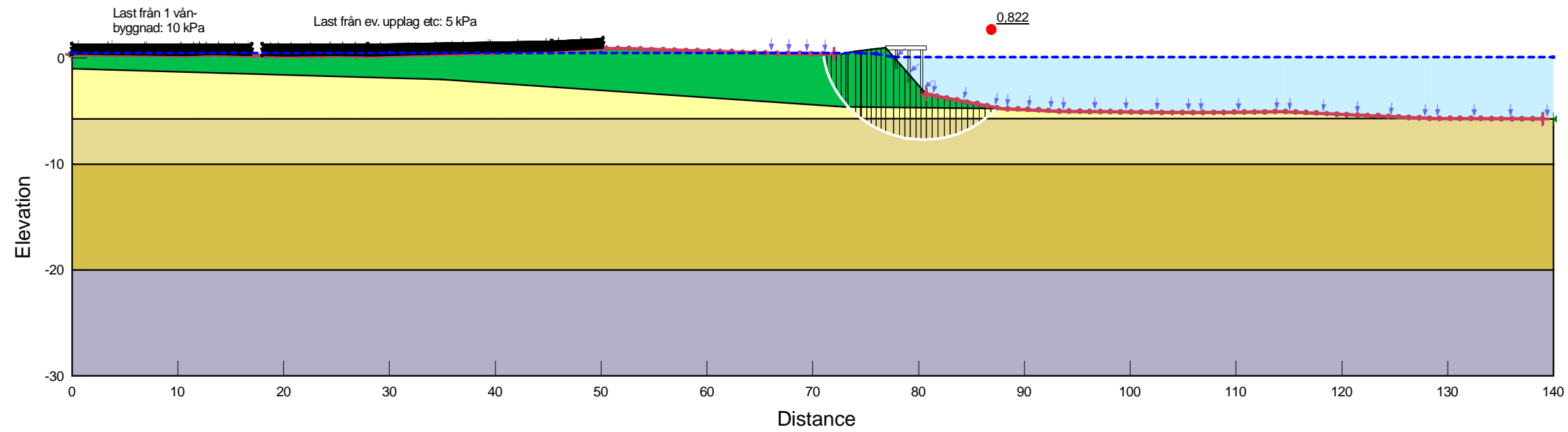
Color	Name	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	C-Datum (kPa)	Cu-Datum (kPa)	Cu-Rate of Change ((kN/m²)/m)	C/Cu Ratio	Datum (Elevation) (m)	Constant Unit Wt. Above Water Table (kN/m³)	Piezometric Line
Green	Fyllning	20	0	32						18	1
Yellow	Gyttja	12,5		20	0,6	6	0				1
Light Brown	Lera ovan -10	14		25	0,9	9	0				1
Dark Brown	Lera under -10	14		25	0,9	9	2	0,1	-10		1
Grey	Morän	22	0	35						20	1



Title: Gamleby Hamn, section C kombinerad analys  
 Created By: Mattsson, Nina  
 Date: 2019-09-23  
 Method: Morgenstern-Price  
 Scale: 1:500 (A3)



Color	Name	Unit Weight (kN/m <sup>3</sup> )	Cohesion' (kPa)	Phi' (°)	C-Datum (kPa)	Cu-Datum (kPa)	Cu-Rate of Change ((kN/m <sup>2</sup> )/m)	C/Cu Ratio	Datum (Elevation) (m)	Constant Unit Wt. Above Water Table (kN/m <sup>3</sup> )	Piezometric Line
Green	Fyllning	20	0	32						18	1
Yellow	Gyttja	12,5		20	0,6	6	0				1
Light Brown	Lera ovan -10	14		25	0,9	9	0				1
Dark Brown	Lera under -10	14		25	0,9	9	2	0,1	-10		1
Grey	Morän	22	0	35						20	1



# Gamleby Hamn Sektion C odränerad

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## File Information

File Version: 9.01  
Title: Gamleby Hamn, section C odränerad analys  
Created By: Mattsson, Nina  
Last Edited By: Klasson, Per  
Revision Number: 103  
Date: 2019-09-27  
Time: 14:09:35  
Tool Version: 9.1.1.16749  
File Name: Sektion C\_odrän.gsz  
Directory: O:\JKP\290261\G\\_Berakningar\Slope\Sektion C\  
Last Solved Date: 2019-09-27  
Last Solved Time: 14:10:15

## Project Settings

Unit System: International System of Units (SI)

## Analysis Settings

### Gamleby Hamn Sektion C odränerad

Kind: SLOPE/W

Method: Morgenstern-Price

#### Settings

##### Side Function

Interslice force function option: Half-Sine

PWP Conditions from: Piezometric Line

Apply Phreatic Correction: No

Use Staged Rapid Drawdown: No

Unit Weight of Water: 9,807 kN/m<sup>3</sup>

#### Slip Surface

Direction of movement: Left to Right

Use Passive Mode: No

Slip Surface Option: Entry and Exit

Critical slip surfaces saved: 1

Optimize Critical Slip Surface Location: No

Tension Crack Option: (none)

#### Distribution

F of S Calculation Option: Constant

#### Advanced

##### Geometry Settings

Minimum Slip Surface Depth: 0,1 m

Number of Slices: 30

##### Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0,001

##### Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3



Maximum iterations to calculate converged lambda: 20  
Max Absolute Lambda: 2

## Materials

### Fyllning

Model: Mohr-Coulomb  
Unit Weight: 20 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 32 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 18 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

### Gyttja

Model: Undrained (Phi=0)  
Unit Weight: 12,5 kN/m<sup>3</sup>  
Cohesion: 6 kPa  
Pore Water Pressure  
Piezometric Line: 1

### Lera ovan -10

Model: Undrained (Phi=0)  
Unit Weight: 14 kN/m<sup>3</sup>  
Cohesion: 9 kPa  
Pore Water Pressure  
Piezometric Line: 1

### Lera under -10

Model: S=f(datum)  
Unit Weight: 14 kN/m<sup>3</sup>  
C-Datum: 9 kPa  
C-Rate of Change: 2 (kN/m<sup>2</sup>)/m  
C-Maximum: 50 kPa  
Datum (Elevation): -10 m  
Pore Water Pressure  
Piezometric Line: 1

### Morän

Model: Mohr-Coulomb  
Unit Weight: 22 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 35 °  
Phi-B: 0 °  
Constant Unit Wt. Above Water Table: 20 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

## Slip Surface Entry and Exit

Left Type: Range  
Left-Zone Left Coordinate: (0; 0,359256) m  
Left-Zone Right Coordinate: (72; 0,3943) m  
Left-Zone Increment: 67  
Right Type: Range

Right-Zone Left Coordinate: (80,77; -3,413695) m  
 Right-Zone Right Coordinate: (139; -5,737908) m  
 Right-Zone Increment: 60  
 Radius Increments: 8

## Slip Surface Limits

Left Coordinate: (0; 0,359256) m  
 Right Coordinate: (140; -5,740532) m

## Piezometric Lines

### Piezometric Line 1

#### Coordinates

	X	Y
Coordinate 1	0 m	0,5 m
Coordinate 2	30 m	0,5 m
Coordinate 3	50 m	0,5 m
Coordinate 4	74,5 m	0,5 m
Coordinate 5	76 m	0,4 m
Coordinate 6	77,67 m	0,12 m
Coordinate 7	140 m	0,12 m

## Surcharge Loads

### Surcharge Load 1

Surcharge (Unit Weight): 10 kN/m<sup>3</sup>  
 Direction: Vertical

#### Coordinates

	X	Y
	0 m	0,359256 m
	0 m	1,36 m
	17,01 m	1,36 m

### Surcharge Load 2

Surcharge (Unit Weight): 5 kN/m<sup>3</sup>  
 Direction: Vertical

#### Coordinates

	X	Y
	18 m	0,24508 m
	18 m	1,35 m
	27,96 m	1,35 m
	45,34 m	1,65 m
	50,2 m	1,91 m

## Points

	X	Y

Point 1	0 m	0,359256 m
Point 2	10,92152 m	0,267445 m
Point 3	13,25036 m	0,312716 m
Point 4	20,11098 m	0,190593 m
Point 5	25,01973 m	0,236637 m
Point 6	28,532 m	0,20354 m
Point 7	45,41747 m	0,658922 m
Point 8	50,20896 m	0,914081 m
Point 9	52,14353 m	0,894339 m
Point 10	67,17377 m	0,449244 m
Point 11	71,7717 m	0,384952 m
Point 12	72,70098 m	0,423003 m
Point 13	74,03411 m	0,670062 m
Point 14	76,9 m	1 m
Point 15	80,7633 m	-3,412423 m
Point 16	87,78882 m	-4,746616 m
Point 17	93,12031 m	-4,994676 m
Point 18	106,12004 m	-5,173181 m
Point 19	114,43025 m	-5,052171 m
Point 20	128,46971 m	-5,710275 m
Point 21	140 m	-5,740532 m
Point 22	140 m	-20 m
Point 23	0 m	-30 m
Point 24	0 m	-1 m
Point 25	34,97 m	-2,02 m
Point 26	72,86 m	-5,740532 m
Point 27	0 m	-5,740532 m
Point 28	140 m	-10 m
Point 29	-0 m	-10 m
Point 30	0 m	-20 m
Point 31	140 m	-30 m
Point 32	72,84 m	-4,58 m

## Regions

	Material	Points	Area
Region 1	Fyllning	1;24;25;32;16;15;14;13;12;11;10;9;8;7;6;5;4;3;2	250,12 m <sup>2</sup>
Region 2	Gyttja	24;27;20;19;18;17;16;32;25	277,96 m <sup>2</sup>
Region 3	Lera ovan -10	27;29;28;21;20	598,44 m <sup>2</sup>
Region 4	Lera under -10	29;28;22;30	1 400 m <sup>2</sup>
Region 5	Morän	30;22;31;23	1 400 m <sup>2</sup>

## Slip Results

Slip Surfaces Analysed: 33947 of 37332 converged

## Current Slip Surface

Slip Surface: 36 305

Factor of Safety: 0,822

Volume: 73,603167 m<sup>3</sup>

Weight: 1 273,0926 kN

Resisting Moment: 1 643,9553 kN·m

Activating Moment: 2 001,3817 kN·m

Resisting Force: 139,83299 kN  
 Activating Force: 170,14964 kN  
 Slip Rank: 1 of 37 332 slip surfaces  
 Exit: (87,461266; -4,6844114) m  
 Entry: (70,925311; 0,3967869) m  
 Radius: 9,6651086 m  
 Center: (80,460075; 1,9787443) m

## Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	71,136908 m	-0,42419113 m	9,0635424 kPa	11,103174 kPa	1,2745035 kPa	0 kPa	0 kPa	Fyllning
Slice 2	71,560103 m	-1,7501949 m	22,067662 kPa	29,399695 kPa	4,581563 kPa	0 kPa	0 kPa	Fyllning
Slice 3	72,00402 m	-2,6771603 m	31,158411 kPa	43,400476 kPa	7,649691 kPa	0 kPa	0 kPa	Fyllning
Slice 4	72,46866 m	-3,4416169 m	38,655437 kPa	55,704504 kPa	10,653439 kPa	0 kPa	0 kPa	Fyllning
Slice 5	72,908718 m	-4,0445722 m	44,56862 kPa	66,075145 kPa	13,438769 kPa	0 kPa	0 kPa	Fyllning
Slice 6	73,241429 m	-4,4454389 m	48,499919 kPa	73,528488 kPa	15,639586 kPa	0 kPa	0 kPa	Fyllning
Slice 7	73,700256 m	-4,9133154 m	53,088384 kPa	94,455028 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 8	74,267055 m	-5,4353436 m	58,207914 kPa	102,92942 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 9	74,560358 m	-5,6764405 m	60,53289 kPa	106,78191 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 10	74,850597 m	-5,8868996 m	62,407104 kPa	108,31294 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 11	75,310358 m	-6,195662 m	65,134545 kPa	114,43452 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 12	75,770119 m	-6,4681191 m	67,50594 kPa	119,914 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 13	76,225 m	-6,7054826 m	69,313503 kPa	125,37333 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 14	76,675 m	-6,9110097 m	70,589178 kPa	130,06676 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 15	77,285 m	-7,1408515 m	71,840222 kPa	127,95169 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 16	77,927977 m	-7,3449535 m	73,208799 kPa	122,29768 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 17	78,443688 m	-7,4700152 m	74,435279 kPa	120,50659 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 18	78,959158 m	-7,5655472 m	75,372161 kPa	118,32005 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 19	79,474627 m	-7,6325038 m	76,028804 kPa	115,68372 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10

Slice 20	79,990096 m	-7,6714815 m	76,411059 kPa	112,54029 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 21	80,505565 m	-7,68282 m	76,522256 kPa	108,83118 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 22	81,040288 m	-7,6649415 m	76,346921 kPa	104,15428 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 23	81,594264 m	-7,6155323 m	75,862365 kPa	103,91054 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 24	82,14824 m	-7,5336309 m	75,059159 kPa	103,04809 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 25	82,702216 m	-7,4183848 m	73,92894 kPa	101,52957 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 26	83,256193 m	-7,2685425 m	72,459436 kPa	99,319623 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 27	83,810169 m	-7,0823807 m	70,633748 kPa	96,386086 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 28	84,364145 m	-6,8575934 m	68,429259 kPa	92,700636 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 29	84,918121 m	-6,5911254 m	65,816007 kPa	88,238979 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 30	85,472097 m	-6,2789172 m	62,754181 kPa	82,980318 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 31	86,026073 m	-5,9155021 m	59,190169 kPa	76,906018 kPa	0 kPa	9 kPa	0 kPa	Lera ovan -10
Slice 32	86,578713 m	-5,4945196 m	55,061593 kPa	67,30949 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 33	87,130017 m	-5,0055893 m	50,266654 kPa	59,927191 kPa	0 kPa	6 kPa	0 kPa	Gyttja
Slice 34	87,433468 m	-4,7133784 m	47,400942 kPa	49,346661 kPa	1,21582 kPa	0 kPa	0 kPa	Fyllning

# Gamleby Hamn Sektion C kombinerad

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## File Information

File Version: 9.01  
Title: Gamleby Hamn, section C kombinerad analys  
Created By: Mattsson, Nina  
Last Edited By: Horndahl, Jacob  
Revision Number: 105  
Date: 2019-09-23  
Time: 13:56:19  
Tool Version: 9.1.1.16749  
File Name: Sektion C\_komb.gsz  
Directory: O:\JKP\290261\G\\_Berakningar\Slope\Sektion C\

## Project Settings

Unit System: International System of Units (SI)

## Analysis Settings

### Gamleby Hamn Sektion C kombinerad

Kind: SLOPE/W

Method: Morgenstern-Price

#### Settings

##### Side Function

Interslice force function option: Half-Sine

PWP Conditions from: Piezometric Line

Apply Phreatic Correction: No

Use Staged Rapid Drawdown: No

Unit Weight of Water: 9,807 kN/m<sup>3</sup>

#### Slip Surface

Direction of movement: Left to Right

Use Passive Mode: No

Slip Surface Option: Entry and Exit

Critical slip surfaces saved: 1

Optimize Critical Slip Surface Location: No

Tension Crack Option: (none)

#### Distribution

F of S Calculation Option: Constant

#### Advanced

##### Geometry Settings

Minimum Slip Surface Depth: 0,1 m

Number of Slices: 30

##### Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0,001

##### Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

## Materials

### Fyllning

Model: Mohr-Coulomb  
Unit Weight: 20 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 32 °  
Constant Unit Wt. Above Water Table: 18 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

### Gyttja

Model: Combined, S=f(datum)  
Unit Weight: 12,5 kN/m<sup>3</sup>  
Phi': 20 °  
C-Datum: 0,6 kPa  
Cu-Datum: 6 kPa  
Cu-Rate of Change: 0 (kN/m<sup>2</sup>)/m  
Pore Water Pressure  
Piezometric Line: 1

### Lera ovan -10

Model: Combined, S=f(datum)  
Unit Weight: 14 kN/m<sup>3</sup>  
Phi': 25 °  
C-Datum: 0,9 kPa  
Cu-Datum: 9 kPa  
Cu-Rate of Change: 0 (kN/m<sup>2</sup>)/m  
Pore Water Pressure  
Piezometric Line: 1

### Lera under -10

Model: Combined, S=f(datum)  
Unit Weight: 14 kN/m<sup>3</sup>  
Phi': 25 °  
C-Datum: 0,9 kPa  
Cu-Datum: 9 kPa  
Cu-Rate of Change: 2 (kN/m<sup>2</sup>)/m  
C/Cu Ratio: 0,1  
Datum (Elevation): -10 m  
Pore Water Pressure  
Piezometric Line: 1

### Morän

Model: Mohr-Coulomb  
Unit Weight: 22 kN/m<sup>3</sup>  
Cohesion': 0 kPa  
Phi': 35 °  
Constant Unit Wt. Above Water Table: 20 kN/m<sup>3</sup>  
Pore Water Pressure  
Piezometric Line: 1

## Slip Surface Entry and Exit

Left Type: Range  
Left-Zone Left Coordinate: (0; 0,359256) m  
Left-Zone Right Coordinate: (72; 0,3943) m

Left-Zone Increment: 67  
 Right Type: Range  
 Right-Zone Left Coordinate: (80,77; -3,413695) m  
 Right-Zone Right Coordinate: (139; -5,737908) m  
 Right-Zone Increment: 60  
 Radius Increments: 8

## Slip Surface Limits

Left Coordinate: (0; 0,359256) m  
 Right Coordinate: (140; -5,740532) m

## Piezometric Lines

### Piezometric Line 1

#### Coordinates

	X	Y
Coordinate 1	0 m	0,5 m
Coordinate 2	30 m	0,5 m
Coordinate 3	50 m	0,5 m
Coordinate 4	74,5 m	0,5 m
Coordinate 5	76 m	0,4 m
Coordinate 6	77,67 m	0,12 m
Coordinate 7	140 m	0,12 m

## Surcharge Loads

### Surcharge Load 1

Surcharge (Unit Weight): 10 kN/m<sup>3</sup>  
 Direction: Vertical

#### Coordinates

	X	Y
	0 m	0,359256 m
	0 m	1,36 m
	17,01 m	1,36 m

### Surcharge Load 2

Surcharge (Unit Weight): 5 kN/m<sup>3</sup>  
 Direction: Vertical

#### Coordinates

	X	Y
	18 m	0,24508 m
	18 m	1,35 m
	27,96 m	1,35 m
	45,34 m	1,65 m
	50,2 m	1,91 m



## Points

	X	Y
Point 1	0 m	0,359256 m
Point 2	10,92152 m	0,267445 m
Point 3	13,25036 m	0,312716 m
Point 4	20,11098 m	0,190593 m
Point 5	25,01973 m	0,236637 m
Point 6	28,532 m	0,20354 m
Point 7	45,41747 m	0,658922 m
Point 8	50,20896 m	0,914081 m
Point 9	52,14353 m	0,894339 m
Point 10	67,17377 m	0,449244 m
Point 11	71,7717 m	0,384952 m
Point 12	72,70098 m	0,423003 m
Point 13	74,03411 m	0,670062 m
Point 14	76,9 m	1 m
Point 15	80,7633 m	-3,412423 m
Point 16	87,78882 m	-4,746616 m
Point 17	93,12031 m	-4,994676 m
Point 18	106,12004 m	-5,173181 m
Point 19	114,43025 m	-5,052171 m
Point 20	128,46971 m	-5,710275 m
Point 21	140 m	-5,740532 m
Point 22	140 m	-20 m
Point 23	0 m	-30 m
Point 24	0 m	-1 m
Point 25	34,97 m	-2,02 m
Point 26	72,86 m	-5,740532 m
Point 27	0 m	-5,740532 m
Point 28	140 m	-10 m
Point 29	-0 m	-10 m
Point 30	0 m	-20 m
Point 31	140 m	-30 m
Point 32	72,84 m	-4,58 m

## Regions

	Material	Points	Area
Region 1	Fyllning	1;24;25;32;16;15;14;13;12;11;10;9;8;7;6;5;4;3;2	250,12 m <sup>2</sup>
Region 2	Gyttja	24;27;20;19;18;17;16;32;25	277,96 m <sup>2</sup>
Region 3	Lera ovan -10	27;29;28;21;20	598,44 m <sup>2</sup>
Region 4	Lera under -10	29;28;22;30	1 400 m <sup>2</sup>
Region 5	Morän	30;22;31;23	1 400 m <sup>2</sup>