

Appendix K

Global Stability Analysis

Purpose: Provide calculations for average seismic horizontal coefficient due to wave scattering, k_h , per the SCDOT GDM Section 13.16.

1. For heights less than 20 feet, $\alpha_w := 1$ and $k_h = PGA = 0.20$

2. For heights greater than 20 feet and less than 70 feet:

Peak ADRS spectral acceleration at 1 second: $S_{D1} := 0.14$

Peak Ground Acceleration: $PGA := 0.20$

Ground Motion Index: $\beta := \frac{S_{D1}}{PGA}$

$$\beta = 0.7$$

Wave scattering scaling factor: $\alpha_w = 1 + 0.01 \cdot H \cdot ((0.5 \beta - 1))$

$$0.5 \beta - 1 = -0.65$$

$$\alpha_w = 1 + 0.01 H \cdot (-0.65)$$

Peak Ground Acceleration Coefficient: $k_h := \alpha_w \cdot 0.2$

For Example $H = 30$ feet:

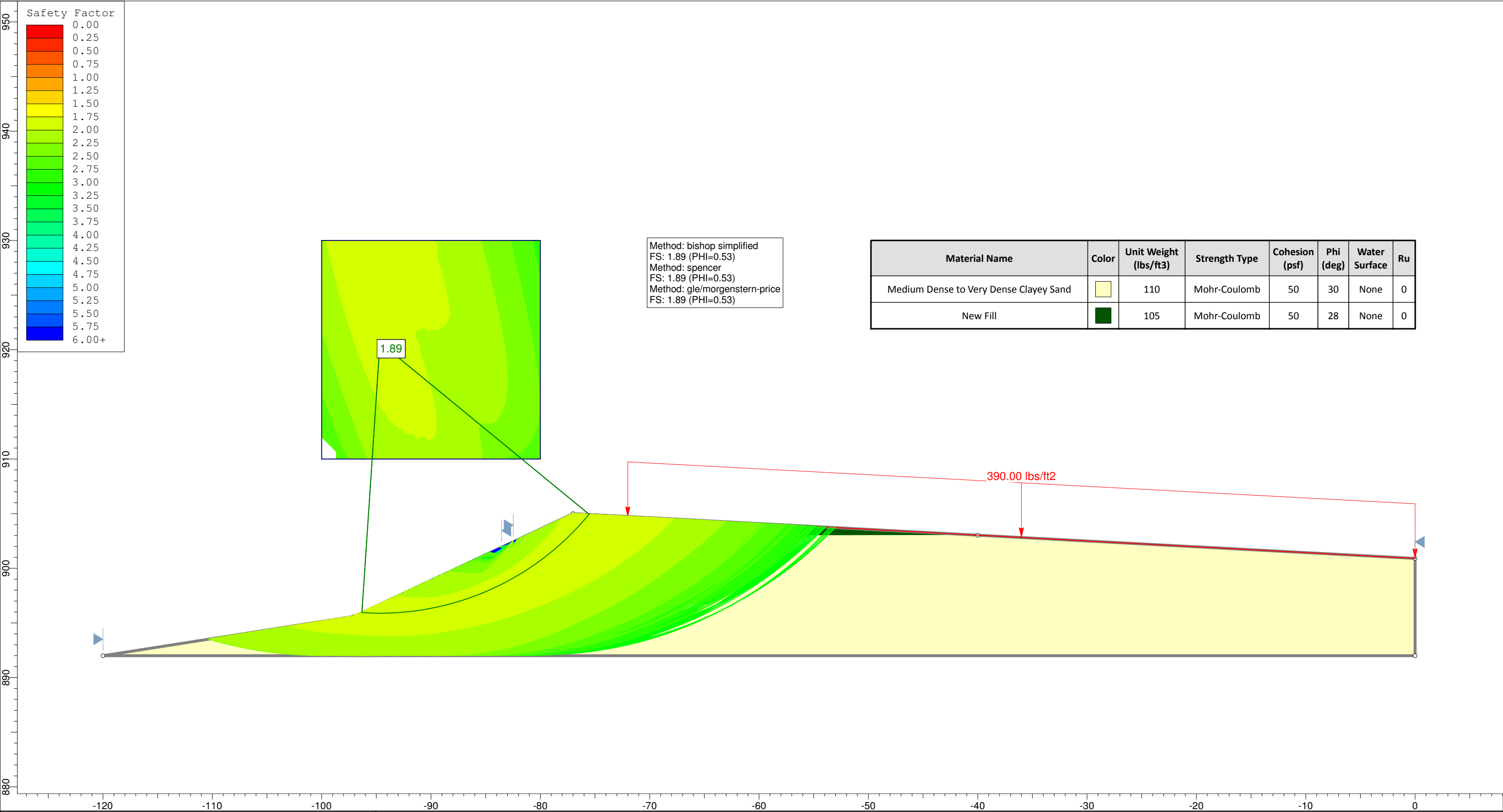
$$H := 30$$

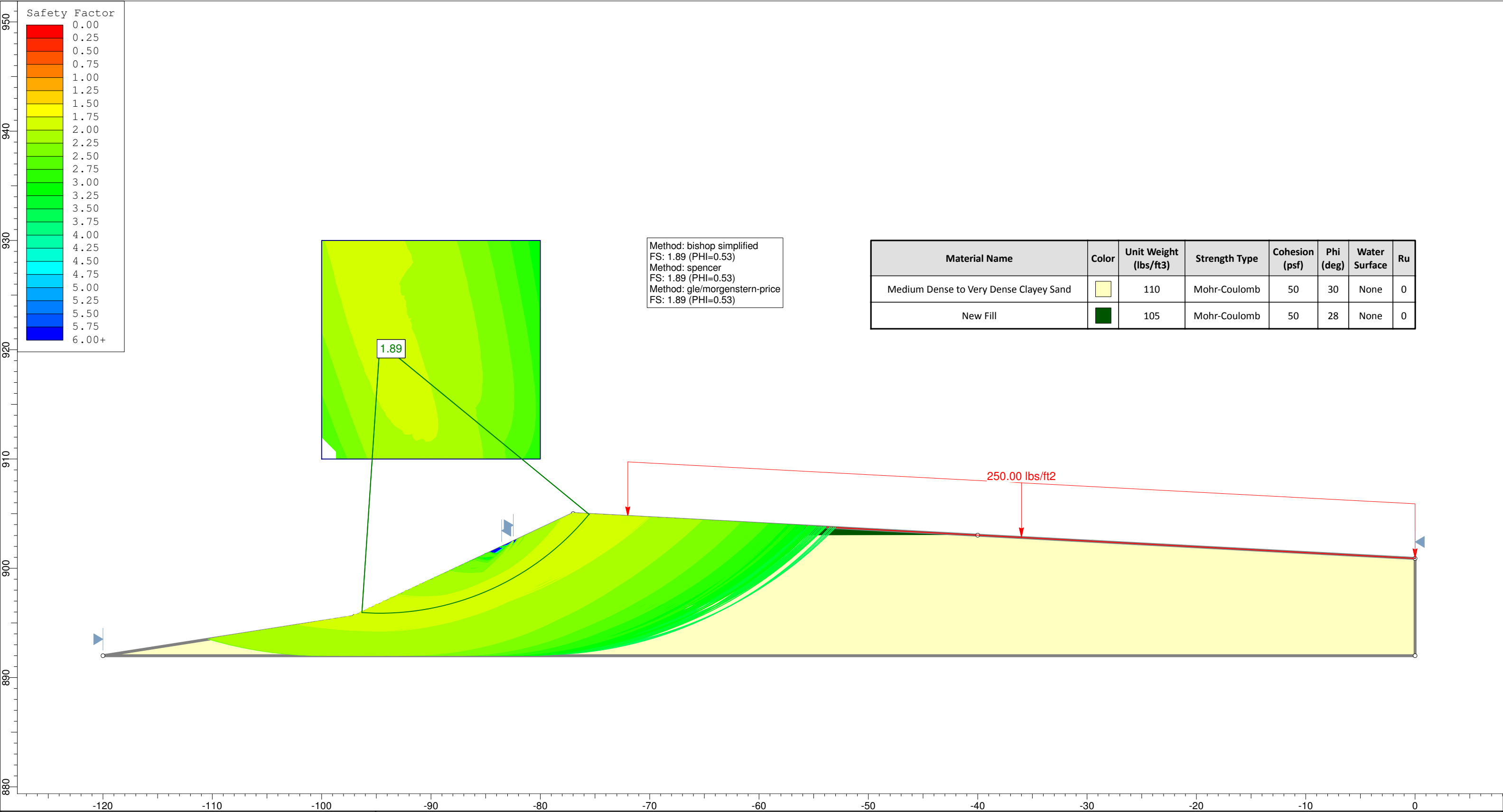
$$\alpha_w := 1 + 0.01 \cdot H \cdot ((0.5 \beta - 1))$$

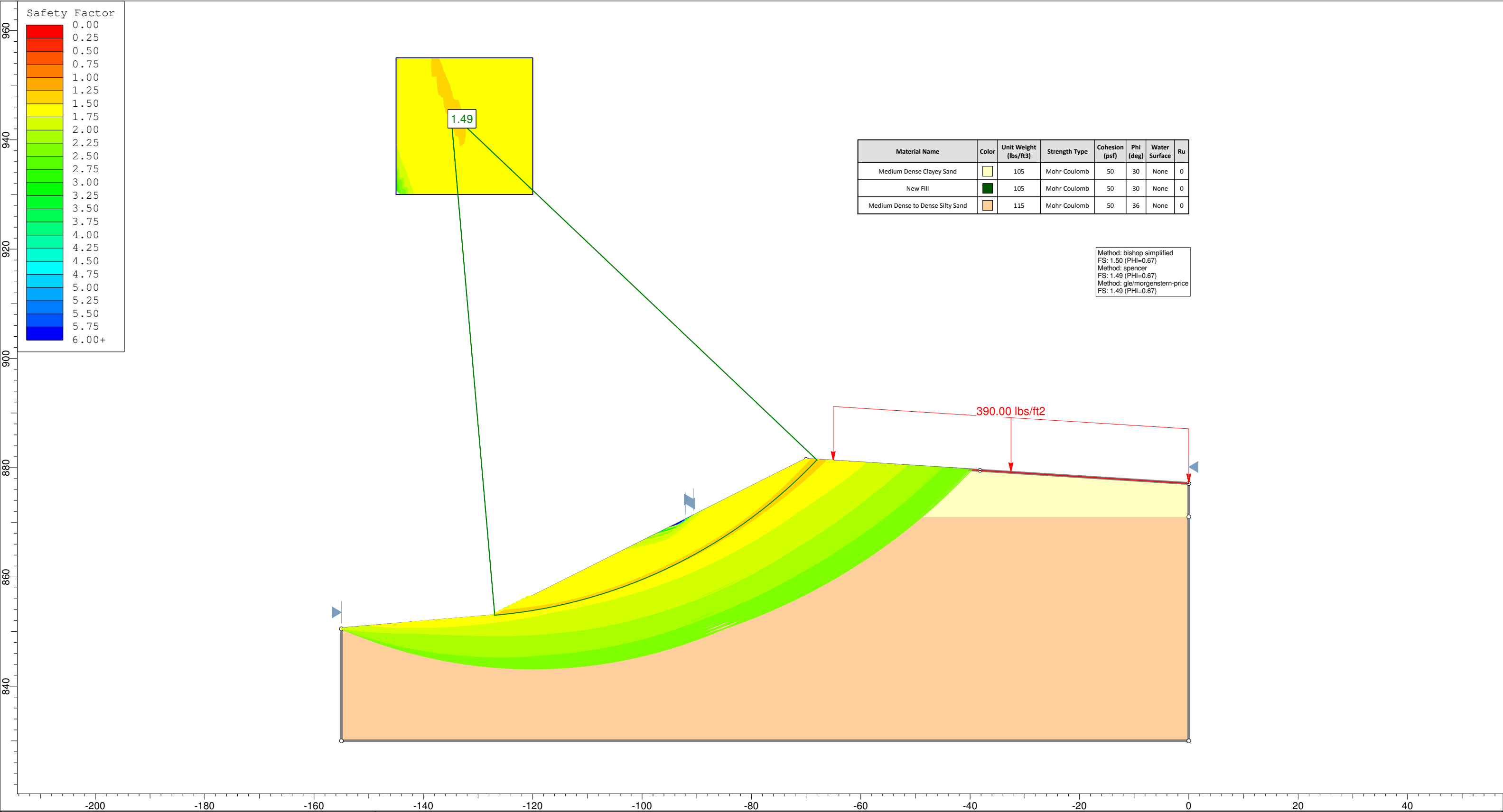
$$\alpha_w = 0.805$$

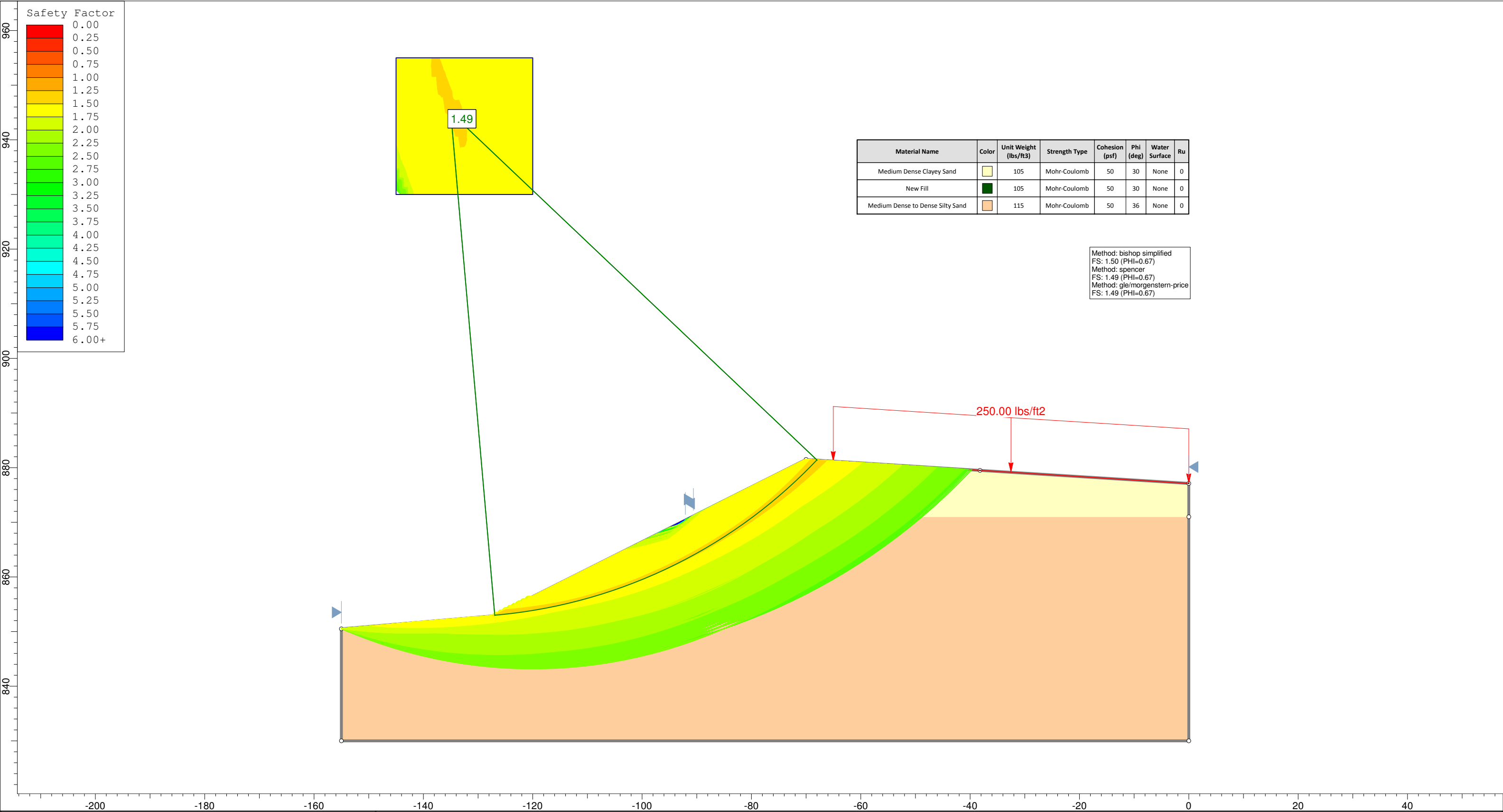
$$k_h := \alpha_w \cdot 0.2$$

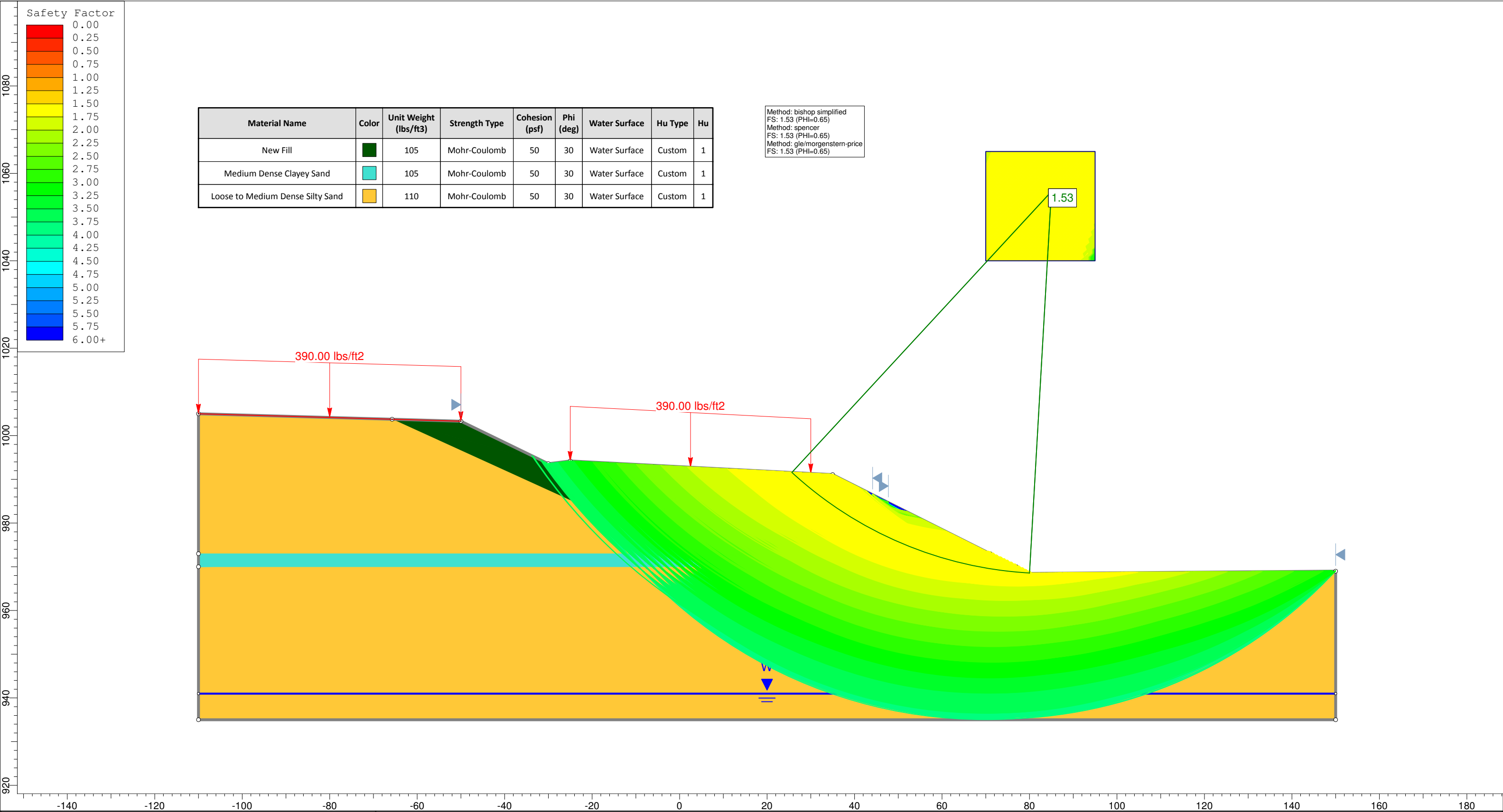
$$k_h = 0.161$$

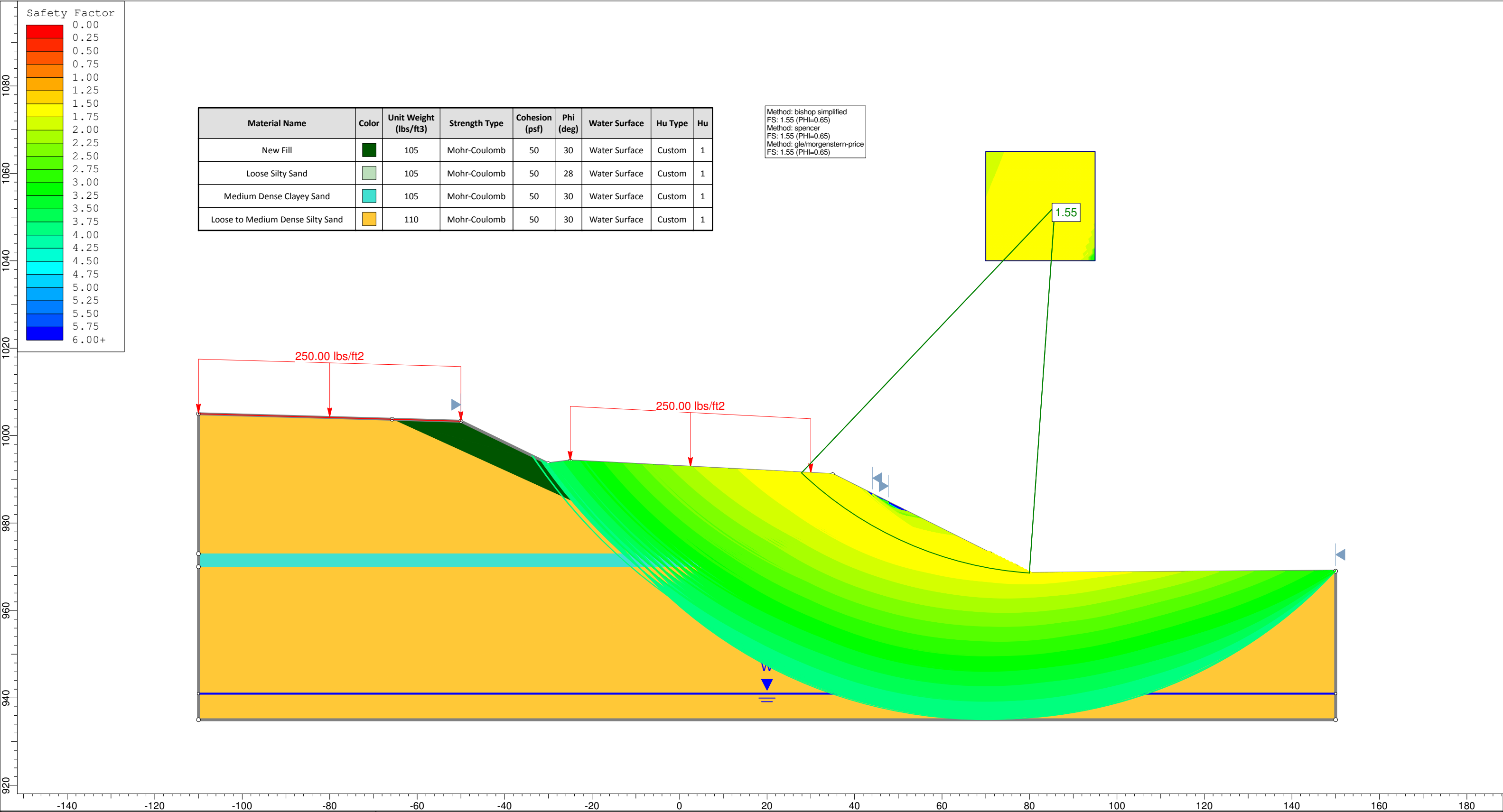






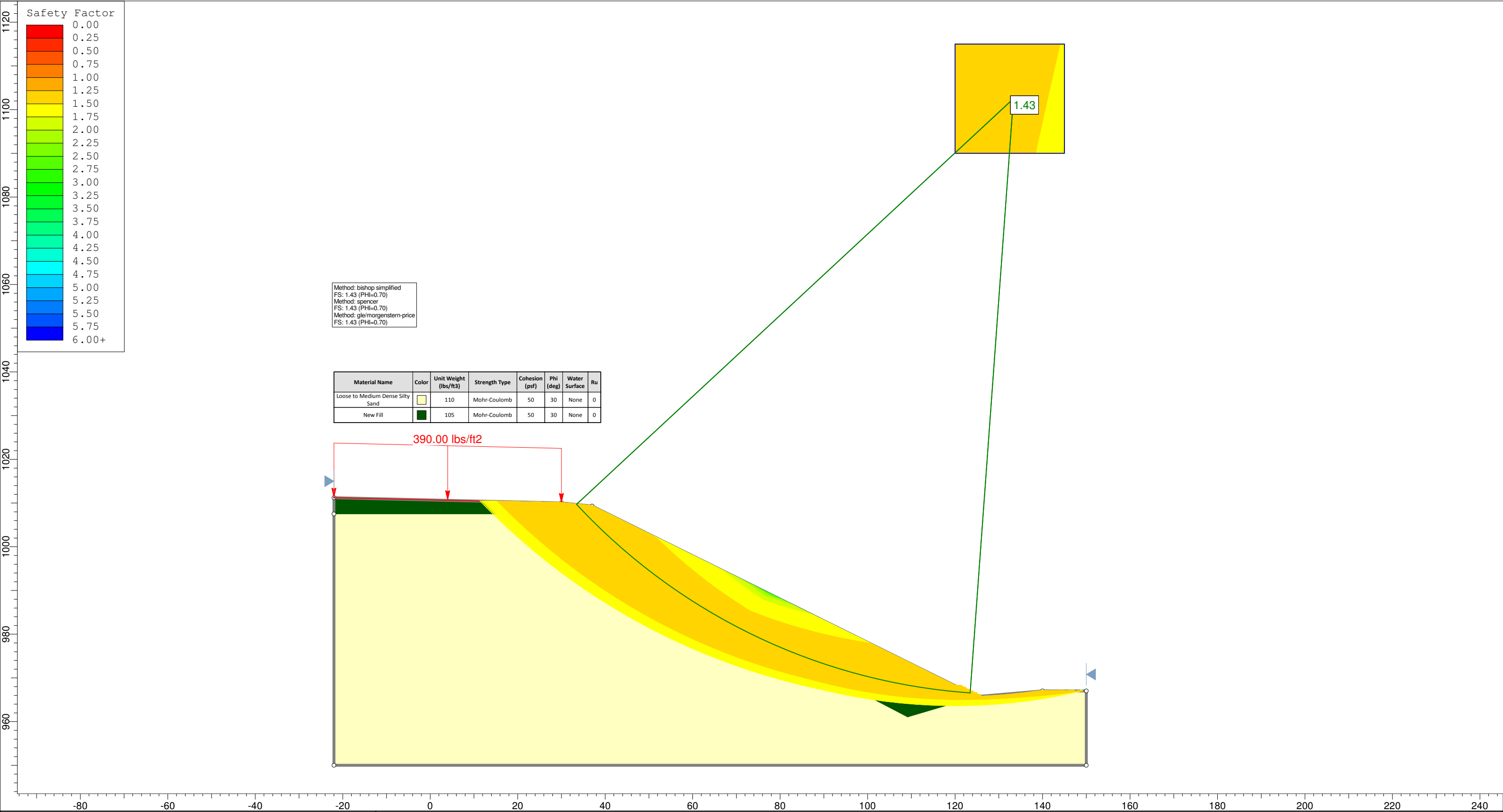






Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
New Fill		105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Loose Silty Sand		105	Mohr-Coulomb	50	28	Water Surface	Custom	1
Medium Dense Clayey Sand		105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Loose to Medium Dense Silty Sand		110	Mohr-Coulomb	50	30	Water Surface	Custom	1

Method: bishop simplified
FS: 1.55 (PHI=0.65)
Method: spencer
FS: 1.55 (PHI=0.65)
Method: gle/morgenstern-price
FS: 1.55 (PHI=0.65)



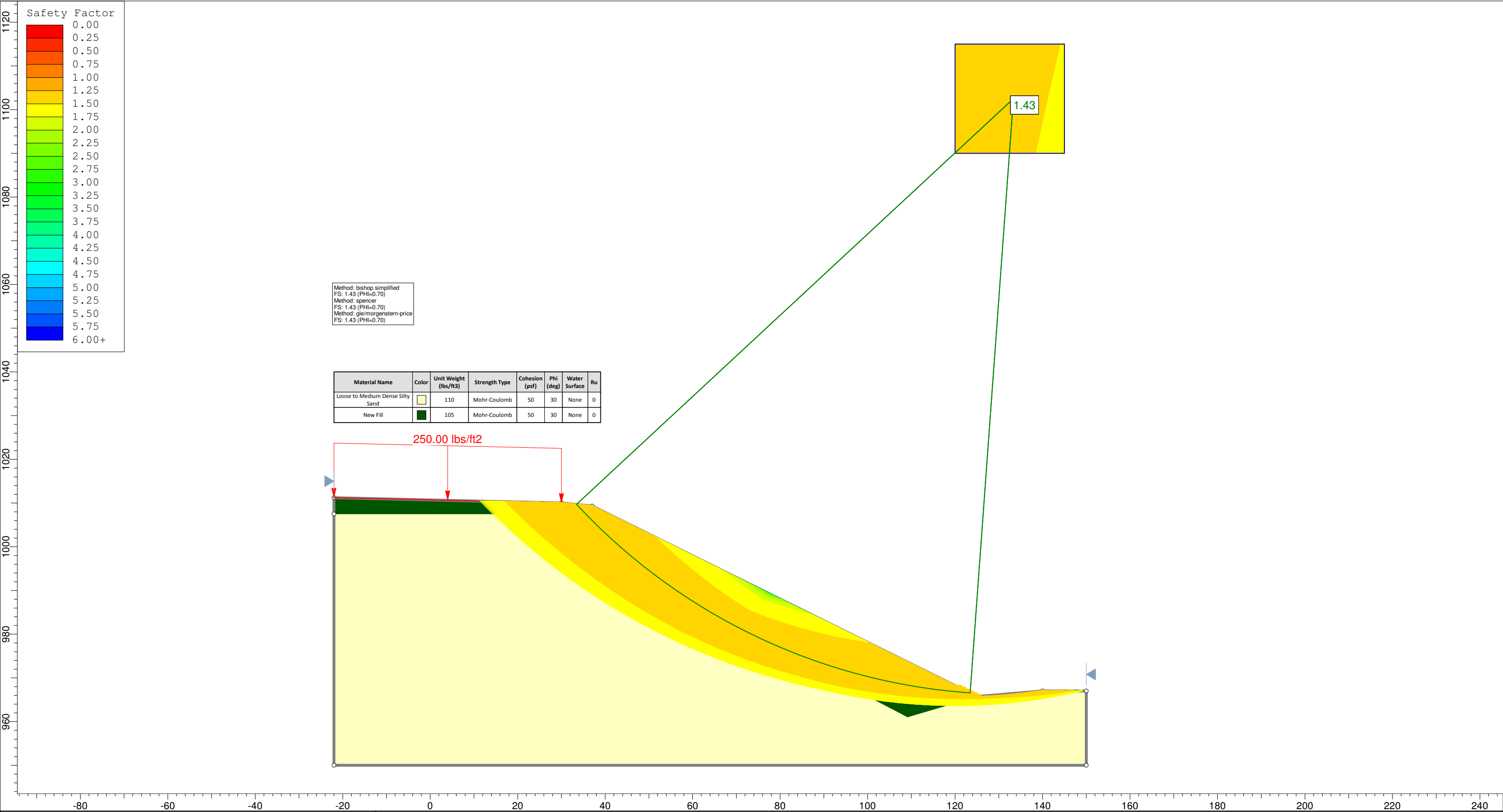
Method: bishop simplified
FS: 1.43 (PHI=0.70)
Method: spencer
FS: 1.43 (PHI=0.70)
Method: gle/morgenstern-price
FS: 1.43 (PHI=0.70)

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Loose to Medium Dense Silty Sand		110	Mohr-Coulomb	50	30	None	0
New Fill		105	Mohr-Coulomb	50	30	None	0




SLIDEINTERPRET 6.035

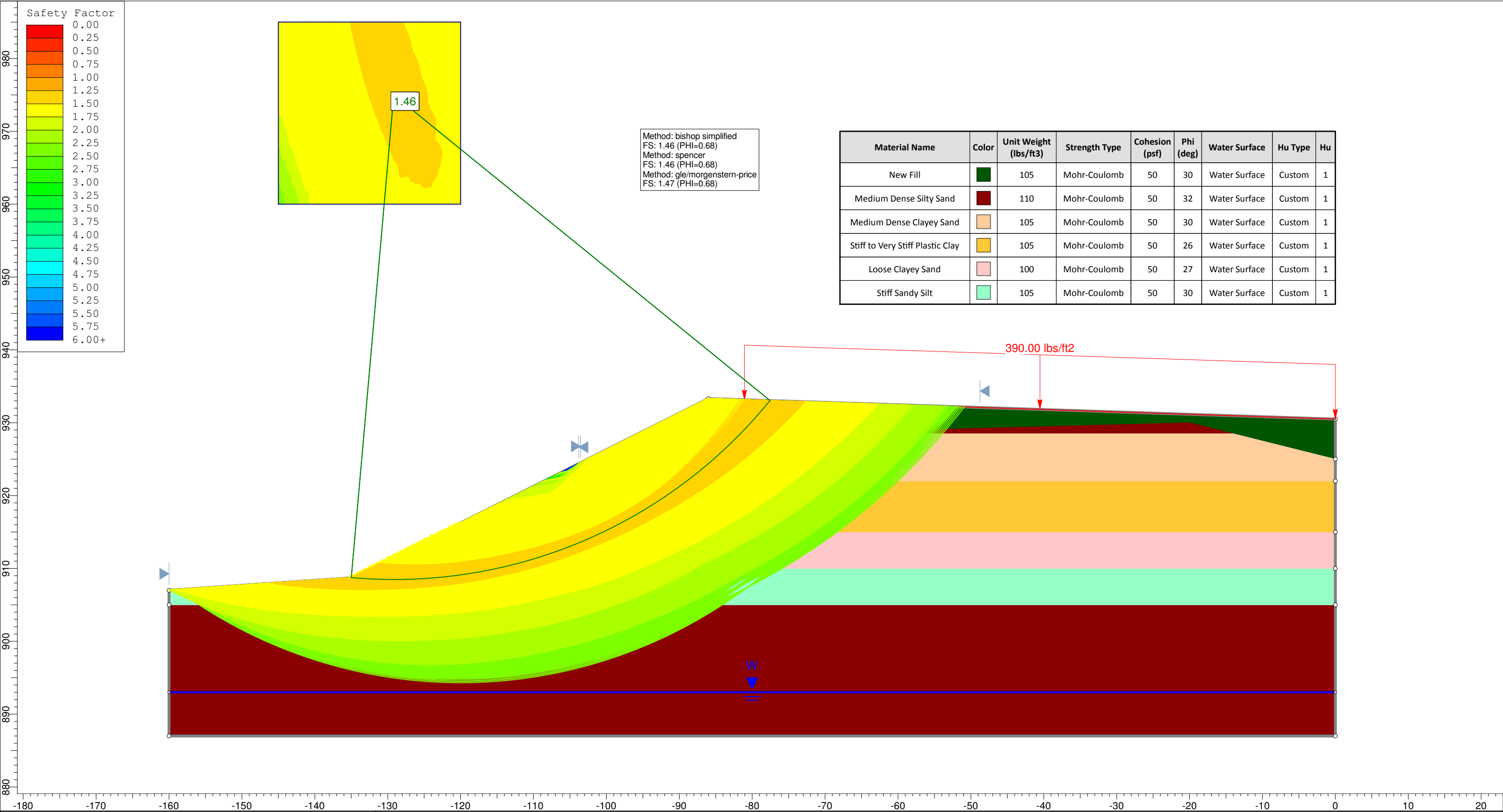
Project		I-85/385 Interchange Improvements - Project ID: 003811; ECS Project No. 9283	
Analysis Description		Roadway - I-385 SB CD - Station 102+50- ESA	
Drawn By	CLB	Scale	1:250
		Company	ECS Carolinas LLP
Date	09/09/2015	File Name	I-385 SB CD Sta 102+50 ESA.slim

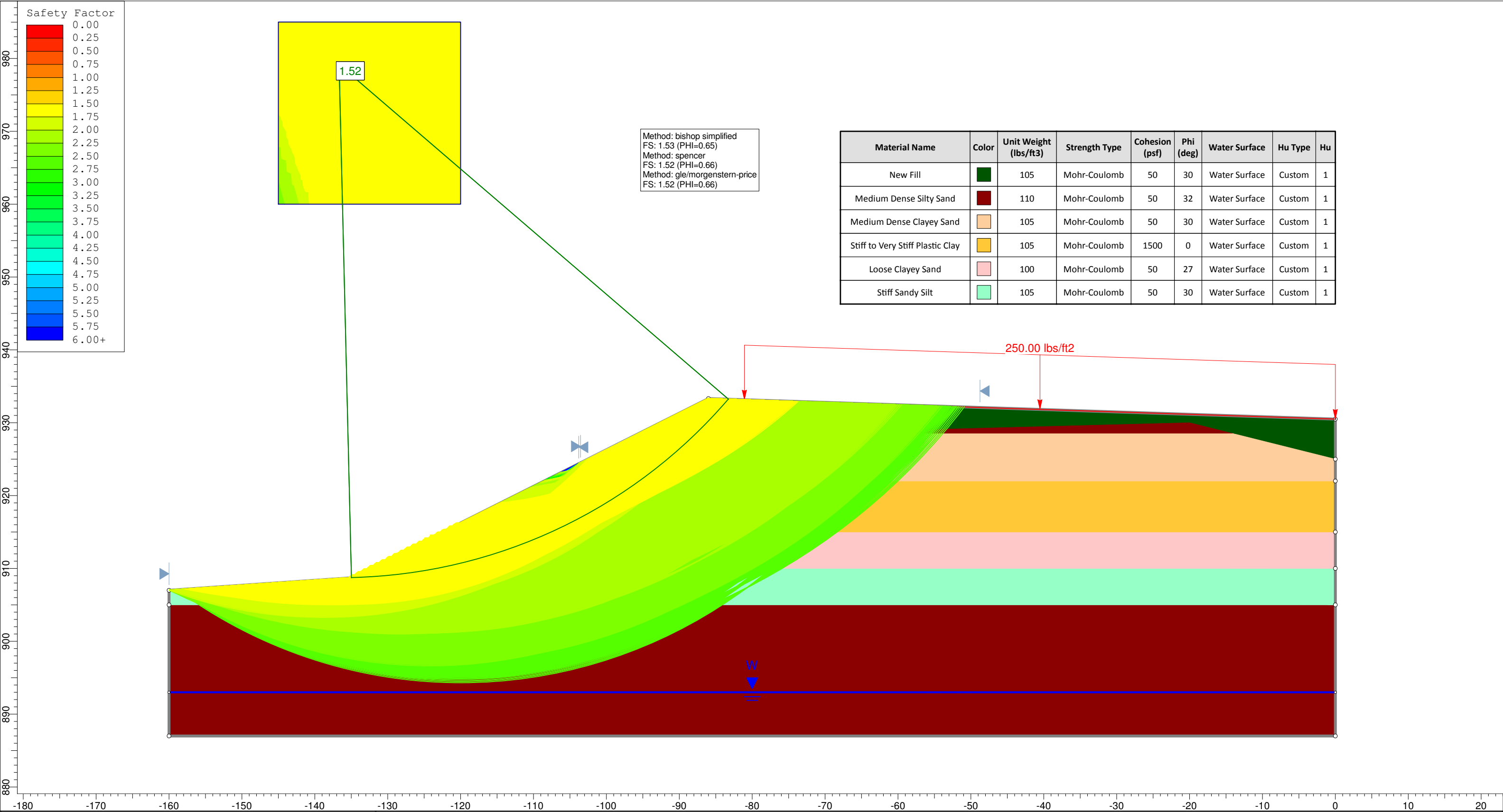


Method: bishop simplified
FS: 1.43 (PHI=0.70)
Method: spencer
FS: 1.43 (PHI=0.70)
Method: gleimorgens-terner-price
FS: 1.43 (PHI=0.70)

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Loose to Medium Dense Silty Sand		110	Mohr-Coulomb	50	30	None	0
New Fill		105	Mohr-Coulomb	50	30	None	0

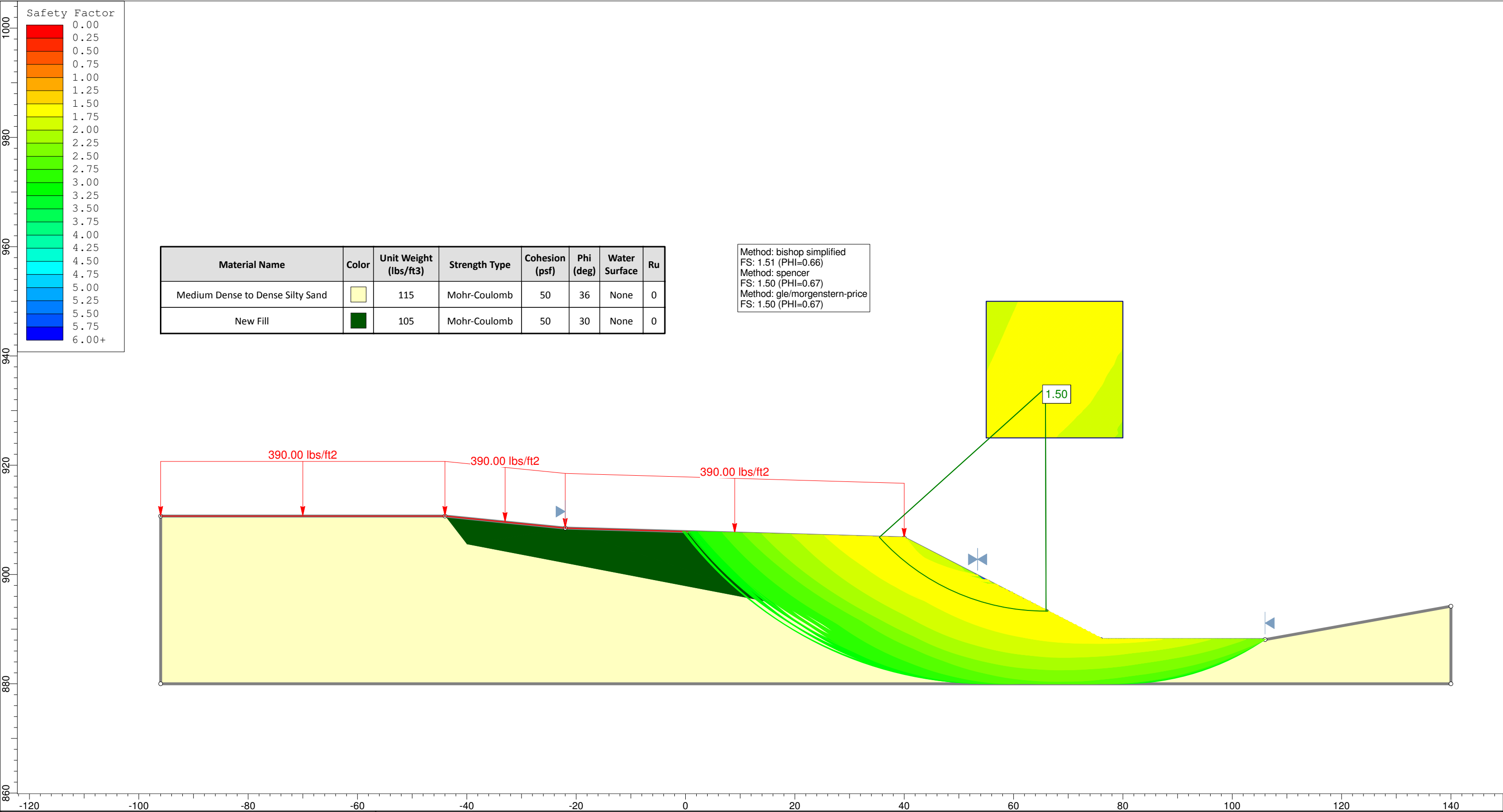
	Project			I-85/385 Interchange Improvements - Project ID: 003811; ECS Project No. 9283		
	Analysis Description			Roadway - I-385 SBCD - Station 102+50- TSA		
	Drawn By		CLB	Scale	1:250	Company
	Date		09/09/2015	File Name		I-385 SBCD Sta 102+50 TSA.slim

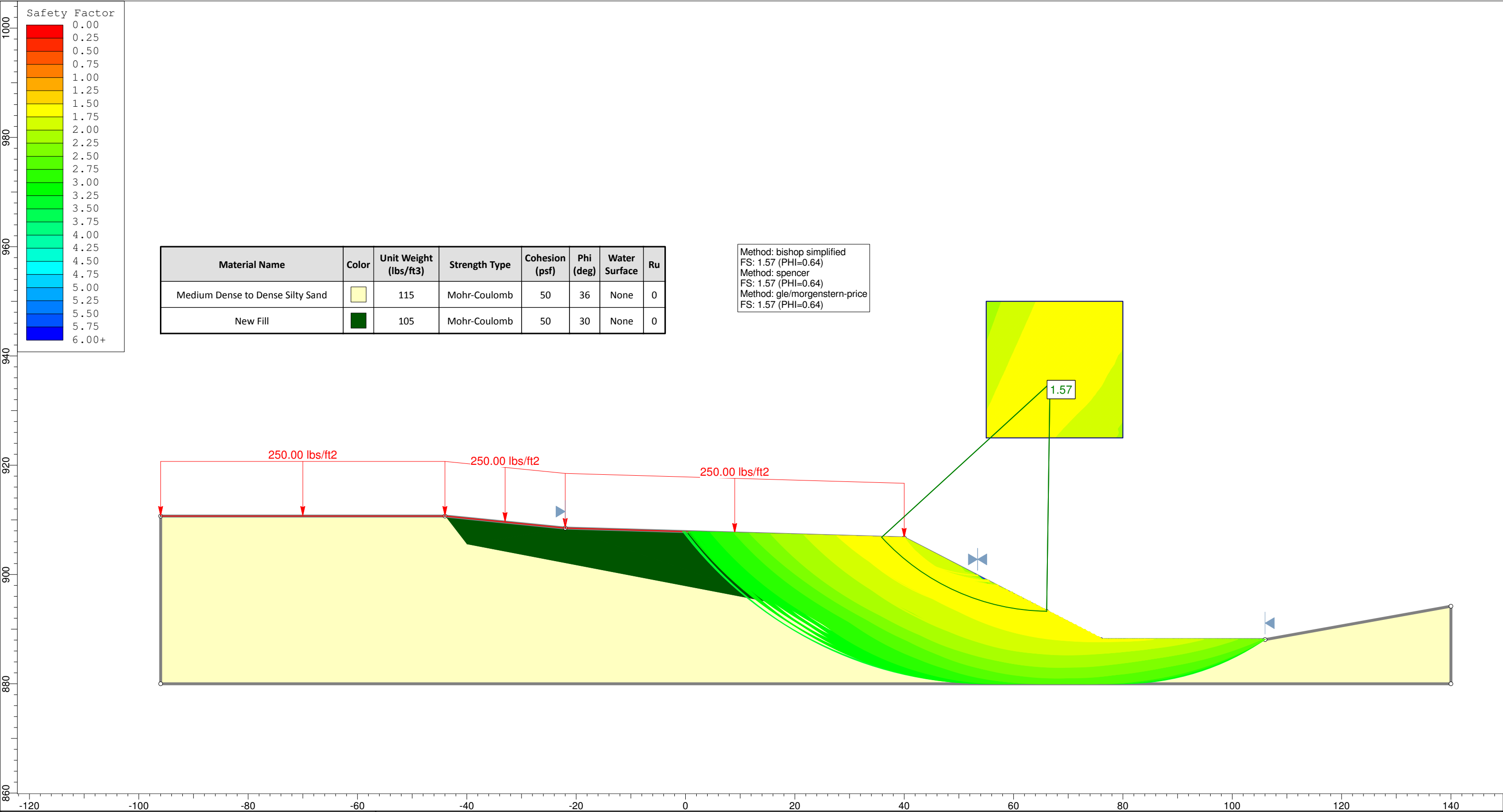





Method: bishop simplified
FS: 1.53 (PHI=0.65)
Method: spencer
FS: 1.52 (PHI=0.66)
Method: gle/morgenstern-price
FS: 1.52 (PHI=0.66)

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
New Fill	<div></div>	105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	Water Surface	Custom	1
Medium Dense Clayey Sand	<div></div>	105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Stiff to Very Stiff Plastic Clay	<div></div>	105	Mohr-Coulomb	1500	0	Water Surface	Custom	1
Loose Clayey Sand	<div></div>	100	Mohr-Coulomb	50	27	Water Surface	Custom	1
Stiff Sandy Silt	<div></div>	105	Mohr-Coulomb	50	30	Water Surface	Custom	1

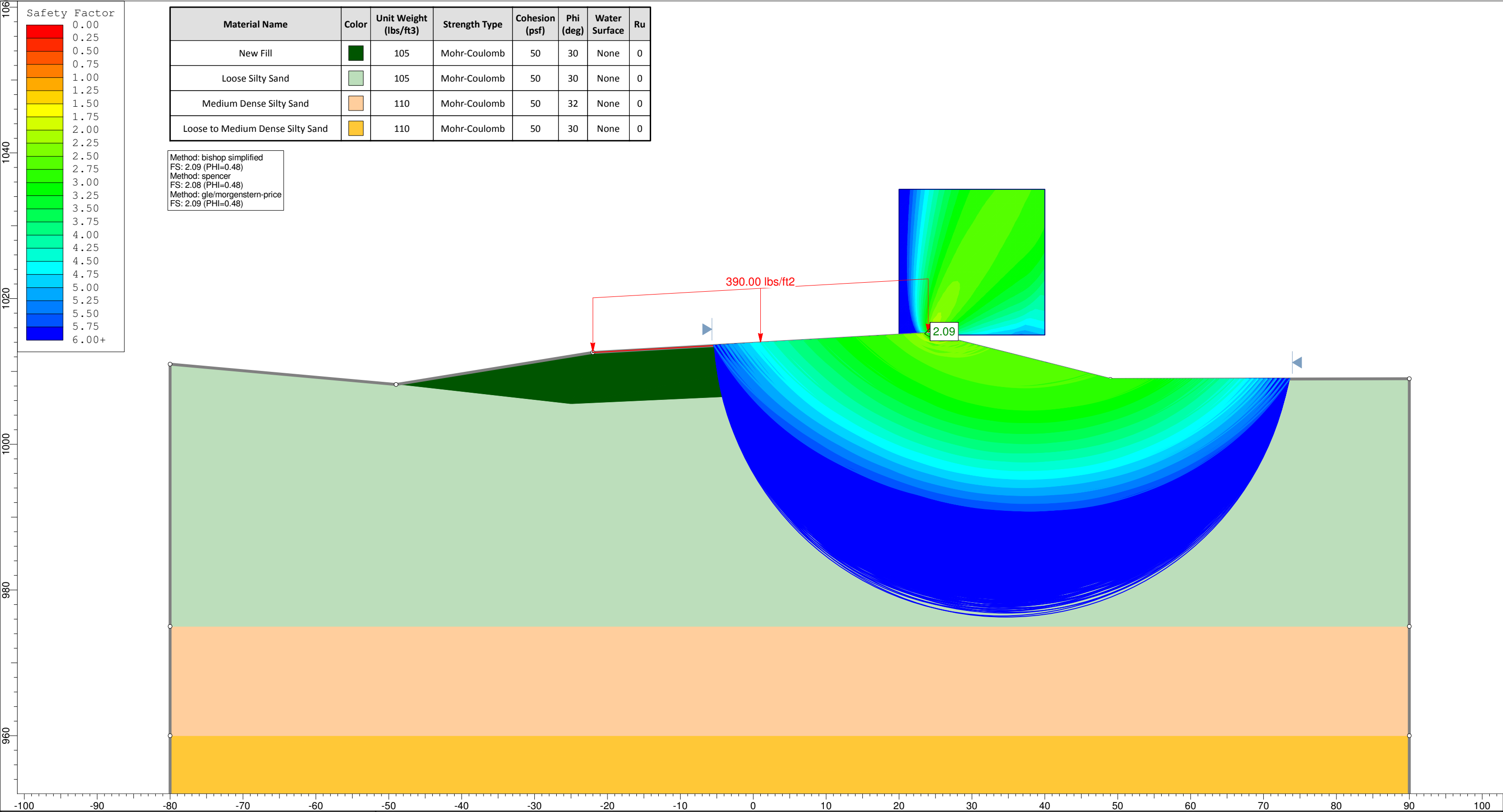






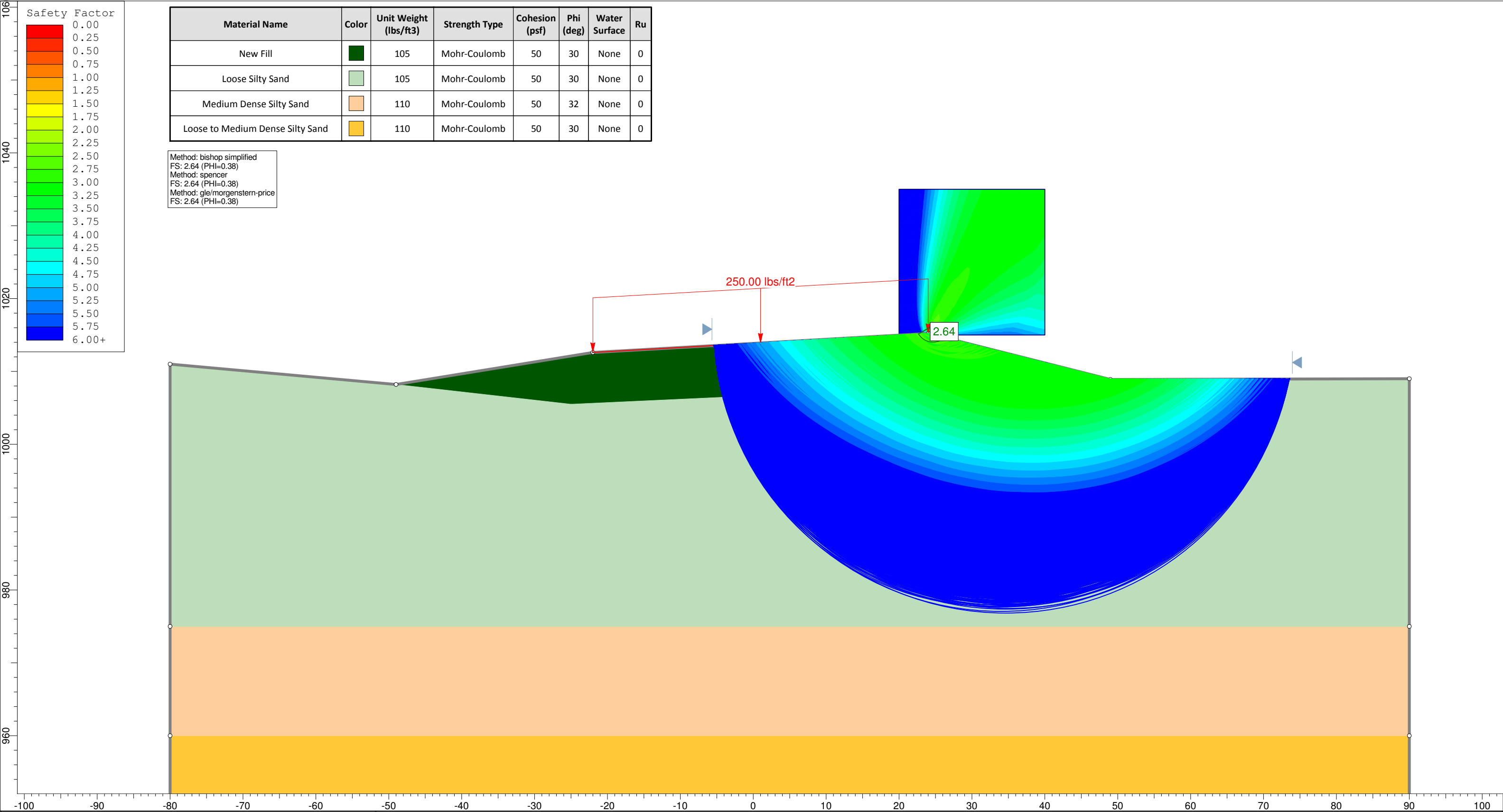
SLIDEINTERPRET 6.035

Project				I-85/385 Interchange Improvements - Project ID: 003811; ECS Project No. 9283					
Analysis Description				Roadway - Ramp 1 - Station 72+00- TSA					
Drawn By		CLB		Scale	1:200	Company		ECS Carolinas LLP	
Date		09/10/2015		File Name		Ramp 1 Sta 72+00 TSA.slim			



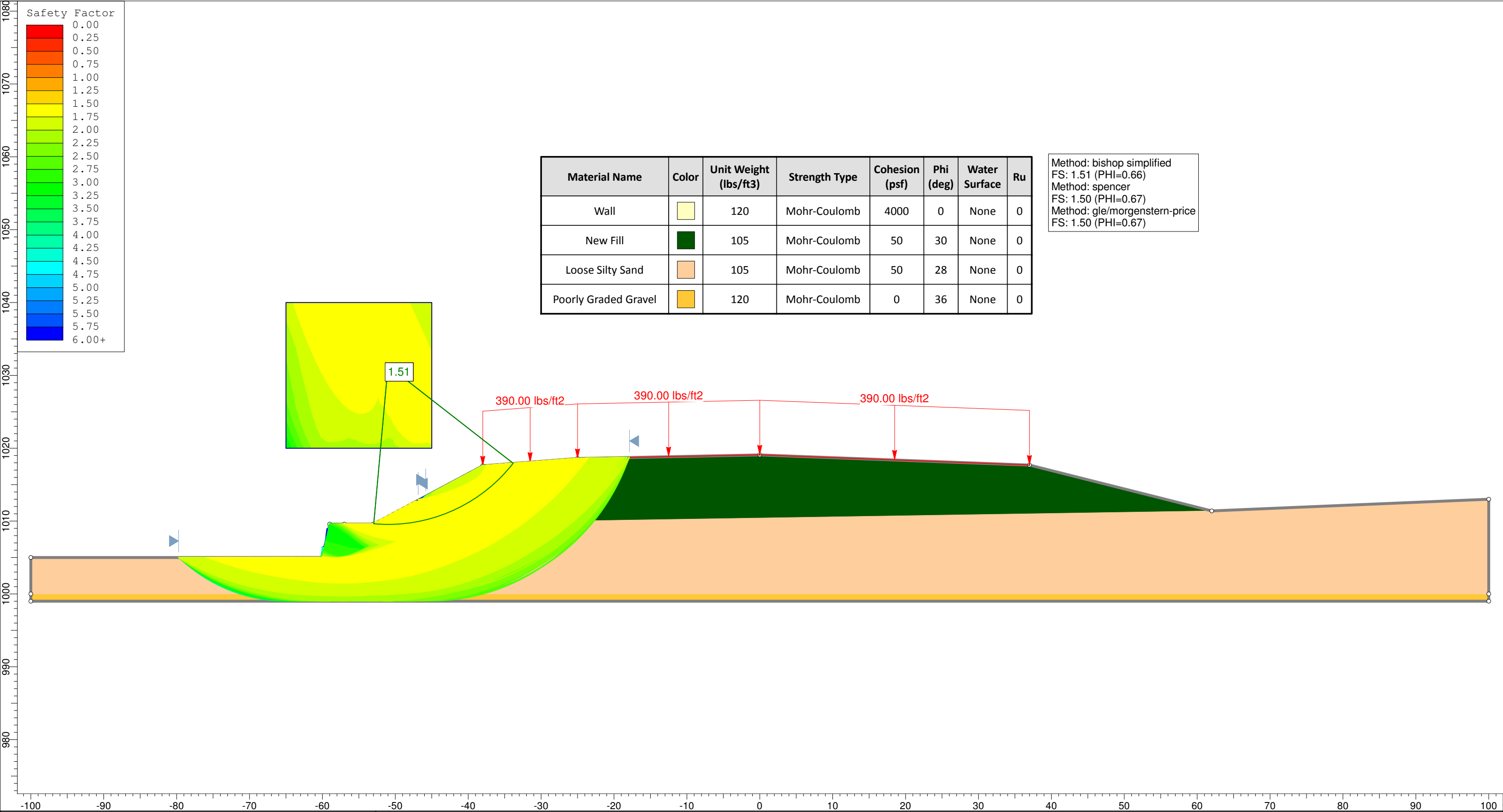
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill		105	Mohr-Coulomb	50	30	None	0
Loose Silty Sand		105	Mohr-Coulomb	50	30	None	0
Medium Dense Silty Sand		110	Mohr-Coulomb	50	32	None	0
Loose to Medium Dense Silty Sand		110	Mohr-Coulomb	50	30	None	0

Method: bishop simplified
FS: 2.09 (PHI=0.48)
Method: spencer
FS: 2.08 (PHI=0.48)
Method: gle/morgenstern-price
FS: 2.09 (PHI=0.48)



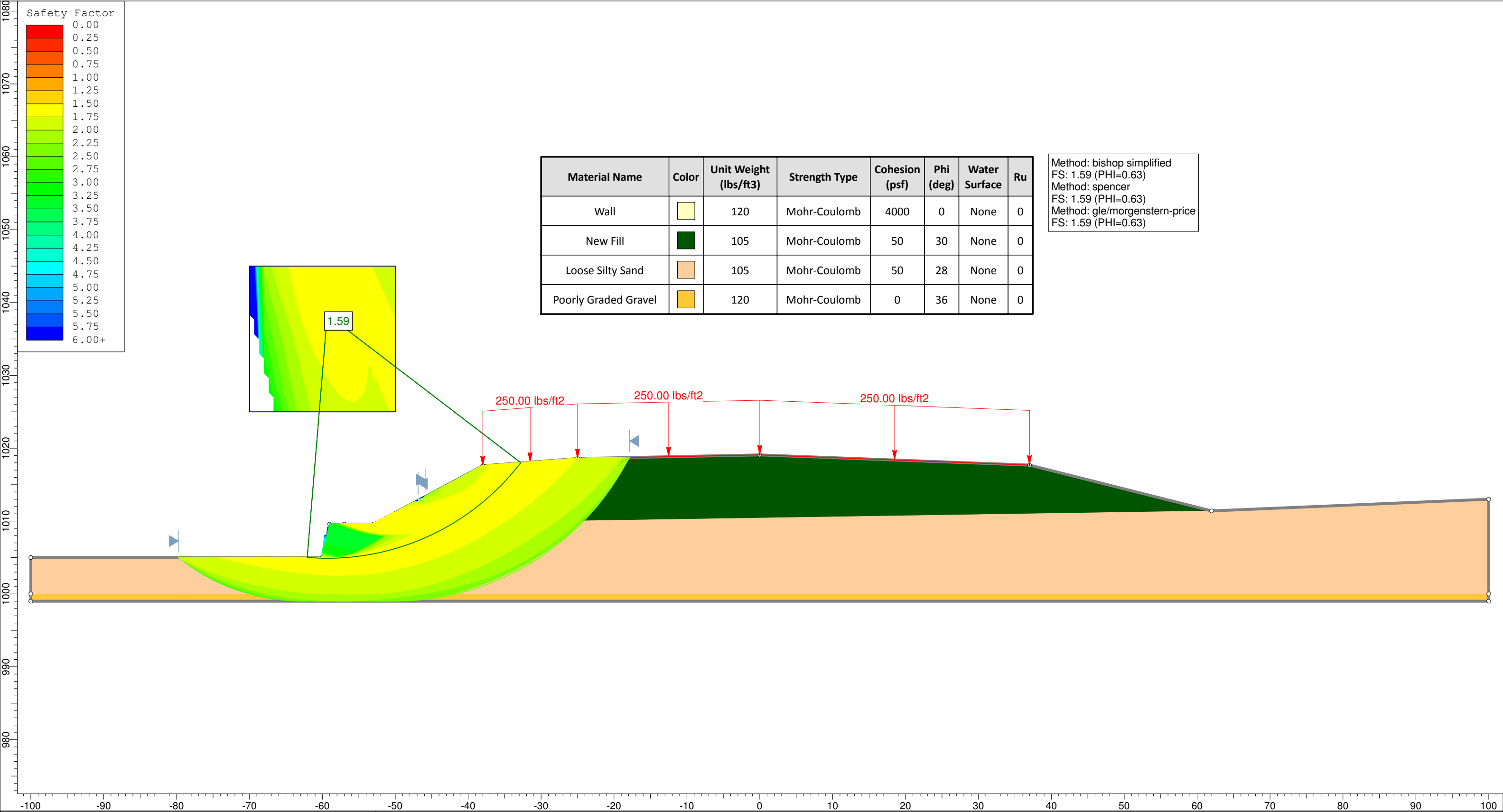
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	<div></div>	105	Mohr-Coulomb	50	30	None	0
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	30	None	0
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	None	0
Loose to Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	30	None	0

Method: bishop simplified
FS: 2.64 (PHI=0.38)
Method: spencer
FS: 2.64 (PHI=0.38)
Method: gle/morgenstern-price
FS: 2.64 (PHI=0.38)



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Wall	<div></div>	120	Mohr-Coulomb	4000	0	None	0
New Fill	<div></div>	105	Mohr-Coulomb	50	30	None	0
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	28	None	0
Poorly Graded Gravel	<div></div>	120	Mohr-Coulomb	0	36	None	0

Method: bishop simplified
FS: 1.51 (PHI=0.66)
Method: spencer
FS: 1.50 (PHI=0.67)
Method: gle/morgenstern-price
FS: 1.50 (PHI=0.67)



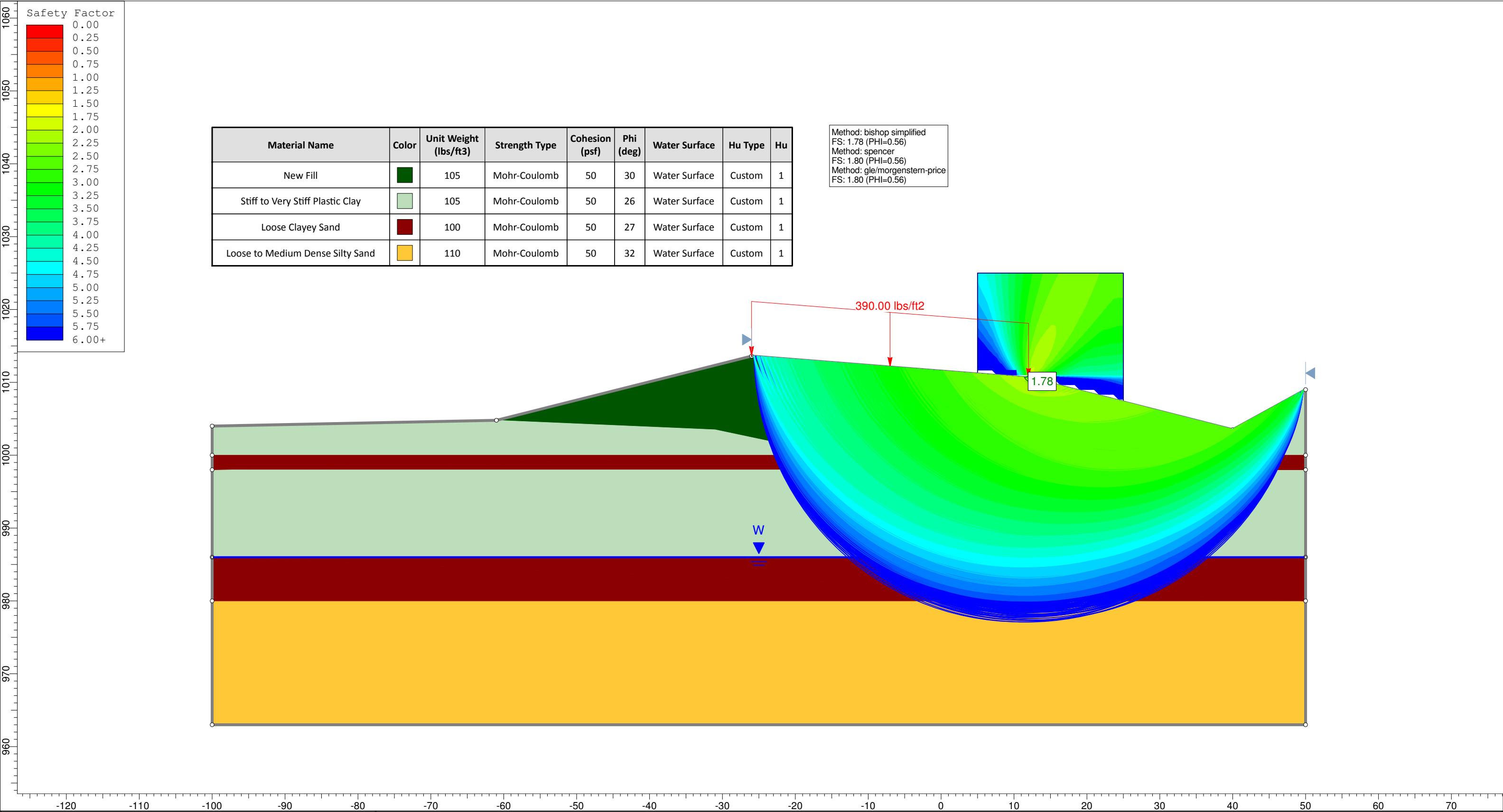
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Wall		120	Mohr-Coulomb	4000	0	None	0
New Fill		105	Mohr-Coulomb	50	30	None	0
Loose Silty Sand		105	Mohr-Coulomb	50	28	None	0
Poorly Graded Gravel		120	Mohr-Coulomb	0	36	None	0

Method: bishop simplified
FS: 1.59 (PHI=0.63)
Method: spencer
FS: 1.59 (PHI=0.63)
Method: gle/morgenstern-price
FS: 1.59 (PHI=0.63)



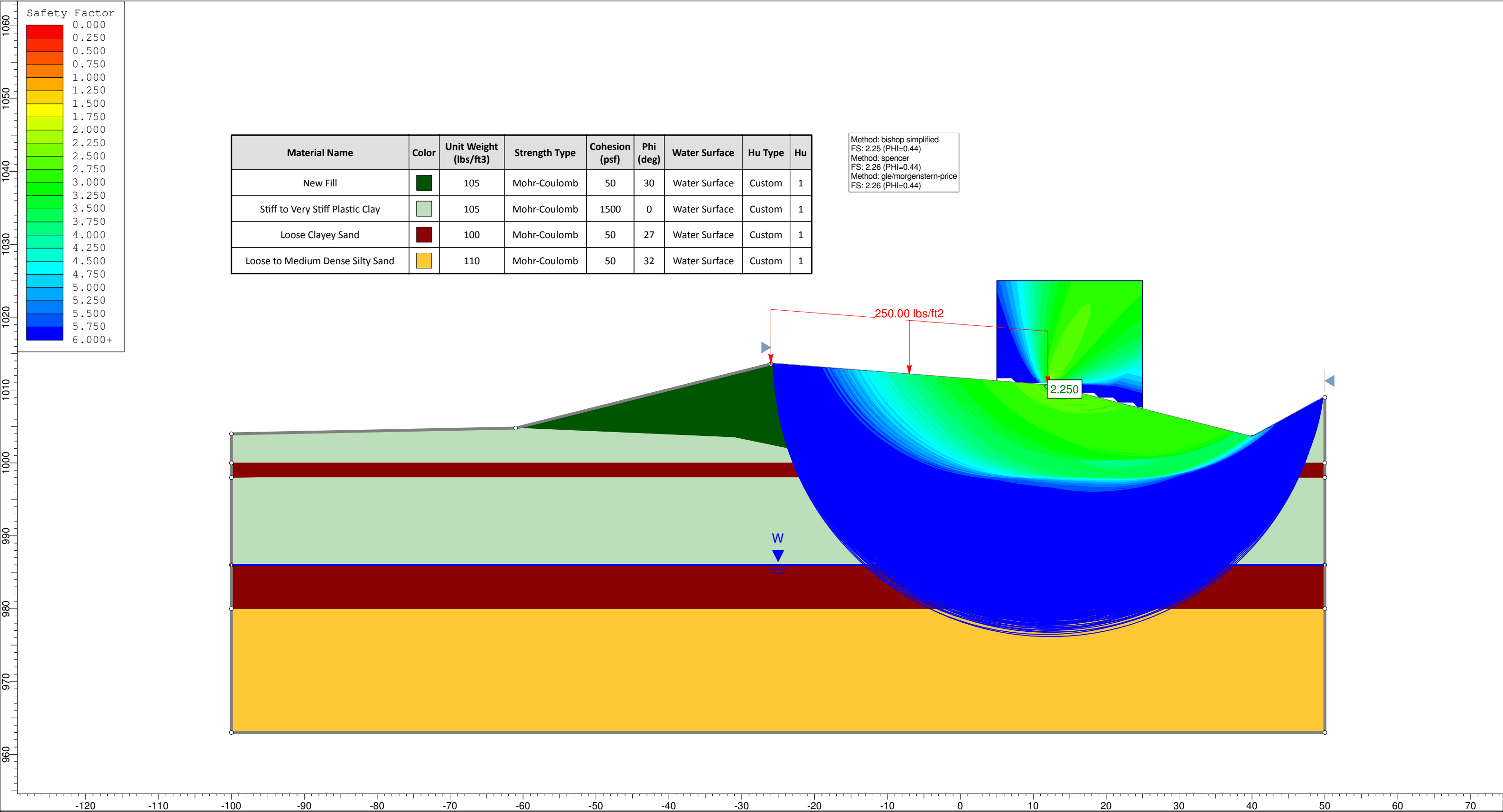
SLIDEINTERPRET 6.035

Project		I-85/385 Interchange Improvements - Project ID: 003811; ECS Project No. 9283	
Analysis Description		Roadway - Ramp 1B - Station 77+00- TSA	
Drawn By	CLB	Scale	1:150
		Company	ECS Carolinas LLP
Date	09/10/2015	File Name	Ramp 1B Sta 77+00 TSA.slim



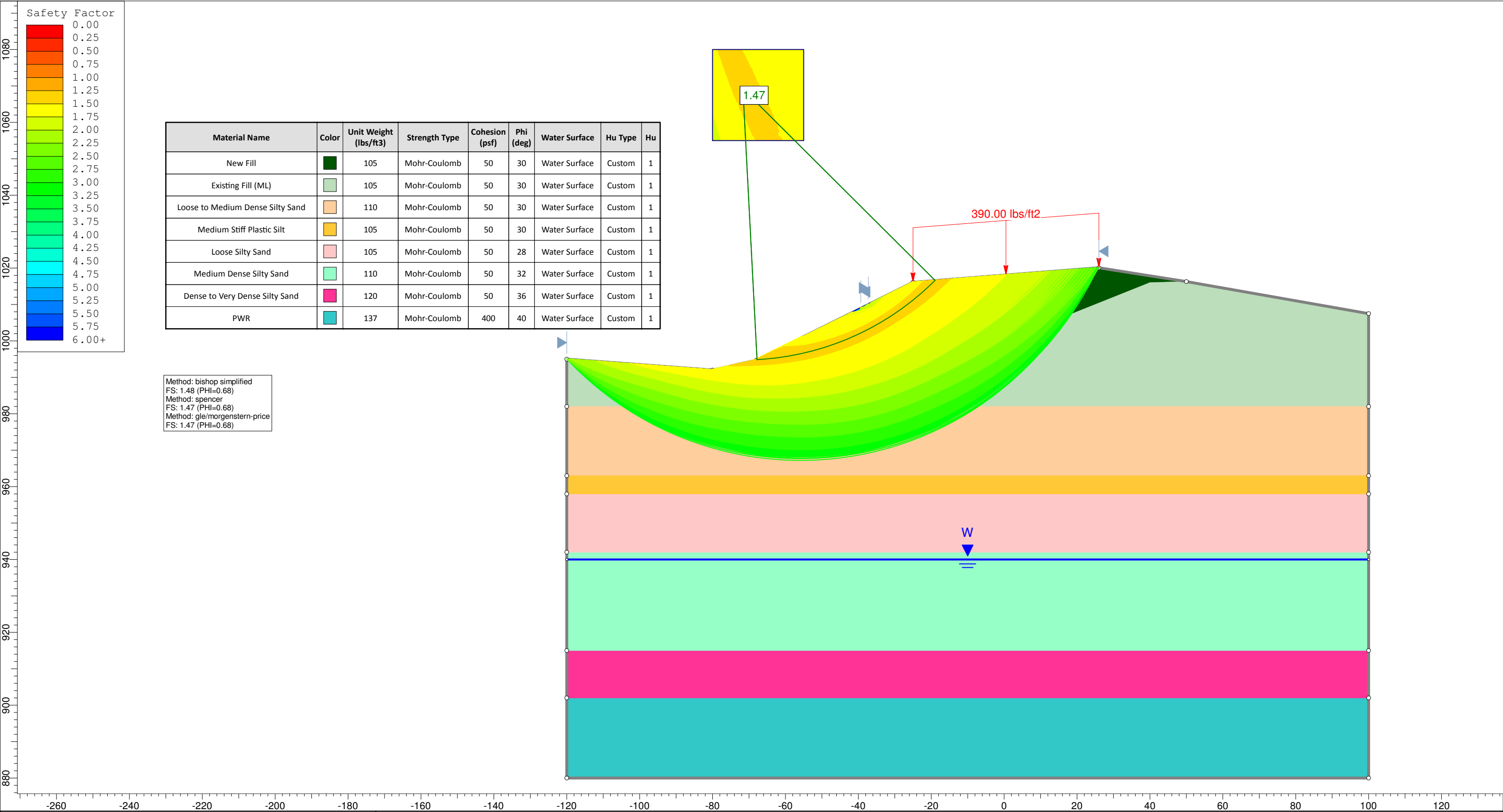
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
New Fill		105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Stiff to Very Stiff Plastic Clay		105	Mohr-Coulomb	50	26	Water Surface	Custom	1
Loose Clayey Sand		100	Mohr-Coulomb	50	27	Water Surface	Custom	1
Loose to Medium Dense Silty Sand		110	Mohr-Coulomb	50	32	Water Surface	Custom	1

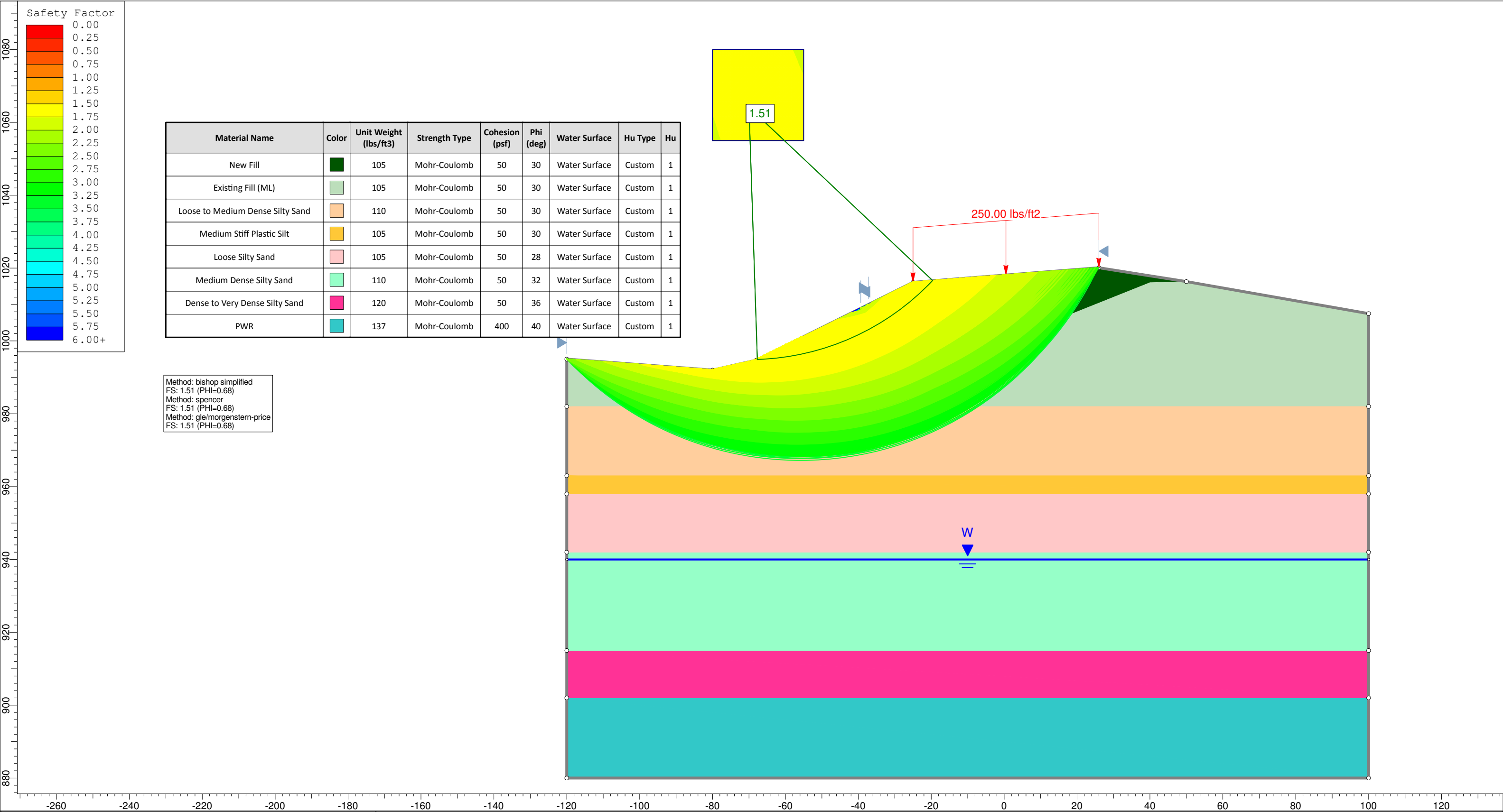
Method: bishop simplified
FS: 1.78 (PHI=0.56)
Method: spencer
FS: 1.80 (PHI=0.56)
Method: gle/morgenstern-price
FS: 1.80 (PHI=0.56)

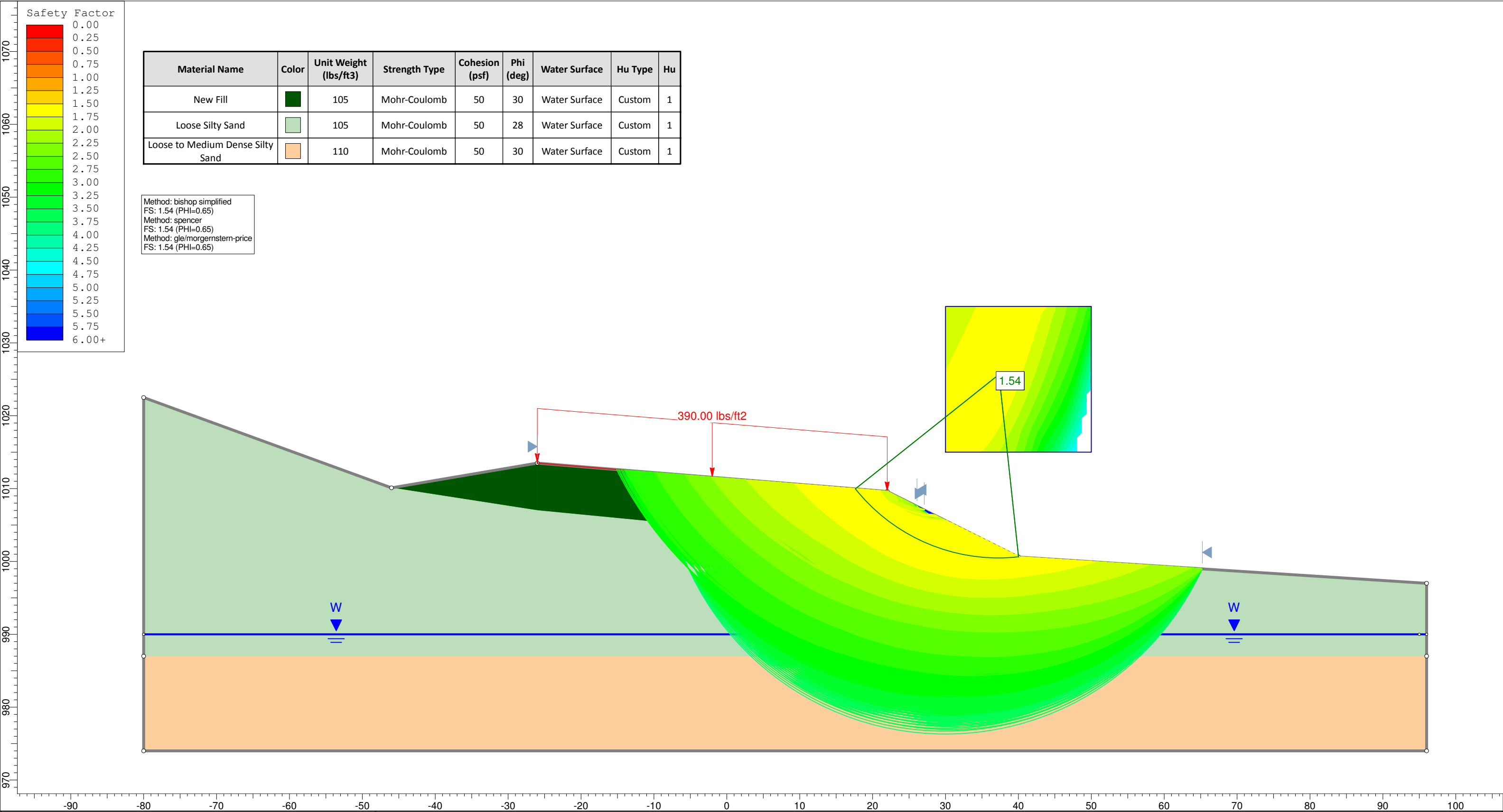



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
New Fill	<div></div>	105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Stiff to Very Stiff Plastic Clay	<div></div>	105	Mohr-Coulomb	1500	0	Water Surface	Custom	1
Loose Clayey Sand	<div></div>	100	Mohr-Coulomb	50	27	Water Surface	Custom	1
Loose to Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	Water Surface	Custom	1

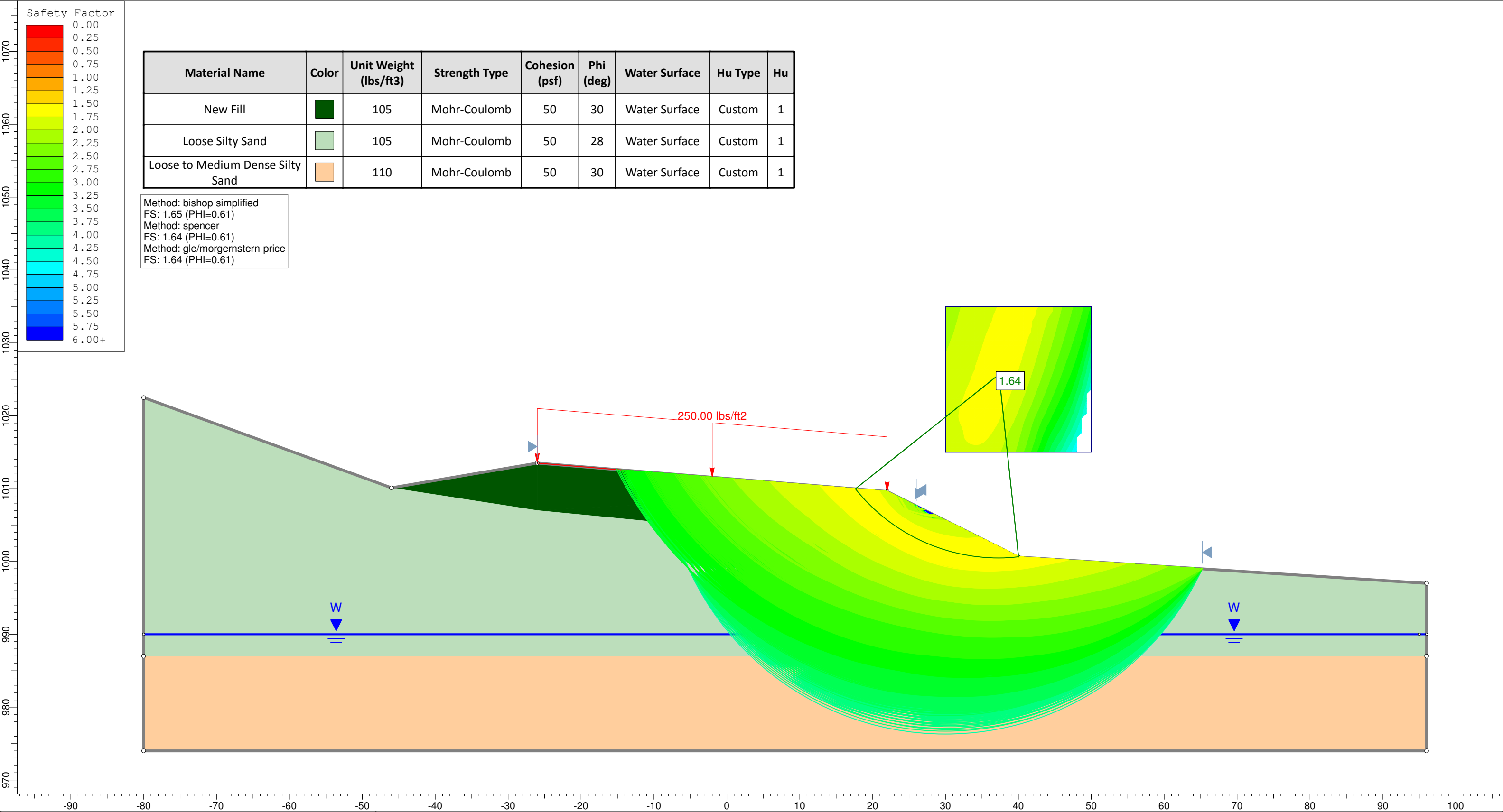
Method: bishop simplified
FS: 2.25 (PHI=0.44)
Method: spencer
FS: 2.26 (PHI=0.44)
Method: gle/morgenstern-price
FS: 2.26 (PHI=0.44)

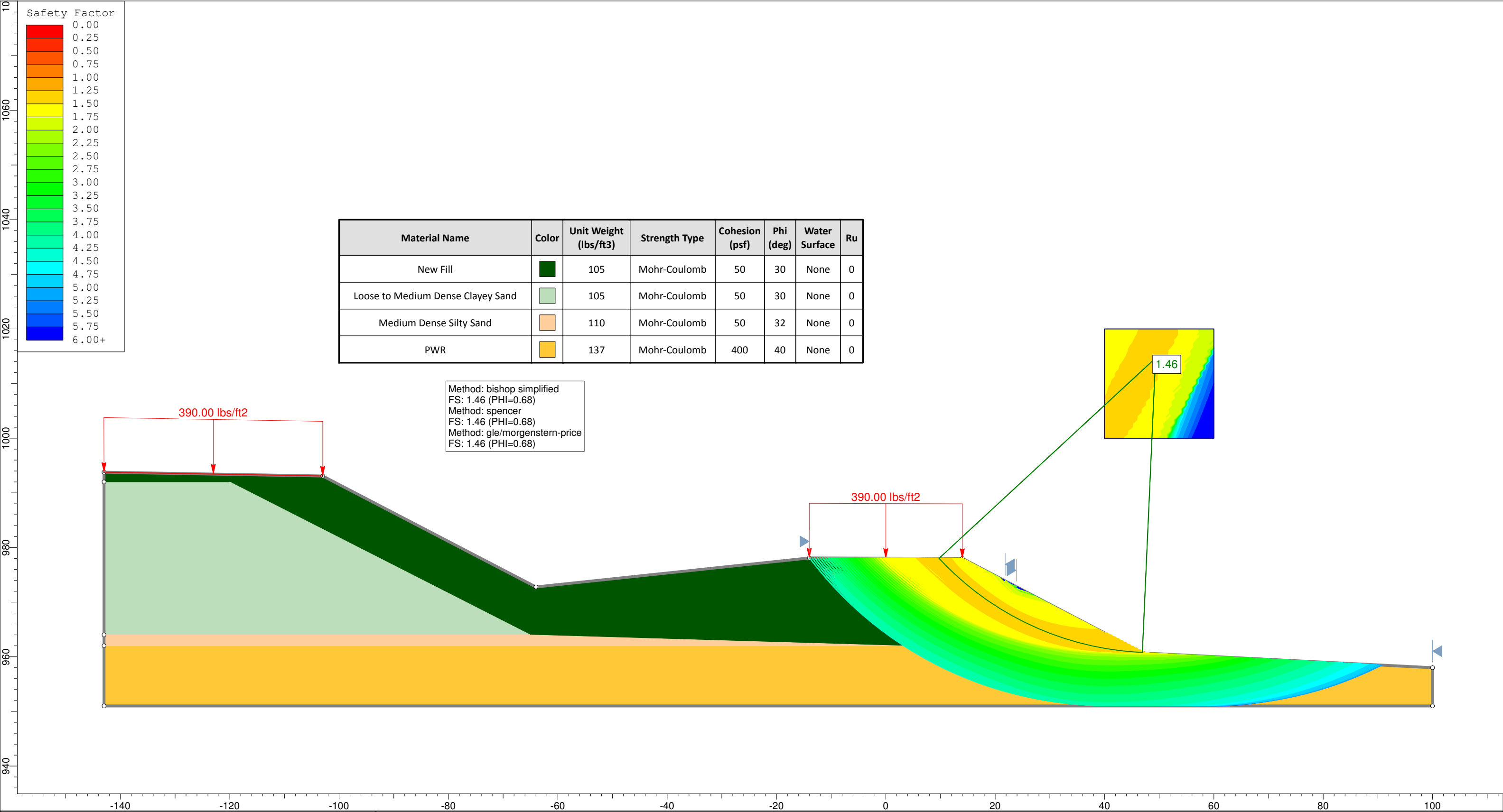


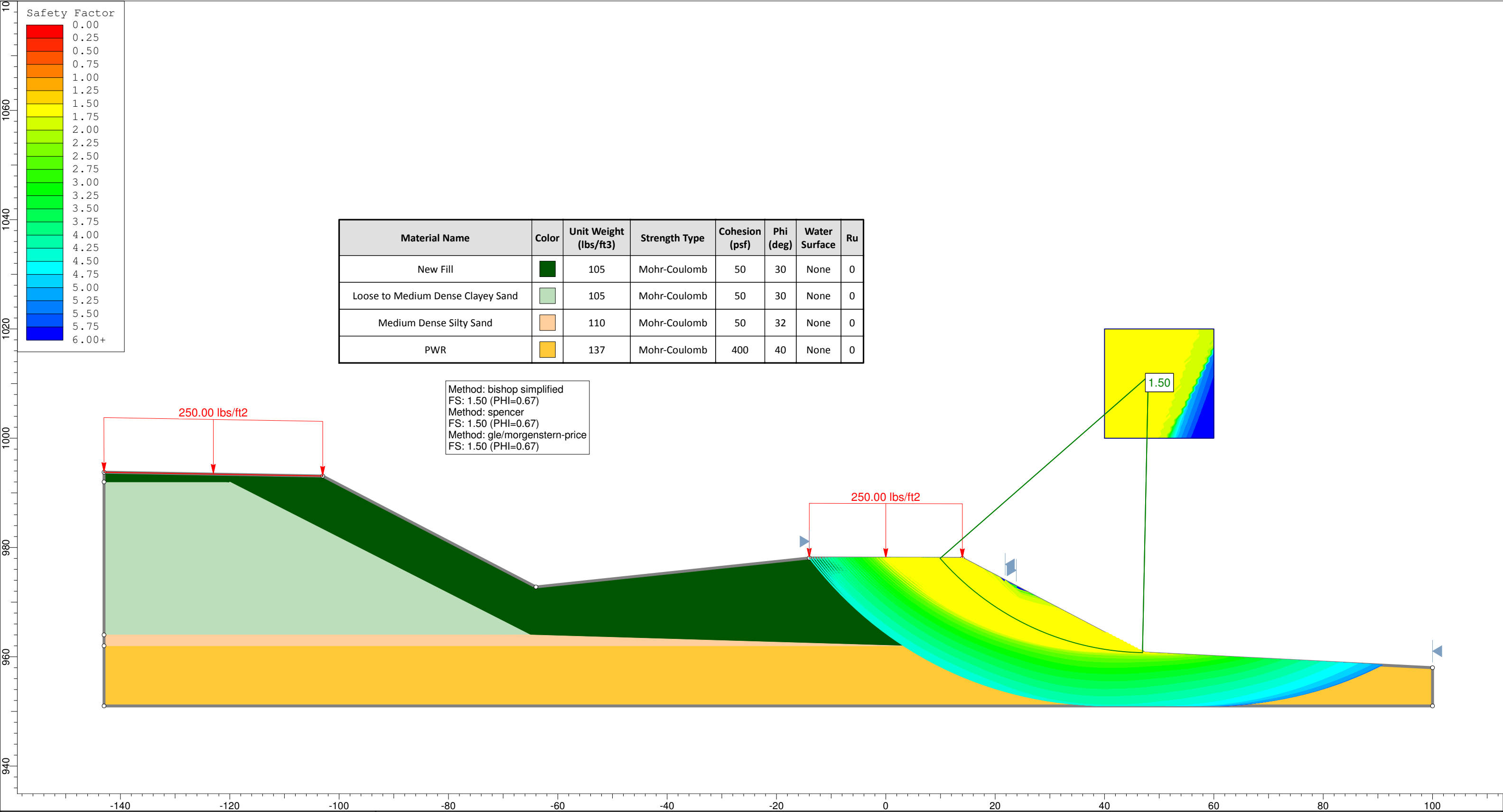


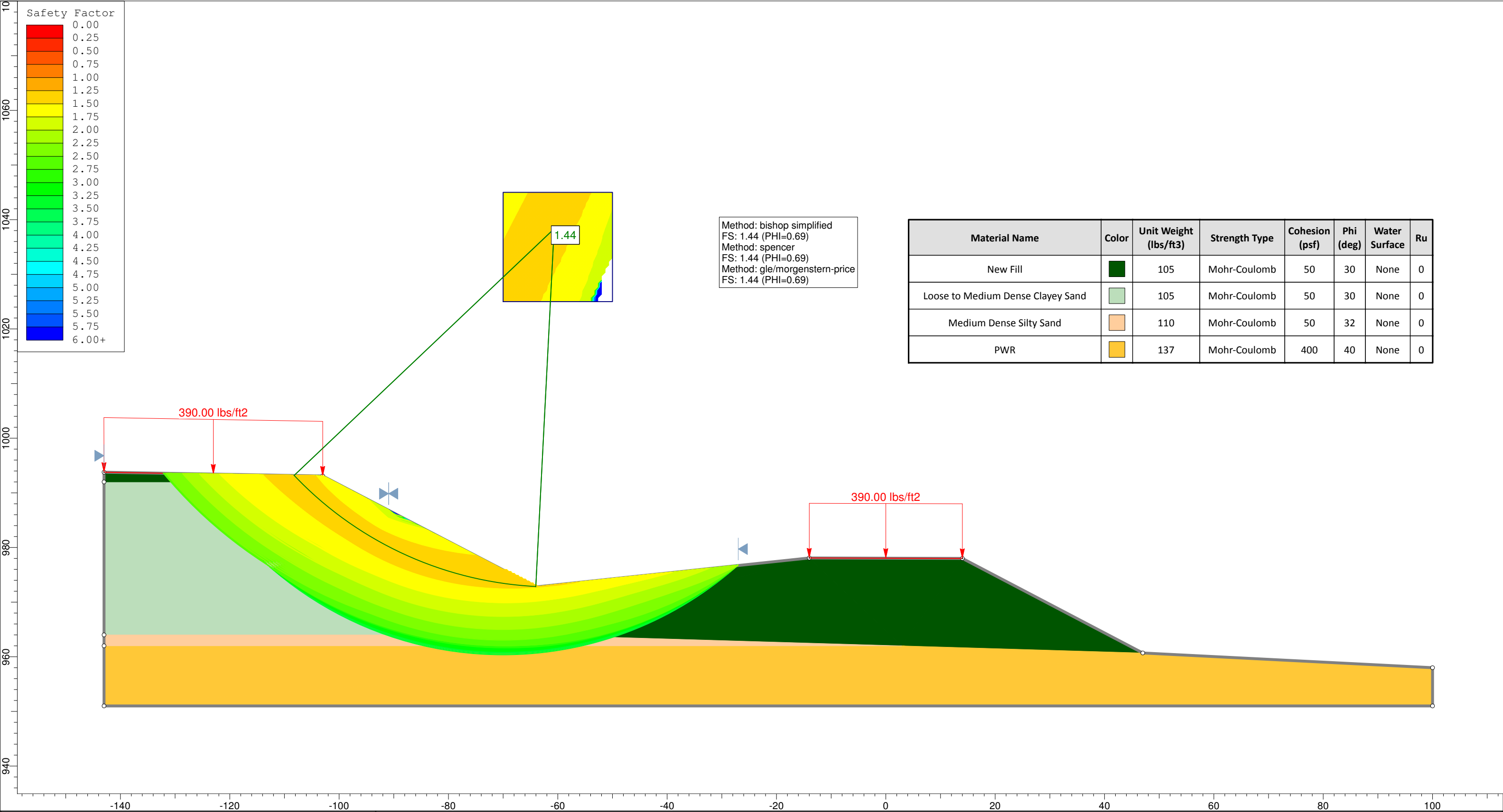


	Project				I-85/385 Interchange Improvements - Project ID: 003811; ECS Project No. 9283			
	Analysis Description				Roadway - Ramp 3 - Station 40+50 - ESA			
	Drawn By		CLB		Scale		Company	
					1:150		ECS Carolinas LLP	
	Date		09/09/2015		File Name		Ramp 3 Sta 40+50.slim	



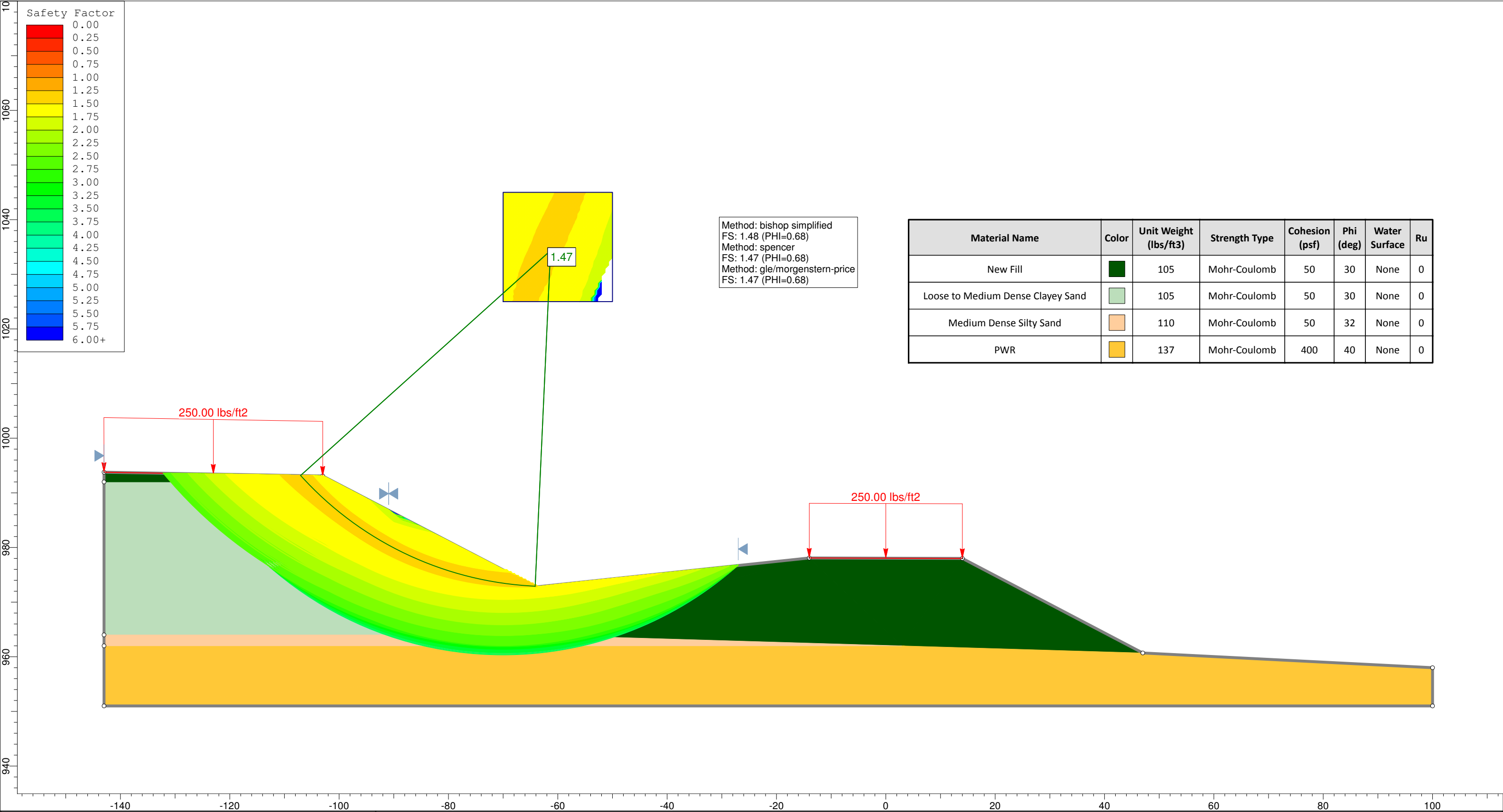


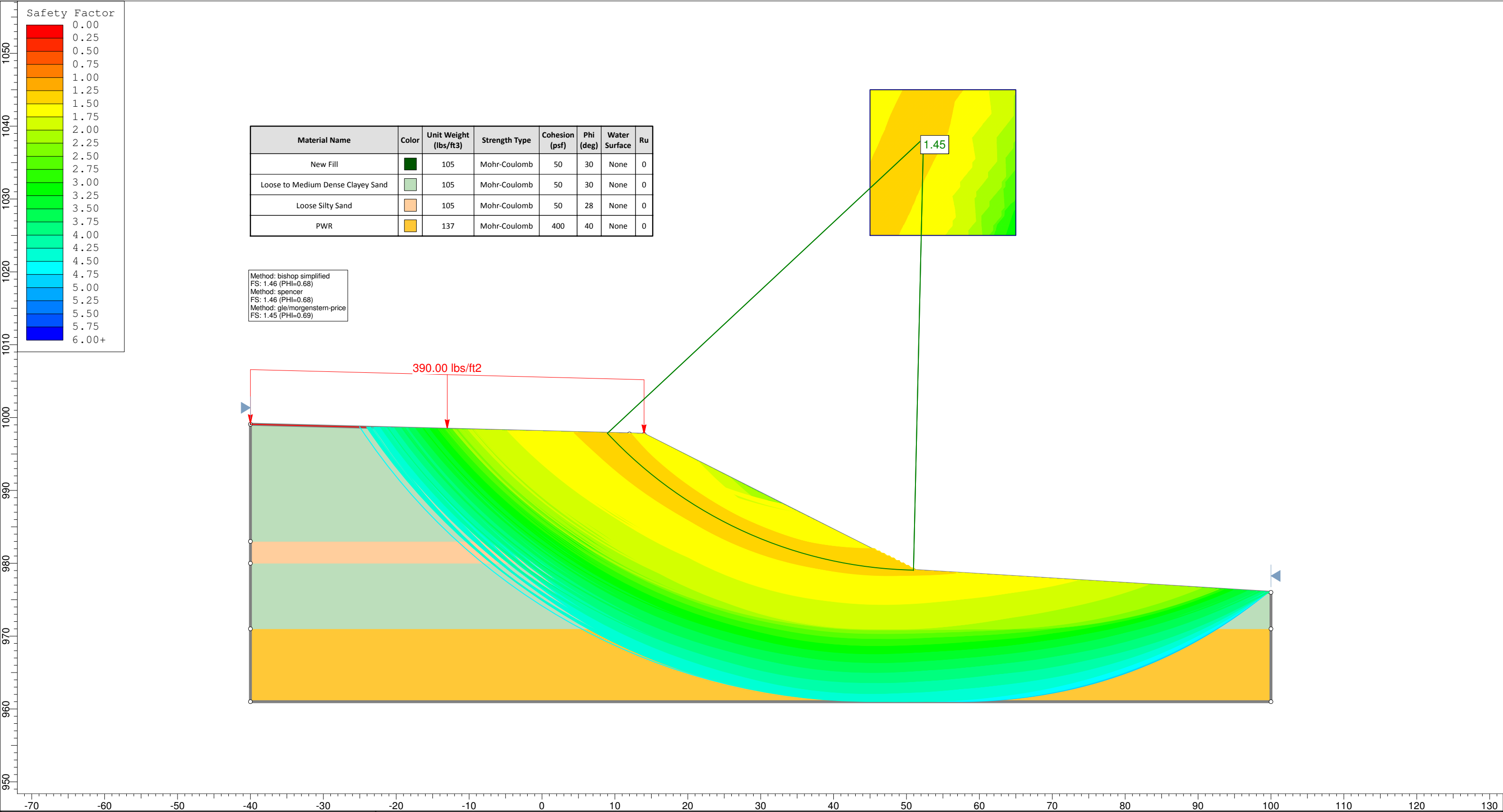


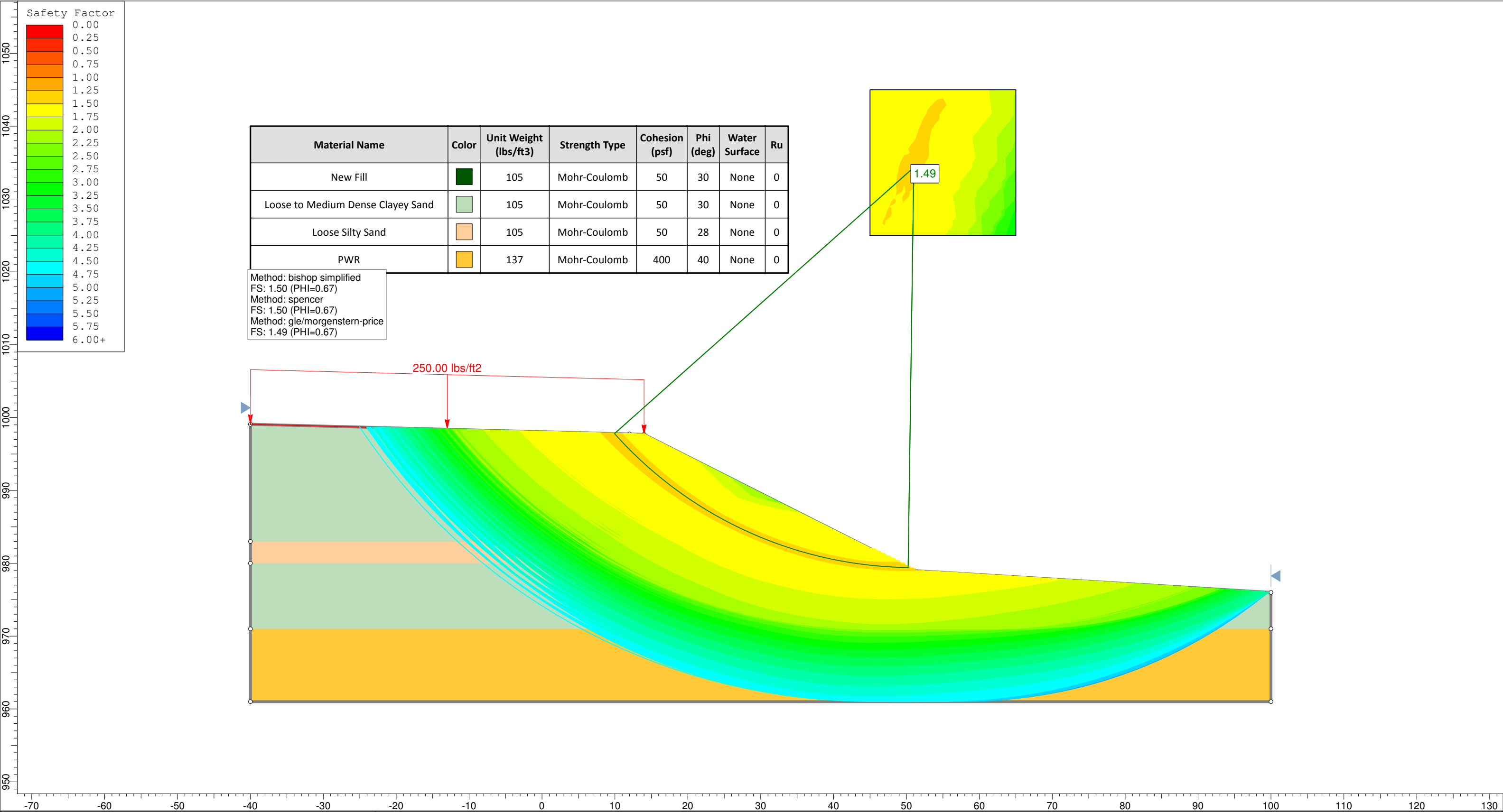


Method: bishop simplified
FS: 1.44 (PHI=0.69)
Method: spencer
FS: 1.44 (PHI=0.69)
Method: gle/morgenstern-price
FS: 1.44 (PHI=0.69)

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	<div></div>	105	Mohr-Coulomb	50	30	None	0
Loose to Medium Dense Clayey Sand	<div></div>	105	Mohr-Coulomb	50	30	None	0
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	None	0
PWR	<div></div>	137	Mohr-Coulomb	400	40	None	0

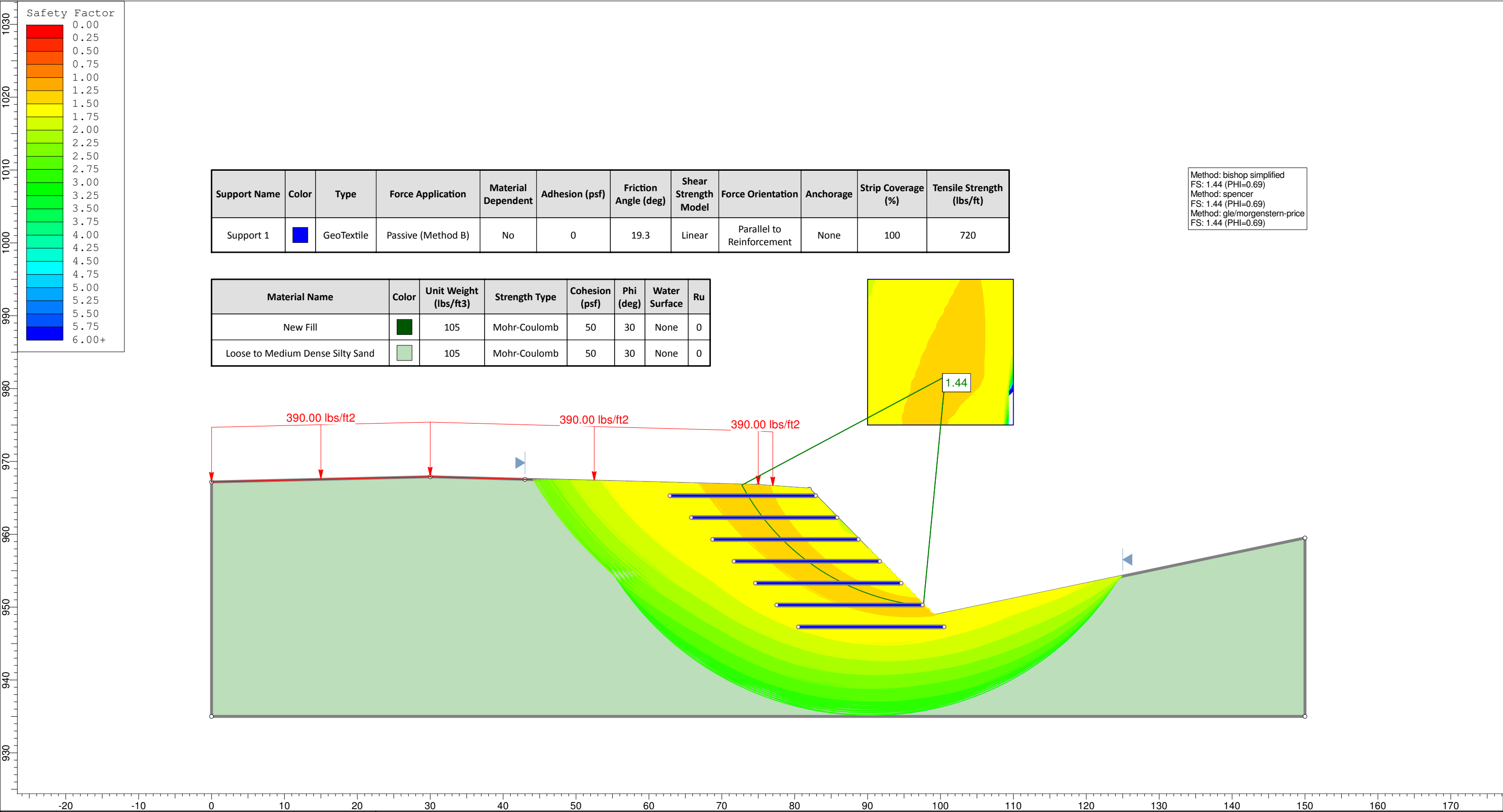






Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	<div></div>	105	Mohr-Coulomb	50	30	None	0
Loose to Medium Dense Clayey Sand	<div></div>	105	Mohr-Coulomb	50	30	None	0
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	28	None	0
PWR	<div></div>	137	Mohr-Coulomb	400	40	None	0

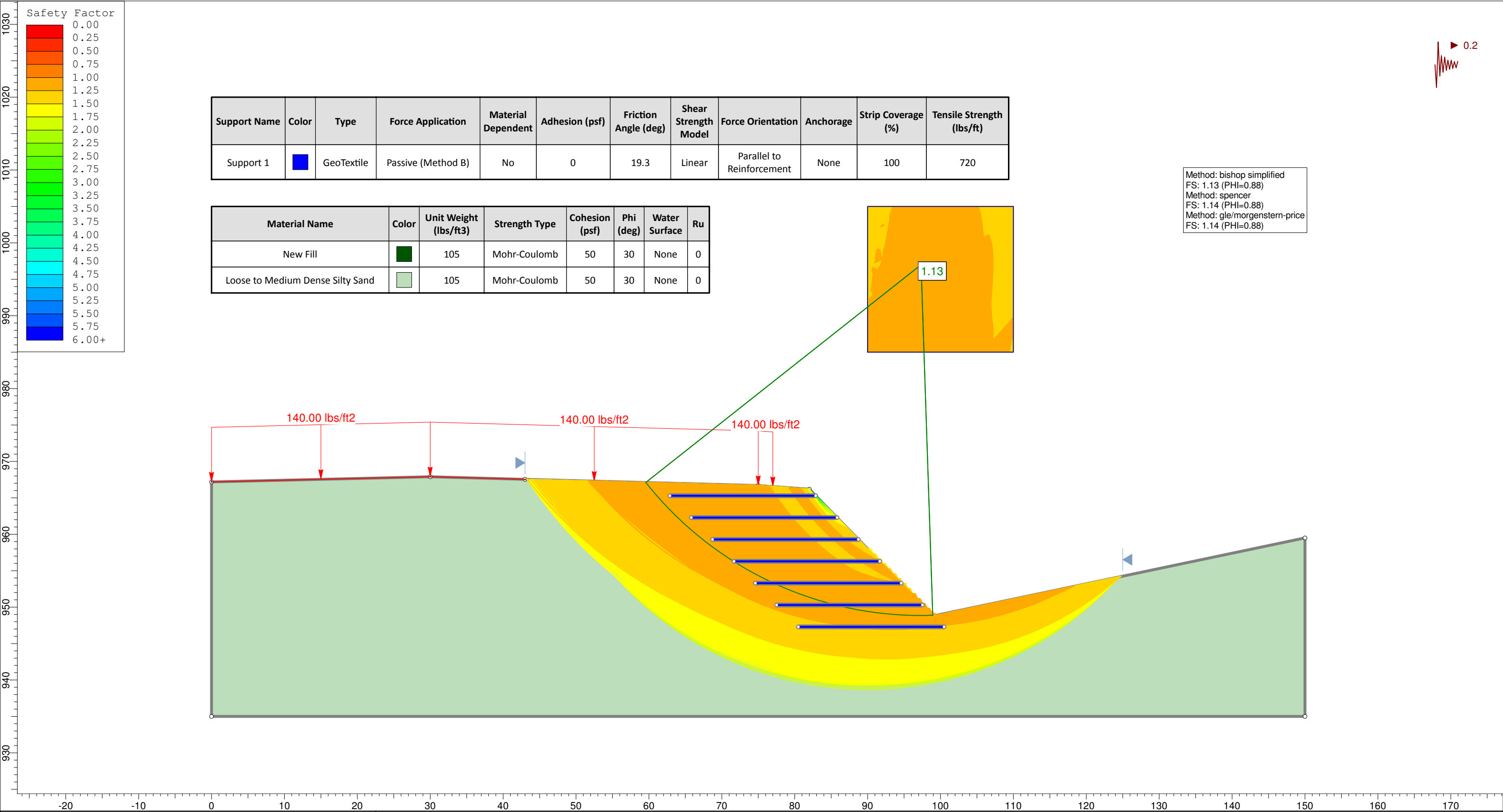
Method: bishop simplified
FS: 1.50 (PHI=0.67)
Method: spencer
FS: 1.50 (PHI=0.67)
Method: gle/morgenstern-price
FS: 1.49 (PHI=0.67)



Support Name	Color	Type	Force Application	Material Dependent	Adhesion (psf)	Friction Angle (deg)	Shear Strength Model	Force Orientation	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1	■	GeoTextile	Passive (Method B)	No	0	19.3	Linear	Parallel to Reinforcement	None	100	720

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	■	105	Mohr-Coulomb	50	30	None	0
Loose to Medium Dense Silty Sand	■	105	Mohr-Coulomb	50	30	None	0

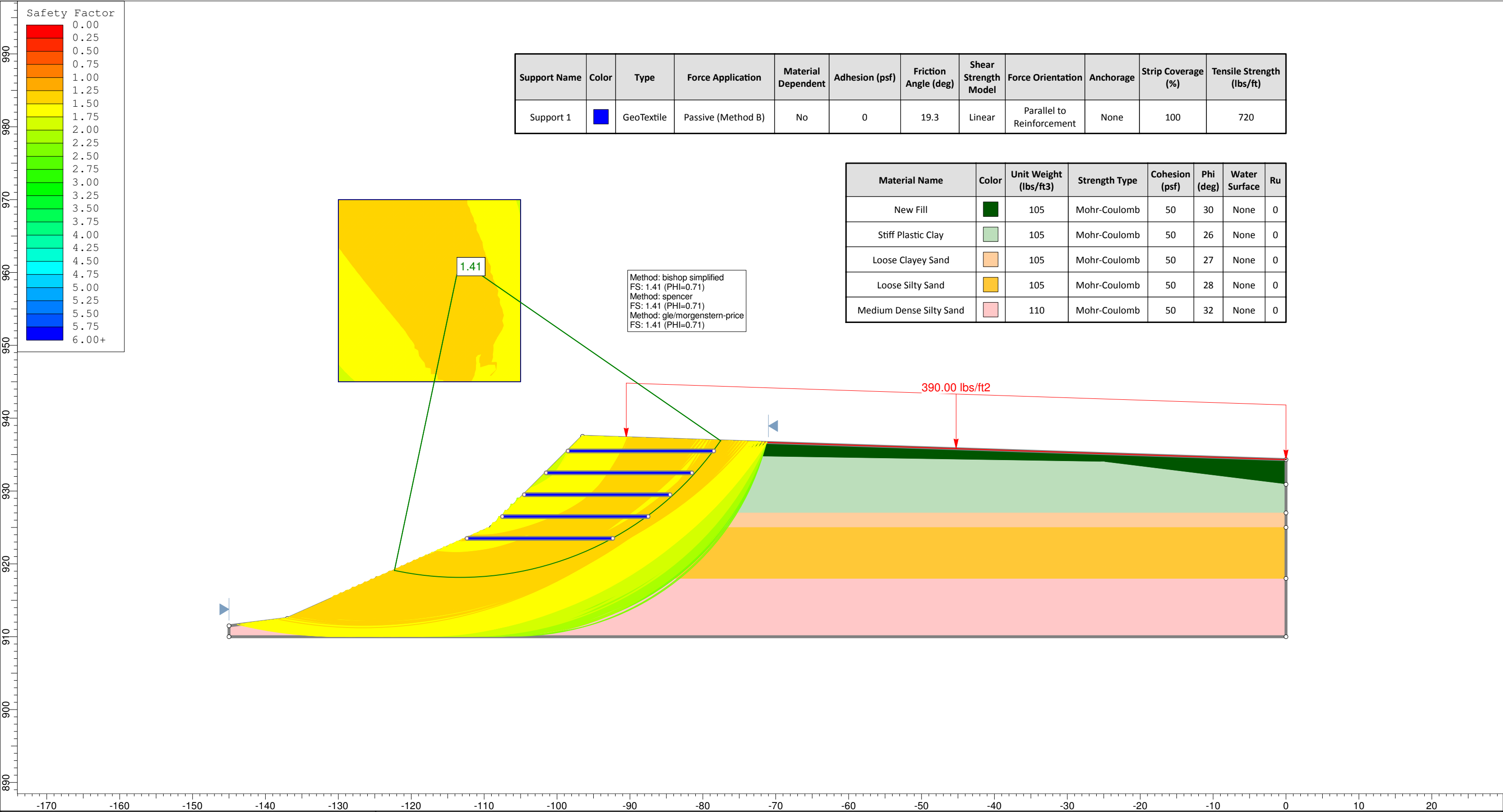
Method: bishop simplified
FS: 1.44 (PHI=0.69)
Method: spencer
FS: 1.44 (PHI=0.69)
Method: gle/morgenstern-price
FS: 1.44 (PHI=0.69)



Support Name	Color	Type	Force Application	Material Dependent	Adhesion (psf)	Friction Angle (deg)	Shear Strength Model	Force Orientation	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1	■	GeoTextile	Passive (Method B)	No	0	19.3	Linear	Parallel to Reinforcement	None	100	720

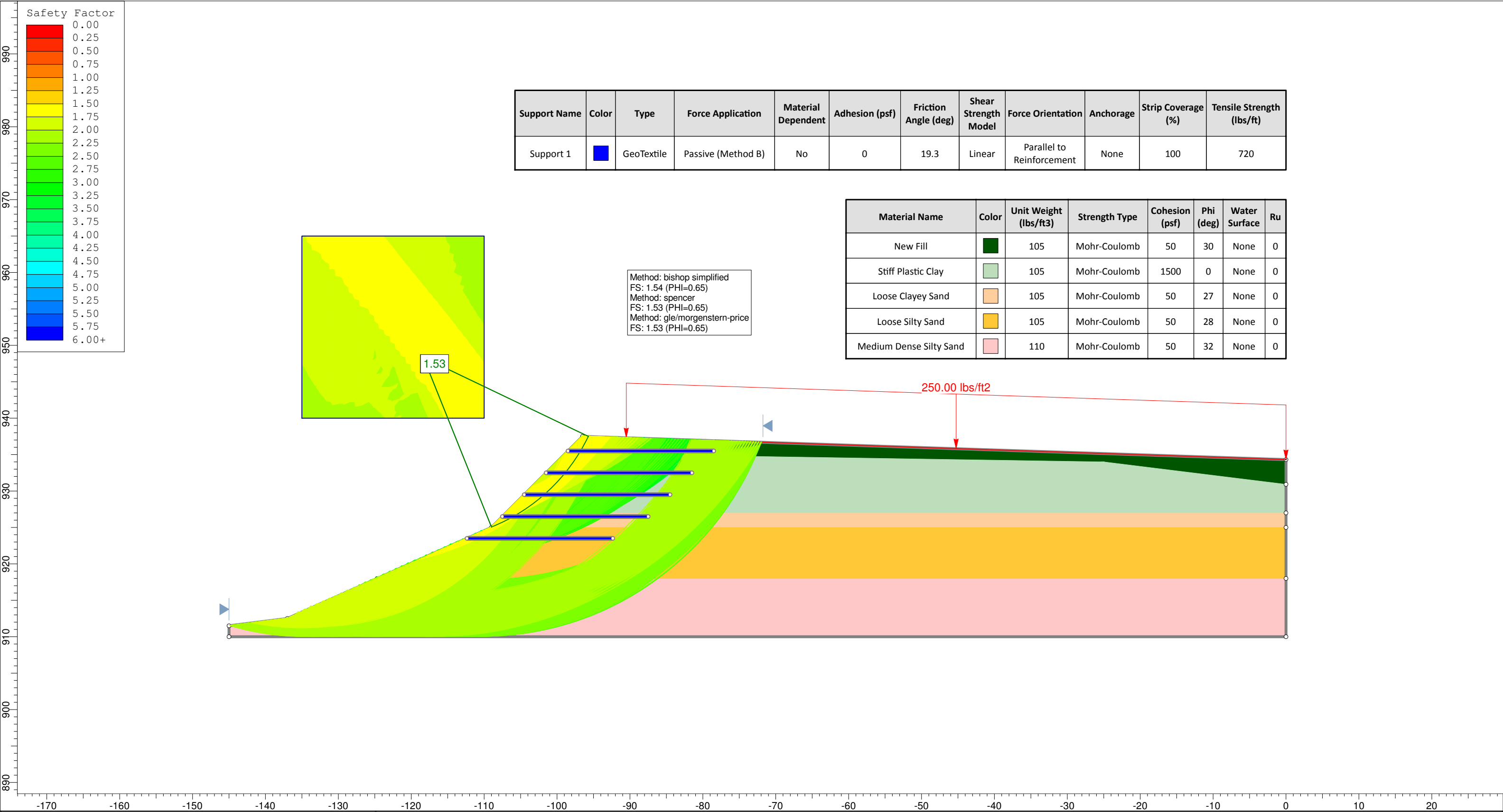
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	■	105	Mohr-Coulomb	50	30	None	0
Loose to Medium Dense Silty Sand	■	105	Mohr-Coulomb	50	30	None	0

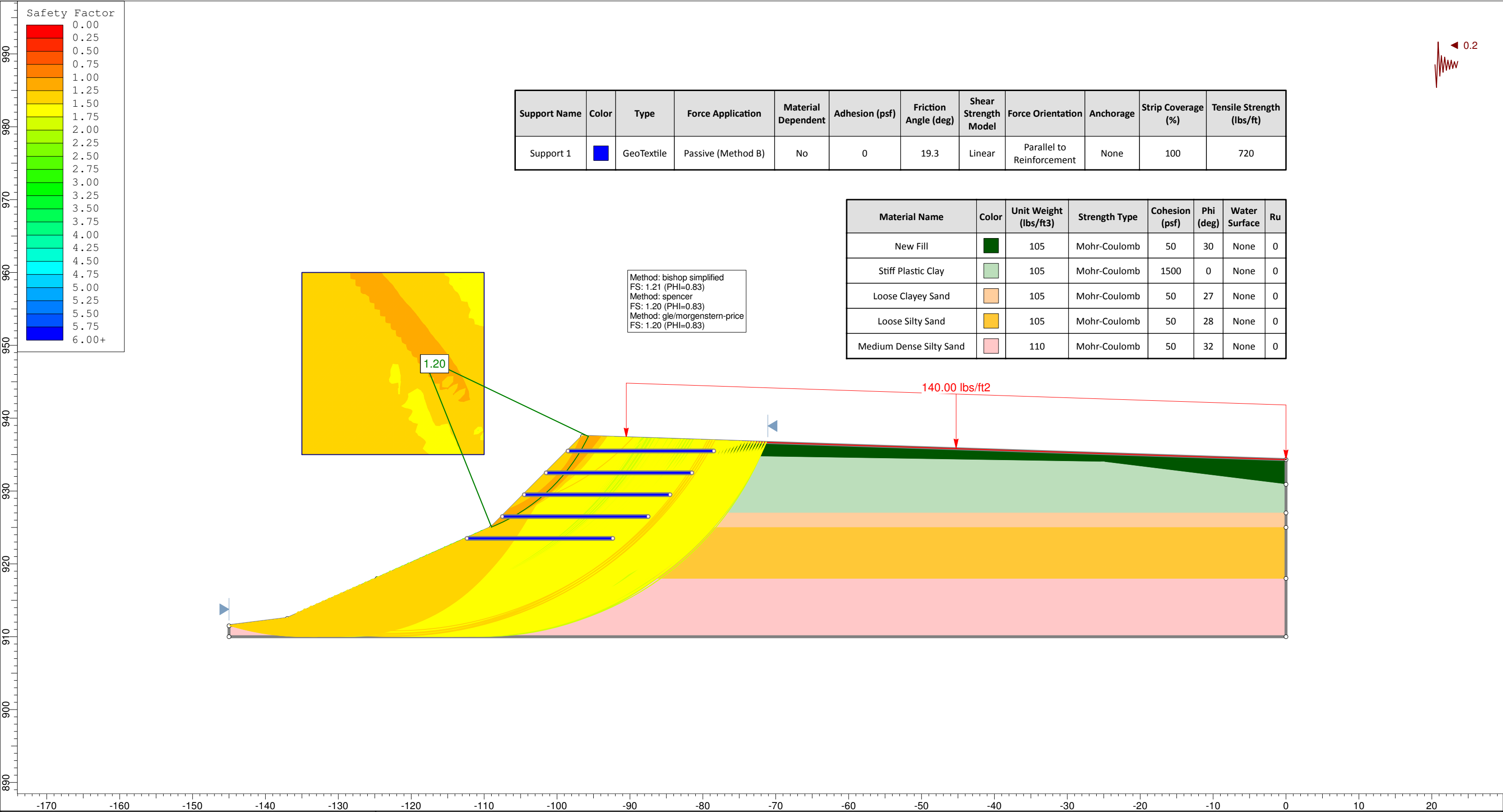
Method: bishop simplified
FS: 1.13 (PHI=0.88)
Method: spencer
FS: 1.14 (PHI=0.88)
Method: gle/morgenstern-price
FS: 1.14 (PHI=0.88)



Support Name	Color	Type	Force Application	Material Dependent	Adhesion (psf)	Friction Angle (deg)	Shear Strength Model	Force Orientation	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1	<div></div>	GeoTextile	Passive (Method B)	No	0	19.3	Linear	Parallel to Reinforcement	None	100	720

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	<div></div>	105	Mohr-Coulomb	50	30	None	0
Stiff Plastic Clay	<div></div>	105	Mohr-Coulomb	50	26	None	0
Loose Clayey Sand	<div></div>	105	Mohr-Coulomb	50	27	None	0
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	28	None	0
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	None	0

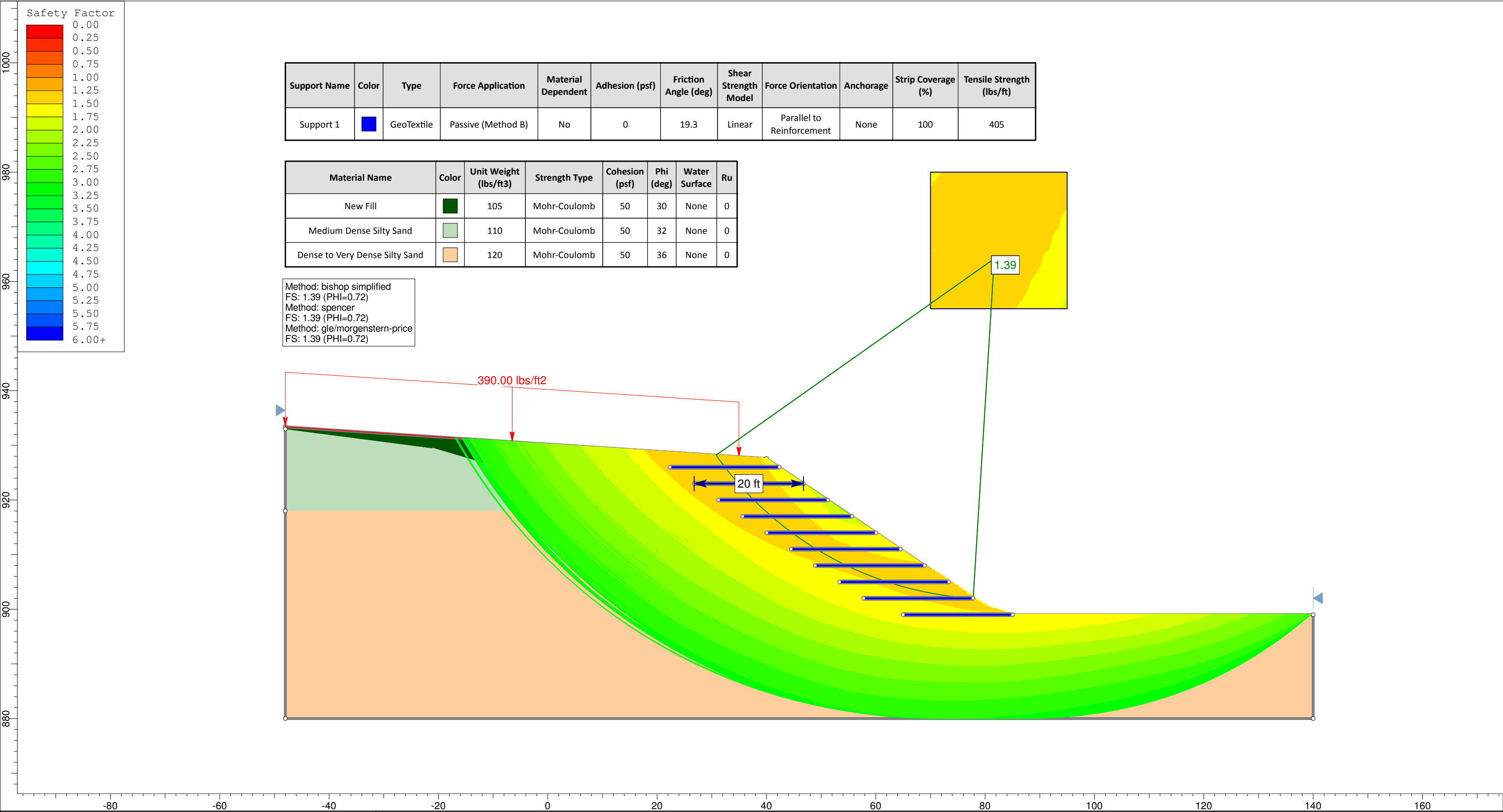


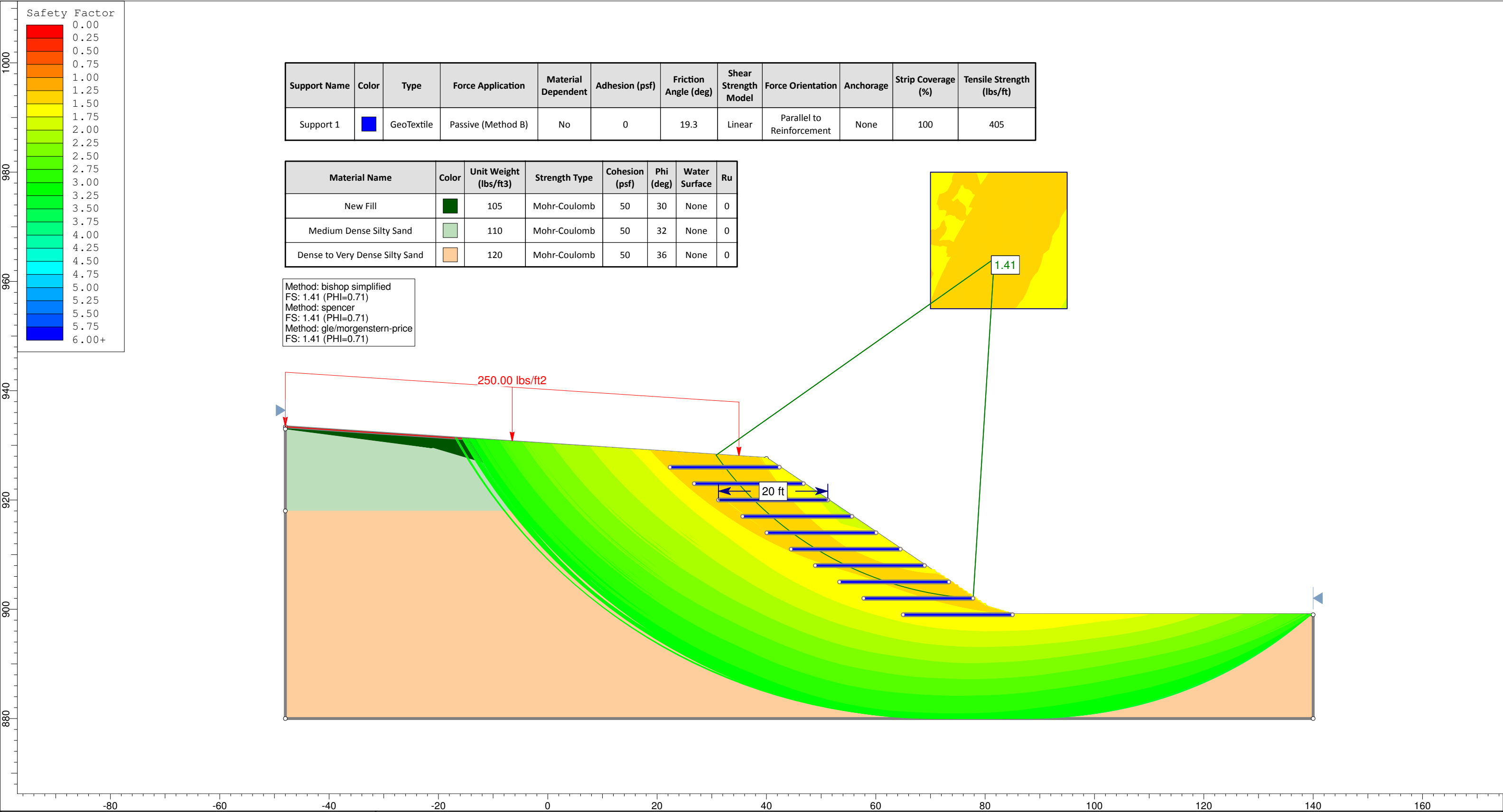


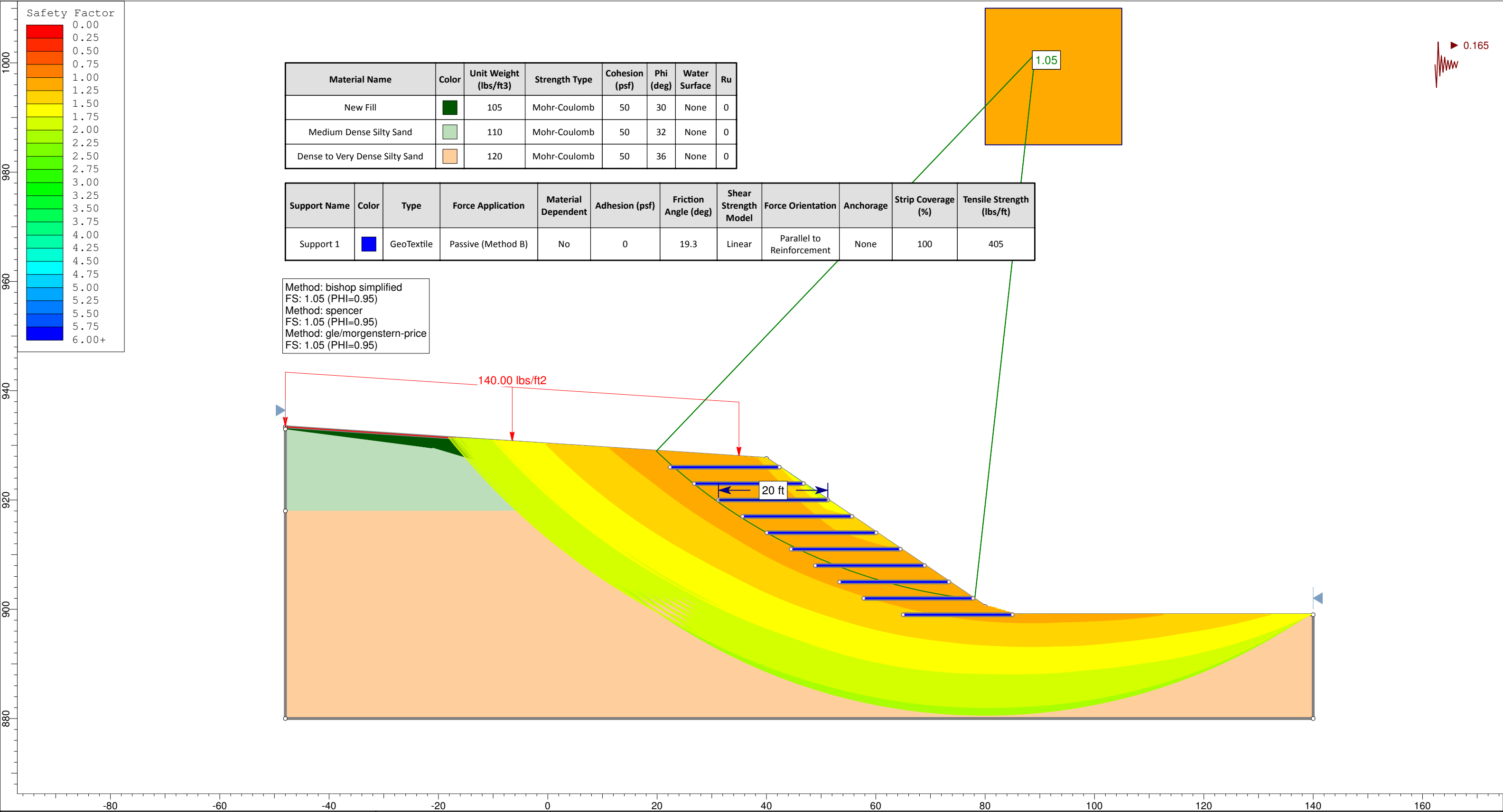
Support Name	Color	Type	Force Application	Material Dependent	Adhesion (psf)	Friction Angle (deg)	Shear Strength Model	Force Orientation	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1	Blue	GeoTextile	Passive (Method B)	No	0	19.3	Linear	Parallel to Reinforcement	None	100	720

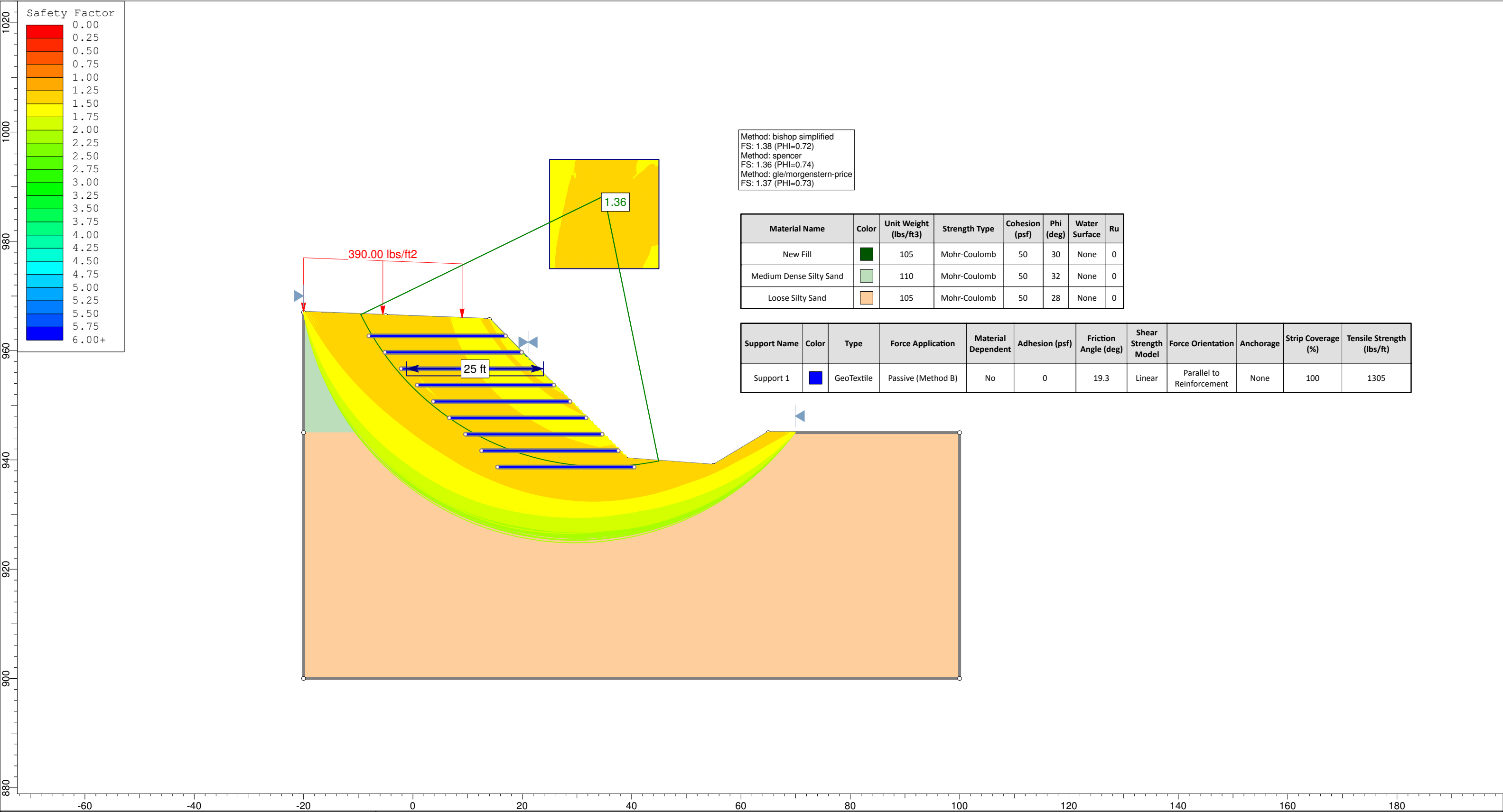
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	Dark Green	105	Mohr-Coulomb	50	30	None	0
Stiff Plastic Clay	Light Green	105	Mohr-Coulomb	1500	0	None	0
Loose Clayey Sand	Orange	105	Mohr-Coulomb	50	27	None	0
Loose Silty Sand	Yellow	105	Mohr-Coulomb	50	28	None	0
Medium Dense Silty Sand	Pink	110	Mohr-Coulomb	50	32	None	0

Method: bishop simplified
FS: 1.21 (PHI=0.83)
Method: spencer
FS: 1.20 (PHI=0.83)
Method: gle/morgenstern-price
FS: 1.20 (PHI=0.83)





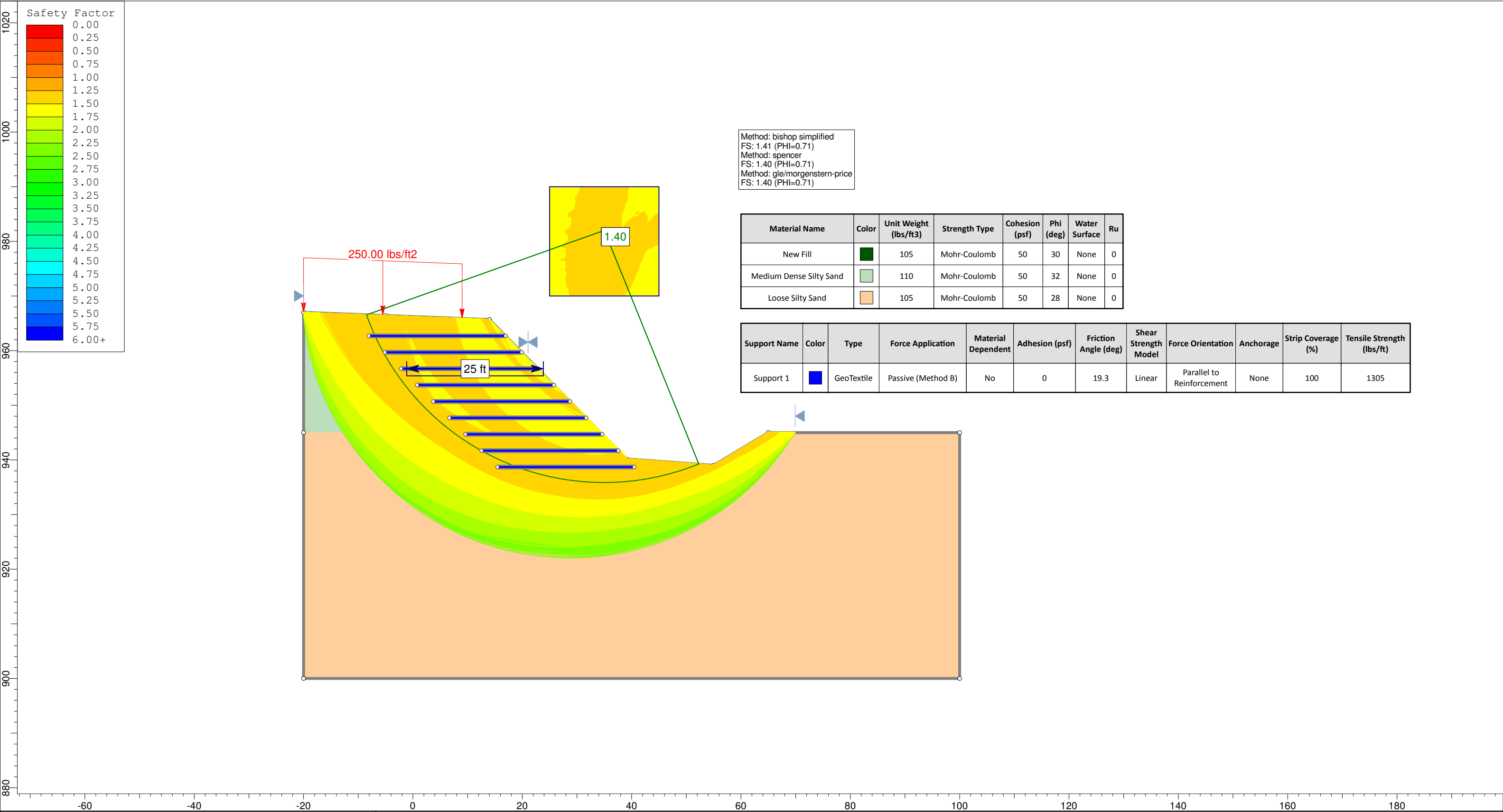


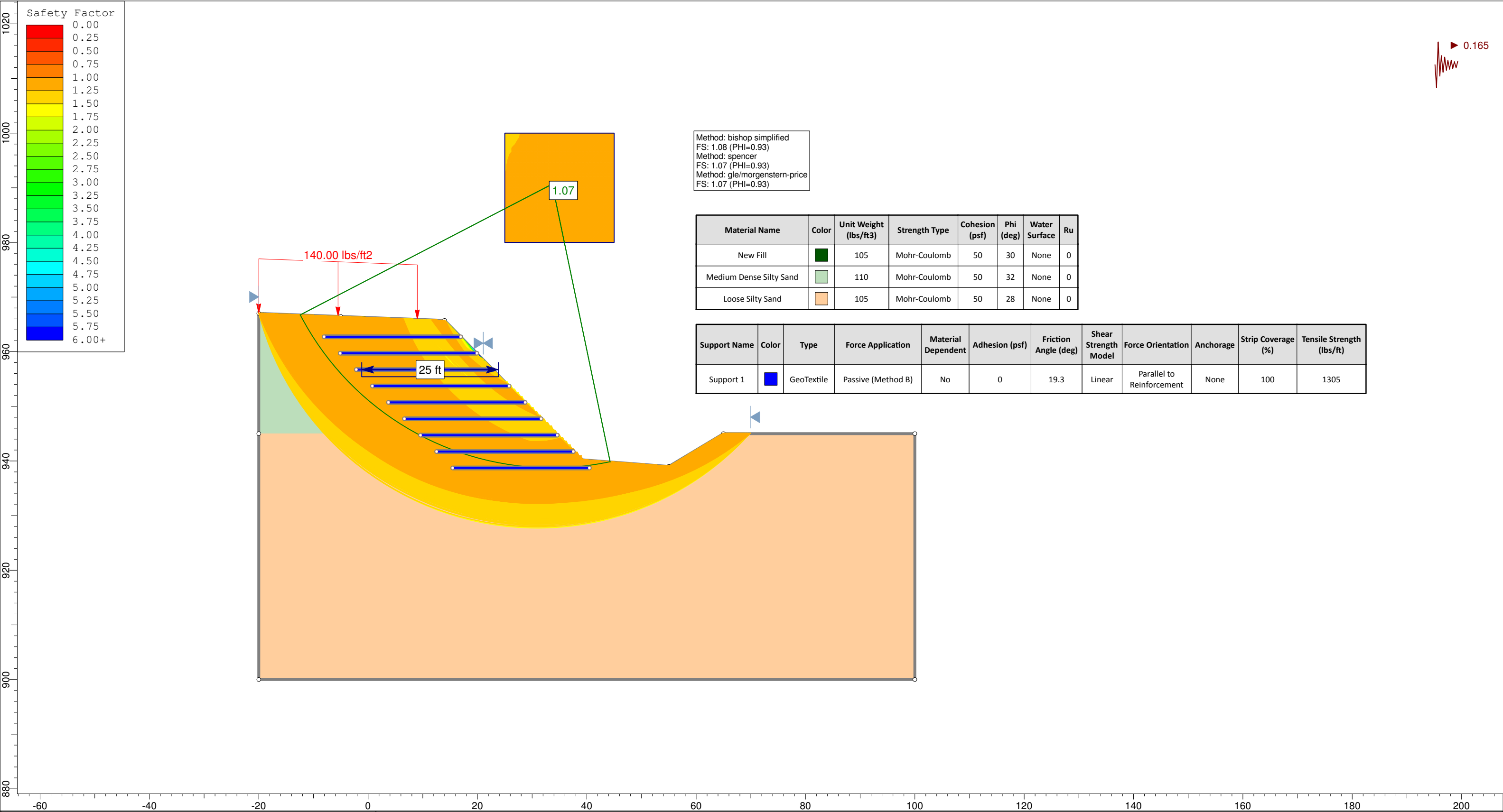


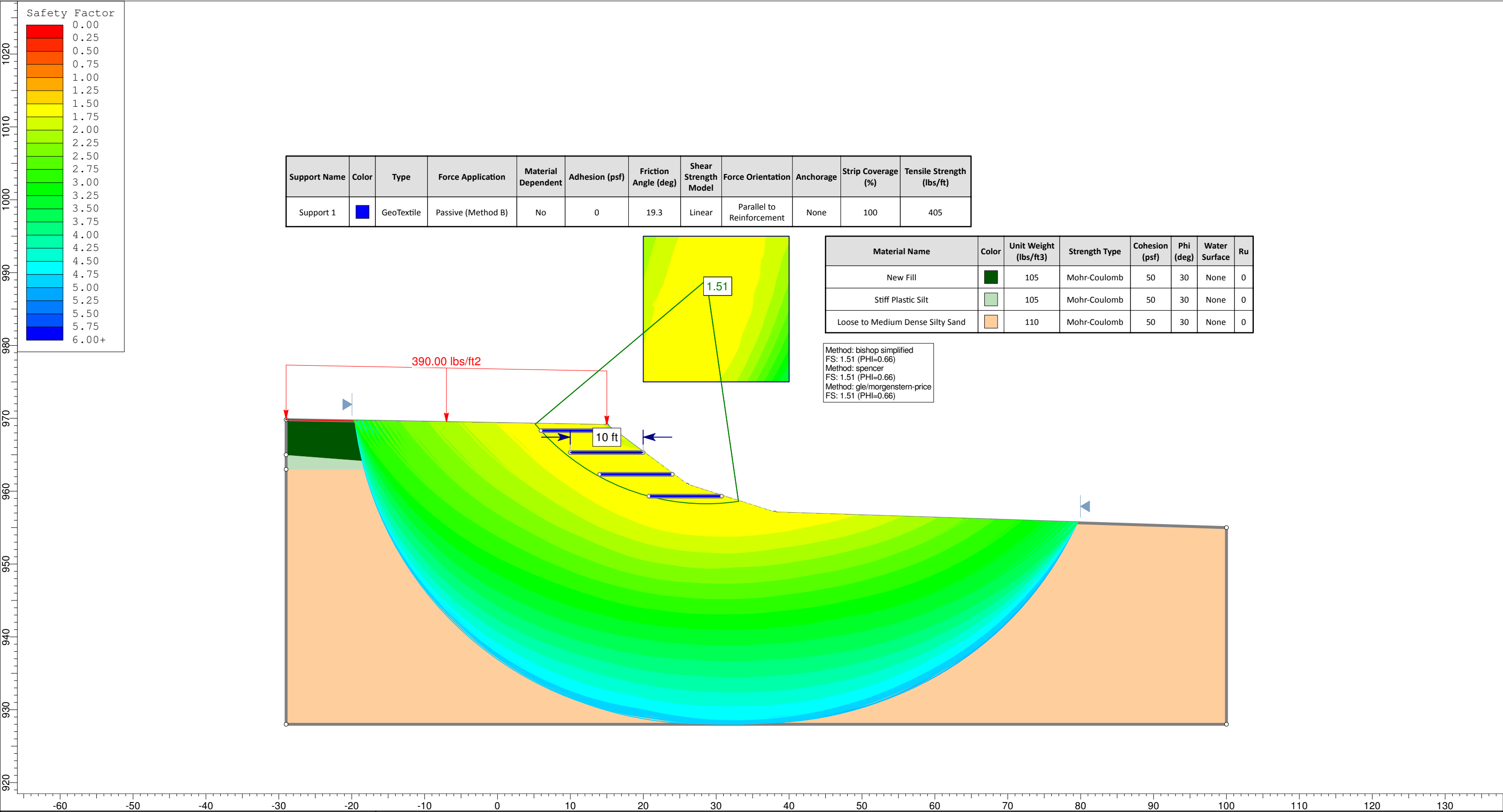
Method: bishop simplified
FS: 1.38 (PHI=0.72)
Method: spencer
FS: 1.36 (PHI=0.74)
Method: gle/morgenstern-price
FS: 1.37 (PHI=0.73)

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	<div></div>	105	Mohr-Coulomb	50	30	None	0
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	None	0
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	28	None	0

Support Name	Color	Type	Force Application	Material Dependent	Adhesion (psf)	Friction Angle (deg)	Shear Strength Model	Force Orientation	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1	<div></div>	GeoTextile	Passive (Method B)	No	0	19.3	Linear	Parallel to Reinforcement	None	100	1305



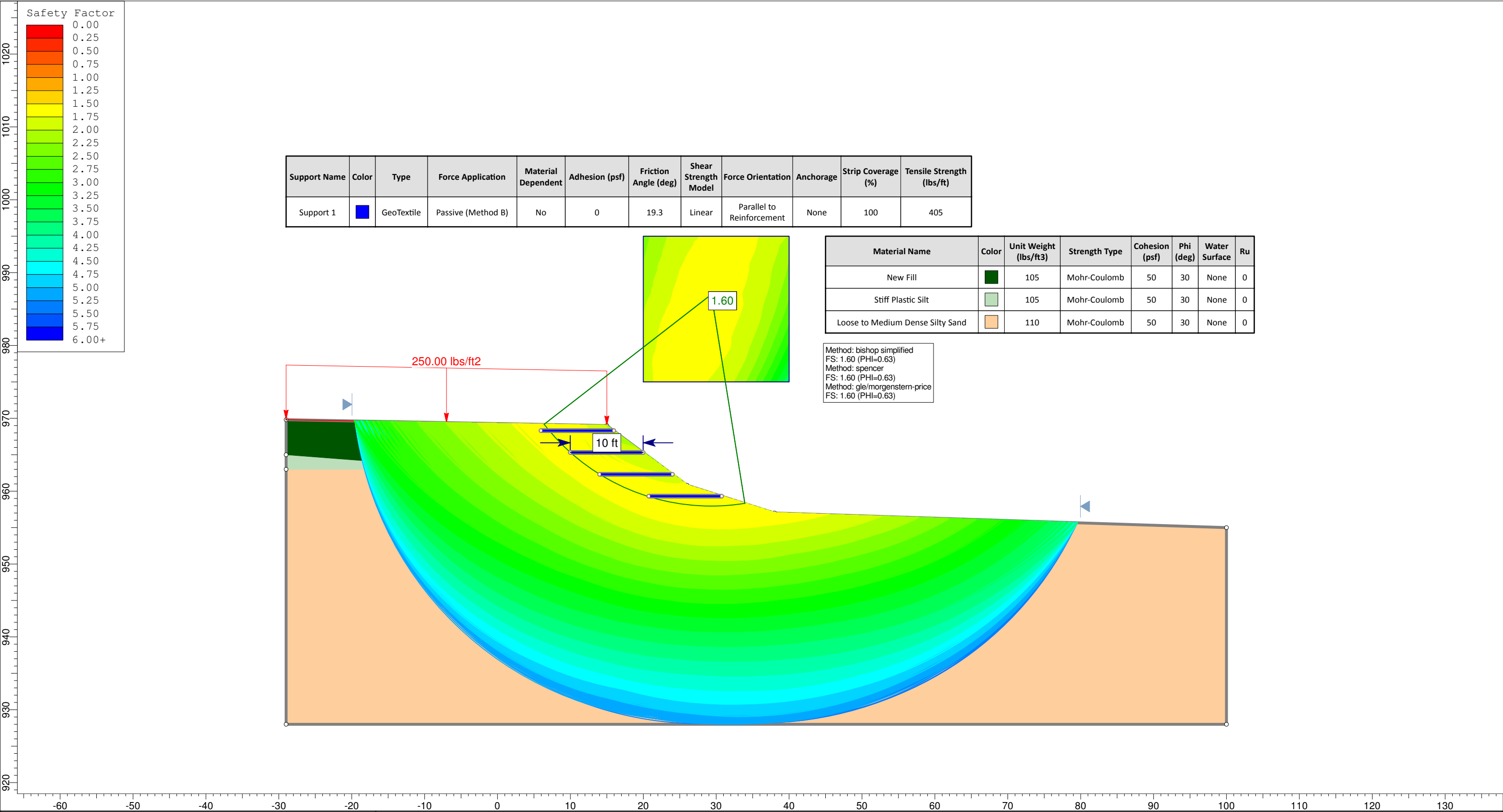




Support Name	Color	Type	Force Application	Material Dependent	Adhesion (psf)	Friction Angle (deg)	Shear Strength Model	Force Orientation	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1	■	GeoTextile	Passive (Method B)	No	0	19.3	Linear	Parallel to Reinforcement	None	100	405

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	■	105	Mohr-Coulomb	50	30	None	0
Stiff Plastic Silt	■	105	Mohr-Coulomb	50	30	None	0
Loose to Medium Dense Silty Sand	■	110	Mohr-Coulomb	50	30	None	0

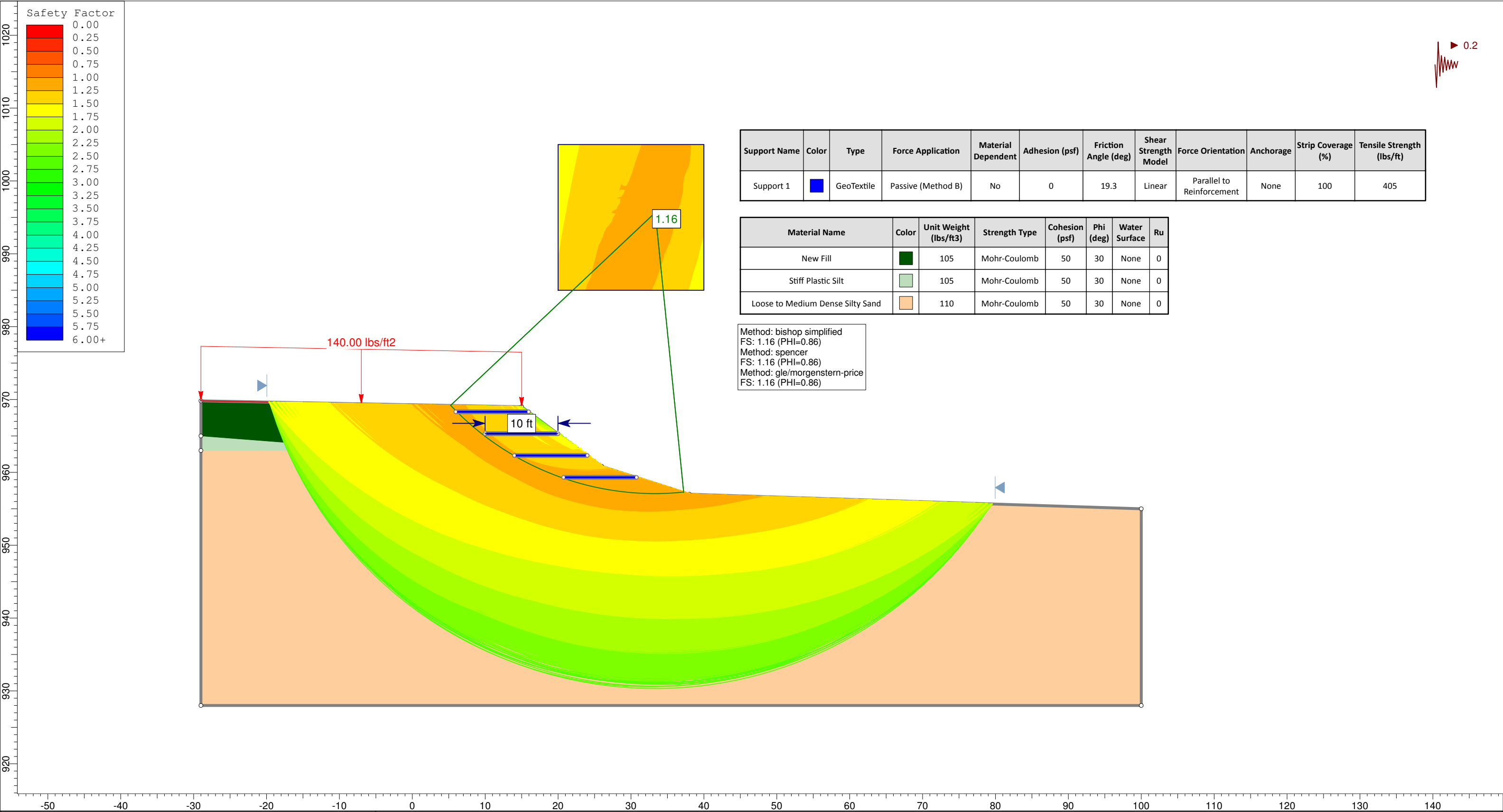
Method: bishop simplified
FS: 1.51 (PHI=0.66)
Method: spencer
FS: 1.51 (PHI=0.66)
Method: gle/morgenstern-price
FS: 1.51 (PHI=0.66)

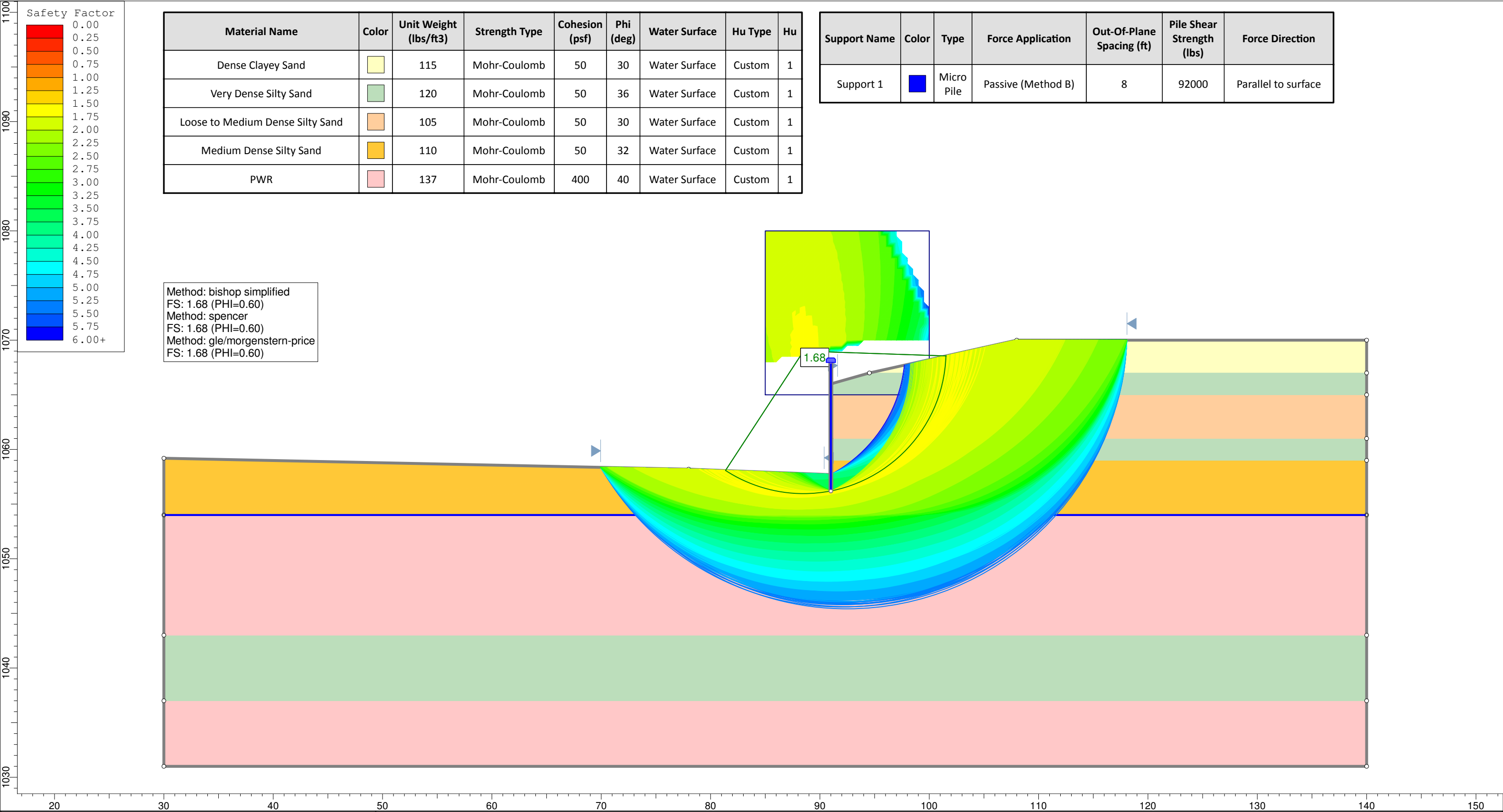


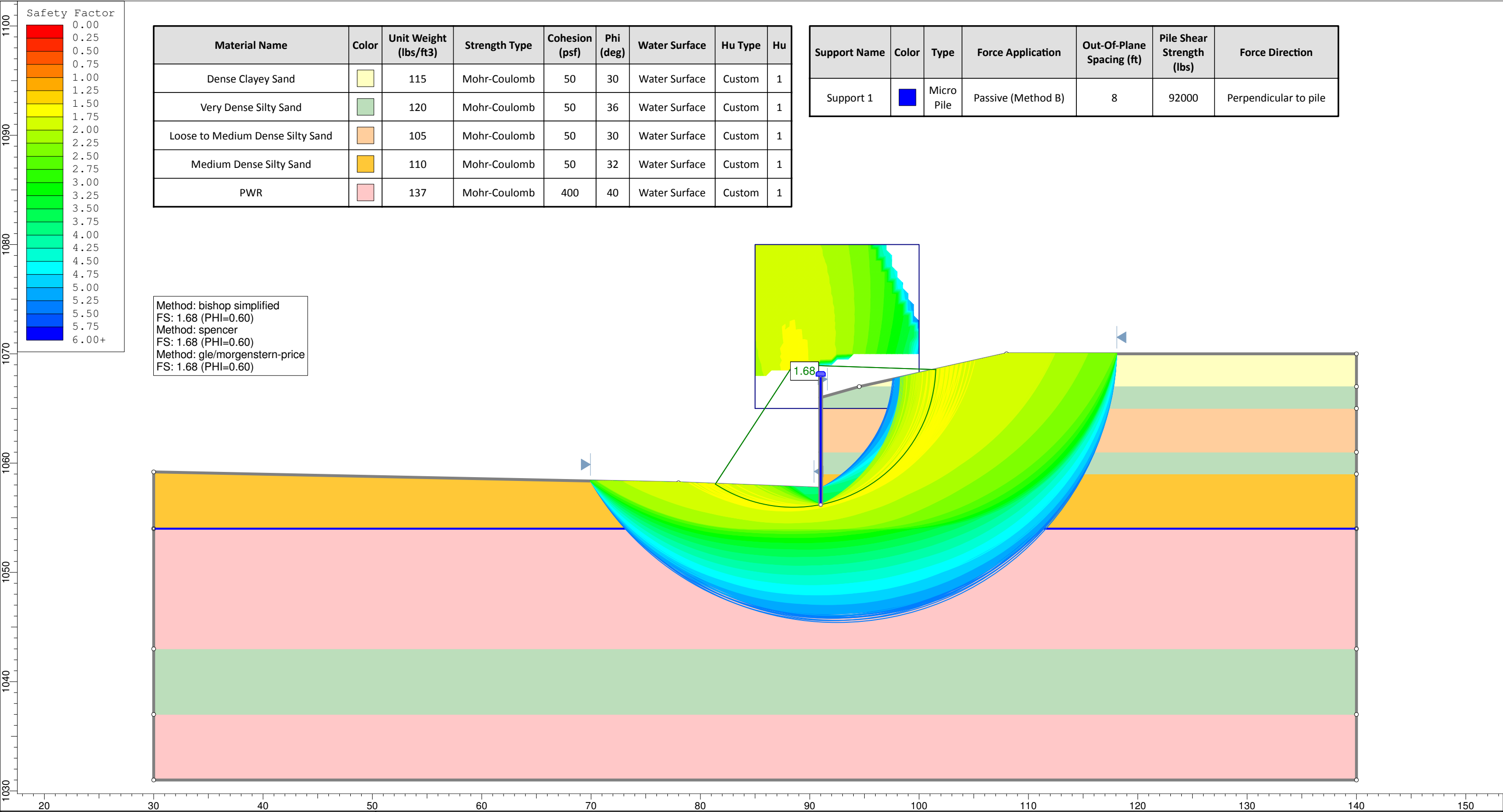
Support Name	Color	Type	Force Application	Material Dependent	Adhesion (psf)	Friction Angle (deg)	Shear Strength Model	Force Orientation	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1	Blue	GeoTextile	Passive (Method B)	No	0	19.3	Linear	Parallel to Reinforcement	None	100	405

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
New Fill	Dark Green	105	Mohr-Coulomb	50	30	None	0
Stiff Plastic Silt	Light Green	105	Mohr-Coulomb	50	30	None	0
Loose to Medium Dense Silty Sand	Orange	110	Mohr-Coulomb	50	30	None	0

Method: bishop simplified
FS: 1.60 (PHI=0.63)
Method: spencer
FS: 1.60 (PHI=0.63)
Method: gle/morgenstern-price
FS: 1.60 (PHI=0.63)



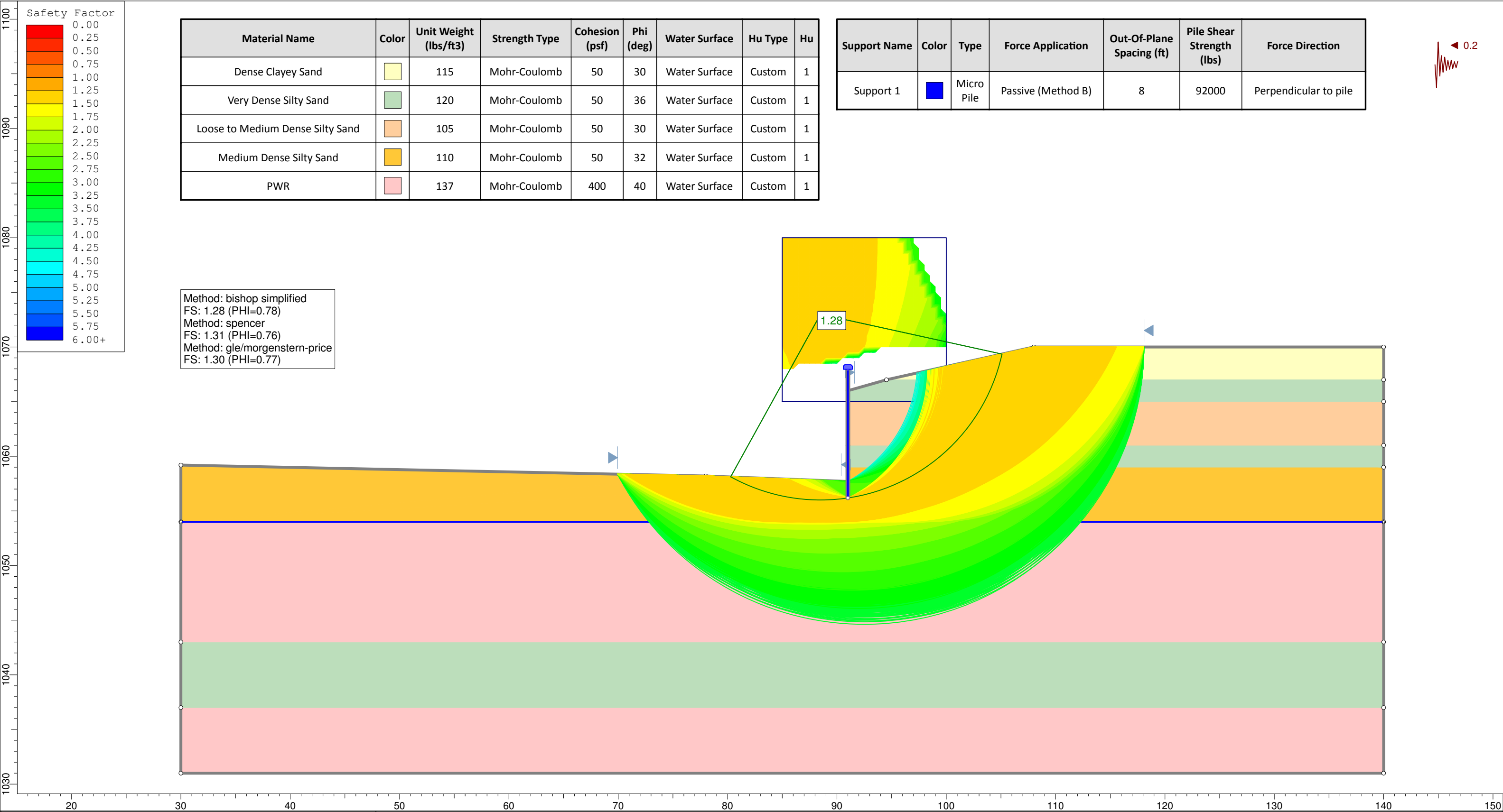




Method: bishop simplified
FS: 1.68 (PHI=0.60)
Method: spencer
FS: 1.68 (PHI=0.60)
Method: gle/morgenstern-price
FS: 1.68 (PHI=0.60)

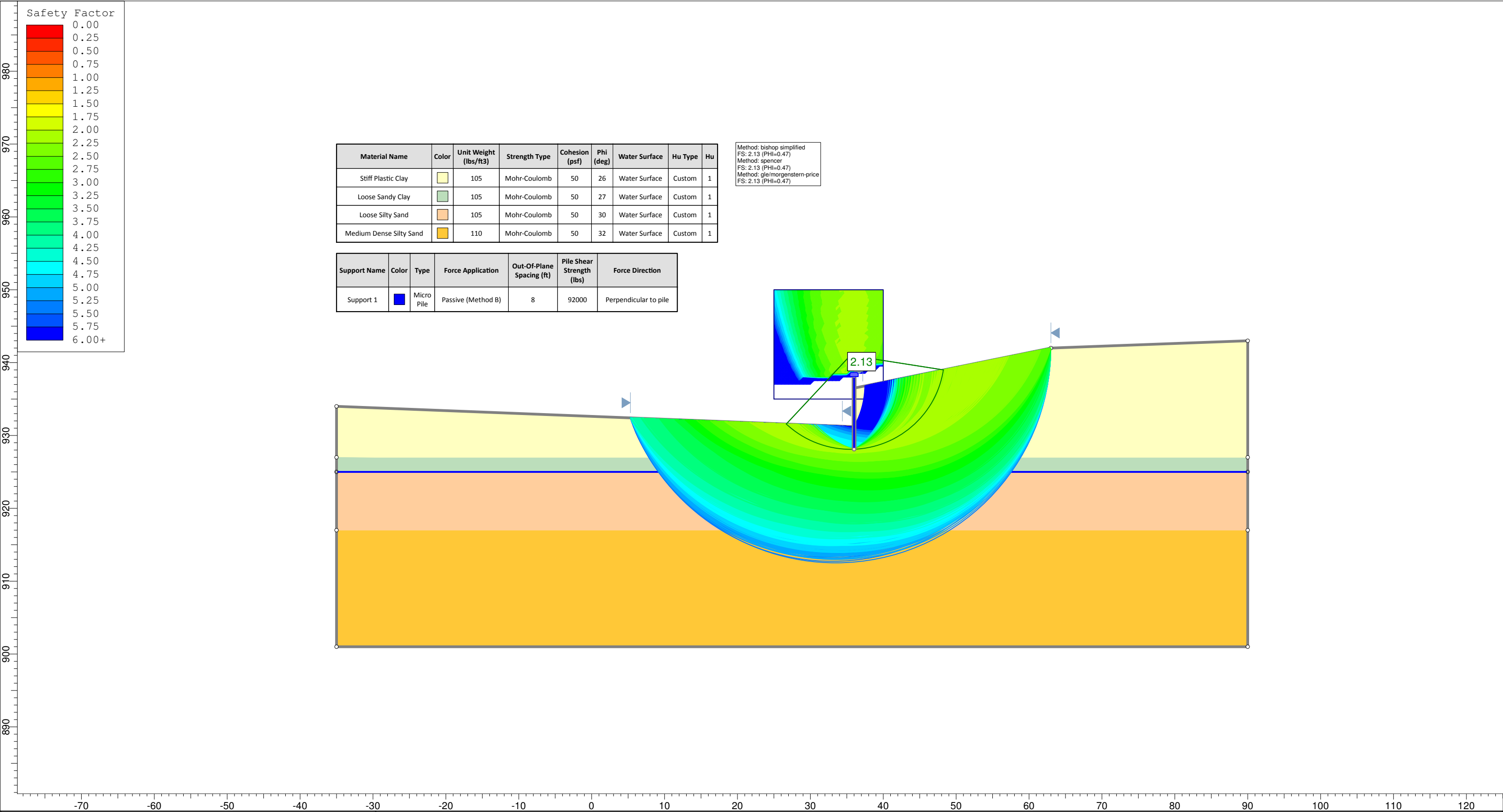
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Dense Clayey Sand		115	Mohr-Coulomb	50	30	Water Surface	Custom	1
Very Dense Silty Sand		120	Mohr-Coulomb	50	36	Water Surface	Custom	1
Loose to Medium Dense Silty Sand		105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Medium Dense Silty Sand		110	Mohr-Coulomb	50	32	Water Surface	Custom	1
PWR		137	Mohr-Coulomb	400	40	Water Surface	Custom	1

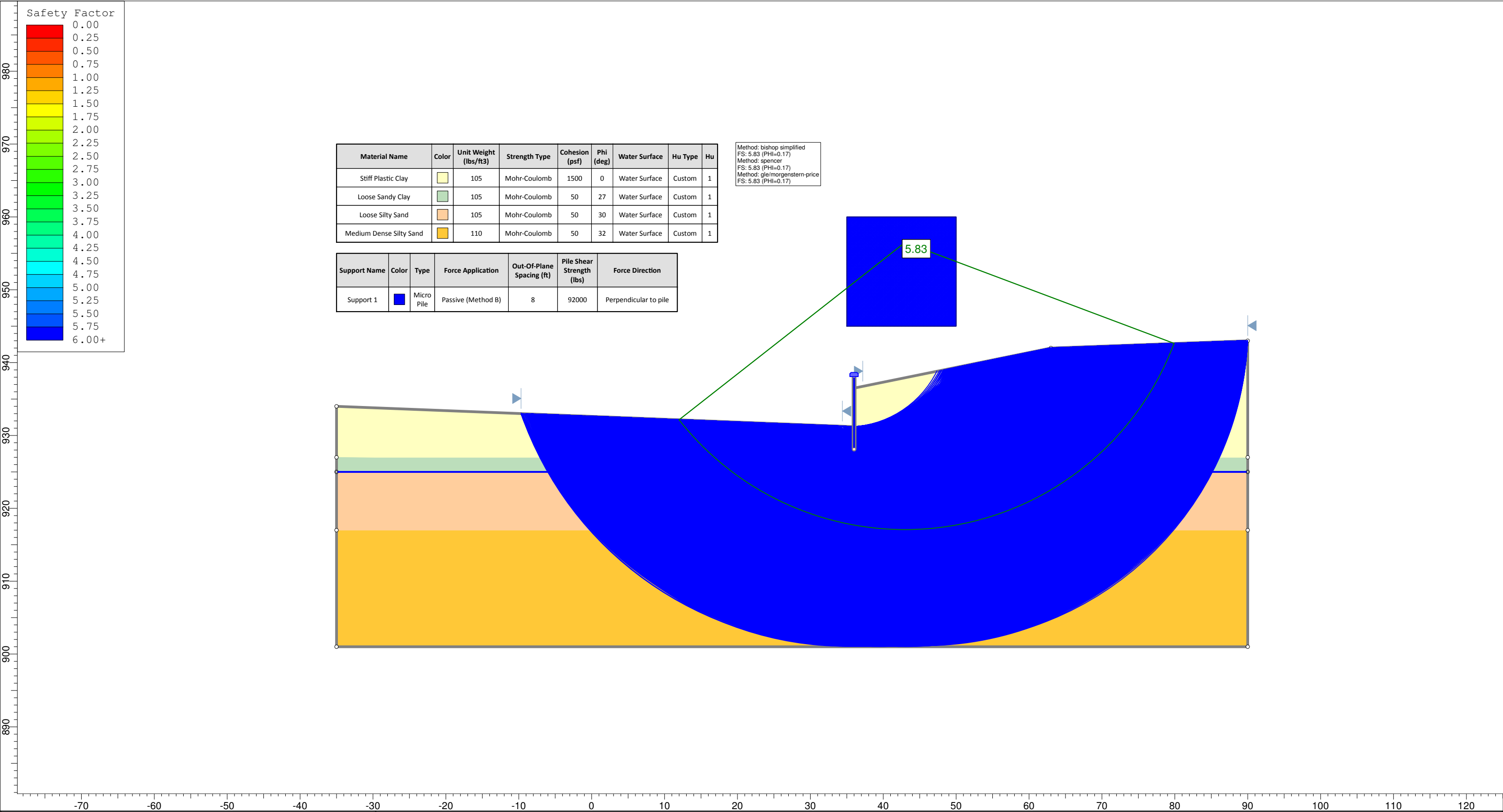
Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (ft)	Pile Shear Strength (lbs)	Force Direction
Support 1		Micro Pile	Passive (Method B)	8	92000	Perpendicular to pile

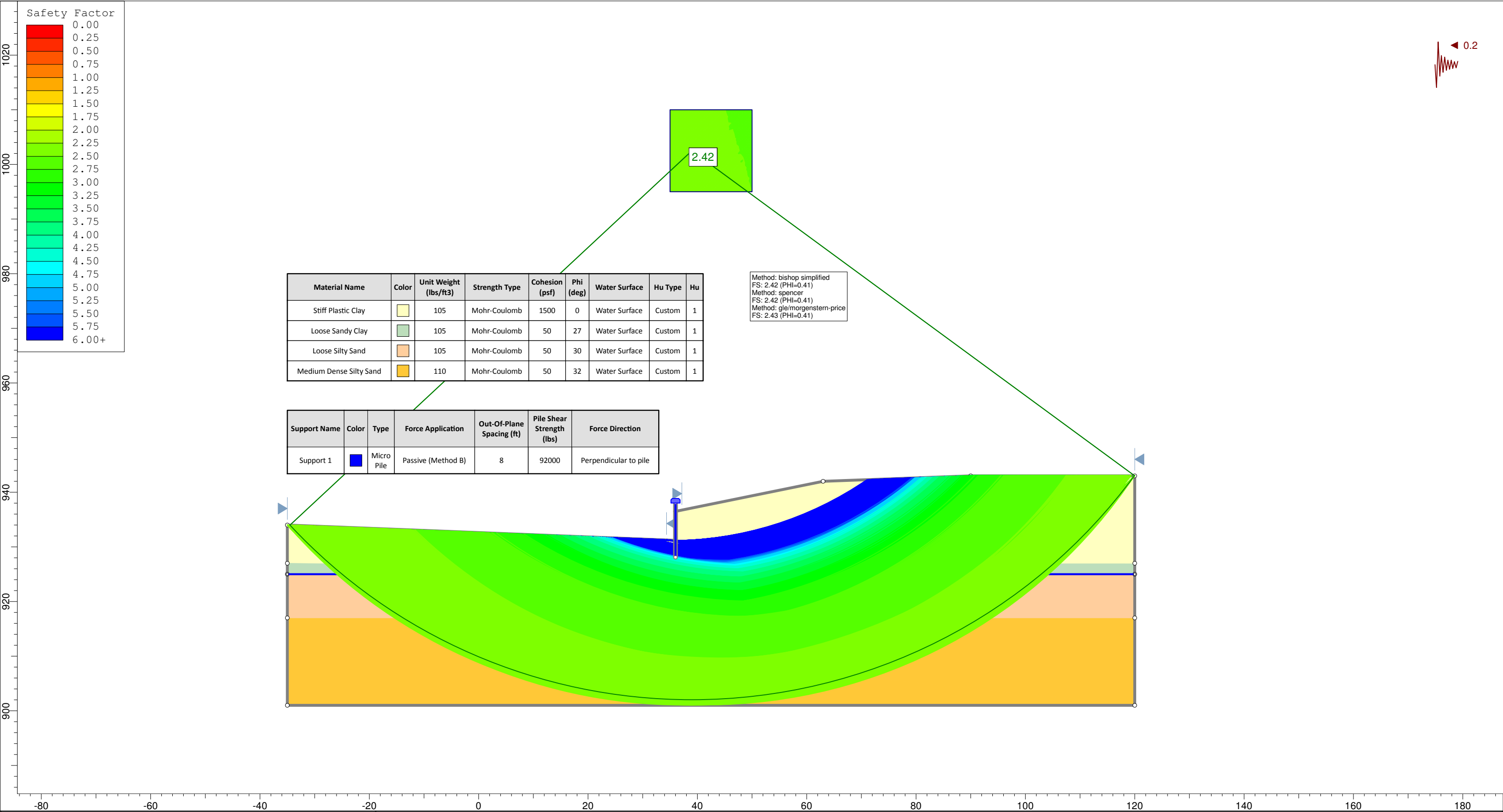


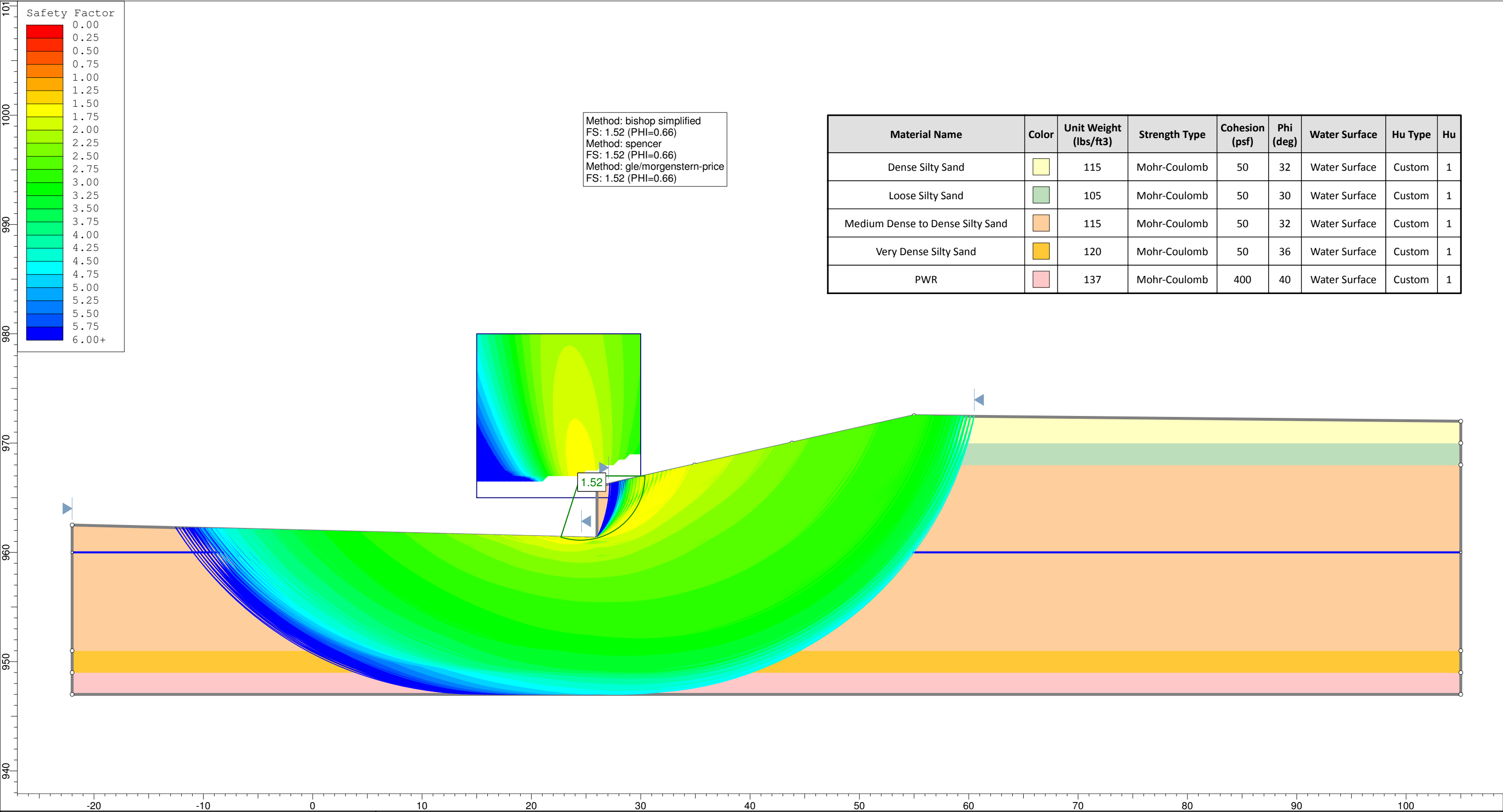
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Dense Clayey Sand		115	Mohr-Coulomb	50	30	Water Surface	Custom	1
Very Dense Silty Sand		120	Mohr-Coulomb	50	36	Water Surface	Custom	1
Loose to Medium Dense Silty Sand		105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Medium Dense Silty Sand		110	Mohr-Coulomb	50	32	Water Surface	Custom	1
PWR		137	Mohr-Coulomb	400	40	Water Surface	Custom	1


Support Name	Color	Type	Force Application	Out-Of-Plane Spacing (ft)	Pile Shear Strength (lbs)	Force Direction
Support 1		Micro Pile	Passive (Method B)	8	92000	Perpendicular to pile

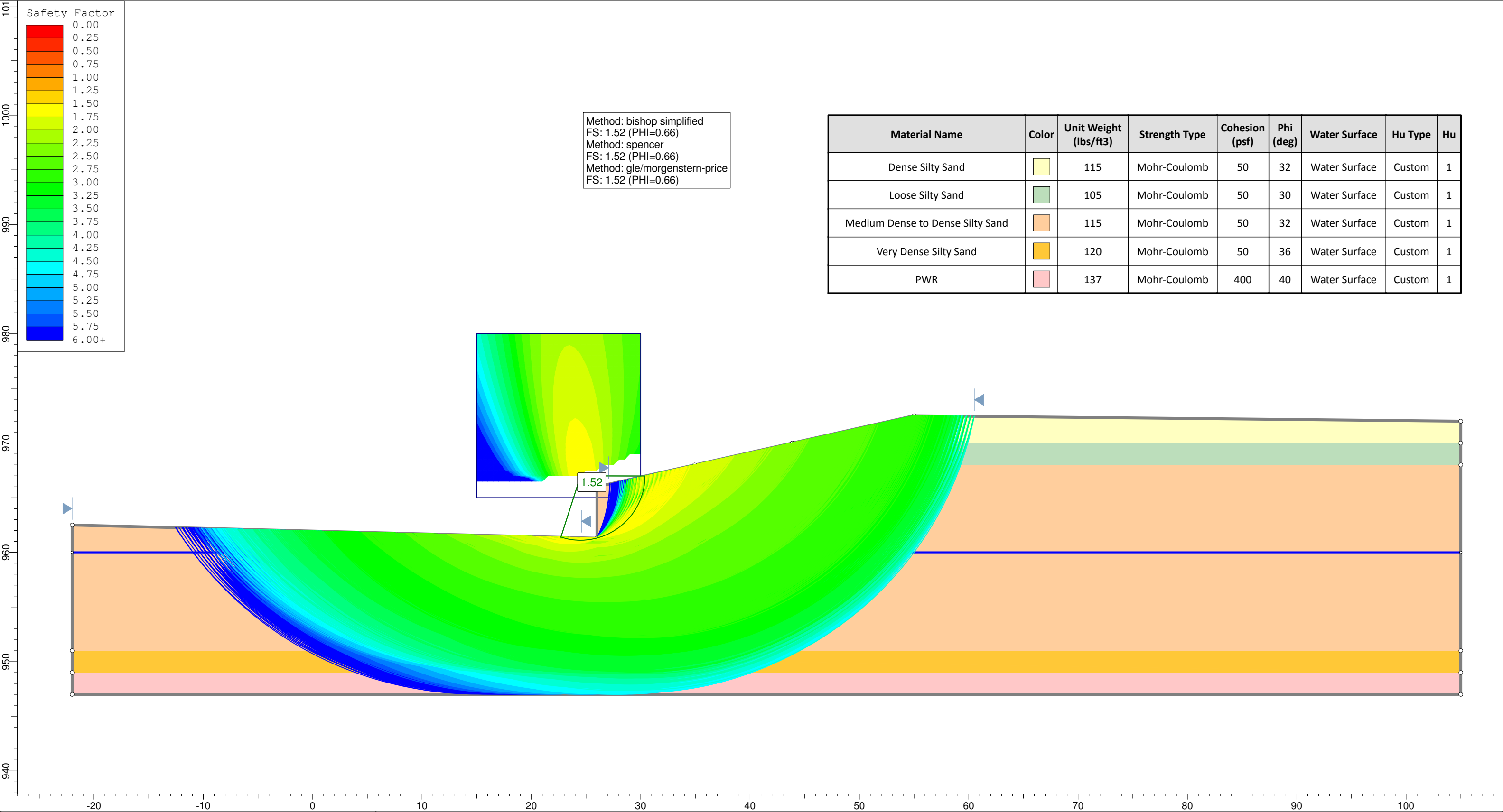


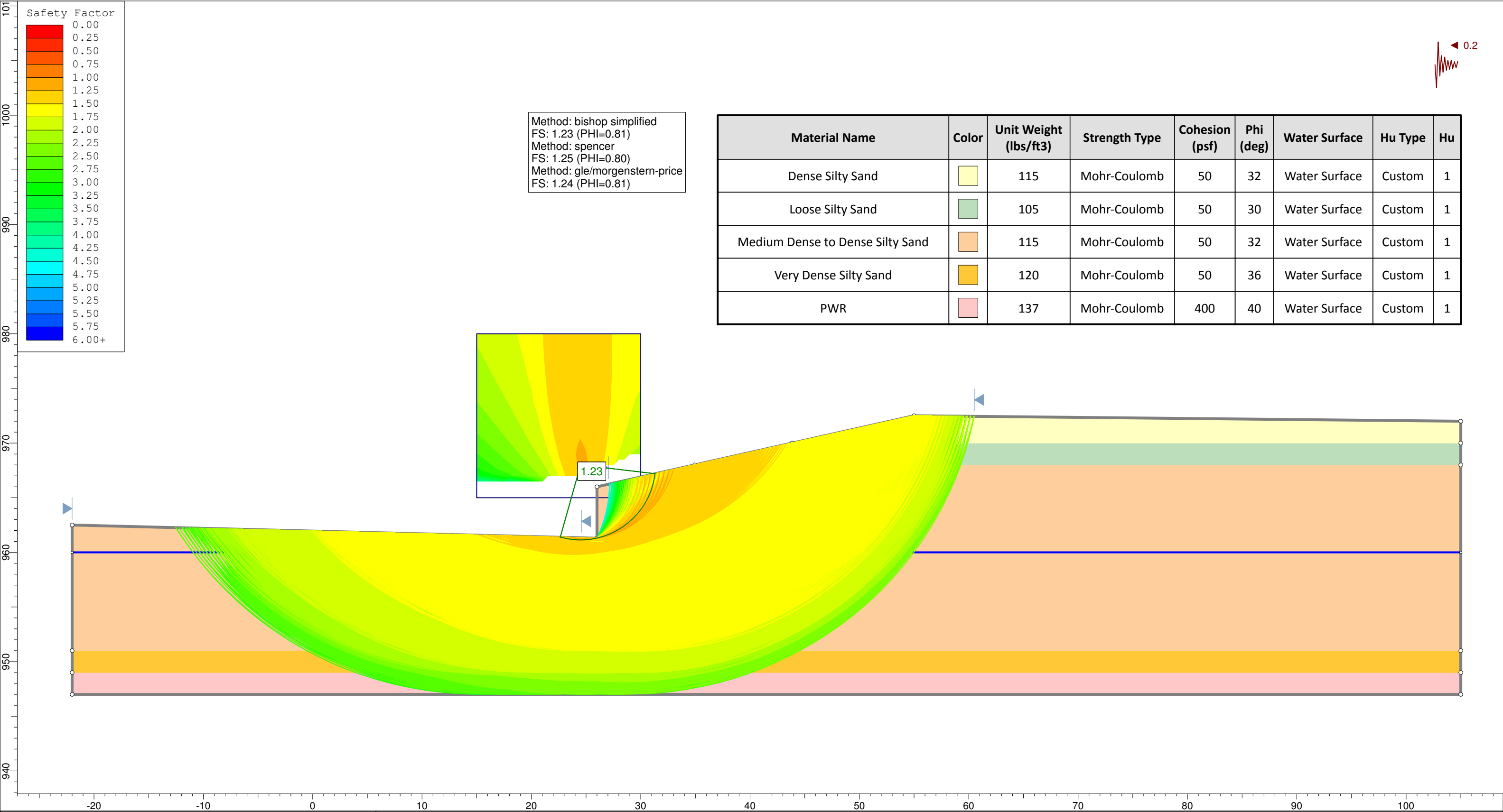






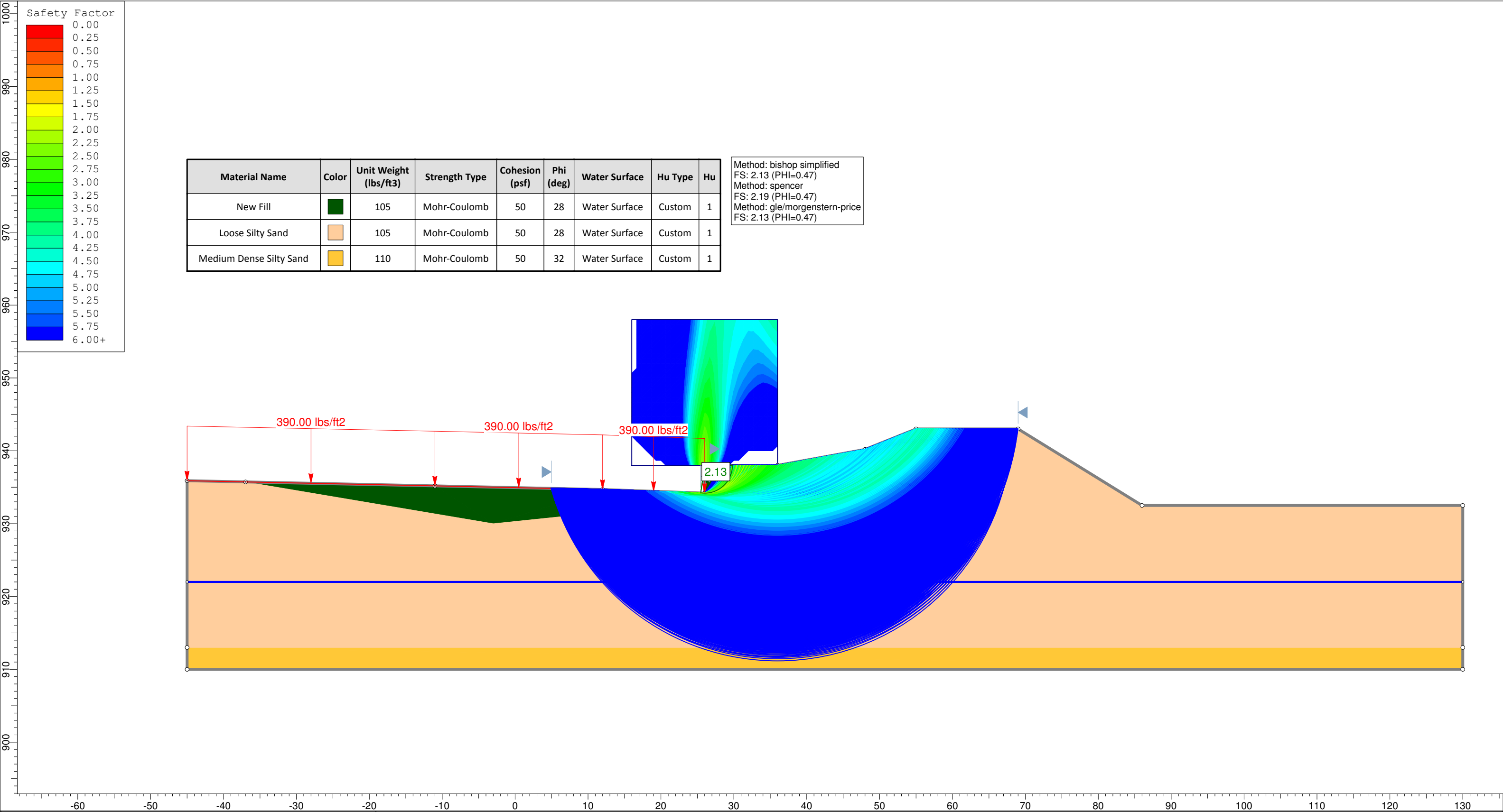
	Project			Wall 27 I-85/385 Interchange Improvements - Project ID: 003811; ECS Project No. 9283		
	Analysis Description			Roadway - I-385 SBCD - Station 118+00- ESA		
	Drawn By		CLB	Scale	1:100	Company
	Date		09/09/2015	File Name		Roadway - I-385 SBCD - Sta 118+00 - ESA.slim





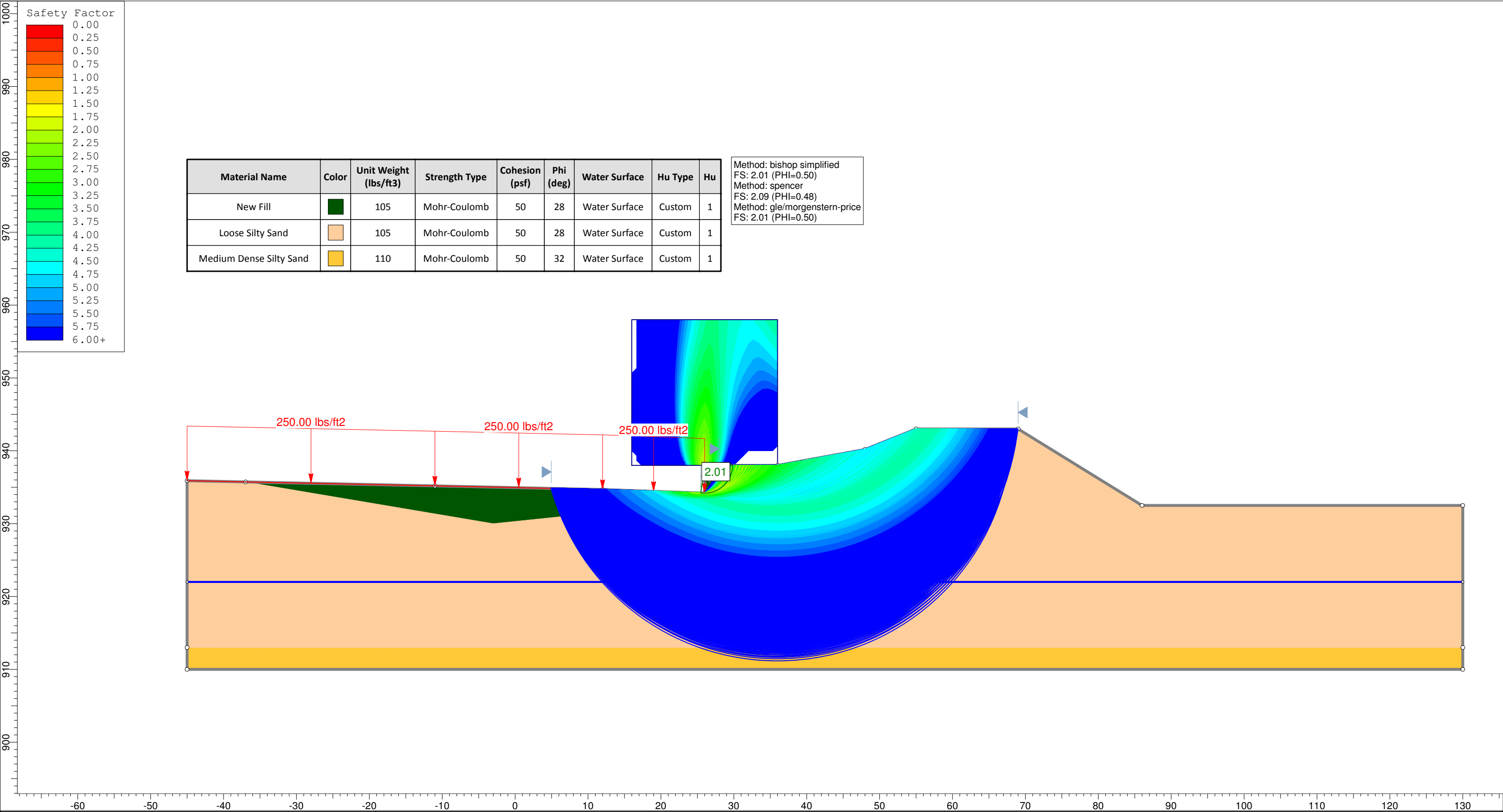
Method: bishop simplified
FS: 1.23 (PHI=0.81)
Method: spencer
FS: 1.25 (PHI=0.80)
Method: gle/morgenstern-price
FS: 1.24 (PHI=0.81)

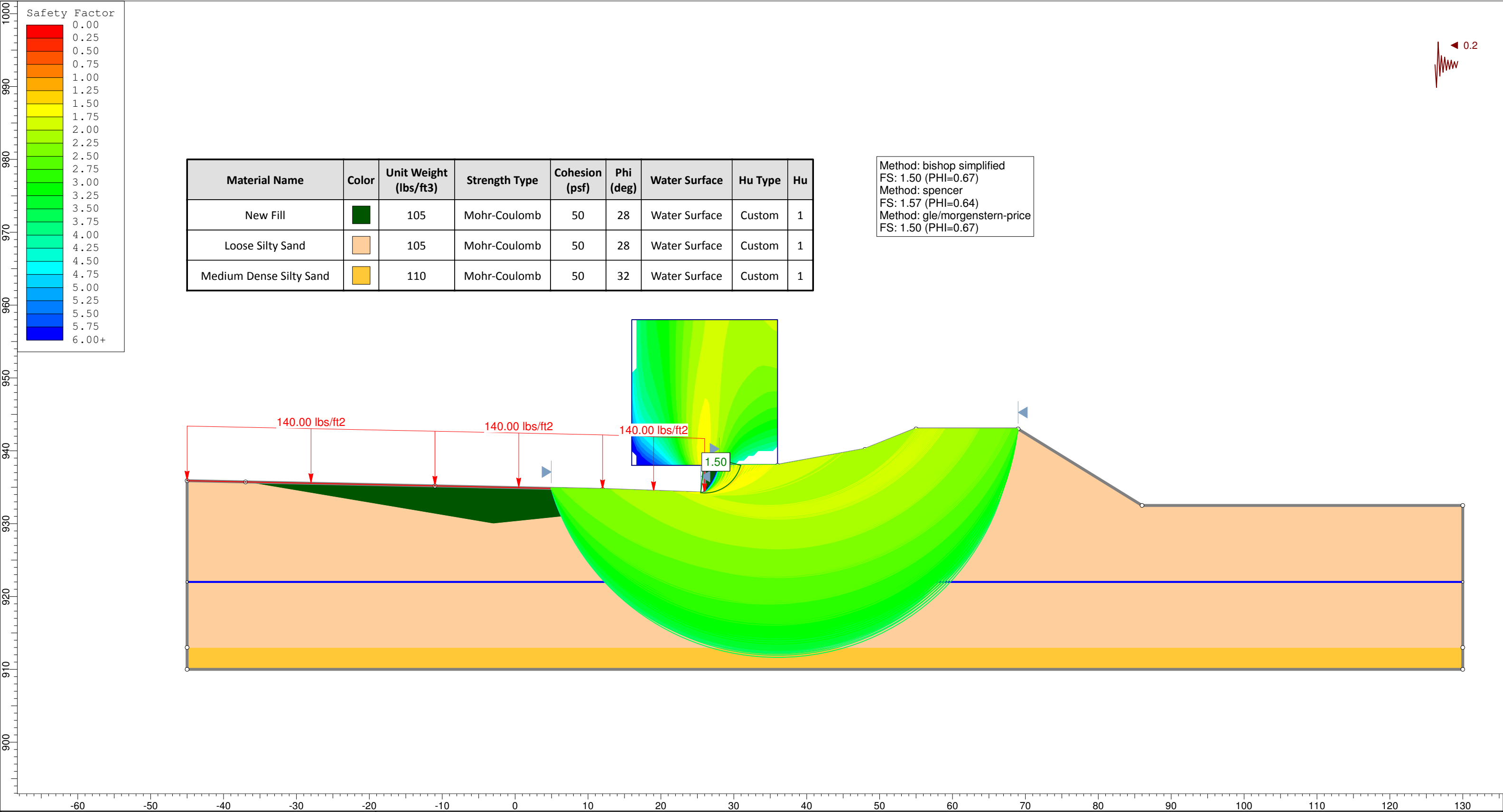
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Dense Silty Sand	<div></div>	115	Mohr-Coulomb	50	32	Water Surface	Custom	1
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	30	Water Surface	Custom	1
Medium Dense to Dense Silty Sand	<div></div>	115	Mohr-Coulomb	50	32	Water Surface	Custom	1
Very Dense Silty Sand	<div></div>	120	Mohr-Coulomb	50	36	Water Surface	Custom	1
PWR	<div></div>	137	Mohr-Coulomb	400	40	Water Surface	Custom	1



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
New Fill	<div></div>	105	Mohr-Coulomb	50	28	Water Surface	Custom	1
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	28	Water Surface	Custom	1
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	Water Surface	Custom	1

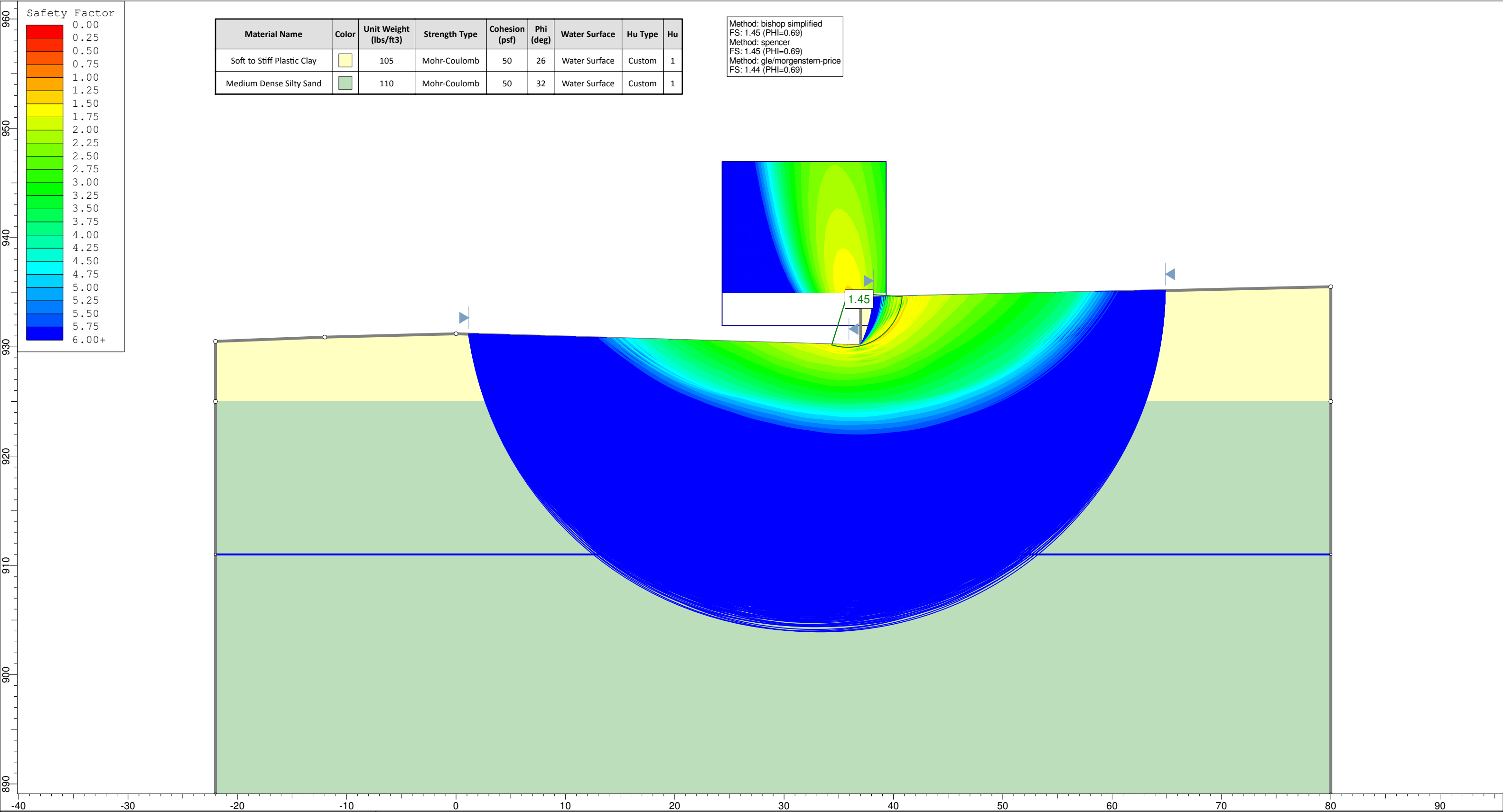
Method: bishop simplified
FS: 2.13 (PHI=0.47)
Method: spencer
FS: 2.19 (PHI=0.47)
Method: gle/morgenstern-price
FS: 2.13 (PHI=0.47)





Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
New Fill	<div></div>	105	Mohr-Coulomb	50	28	Water Surface	Custom	1
Loose Silty Sand	<div></div>	105	Mohr-Coulomb	50	28	Water Surface	Custom	1
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	Water Surface	Custom	1

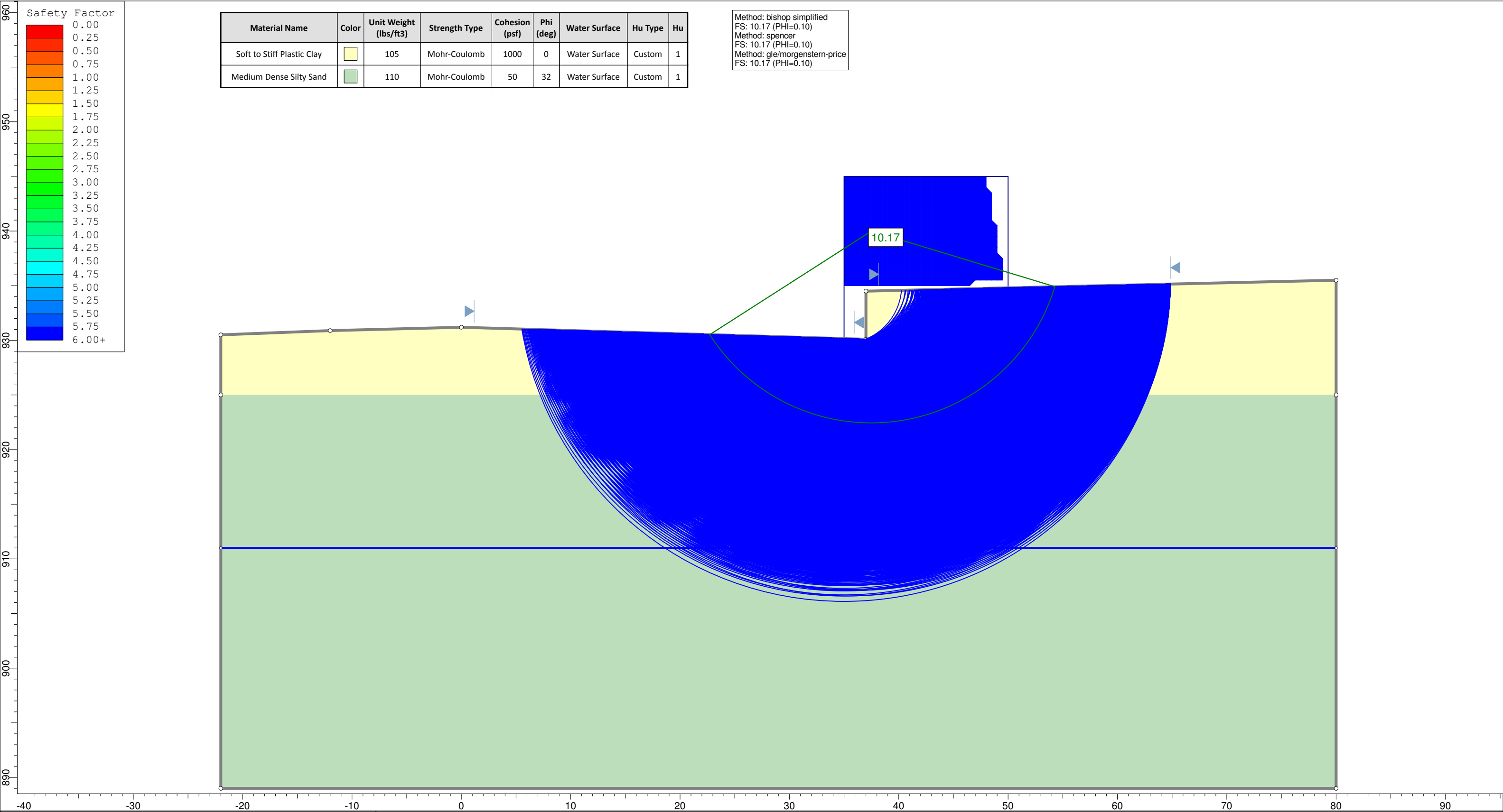
Method: bishop simplified
FS: 1.50 (PHI=0.67)
Method: spencer
FS: 1.57 (PHI=0.64)
Method: gle/morgenstern-price
FS: 1.50 (PHI=0.67)



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Soft to Stiff Plastic Clay	<div></div>	105	Mohr-Coulomb	50	26	Water Surface	Custom	1
Medium Dense Silty Sand	<div></div>	110	Mohr-Coulomb	50	32	Water Surface	Custom	1

Method: bishop simplified
FS: 1.45 (PHI=0.69)
Method: spencer
FS: 1.45 (PHI=0.69)
Method: gle/morgenstern-price
FS: 1.44 (PHI=0.69)

<div><div>rocs</div><div>science</div></div> <div>SLIDEINTERPRET 6.035</div>	Project	Wall 16 I-85/385 Interchange Improvements - Project ID: 003811; ECS Project No. 9283		
	Analysis Description	Roadway - Ramp 2A - Station 107+50- ESA		
	Drawn By	CLB	Scale	1:100
	Date	09/09/2015	Company	ECS Carolinas LLP
			File Name	Roadway - Ramp 2A - Sta 107+50 - ESA.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Soft to Stiff Plastic Clay		105	Mohr-Coulomb	1000	0	Water Surface	Custom	1
Medium Dense Silty Sand		110	Mohr-Coulomb	50	32	Water Surface	Custom	1

Method: bishop simplified
FS: 10.17 (PHI=0.10)
Method: spencer
FS: 10.17 (PHI=0.10)
Method: gle/morgenstern-price
FS: 10.17 (PHI=0.10)

