Geotechnical Exploration, Inc.
SOIL AND FOUNDATION ENGINEERING ● GROUNDWATER ● ENGINEERING GEOLOGY

29 May 2025

Mr. Richard Lowenthal
1720 Torrey Pines Road
La Jolla, CA 92037

Job No. 01-8018

Subject: **Response to DSD-Geology Comments**
Proposed Lowenthal Residential Project
1720 Torrey Pines Road
La Jolla, California

Dear Mr. Lowenthal:

Per the request of Mr. Mario Santos with Marengo Morton Architects, Inc., and as required per the City of San Diego DSD Geology reviewer, we are responding to the following issues presented in the updated Project Issues Report PRJ-1130488 dated April 17, 2025, for the subject project. Please refer to the Vicinity Map, Figure No. I, for the project location. It is our understanding that the reviewer has reviewed Building Plans: Lowenthal Residence, La Jolla, CA, prepared by Marengo Morton Architects, Inc., dated January 29, 2025; structural plans by AMC Consulting; and our *Update Report of Preliminary Geotechnical Investigation and Coastal Bluff Evaluation*, Lowenthal Residential Project, La Jolla, CA prepared by GEI, dated July 03, 2024 and our *Response to DSD-Geology Comments* dated November 06, 2024.

DSD-Geology Comment 00116 |Page| Open: *The project's geotechnical consultant has provided the analysis for the proposed slope on page 20 of the submitted report and now must provide a professional opinion that the site will have a factor of safety of 1.5 or greater for both gross and surficial stability following project completion*

GEI Response to Comment 00116: It is our professional opinion that following project completion in accordance with our recommendations, all site slopes will have a factor of safety of 1.5 or greater for both gross and surficial stability and greater than the acceptable value of 1.15 under seismic loading conditions.

DSD-Geology Comment 00117 |Page| Open: The project's geotechnical consultant should indicate if the proposed building foundation setback from the descending slope into the coastal canyon meets building code 1808A7.2 or provide an alternate foundation recommendation.

GEI Response to Comment 00117: The proposed building setback from the descending slope into the coastal canyon meets the current building code requirements of section 1808A7.2.

DSD-Geology Comment 00118 |Page| Open: Please provide the updated geotechnical map with artificial fill shown, the additional cross sections, and additional slope stability analysis from the discretionary review PRJ-1111223

GEI Response to Comment 00118: In this response as Appendix A, we are providing the new cross section J-J', the updated geotechnical map showing the artificial fill, the location of the new cross section J-J', and the location of updated cross sections Bb-Bb', E-E', F-F', G-G'. We are also providing the updated slope stability analysis for all cross sections provided.

DSD-Geology Comment 00119 |Page| Open: The project's geotechnical consultant must review the current building plans and details to verify that their recommendations have been adequately implemented. Please indicate if additional analysis and or recommendations are required

GEI Response to Comment 00119: It is our understanding that the building plans are currently in development or are in the process of being updated by the designers and we will review them for their conformance once the DSD-Structural or the building designers request us for a conformance letter.

If you have any questions regarding this letter, please contact our office. Reference to our **Job No. 01-8018** will help expedite a response to your inquiry.

Respectfully submitted,

GEOTECHNICAL EXPLORATION, INC.

Leslie D. Reed, President
P.G. 3391/C.E.G. 999

Jaime A. Cerros, P.E.
R.C.E. 34422/ G.E. 2007
Senior Geotechnical Engineer

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REGISTERED PROFESSIONAL ENGINEER
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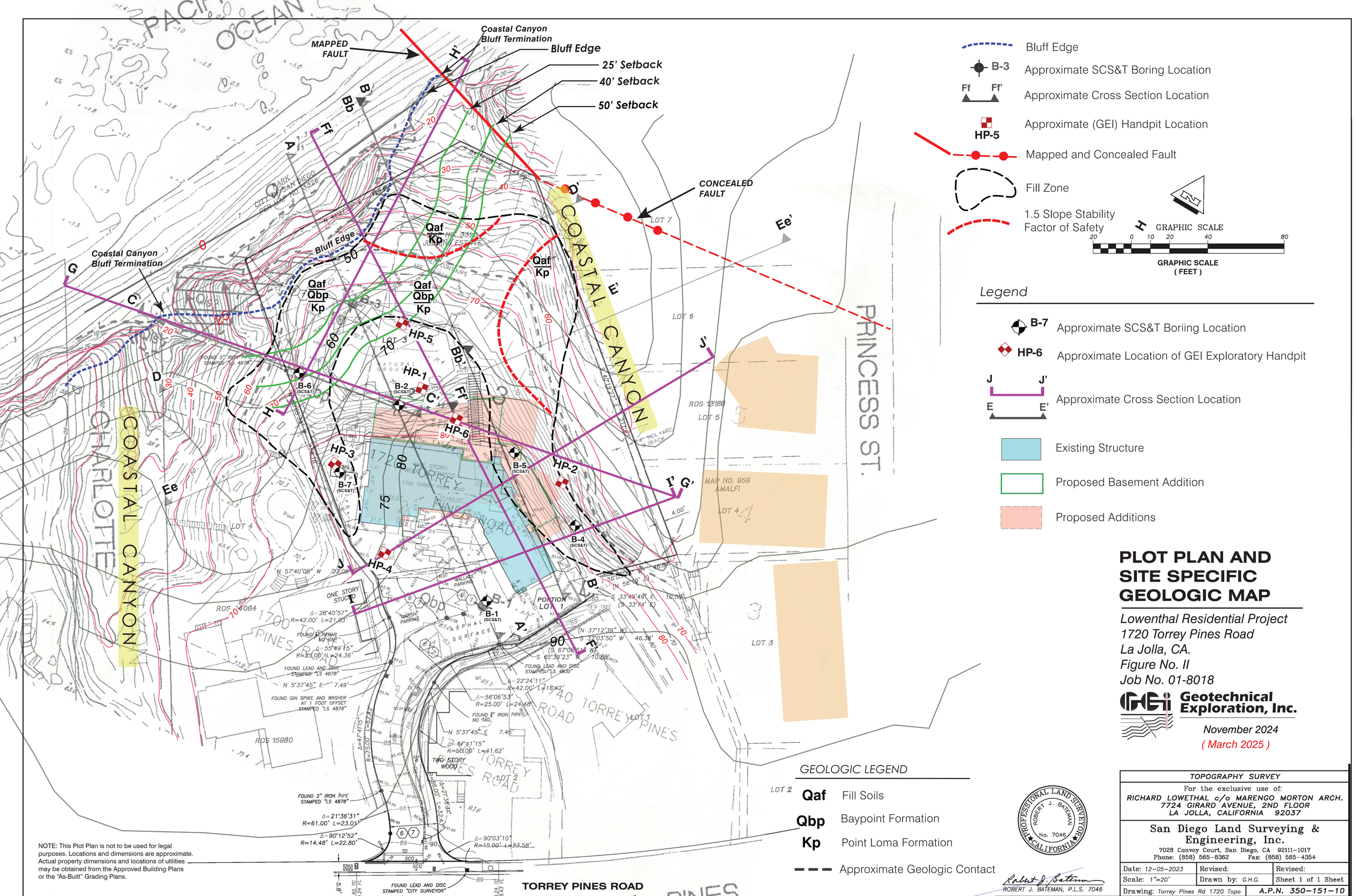
GE 2007
EXP. 9/30/25
GEOTECHNICAL
STATE OF CALIFORNIA

APPENDIX A

Discretionary Review PRJ-1111223
Supplemental Information:
Updated Geotechnical Map; Additional Cross Section; Additional Slope Stability Analysis



NOTE: This Plot Plan is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

PLOT PLAN AND SITE SPECIFIC GEOLOGIC MAP

Lowenthal Residential Project
1720 Torrey Pines Road
La Jolla, CA.
Figure No. II
Job No. 01-8018

Geotechnical Exploration, Inc.

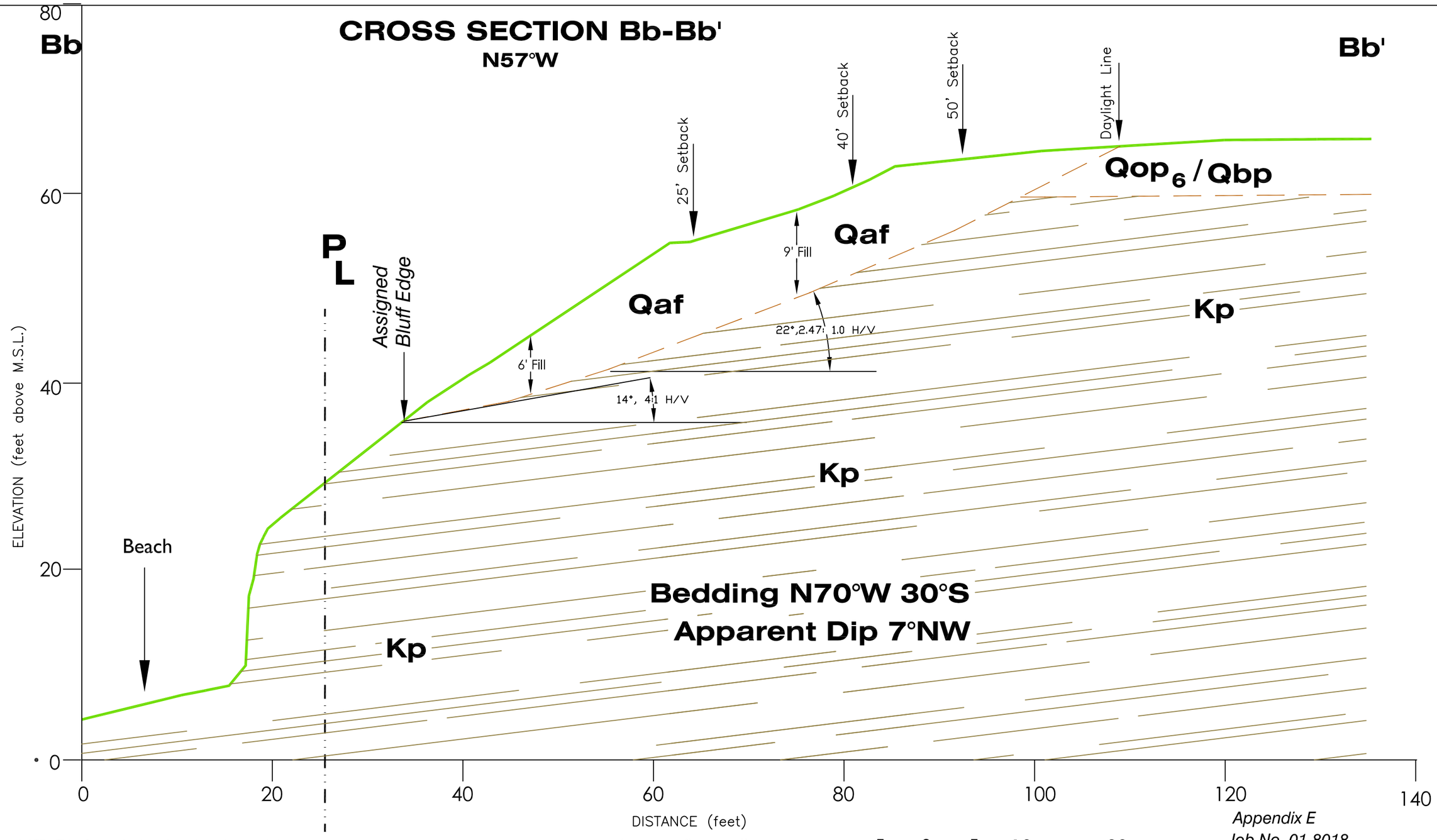
November 2024
(March 2025)

TOPOGRAPHY SURVEY		
For the exclusive use of: RICHARD LOWETHAL c/o MARENGO MORTON ARCH. 7724 GIRARD AVENUE, 2ND FLOOR LA JOLLA, CALIFORNIA 92037		
San Diego Land Surveying & Engineering, Inc. 7028 Convoy Court, San Diego, CA 92111-1017 Phone: (858) 565-8362 Fax: (858) 565-4354		
Date: 12-05-2023	Revised:	Revised:
Scale: 1"=20'	Drawn by: G.H.G.	Sheet 1 of 1 Sheet
Drawing: Torrey Pines Rd 1720 Topo	A.P.N. 350-151-10	

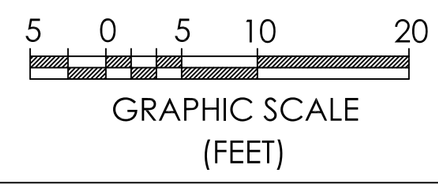
01-8018-BASE-FINAL-ADJUSTMENTS-3-27-25.ai

CROSS SECTION Bb-Bb'

N57°W



NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.



Appendix E

Job No. 01-8018

Geotechnical Exploration, Inc.

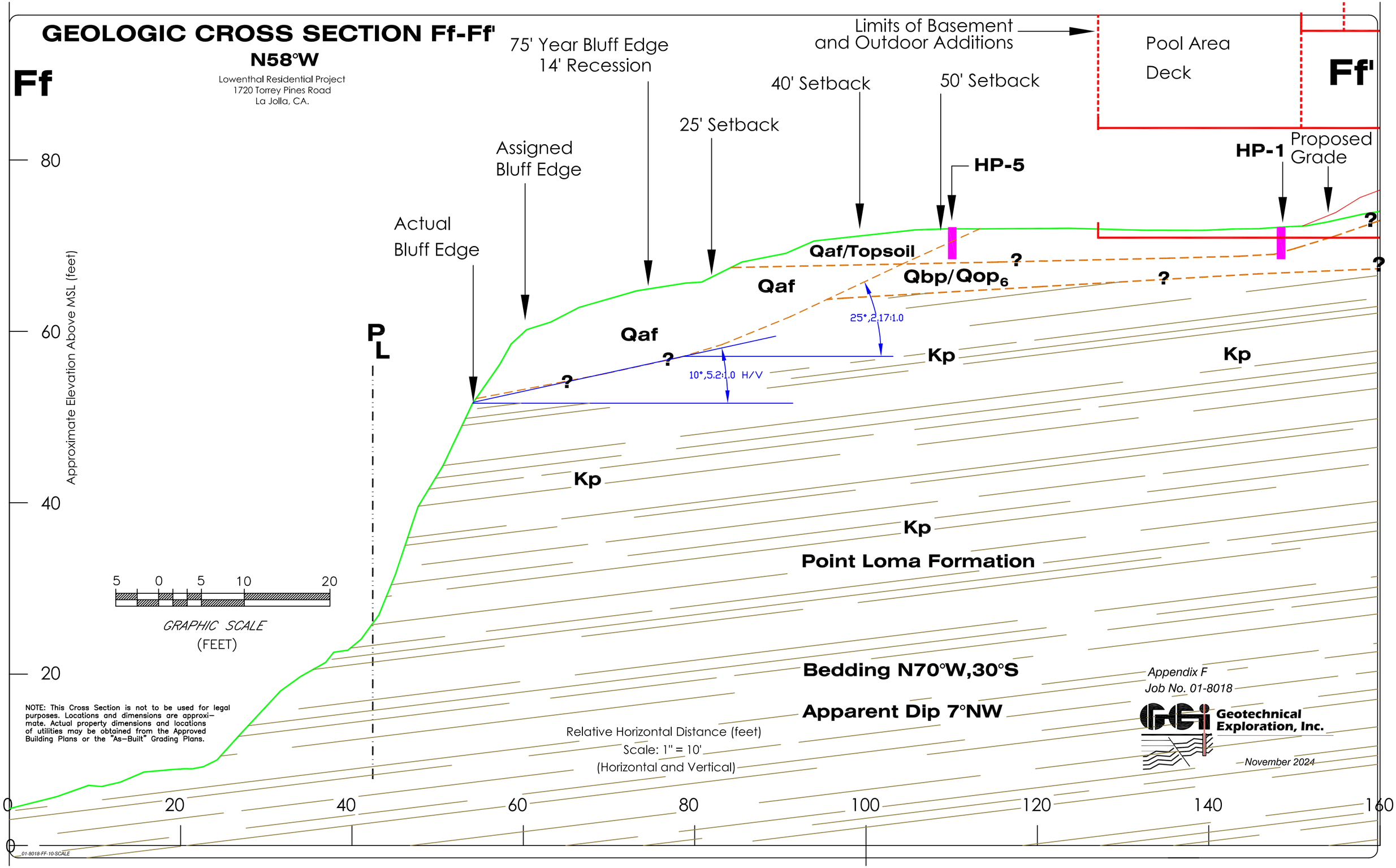
November 2024

01-8018-Bb-Bb-10-SCALE

GEOLOGIC CROSS SECTION Ff-Ff'

N58°W

Lowenthal Residential Project
1720 Torrey Pines Road
La Jolla, CA.

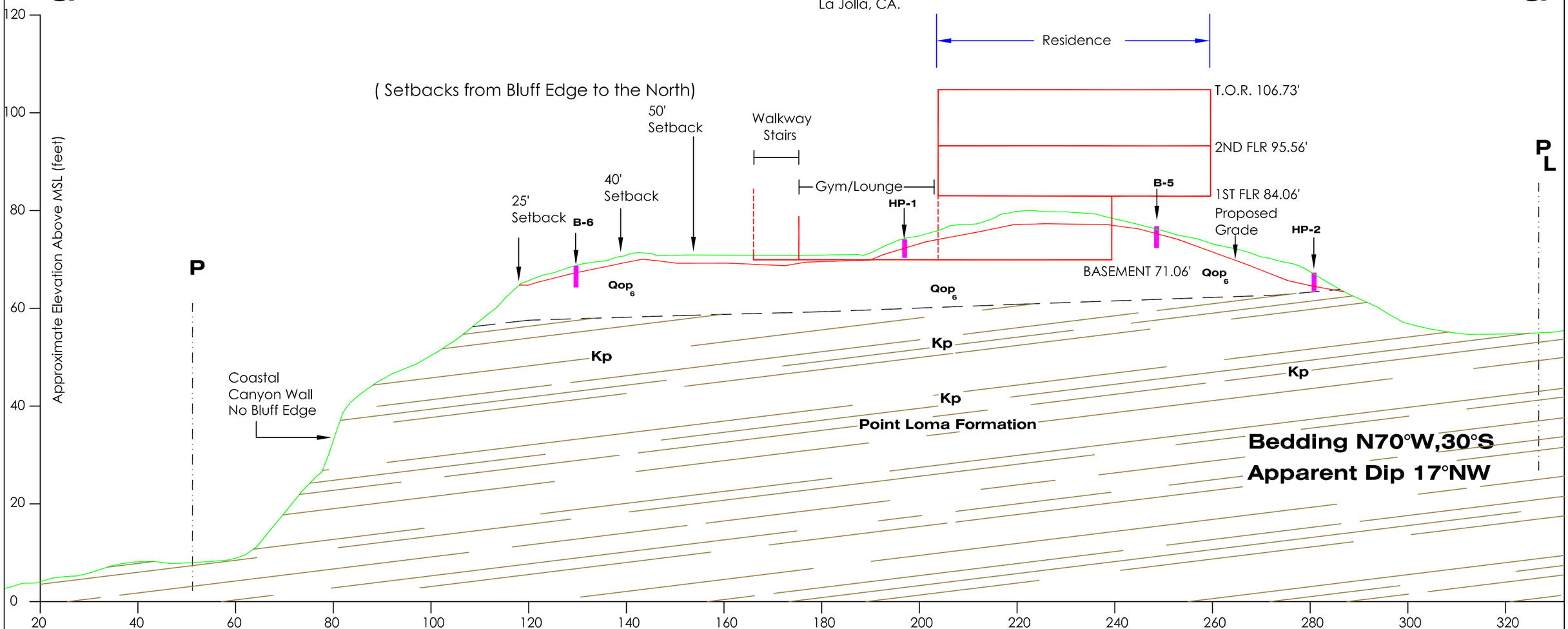


NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

GEOLOGIC CROSS SECTION G-G'

N78°E

Lowenthal Residential Project
1720 Torrey Pines Road
La Jolla, CA.



GEOLOGIC LEGEND	
Qaf	Artificial Fill
Qop_6	Old Paralic Deposits Unit 6
Kp	Point Loma Formation
-?- -?-	Approximate Geologic Contact

NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

01-8018-GG.dwg

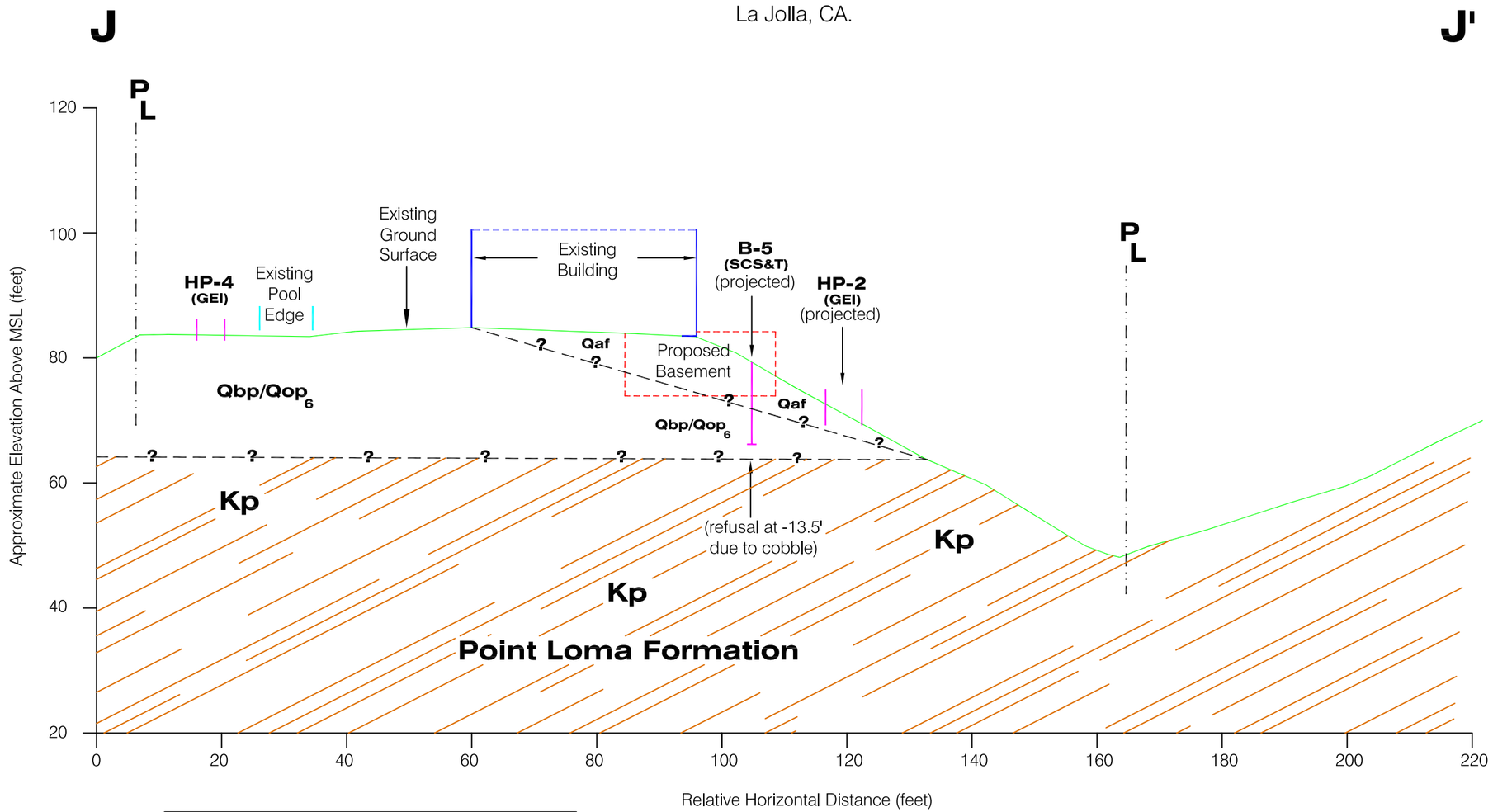
Figure No. VIIb
Job No. 01-8018

Geotechnical Exploration, Inc.

July 2024

GEOLOGIC CROSS SECTION J-J"

Lowenthal Residential Project
1720 Torrey Pines Road
La Jolla, CA.



Qaf	Artificial Fill
Qop$_6$	Old Paralic Deposits , Unit 6
Qbp	Baypoint Formation
Kp	Point Loma Formation
? - - ?	Approximate Geologic Contact

10 0 5 10 20 40

GRAPHIC SCALE
(FEET)

NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

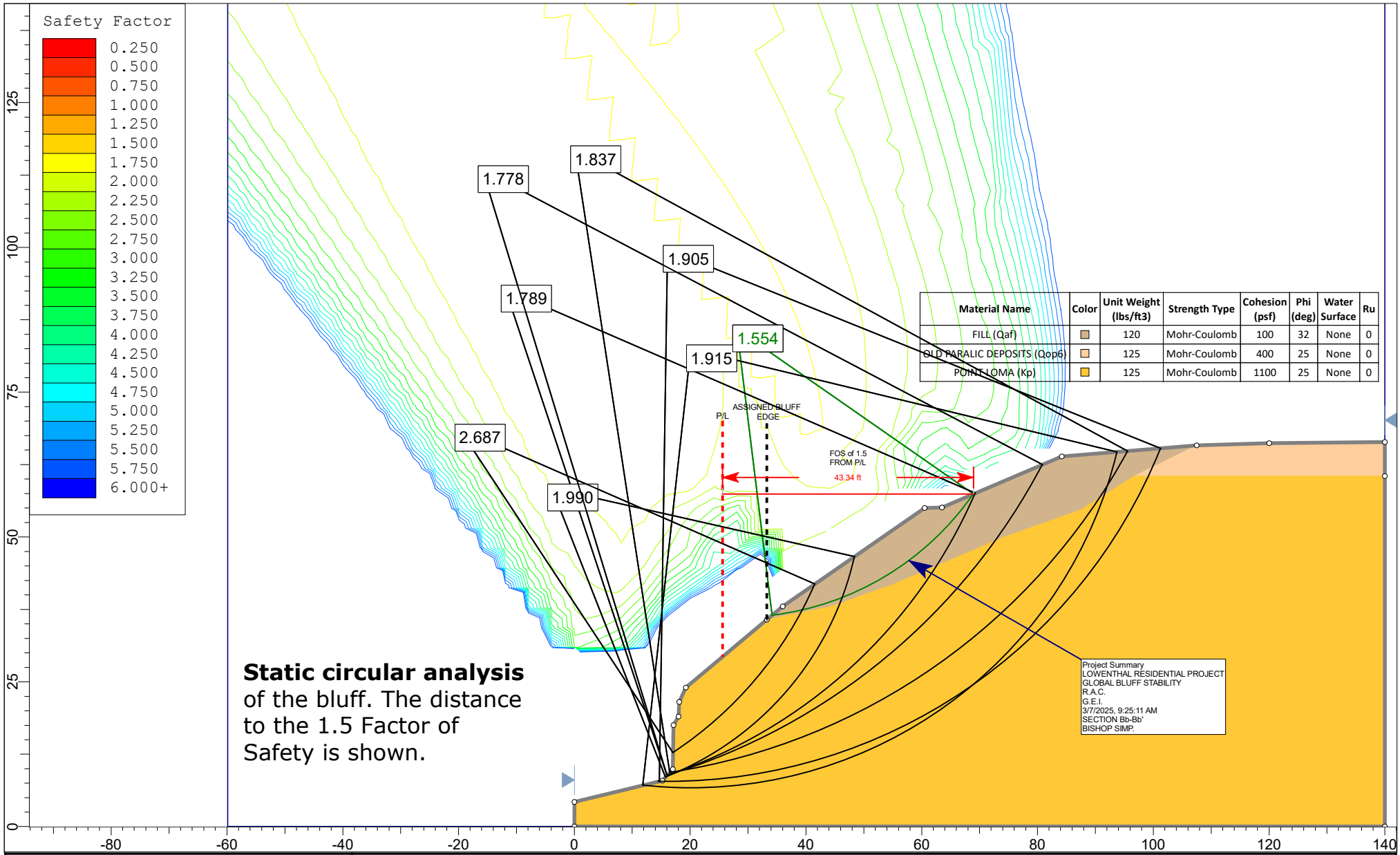
Figure No.
Job No. 01-8018

Geotechnical Exploration, Inc.

March 2025

01-8018-JJ.dwg

Slope Stability Analysis for Cross Sections Bb-Bb', Ff-Ff', G-G' dated March 07, 2025



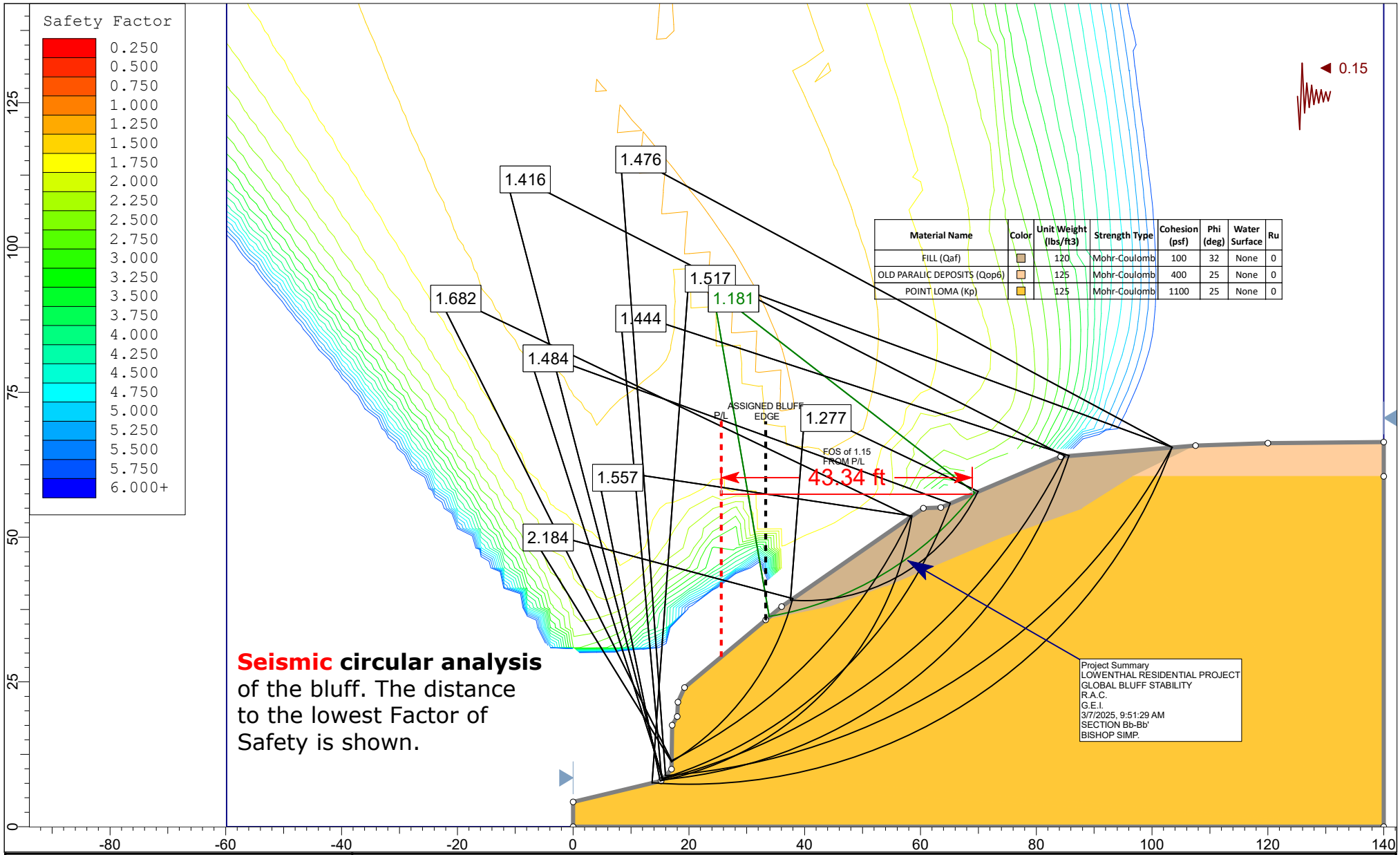
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Static circular analysis of the bluff. The distance to the 1.5 Factor of Safety is shown.

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENTIAL PROJECT		**SECTION Bb-Bb'**
Analysis Description	GLOBAL BLUFF STABILITY		
Drawn By R.A.C.	*Scale* 1:275	*Company* G.E.I.	
Date 3/7/2025, 9:25:11 AM		*File Name* JOB NO. 01-8018_S(Bb)_01.slim	



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENTIAL PROJECT		**SECTION Bb-Bb'**
Analysis Description	GLOBAL BLUFF STABILITY		
Drawn By R.A.C.	*Scale* 1:275	*Company* G.E.I.	
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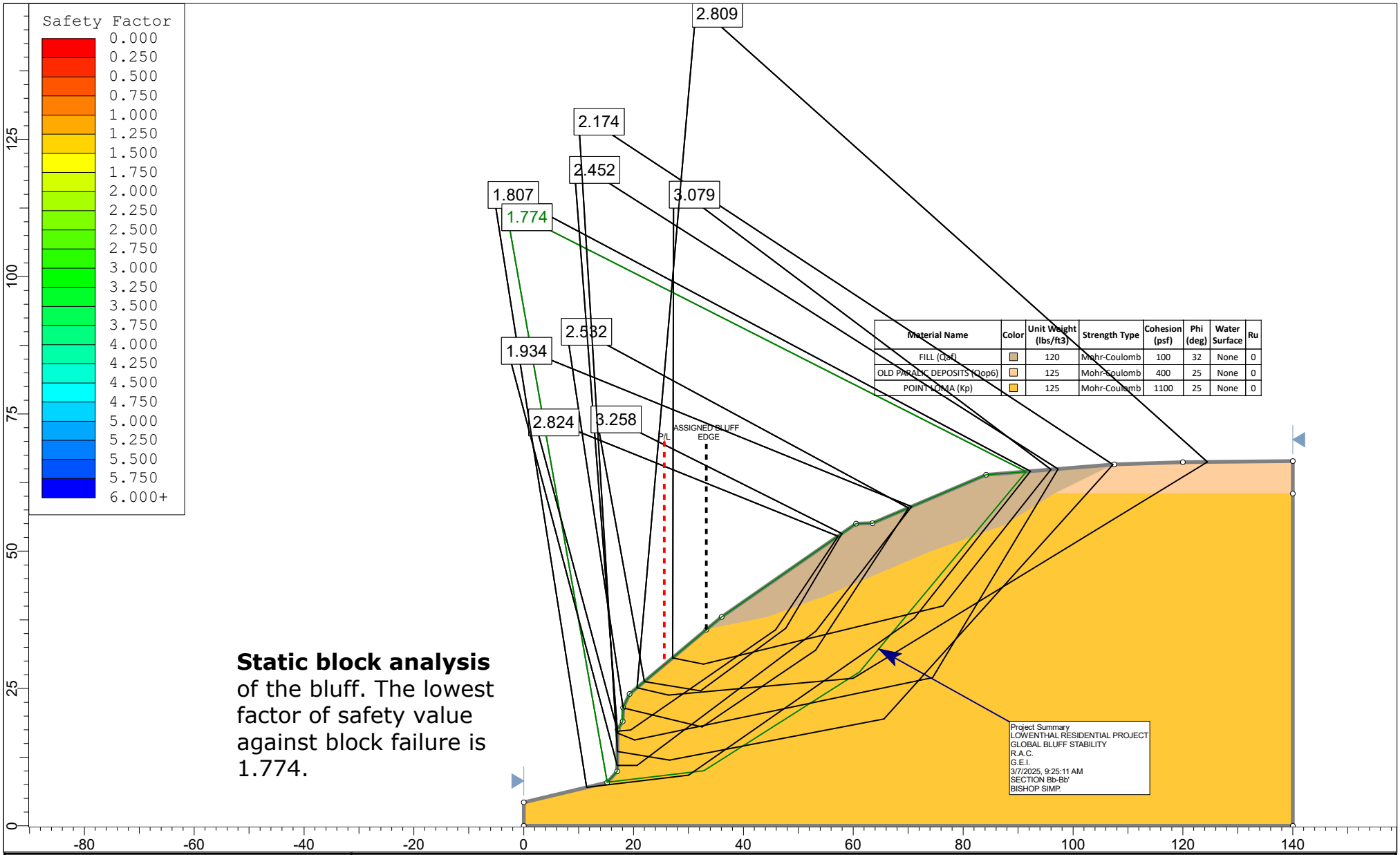

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qsf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Static block analysis of the bluff. The lowest factor of safety value against block failure is 1.774.

Geotechnical Exploration, Inc.	Project: LOWENTHAL RESIDENTIAL PROJECT		**SECTION Bb-Bb'**
	Analysis Description: GLOBAL BLUFF STABILITY		
	Drawn By: R.A.C.	Scale: 1:290	Company: G.E.I.
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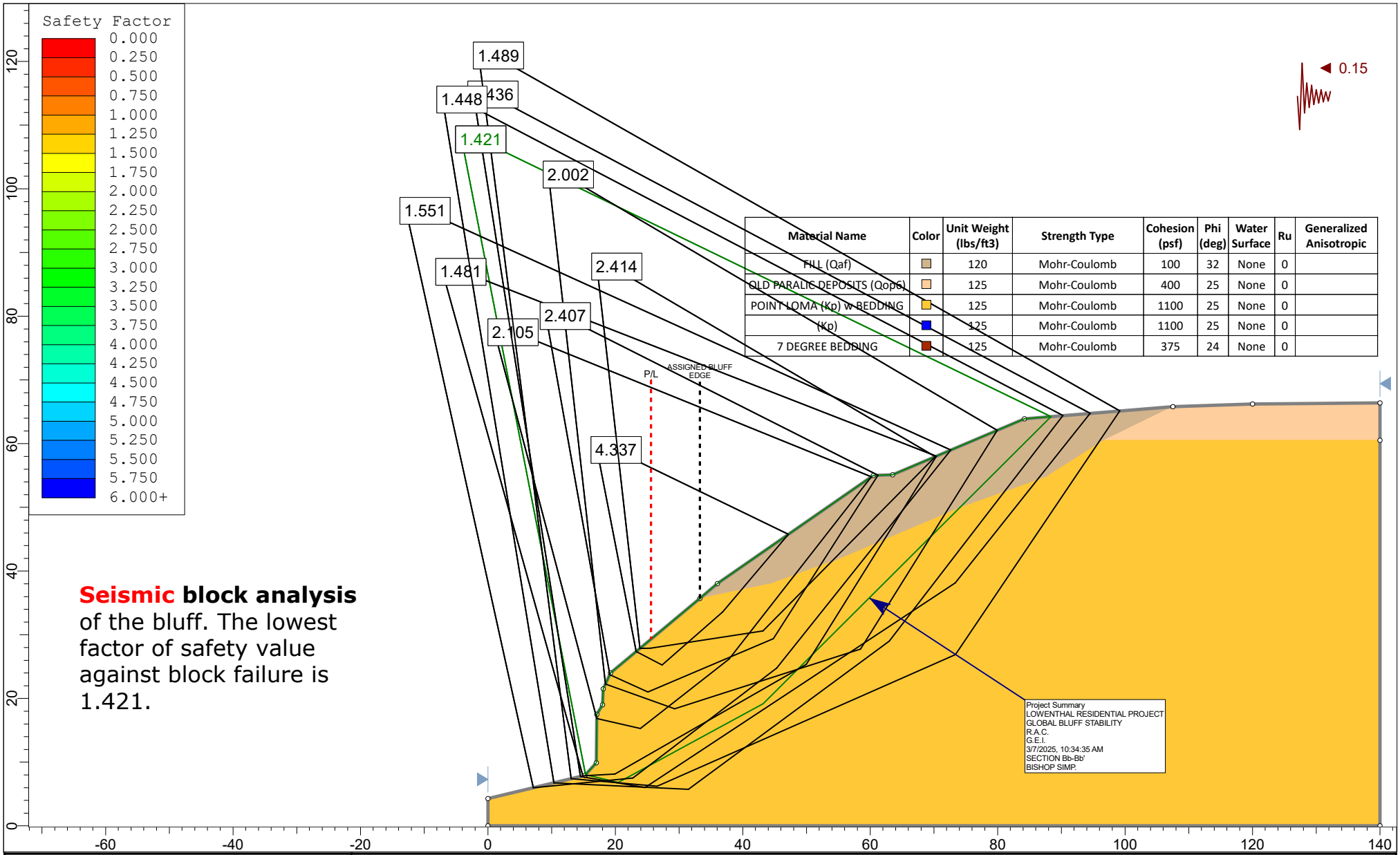

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru	Generalized Anisotropic
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0	
OLD PARALIC DEPOSITS (Qopc)		125	Mohr-Coulomb	400	25	None	0	
POINT LOMA (Kp) w BEDDING		125	Mohr-Coulomb	1100	25	None	0	
(Kp)		125	Mohr-Coulomb	1100	25	None	0	
7 DEGREE BEDDING		125	Mohr-Coulomb	375	24	None	0	

Seismic block analysis of the bluff. The lowest factor of safety value against block failure is 1.421.

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENTIAL PROJECT		**SECTION Bb-Bb'**
Analysis Description	GLOBAL BLUFF STABILITY		
Drawn By R.A.C.	*Scale* 1:250	*Company* G.E.I.	
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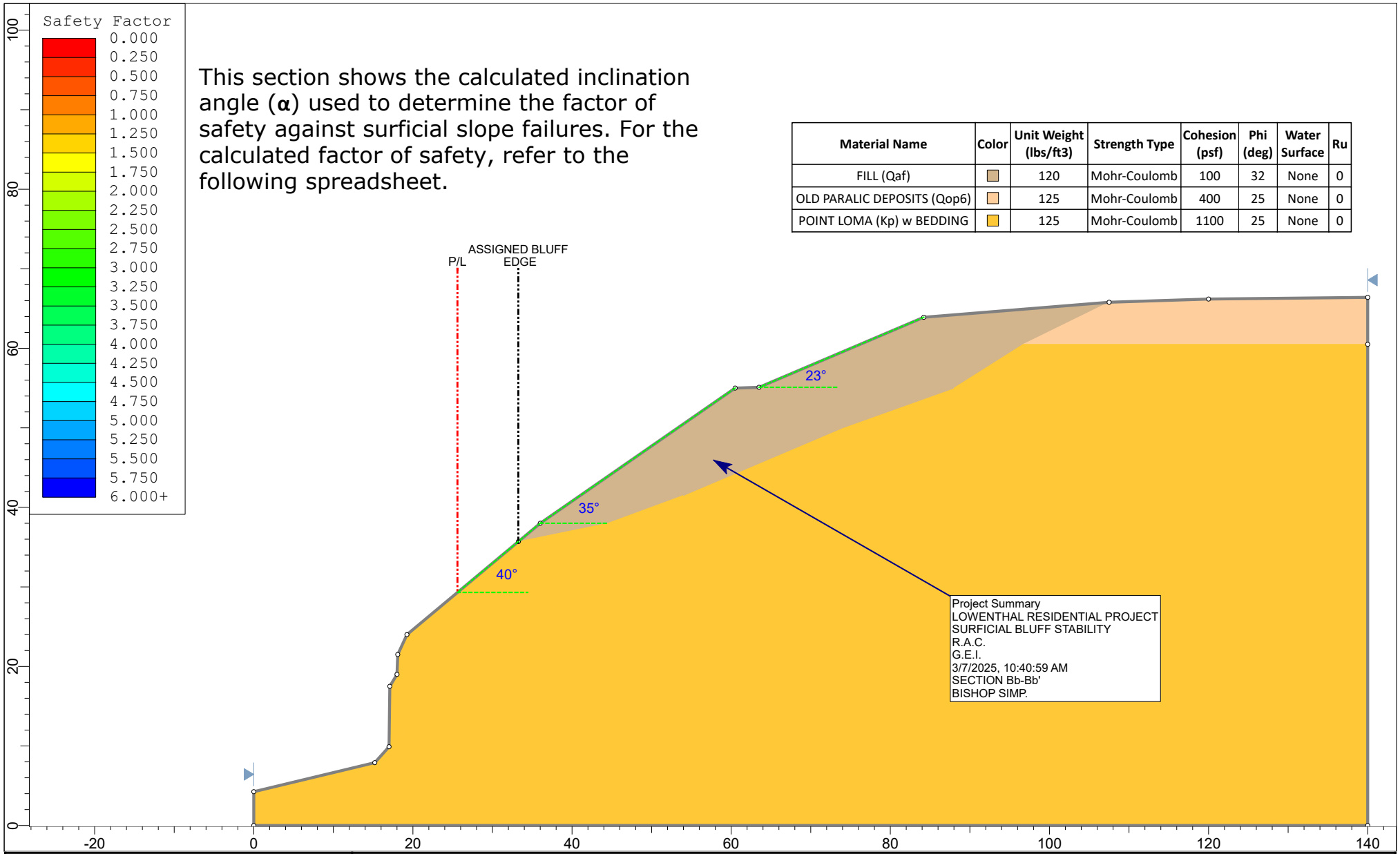
This section shows the calculated inclination angle (α) used to determine the factor of safety against surficial slope failures. For the calculated factor of safety, refer to the following spreadsheet.

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp) w BEDDING		125	Mohr-Coulomb	1100	25	None	0



Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENTIAL PROJECT		**SECTION Bb-Bb'**
Analysis Description	SURFICIAL BLUFF STABILITY		
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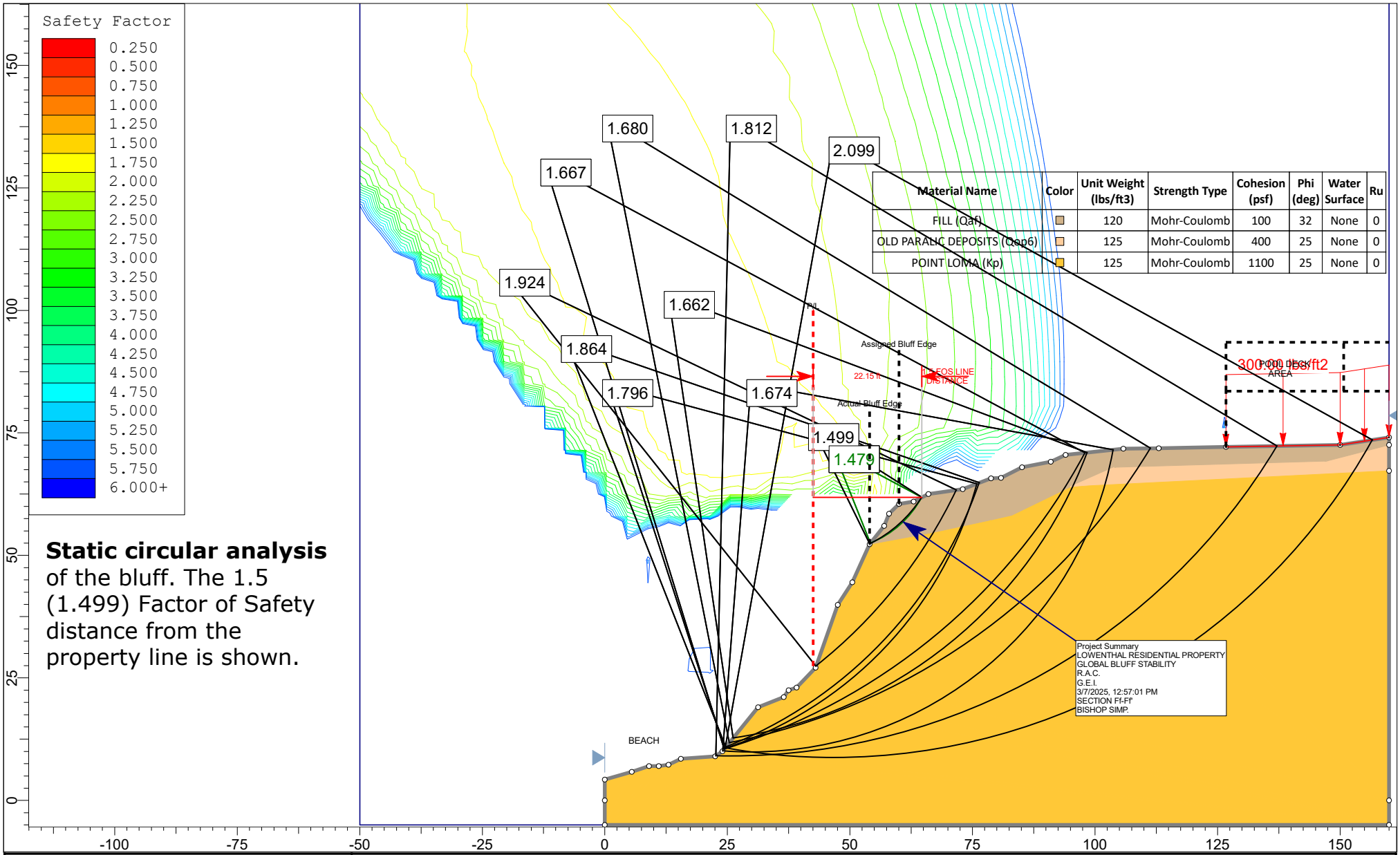

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Static circular analysis of the bluff. The 1.5 (1.499) Factor of Safety distance from the property line is shown.

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENTIAL PROPERTY		**SECTION Ff-Ff'**
Analysis Description	GLOBAL BLUFF STABILITY		
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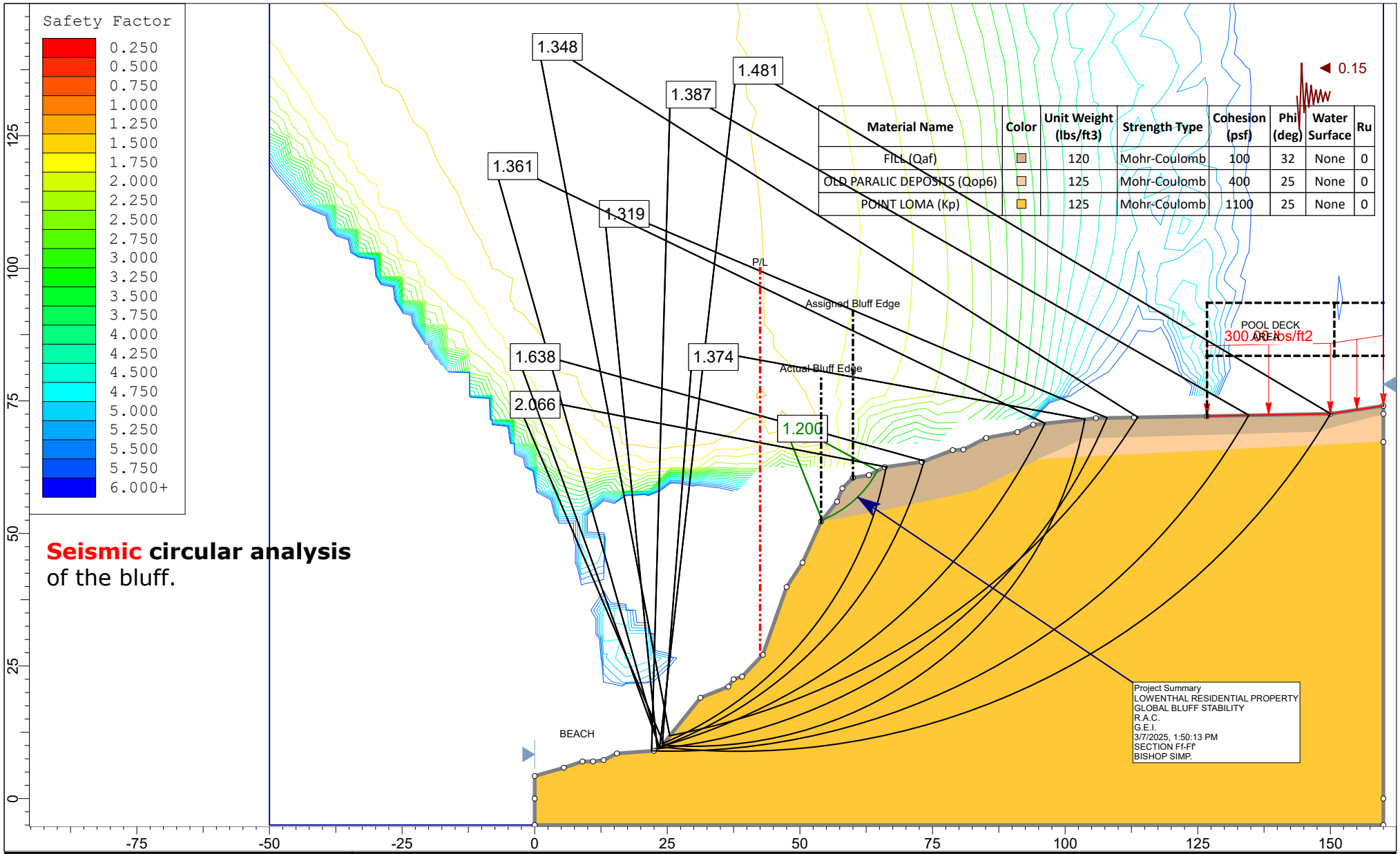

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Seismic circular analysis of the bluff.

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENTIAL PROPERTY		**SECTION Ff-Ff'**
Analysis Description	GLOBAL BLUFF STABILITY		
Drawn By: R.A.C.	Scale: 1:300	Company: G.E.I.	
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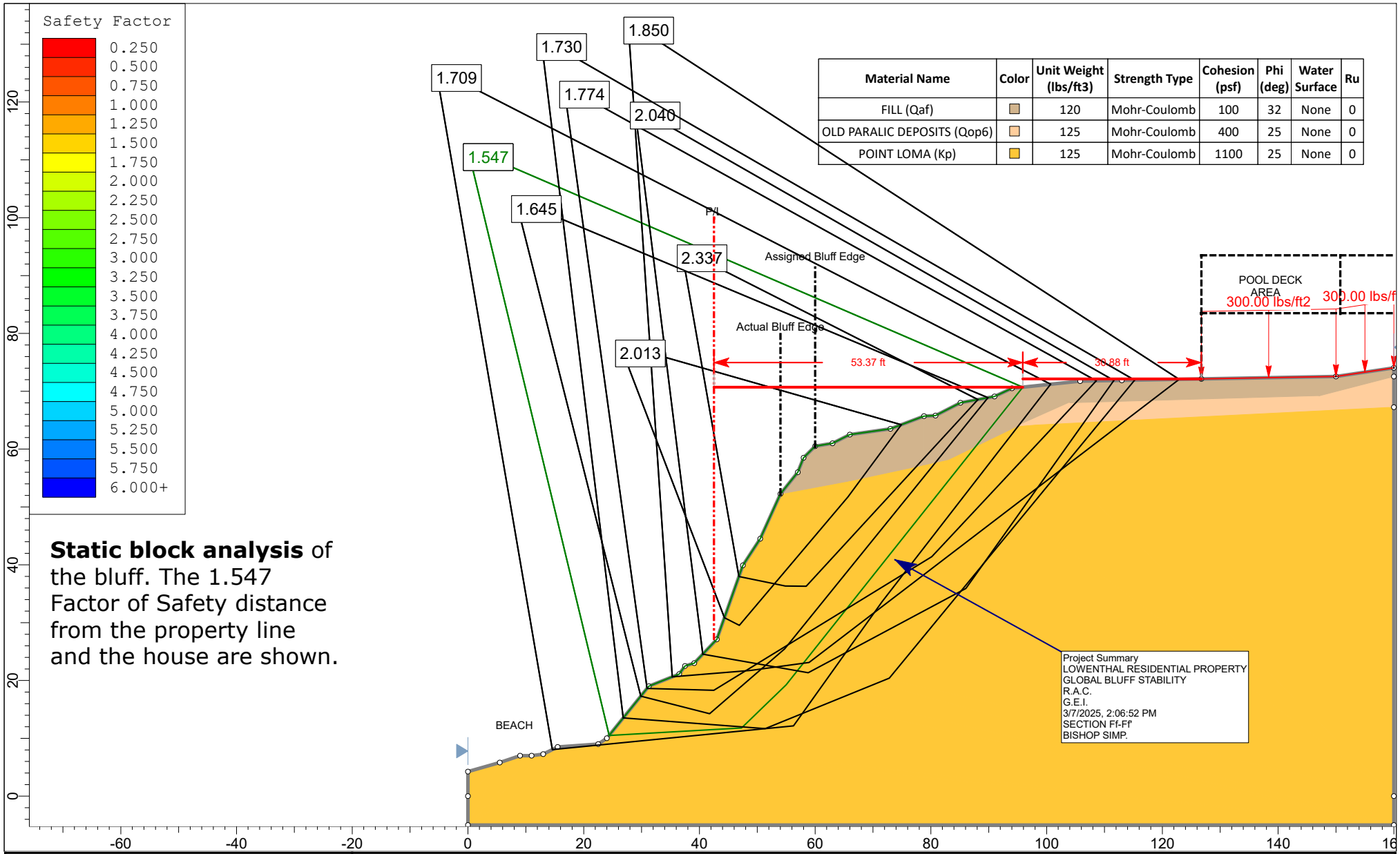


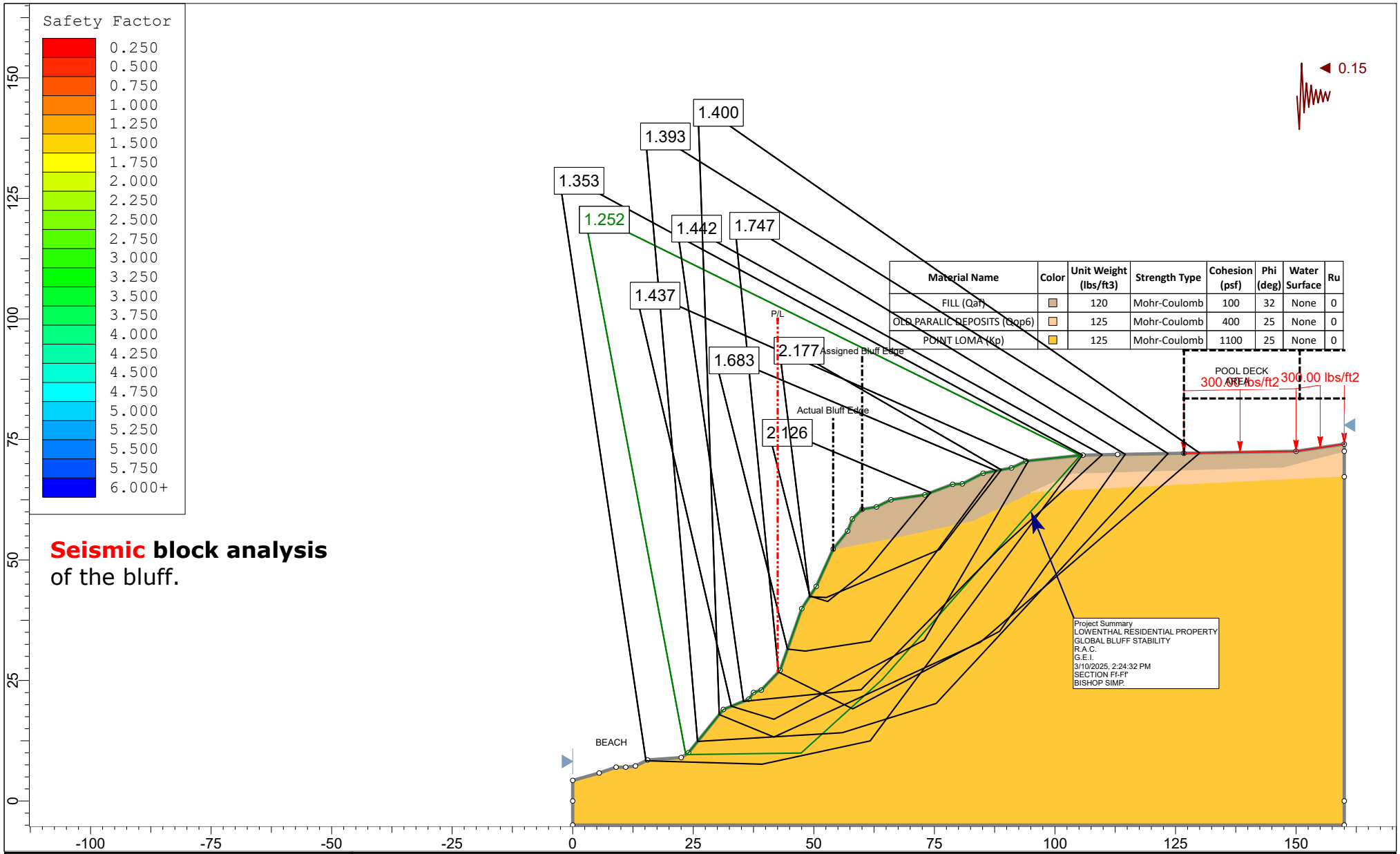
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Static block analysis of the bluff. The 1.547 Factor of Safety distance from the property line and the house are shown.

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENTIAL PROPERTY		**SECTION Ff-Ff'**
Analysis Description	GLOBAL BLUFF STABILITY		
Drawn By	R.A.C.	Scale 1:275	Company G.E.I.
Date	3/7/2025, 2:06:52 PM		File Name JOB NO. 01-8018_S(Ff)_02.slim

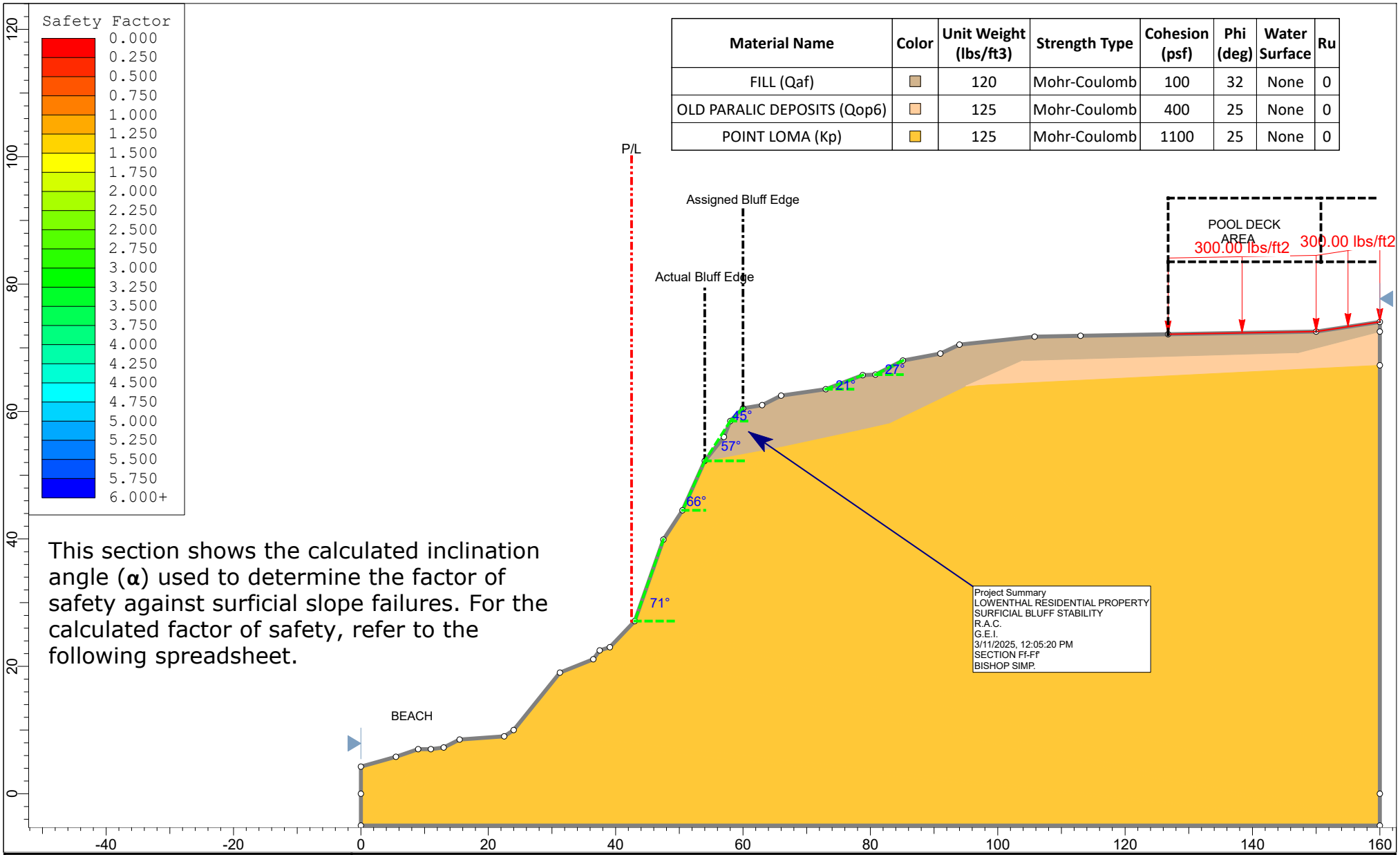


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Seismic block analysis
of the bluff.

Geotechnical Exploration, Inc.	*Project* LOWENTHAL RESIDENTIAL PROPERTY		**SECTION Ff-Ff'**
	Analysis Description GLOBAL BLUFF STABILITY		
	Drawn By R.A.C.	*Scale* 1:330	*Company* G.E.I.
SLIDEINTERPRET 6.039	*Date* 3/10/2025, 2:24:32 PM		*File Name* JOB NO. 01-8018_S(Ff)_02w_0.15gSHAKE.slim

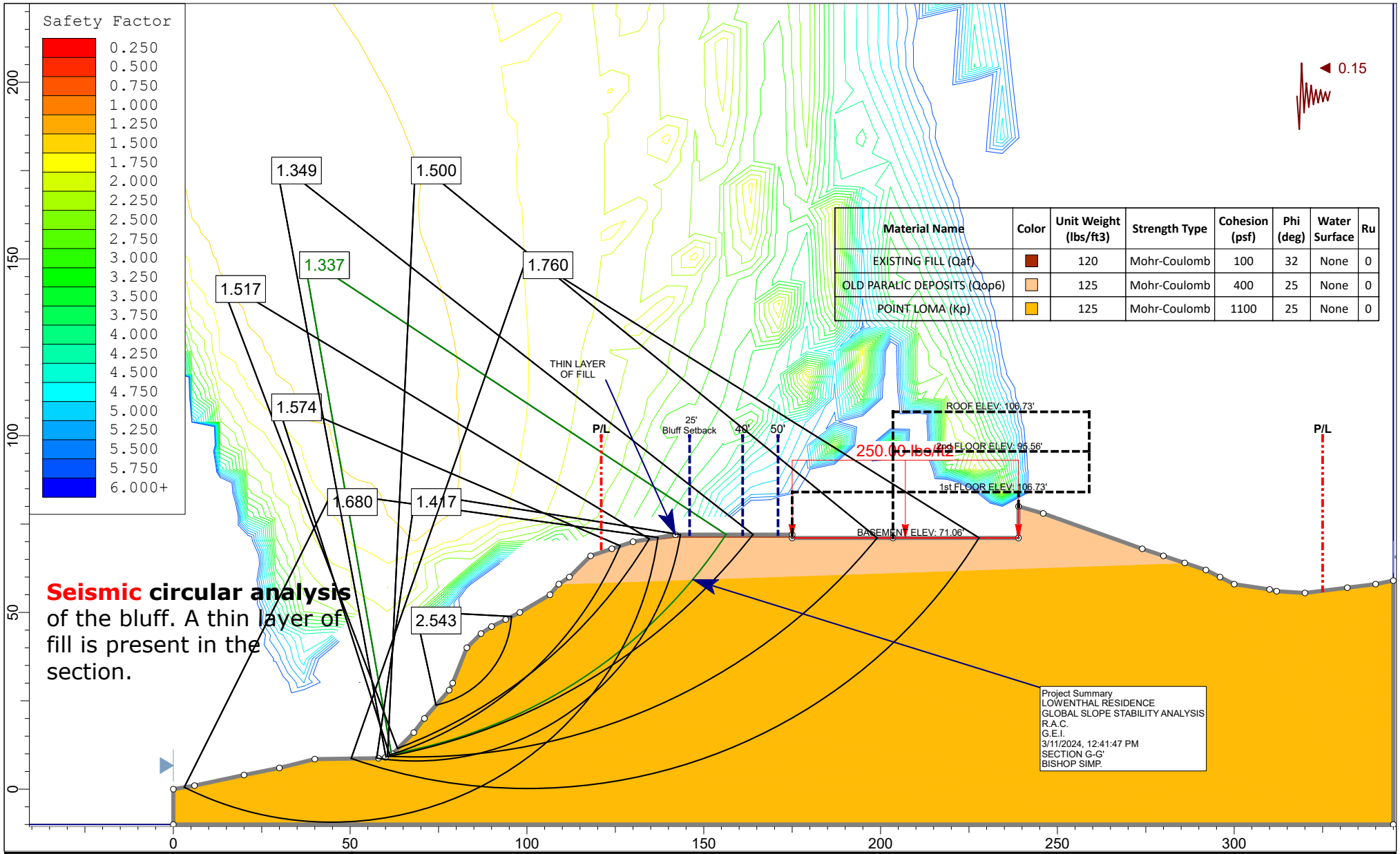
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0



This section shows the calculated inclination angle (α) used to determine the factor of safety against surficial slope failures. For the calculated factor of safety, refer to the following spreadsheet.

Geotechnical Exploration, Inc.	Project	LOWENTHAL RESIDENTIAL PROPERTY	**SECTION Ff-Ff'**
	Analysis Description	SURFICIAL BLUFF STABILITY	
	Drawn By: R.A.C.	Scale: 1:250	Company: G.E.I.
	Date: 3/11/2025, 12:05:20 PM		File Name: JOB NO. 01-8018_S(Ff)_03.slim

SLIDEINTERPRET 6.039



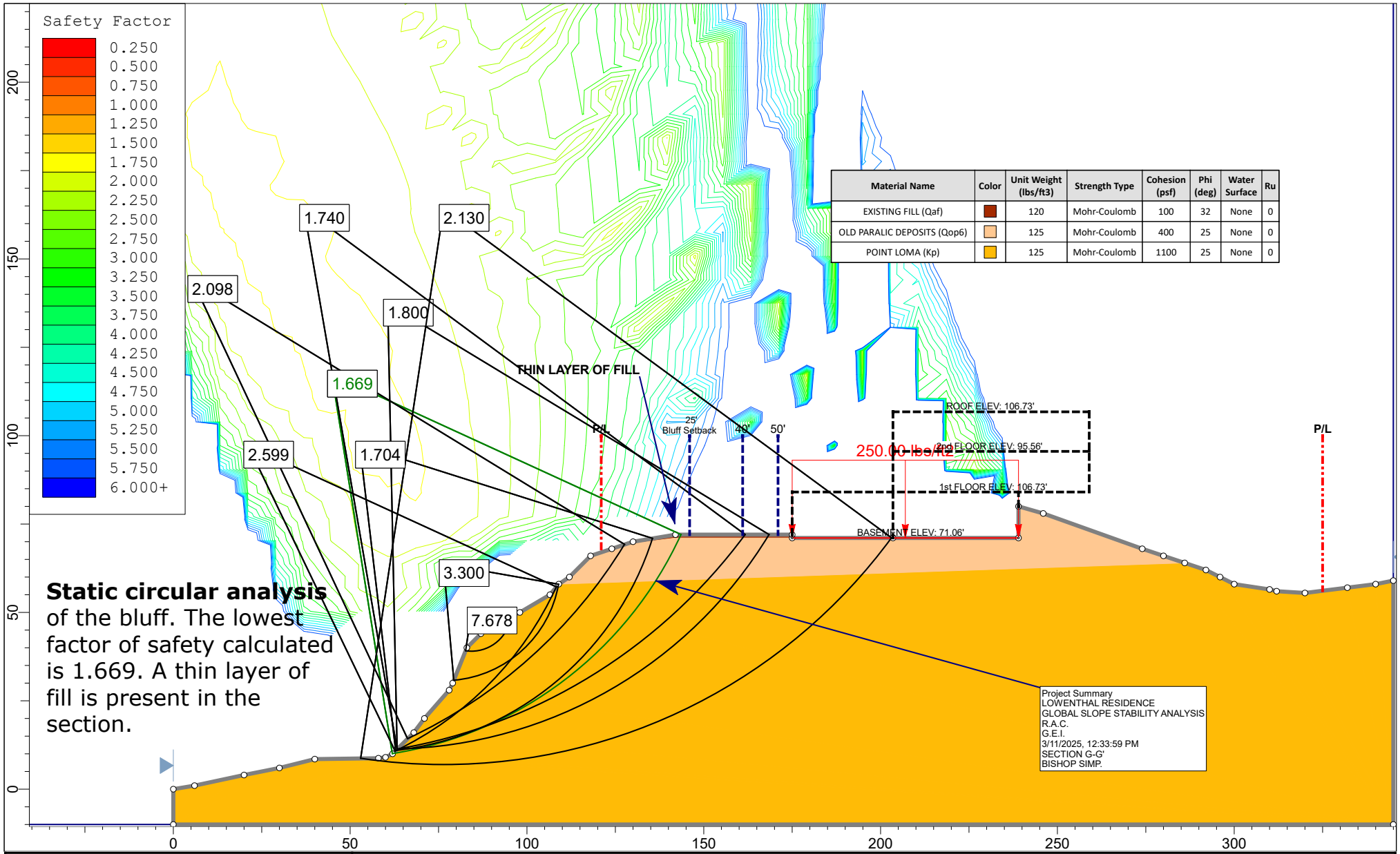
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
EXISTING FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Seismic circular analysis of the bluff. A thin layer of fill is present in the section.

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENCE		**SECTION G-G'**
Analysis Description	GLOBAL SLOPE STABILITY ANALYSIS		
Drawn By R.A.C.	*Scale* 1:450	*Company* G.E.I.	
Date 3/11/2024, 12:41:47 PM		*File Name* JOB NO. 01-8018_S(G)_01 w_0.15gSHAKE.slim	



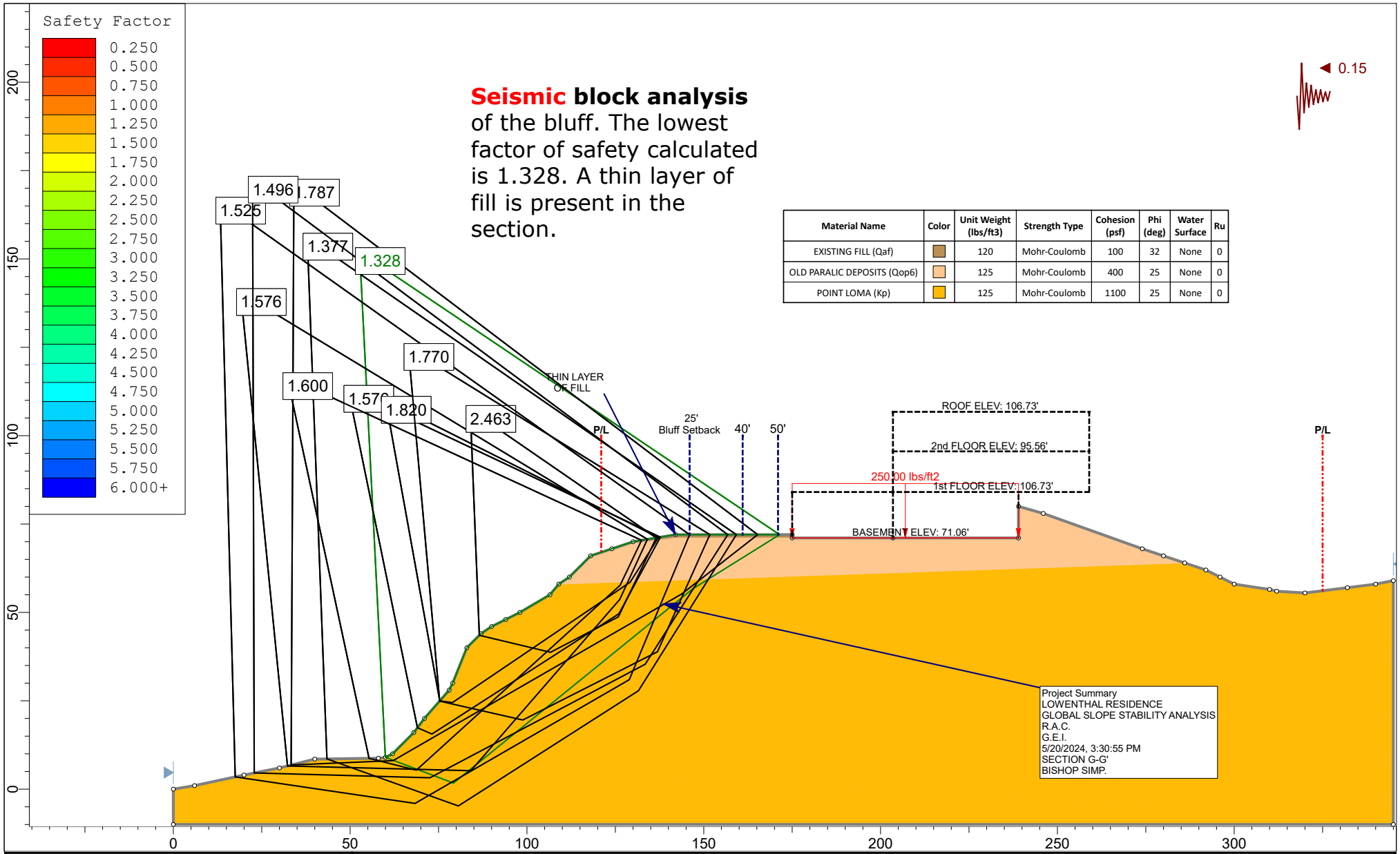
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
EXISTING FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Static circular analysis of the bluff. The lowest factor of safety calculated is 1.669. A thin layer of fill is present in the section.

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENCE		**SECTION G-G'**
Analysis Description	GLOBAL SLOPE STABILITY ANALYSIS		
Drawn By R.A.C.	*Scale* 1:450	*Company* G.E.I.	
Date 3/11/2025, 12:33:59 PM		*File Name* JOB NO. 01-8018_S(G)_01.slim	

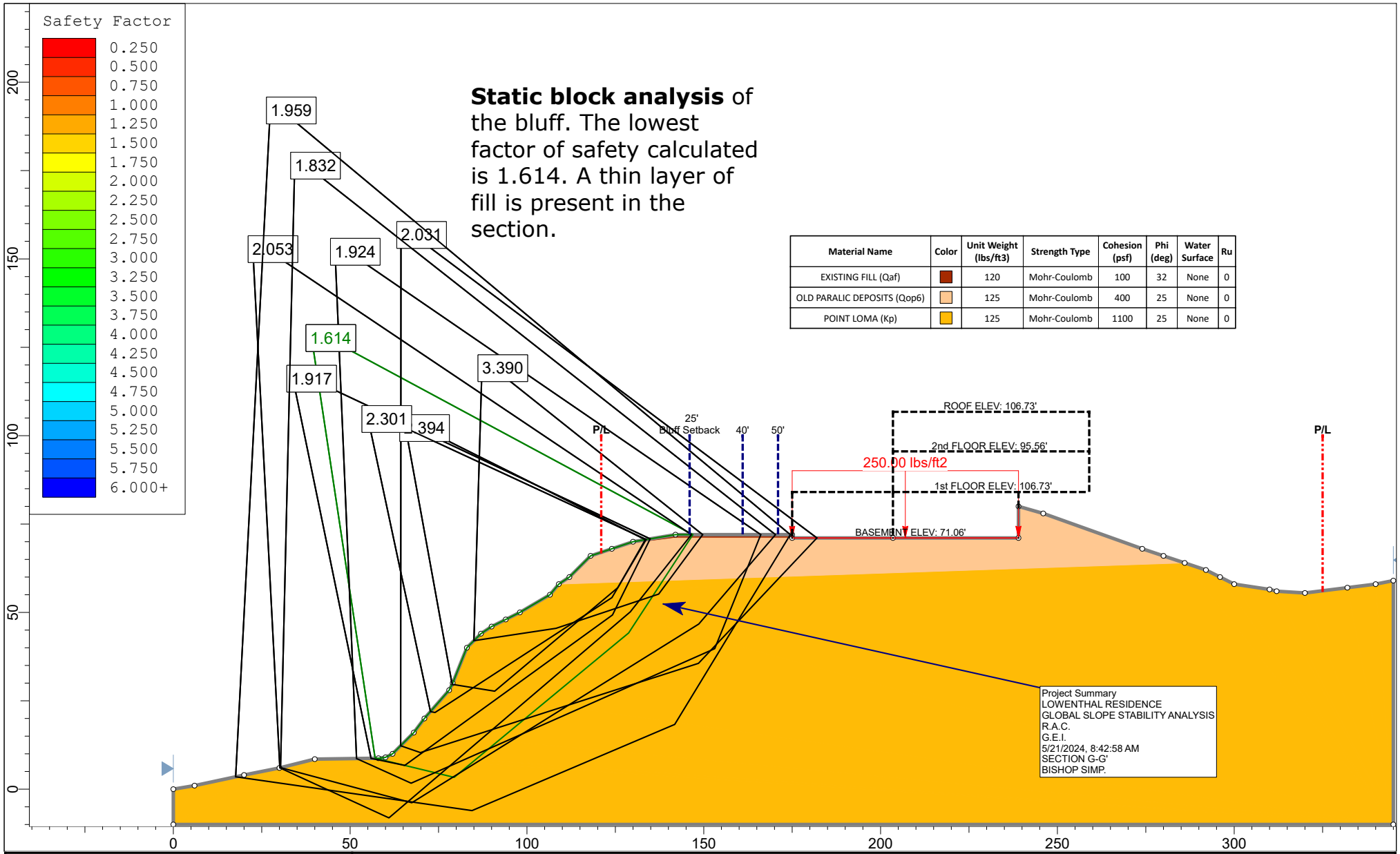


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
EXISTING FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENCE		**SECTION G-G'**
Analysis Description	GLOBAL SLOPE STABILITY ANALYSIS		
Drawn By R.A.C.	*Scale* 1:450	*Company* G.E.I.	
Date 5/20/2024, 3:30:55 PM		*File Name* JOB NO. 01-8018_S(G)_02 w_0.15gSHAKE.slim	



Static block analysis of the bluff. The lowest factor of safety calculated is 1.614. A thin layer of fill is present in the section.

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
EXISTING FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

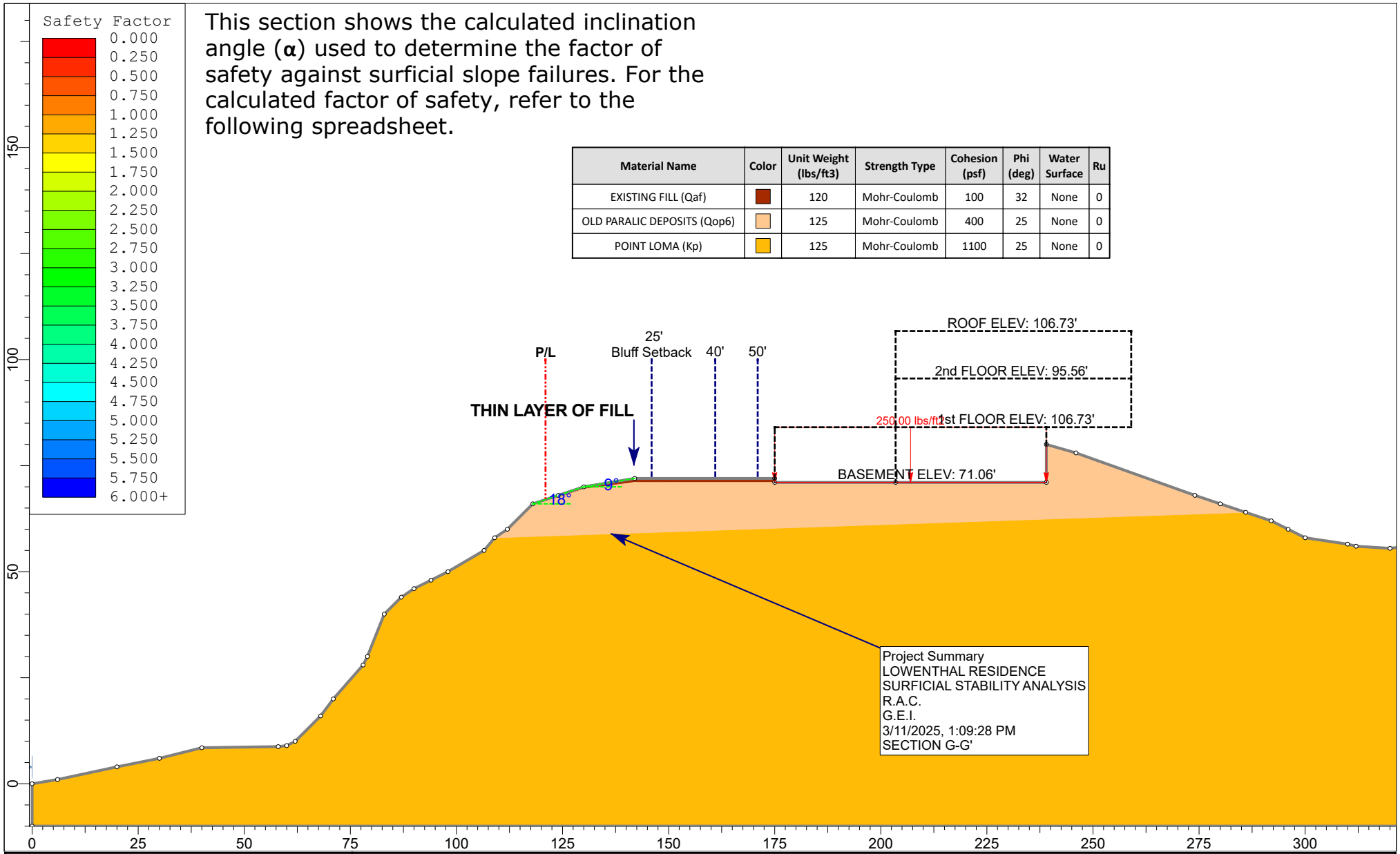
Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENCE		**SECTION G-G'**
Analysis Description	GLOBAL SLOPE STABILITY ANALYSIS		
Drawn By R.A.C.	*Scale* 1:450	*Company* G.E.I.	
Date 5/21/2024, 8:42:58 AM		*File Name* JOB NO. 01-8018_S(G)_02.slim	

This section shows the calculated inclination angle (α) used to determine the factor of safety against surficial slope failures. For the calculated factor of safety, refer to the following spreadsheet.

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
EXISTING FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSITS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0



Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENCE		**SECTION G-G'**
Analysis Description	SURFICIAL STABILITY ANALYSIS		
Drawn By R.A.C.	*Scale* 1:375	*Company* G.E.I.	
Date 3/11/2025, 1:09:28 PM		*File Name* JOB NO. 01-8018_S(G)_03.slim	

SURFICIAL FAILURE

EQUATION 1

$$FOS = \frac{c' + (\gamma_T - \gamma_W) z_W \cos(\alpha)^2 \tan \varphi'}{\gamma_T z_W \sin \alpha \cos \alpha}$$

	Υ_t	Υ_w	Υ'	z_w
	pcf	pcf	pcf	ft
(Q_{af})	120	62.4	57.6	3.28
(K_p)	125	62.4	62.6	3.28

SURFICIAL SLOPE STABILITY ANALYSIS IS BASED ON EQUATION (1) FOR THE CALCULATED VALUES. Reference: Abramson L.W., Lee T.S., Sharma S., Boyce G.M., 2002, Slope Stability and Stabilziation Methods, 2nd Edition, John Wiley and Sons, Inc., New York, USA. Pg. 658

SECTION Bb-Bb'

SOIL TYPE	c (psf)	ϕ'(°)	α(°)	F.O.S.
RECOMPACTED FILL (Q_{af})	100	32	23	1.413
RECOMPACTED FILL (Q_{af})	100	32	35	0.969
POINT LOMA (K_p)	1100	25	40	5.727

SECTION Ff-Ff'

SOIL TYPE	c (psf)	ϕ'(°)	α(°)	F.O.S.
RECOMPACTED FILL (Q_{af})	100	32	27	1.217
RECOMPACTED FILL (Q_{af})	100	32	21	1.541
RECOMPACTED FILL (Q_{af})	100	32	45	0.808
RECOMPACTED FILL (Q_{af})	100	32	57	0.751
POINT LOMA (K_p)	1100	25	66	7.324
POINT LOMA (K_p)	1100	25	71	8.796

1 meter = 3.28 feet

Special Publication 117A (2008, page 27): for infinite slope analysis, the minimum assumed depth of soil saturation is the smaller of either a depth of one meter or depth to firm bedrock.

α	The slope angle; (inclination angle) with respect to the horizontal plane
ϕ'	The effective friction angle of the soil
c'	The effective cohesion of the soil
Υ_t	The total unit weight (Soil with moisture)
Υ_w	The unit weight of the water
Υ'	Submerged unit weight of the soil (Saturated unit weight - unit weight of water)
z_w	Vertical depth of the saturated soil
F.O.S.	Factor of Safety

The Factor of Safety values are **ABOVE** 1.50 and are adequate. Factor's of Safety **BELOW** 1.50 require recompaction or other remediation.

SURFICIAL FAILURE

EQUATION 1

$$FOS = \frac{c' + (\gamma_T - \gamma_W) z_W \cos(\alpha)^2 \tan \varphi'}{\gamma_T z_W \sin \alpha \cos \alpha}$$

	Υ_t	Υ_w	Υ'	z_w
	pcf	pcf	pcf	ft
(Q_{af})	120	62.4	57.6	3.28
(K_p)	125	62.4	62.6	3.28

SURFICIAL SLOPE STABILITY ANALYSIS IS BASED ON EQUATION (1) FOR THE CALCULATED VALUES. Reference: Abramson L.W., Lee T.S., Sharma S., Boyce G.M., 2002, Slope Stability and Stabilziation Methods, 2nd Edition, John Wiley and Sons, Inc., New York, USA. Pg. 658

SECTION G-G'				
SOIL TYPE	c (psf)	ϕ'(°)	α(°)	F.O.S.
RECOMPACTED FILL (Q_{af})	100	32	9	3.538
RECOMPACTED FILL (Q_{af})	100	32	18	1.788

*Note: For section G-G', there was at most 0.75 feet of fill, however this section was analyzed at a depth of 3.28 feet

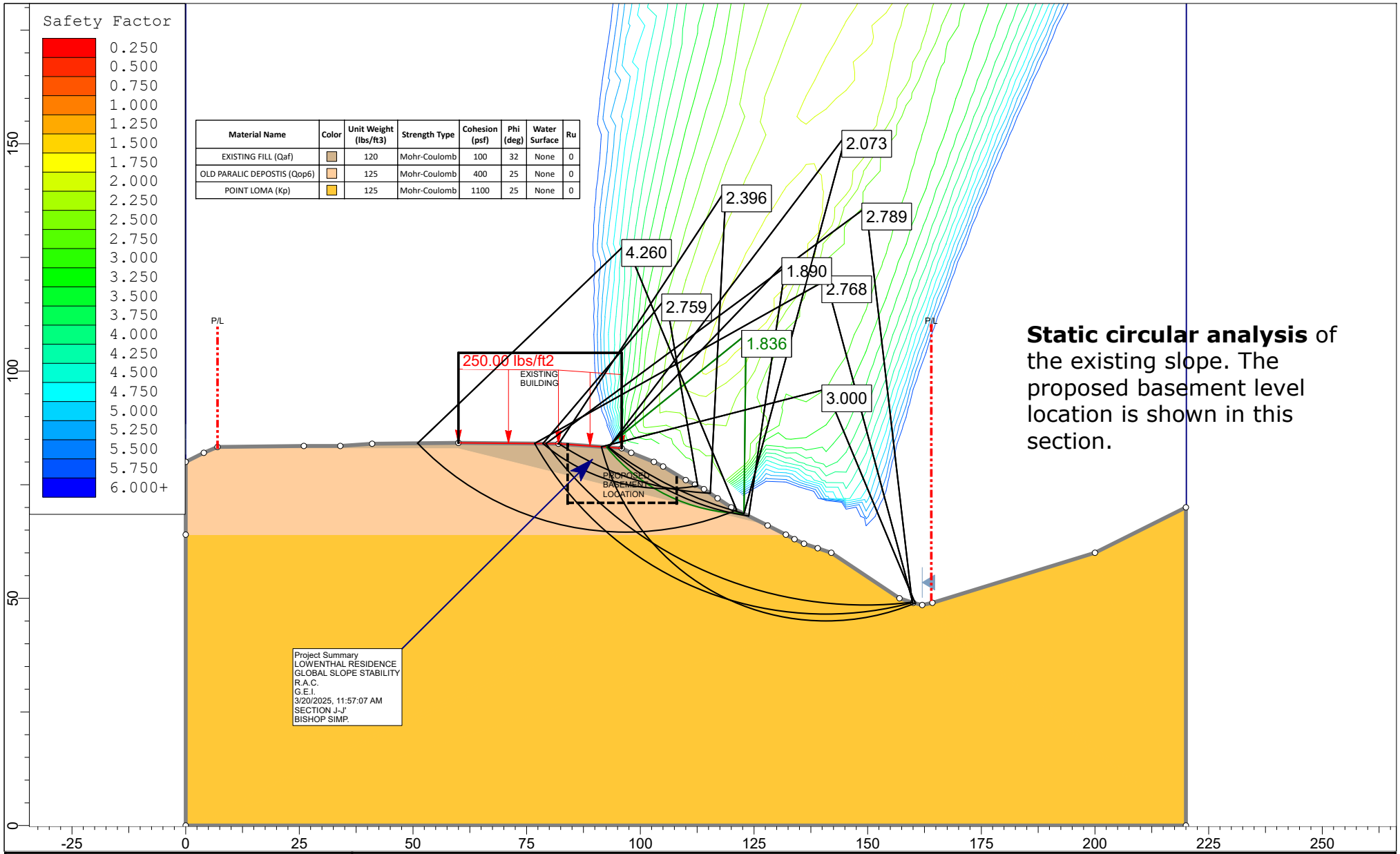
α	The slope angle; (inclination angle) with respect to the horizontal plane
ϕ'	The effective friction angle of the soil
c'	The effective cohesion of the soil
Υ_t	The total unit weight (Soil with moisture)
Υ_w	The unit weight of the water
Υ'	Submerged unit weight of the soil (Saturated unit weight - unit weight of water)
z_w	Vertical depth of the saturated soil
F.O.S.	Factor of Safety

1 meter = 3.28 feet

Special Publication 117A (2008, page 27): for infinite slope analysis, the minimum assumed depth of soil saturation is the smaller of either a depth of one meter or depth to firm bedrock.

The Factor of Safety values are **ABOVE** 1.50 and are adequate. Factor's of Safety **BELOW** 1.50 require recompaction or other remediation.

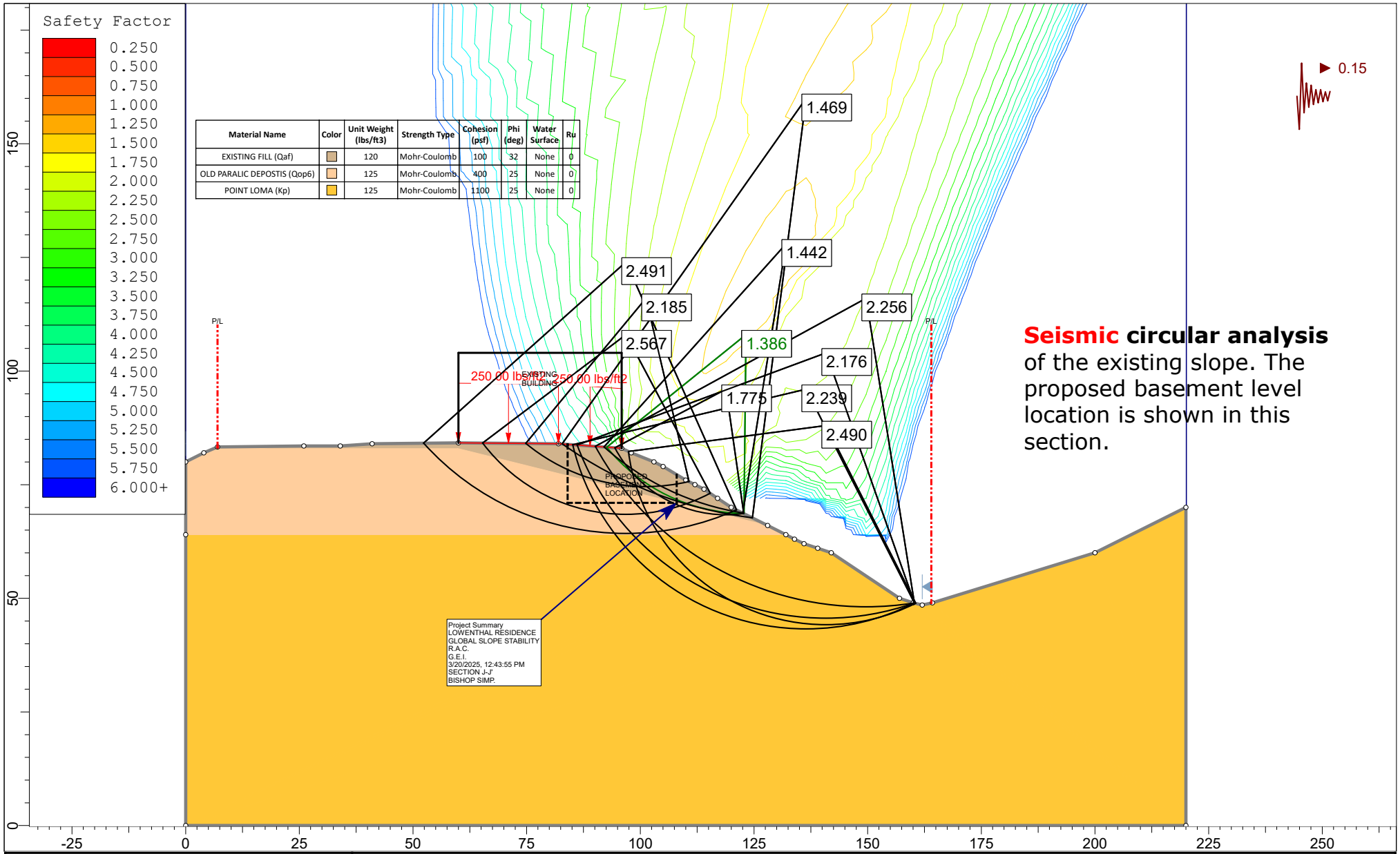
Slope Stability Analysis for Cross Sections J-J' dated March 20, 2025



Static circular analysis of the existing slope. The proposed basement level location is shown in this section.

Geotechnical Exploration, Inc.	Project: LOWENTHAL RESIDENCE		**SECTION J-J'**
	Analysis Description: GLOBAL SLOPE STABILITY		
	Drawn By: R.A.C.	Scale: 1:350	Company: G.E.I.
	Date: 3/20/2025, 11:57:07 AM		File Name: JOB NO. 01-8018_S(J)_01.slim

SLIDEINTERPRET 6.039



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
EXISTING FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSTIS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

Seismic circular analysis of the existing slope. The proposed basement level location is shown in this section.

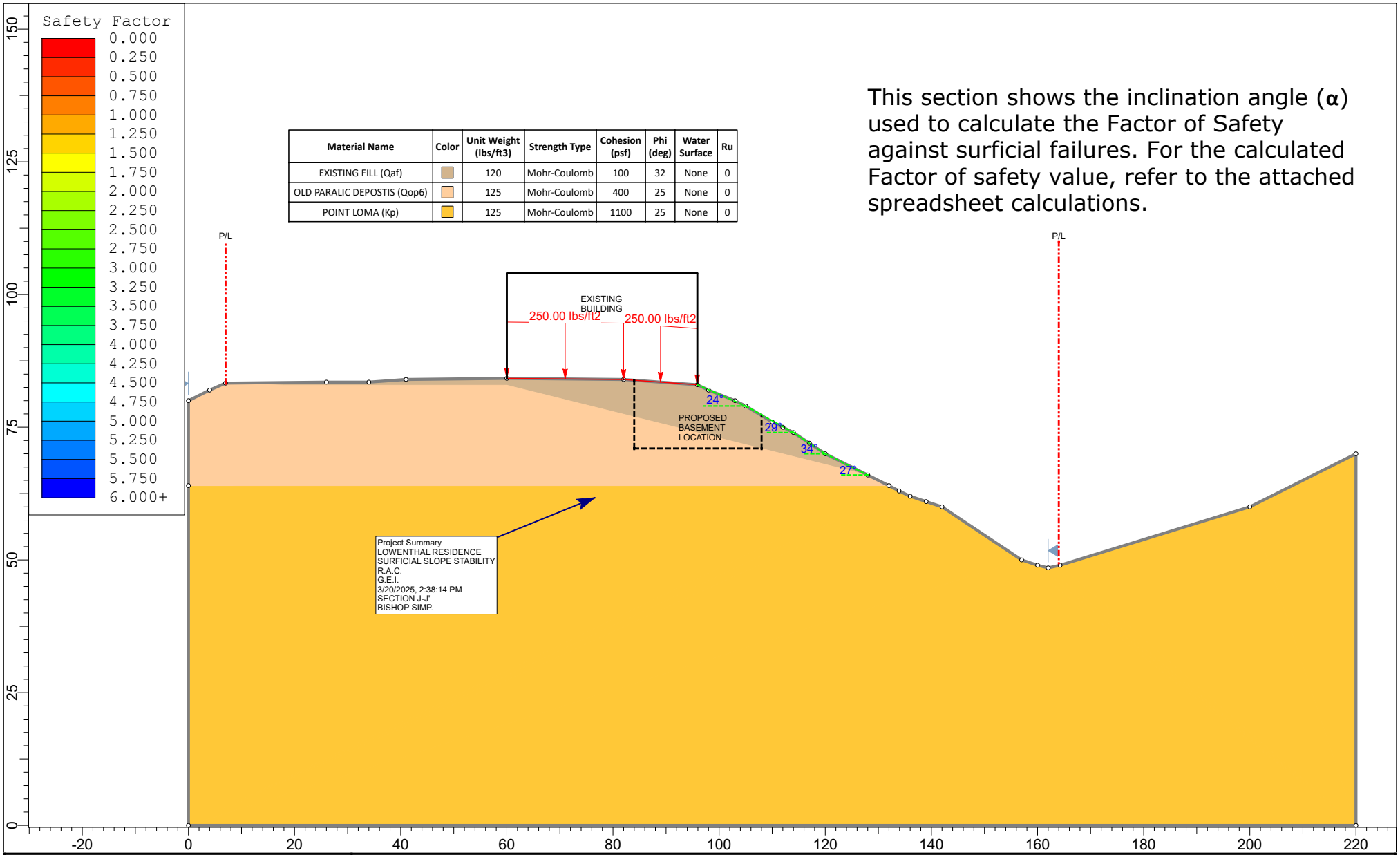
Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENCE		**SECTION J-J'**
Analysis Description	GLOBAL SLOPE STABILITY		
Drawn By R.A.C.	*Scale* 1:350	*Company* G.E.I.	
Date 3/20/2025, 12:43:55 PM		*File Name* JOB NO. 01-8018_S(J)_01w_0.15gSHAKE.slim	

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
EXISTING FILL (Qaf)		120	Mohr-Coulomb	100	32	None	0
OLD PARALIC DEPOSTIS (Qop6)		125	Mohr-Coulomb	400	25	None	0
POINT LOMA (Kp)		125	Mohr-Coulomb	1100	25	None	0

This section shows the inclination angle (α) used to calculate the Factor of Safety against surficial failures. For the calculated Factor of safety value, refer to the attached spreadsheet calculations.



Geotechnical Exploration, Inc.

SLIDEINTERPRET 6.039

Project	LOWENTHAL RESIDENCE		**SECTION J-J'**
Analysis Description	SURFICIAL SLOPE STABILITY		
Drawn By R.A.C.	*Scale* 1:300	*Company* G.E.I.	
Date 3/20/2025, 2:38:14 PM		*File Name* JOB NO. 01-8018_S(J)_02.slim	

SURFICIAL FAILURE

EQUATION 1

$$FOS = \frac{c' + (\gamma_T - \gamma_W) z_W \cos(\alpha)^2 \tan \varphi'}{\gamma_T z_W \sin \alpha \cos \alpha}$$

	Υ_t	Υ_w	Υ'	z_w
	pcf	pcf	pcf	ft
(Q_{af})	120	62.4	57.6	3.28
(K_p)	125	62.4	62.6	3.28

SURFICIAL SLOPE STABILITY ANALYSIS IS BASED ON EQUATION (1) FOR THE CALCULATED VALUES. Reference: Abramson L.W., Lee T.S., Sharma S., Boyce G.M., 2002, Slope Stability and Stabilziation Methods, 2nd Edition, John Wiley and Sons, Inc., New York, USA. Pg. 658

SECTION J-J'

SOIL TYPE	c (psf)	ϕ'(°)	α(°)	F.O.S.
RECOMPACTED FILL (Q_{af})	100	32	24	1.357
RECOMPACTED FILL (Q_{af})	100	32	29	1.140
RECOMPACTED FILL (Q_{af})	100	32	34	0.993
RECOMPACTED FILL (Q_{af})	100	32	27	1.217

α	The slope angle; (inclination angle) with respect to the horizontal plane
ϕ'	The effective friction angle of the soil
c'	The effective cohesion of the soil
Υ_t	The total unit weight (Soil with moisture)
Υ_w	The unit weight of the water
Υ'	Submerged unit weight of the soil (Saturated unit weight - unit weight of water)
z_w	Vertical depth of the saturated soil
F.O.S.	Factor of Safety

1 meter = 3.28 feet

Special Publication 117A (2008, page 27): for infinite slope analysis, the minimum assumed depth of soil saturation is the smaller of either a depth of one meter or depth to firm bedrock.

The Factor of Safety values are **ABOVE** 1.50 and are adequate. Factor's of Safety **BELOW** 1.50 require recompaction or other remediation.