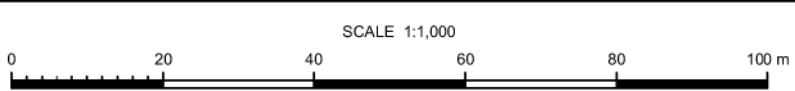
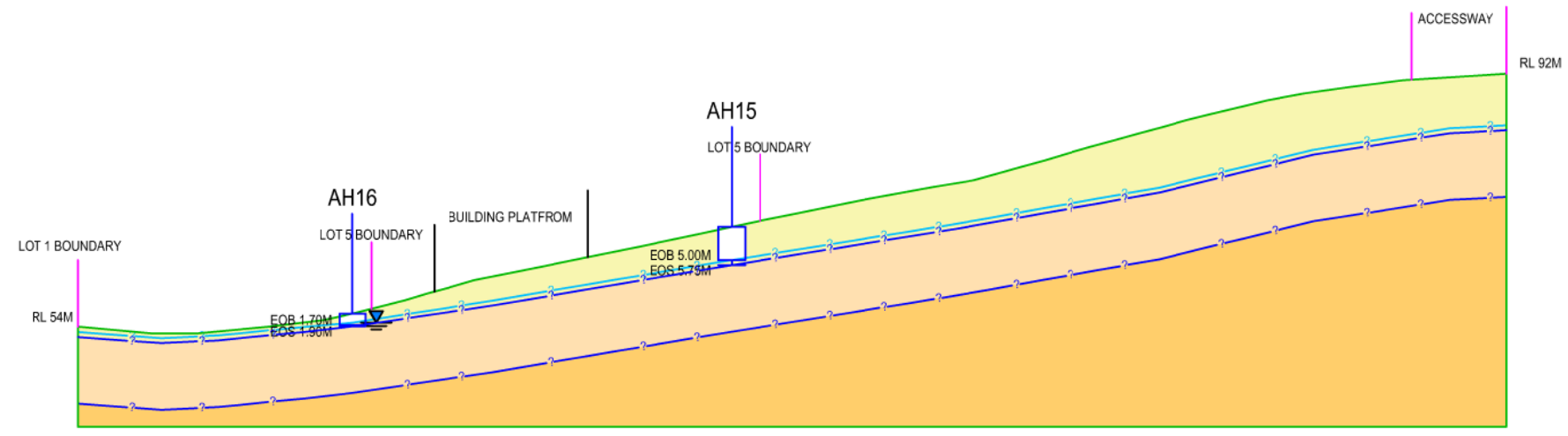


LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

NOTES

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REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

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PROJECT TITLE
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MAKARAU**

DRAWING TITLE
SECTION E-E'

DESIGNED	TR	DATE	SEP-21	CHECKED	PH	DATE	SEP-21
DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

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RESOURCE CONSENT

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SIZE
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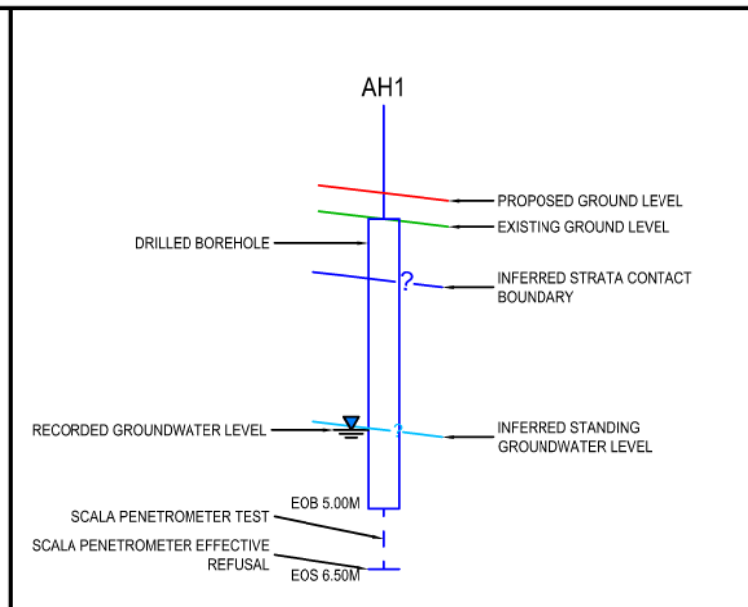
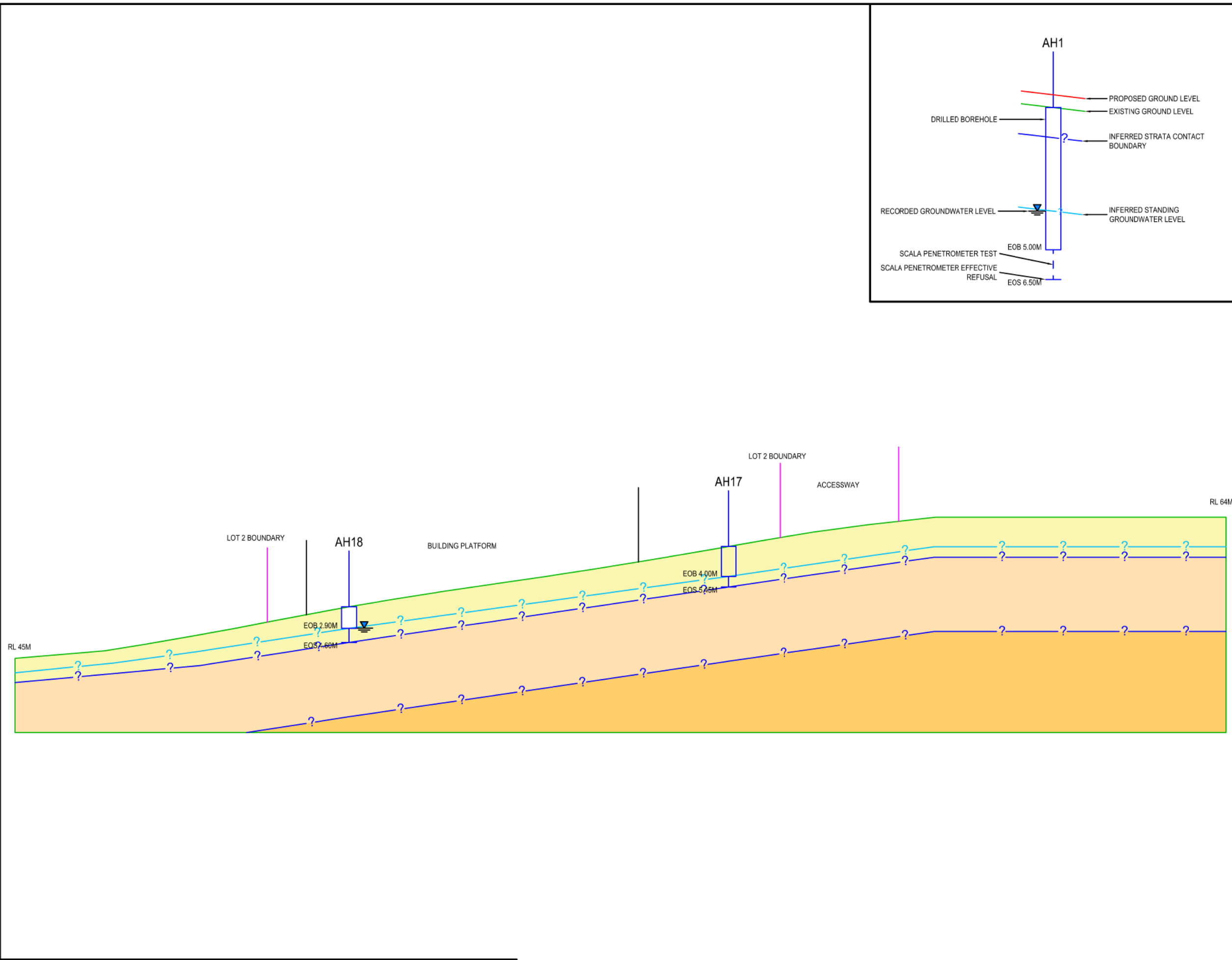
COORDINATE SYSTEM
NZTM

HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826

DRAWING NUMBER
KGA 7

REVISION
A



LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

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PROJECT TITLE
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DRAWING TITLE
SECTION F-F'

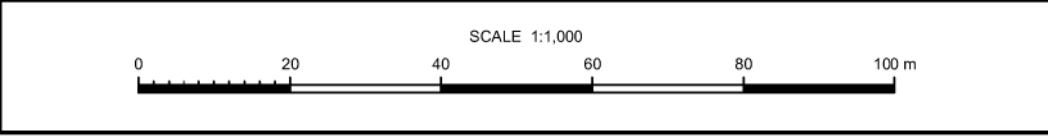
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DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

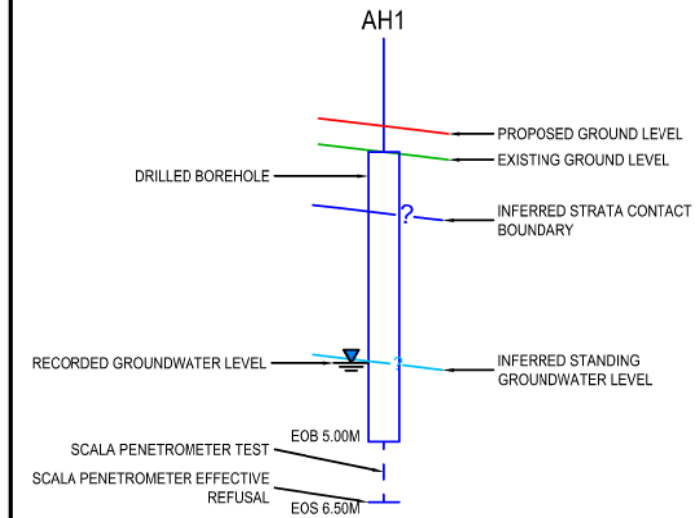
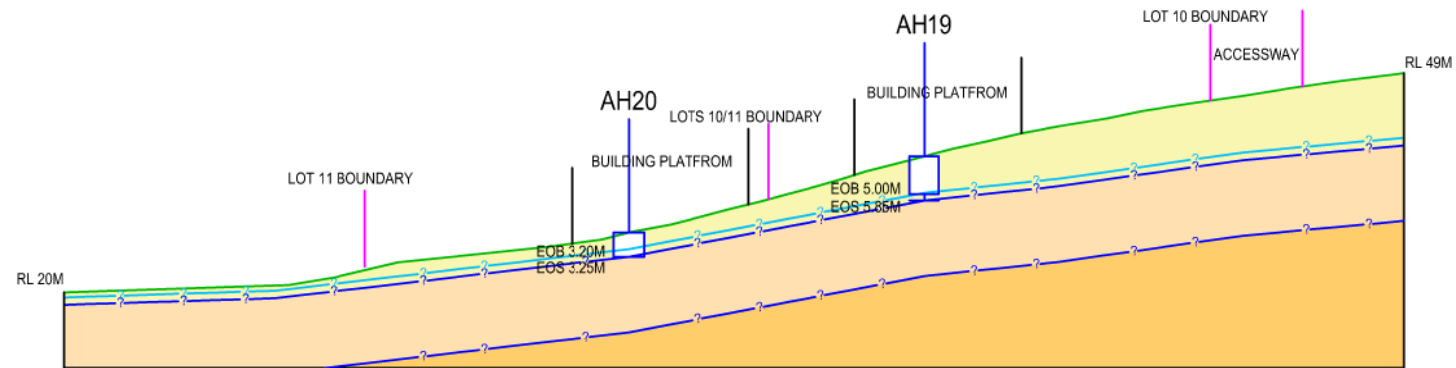
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RESOURCE CONSENT

SCALE
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COORDINATE SYSTEM
NZTM HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826 DRAWING NUMBER
KGA 8 REVISION
A





LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

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DRAWING TITLE
SECTION G-G'

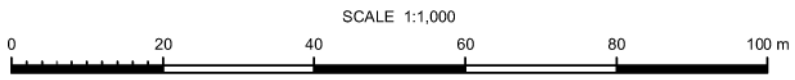
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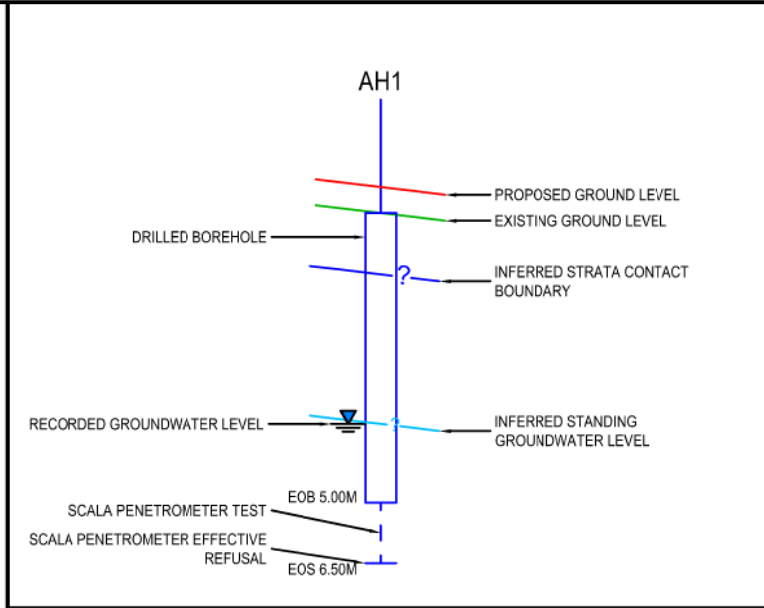
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RESOURCE CONSENT

SCALE
1:1,000 SIZE
A3

COORDINATE SYSTEM
NZTM HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826 DRAWING NUMBER
KGA 9 REVISION
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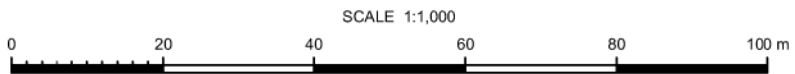
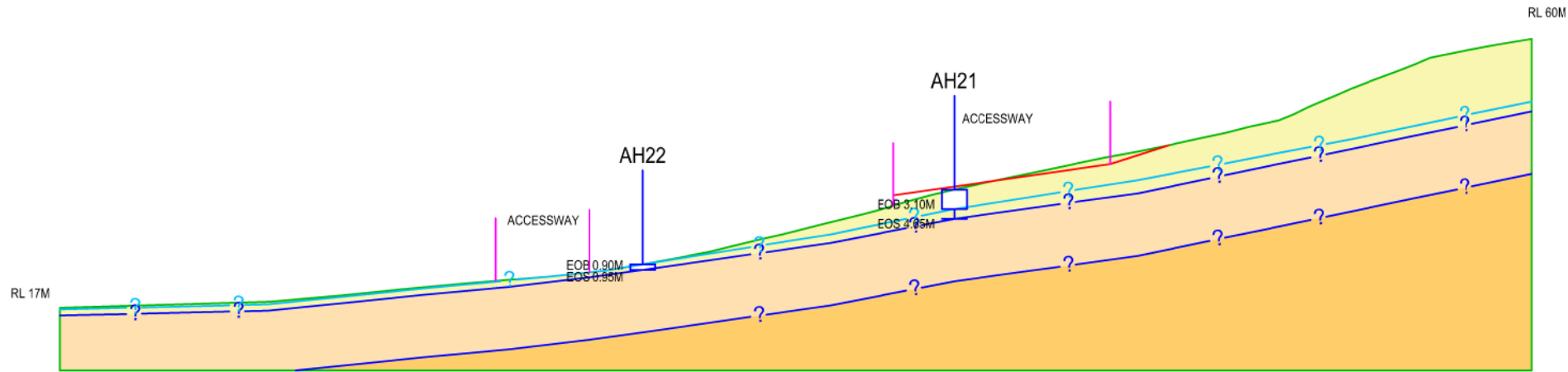


LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

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DRAWING TITLE
SECTION H-H'

DESIGNED	TR	DATE	SEP-21	CHECKED	PH	DATE	SEP-21
DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

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RESOURCE CONSENT

SCALE
1:1,000

SIZE
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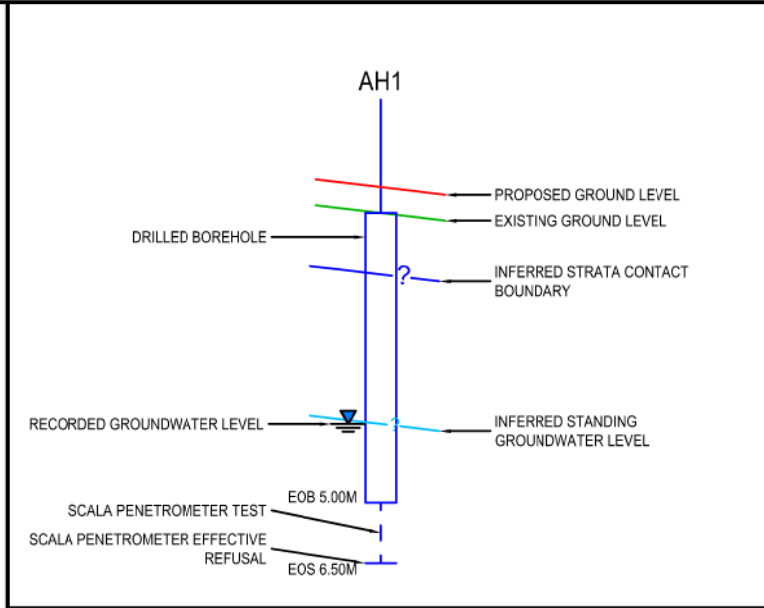
COORDINATE SYSTEM
NZTM

HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826

DRAWING NUMBER
KGA 10

REVISION
A



LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

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DRAWING TITLE
SECTION I-I'

DESIGNED	TR	DATE	SEP-21	CHECKED	PH	DATE	SEP-21
DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

STATUS
RESOURCE CONSENT

SCALE
1:500

SIZE
A3

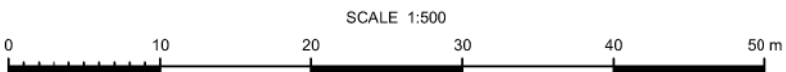
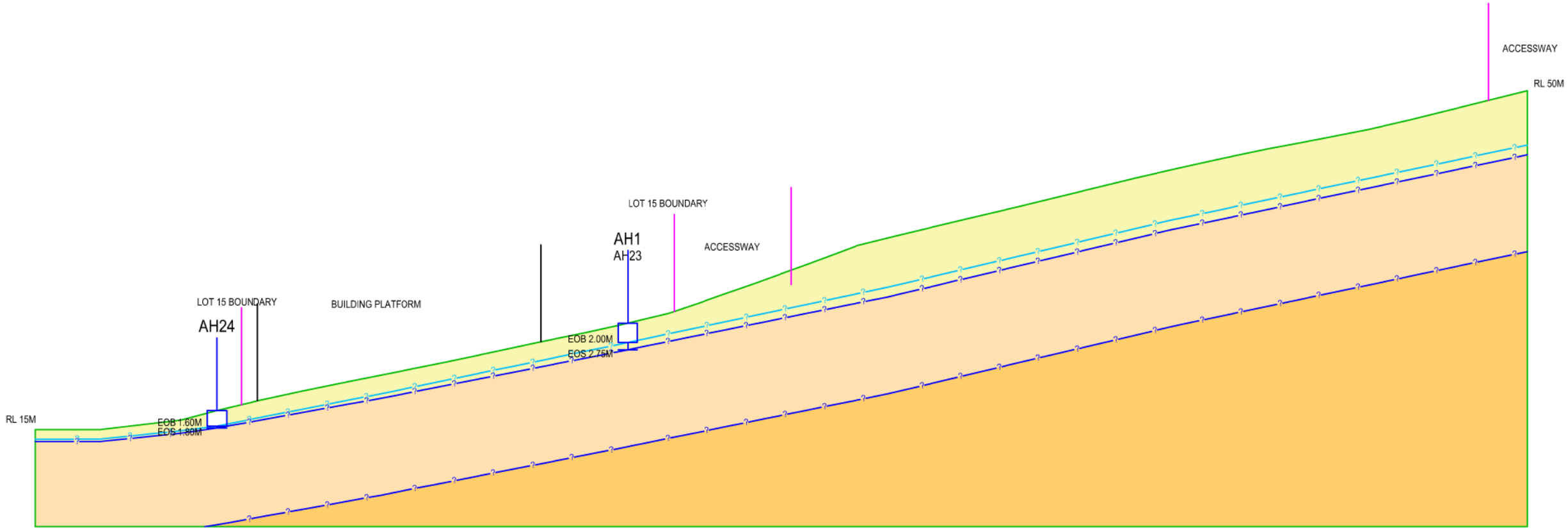
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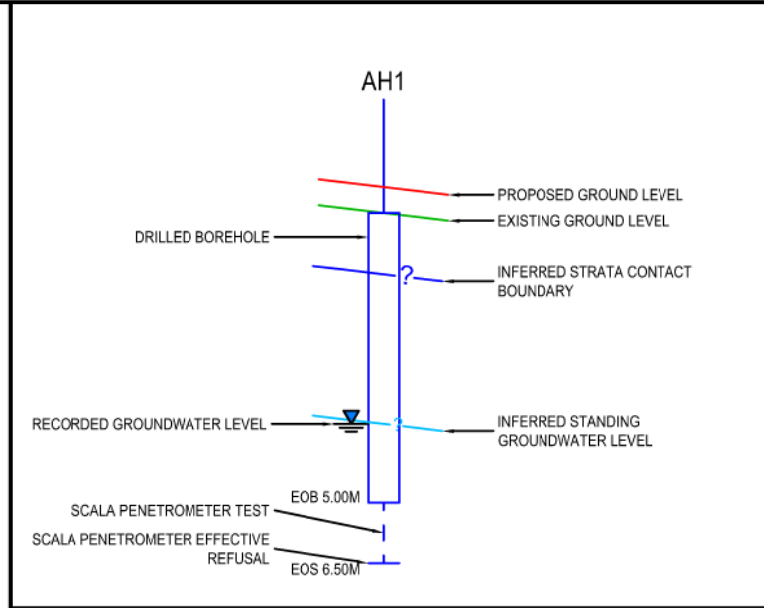
HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826

DRAWING NUMBER
KGA 11

REVISION
A





LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

NOTES

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DRAWING TITLE
SECTION J-J'

DESIGNED	TR	DATE	SEP-21	CHECKED	PH	DATE	SEP-21
DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

STATUS
RESOURCE CONSENT

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SIZE
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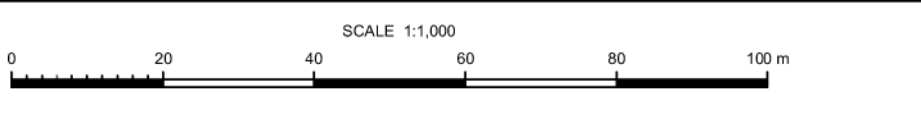
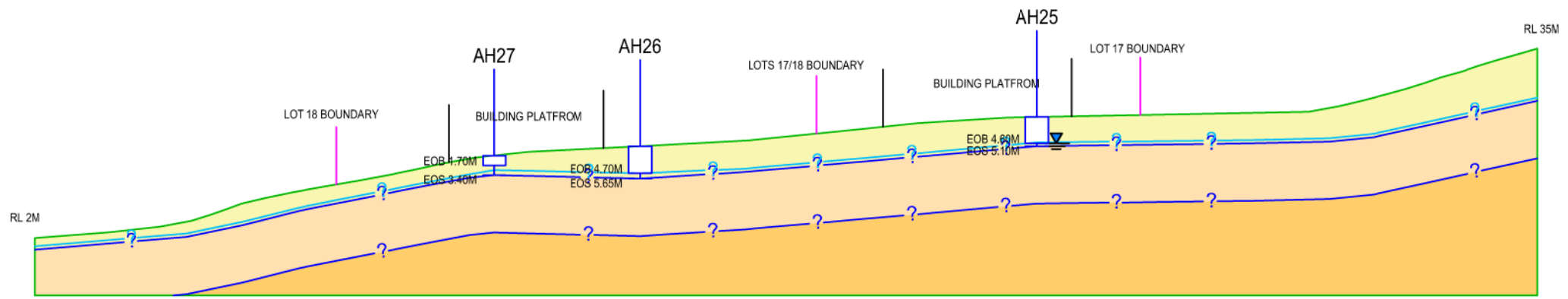
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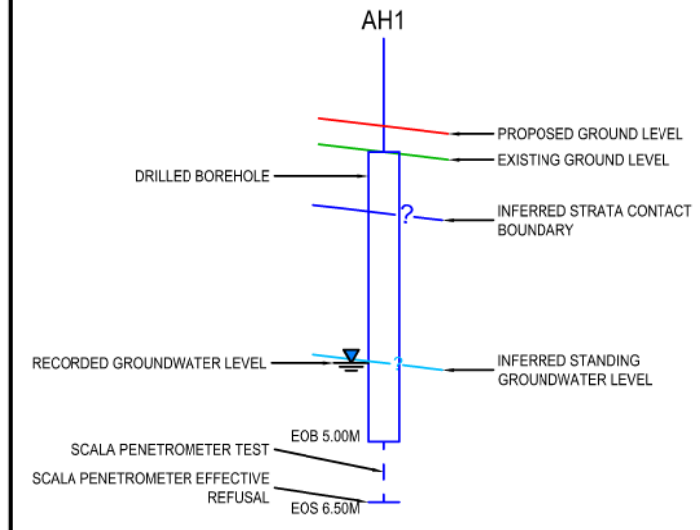
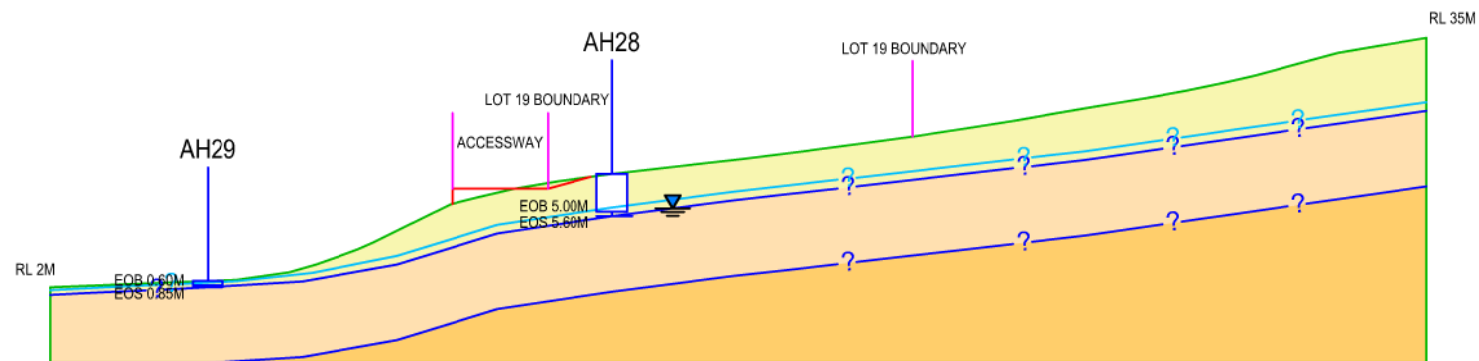
HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826

DRAWING NUMBER
KGA 12

REVISION
A





LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

NOTES

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REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

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MAKARAU**

DRAWING TITLE
SECTION K-K'

DESIGNED	TR	DATE	SEP-21	CHECKED	PH	DATE	SEP-21
DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

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SIZE
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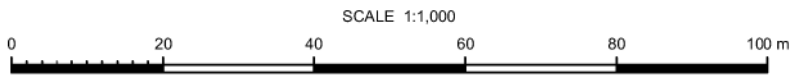
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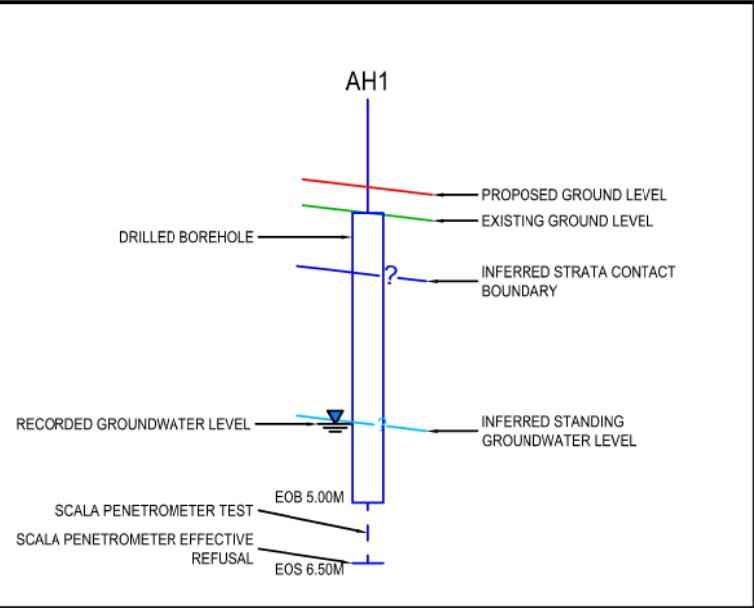
HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826

DRAWING NUMBER
KGA 13

REVISION
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LEGEND

- WAITEMATA GROUP SOILS
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REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

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DRAWING TITLE
SECTION L-L'

DESIGNED	TR	DATE	SEP-21	CHECKED	PH	DATE	SEP-21
DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

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RESOURCE CONSENT

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SIZE
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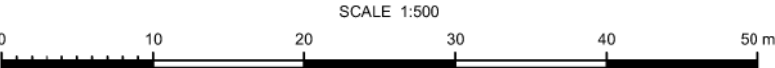
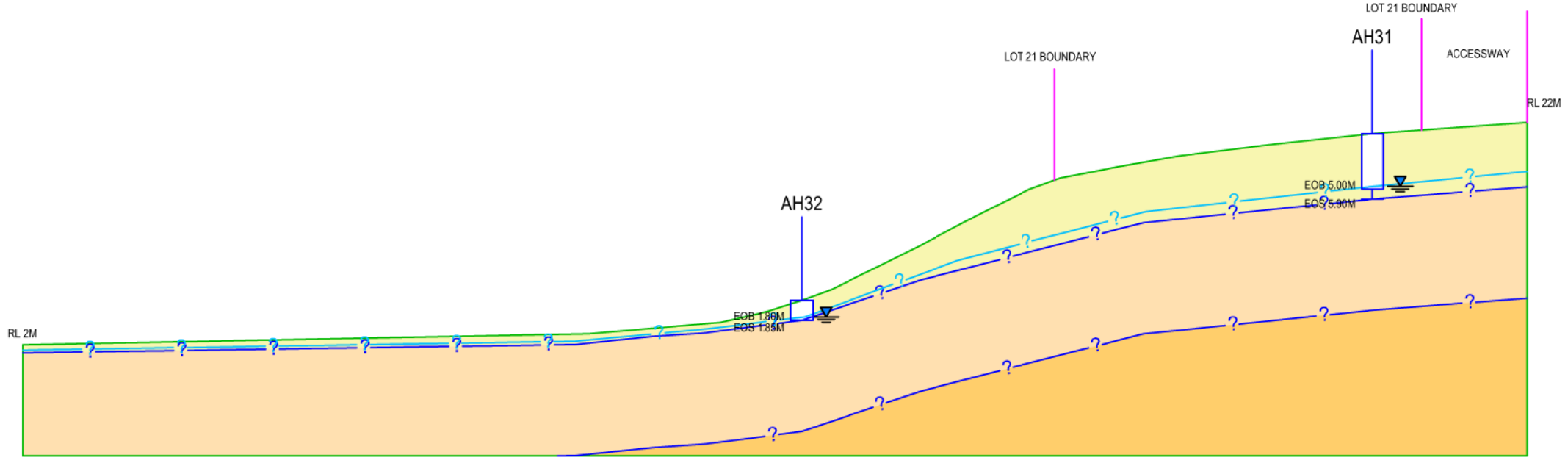
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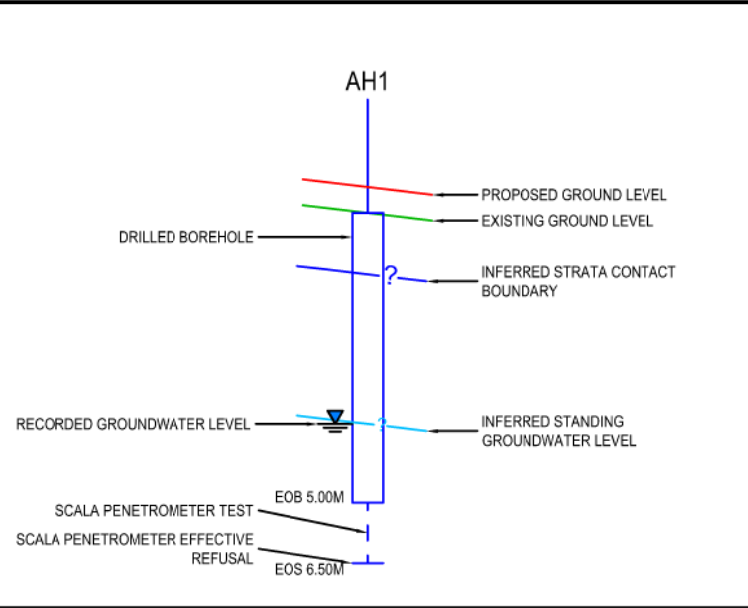
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PROJECT NUMBER
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DRAWING NUMBER
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REVISION
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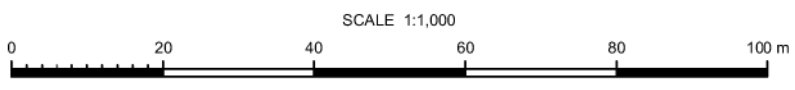
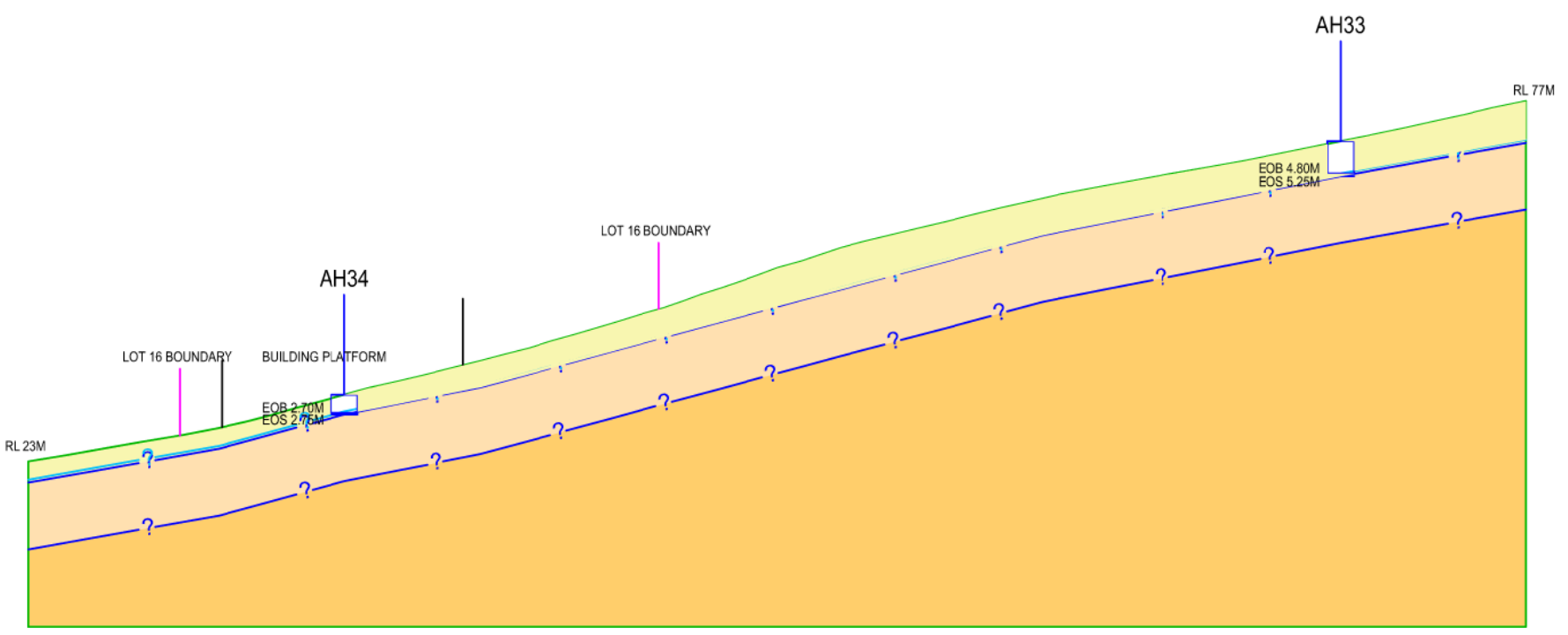


LEGEND

- WAITEMATA GROUP SOILS
- WAITEMATA GROUP TRANSITIONAL MATERIAL
- WAITEMATA GROUP ROCK

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DRAWING TITLE
SECTION M-M'

DESIGNED	TR	DATE	SEP-21	CHECKED	PH	DATE	SEP-21
DRAWN	TR	DATE	SEP-21	APPROVED	AN	DATE	SEP-21

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RESOURCE CONSENT

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SIZE
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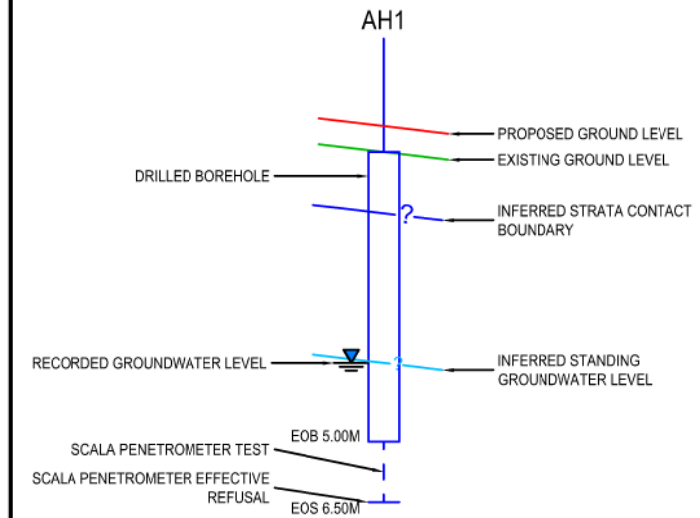
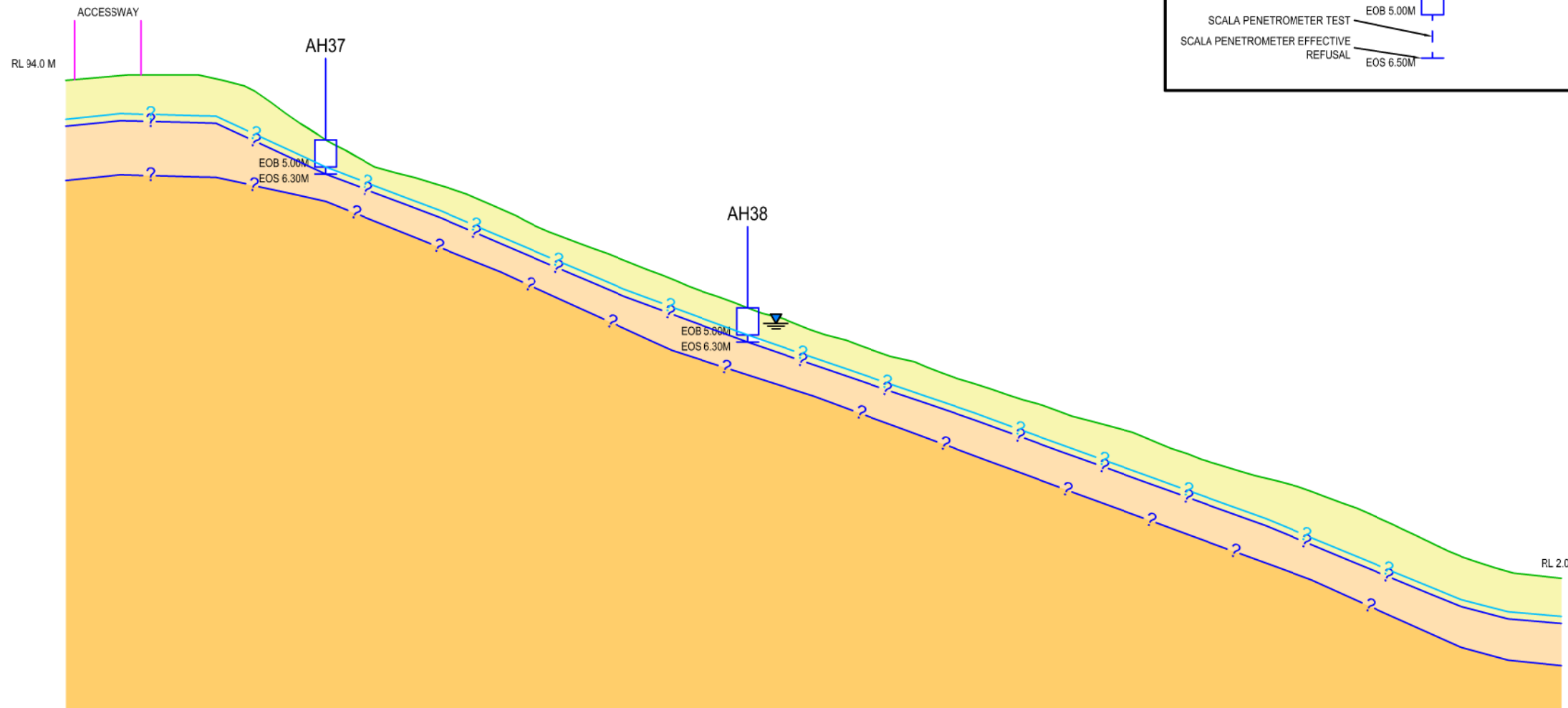
COORDINATE SYSTEM
NZTM

HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826

DRAWING NUMBER
KGA 15

REVISION
A



LEGEND

- WAITEMATA GROUP SOILS
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2. THE GROUND PROFILE SHOWN HAS BEEN DERIVED USING GEOMAPS LIDAR INFORMATION
3. FOR DETAILS OF INDIVIDUAL BOREHOLES REFERENCE SHOULD BE MADE TO THE SPECIFIC BOREHOLE LOG.
4. ANY GEOLOGICAL INTERPRETATION SHOWN ON THE DRAWING IS BASED SOLELY ON AVAILABLE BOREHOLE RECORDS.
5. THE ACTUAL GROUND CONDITIONS MAY VARY FROM THAT SHOWN ON THE INTERPRETED GEOLOGICAL SECTION'S.
6. REFER TO SITE PLAN FOR LOCATION OF GEOLOGICAL SECTION.

TR	SEP-21	Report Issue	TR	PH	AN
REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

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CLIENT
GOODLAND GROUP LIMITED

PROJECT TITLE
**RURAL RESIDENTIAL SUBDIVISION
2127 KAIPARA COAST HIGHWAY
MAKARAU**

DRAWING TITLE
SECTION N-N'

DESIGNED	TR	DATE	DEC-21	CHECKED	PH	DATE	DEC-21
DRAWN	TR	DATE	DEC-21	APPROVED	AN	DATE	DEC-21

STATUS
RESOURCE CONSENT

SCALE
1:1,000

SIZE
A3

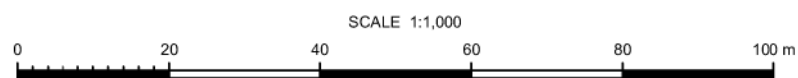
COORDINATE SYSTEM
NZTM

HEIGHT DATUM
AKL 1946

PROJECT NUMBER
K200826

DRAWING NUMBER
KGA 16

REVISION
A



HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH01

Project: Geotechnical Investigation

Date: 27/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730631.0, N 5954857.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)					Scala Penetrometer (blows / 50mm)				
						(refer notes for details)				Values	Depth (m)	Blows			
						50	100	150	200						
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		TOPSOIL; dark brown. Very soft, wet. [TOPSOIL] 0.2m: Hand Auger was easily pushed to 2.4m, very wet.	Groundwater Not Encountered	TS							2.40	1.0			
		Clayey SILT; dark brownish orange. Very soft, wet, moderate plasticity. [WAITEMATA GROUP] 0.3m - 1.0m: Unable to take shear vane readings due to very soft material.												2.45	2.0
													2.50	2.0	
														2.55	2.0
														2.60	2.0
														2.65	5.0
														2.70	6.0
														2.75	8.0
														2.80	8.0
														2.85	11.0
														2.90	17.0
														2.95	12.0
													3.00	10.0	
											3.05	10.0			
		Sandy (fine to medium) SILT; dark brownish grey, wet, low plasticity. [WAITEMATA GROUP]		WAITEMATA GROUP						47	3.10	15.0			
												37			
		2.4m: Hit Rock.													
		2.4m: End of Hole (target depth 5.0m).													

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
∇ Water Level At Time Of Drilling	Vane No.: DR4681	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH02

Project: Geotechnical Investigation

Date: 27/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730626.0, N 5954850.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
0.5		TOPSOIL; dark brown. Firm, some rootlets. [TOPSOIL]	Groundwater Not Encountered	TS							1.20	6.0
		Clayey SILT; dark brownish orange mottled dark brownish grey. Firm to stiff, wet, moderate plasticity. [WAITEMATA GROUP]		WAITEMATA GROUP						47	1.25	6.0
									17	1.30	7.0	
									54	1.35	8.0	
1.0		0.8m: Becomes dark grey with trace sand(fine)									1.40	12.0
		Silty SAND(medium); dark grey. Dense, wet. [WAITEMATA GROUP]							35	1.45	12.0	
								UTP	1.50	12.0		
		1.2m: End of Hole (target depth 5.0m). Hit rock.							UTP	1.55	12.0	
									-	1.60	12.0	
									-	1.65	15.0	

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
▽ Water Level At Time Of Drilling	Vane No.:DR4681	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH03

Project: Geotechnical Investigation

Date: 27/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730576.0, N 5954835.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		TOPSOIL intermixed with some clay; dark brown with some orange inclusions. Moist. [TOPSOIL]	Groundwater Not Encountered	WAITEMATA GROUP							2.15	5.0
		Silty CLAY; dark orange mottled light grey. Stiff to very stiff, moist to wet, high plasticity. [WAITEMATA GROUP]				105				2.20	6.0	
						39				2.25	10.0	
										2.30	10.0	
										2.35	7.0	
										2.40	10.0	
										2.45	10.0	
										2.50	9.0	
										2.55	8.0	
										2.60	8.0	
										2.65	6.0	
										2.70	6.0	
										2.75	6.0	
										2.80	6.0	
										2.85	6.0	
										2.90	8.0	
										2.95	8.0	
										3.00	6.0	
						3.05	5.0					
						3.10	8.0					
						3.15	8.0					
						3.20	9.0					
						3.25	11.0					
						3.30	12.0					
						3.35	14.0					
						3.40	13.0					
						3.45	12.0					
						3.50	13.0					
		2.1m: End of Hole (target depth 5.0m). Hit very dense material.										

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
∇ Water Level At Time Of Drilling	Vane No.:DR4681	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH04

Project: Geotechnical Investigation

Date: 27/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730555.0, N 5954839.0

Ground Level: -

Sheet: 1 of 2

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)					Scala Penetrometer (blows / 50mm)					
						50	100	150	200	Values	Depth (m)	Blows				
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		TOPSOIL with silty clay inclusions and trace organic inclusions; dark brown mottled brownish orange and black. [TOPSOIL]	Groundwater Not Encountered	TS							5.15	1.0				
		Clayey SILT; brownish orange mottled orange. Very stiff, dry to moist, low plasticity. [COLLUVIUM?] 0.7m: Becomes dark grey mottled brownish orange with black organic inclusions. 1.1m: Becomes dark brownish orange.		COLLUVIUM?								5.20	1.0			
														5.25	2.0	
															5.30	2.0
															5.35	5.0
															5.40	3.0
															5.45	4.0
															5.50	2.0
															5.55	4.0
															5.60	4.0
															5.65	5.0
															5.70	3.0
															5.75	2.0
															5.80	2.0
															5.85	2.0
			SILT some clay with trace sand(fine); orange mottled brownish yellow. Very stiff to hard, low to moderate plasticity. [WAITEMATA GROUP]											5.90	8.0	
		SILT with trace sand(fine); light brownish yellow. Hard, moist to wet, low plasticity. [WAITEMATA GROUP] 2.5m: Becomes dark orange, highly oxidized. Sandy(fine) SILT; light brownish yellow. Hard, moist, no to low plasticity. [WAITEMATA GROUP] 3.3m: Becomes moist to wet. 3.5m: Becomes highly oxidized. SILT with some sand(fine); light brownish grey mottled orange. Hard, moist, no to low plasticity. [WAITEMATA GROUP] 4.0m: Becomes wet. 4.5m: Becomes dark grey with limonitic inclusions. 5.1m: End of Hole (target depth 5.0m).									5.95	10.0				
												6.00	13.0			
												6.05	10.0			
												6.10	10.0			
												6.15	11.0			
												6.20	12.0			
												155				
												66				
												208				
												91				
												204				
												74				
												220+				
												-				
												220+				
											-					
											183					
											63					
											176					
											52					
											203					
											54					
											220+					
											-					
											220+					
											-					
											220+					
											-					

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.: DR4681
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH04

Project: Geotechnical Investigation

Date: 27/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730555.0, N 5954839.0

Ground Level: -

Sheet: 2 of 2

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) <small>(refer notes for details)</small>					Scala Penetrometer (blows / 50mm)	
						50	100	150	200	Values	Depth (m)	Blows
5.5			Not									
6.0												
6.5												
7.0												
7.5												
8.0												
8.5												
9.0												
9.5												

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH05

Project: Geotechnical Investigation

Date: 28/04/2021

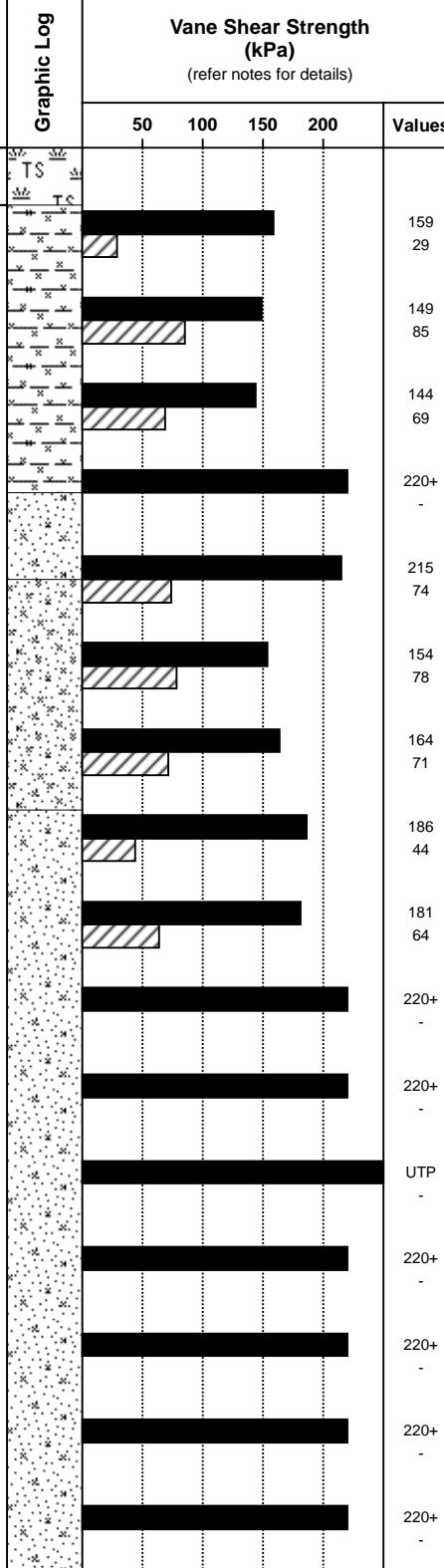
Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730588.0, N 5954562.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)		Scala Penetrometer (blows / 50mm)	
						(refer notes for details)	Values	Depth (m)	Blows
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0		TOPSOIL; dark brown with some orange inclusions. Very stiff, dry, some rootlets present. [TOPSOIL]	Groundwater Not Encountered	WAITEMATA GROUP				5.00	2.0
		SILT with some clay; orange mottled light brownish grey with some dark brown inclusions. Very stiff, dry to moist, moderate plasticity. [WAITEMATA GROUP]						5.05	2.0
		0.8m: Some trace sand (medium to coarse) small white grains 1-2mm.						5.10	3.0
		1.1m: Becomes highly oxidized.						5.15	4.0
		Silty SAND (medium); reddish orange mottled brownish grey with white specs (tuff?). Dense, moist. [WAITEMATA GROUP]						5.20	4.0
		Sandy (fine) SILT; light yellowish grey. Very stiff, dry to moist, low plasticity. [WAITEMATA GROUP]						5.25	7.0
		2.0m: Becomes moist.						5.30	10.0
		Silty SAND (fine); light yellowish grey. Medium dense, dry to moist. [WAITEMATA GROUP]						5.35	7.0
		2.9m - 5.0m: Inclusions of dark grey sandy (fine) SILT.						5.40	5.0
		3.1m - 4.3m: Some limonitic inclusions.						5.45	6.0
		5.0m: End of Hole (target depth 5.0m).						5.50	8.0
								5.55	8.0
								5.60	8.0
								5.65	8.0
								5.70	9.0
								5.75	13.0
								5.80	16.0
								5.85	17.0

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ∇ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.: DR4681
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH06

Project: Geotechnical Investigation

Date: 28/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KT

Coordinates: E 1730557.0, N 5954559.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)				Scala Penetrometer (blows / 50mm)					
						50	100	150	200	Values	Depth (m)	Blows			
0.0		[TOPSOIL]	Groundwater Not Encountered	TS Waitemata Group							1.10	0.0			
0.5		SILT; grey mottled orange. Soft, dry, no plasticity. [WAITEMATA GROUP]													
0.8		SILT with some sand (medium to coarse) and some clay; grey. Stiff, moist, low to moderate plasticity. [WAITEMATA GROUP]										81 34			
1.0		Silty CLAY with some sand (fine to medium) and some gravel (fine to medium); brownish grey with white specs. Moist, low to moderate plasticity. [WAITEMATA GROUP]										98 37			
1.1		1.0m: GRAVEL (fine to medium) with some sand (fine to coarse); grey. Very dense, moist, no plasticity. 1.1m: End of Hole. Refusal on rock, very dense material.													

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.: 1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH07

Project: Geotechnical Investigation

Date: 28/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KT

Coordinates: E 1730535.0, N 5954248.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) <small>(refer notes for details)</small>				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
0.0 - 0.2		[TOPSOIL]	Groundwater Not Encountered	TS								
0.2 - 0.8		SILT with some gravel(fine to medium) and some sand (medium to coarse); reddish brown. Very dense, dry to moist. [WAITEMATA GROUP]		WAITEMATA GROUP						237+ 51	0.80	0.0
0.8 - 0.8		0.8m: End of Hole. Hit rock.								UTP -		
0.8 - 4.5												

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ∇ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH08

Project: Geotechnical Investigation

Date: 28/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730506.0, N 5954255.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)				
						50	100	150	200	Values	Depth (m)	Blows		
0.0		TOPSOIL; dark brown. Moist. [TOPSOIL]	Groundwater Not Encountered	TS							1.40	0.0		
0.5		Sandy(fine) SILT; dark brownish orange. Hard, dry, friable, highly weathered. [WAITEMATA GROUP]		WAITEMATA GROUP						UTP				
1.0		SILT some sand(fine); dark brownish orange. Hard, moist, highly weathered [WAITEMATA GROUP]									UTP			
1.1		1.1m: Sand size becomes medium to coarse.									UTP			
1.4		1.4m: End of Hole (target depth 5.0m).												

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

Corrected as per NZGS Guidelines
 Vane No.: DR4681
 UTP = Unable To Penetrate
 + = Peak Exceeded
 - = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH09

Project: Geotechnical Investigation

Date: 28/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KT

Coordinates: E 1730433.0, N 5954383.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
		[TOPSOIL]		TS							5.05	2.0
		SILT minor clay; brownish orange. Very stiff, dry, no plasticity to low plasticity. [WAITEMATA GROUP]								186	5.10	2.0
0.5		Clayey SILT; brownish orange. Very stiff, dry, low plasticity. [WAITEMATA GROUP]								34	5.15	1.0
		0.8m: Becomes dry to moist.									5.20	3.0
		Silty CLAY; light grey mottled orange. Stiff, moist, moderate plasticity. [WAITEMATA GROUP]								169	5.25	3.0
1.0		1.4m: Becomes light grey mottled orange, stiff to very stiff.								74	5.30	3.0
		SILT with some clay; light grey mottled orange. Very stiff, moist, low plasticity. [WAITEMATA GROUP]									5.35	4.0
1.5		3.0m: Becomes brownish orange.								122	5.40	5.0
		3.4m: Becomes light grey mottled orange.								57	5.45	5.0
2.0		4.7m: Becomes grey mottled orange, stiff to very stiff, moist to wet, low plasticity.									5.55	5.0
		5.0m: End of Hole.									5.60	5.0
2.5											5.65	6.0
											5.70	7.0
3.0											5.75	6.0
											5.85	7.0
3.5											5.90	8.0
											5.95	7.0
4.0											6.00	9.0
											6.05	10.0
4.5											6.10	10.0
											6.15	9.0
											6.20	8.0
											6.25	10.0
											6.30	12.0
											6.35	12.0
											6.40	12.0
											6.45	12.0
											6.50	12.0

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ∇ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH10

Project: Geotechnical Investigation

Date: 28/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730412.0, N 5954398.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)			
						50	100	150	200	Values	Depth (m)	Blows	
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		TOPSOIL; dark brown. Very stiff, moist. [TOPSOIL]		TS							5.00	2.0	
		Silty CLAY; dark brownish orange mottled orange. Very stiff, moist, moderate plasticity. [WAITEMATA GROUP]		WAITEMATA GROUP		154					5.05	2.0	
			35									5.10	3.0
			204									5.15	2.0
			68									5.20	3.0
			186									5.25	3.0
			88									5.30	4.0
			162									5.35	4.0
			42									5.40	5.0
			152									5.45	5.0
			69									5.50	5.0
			172									5.55	6.0
			61									5.60	6.0
			135									5.65	7.0
			68									5.70	8.0
			220									5.75	8.0
			220									5.80	9.0
			118									5.85	9.0
			35									5.90	10.0
			135									5.95	10.0
		76									6.00	10.0	
		98							6.05	14.0			
		63							6.10	14.0			
		155							6.15	14.0			
		57											
		220											
		188											
		54											
		5.0m: End of Hole (target depth).											

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.: DR4681
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH11

Project: Geotechnical Investigation

Date: 30/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730352.0, N 5954012.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)				
						50	100	150	200	Values	Depth (m)	Blows		
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5		TOPSOIL; dark brown. Very stiff, dry to moist. [TOPSOIL]	Groundwater Not Encountered	WAITEMATA GROUP										
		Clayey SILT; orange mottled brownish orange. Very stiff, moist, moderate plasticity. [WAITEMATA GROUP]												
		SILT with some clay; light brownish grey mottled orange. Very stiff, moist, low to moderate plasticity. [WAITEMATA GROUP]												
		Clayey SILT; light brownish grey with orange streaks. Very stiff, moist, moderate plasticity. [WAITEMATA GROUP]												
		3.8m: Becomes wet.												
		4.1m: Becomes highly oxidized.												
		4.3m: Becomes dark grey.												
		5.0m: End of Hole.												

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
▽ Water Level At Time Of Drilling	Vane No.: DR4681	
↙ Out Flow ↘ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH12

Project: Geotechnical Investigation

Date: 30/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730310.0, N 5954032.0

Ground Level: -

Sheet: 1 of 2

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)				
						50	100	150	200	Values	Depth (m)	Blows		
		[TOPSOIL]		TS							5.10	1.0		
		SILT with some clay; brown mottled dark brown orange. Very stiff, dry, no plasticity to low plasticity. [WAITEMATA GROUP]		Waitemata Group						169	5.15	1.0		
0.5		Silty CLAY; brown mottled orange. Very stiff, dry to moist, low plasticity. [WAITEMATA GROUP]									34	5.20	1.0	
		CLAY some silt; light grey mottled orange. Very stiff, dry to moist, moderate plasticity. [WAITEMATA GROUP]										220	5.25	2.0
		0.9m - 1.2m: Frequent reddish brown woodchips.										78	5.30	3.0
		1.2m - 2.3m: Becomes moist with occasional white specs.											5.35	6.0
		1.3m: Becomes moderate to highly plastic.											5.40	4.0
1.0													5.45	3.0
													5.50	4.0
													5.55	3.0
													5.60	3.0
													5.65	3.0
													5.70	4.0
													5.75	5.0
													5.80	4.0
													5.85	4.0
													5.90	5.0
													5.95	5.0
													6.00	5.0
													6.05	5.0
													6.10	6.0
													6.15	5.0
													6.20	7.0
													6.25	6.0
											6.30	7.0		
											6.35	8.0		
											6.40	10.0		
											6.45	10.0		
											6.50	20.0		
2.5											108	54		
											108	51		
											149	74		
											91	64		
											101	54		
											74	54		
											81	34		
											85	41		
4.5											220	34		

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
∇ Water Level At Time Of Drilling	Vane No.:1428	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH12

Project: Geotechnical Investigation

Date: 30/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730310.0, N 5954032.0

Ground Level: -

Sheet: 2 of 2

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) <small>(refer notes for details)</small>				Scala Penetrometer (blows / 50mm)	
						50	100	150	200	Values	Depth (m)
		[WAITEMATA GROUP] SILT with some gravel(medium); grey. Hard, wet, no plasticity. [WAITEMATA GROUP]	Not	a	a						
5.5		5.1m: End of Hole (target depth 5.0m).									
6.0											
6.5											
7.0											
7.5											
8.0											
8.5											
9.0											
9.5											

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level ▽ Water Level At Time Of Drilling ◁ Out Flow ▷ In Flow	Corrected as per NZGS Guidelines Vane No.: UTP = Unable To Penetrate += Peak Exceeded -= No Result	Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH14

Project: Geotechnical Investigation

Date: 30/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KT

Coordinates: E 1730164.0, N 5954041.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)					Scala Penetrometer (blows / 50mm)	
						(refer notes for details)				Values	Depth (m)	Blows
						50	100	150	200			
		[TOPSOIL]		T S							1.20	10.0
		SILT with some clay; brownish grey mottled orange. Very stiff to hard, dry, no to low plasticity. [WAITEMATA GROUP]								220	1.25	8.0
0.5		Silty CLAY; brownish grey mottled orange with some white specs. Hard, dry to moist, low to moderate plasticity. [WAITEMATA GROUP]								37	1.30	8.0
											1.35	4.0
											1.40	4.0
											1.45	3.0
											1.50	2.0
											1.55	3.0
											1.60	3.0
											1.65	3.0
											1.70	4.0
1.0											1.75	3.0
											1.80	4.0
											1.85	4.0
											1.90	5.0
											1.95	6.0
		SILT with some gravel(fine to medium); reddish orange mottled grey with some white specs. Hard, moist, no plasticity. [WAITEMATA GROUP] 1.4m: Possible shear zone, mixture of material within 1.2m - 2.3m	Groundwater Not Encountered	Waitemata Group						UTP	2.00	4.0
1.5											2.05	4.0
											2.10	4.0
											2.15	4.0
											2.20	2.0
											2.25	3.0
											2.30	2.0
											2.35	3.0
											2.40	3.0
											2.45	5.0
											2.50	3.0
											2.55	2.0
											2.60	2.0
											2.65	2.0
											2.70	2.0
		SILT with some sand(coarse); reddish orange mottled white with white specs. Hard, moist to wet, no plasticity. [WAITEMATA GROUP]									2.75	2.0
2.5											2.80	2.0
											2.85	2.0
											2.90	2.0
											3.00	0.0
3.0		3.0m: End of Hole. Refusal.										

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH17

Project: Geotechnical Investigation

Date: 29/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730158.0, N 5953838.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)				
						50	100	150	200	Values	Depth (m)	Blows		
0.5		TOPSOIL; dark brown. Moist. [TOPSOIL]	Groundwater Not Encountered	WAITEMATA GROUP										
		Silty CLAY; orange mottled light grey. Moist, moderate to high plasticity. [WAITEMATA GROUP]								4.10	2.0			
1.0		SILT some clay; light brownish yellow. Hard, dry to moist, low plasticity. [WAITEMATA GROUP] 1.4m: Becomes highly oxidized. 1.6m: Becomes moist. 1.9m: Becomes wet.						179					4.15	2.0
						24				4.20	2.0			
						4.25	2.0							
						4.30	2.0							
						4.35	3.0							
						4.40	4.0							
						174				4.45	4.0			
						4.50	4.0							
						4.55	5.0							
						4.60	5.0							
1.5		CLayey SILT; dark grey. Very stiff, wet, moderate plasticity. [WAITEMATA GROUP] 3.0m: 30% recovery, the hole keeps collapsing, also the material is sticking to the auger extension poles making it very difficult to pull out.						139					4.65	5.0
						81				4.70	6.0			
						4.75	7.0							
						4.80	7.0							
						220+				4.85	7.0			
						-				4.90	8.0			
						4.95	7.0							
						5.00	8.0							
			UTP				5.05	8.0						
			-				5.10	9.0						
2.0					204					5.15	8.0			
			56				5.20	10.0						
			5.25	10.0										
			5.30	10.0										
			184				5.35	11.0						
			76				5.40	12.0						
			5.45	12.0										
			176											
			86											
			155											
2.5					69									
			154											
			76											
			159											
3.0					91									
			155											
			79											
			150											
3.5					68									
4.0		4.0m: End of Hole (target depth 5.0m). Too difficult to drill.												

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ∇ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.: DR4681
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH18

Project: Geotechnical Investigation

Date: 29/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KT

Coordinates: E 1730149.0, N 5953888.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
		[TOPSOIL]		TS							2.90	8.0
		Clayey SILT; brownish orange. Very stiff, dry, low plasticity. [WAITEMATA GROUP]	Groundwater Not Encountered	Waitemata Group						183	3.00	10.0
0.5									41	3.05	3.0	
		CLAY with some silt; orange mottled grey. Very stiff, dry to moist, moderate to high plasticity. [WAITEMATA GROUP]								183	3.20	3.0
									85	3.30	3.0	
		Silty CLAY; orange mottled grey. Very stiff, dry to moist, moderate plasticity. [WAITEMATA GROUP]								166	3.40	1.0
1.0									68	3.45	3.0	
		1.5m: Becomes light grey mottled orange.								135	3.55	1.0
									74	3.60	2.0	
		Clayey SILT; orange mottled grey. Very stiff, dry to moist, moderate plasticity. [WAITEMATA GROUP]								115	3.65	2.0
									57	3.70	2.0	
		SILT with minor clay; light grey mottled orange. Very stiff, moist, low plasticity. [WAITEMATA GROUP]								122	3.75	3.0
									47	3.80	3.0	
		2.7m - 2.8m: Limonitic bands.								115	3.85	2.0
									51	3.90	3.0	
		SAND(fine to coarse) with some gravel(fine); grey. Very dense, moist, no plasticity. [WAITEMATA GROUP]								101	3.95	2.0
									51	4.00	3.0	
		2.9m: End of Hole (target depth 5.0m). Tried re drilling after scala and hit refusal on dense material.								UTP	4.00	3.0
									-	4.05	2.0	
										4.10	2.0	
										4.15	2.0	
										4.20	1.0	
										4.25	2.0	
										4.30	2.0	
										4.35	2.0	
										4.40	2.0	
										4.45	3.0	
										4.50	3.0	
										4.55	3.0	
										4.60	3.0	
										4.65	3.0	
										4.70	2.0	
										4.75	5.0	
										4.80	4.0	

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ∇ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.: 1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH19

Project: Geotechnical Investigation

Date: 30/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1730070.0, N 5954108.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
0.5		TOPSOIL; dark brown, moist. [TOPSOIL]	Groundwater Not Encountered	WAITEMATA GROUP							5.00	2.0
		Silty CLAY; orange mottled brownish orange. Very stiff, moist, moderate to high plasticity. [WAITEMATA GROUP]				203	5.05	2.0				
1.0		Sandy (fine to medium) CLAY; orange mottled red. Hard, moist, low plasticity. [WAITEMATA GROUP]				42	5.10	2.0				
						5.15	3.0					
						5.20	4.0					
						5.25	4.0					
						5.30	4.0					
						5.35	5.0					
						5.40	6.0					
						5.45	6.0					
						5.50	7.0					
						5.55	8.0					
1.5		1.5m: Becomes red mottled dark bluish red with some light grey inclusions. 1.8m: Sand size becomes medium to coarse. 2.0m: Becomes dark brownish red and wet. 2.5m: Becomes red with white specs. 3.1m: Becomes brownish orange. 3.2m: Sand size becomes coarse.				88	5.60	10.0				
						5.65	10.0					
						5.70	10.0					
						220+	5.75	11.0				
						-	5.80	14.0				
						215	5.85	10.0				
						37						
						UTP						
						-						
						UTP						
2.0		3.5										
						101						
			42									
			UTP									
			-									
			UTP									
			-									
			220+									
			-									
			193									
2.5		4.0										
			30									
			220+									
			-									
			UTP									
			-									
			220+									
			-									
			UTP									
			-									
3.0		4.5										
			213									
			85									
3.5		5.0										
4.0		4.9m: Becomes highly oxidized.										
4.5		Clayey SILT with trace sand (medium); light brownish grey mottled orange. Very stiff, moist, moderate plasticity. [WAITEMATA GROUP] 5.0m: End of Hole (target depth 5.0).										

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ∇ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH20

Project: Geotechnical Investigation

Date: 30/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KT

Coordinates: E 1730044.0, N 5954078.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
		[TOPSOIL]										
		Clayey SILT; brownish orange mottled orange. Very stiff, dry, low plasticity. [WAITEMATA GROUP]		T S							3.20	8.0
0.5											3.25	20.0
		Clayey SILT; brownish orange (intermixed with, SILT with gravel(fine); red with white specs and dark brown streaks), moist, stiff to very stiff, low plasticity. [WAITEMATA GROUP]										
1.0												
		SILT; reddish orange with some white specs. Very stiff, moist, no plasticity. [WAITEMATA GROUP]										
1.5												
		CLAY; brownish orange mottled orange. Very stiff, moist, moderate to high plasticity. [WAITEMATA GROUP]										
2.0												
		SILT; white mottled reddish orange. Very stiff, moist, no plasticity. [WAITEMATA GROUP]										
2.5												
		SILT; reddish orange mottled white with some brownish orange and dark brown streaks. Very stiff, moist, no plasticity. [WAITEMATA GROUP]										
3.0												
		SILT with some gravel(fine); dark brownish grey. Very stiff, moist to wet, no plasticity. [WAITEMATA GROUP]										
3.2		2.2m: Becomes dark brown.										
3.5		2.5m: some mottled white.										
3.2		3.2m: End of Hole. Refusal.										

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
∇ Water Level At Time Of Drilling	Vane No.:1428	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH21

Project: Geotechnical Investigation

Date: 3/05/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: RS

Coordinates: E 1730073.0, N 5954783.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)					Scala Penetrometer (blows / 50mm)				
						50	100	150	200	Values	Depth (m)	Blows			
		[TOPSOIL]		TS	TS					UTP	3.10	2.0			
		Clayey SILT; orange mottled grey. Very stiff, dry, moderate plasticity. [WAITEMATA GROUP]	Groundwater Not Encountered	WAITEMATA GROUP						-	3.15	2.0			
0.5														3.20	3.0
														3.25	3.0
														3.30	3.0
													UTP	3.35	2.0
														3.40	2.0
														3.45	3.0
														3.50	2.0
														3.55	2.0
														3.60	3.0
1.0		Silty CLAY; light grey orange mottles. Very stiff, moist, highly plastic. [WAITEMATA GROUP]									3.65	1.0			
														3.70	3.0
														3.75	2.0
														3.80	3.0
														3.85	3.0
														3.90	4.0
														3.95	3.0
														4.00	3.0
													237+	4.05	2.0
1.5						SILT minor clay with some fine gravels and weakly cemented clasts; reddish brown with some orange and black mottles. white clay chunks. Very stiff, moist, no plasticity. Tephra/ash. [WAITEMATA GROUP]									4.10
														4.15	3.0
														4.20	3.0
														4.25	5.0
														4.30	5.0
														4.35	4.0
													237+	4.40	3.0
														4.45	3.0
														4.50	3.0
														4.55	5.0
2.5		Intermixed SILT, clay chunks, ash and gravel(fine). Gravelly(fine) SILT with pockets of clay; white to light grey intermixed with reddish grey, dark grey and orange. Very stiff, moist, no plasticity. [WAITEMATA GROUP]									4.60	7.0			
														4.65	20.0
3.0		3.1m: End of Hole. Too dense to auger.													
3.5															
4.0															
4.5															

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH22

Project: Geotechnical Investigation

Date: 3/05/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: RS

Coordinates: E 1730024.0, N 5954188.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)				
						50	100	150	200	Values	Depth (m)	Blows		
0.0		[TOPSOIL]	Groundwater Not Encountered	TS WAITEMATA GROUP							0.90	20.0		
0.5		Clayey SILT; grey and orange. Very stiff, dry to moist, moderate plasticity, occasional rootlets [WAITEMATA GROUP]									220	-		
1.0		SILT with some tephra; light grey to white. Hard, dry. [WAITEMATA GROUP] 0.9m: End of Hole. Too dense (target depth 5.0m).									237+	-		
1.0										UTP				

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
▽ Water Level At Time Of Drilling	Vane No.:1428	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH23

Project: Geotechnical Investigation

Date: 3/05/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: RS

Coordinates: E 1730059.0, N 5954295.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)				
						50	100	150	200	Values	Depth (m)	Blows		
		[TOPSOIL]									2.05	7.0		
		Clayey SILT to silty CLAY; grey and orange. Very stiff, moist, moderate to high plasticity, occasional rootlets. [WAITEMATA GROUP]	Groundwater Not Encountered	WAITEMATA GROUP							2.10	3.0		
0.5													152	2.0
													91	2.0
													2.20	2.0
													2.25	2.0
													2.30	3.0
													2.35	4.0
													135	5.0
													88	9.0
													2.40	5.0
													2.45	9.0
1.0		0.9m - 1.0m: Some oxidation.											152	12.0
										69	14.0			
										2.55	9.0			
										2.60	14.0			
										2.65	11.0			
										2.70	16.0			
										2.75	20.0			
1.5		SILT some clay; light grey and orange. Very stiff, dry, no plasticity to slightly plastic. Tephra? [WAITEMATA GROUP]								220	-	-		
										57	-	-		
										237+	-	-		
										UTP	-	-		
2.0		2.0m: End of Hole. Too dense to auger.								-	-	-		

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH24

Project: Geotechnical Investigation

Date: 3/05/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: RS

Coordinates: E 1730022.0, N 5954317.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)					Scala Penetrometer (blows / 50mm)	
						(refer notes for details)				Values	Depth (m)	Blows
						50	100	150	200			
0.0		[TOPSOIL]								UTP	1.60	4.0
0.1		Clayey SILT; orange mottled light grey. Very stiff, dry to moist, moderate plasticity. Rootlets up to 5.0m. [WAITEMATA GROUP]		T S						-	1.65	7.0
0.2											1.70	8.0
0.3											1.75	12.0
0.4										UTP	1.80	20.0
0.5										-		
0.6		SILT some clay; dark orange. Very stiff, dry to moist, low to moderate plasticity. [WAITEMATA GROUP]										
0.7		Clayey SILT; grey mottled orange. Very stiff, dry to moist, low to moderate plasticity. [WAITEMATA GROUP]										
0.8		SILT some clay; grey mottled orange, dark orange pink and purple with white specs. Very stiff, dry, low plasticity. [WAITEMATA GROUP]										
0.9										UTP		
1.0										-		
1.1		SILT some clay to minor clay; light whitish grey mottled grey and dark orange. Clasts of cemented SILT, coarse sand to fine gravel. [WAITEMATA GROUP]										
1.2												
1.3										UTP		
1.4										-		
1.5												
1.6		1.6m: End of Hole. Too dense.										
2.0												
2.5												
3.0												
3.5												
4.0												
4.5												

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH25

Project: Geotechnical Investigation

Date: 3/05/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: RS

Coordinates: E 1730021.0, N 5954389.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)					Scala Penetrometer (blows / 50mm)	
						(refer notes for details)				Values	Depth (m)	Blows
						50	100	150	200			
		[TOPSOIL]		TS	TS						4.60	3.0
		SILT; orange. Very stiff, dry no plasticity. Tephra present. [WAITEMATA GROUP]								UTP	4.65	6.0
0.5		0.3m: Becomes light grey, white friable.								-	4.70	6.0
		SILT some clay; orange mottled grey. Very stiff, dry, slightly plastic. [WAITEMATA GROUP]								237+	4.75	6.0
		0.8m: Becomes grey mottled orange.								-	4.80	4.0
1.0										UTP	4.85	6.0
		Clayey SILT; grey mottled orange. Very stiff, dry, moderate plasticity. [WAITEMATA GROUP]								-	4.90	10.0
										237+	4.95	11.0
1.5										-	5.00	12.0
										UTP	5.05	10.0
2.0										-	5.10	20.0
										237+		
										UTP		
2.5		2.5m: Becomes moist.								203		
		SILT some clay with trace sand(fine); grey mottled orange. Very stiff, dry to moist, moderate plasticity. [WAITEMATA GROUP]								132		
										193		
3.0										127		
										149		
										103		
										135		
3.5		Clayey SILT; grey. Very stiff, moist, moderate to highly plastic. Weakly cemented clasts. [WAITEMATA GROUP]								117		
										152		
										74		
4.0		SILT with some clay; brownish grey mottled orange. Very stiff, moist, moderate plasticity. [WAITEMATA GROUP]								196		
										106		
										237+		
4.5		4.2m: Highly oxidised.								-		
		SILT; grey. Hard, moist, no plasticity. [WAITEMATA GROUP]								UTP		
		4.6m: End of Hole. Too dense to auger (target depth).								-		

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ∇ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

- Corrected as per NZGS Guidelines
- Vane No.:1428
- UTP = Unable To Penetrate
- + = Peak Exceeded
- = No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH29

Project: Geotechnical Investigation

Date: 29/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1729871.0, N 5954467.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
0.5		TOPSOIL; dark brown, moist. [TOPSOIL]	Indwater Not Encount	T S WAITEMATA GROUP							0.60	4.0
		Clayey SILT; brownish grey. Very stiff, moist, low to moderate plasticity. [WAITEMATA GROUP]							132	0.65	5.0	
		0.6m: End of Hole. Hit rock, checked three other locations in the surrounding area to confirm results.								57	0.70	12.0
											0.75	10.0
											0.80	15.0
											0.85	0.0
										UTP		

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water

- ▼ Standing Water Level
- ▽ Water Level At Time Of Drilling
- ↔ Out Flow ▷ In Flow

Shear Vane

Corrected as per NZGS Guidelines
 Vane No.: DR4681
 UTP = Unable To Penetrate
 += Peak Exceeded
 -= No Result

Other Comments

Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH31

Project: Geotechnical Investigation

Date: 30/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1729901.0, N 5954679.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa)				Scala Penetrometer (blows / 50mm)			
						50	100	150	200	Values	Depth (m)	Blows	
0.5		TOPSOIL; dark brown. Very stiff to hard, moist. [TOPSOIL]	Groundwater Not Encountered	TS	[Graphic Log Symbols]						5.10	4.0	
		Clayey SILT; orange mottled brownish orange. Very stiff, dry to moist, moderate plasticity. [WAITEMATA GROUP]									5.15	6.0	
1.0		1.5m: Becomes dry to moist.	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					220+	5.20	4.0	
												5.25	2.0
												5.30	3.0
												5.35	5.0
												5.40	5.0
												5.45	6.0
												5.50	7.0
												5.55	7.0
												5.60	6.0
												5.65	7.0
2.0		SILT some clay; light brownish grey mottled orange. Very stiff, dry to moist, moderate plasticity. [WAITEMATA GROUP]	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					137	5.70	8.0	
												5.75	10.0
												5.80	12.0
												5.85	10.0
												5.90	13.0
												5.95	18.0
												6.00	15.0
3.0		Clayey SILT; orange mottled light grey. Very stiff, moist, moderate to high plasticity. [WAITEMATA GROUP]	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					115	5.90	13.0	
												6.00	15.0
4.0		SILT with some clay and trace sand(medium); light brownish yellow with some orange streaks. Very stiff, moist, low plasticity. [WAITEMATA GROUP]	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					135	5.90	13.0	
												6.00	15.0
5.0		3.2m: Becomes dry.	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					122	5.90	13.0	
												6.00	15.0
5.0		3.9m: Becomes dark grey.	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					115	5.90	13.0	
												6.00	15.0
5.0		4.7m: Becomes wet.	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					132	5.90	13.0	
												6.00	15.0
5.0		5.0m: End of Hole (target depth 5.0m).	Groundwater Not Encountered	WAITEMATA GROUP	[Graphic Log Symbols]					194	5.90	13.0	
												6.00	15.0

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
∇ Water Level At Time Of Drilling	Vane No.: DR4681	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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Produced with Core-GS

HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH32

Project: Geotechnical Investigation

Date: 29/04/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: E 1729854.0, N 5954698.0

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) <small>(refer notes for details)</small>				Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values	Depth (m)	Blows
		TOPSOIL; dark brown, moist. [TOPSOIL]		TS							1.85	0.0
0.5		SILT some clay; dark brownish grey with some orange inclusions. Very stiff, moist, moderate plasticity. Small shiny specs with cleavage. [WAITEMATA GROUP]	Groundwater Not Encountered	WAITEMATA GROUP						206 76		
1.0										208 85		
1.5		Silty CLAY; dark brownish grey mottled dark orange. Very stiff, moist high plasticity. [WAITEMATA GROUP]								220+ -		
1.8		1.8m: End of Hole (target depth 5.0m). Hit rock.								220+ -		
1.93										193 52		
2.0										UTP -		

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level ▽ Water Level At Time Of Drilling ⇐ Out Flow ⇨ In Flow	Corrected as per NZGS Guidelines Vane No.:DR4681 UTP = Unable To Penetrate += Peak Exceeded -= No Result	Target Depth 5.0m.

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH33

Project: Geotechnical Investigation

Date: 22/09/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KT

Coordinates: ,

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)		Scala Penetrometer (blows / 50mm)		
						50	100	150	200	Values
0.2		TOPSOIL [TOPSOIL] 0.2m - 0.4m: Intermixed topsoil and occasional rootlets		TS	TS				4.80	9.0
0.5		CLAY, with some silt; brownish orange, some mottled orange. Very stiff; dry to moist, high plasticity. [WAITEMATA GROUP SOILS]				173			4.85	6.0
						71			4.90	5.0
									4.95	5.0
						176			5.00	9.0
						76			5.05	10.0
									5.10	12.0
									5.15	14.0
									5.20	20.0
1.0		Silty CLAY; orange and brownish orange, mottled light brownish grey. Very stiff; dry to moist, moderate to high plasticity. [WAITEMATA GROUP SOILS]				165				
						71				
1.5		SILT, trace clay; light brownish orange, some mottled orange. Very stiff; dry, no to low plasticity. [WAITEMATA GROUP SOILS]				176				
						59				
						200+				
						-				
						200+				
						-				
2.0		Silty CLAY, with some sand (medium); dark grey. Hard; moist to wet, low plasticity. [WAITEMATA GROUP SOILS]				UTP				
						-				
2.5		SILT, with trace clay; light brownish grey, mottled orange. Hard; dry to moist, no to low plasticity. [WAITEMATA GROUP SOILS]				200+				
						-				
						200+				
						-				
3.0		Clayey SILT; light brownish grey, mottled orange. Hard; dry to moist, low plasticity. [WAITEMATA GROUP SOILS]				UTP				
						-				
						200+				
						-				
		2.9m: Becomes wet.				120				
						48				
3.5		SILT, with some clay; dark grey. Hard; moist, no to low plasticity. [WAITEMATA GROUP SOILS]				UTP				
						-				
						200+				
						-				
4.0		Clayey SILT; dark grey. Hard; moist to wet, low to moderate plasticity. [WAITEMATA GROUP SOILS]				UTP				
						-				
						UTP				
						-				
4.5						UTP				
						-				
						UTP				
						-				
		4.8m: Effective refusal with hand auger (no core recovery).				UTP				
						-				

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
▽ Water Level At Time Of Drilling	Vane No.:1984	
◁ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

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HAND AUGER LOG

Job No.: K200826

Client: Goodland Developments Limited

Hole No.: AH34

Project: Geotechnical Investigation

Date: 22/09/2021

Location: 2127 Kaipara Coast Highway, Kakanui

Logged By: KD

Coordinates: ,

Ground Level: -

Sheet: 1 of 1

Depth (m)	RL	Subsurface Conditions	Groundwater	Geological Unit	Graphic Log	Vane Shear Strength (kPa) (refer notes for details)				Scala Penetrometer (blows / 50mm)			
						50	100	150	200	Values	Depth (m)	Blows	
		[TOPSOIL]		TS	TS						2.80	4.0	
		Silty CLAY; dark grey and orange. Stiff to very stiff, moist, moderate plasticity. [WAITEMATA GROUP SOILS]		WAITEMATA GROUP SOILS	[Graphic Log Symbols]					99	2.85	20.0	
0.5		0.5m: Some rootlets present.									56		
											150		
1.0											78		
		SILT some clay and minor sand(Coarse); grey (The sand is dark orange highly weathered). Very stiff, moist to wet, low plasticity. [WAITEMATA GROUP SOILS]									125		
1.5		1.4m: Becomes wet (slight water seepage). Some dark grey intermixed. 1.5m: No more sand present.									64		
		1.8m - 2.5m: Limonitic inclusions.									157		
2.0											17		
		SILT trace clay; grey with dark orange mottled. Very stiff to hard, moist, no plasticity. [WAITEMATA GROUP SOILS]									106		
2.5		2.5m: Becomes dark brownish grey. The strength has become hard. 2.6m: Becomes dark grey with small white specs and trace gravel(Fine to coarse).	22/09/2021								31		
		2.8m: End of Hole (Target depth 5.0m).							UTP				
3.0									-				
									231+				
3.5									58				
4.0									160				
4.5									33				
									UTP				
									-				

Notes & Abbreviations

Soils logged in accordance with 'The guidelines for the classification and description of soil and rock for engineering purposes' December 2005, NZGS

Water	Shear Vane	Other Comments
▼ Standing Water Level	Corrected as per NZGS Guidelines	Target Depth 5.0m.
▽ Water Level At Time Of Drilling	Vane No.:522	
↔ Out Flow ▷ In Flow	UTP = Unable To Penetrate	
	+ = Peak Exceeded	
	- = No Result	

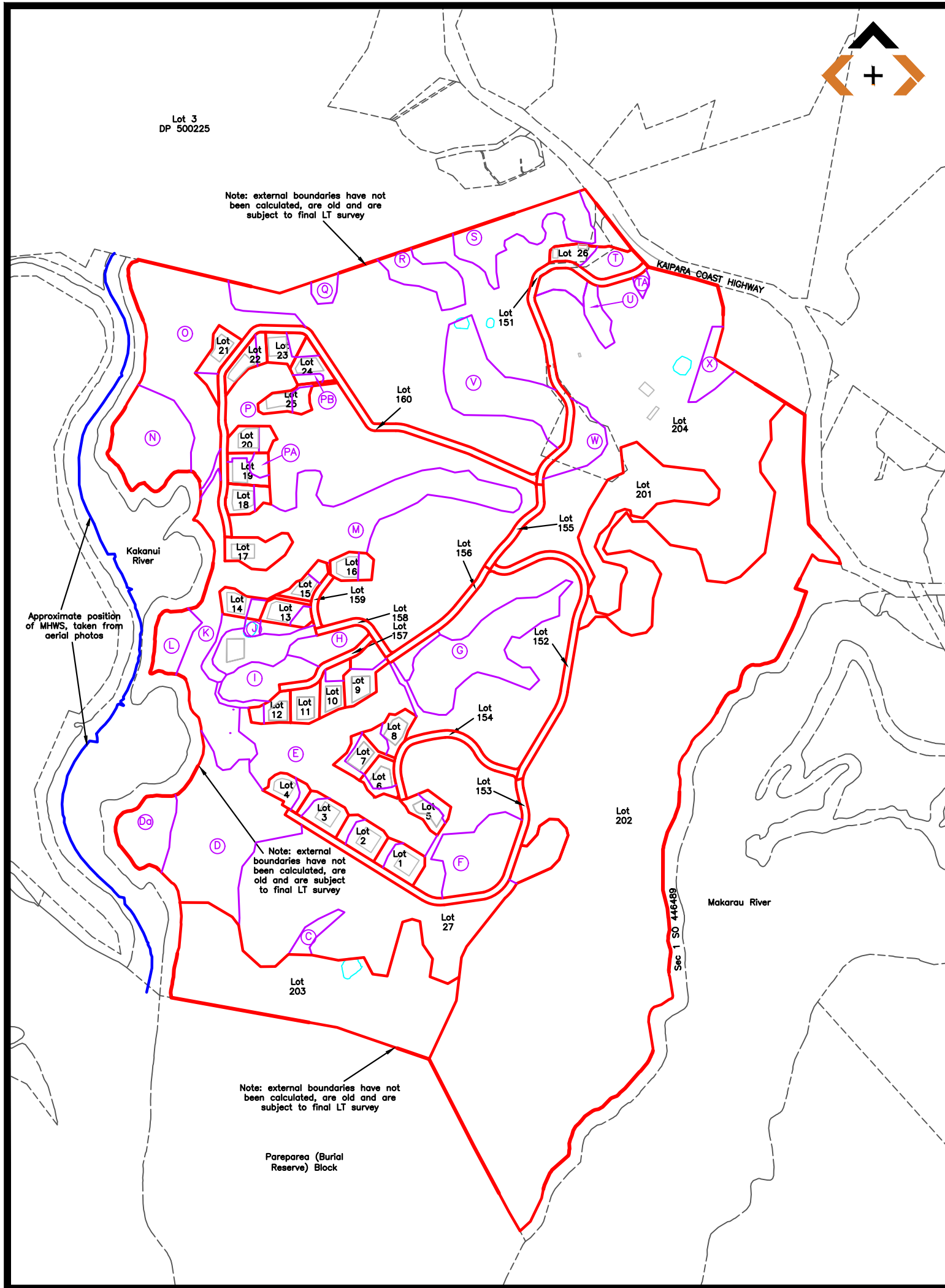
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APPENDIX B

Third Party Information



LOTS 1 - 27, 151 - 160, 201, 202, 203 AND 204 BEING A SUBDIVISION OF PART MAKARAU 4A BLOCK AND PART MAKARAU 4B BLOCK AND SECTION 1 SO 328127 AND PART SECTION 50 BLOCK II KAIPARA SURVEY DISTRICT (COMPRISED IN RT 165841)

MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	BURDENED LAND	BENEFITED LAND
Right of Way	Lot 155	Lot 155	Lots 1 - 25 hereon
	Lot 156	Lot 156	Lots 1 - 25 hereon
	Lot 158	Lot 158	Lots 1 - 25 hereon

Covenant details:
 Areas shown Lot 202, Lot 203, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Da, PA and TA are subject to Land Covenants (vegetation regeneration / revegetation / infill areas)

Areas shown SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW and SX are subject to Land Covenants (septic irrigation fields)

Areas shown OA, OB, OC and OD is subject to private covenant (communal area)

Amalgamation Conditions:
 That Lot 151 hereon (legal access) be held as to twenty six undivided one twenty sixth shares by the owners of Lots 1 - 26 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 152 hereon (legal access) be held as to eight undivided one eighth shares by the owners of Lots 1 - 8 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 153 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 1 - 4 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 154 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 5 - 8 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 155 hereon (legal access) be held as to sixteen undivided one sixteenth shares by the owners of Lots 1 - 16 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 156 hereon (legal access) be held as to eight undivided one ninth shares by the owners of Lots 9 - 16 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 157 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 9 - 12 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 158 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 13 - 16 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 159 hereon (legal access) be held as to four undivided one quarter shares by the owners of Lots 13 - 16 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 160 hereon (legal access) be held as to nine undivided one ninth shares by the owners of Lots 17 - 25 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 26 hereon be held as to twenty five undivided one twenty fifth shares by the owners of Lots 1 - 25 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 27 hereon be held as to twenty five undivided one twenty fifth shares by the owners of Lots 1 - 25 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 201 hereon be held as to twenty five undivided one twenty fifth shares by the owners of Lots 1 - 25 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 202 hereon be held as to twenty five undivided one twenty fifth shares by the owners of Lots 1 - 25 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 203 hereon be held as to twenty five undivided one twenty fifth shares by the owners of Lots 1 - 25 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lot 204 hereon be held as to twenty five undivided one twenty fifth shares by the owners of Lots 1 - 25 hereon, as tenants in common in the said shares and that individual records of title be issued in accordance therewith.

That Lots 27, 201, 202, 203 and 204 hereon be held in the same record of title.

SURVEYED	MT	14.10.21	APPROVED	DATE
DESIGNED				
DRAWN				
CHECKED				
APPROVED				
REVISION	CHANGES		CHECKED	DATE
A	ORIGINAL ISSUE		MT	14.10.21
B	LOT 27 AND BUILDINGS		MT	04.11.21
C	NEW ACCESS LOT LAYOUT		MT	17.11.21
D	APPROX MHWS ADDED		MT	01.12.21
E	LOTS 152 AND 153		MT	18.01.22
F	LOTS 9 - 12		MT	08.03.22
G	LOT 203 REPLACED		MT	11.03.22
H	AREA AA		MT	14.07.22
L	LAYOUT CHANGES		MT	07.07.23

NOTES:
 BEARING AND COORDINATE DATUM IS GEODETIC 2000
 ORIGIN IS 16 MT. EDEN 800 000 mN, 400 000 mE
 PROJECTION IS TRANSVERSE MERCATOR TO OBTAIN
 PROJECTION DISTANCES MULTIPLY BY 0.9999
 LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946
LEGEND:
 - - - Proposed Lot Boundaries
 - - - Proposed Easement Boundaries
 - - - Existing Abuttal Boundaries
 - - - 1000m² Permitted Building Area
 SURVEY EQUIPMENT USED:
 INSTRUMENT: TRIMBLE ROBOTIC S6 5"
 GPS: TRIMBLE R6/R8 SYSTEMS
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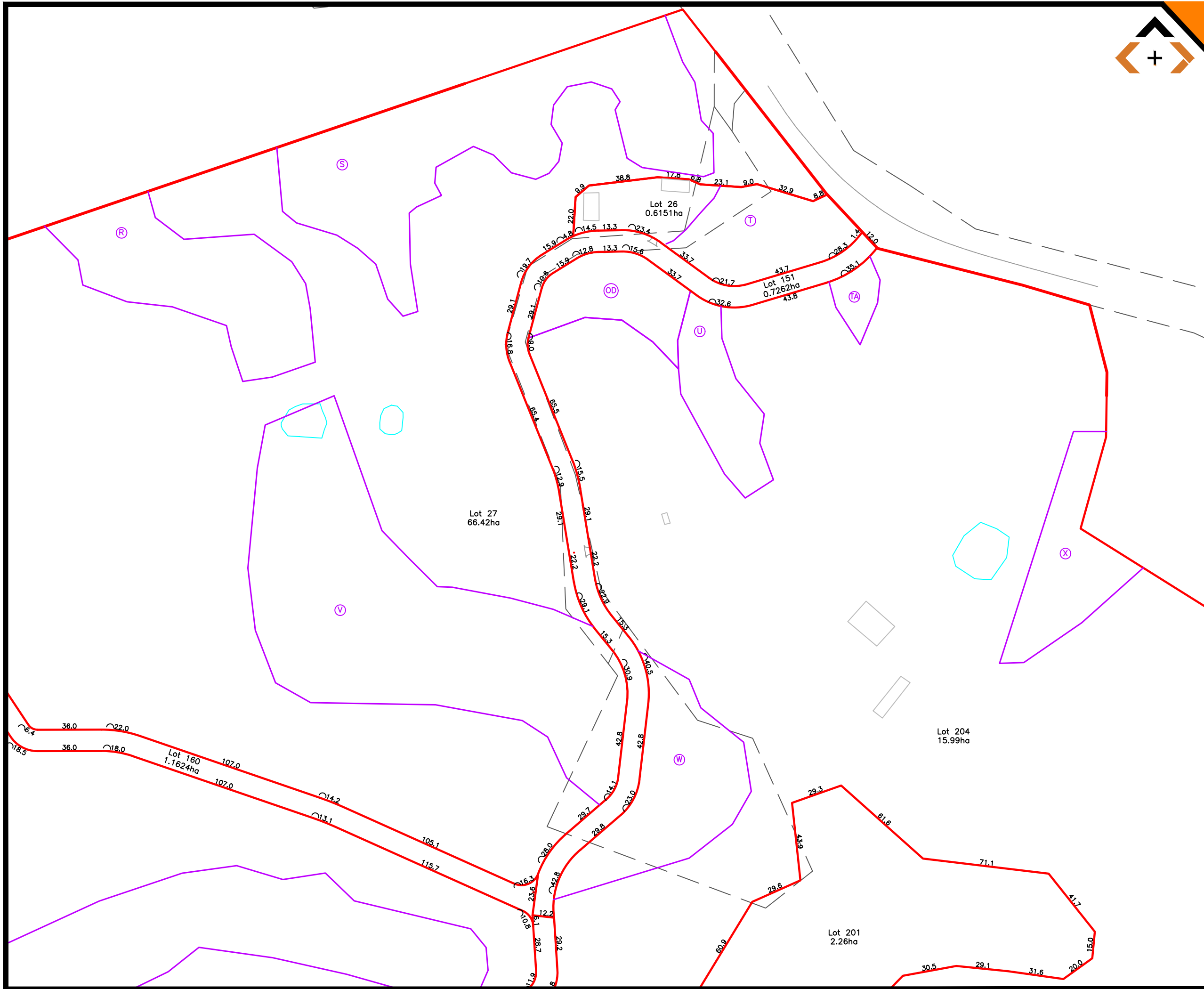
CLIENT
 GOODLAND

PROJECT
 2127 KAIPARA COAST
 HIGHWAY, KAKANUI

TITLE
 OVERALL
 SCHEME PLAN

SCALE	1:4000 (A1)	1:8000 (A3)
DRAWING No	SP495	
SHEET	1 of 7	
REVISION		L

FILE PATH: L:\01 PROJECTS\495 KAIPARA COAST\SP495L.DWG



SURVEYED	MT	14.10.21	APPROVED	DATE
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APPROVED				
REVISION	CHANGES		CHECKED	DATE
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B	LOT 27 AND BUILDINGS		MT	04.11.21
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H	AREA AA		MT	14.07.22
L	LAYOUT CHANGES		MT	07.07.23

NOTES:

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 PROJECTION DISTANCES MULTIPLY BY 0.9999

LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946

LEGEND:

- Proposed Lot Boundaries
- Proposed Easement Boundaries
- Existing Abuttal Boundaries
- 1000m² Permitted Building Area

SURVEY EQUIPMENT USED:
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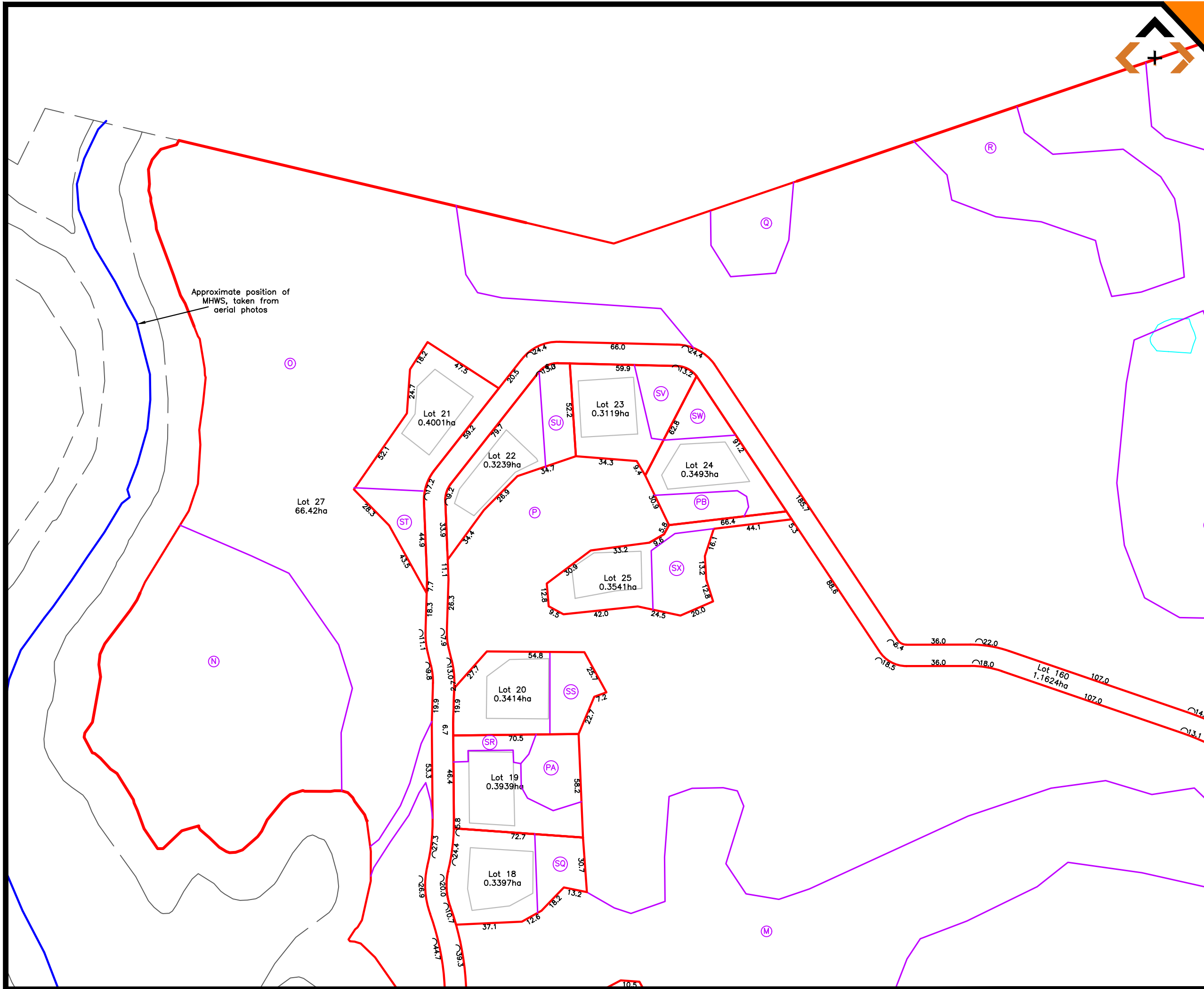
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PROJECT
 2127 KAIPARA COAST HIGHWAY, KAKANUI

TITLE
 SCHEME PLAN

SCALE 1:1000 (A1) 1:2000 (A3)
DRAWING No SP495 **SHEET** 2 of 7 **REVISION** L

PLU1 DATE: 1/1/2020 0:14:58



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APPROVED				
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L	LAYOUT CHANGES		MT	07.07.23

NOTES:

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LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946

LEGEND:

- Proposed Lot Boundaries
- Proposed Easement Boundaries
- Existing Abuttal Boundaries
- 1000m² Permitted Building Area

SURVEY EQUIPMENT USED:
 INSTRUMENT: TRIMBLE ROBOTIC S6 5"
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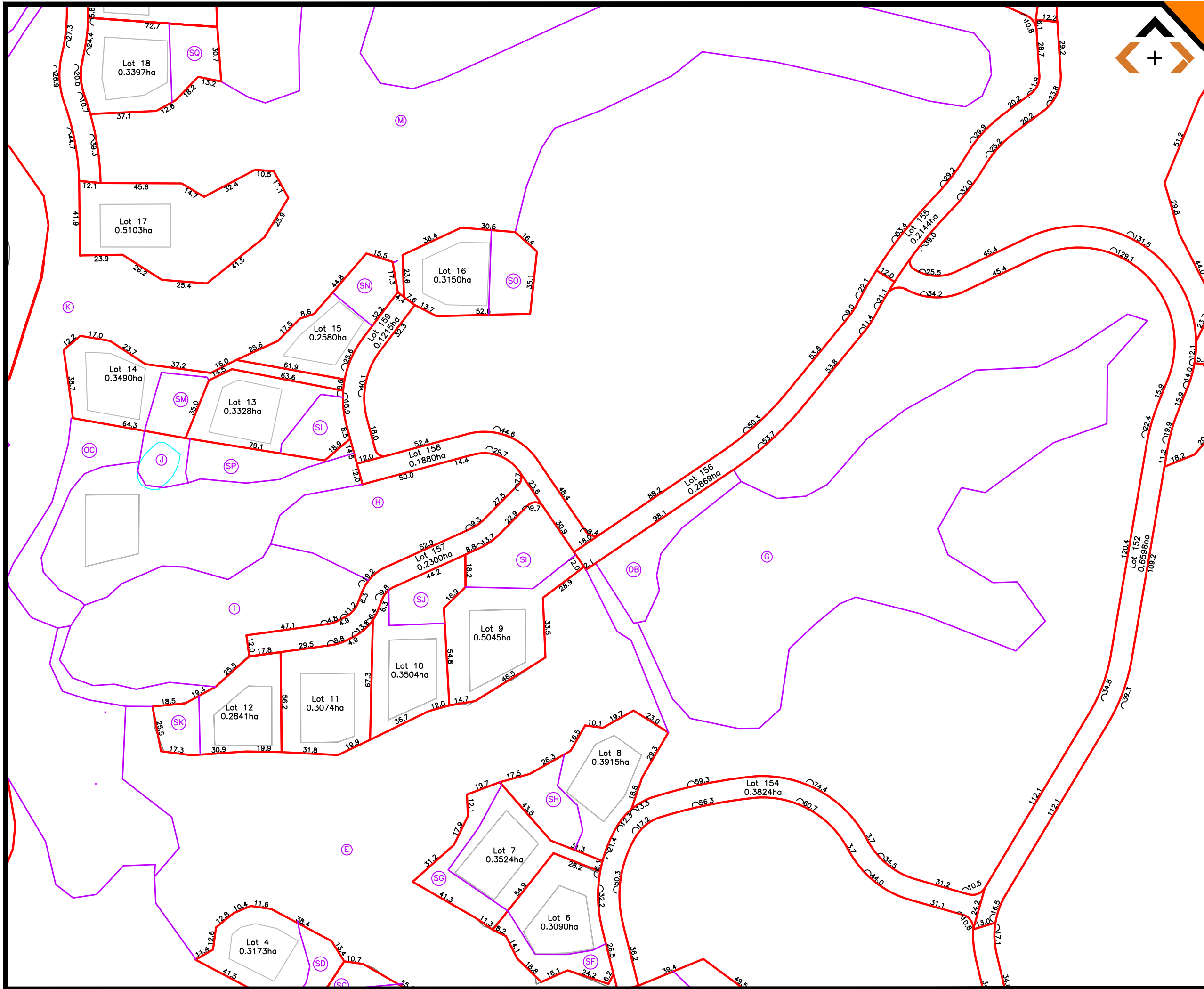
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PROJECT
 2127 KAIPARA COAST
 HIGHWAY, KAKANUI

TITLE
 SCHEME PLAN

SCALE	1:1000 (A1)	1:2000 (A3)
DRAWING No	SP495	
SHEET	3 of 7	
REVISION		L

FILE PATH: L:\01 PROJECTS\495 KAIPARA COAST\SP495L.DWG



SURVEYED	MT	14.10.21	APPROVED	DATE
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APPROVED				
REVISION	CHANGES		CHECKED	DATE
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LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946

LEGEND:

- Proposed Lot Boundaries
- Proposed Easement Boundaries
- Existing Abuttal Boundaries
- 1000m² Permitted Building Area

SURVEY EQUIPMENT USED:
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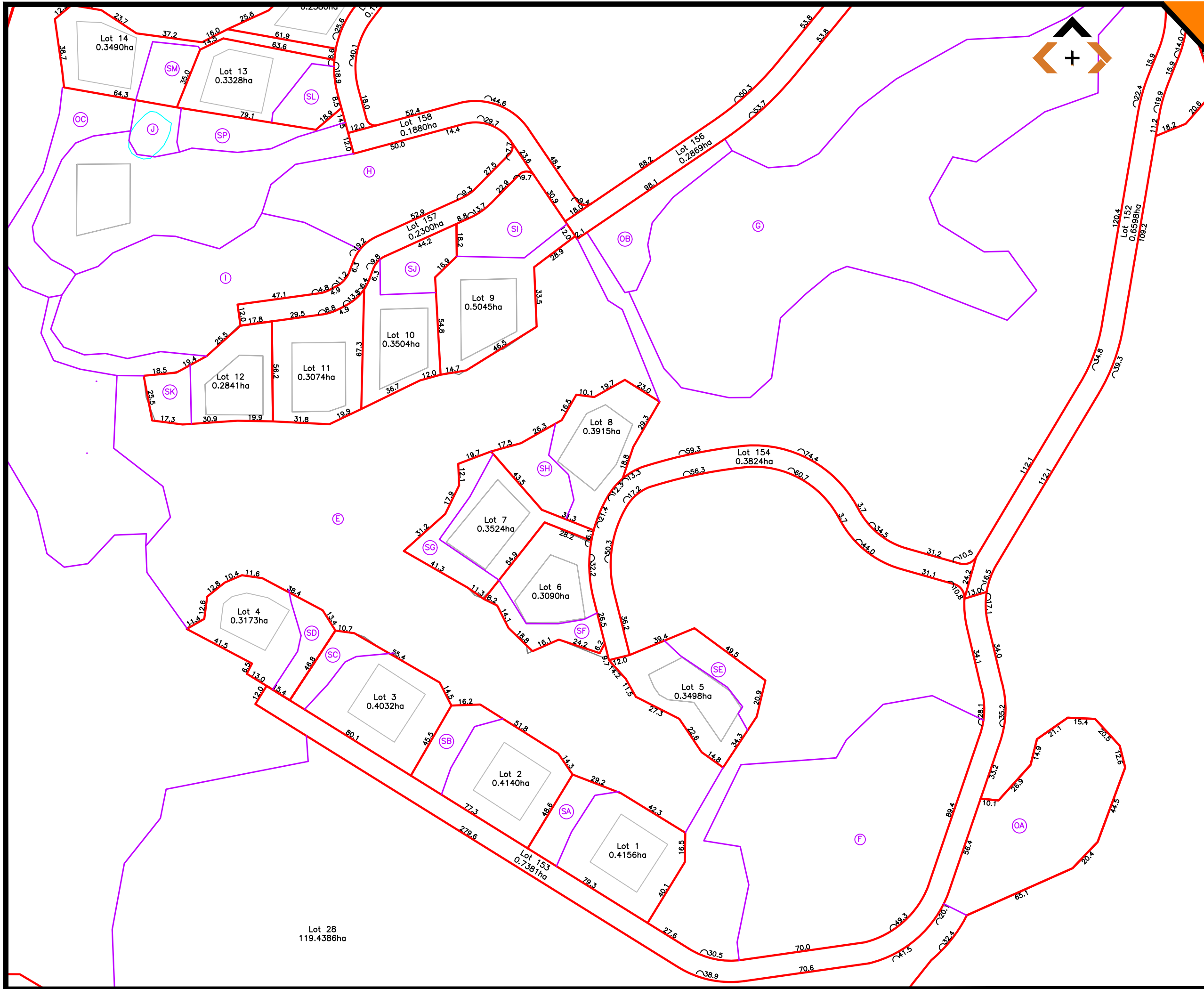
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PROJECT
 2127 KAIPARA COAST HIGHWAY, KAKANUI

TITLE
 SCHEME PLAN

SCALE 1:1000 (A1) 1:2000 (A3)
DRAWING No SP495 **SHEET** 4 of 7 **REVISION** L

FILE PATH: L:\01 PROJECTS\495 KAIPARA COAST\SP495L.DWG



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LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946

LEGEND:

- Proposed Lot Boundaries
- Proposed Easement Boundaries
- Existing Abuttal Boundaries
- 1000m² Permitted Building Area

SURVEY EQUIPMENT USED:
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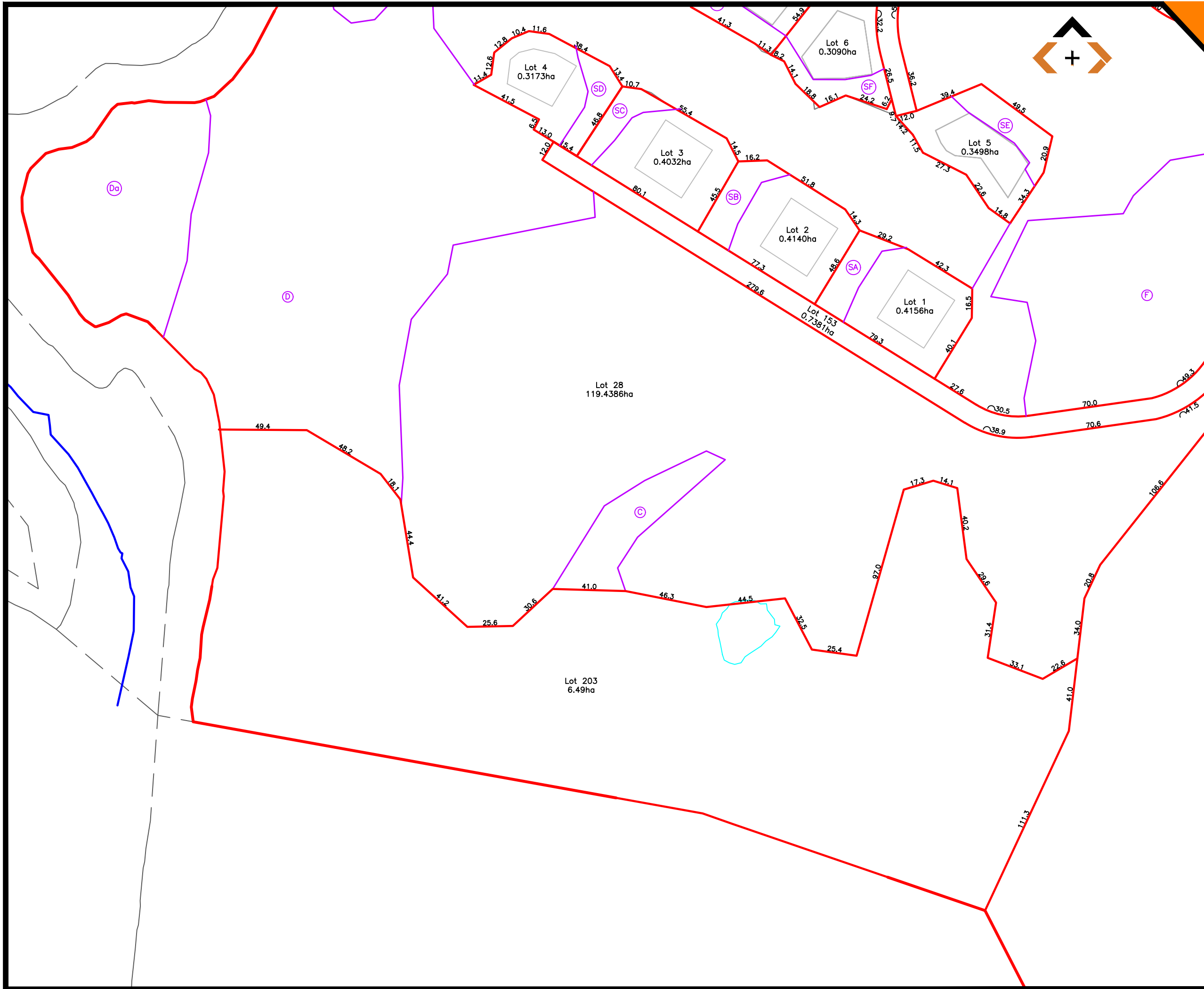
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PROJECT
 2127 KAIPARA COAST
 HIGHWAY, KAKANUI

TITLE
 SCHEME PLAN

SCALE	1:1000 (A1)	1:2000 (A3)
DRAWING No	SHEET	REVISION
SP495	5 of 7	L

FILE PATH: L:\01 PROJECTS\495 KAIPARA COAST\SP495L.DWG



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LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946

LEGEND:

- Proposed Lot Boundaries
- Proposed Easement Boundaries
- Existing Abuttal Boundaries
- 1000m² Permitted Building Area

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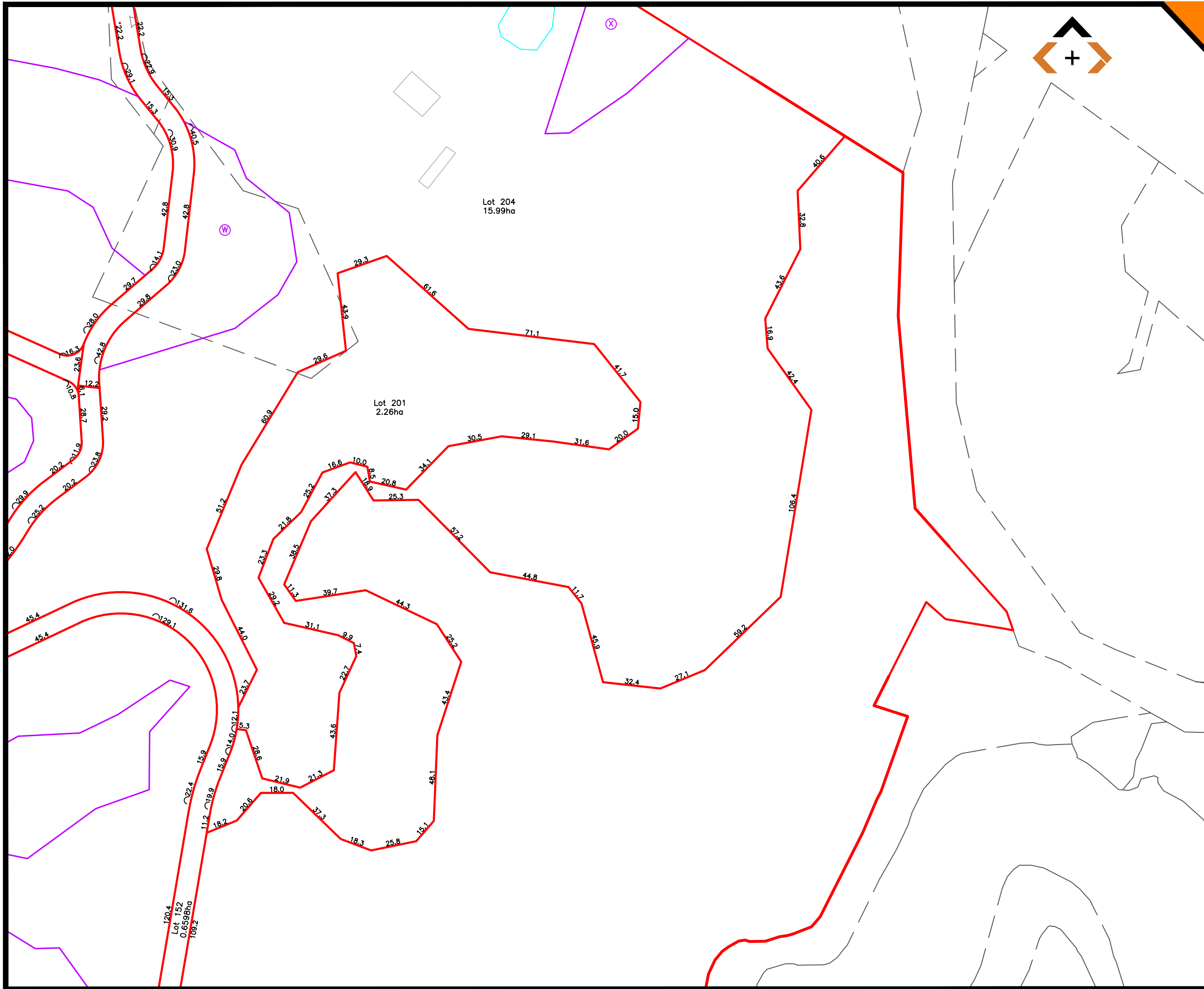
PROJECT
 2127 KAIPARA COAST
 HIGHWAY, KAKANUI

TITLE
 SCHEME PLAN

SCALE 1:1000 (A1) 1:2000 (A3)

DRAWING No SP495 **SHEET** 6 of 7 **REVISION** L

FILE PATH: L:\01 PROJECTS\495 KAIPARA COAST\SP495L.DWG



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REVISION	CHANGES		CHECKED	DATE
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NOTES:

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LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946

LEGEND:

- Proposed Lot Boundaries
- Proposed Easement Boundaries
- Existing Abuttal Boundaries
- 1000m² Permitted Building Area

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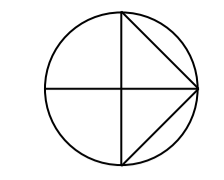
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PROJECT
 2127 KAIPARA COAST HIGHWAY, KAKANUI

TITLE
 SCHEME PLAN

SCALE 1:1000 (A1) 1:2000 (A3)
DRAWING No SP495 **SHEET** 7 of 7 **REVISION** L

FILE PATH: L:\01 PROJECTS\495 KAIPARA COAST\SP495L.DWG



LEGEND

- SITE BOUNDARY
- PROPOSED ROAD & LOT
- 20m OFFSETS STREAM
- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERMANENT STREAM
- ARCHAEOLOGY EXTENT
- NATURAL WETLAND
- 10m SETBACK FROM NATURAL WETLAND
- 20m SETBACK FROM NATURAL WETLAND
- MANMADE WETLAND

Legend

- (A) Vegetation regeneration/revegetation/infill areas
- Permanent stream
- Intermittent stream
- Wetland/Riparian Areas
- Wi grassland
- Septic Irrigation Fields to be planted
- Area in which wastewater fields may be located (for Lots 9 to 12)
- Pedestrian / Cycle Trail
- Roading network
- Fencing
- Road Crossings
- Gate
- Orchard
- (12) Paddock number
- (18) Lot number
- Building platform
- Archaeological Site

Pareparea Block



DRAFT ISSUE

A	ORIGINAL ISSUE	ZY	21/06/23
REVISION	CHANGES	CHECKED	DATE

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 ADDRESS 1016a Great South Road, Penrose, Auckland
 POST PO Box 42-089, Orakei, Auckland 1745, NZ

CLIENT
ABIB (OAMARU) LTD

PROJECT
GOODLAND COASTAL FARM

TITLE
SITE LAYOUT PLAN

DRAWN	MA	SCALE	A1 1:3000
DESIGNED	MA	A3	1:6000
PROJECT No	1366	DRAWING No	SK10
		REVISION	A

GOODLAND COASTAL FARM VEGETATION FOR ANNOTATION ON OVERALL PLAN

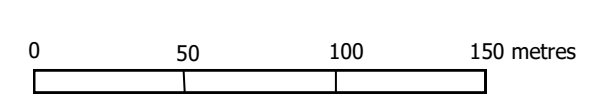
2127 KAIPARA COAST HIGHWAY, KAKANUI

scale: 1:2500 @ A1; 1:5000 @ A3 date: 22 June 2023

Job no: 21016



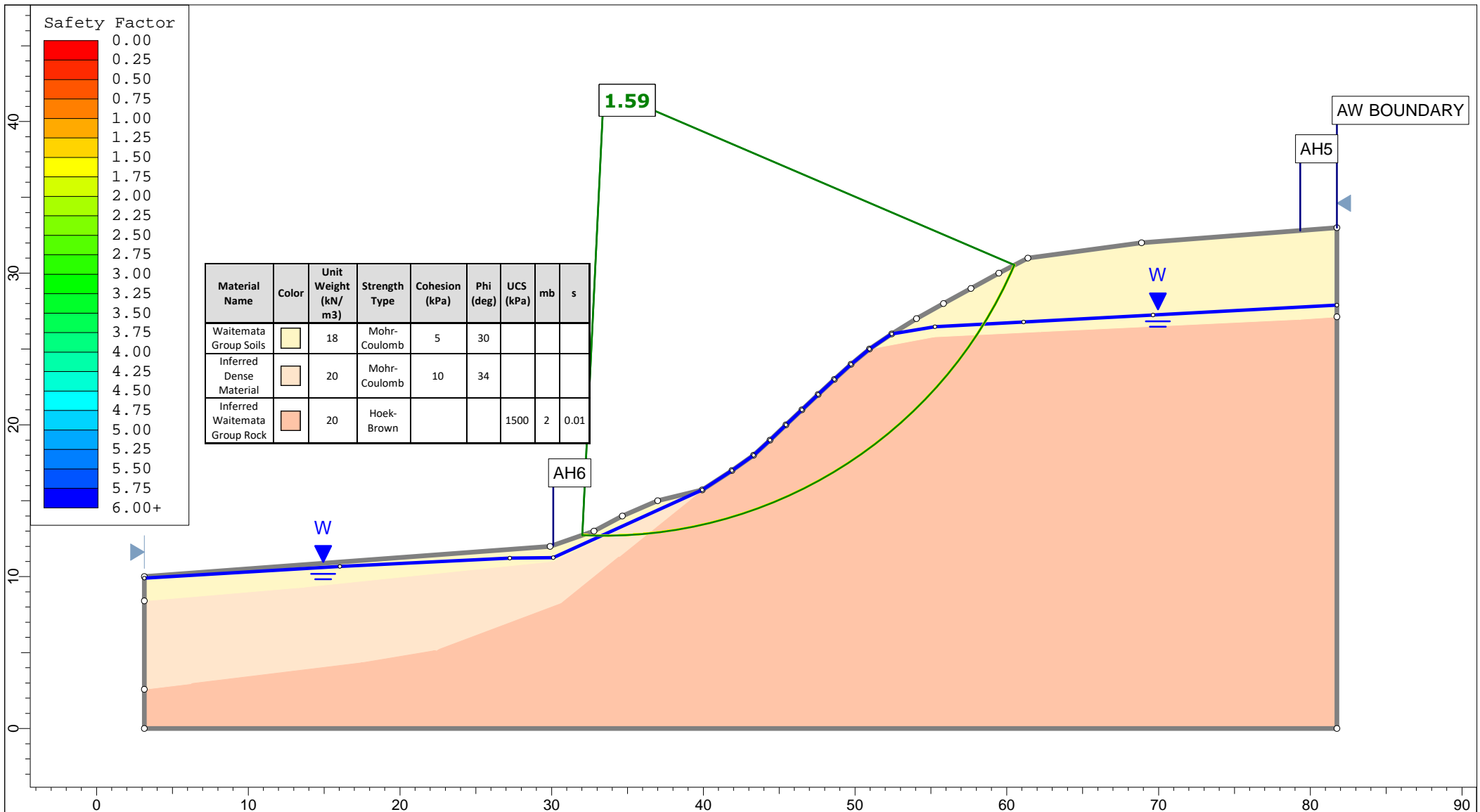
Geraldine Bayly p 09 420 3434 m 021 475 222
 e geraldine@kaiparacoast.co.nz
 PO Box 63 Kaukapakapa Auckland 0843



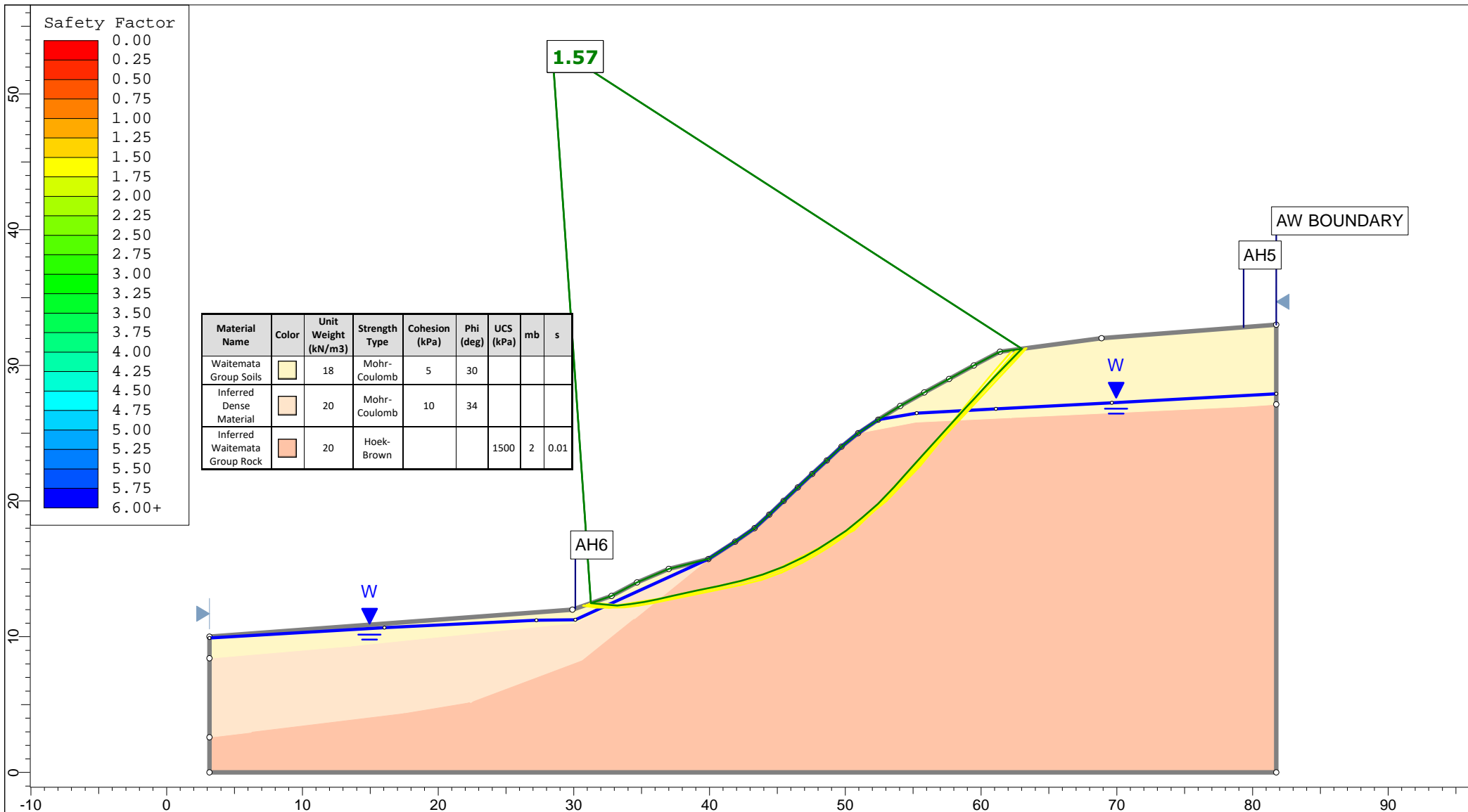


APPENDIX C

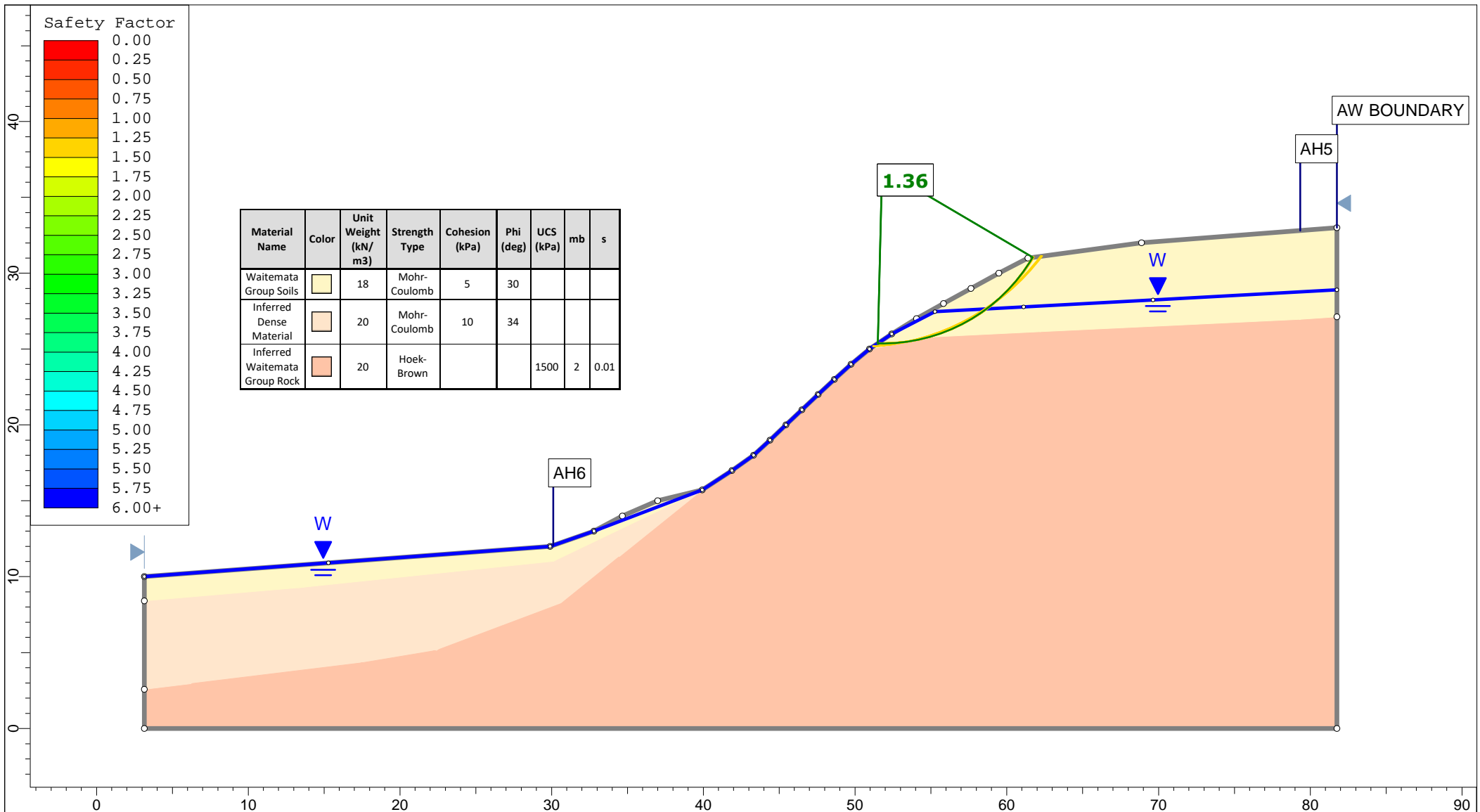
Slope Stability Calculations



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section A-A'		
	Scenario		Run 1 - Measured Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	

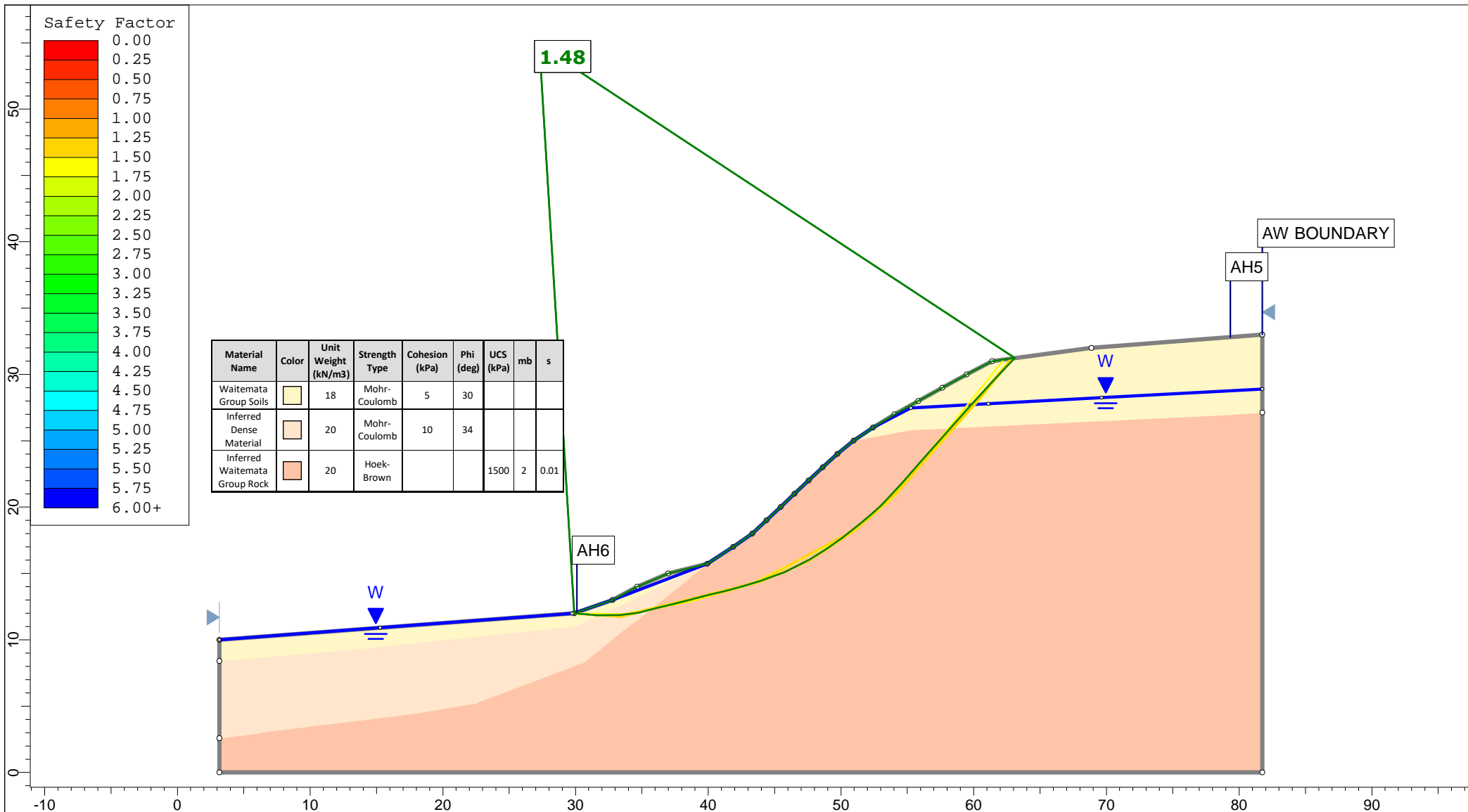


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section A-A'	
	Scenario		Run 2 - Measured Groundwater - Non-Cicular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		24 May 2021		
File Name		Master redo lower soil with seismic.slmd		



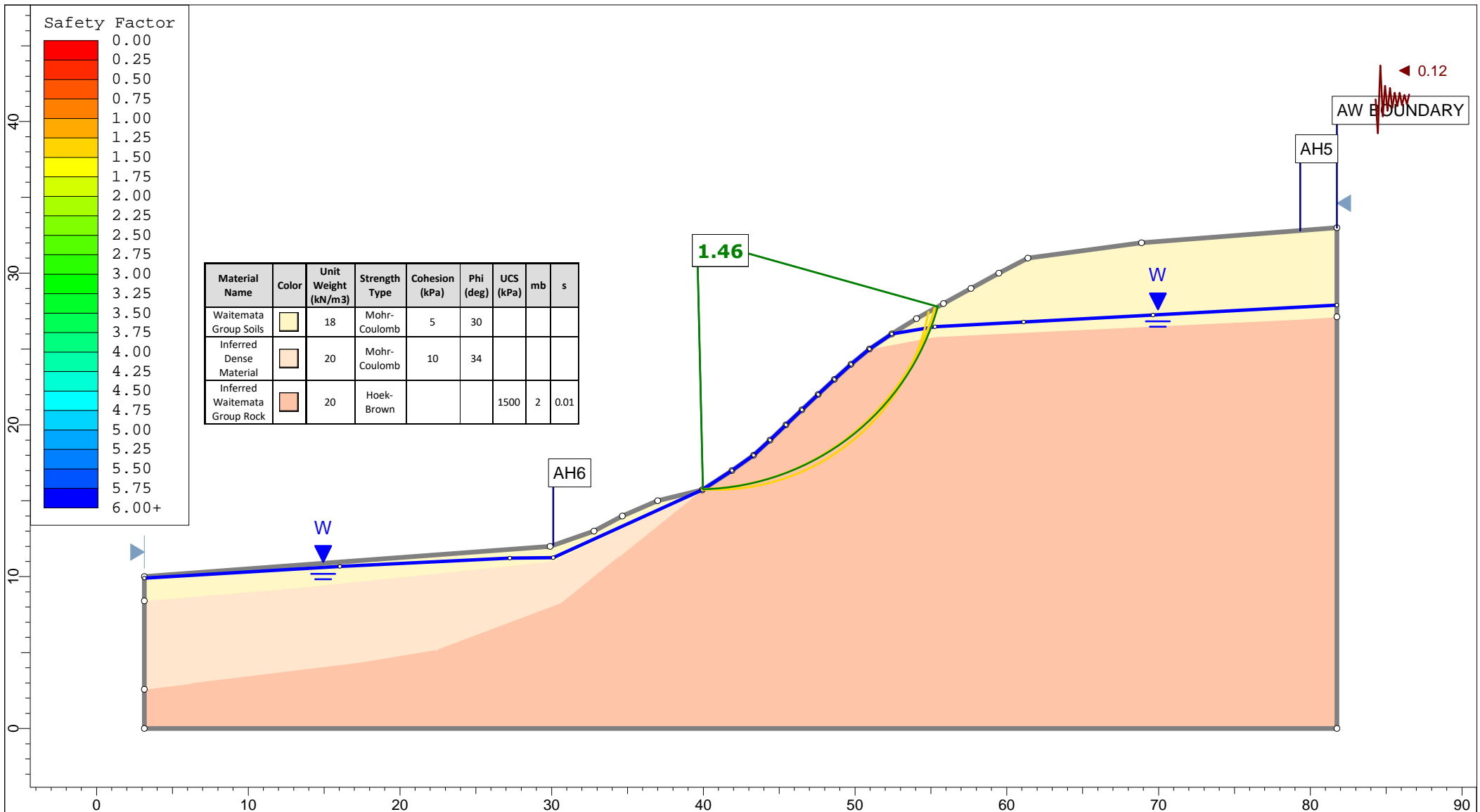
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Waitemata Group Soils	Light Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Orange	20	Hoek-Brown			1500	2	0.01

<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section A-A'	
	Drawn By		TR	
	Date		24 May 2021	
		Scenario		Run 3 - Raised Groundwater - Circular
		Company		KGA Geotechnical Group Limited
		File Name		Master redo lower soil with seismic.slmd

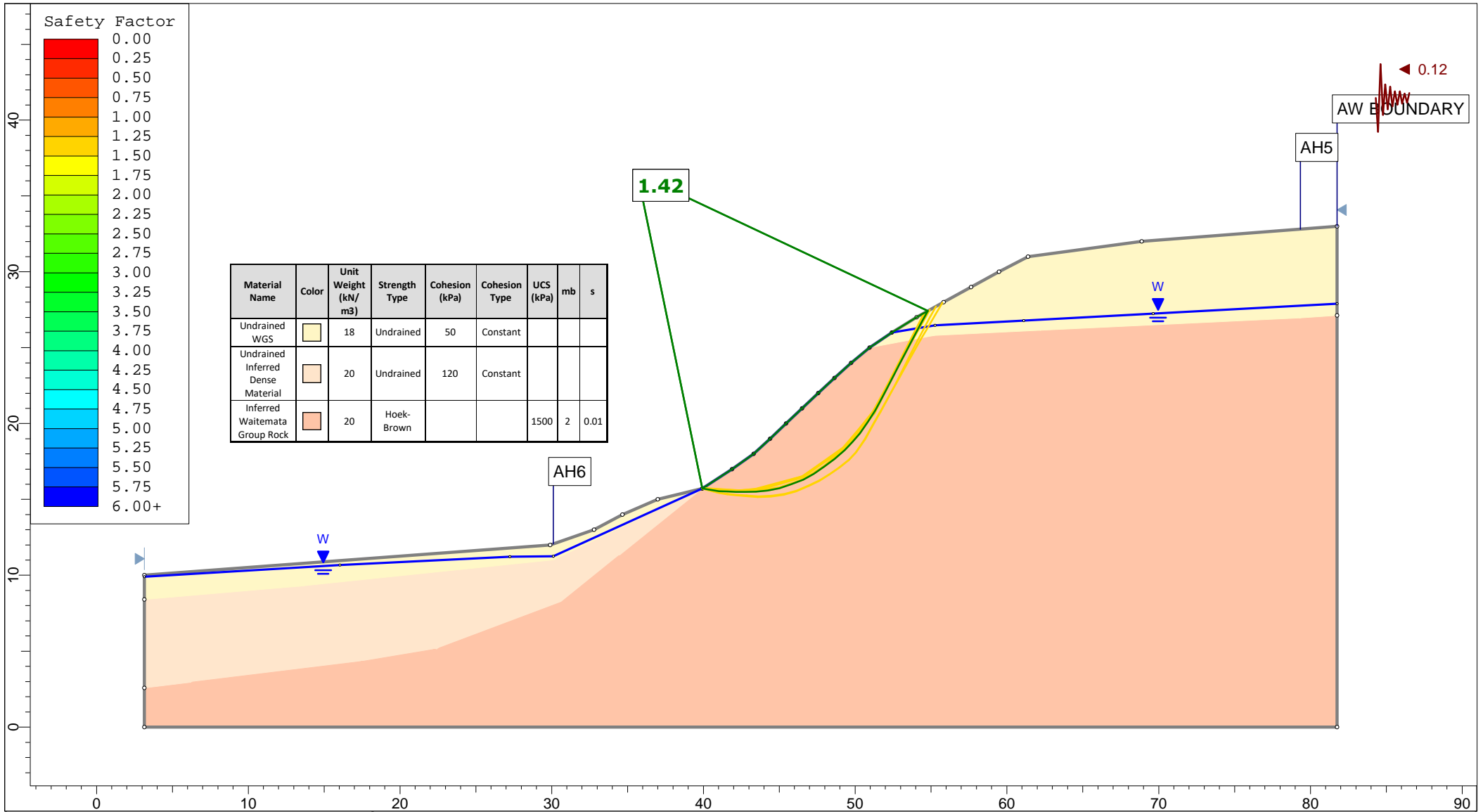


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	[Yellow]	18	Mohr-Coulomb	5	30			
Inferred Dense Material	[Light Orange]	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	[Dark Orange]	20	Hoek-Brown			1500	2	0.01

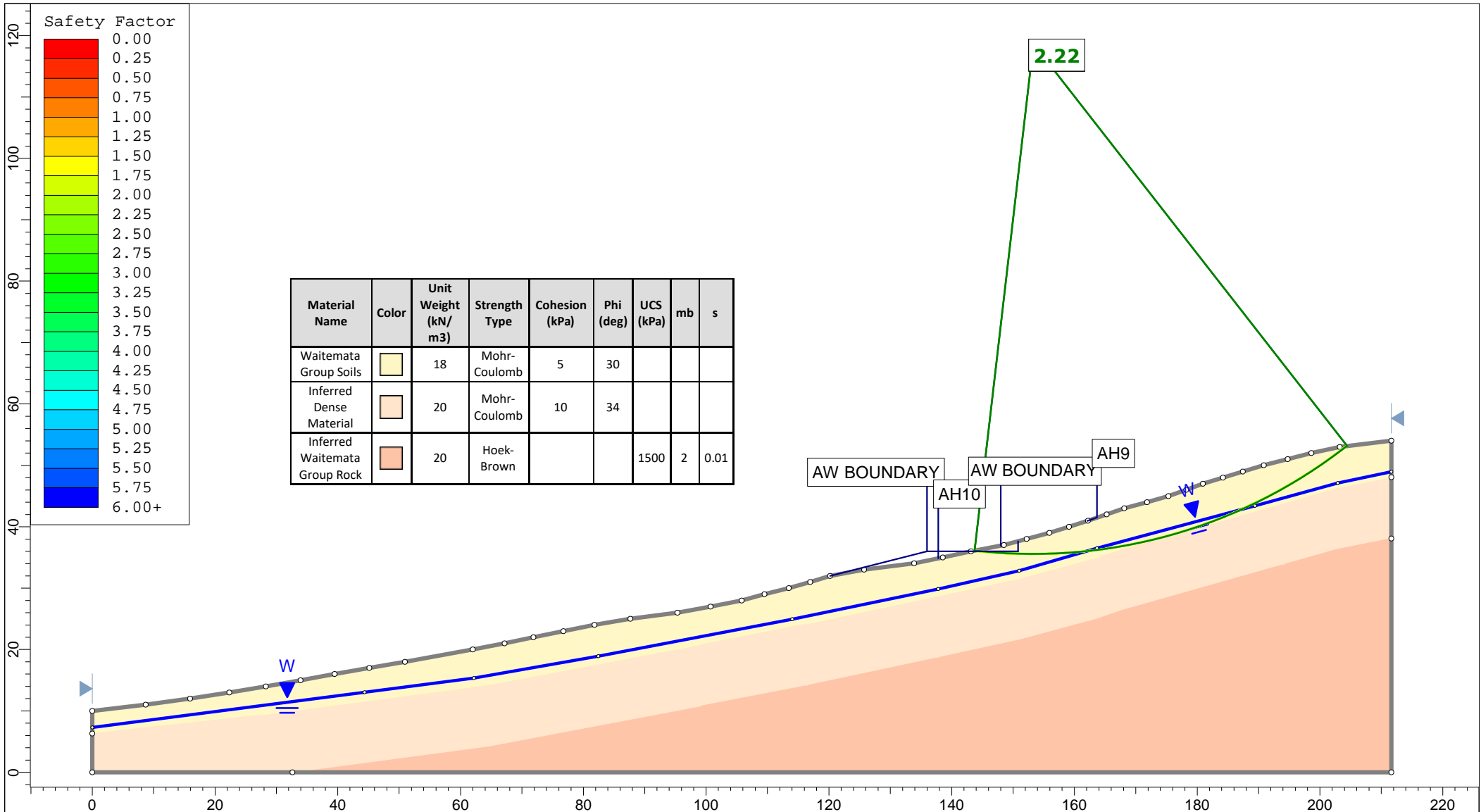
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section A-A'				
	Scenario		Run 4 - Raised Groundwater - Non-Cicular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		File Name		Master redo lower soil with seismic.slmd	
Date		24 May 2021					



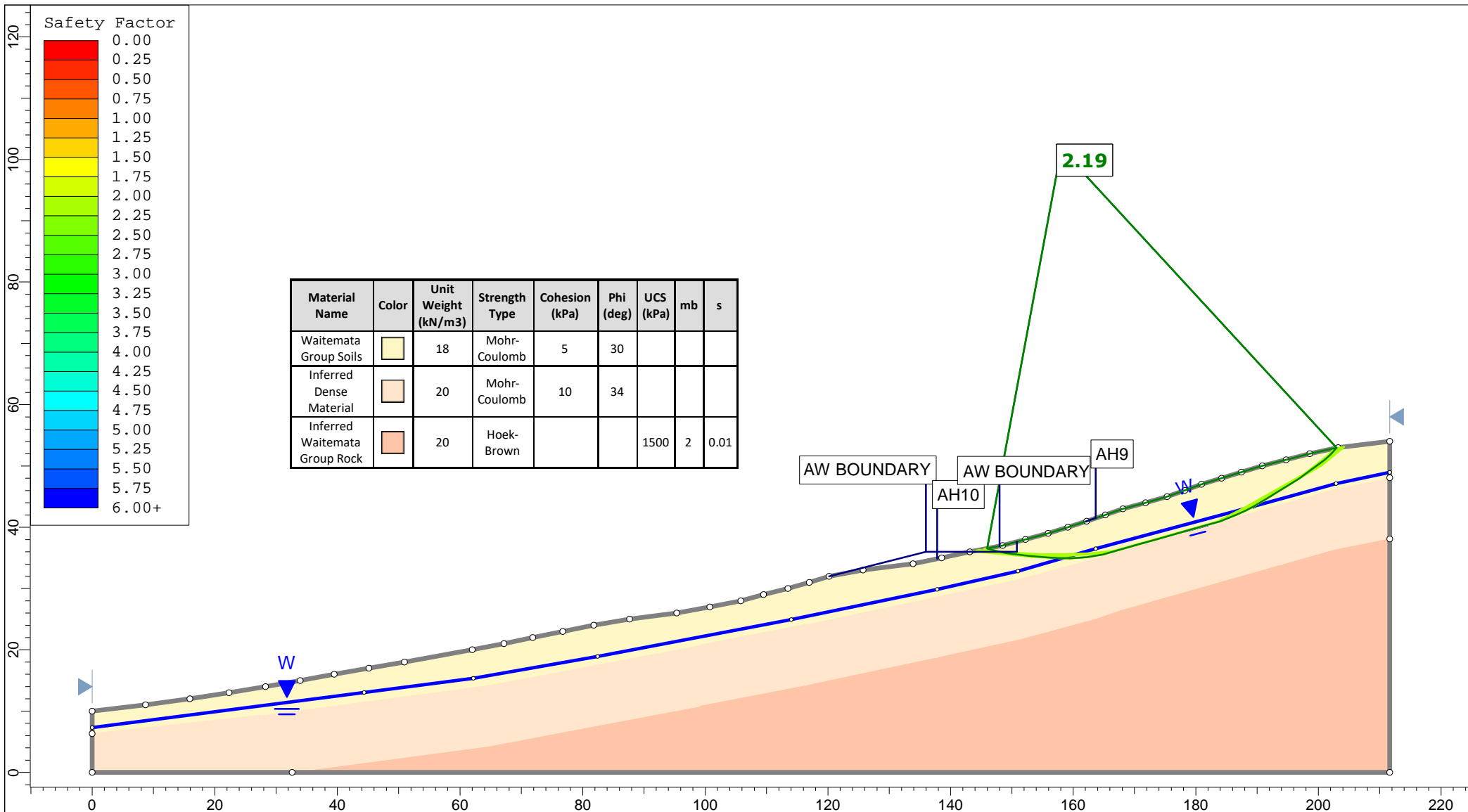
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section A-A'	
	Drawn By		TR	
	Date		24 May 2021	
		Scenario		Run 5 - Seismic Loading - Circular
		Company		KGA Geotechnical Group Limited
		File Name		Master redo lower soil with seismic.slmd



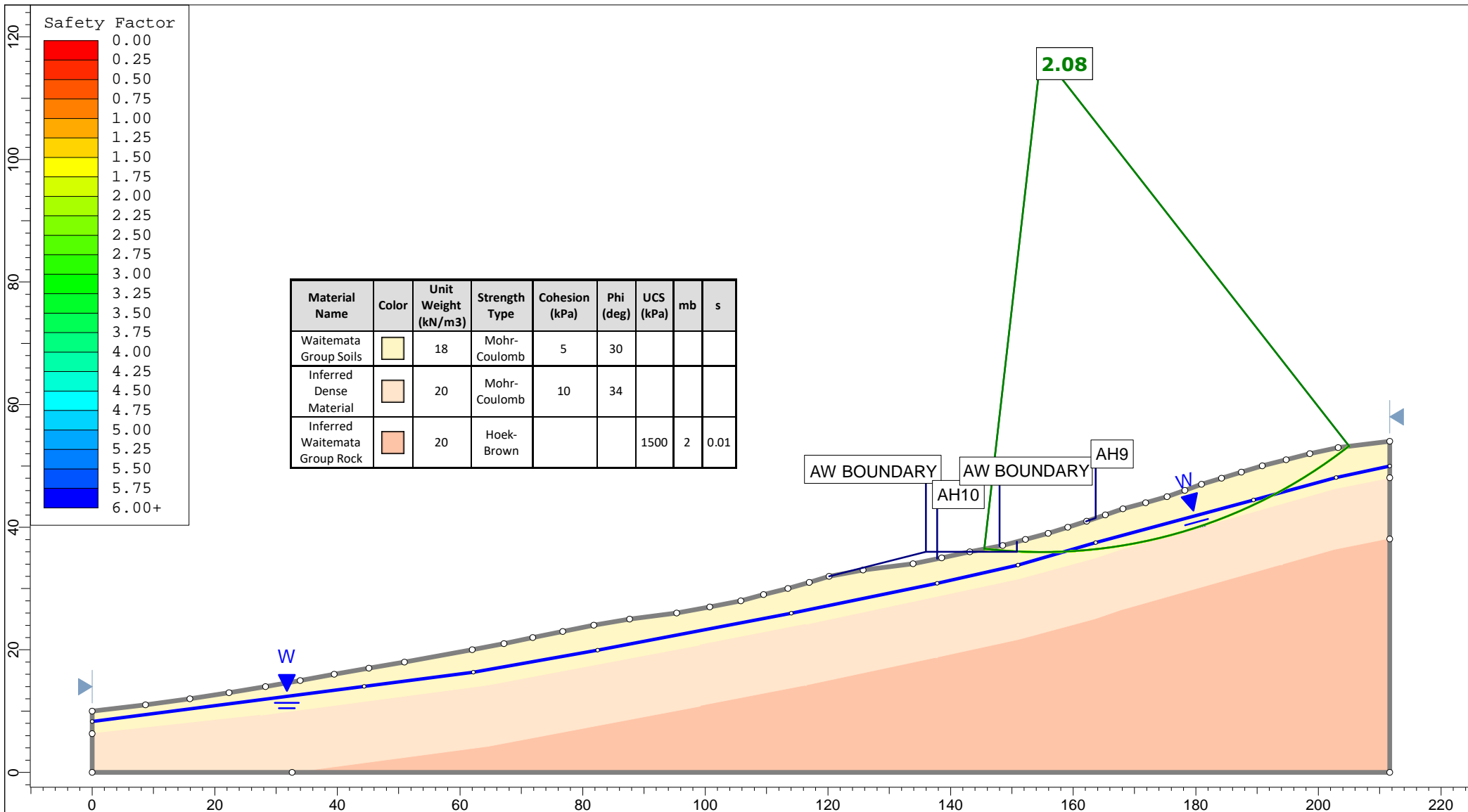
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section A-A'		
	Scenario		Run 6 - Seismic Loading - Non-Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



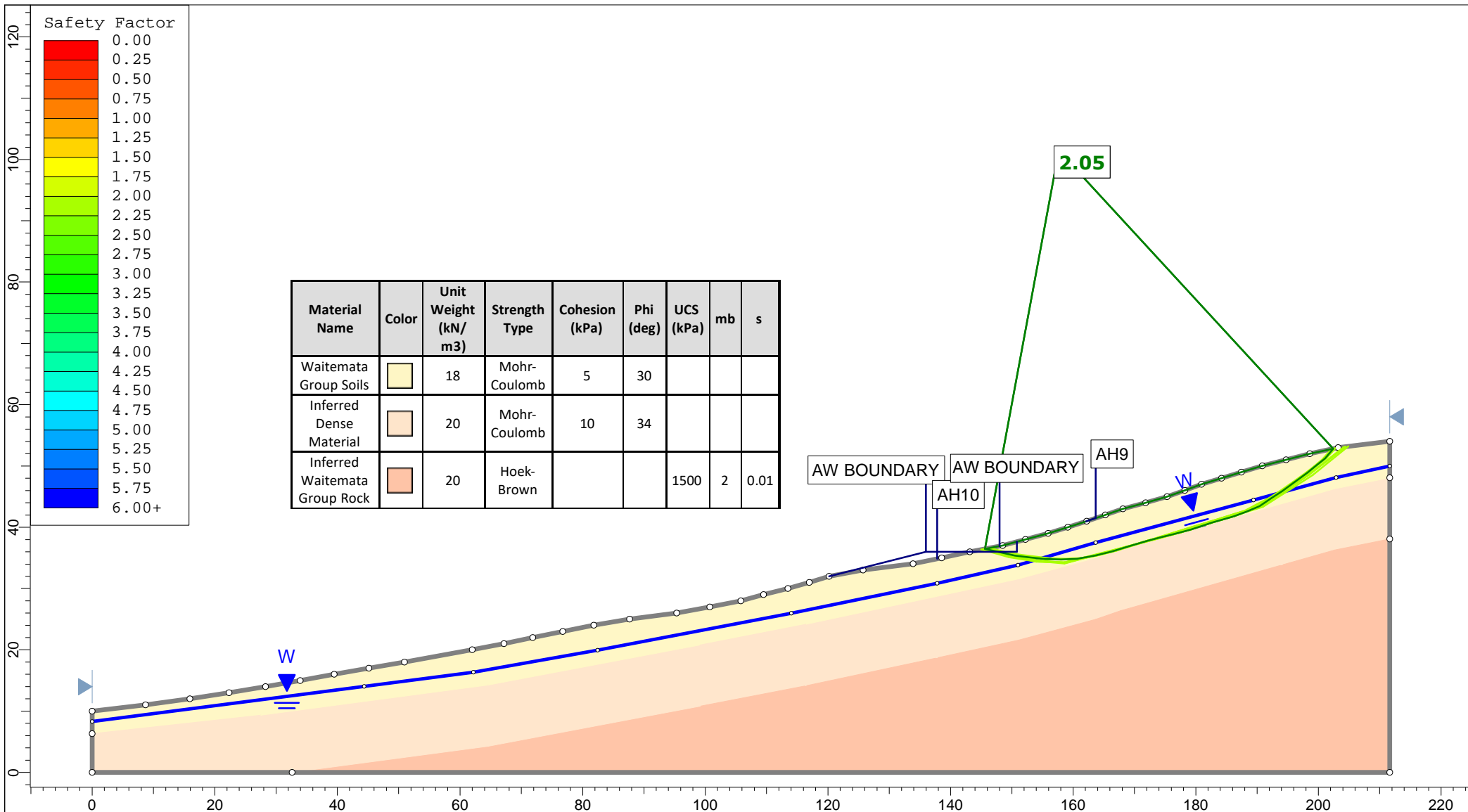
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section B-B' - Measure Ground		
	Scenario		Run 1 - Measured Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



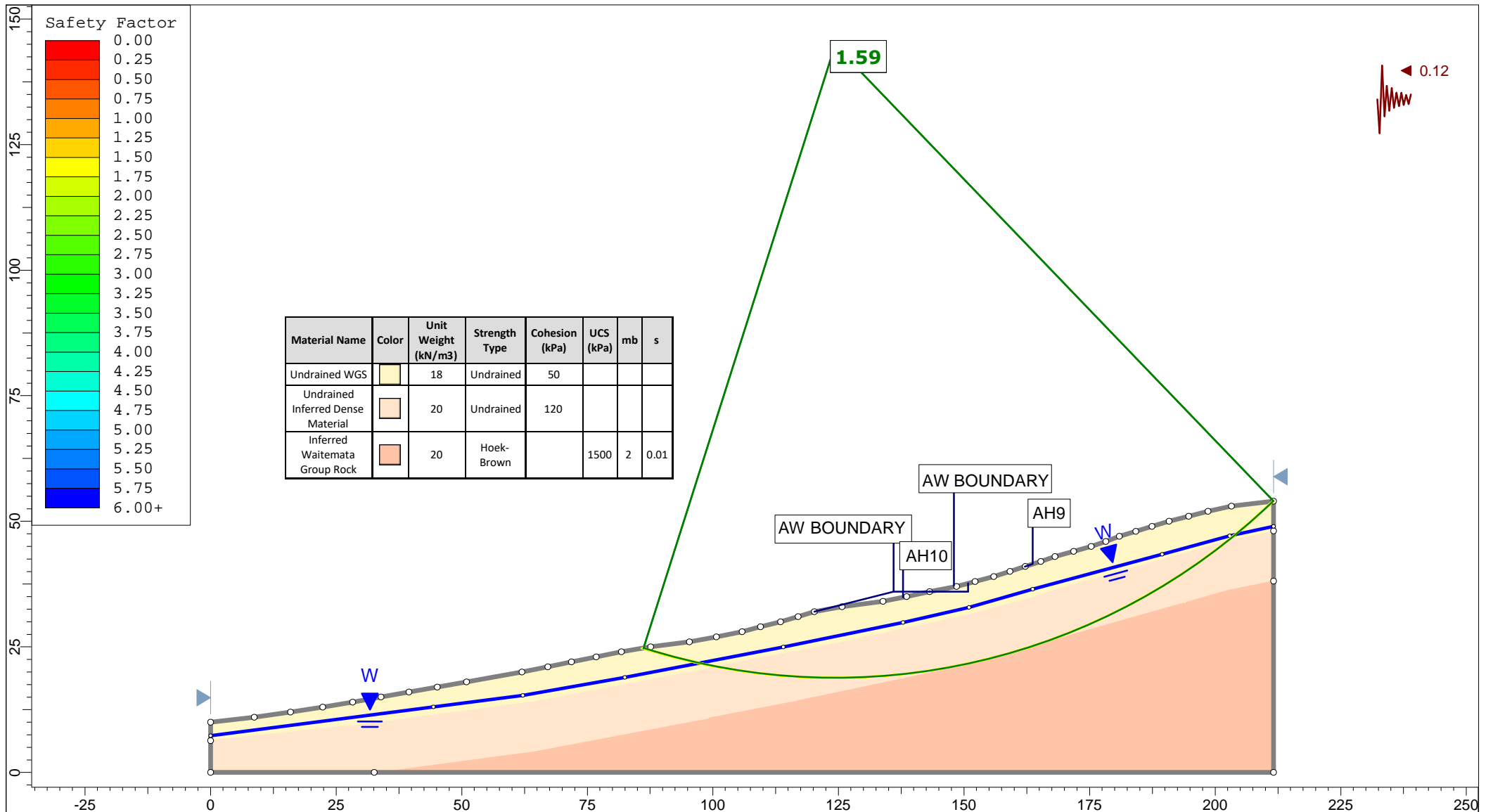
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section B-B' - Measure Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section B-B' - Measure Ground		
	Scenario		Run 3 - Raised Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	

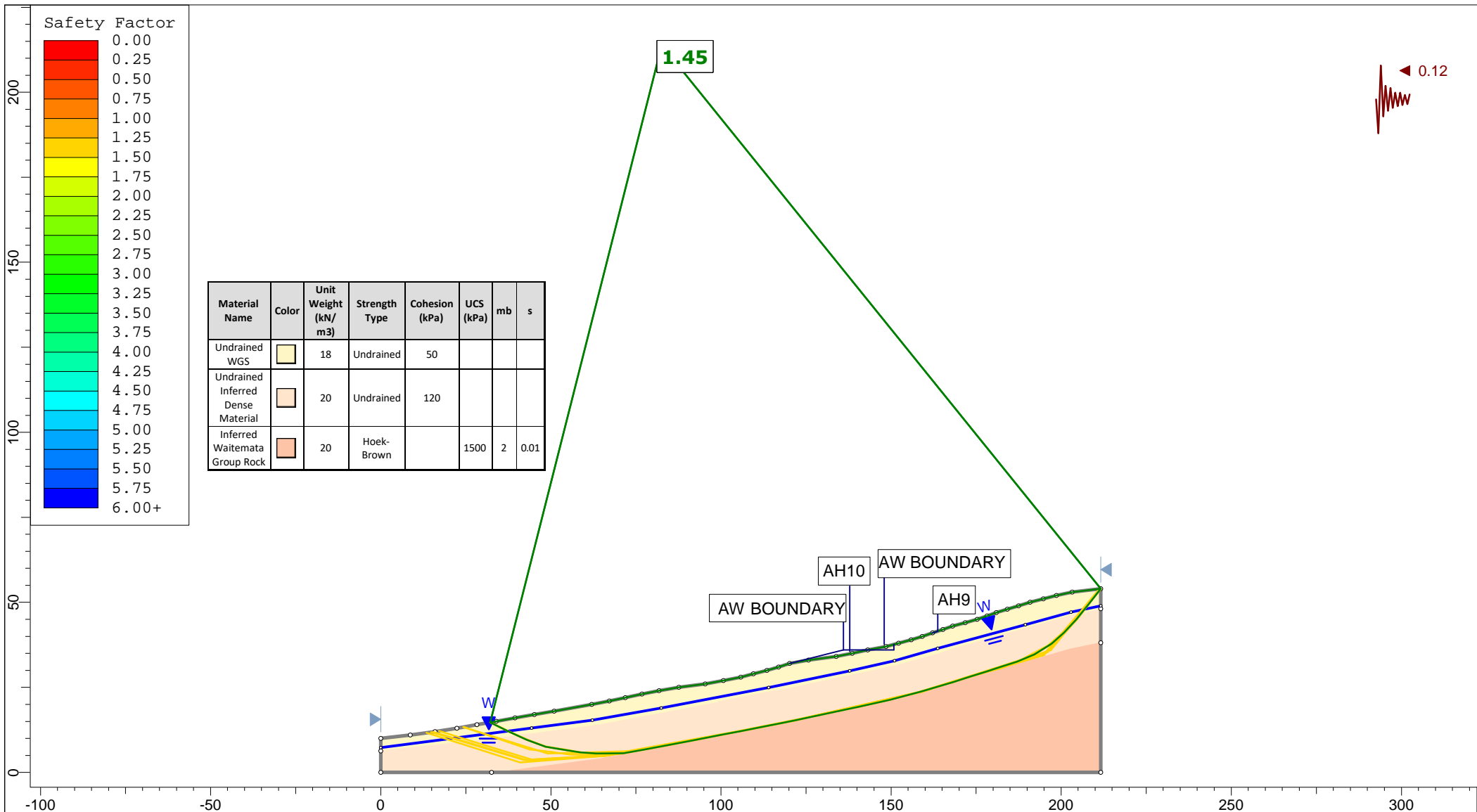


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section B-B' - Measure Ground		
	Scenario		Run 4 - Raised Groundwater - Non-Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



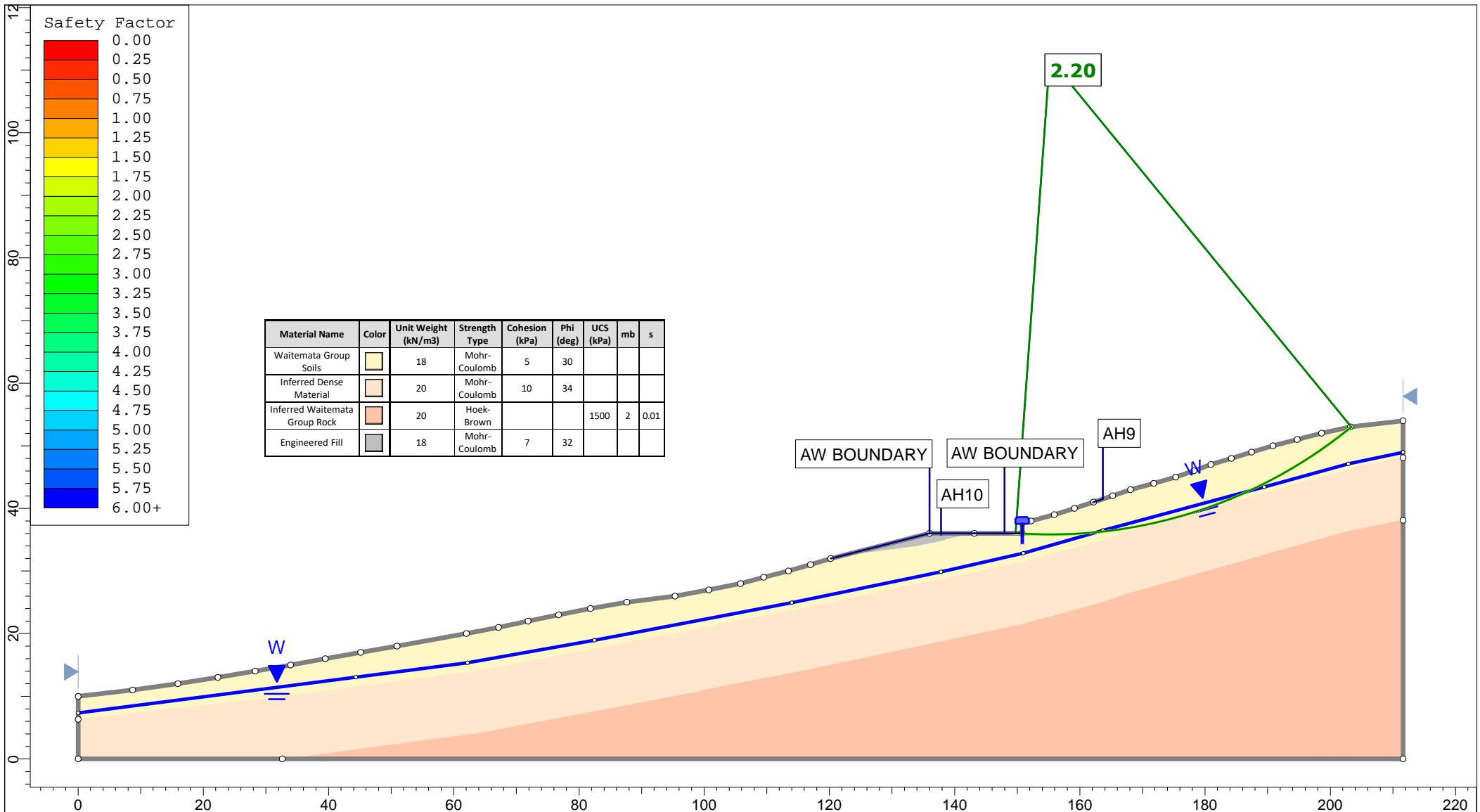
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS	Yellow	18	Undrained	50			
Undrained Inferred Dense Material	Orange	20	Undrained	120			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown		1500	2	0.01


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section B-B' - Measure Ground				
	Scenario		Run 5 - Seismic Loading - Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		Date		24 May 2021	
File Name		Master redo lower soil with seismic.slmd					

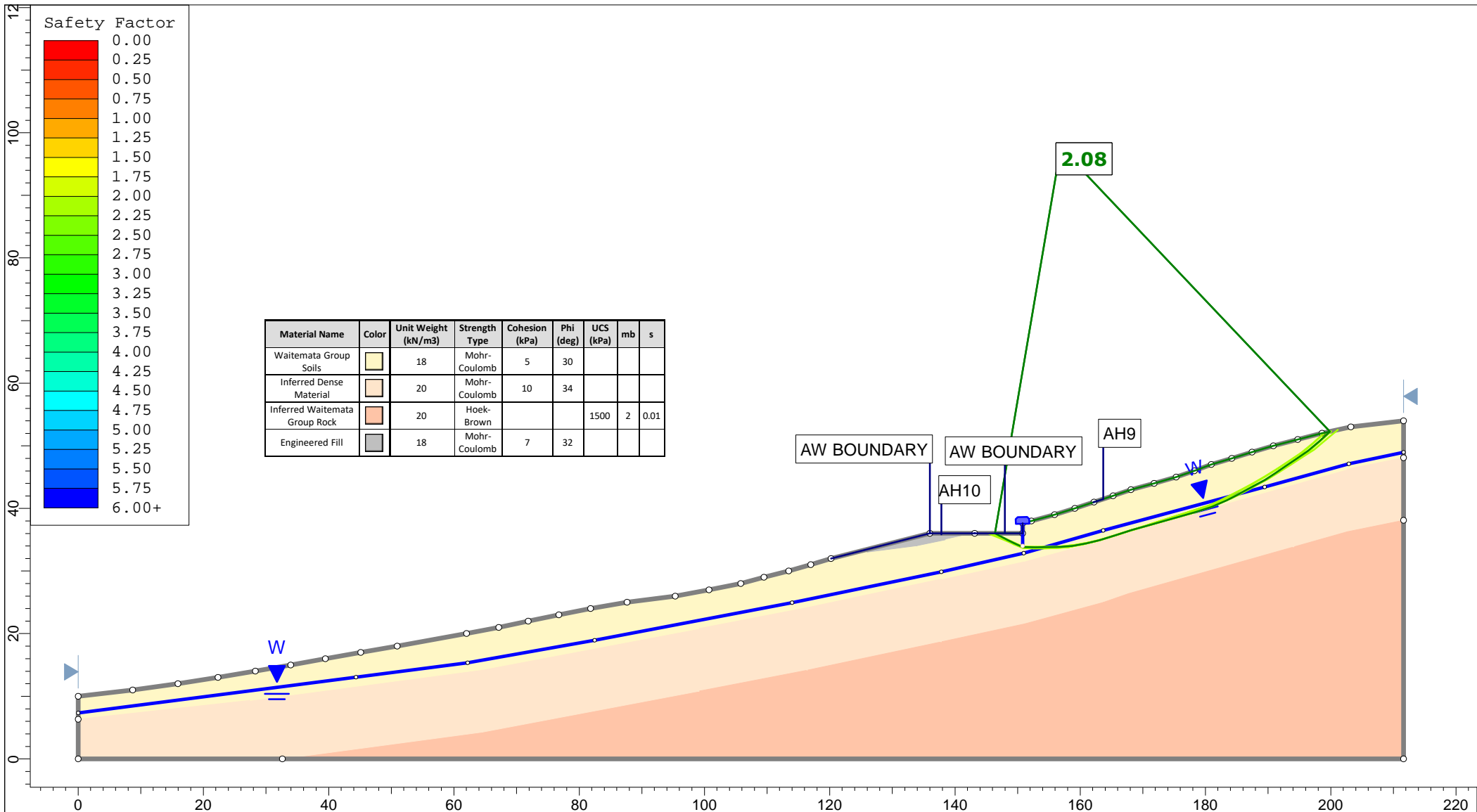



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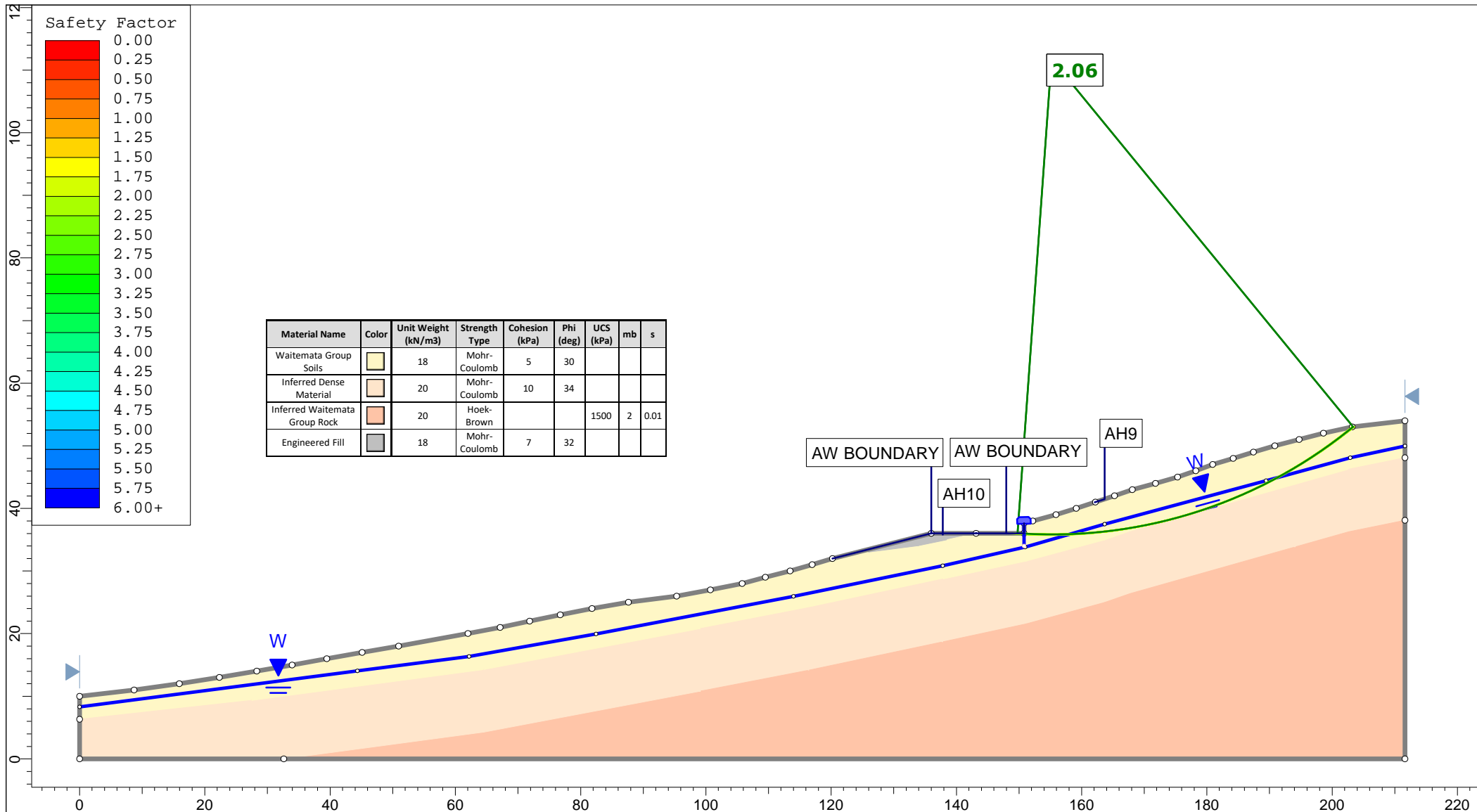
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section B-B' - Measure Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



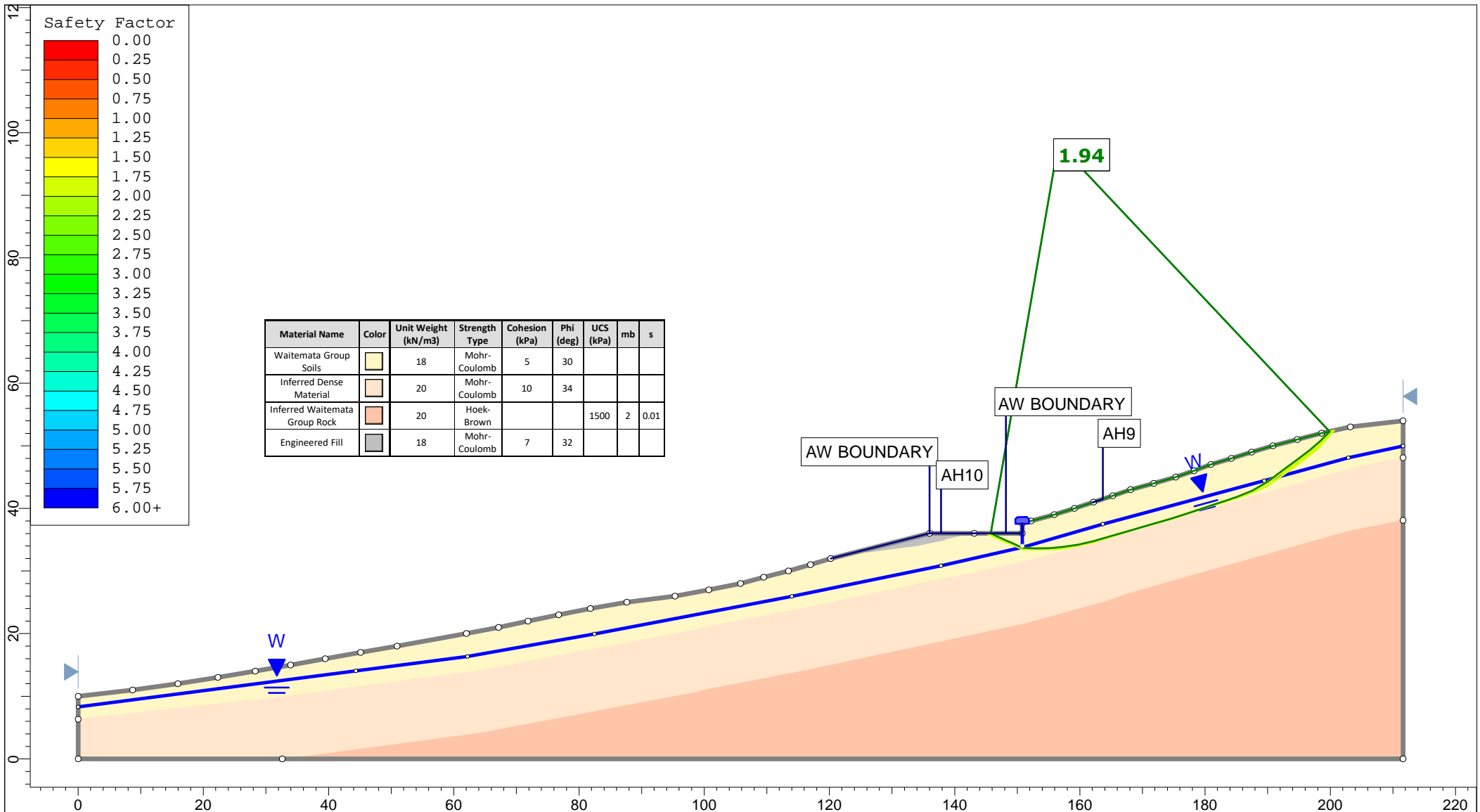
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section B-B' - Proposed Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



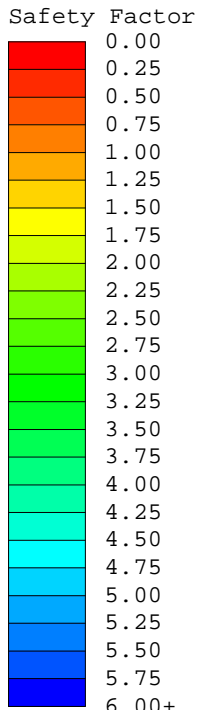
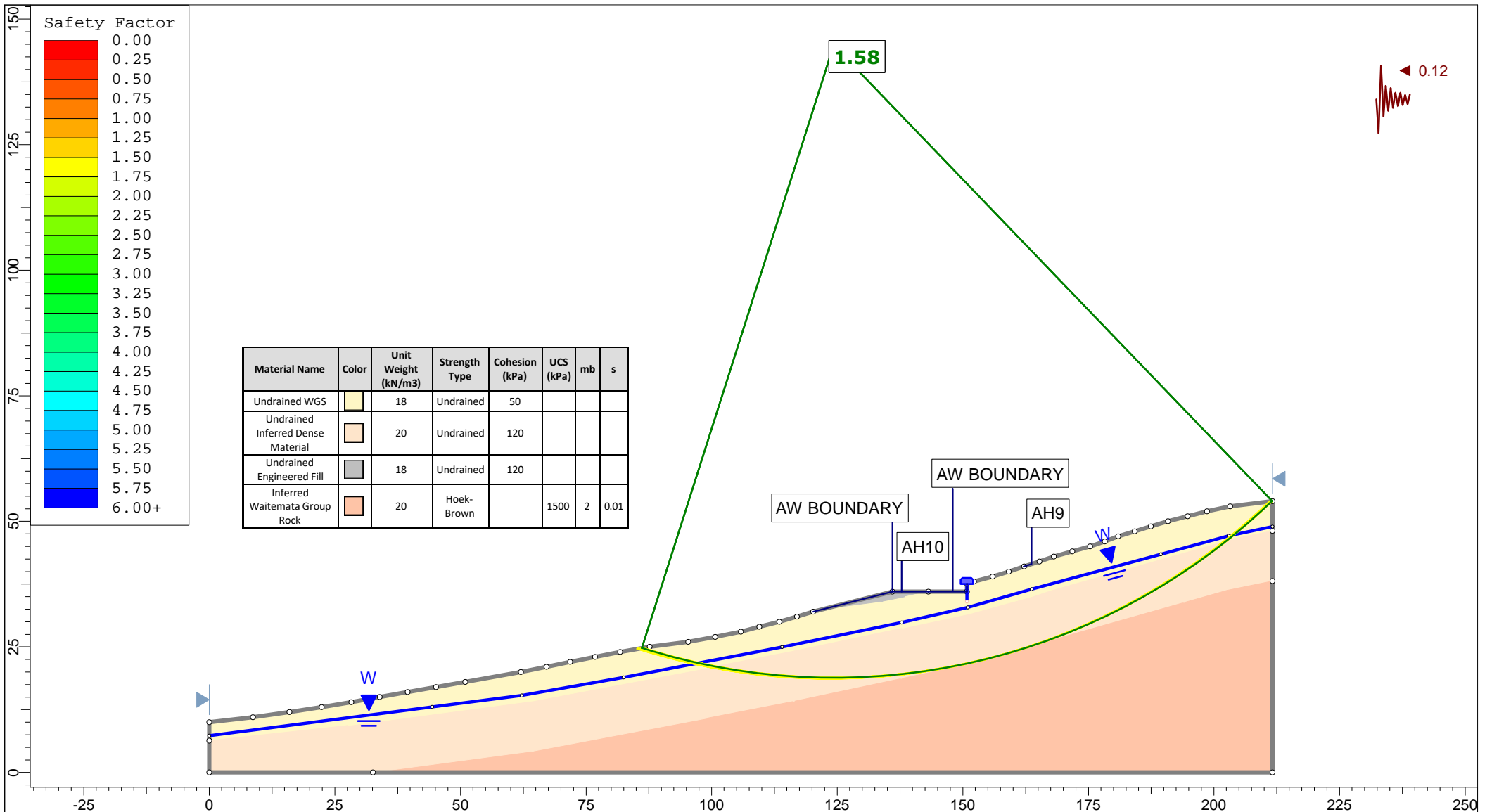
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section B-B' - Proposed Ground	
	Scenario		Run 2 - Measured Groundwater - Non-Cicular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section B-B' - Proposed Ground		
	Scenario		Run 3 - Raised Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



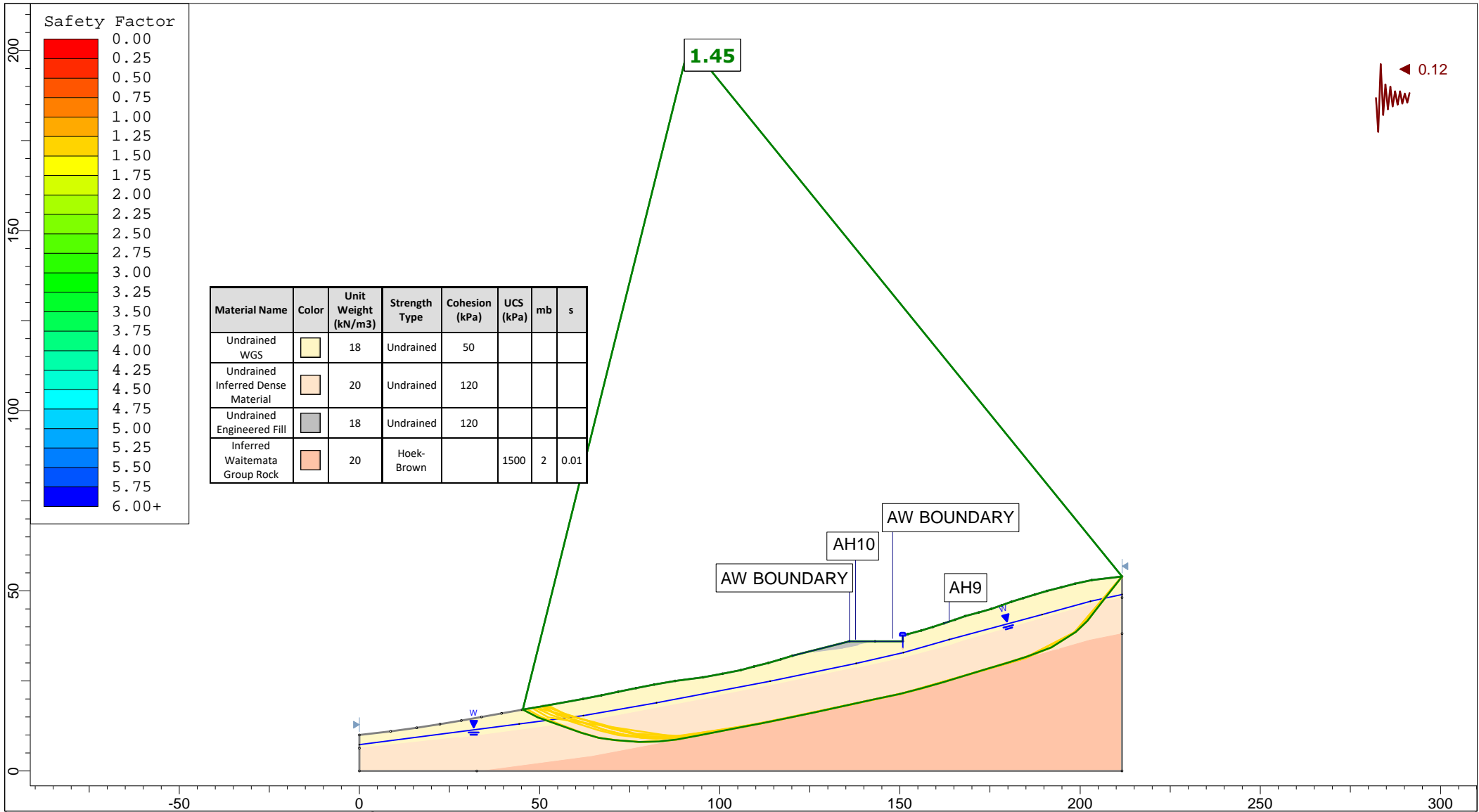
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section B-B' - Proposed Ground		
	Scenario		Run 4 - Raised Groundwater - Non-Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



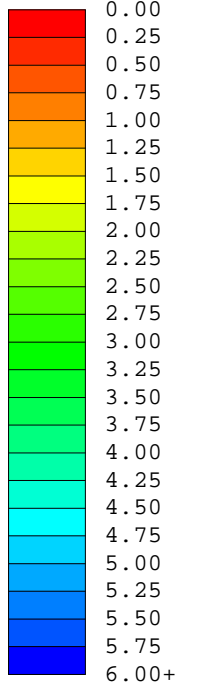
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS	[Yellow]	18	Undrained	50			
Undrained Inferred Dense Material	[Orange]	20	Undrained	120			
Undrained Engineered Fill	[Grey]	18	Undrained	120			
Inferred Waitemata Group Rock	[Brown]	20	Hoek-Brown		1500	2	0.01

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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section B-B' - Proposed Ground	Scenario	Run 5 - Seismic Loading - Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



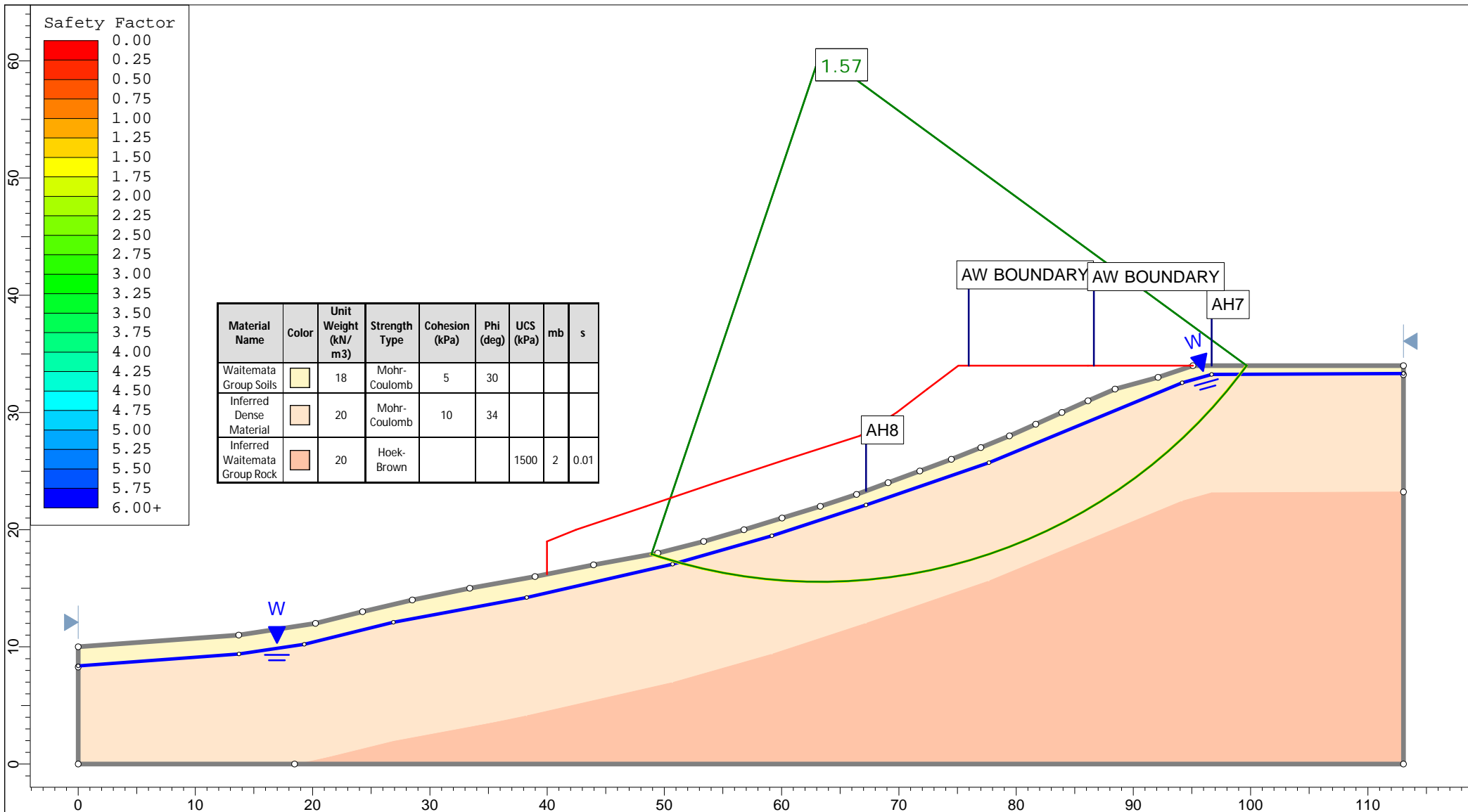
Safety Factor



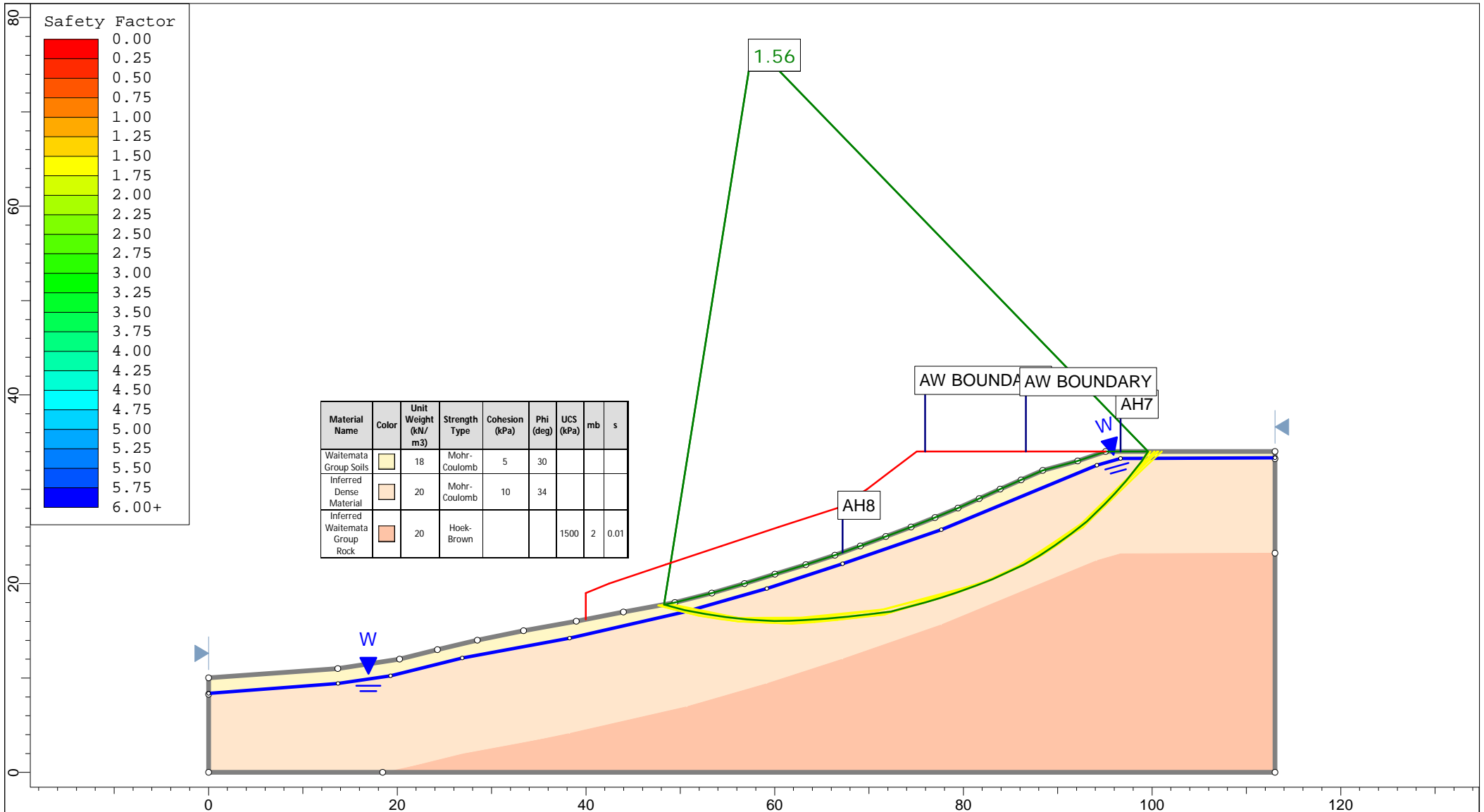
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS	Yellow	18	Undrained	50			
Undrained Inferred Dense Material	Orange	20	Undrained	120			
Undrained Engineered Fill	Grey	18	Undrained	120			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown		1500	2	0.01


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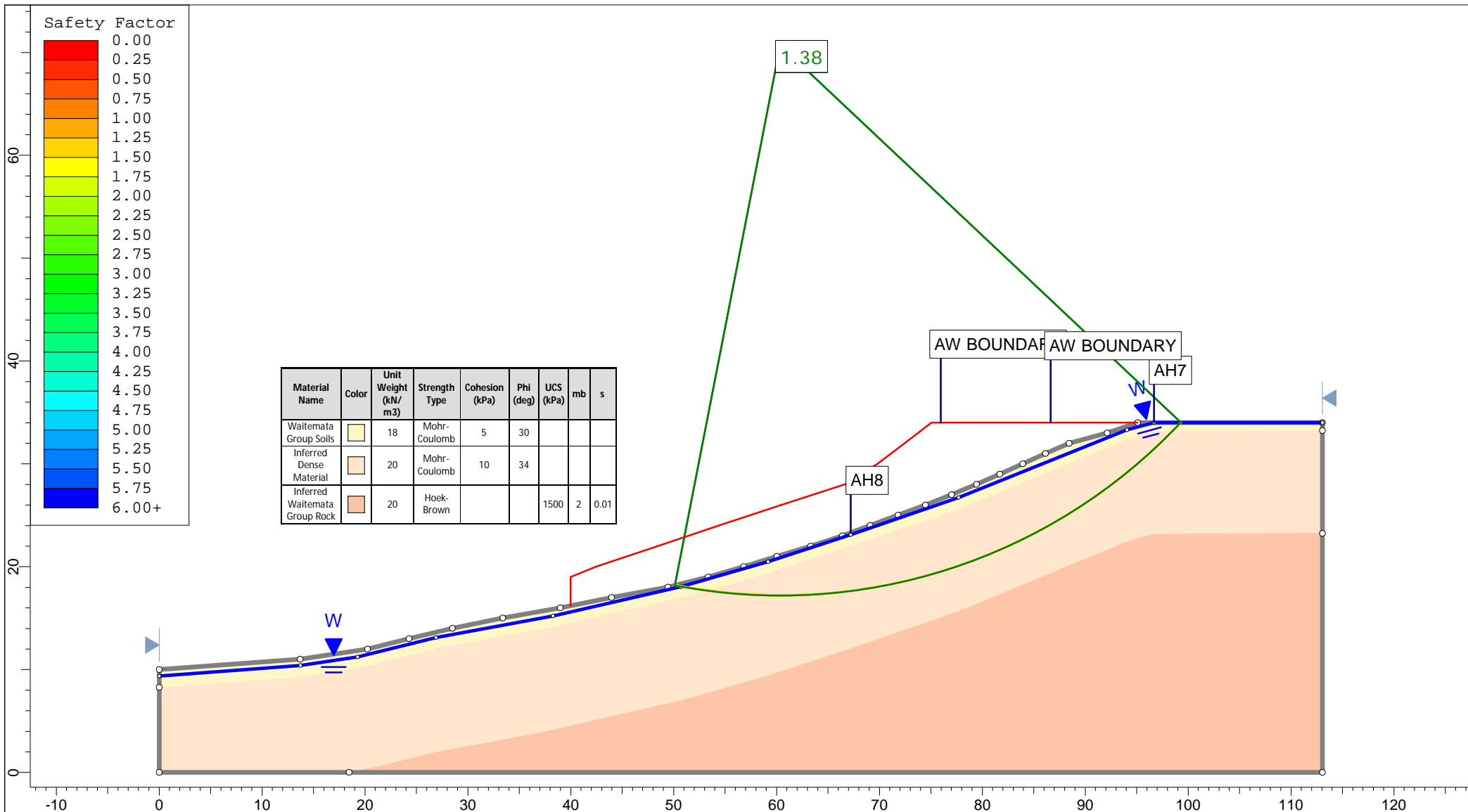
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section B-B' - Proposed Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



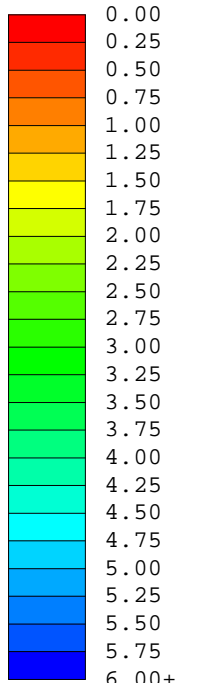
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section C-C' - Measure Ground				
	Scenario		Run 1 - Measured Groundwater - Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		Date		24 May 2021	
File Name		Master redo lower soil with seismic.slmd					



 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section C-C' - Measure Ground	
	Scenario		Run 2 - Measured Groundwater - Non-Cicular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		

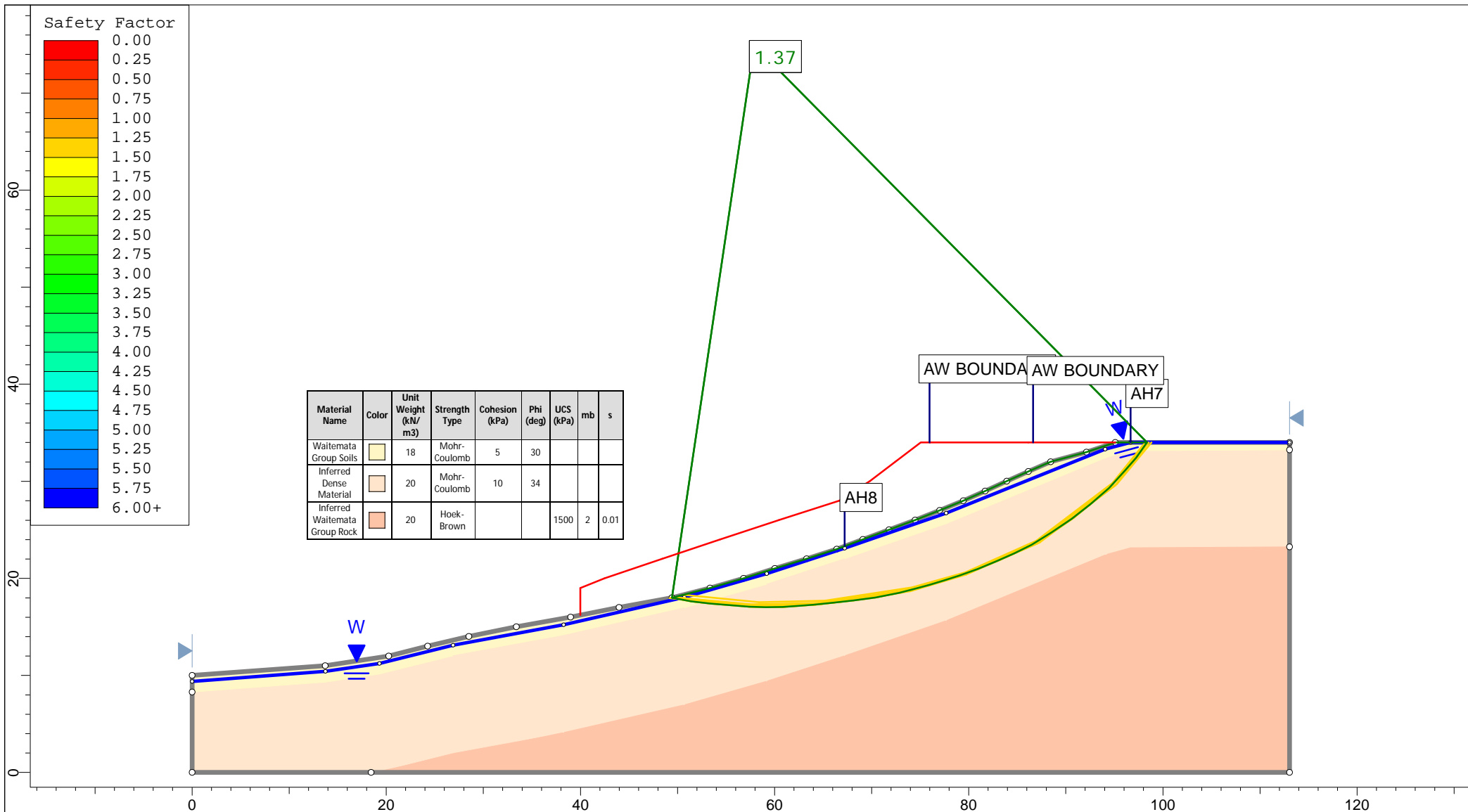


Safety Factor

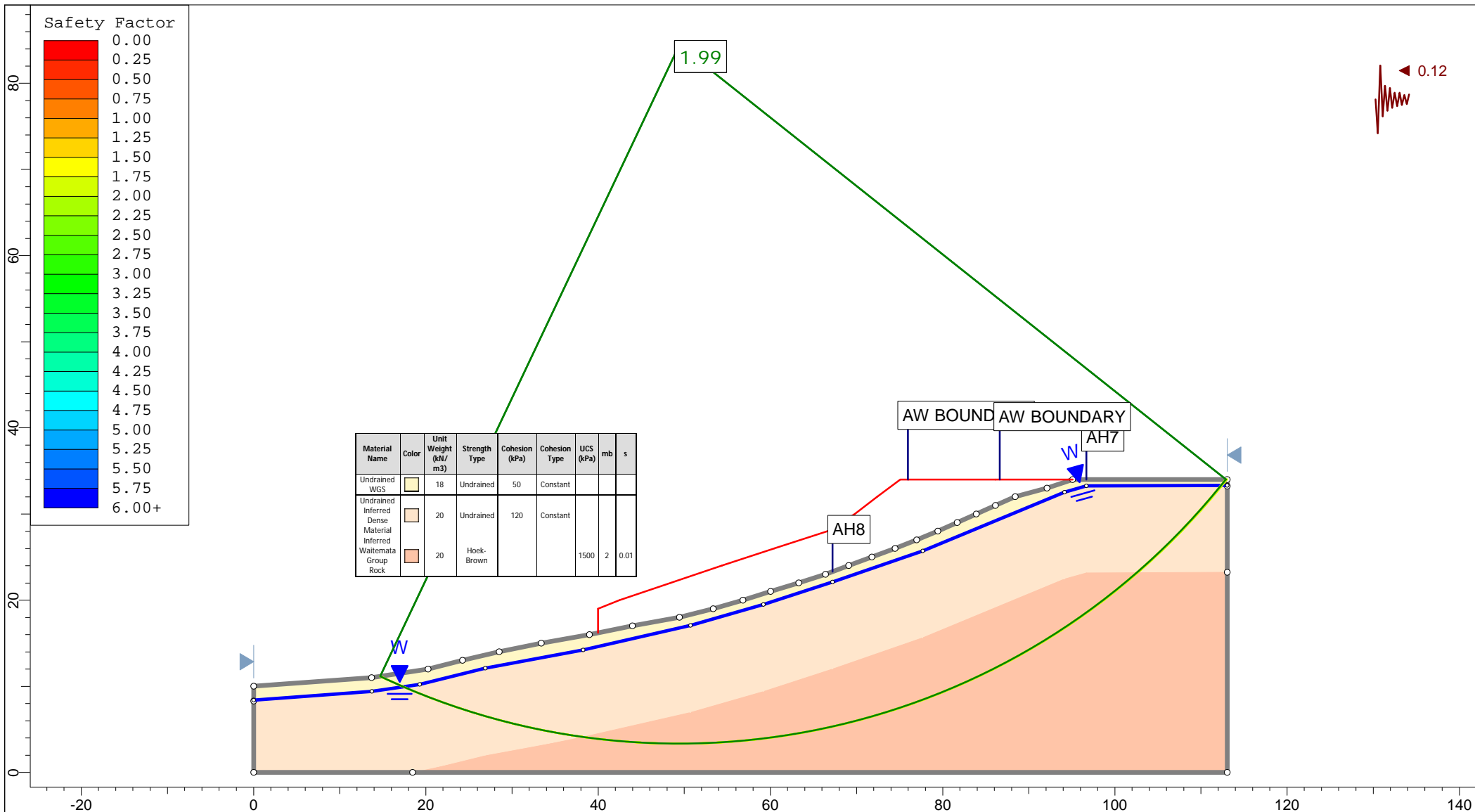


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

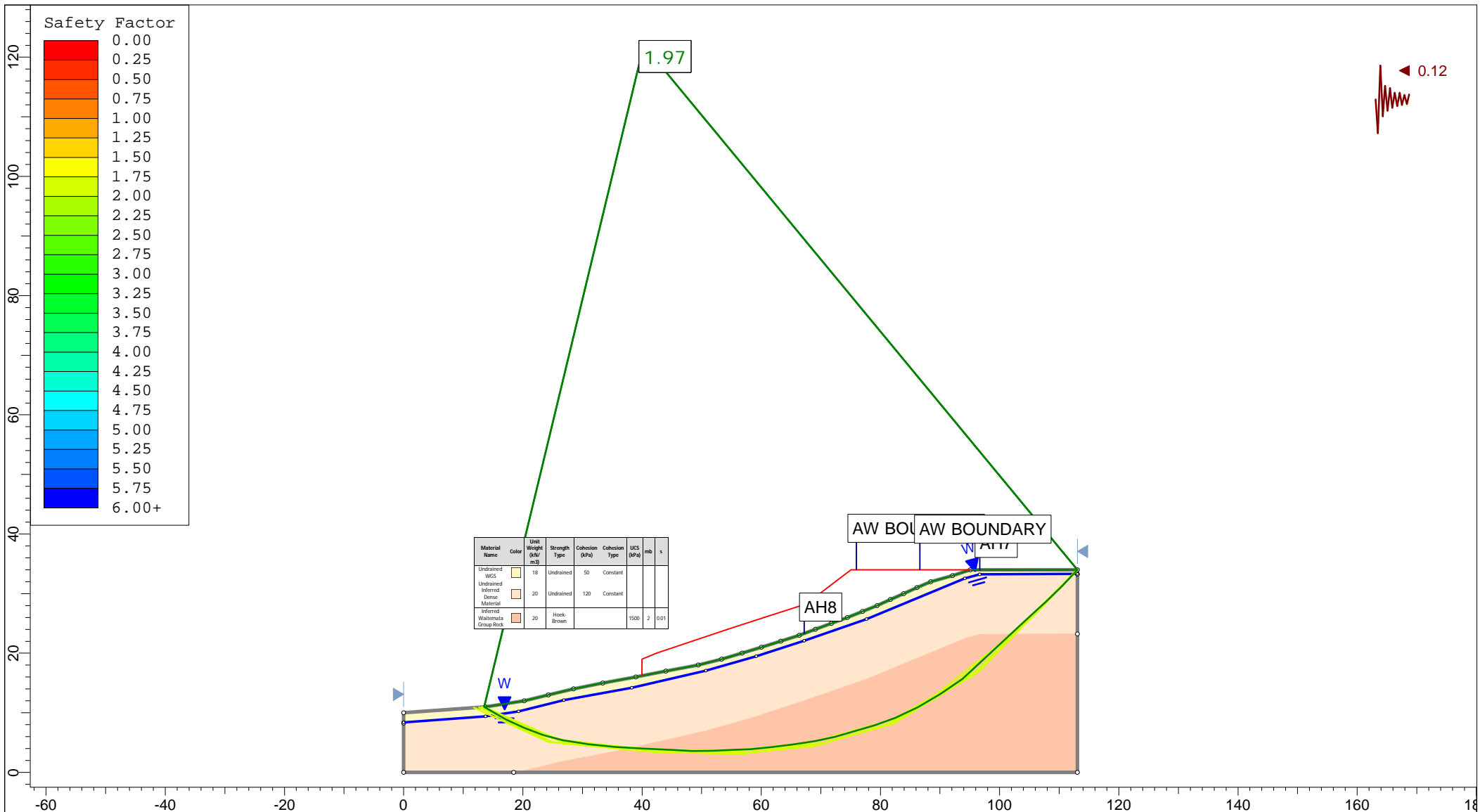
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section C-C' - Measure Ground		
	Scenario		Run 3 - Raised Groundwater - Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section C-C' - Measure Ground		
	Scenario		Run 4 - Raised Groundwater - Non-Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
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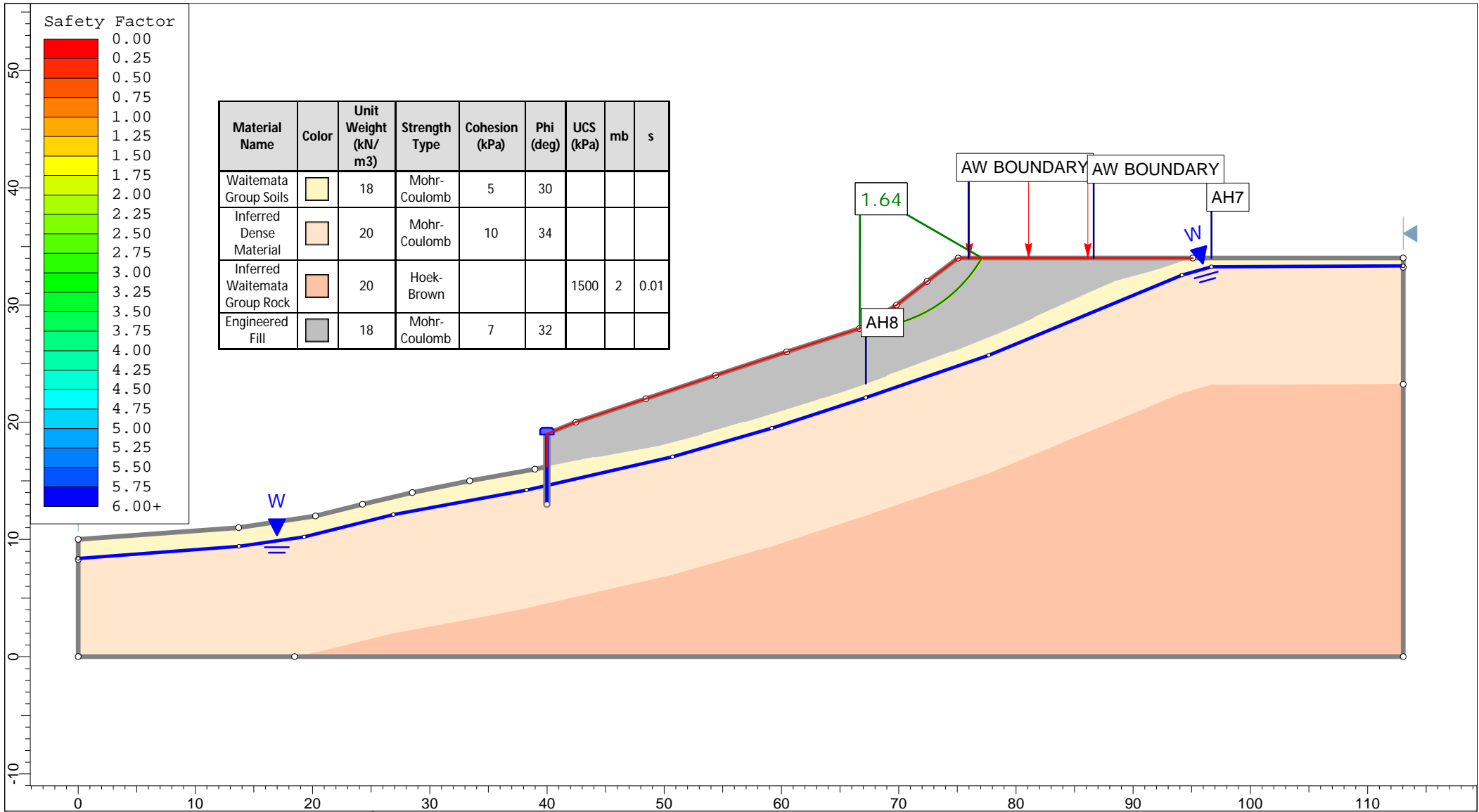


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section C-C' - Measure Ground		
	Scenario		Run 5 - Seismic Loading - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
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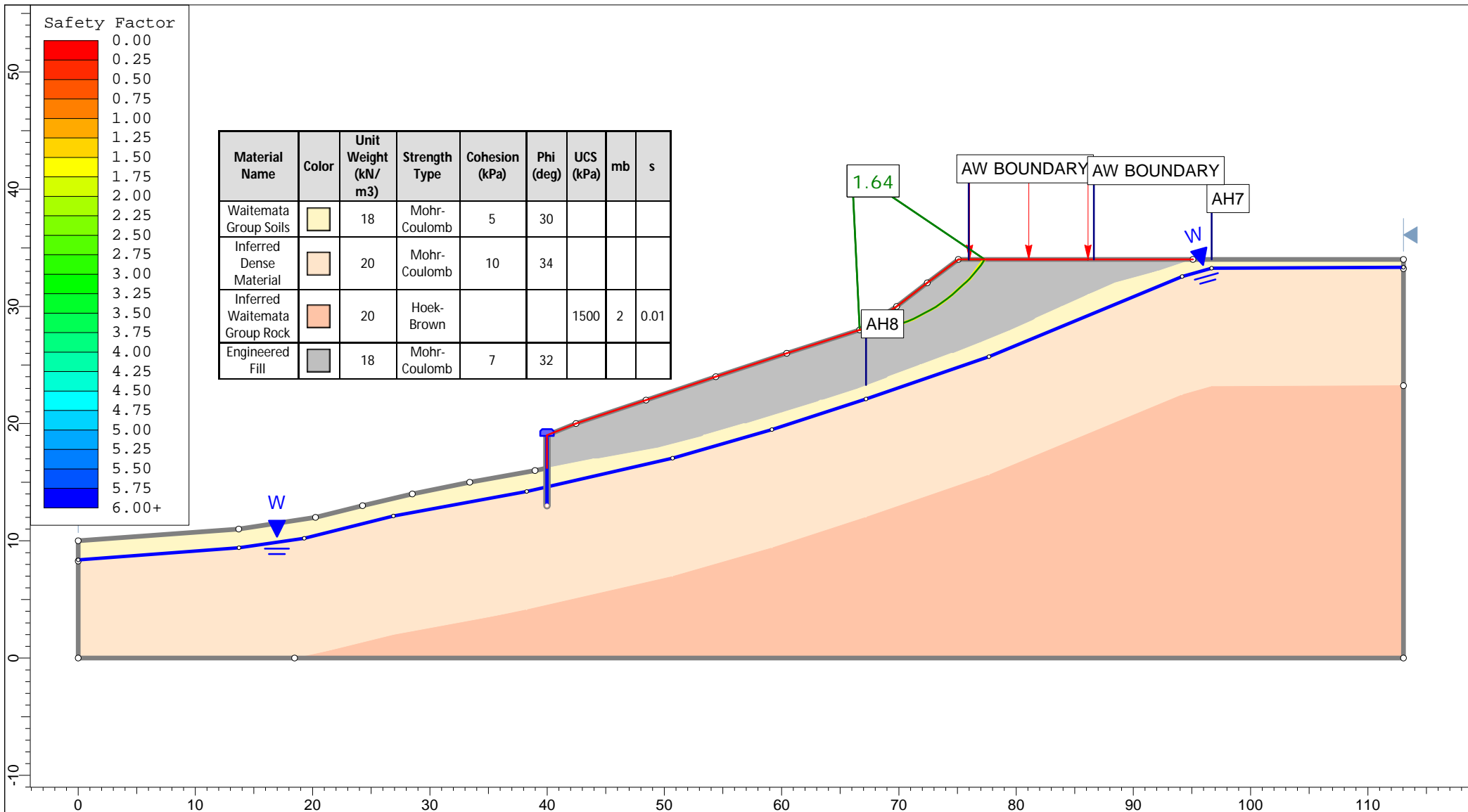


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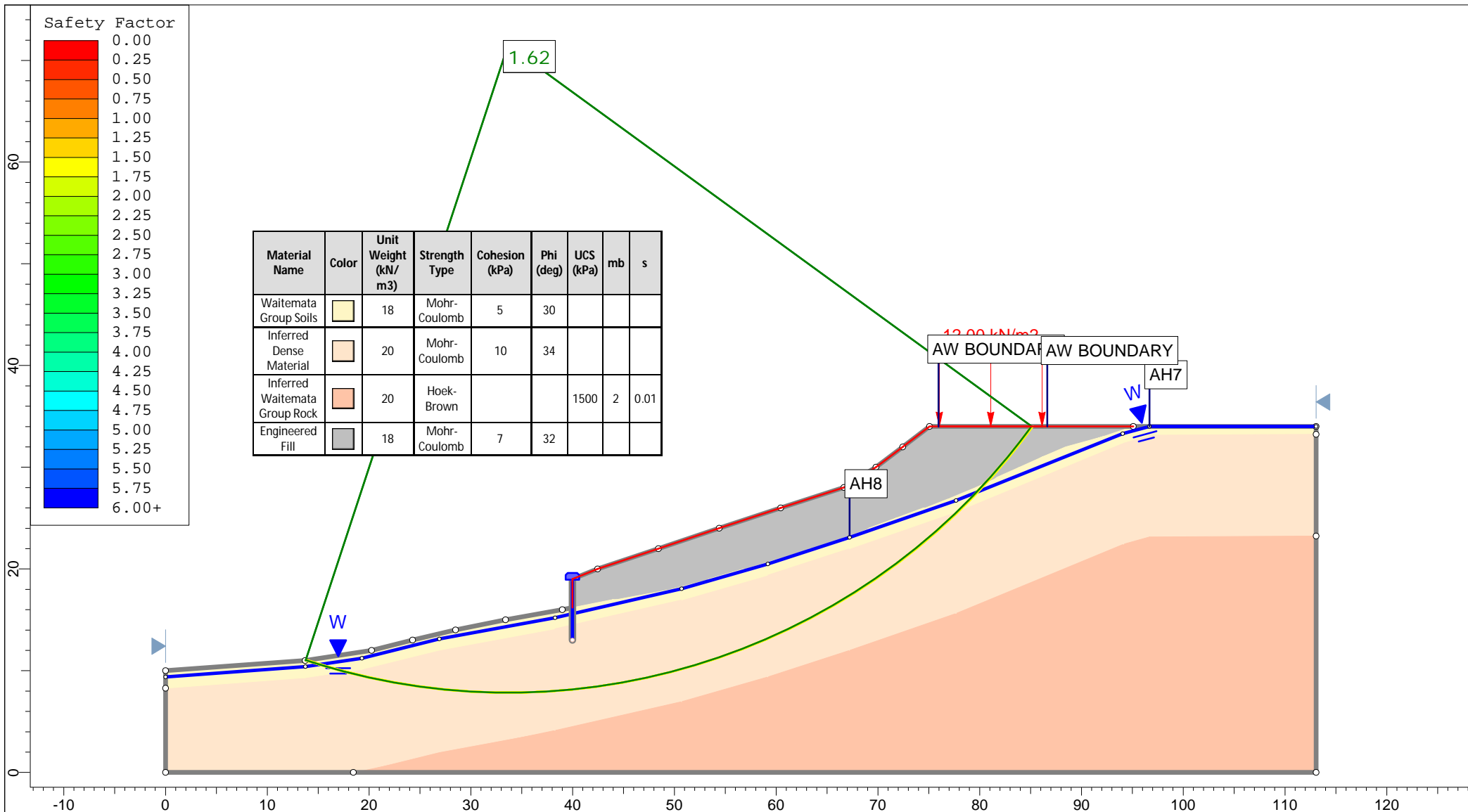
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section C-C' - Measure Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



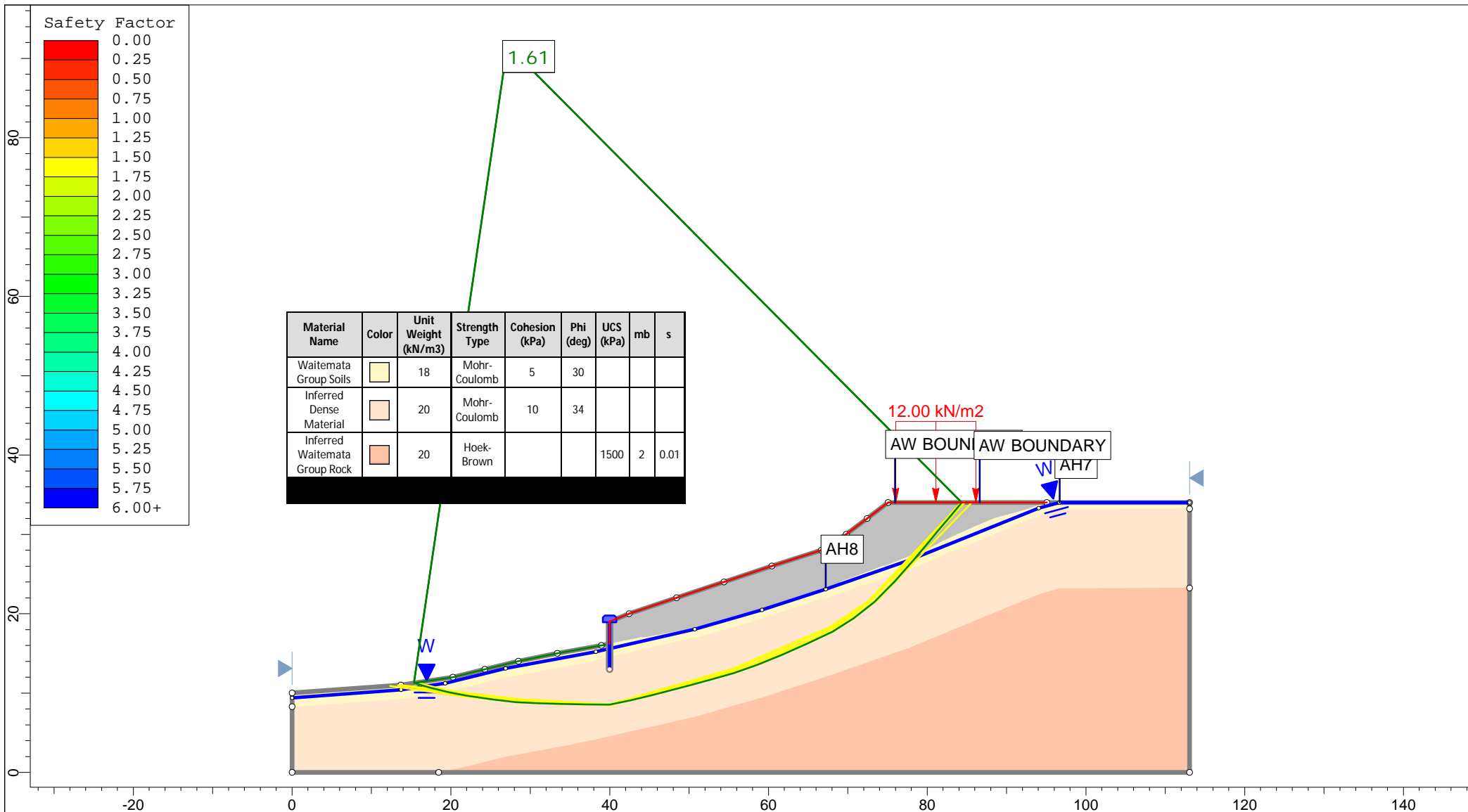
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section C-C' - Proposed Ground		
	Scenario		Run 1 - Measured Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



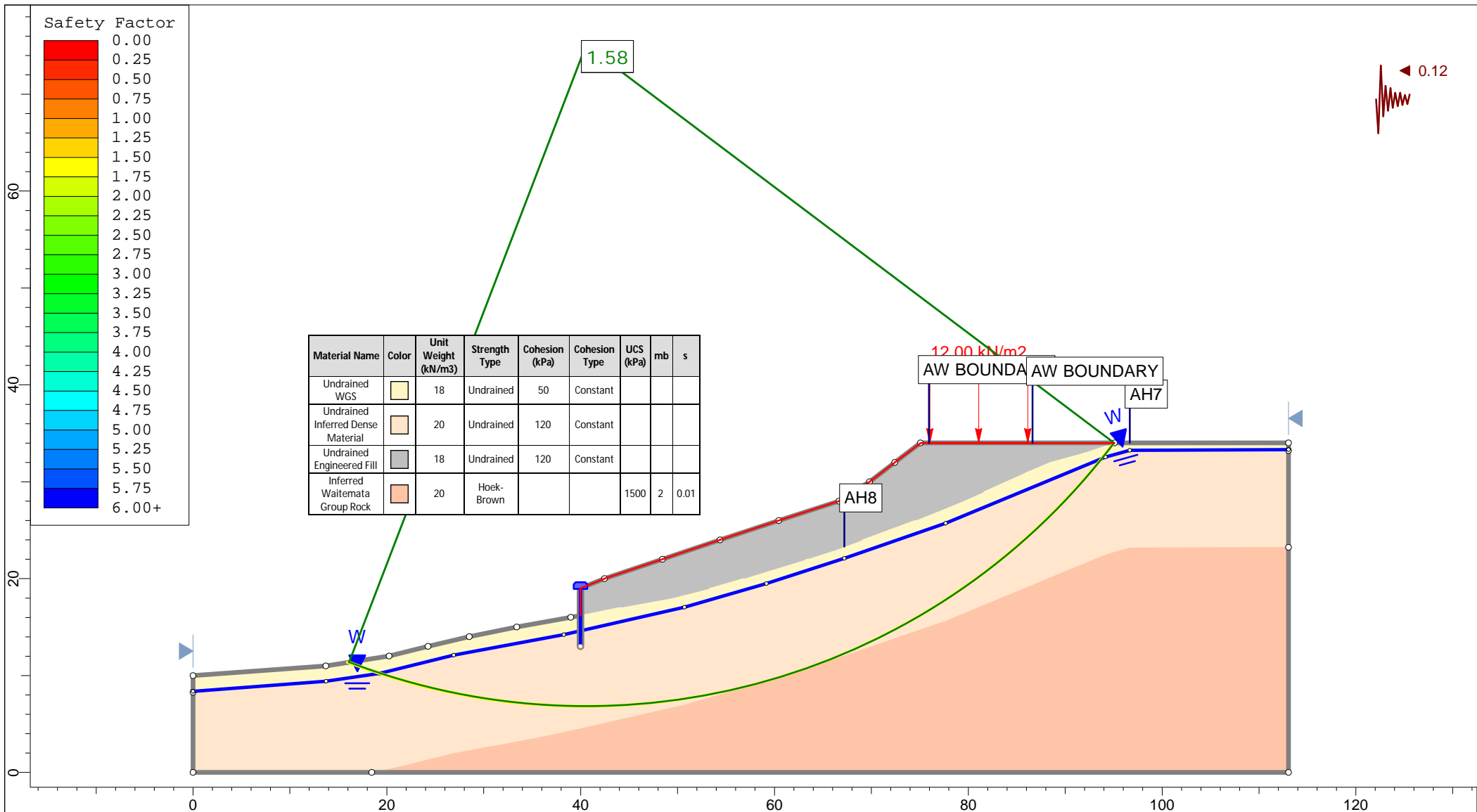
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section C-C' - Proposed Ground	
	Scenario		Run 2 - Measured Groundwater - Non-Cicular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



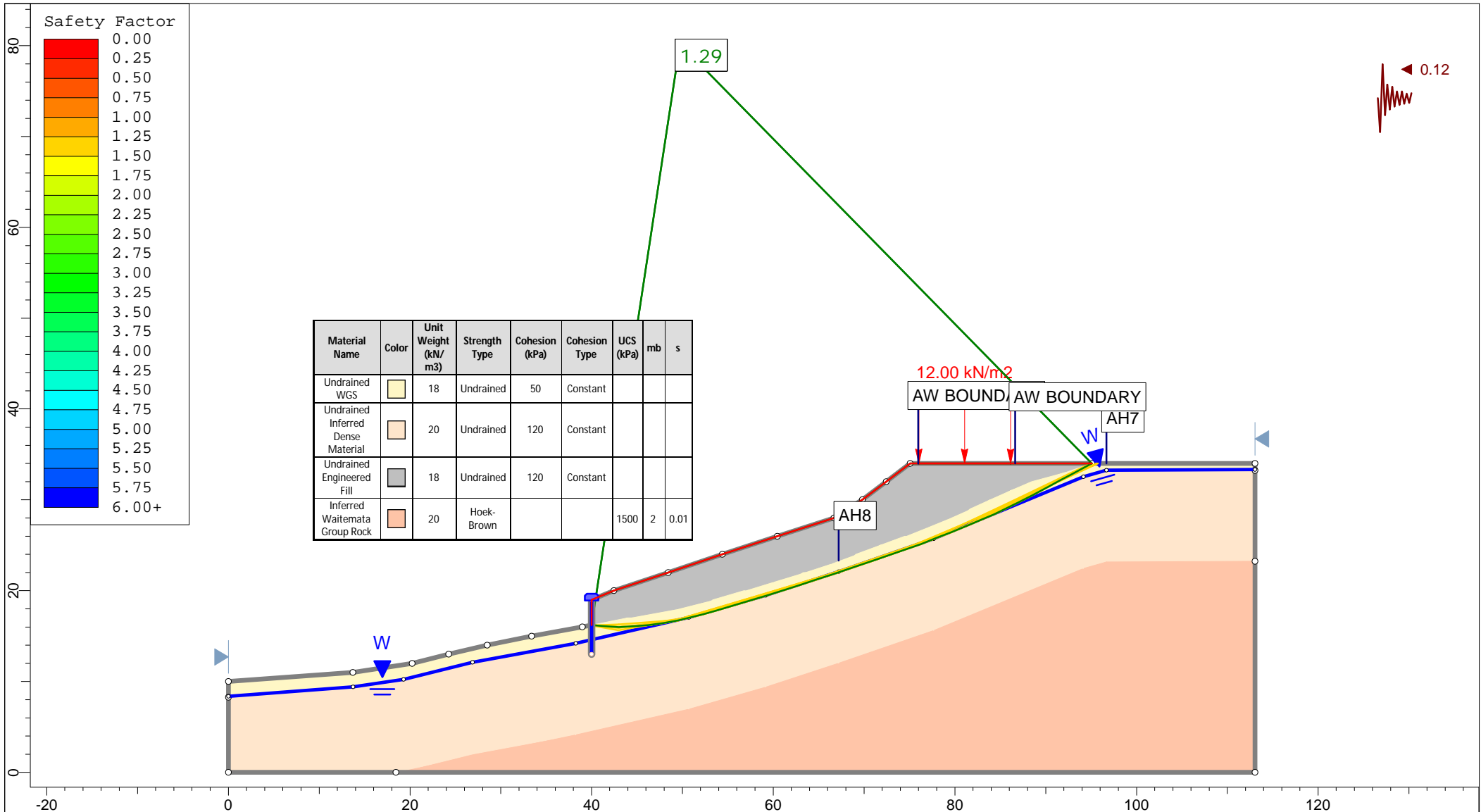
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section C-C' - Proposed Ground	
	Drawn By		TR	
	Date		24 May 2021	
		Scenario		Run 3 - Raised Groundwater - Circular
		Company		KGA Geotechnical Group Limited
		File Name		Master redo lower soil with seismic.slmd



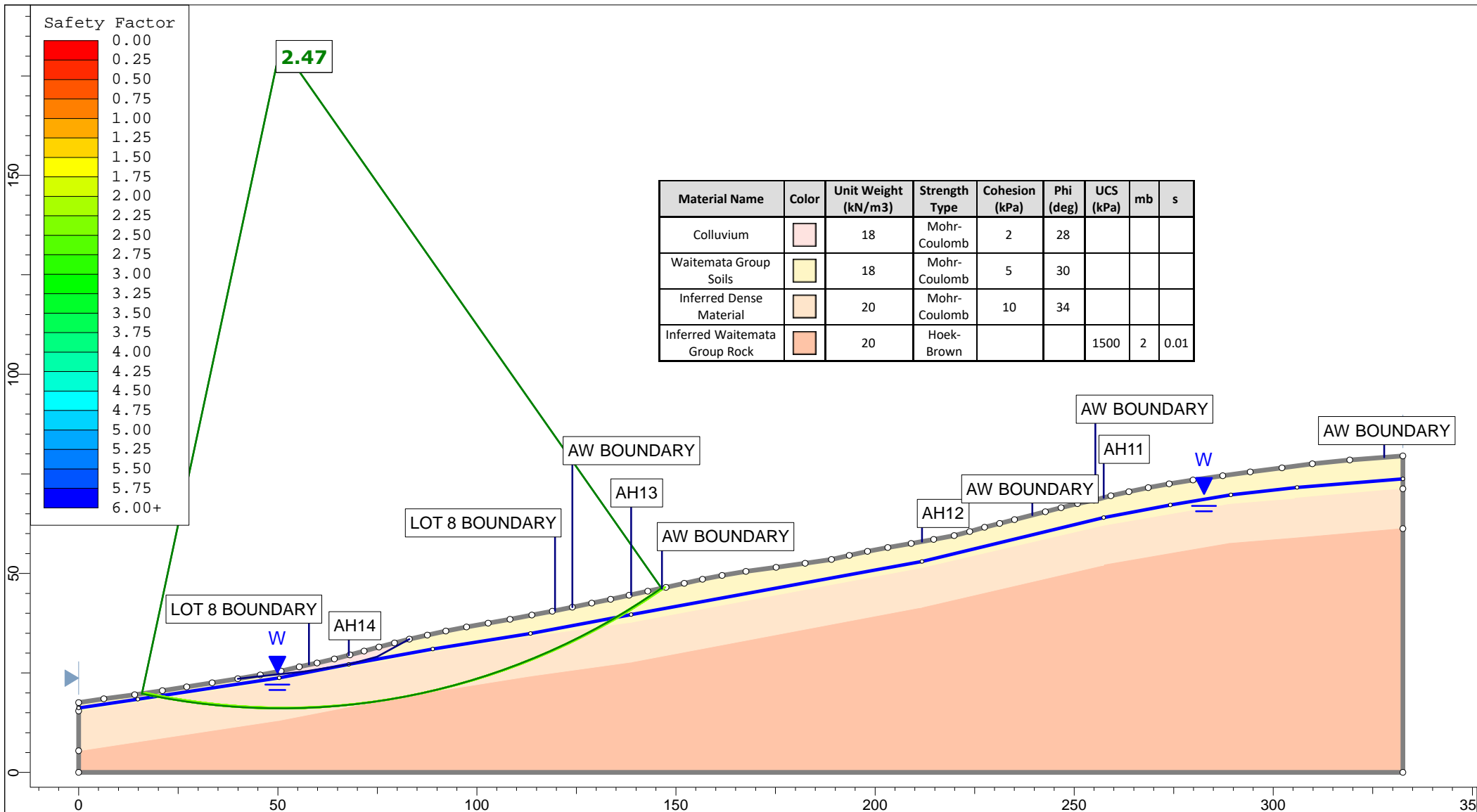
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section C-C' - Proposed Ground	
	Drawn By		TR	
	Date		24 May 2021	
	Scenario		Run 4 - Raised Groundwater - Non-Cicular	
	Company		KGA Geotechnical Group Limited	
	File Name		Master redo lower soil with seismic.slmd	



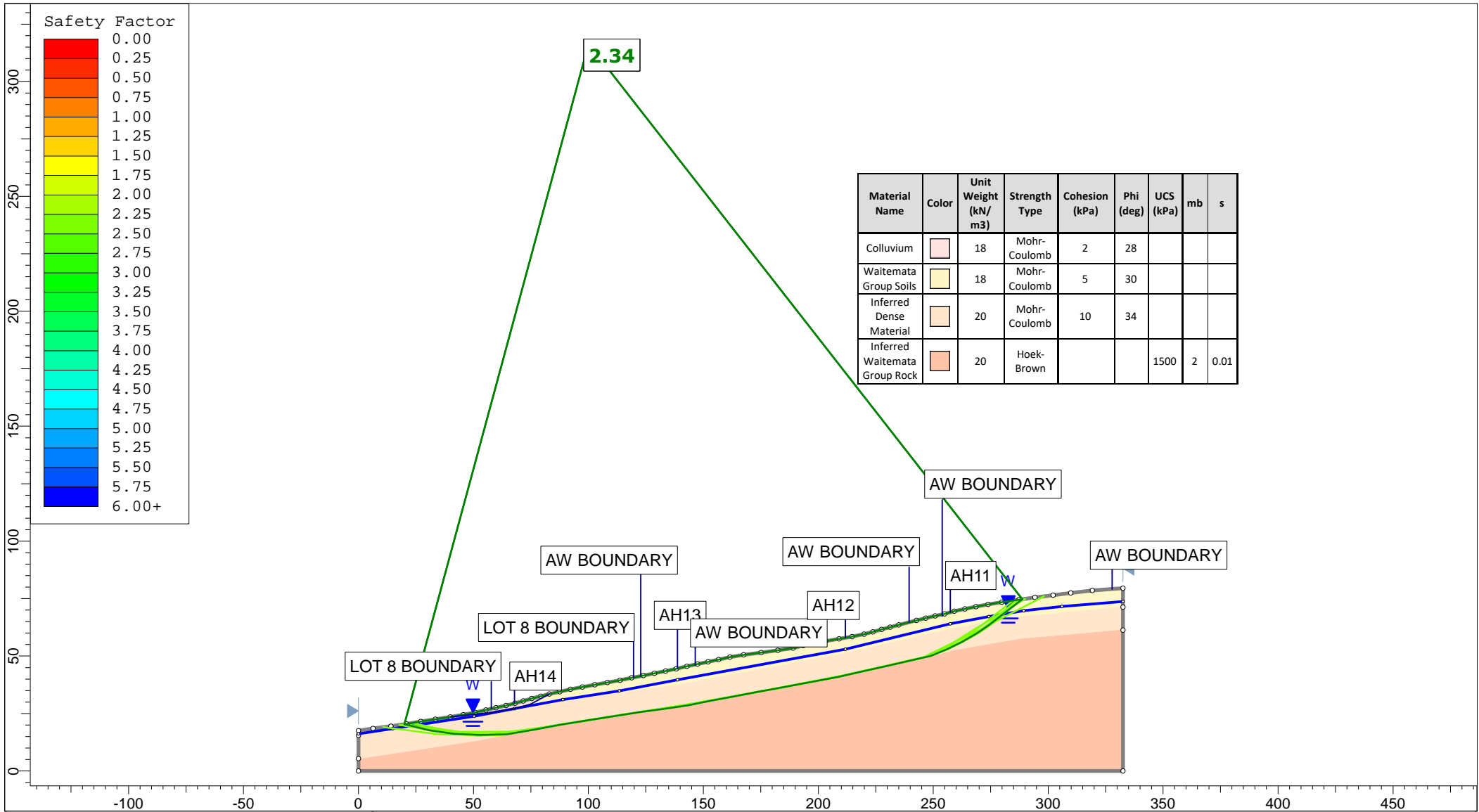
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section C-C' - Proposed Ground	
	Drawn By		TR	
	Date		24 May 2021	
		Scenario		Run 5 - Seismic Loading - Circular
		Company		KGA Geotechnical Group Limited
		File Name		Master redo lower soil with seismic.slmd




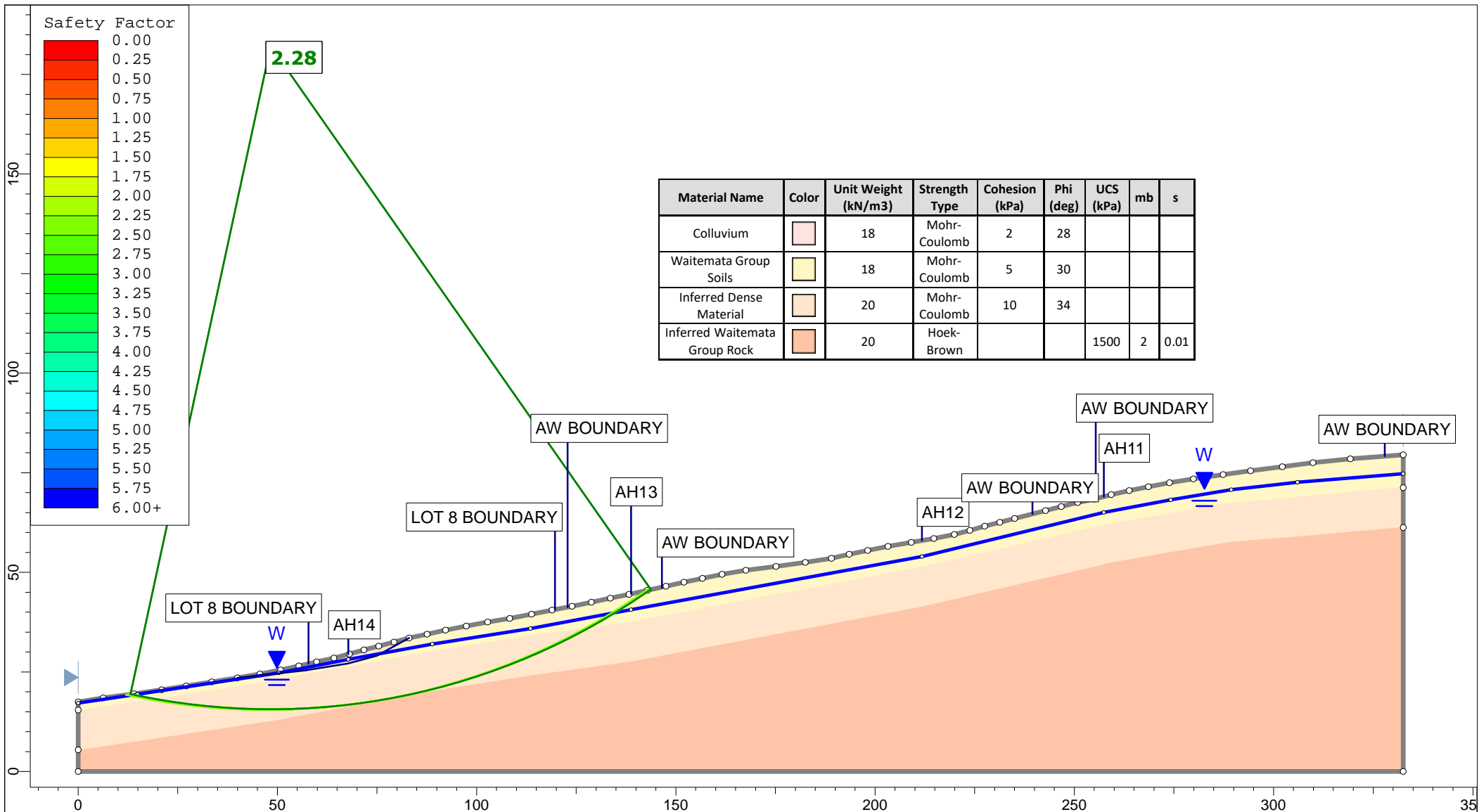
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section C-C' - Proposed Ground	
	Scenario		Run 6 - Seismic Loading - Non-Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section D-D' - Measured Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		

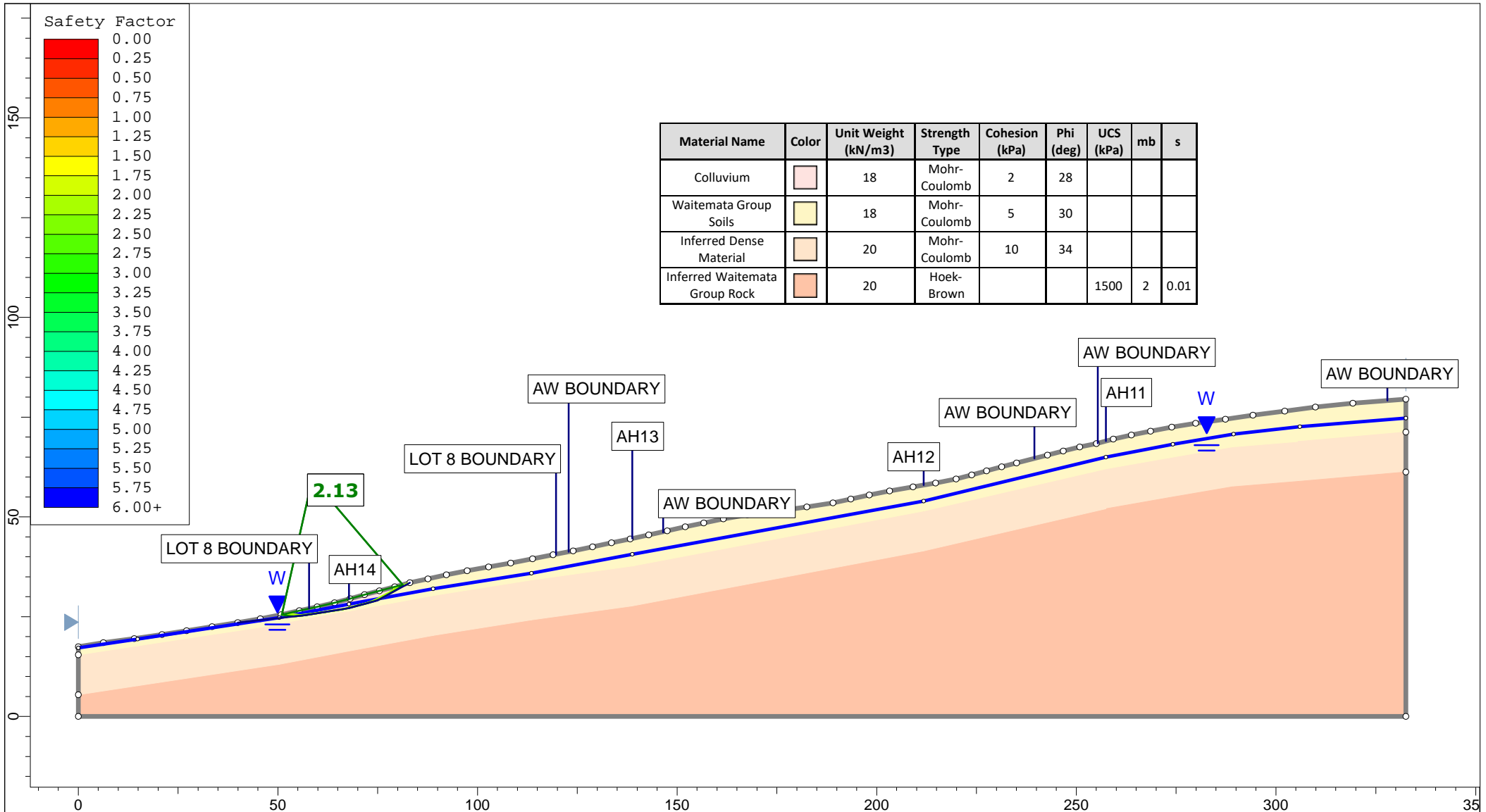



 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section D-D' - Measured Ground	
	Scenario		Run 2 - Measured Groundwater - Non-Cicular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slm		

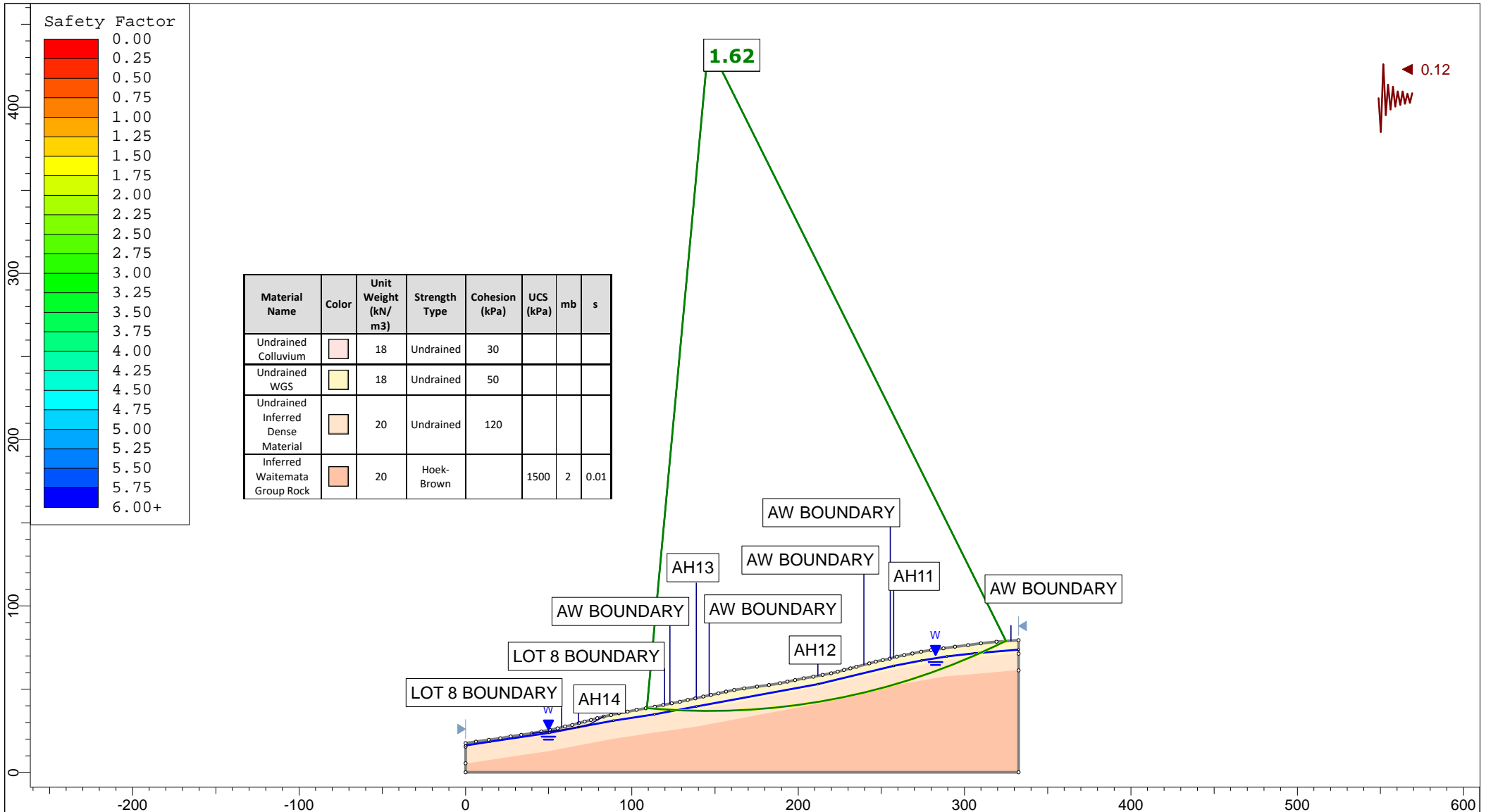


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Colluvium	[Pink]	18	Mohr-Coulomb	2	28			
Waitemata Group Soils	[Yellow]	18	Mohr-Coulomb	5	30			
Inferred Dense Material	[Light Orange]	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	[Dark Orange]	20	Hoek-Brown			1500	2	0.01

<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section D-D' - Measured Ground	
	Drawn By		TR	
	Date		24 May 2021	
	Scenario		Run 3 - Raised Groundwater - Circular	
	Company		KGA Geotechnical Group Limited	
	File Name		Master redo lower soil with seismic.slmd	



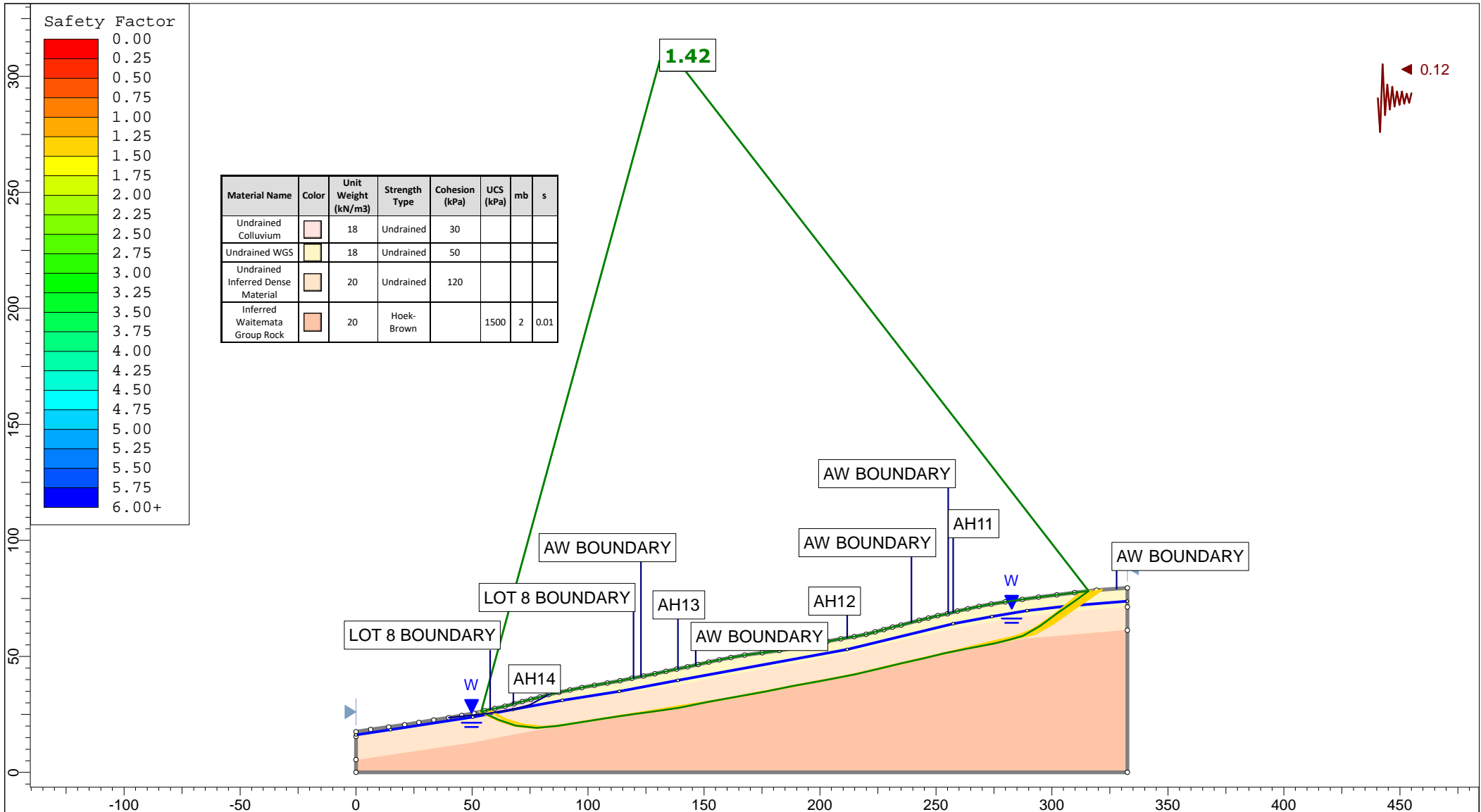
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section D-D' - Measured Ground	
	Drawn By		TR	
	Date		24 May 2021	
	Scenario		Run 4 - Raised Groundwater - Non-Circular	
	Company		KGA Geotechnical Group Limited	
	File Name		Master redo lower soil with seismic.slmd	



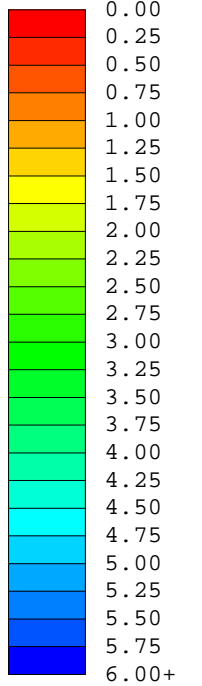
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained Colluvium		18	Undrained	30			
Undrained WGS		18	Undrained	50			
Undrained Inferred Dense Material		20	Undrained	120			
Inferred Waitemata Group Rock		20	Hoek-Brown		1500	2	0.01

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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section D-D' - Measured Ground	Scenario	Run 5 - Seismic Loading - Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



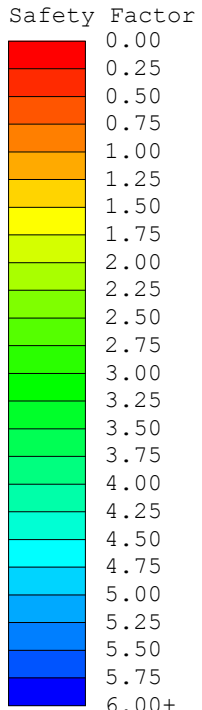
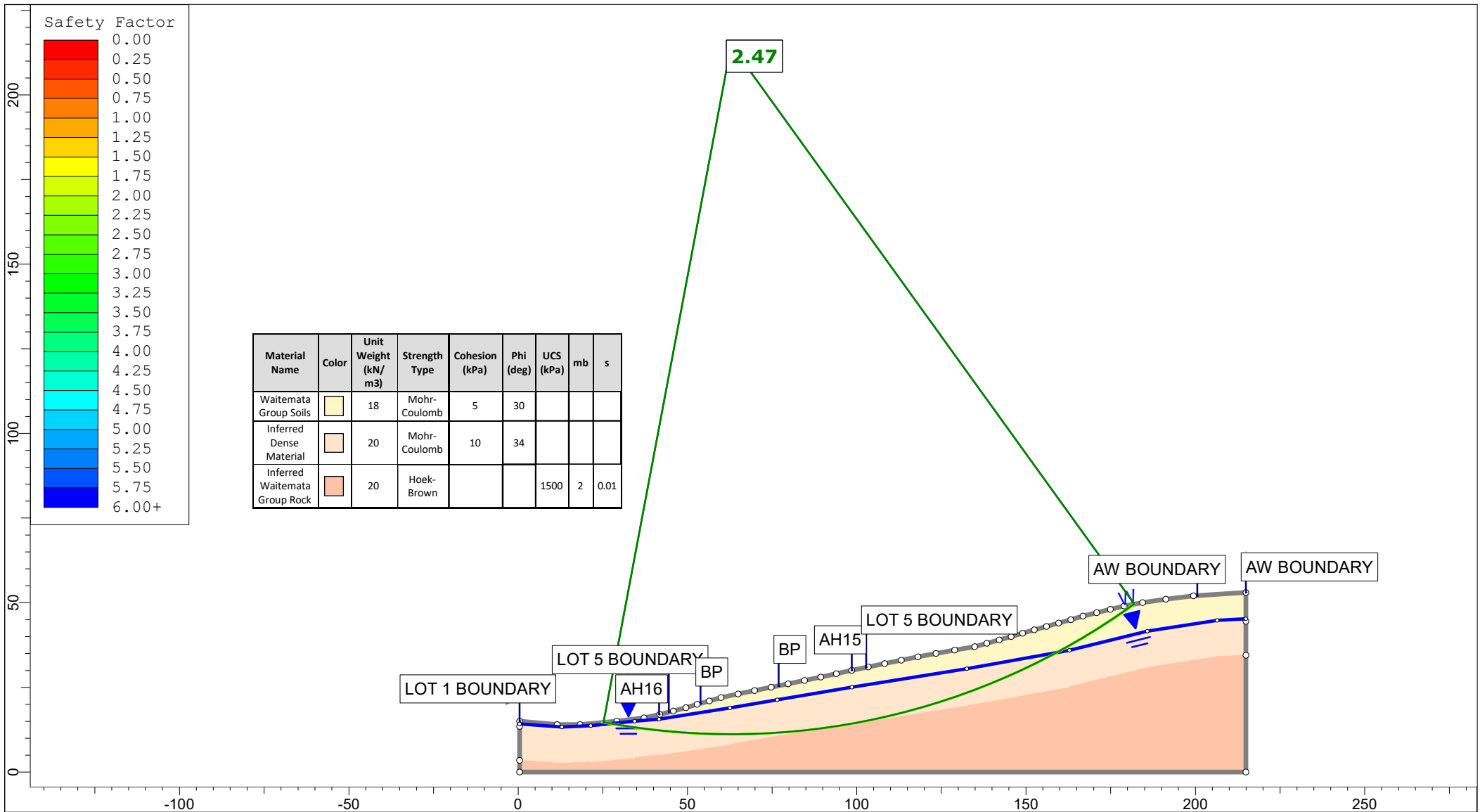
Safety Factor



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained Colluvium	[Pink]	18	Undrained	30			
Undrained WGS	[Yellow]	18	Undrained	50			
Undrained Inferred Dense Material	[Orange]	20	Undrained	120			
Inferred Waitemata Group Rock	[Light Orange]	20	Hoek-Brown		1500	2	0.01

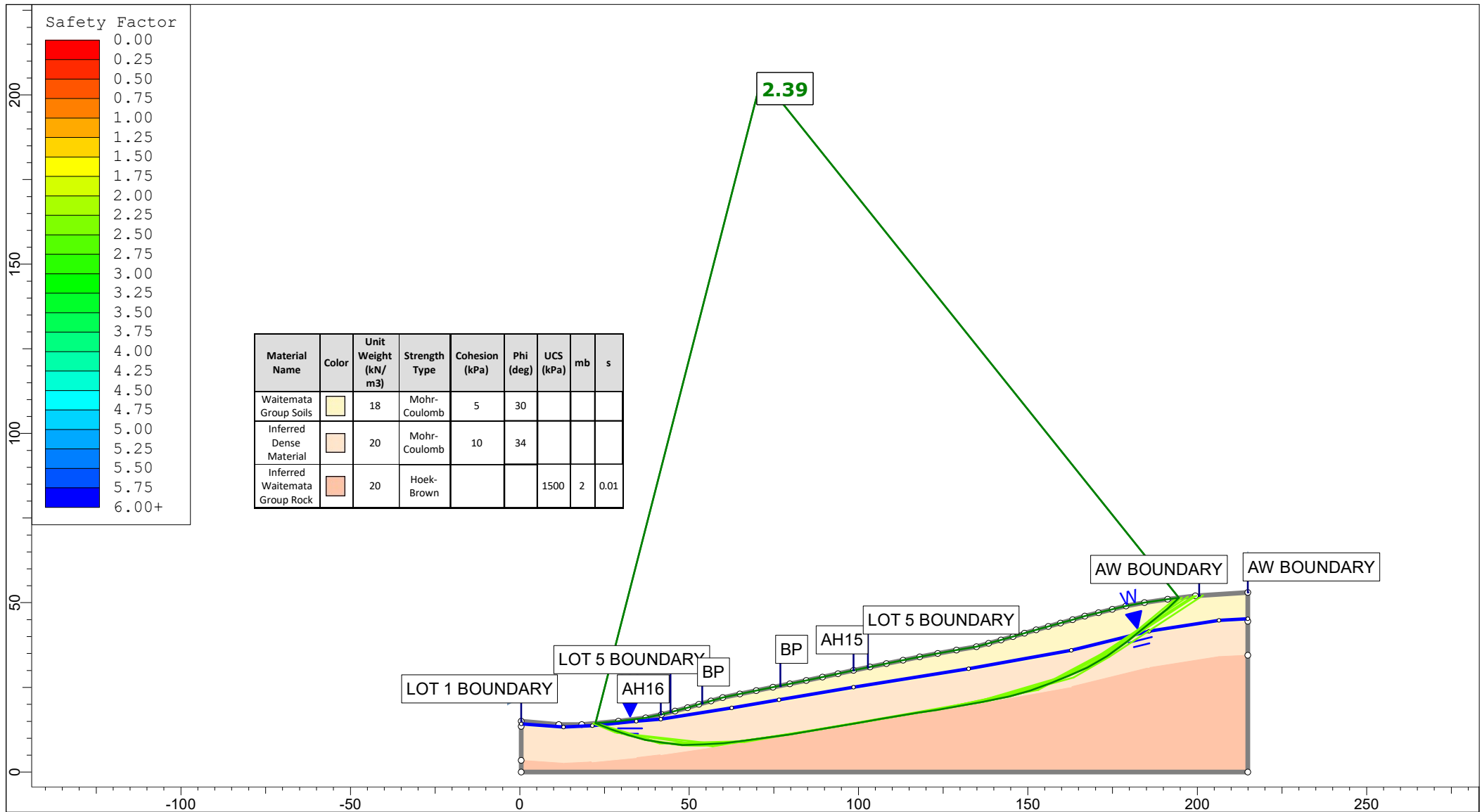
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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section D-D' - Measured Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd




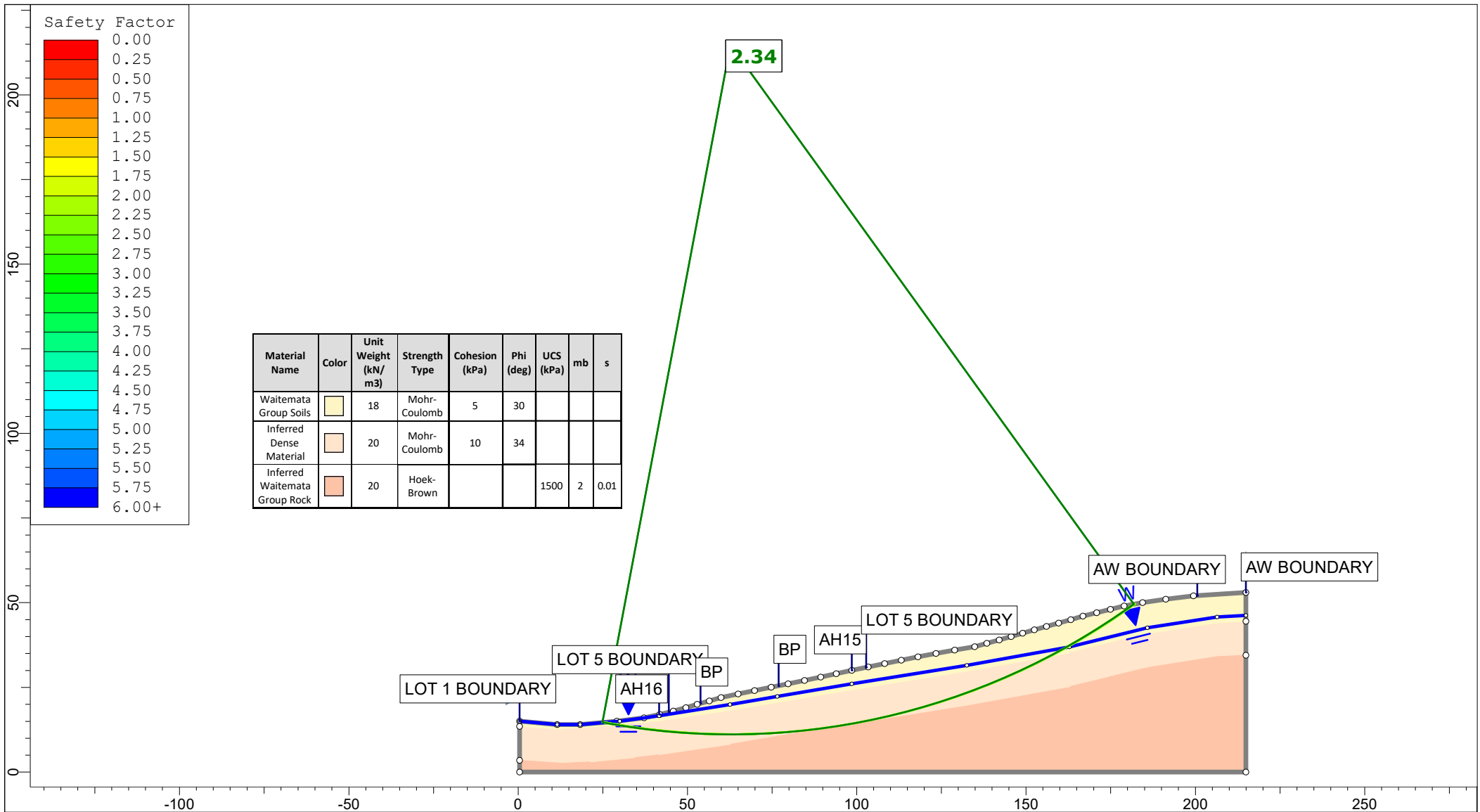
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section E-E' - Measured Ground	Scenario	Run 1 - Measured Groundwater - Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd

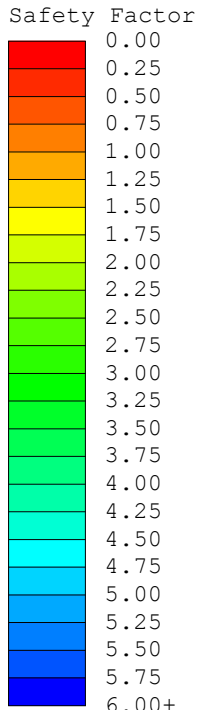
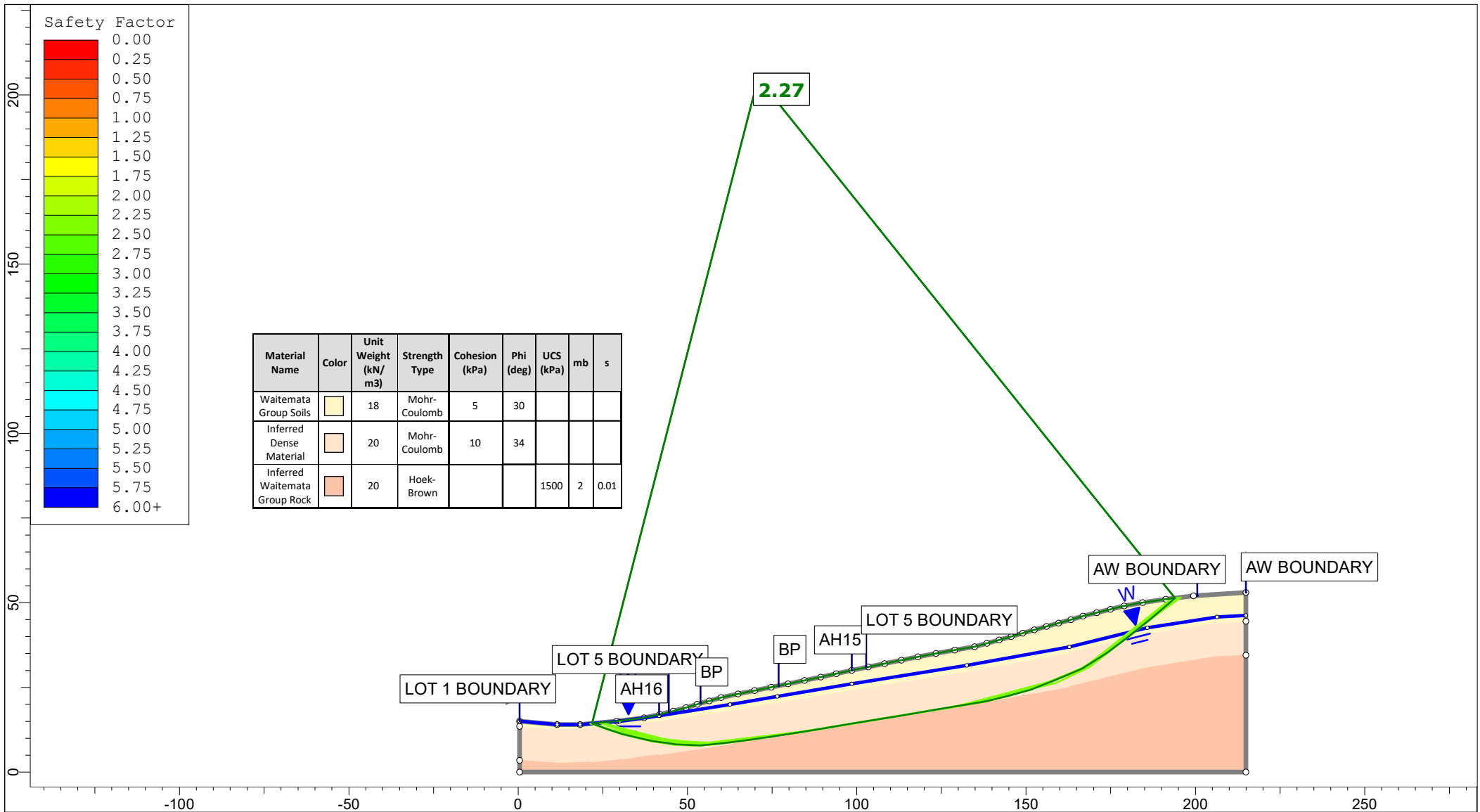


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section E-E' - Measured Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slm

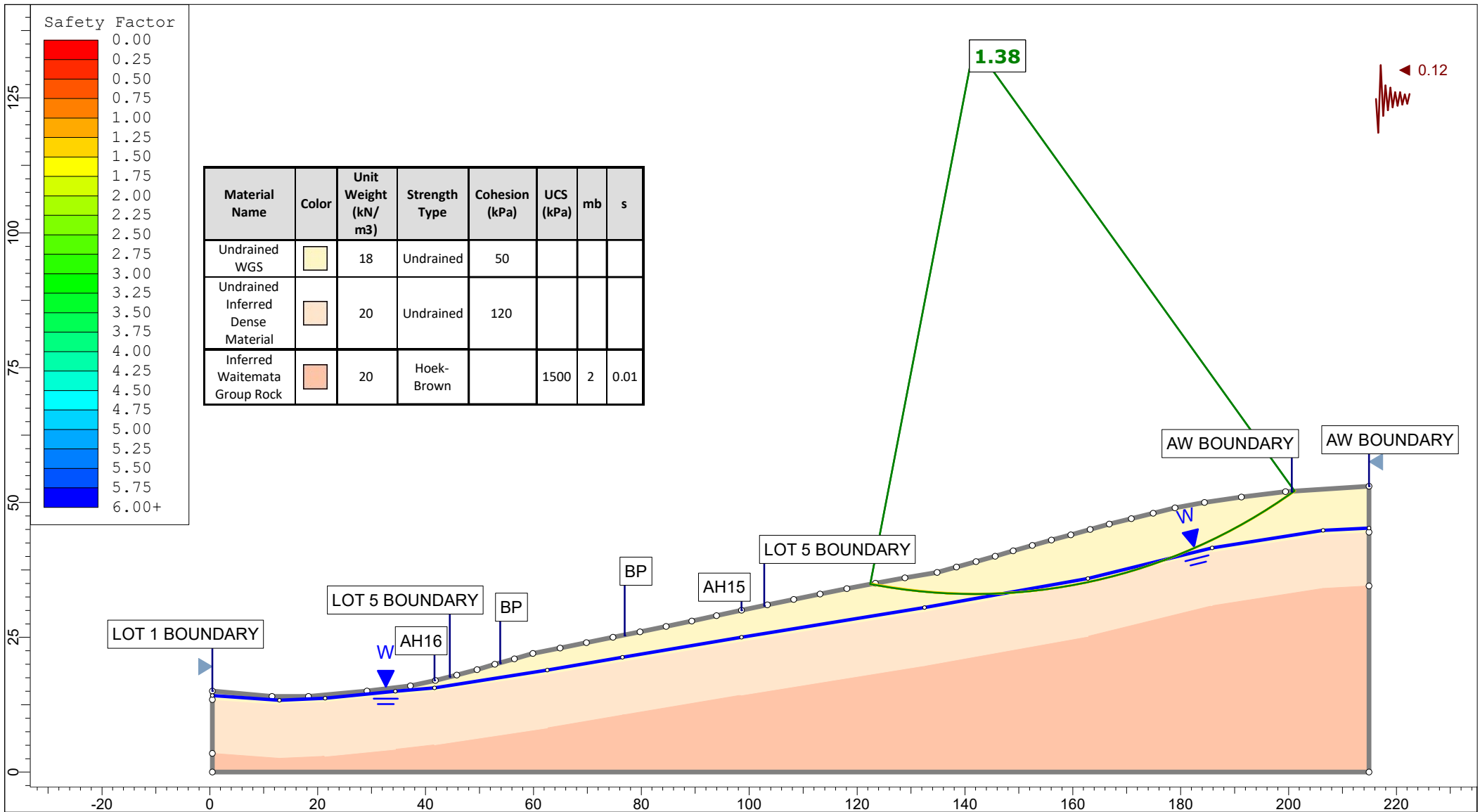


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section E-E' - Measured Ground	
	Scenario		Run 3 - Raised Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		

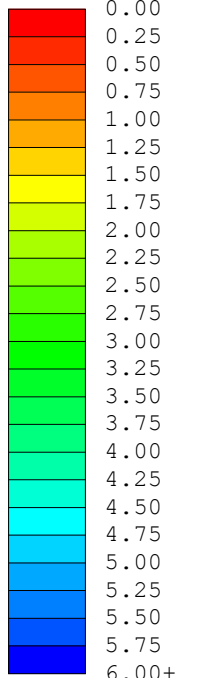


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section E-E' - Measured Ground	
	Scenario		Run 4 - Raised Groundwater - Non-Cicular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



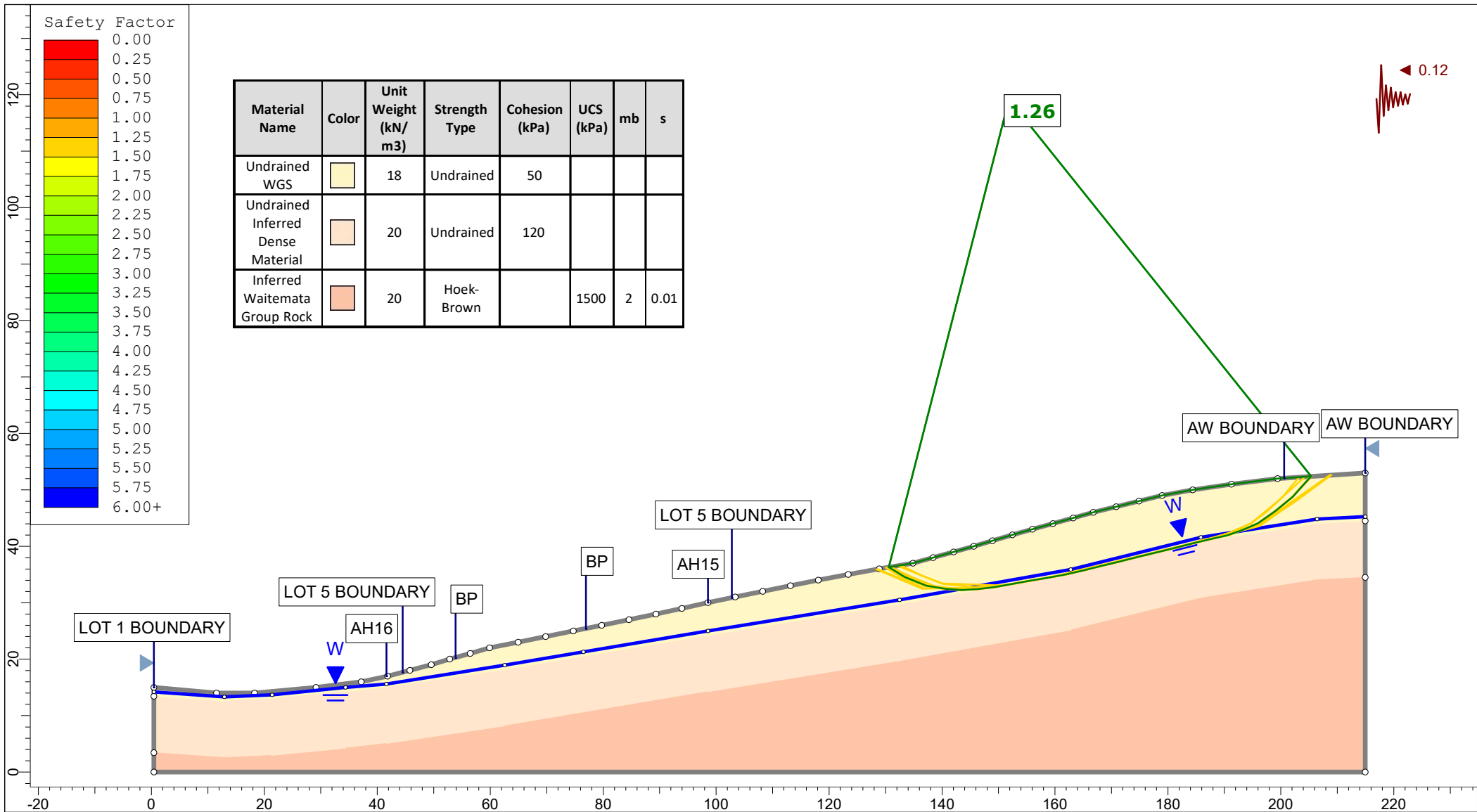
Safety Factor



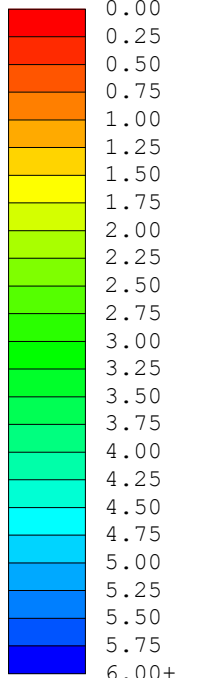
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50			
Undrained Inferred Dense Material		20	Undrained	120			
Inferred Waitemata Group Rock		20	Hoek-Brown		1500	2	0.01

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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section E-E' - Measured Ground	Scenario	Run 5 - Seismic Loading - Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



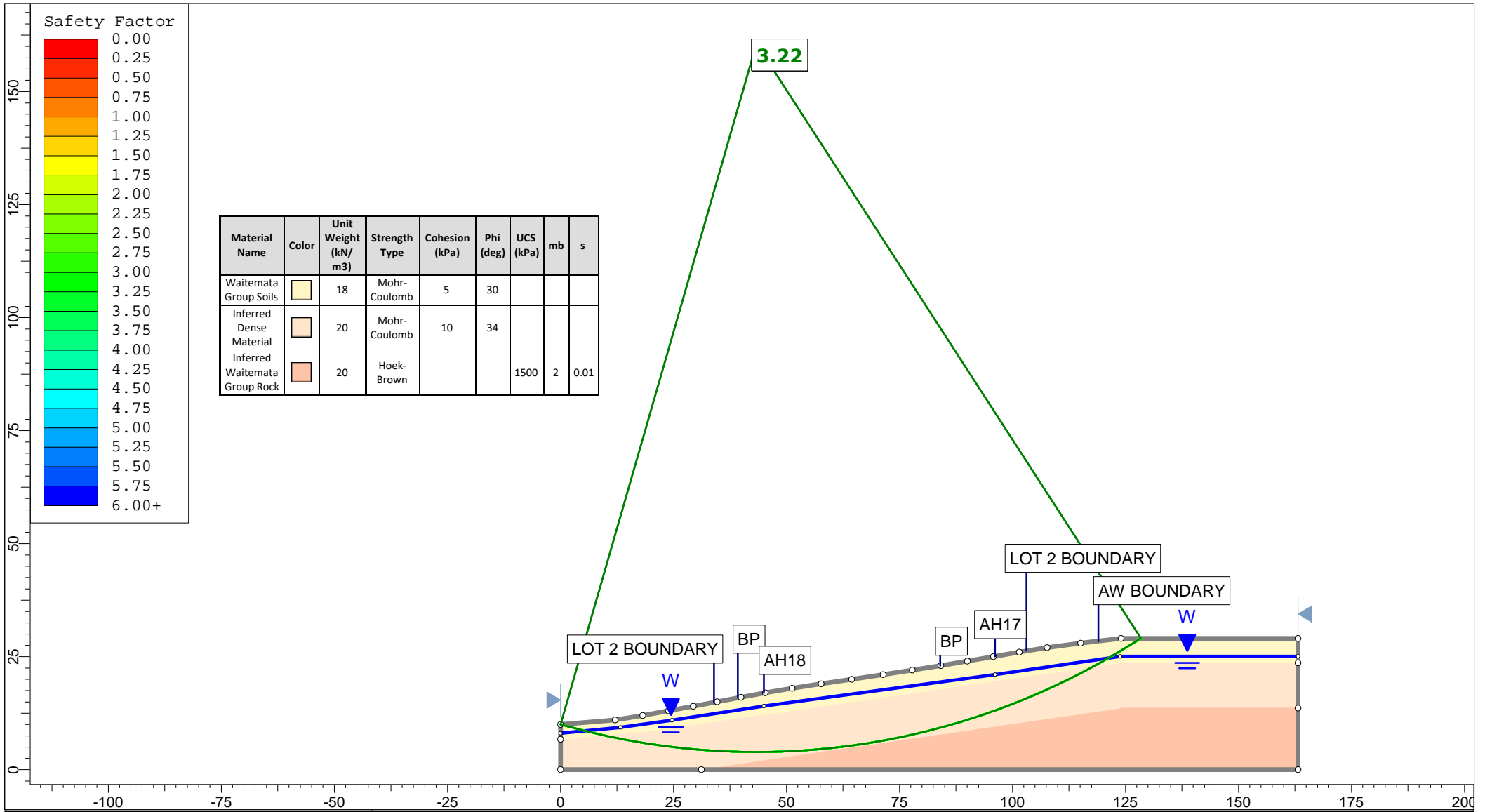
Safety Factor



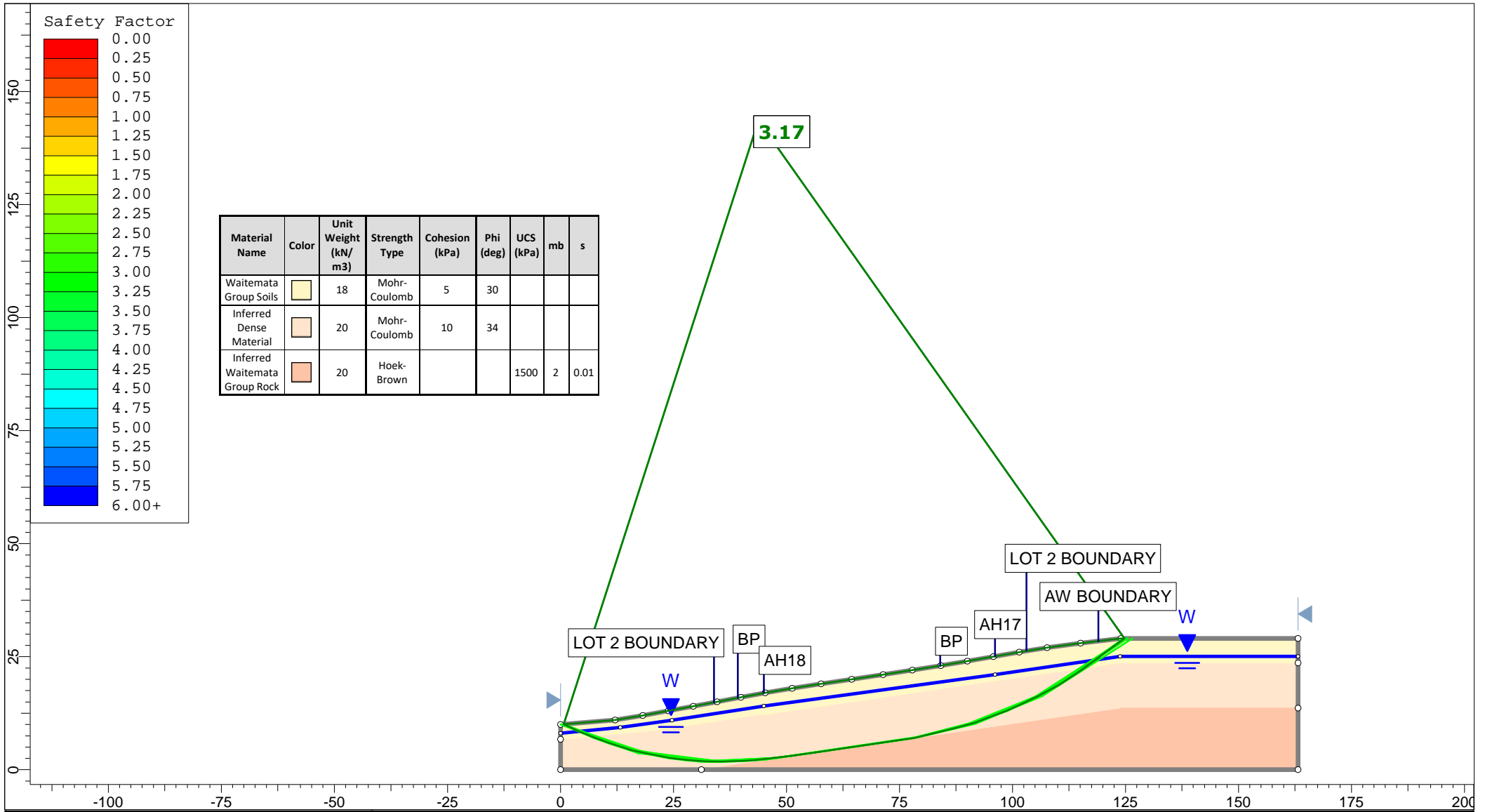
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50			
Undrained Inferred Dense Material		20	Undrained	120			
Inferred Waitemata Group Rock		20	Hoek-Brown		1500	2	0.01

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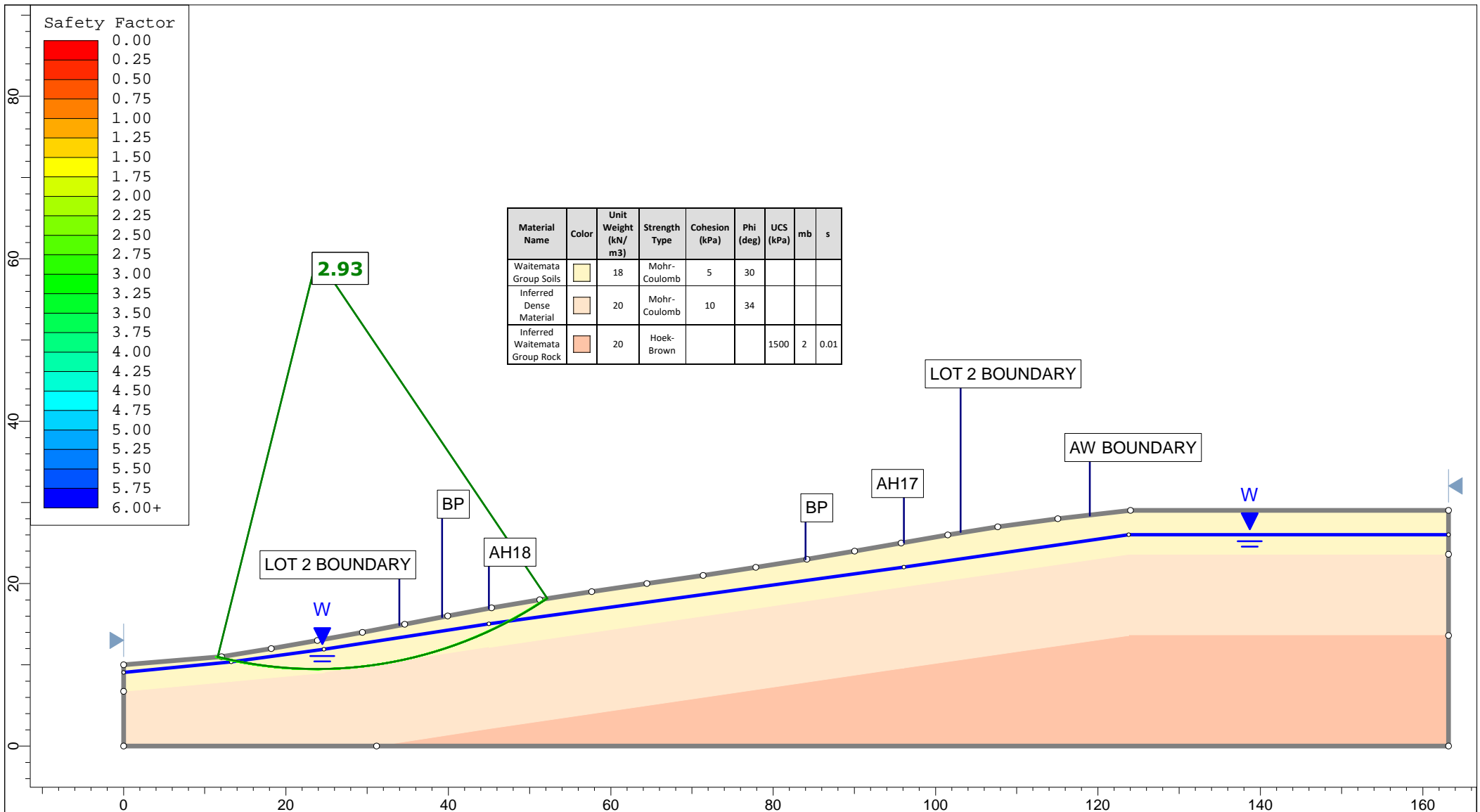
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section E-E' - Measured Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



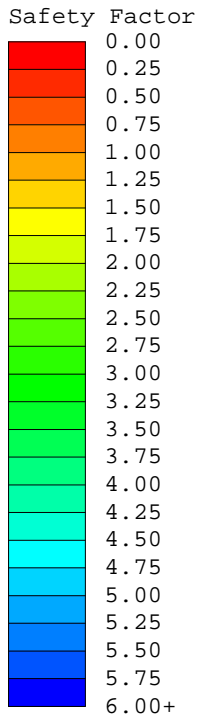
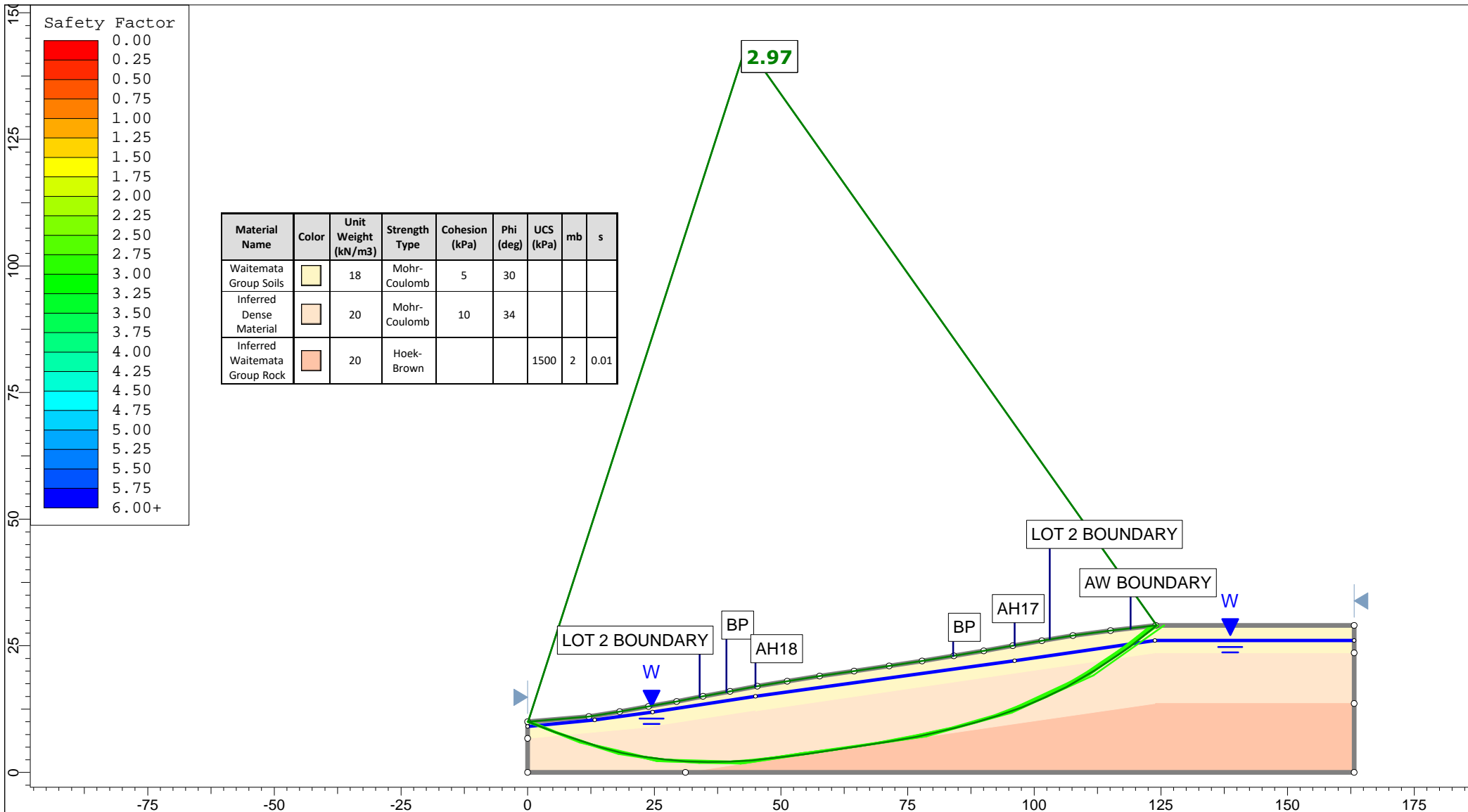
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section F-F' - Measured Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		24 May 2021		
File Name		Master redo lower soil with seismic.slmd		



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section F-F' - Measured Ground		
	Scenario		Run 2 - Measured Groundwater - Non-Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



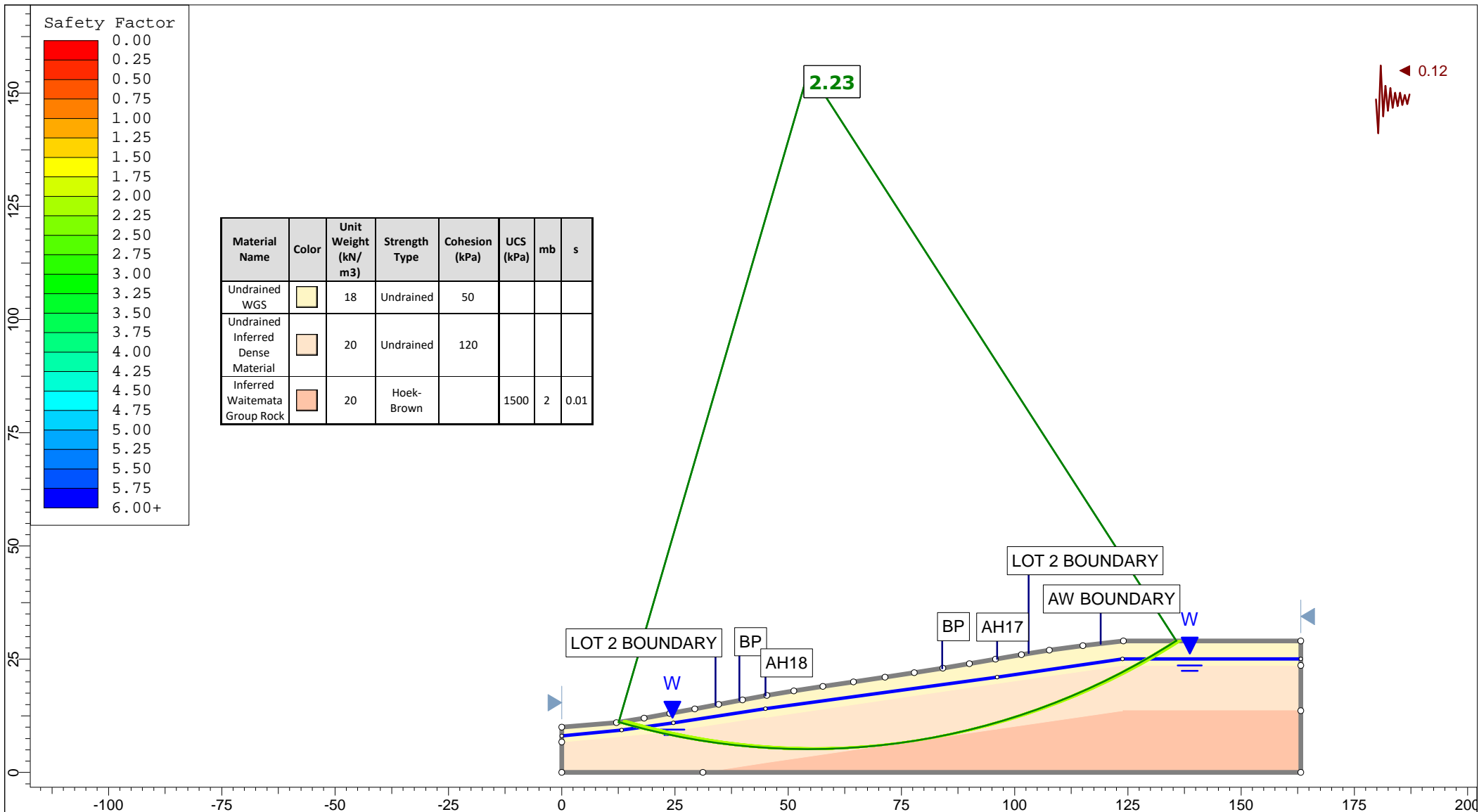
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section F-F' - Measured Ground	
	Drawn By		TR	
	Date		24 May 2021	
	Scenario		Run 3 - Raised Groundwater - Circular	
	Company		KGA Geotechnical Group Limited	
	File Name		Master redo lower soil with seismic.slmd	



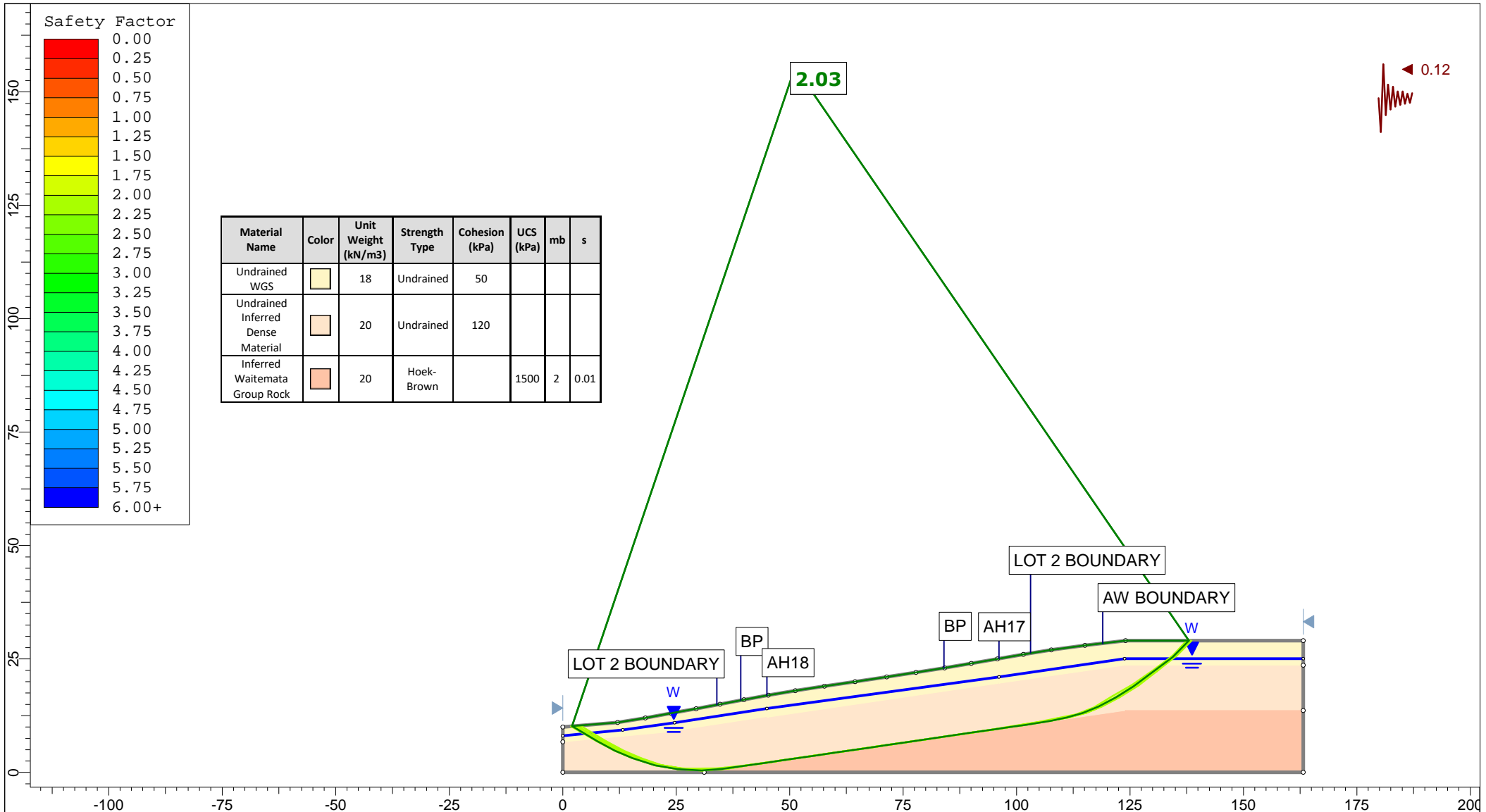
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Light Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Light Red	20	Hoek-Brown			1500	2	0.01

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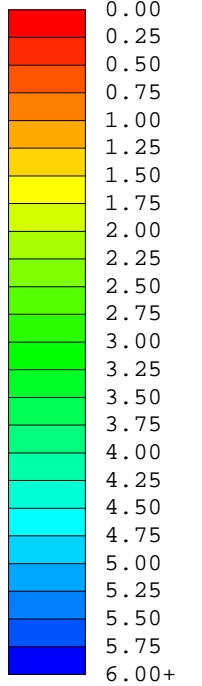
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section F-F' - Measured Ground	Scenario	Run 4 - Raised Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section F-F' - Measured Ground	Scenario	Run 5 - Seismic Loading - Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



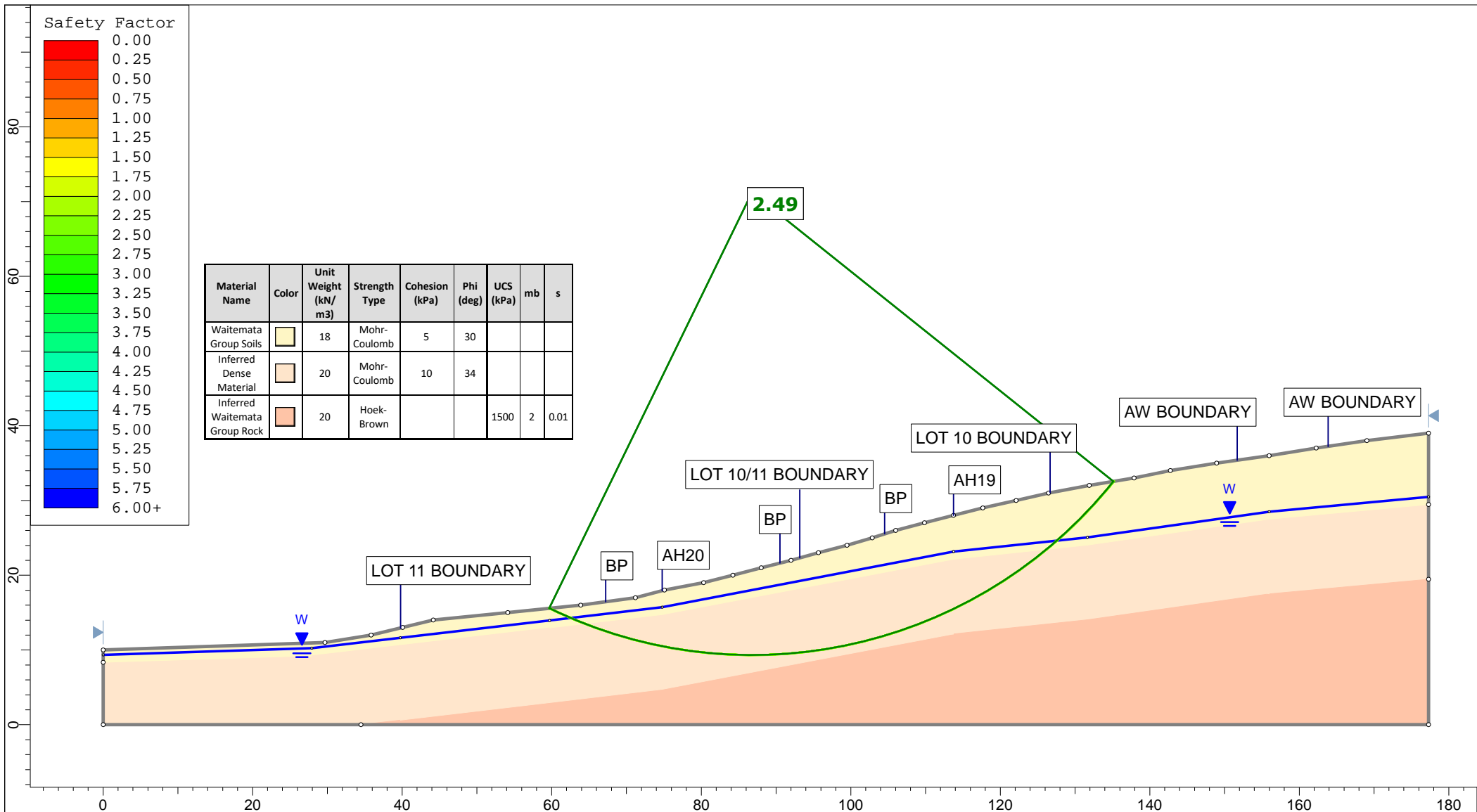
Safety Factor



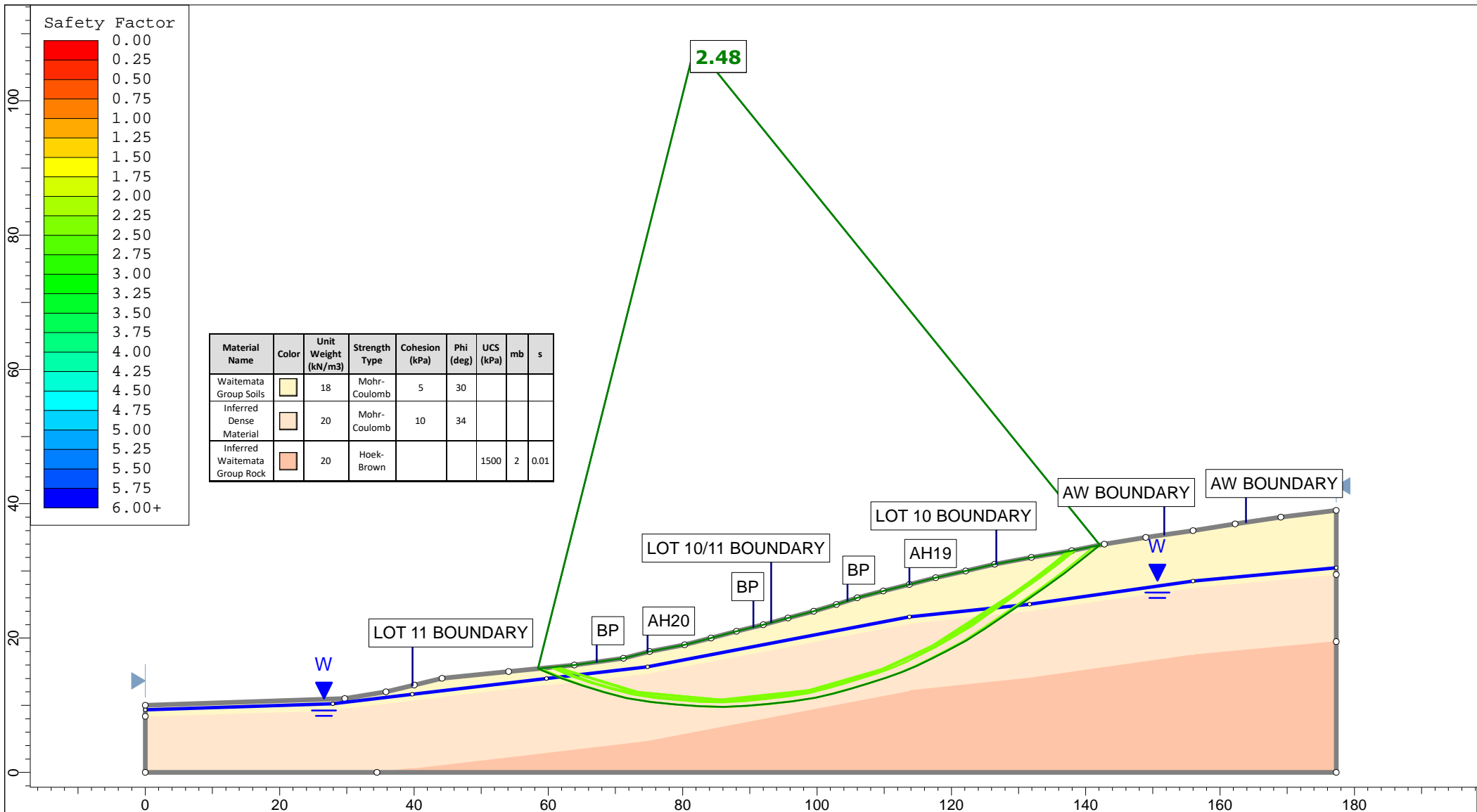
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50			
Undrained Inferred Dense Material		20	Undrained	120			
Inferred Waitemata Group Rock		20	Hoek-Brown		1500	2	0.01

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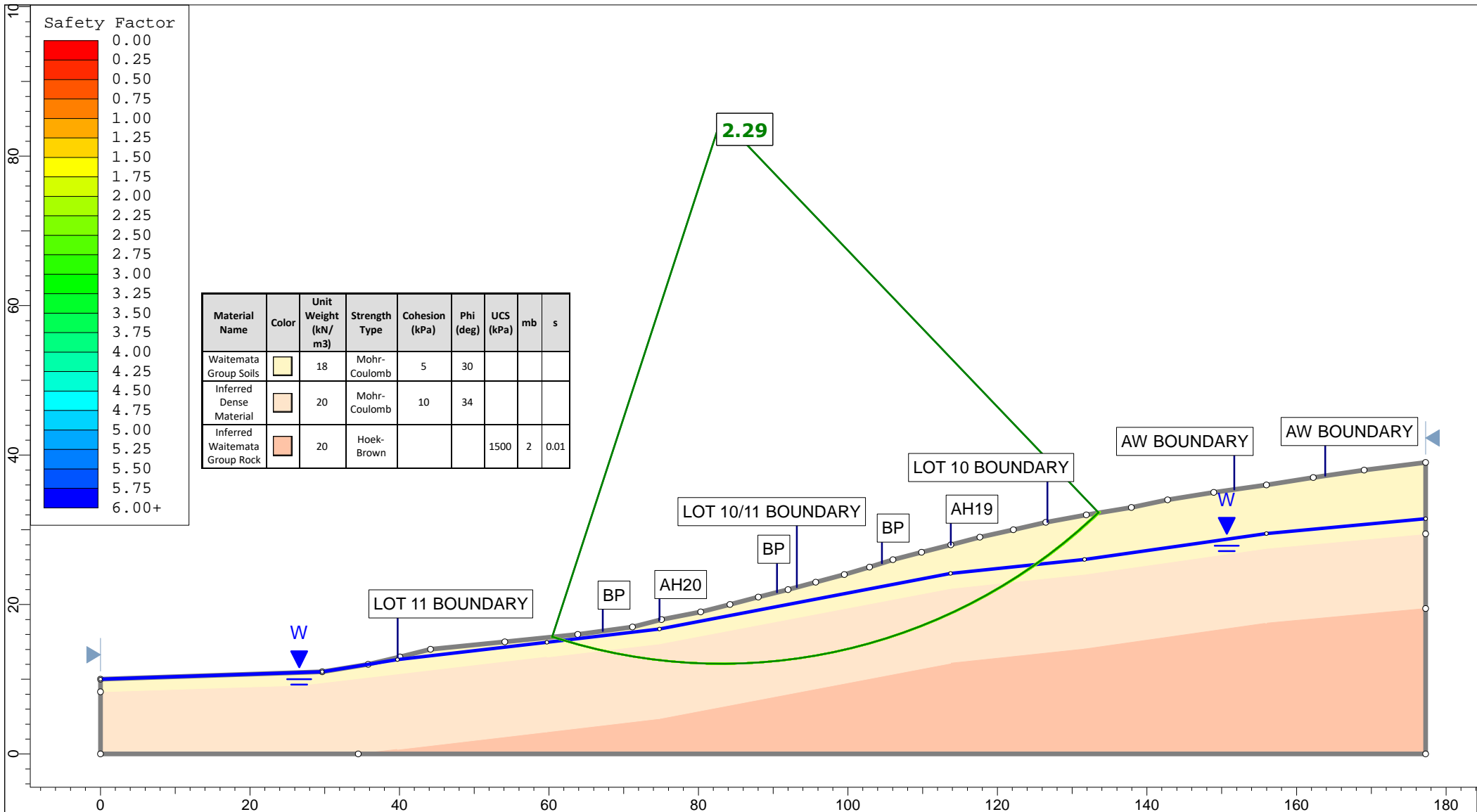
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section F-F' - Measured Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



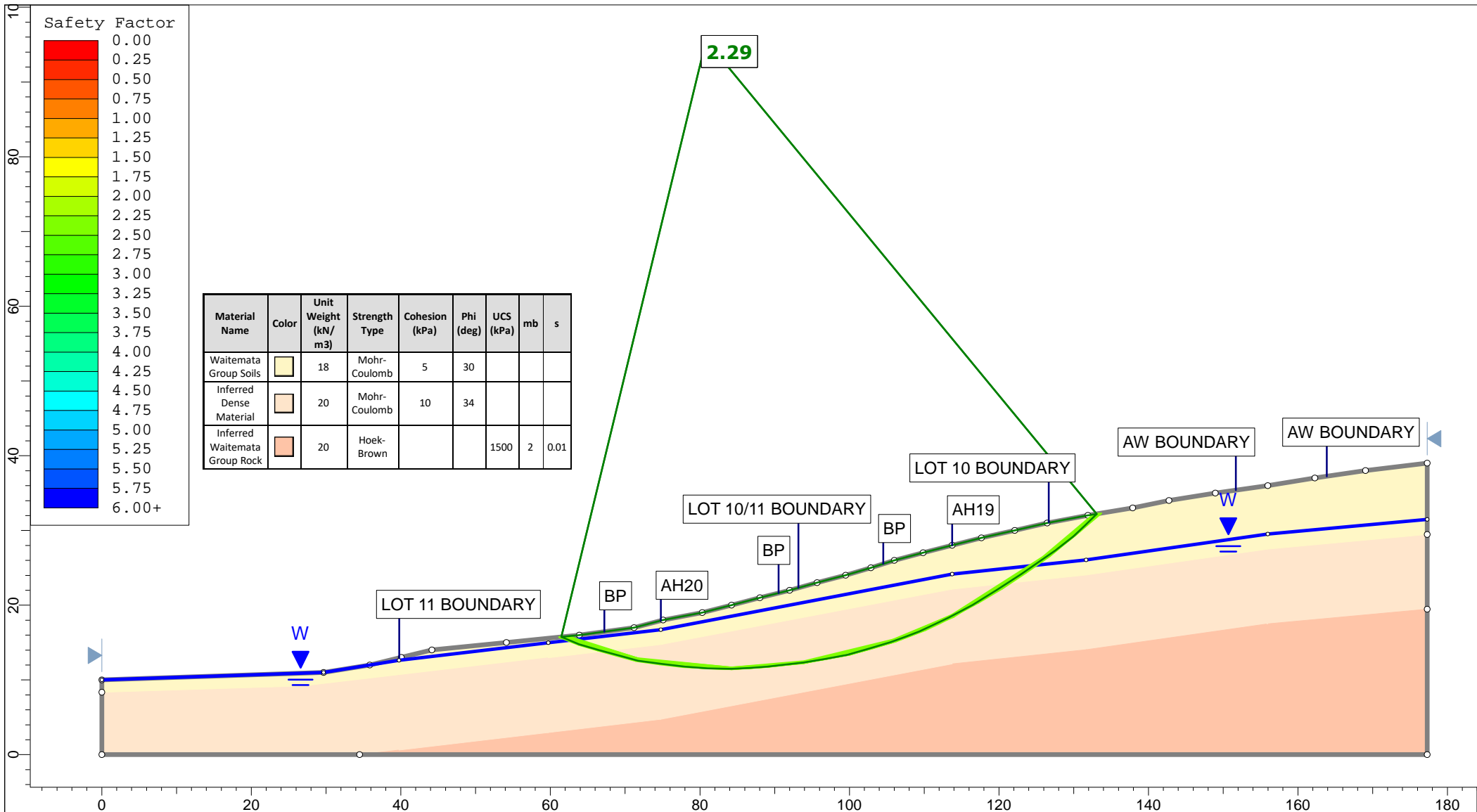
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section G-G' - Measured Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



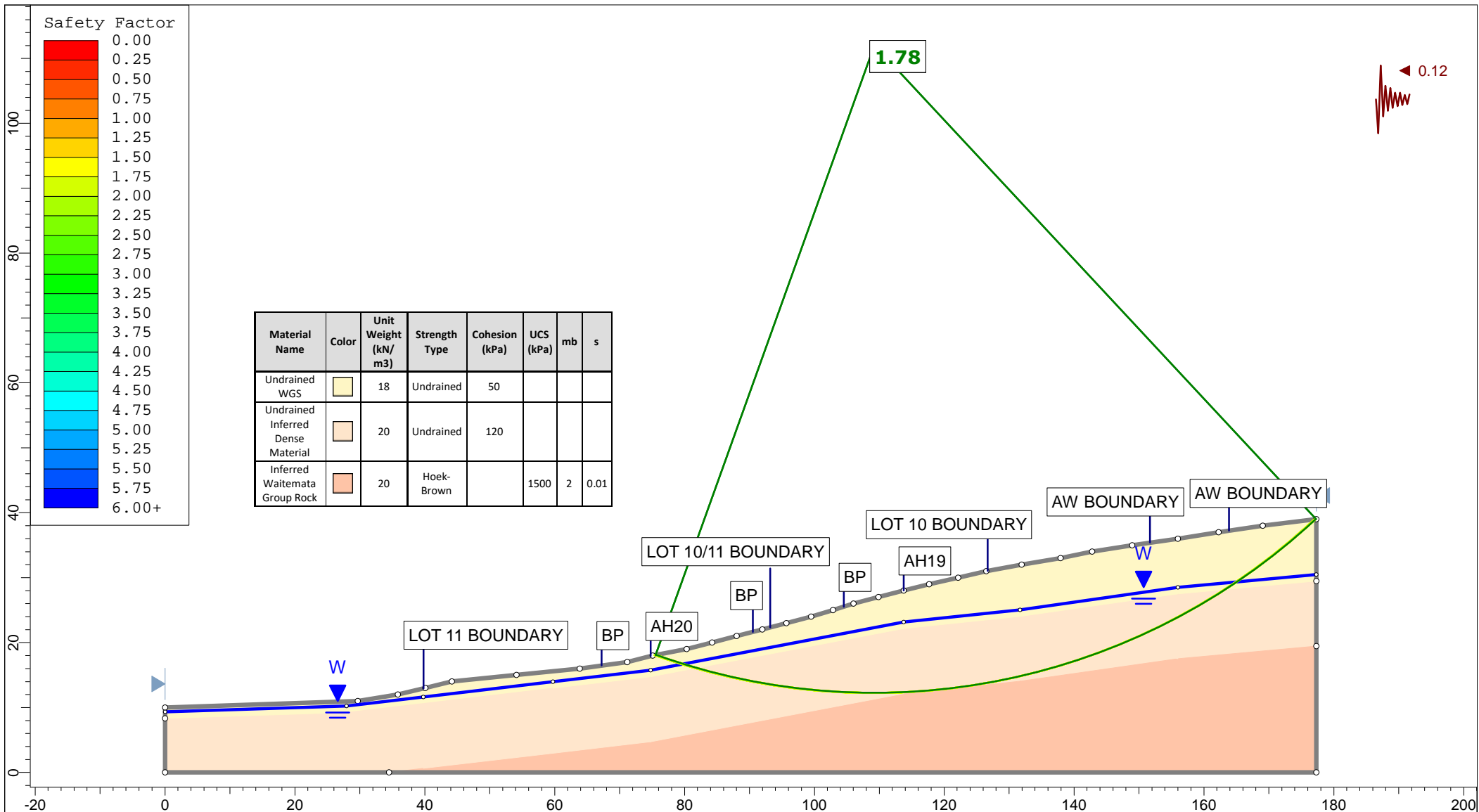
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section G-G' - Measured Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



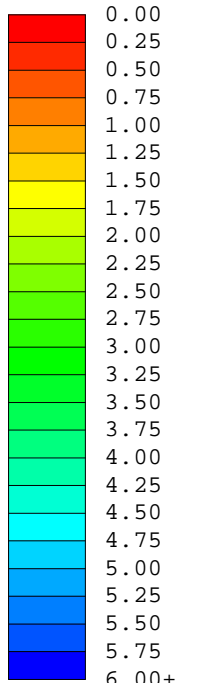
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section G-G' - Measured Ground		
	Scenario		Run 3 - Raised Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
		24 May 2021		File Name	
				Master redo lower soil with seismic.slm	



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section G-G' - Measured Ground		
	Scenario		Run 4 - Raised Groundwater - Non-Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
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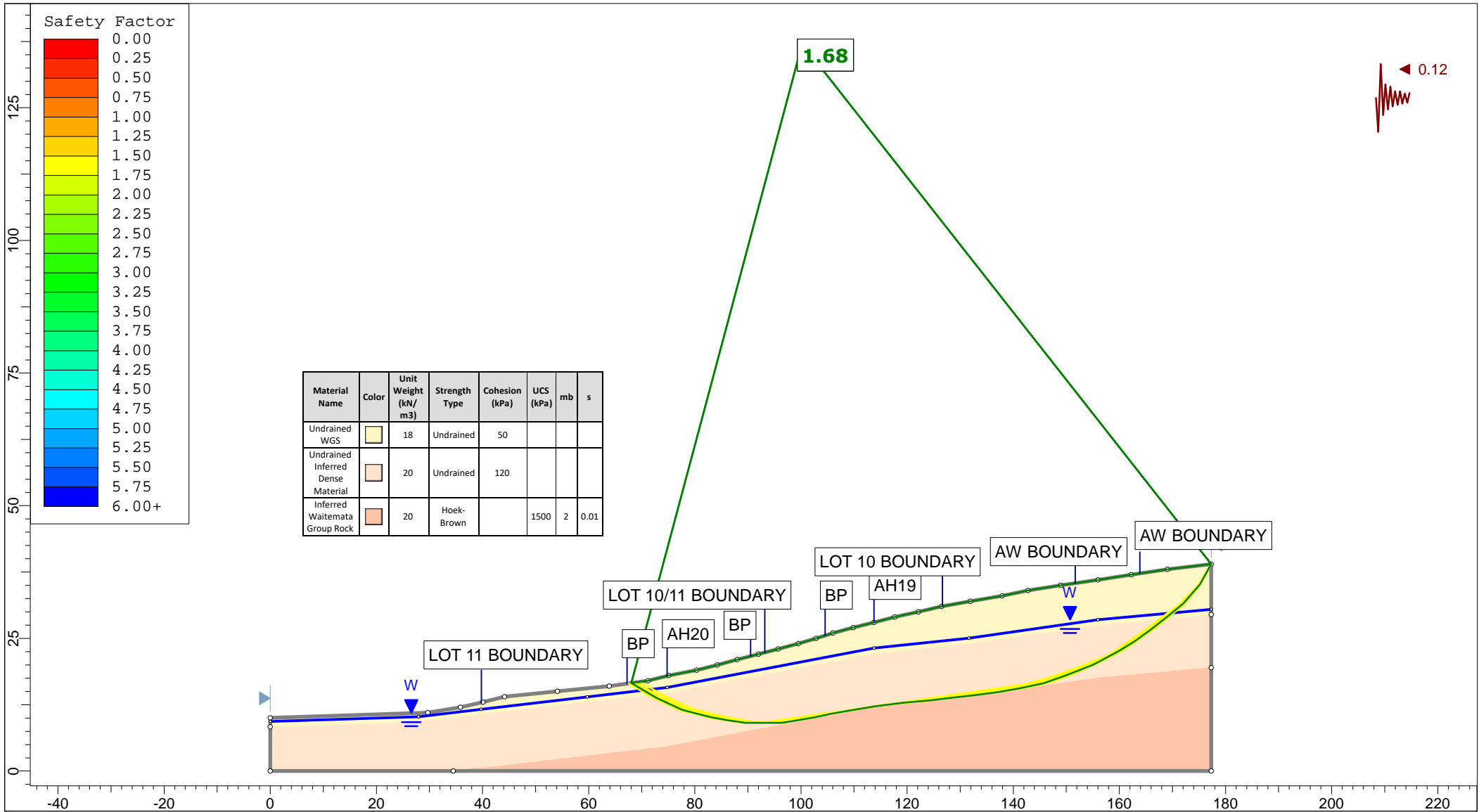
Safety Factor



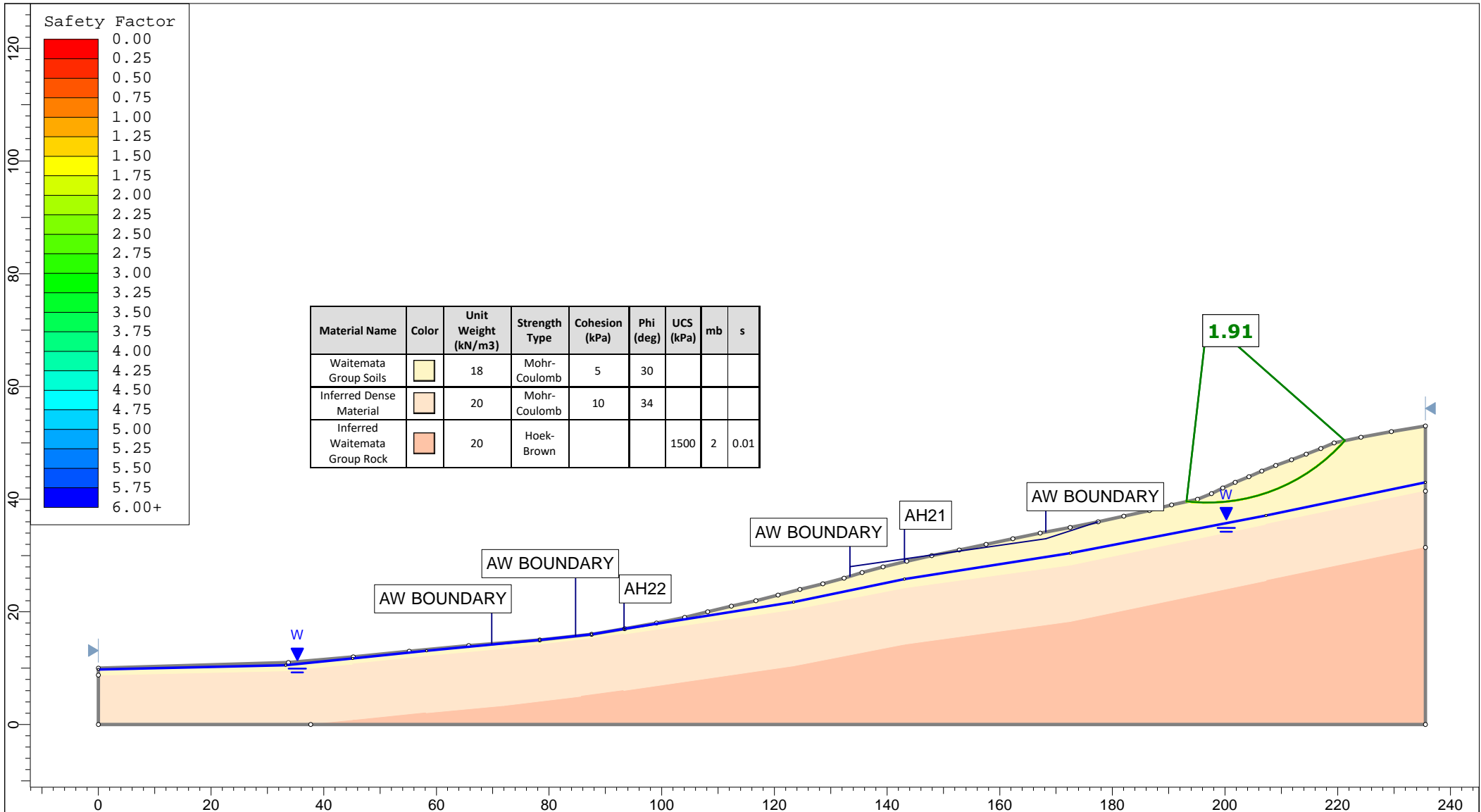
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50			
Undrained Inferred Dense Material		20	Undrained	120			
Inferred Waitemata Group Rock		20	Hoek-Brown		1500	2	0.01

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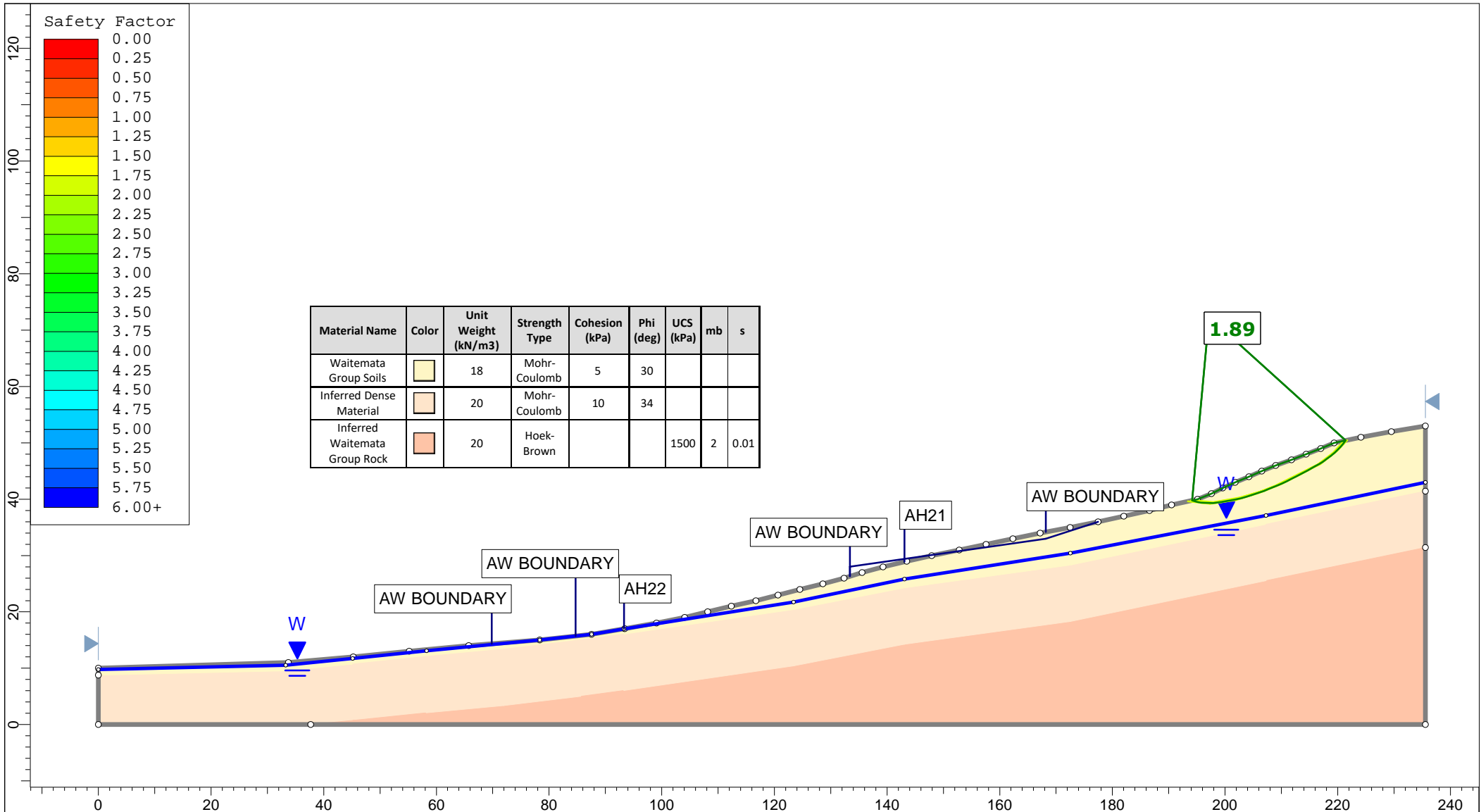
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section G-G' - Measured Ground	Scenario	Run 5 - Seismic Loading - Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



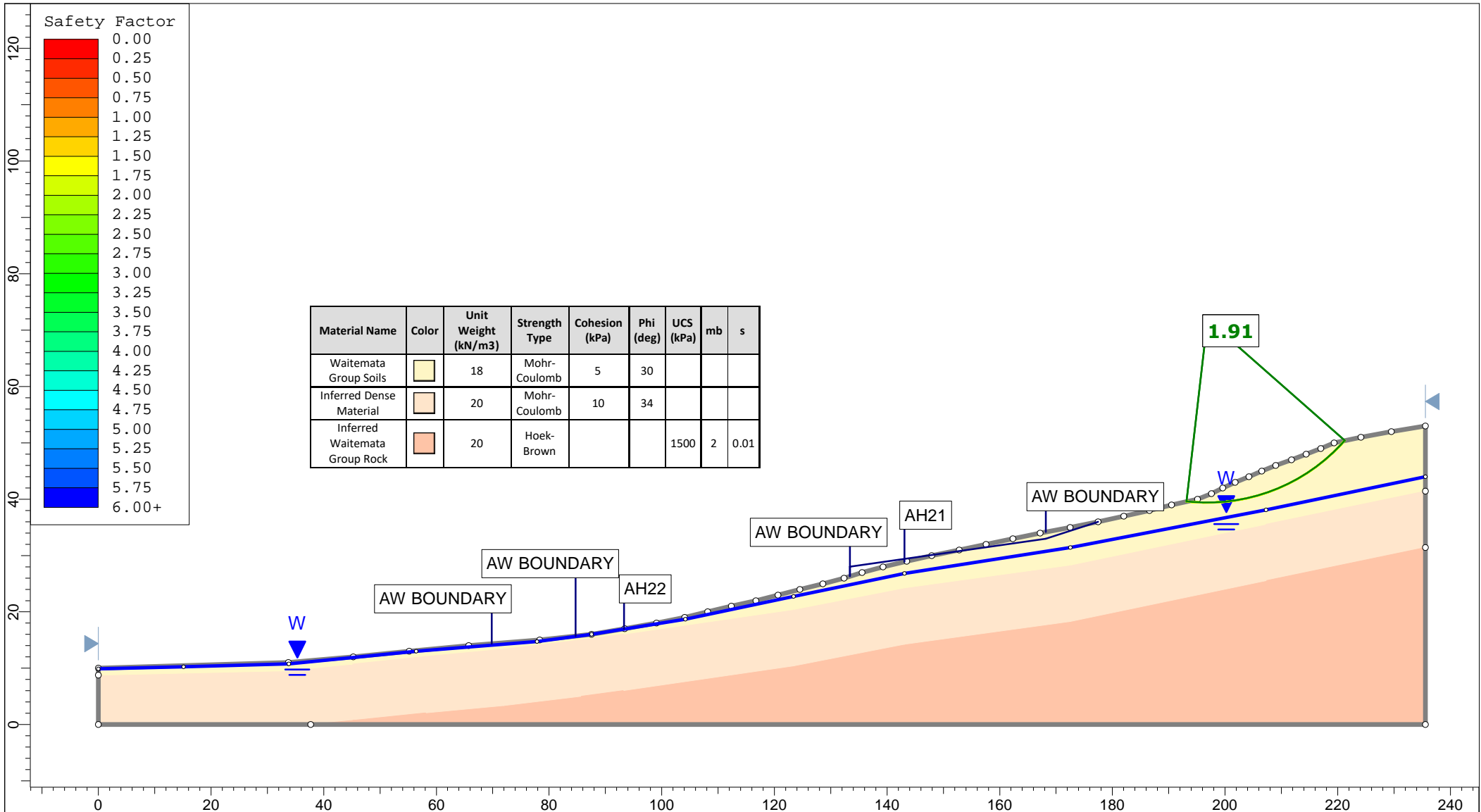
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section G-G' - Measured Ground	
	Scenario		Run 6 - Seismic Loading - Non-Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		24 May 2021		
File Name		Master redo lower soil with seismic.slmd		



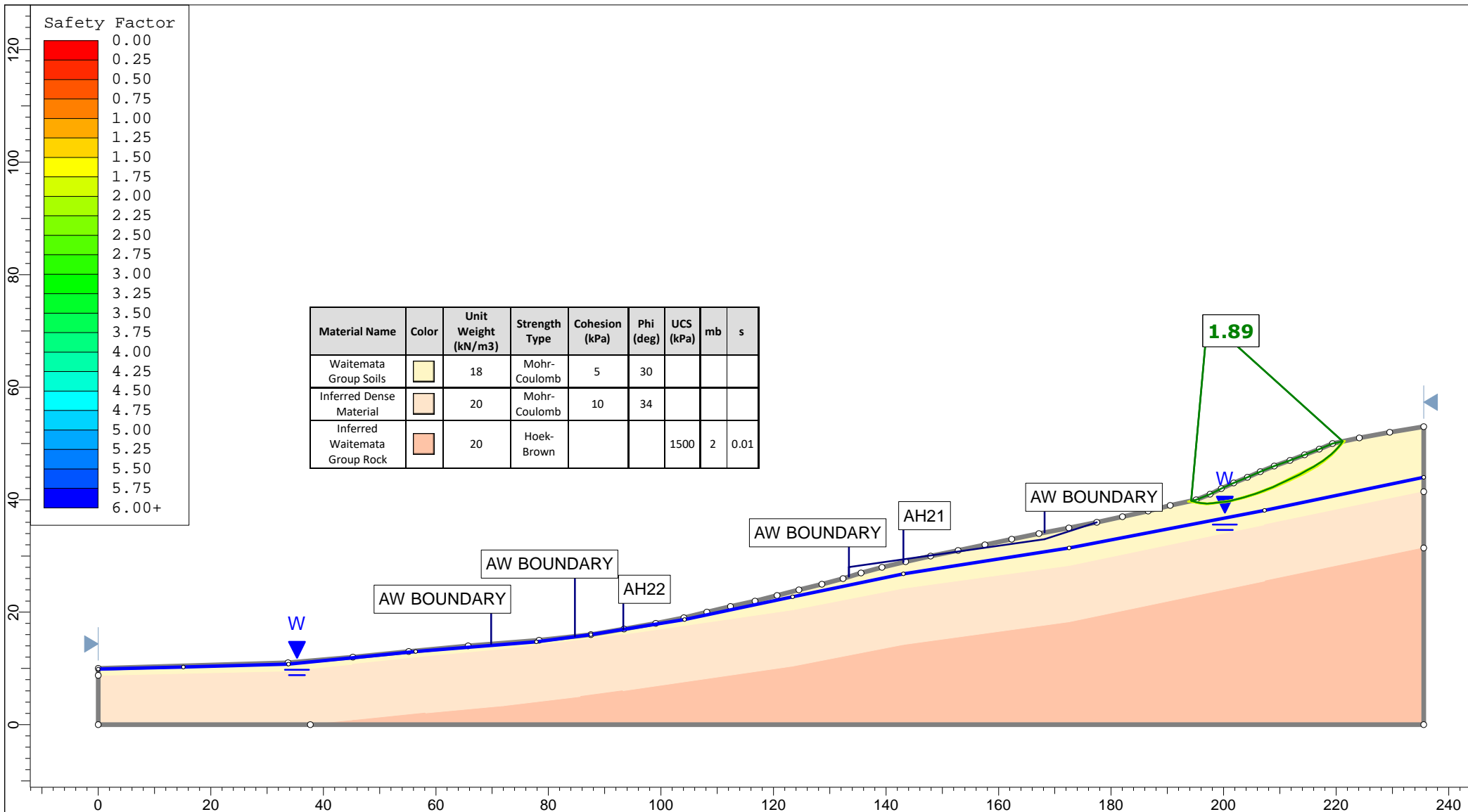
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section H-H' - Measured Ground		
	Scenario		Run 1 - Measured Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	




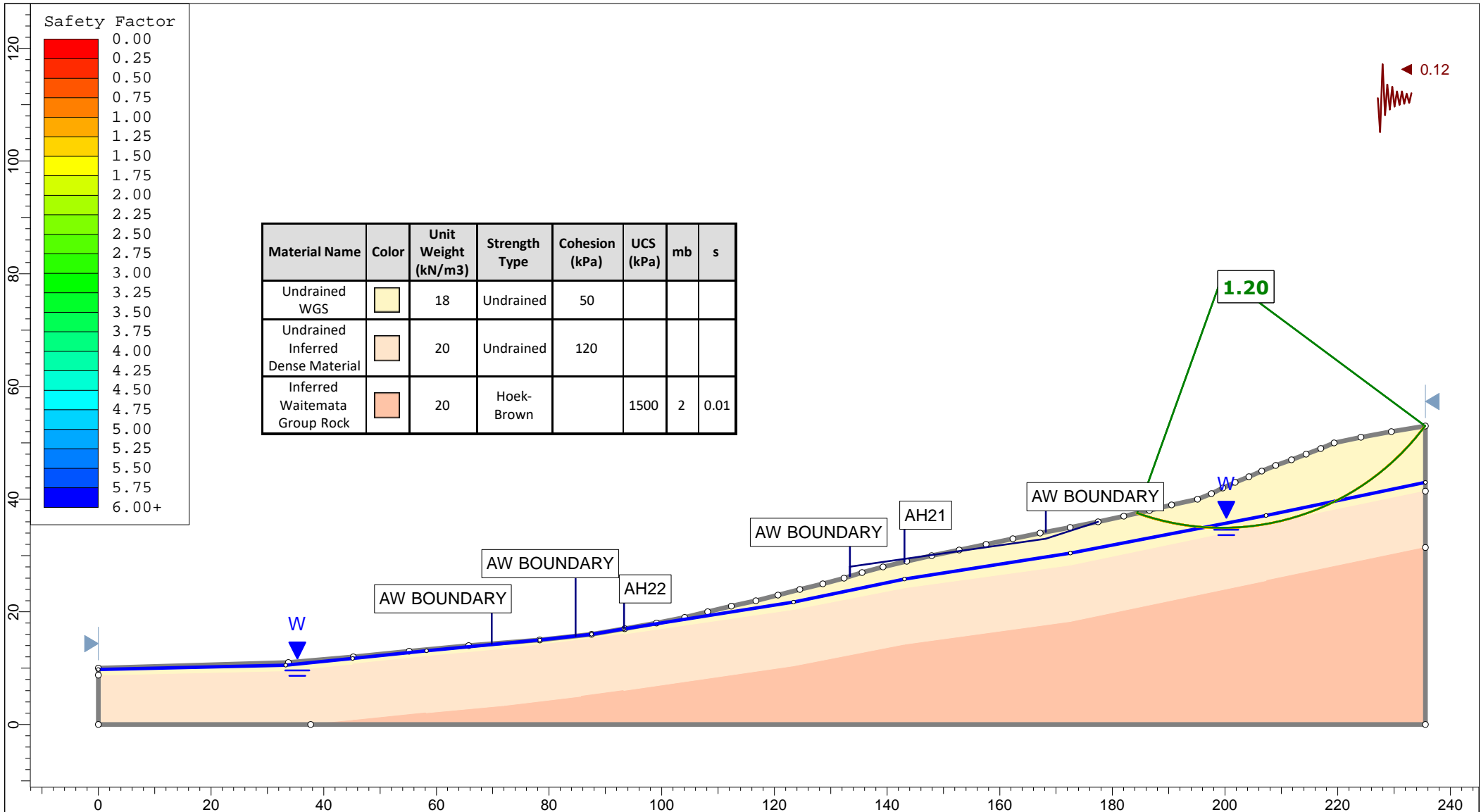
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section H-H' - Measured Ground	
	Scenario		Run 2 - Measured Groundwater - Non-Cicular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



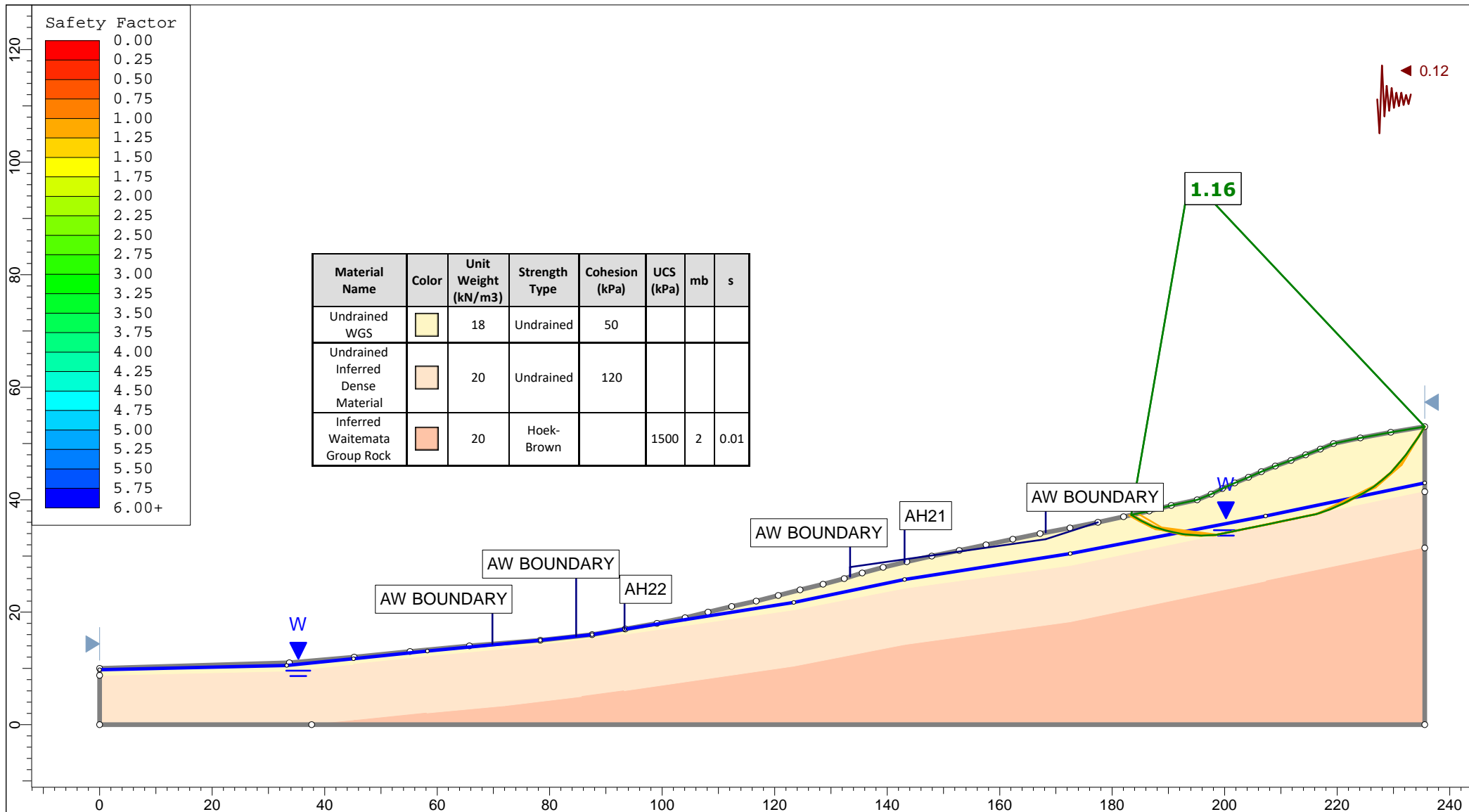
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section H-H' - Measured Ground		
	Scenario		Run 3 - Raised Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



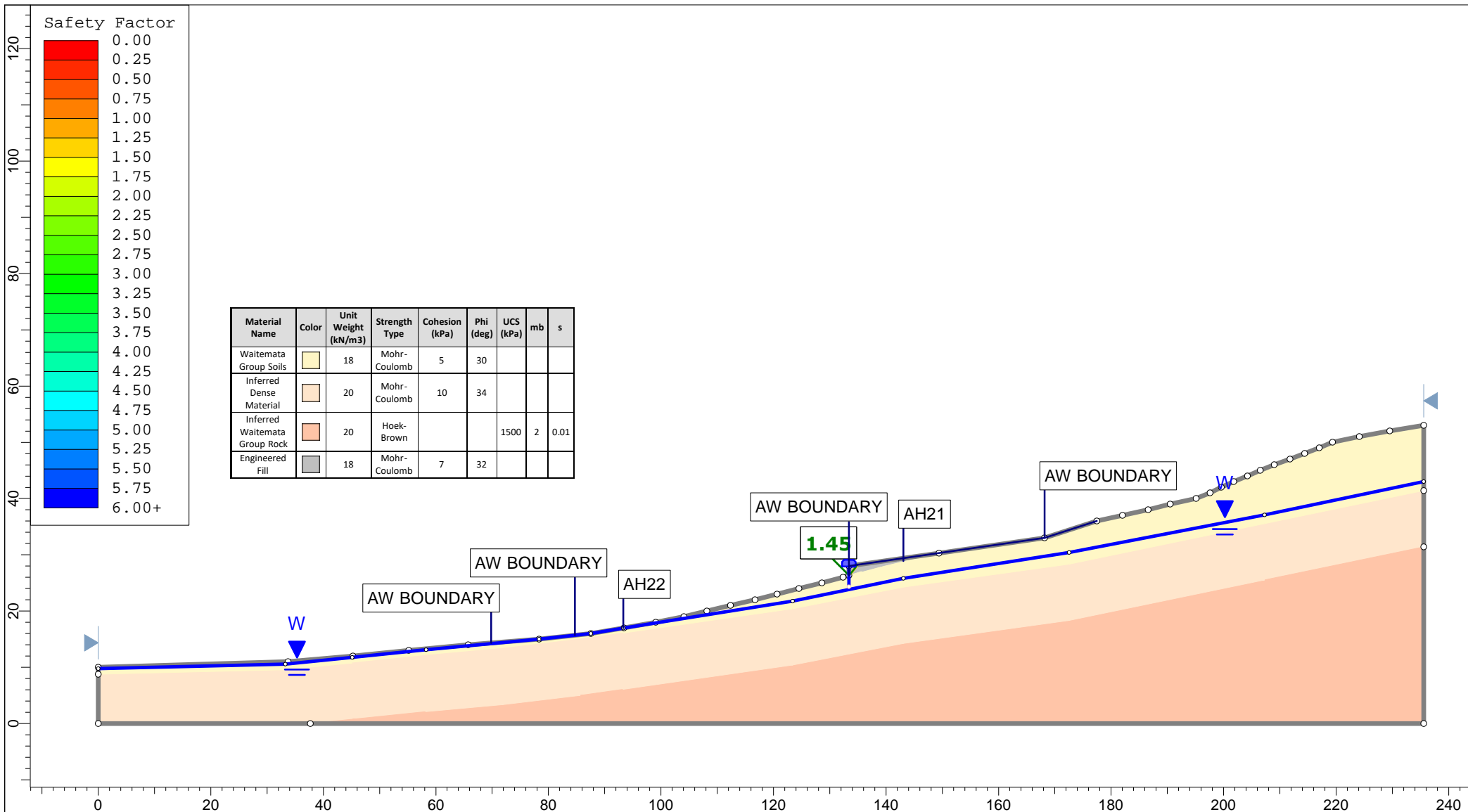
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section H-H' - Measured Ground				
	Scenario		Run 4 - Raised Groundwater - Non-Cicular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		Date		24 May 2021	
File Name		Master redo lower soil with seismic.slmd					



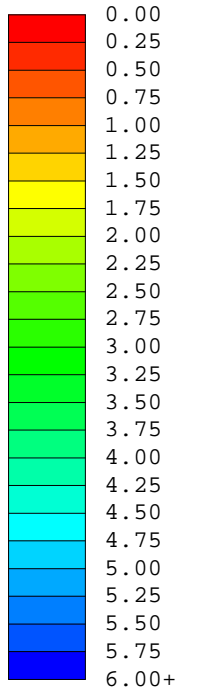
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section H-H' - Measured Ground		
	Scenario		Run 5 - Seismic Loading - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section H-H' - Measured Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



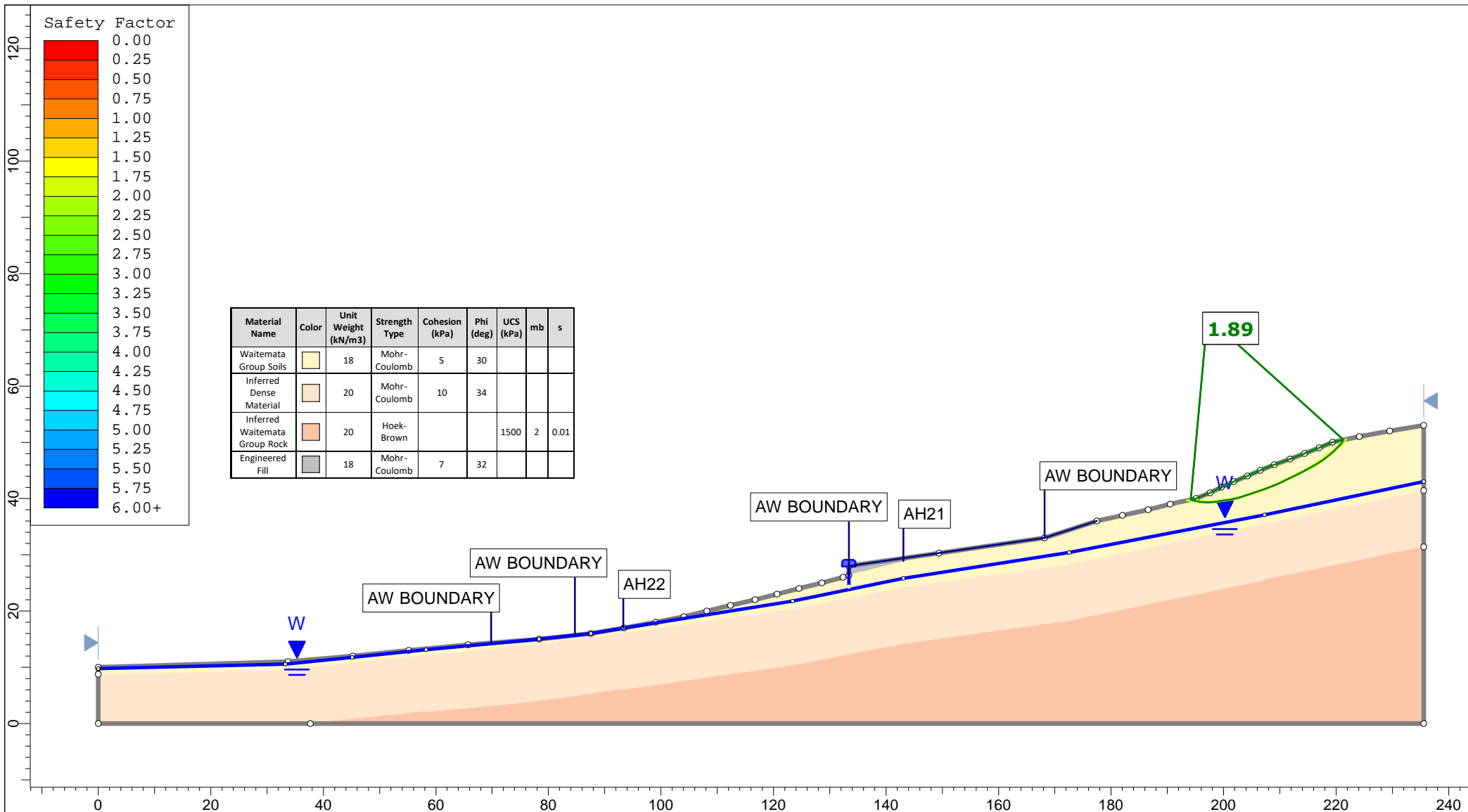
Safety Factor



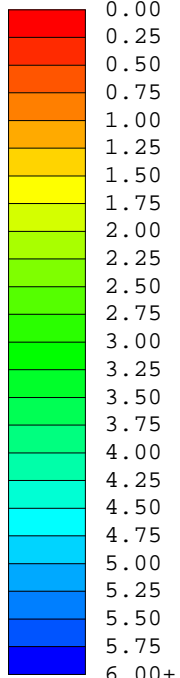
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Orange	20	Hoek-Brown			1500	2	0.01
Engineered Fill	Grey	18	Mohr-Coulomb	7	32			

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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section H-H' - Proposed Ground	Scenario	Run 1 - Measured Groundwater - Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



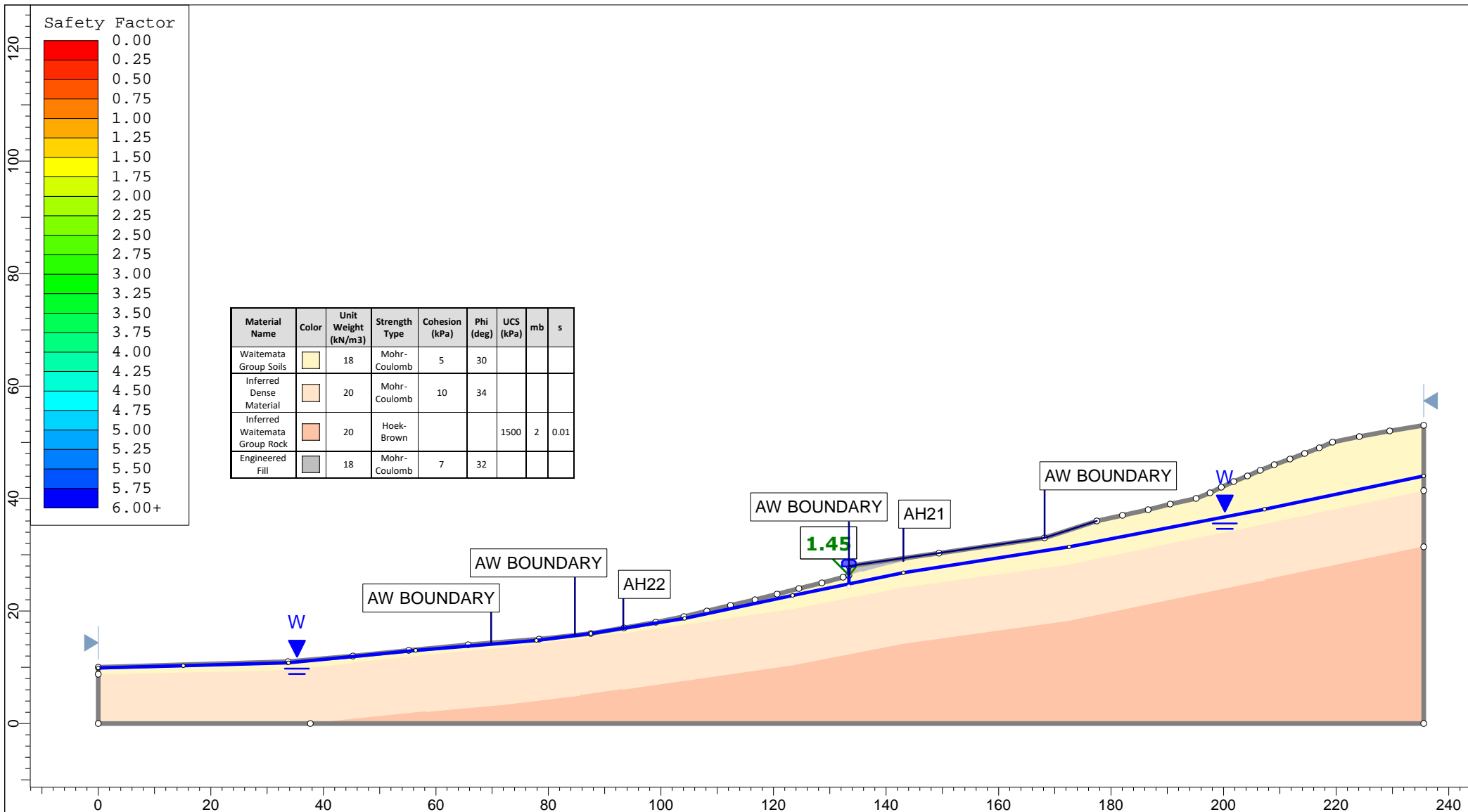
Safety Factor



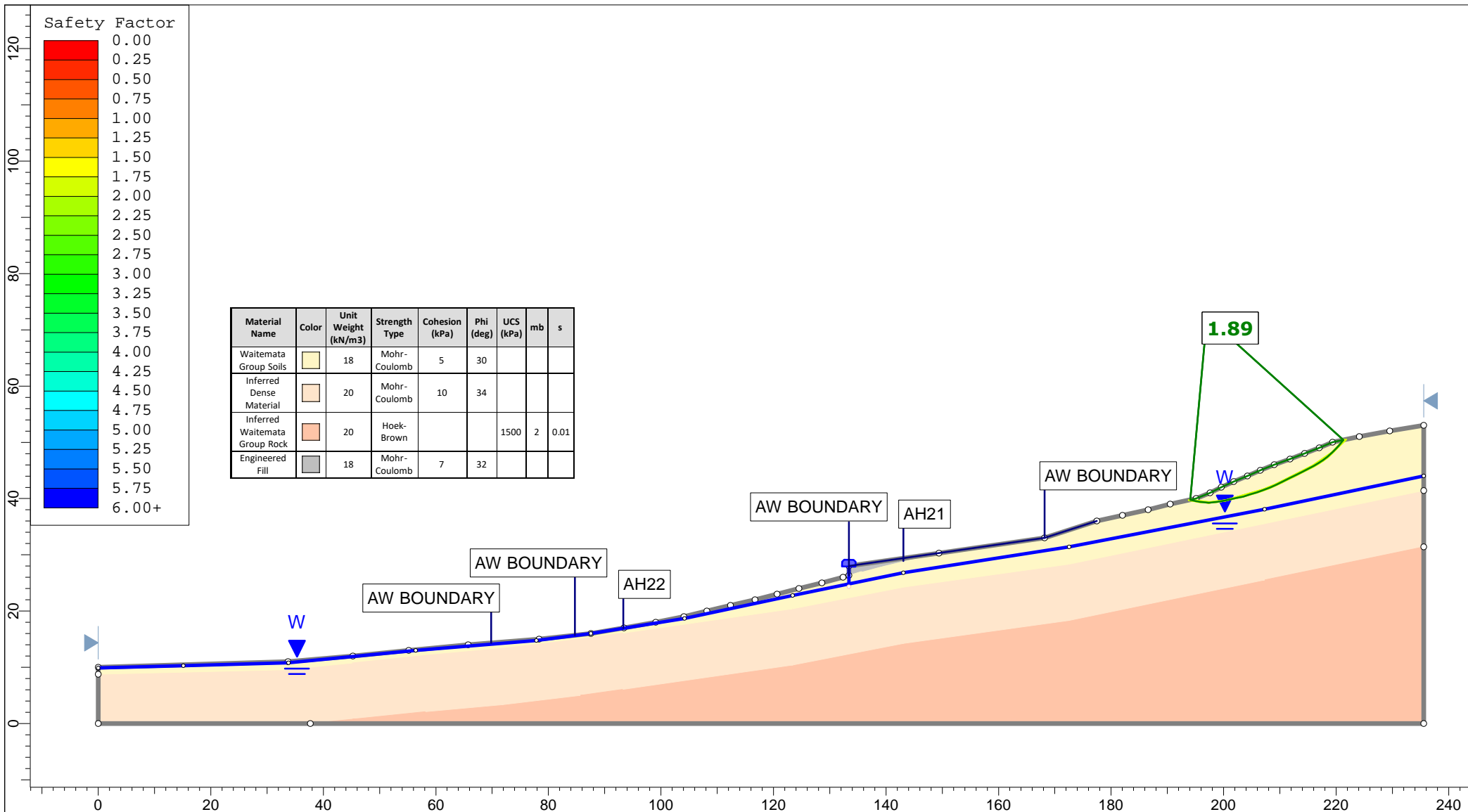
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01
Engineered Fill	Grey	18	Mohr-Coulomb	7	32			

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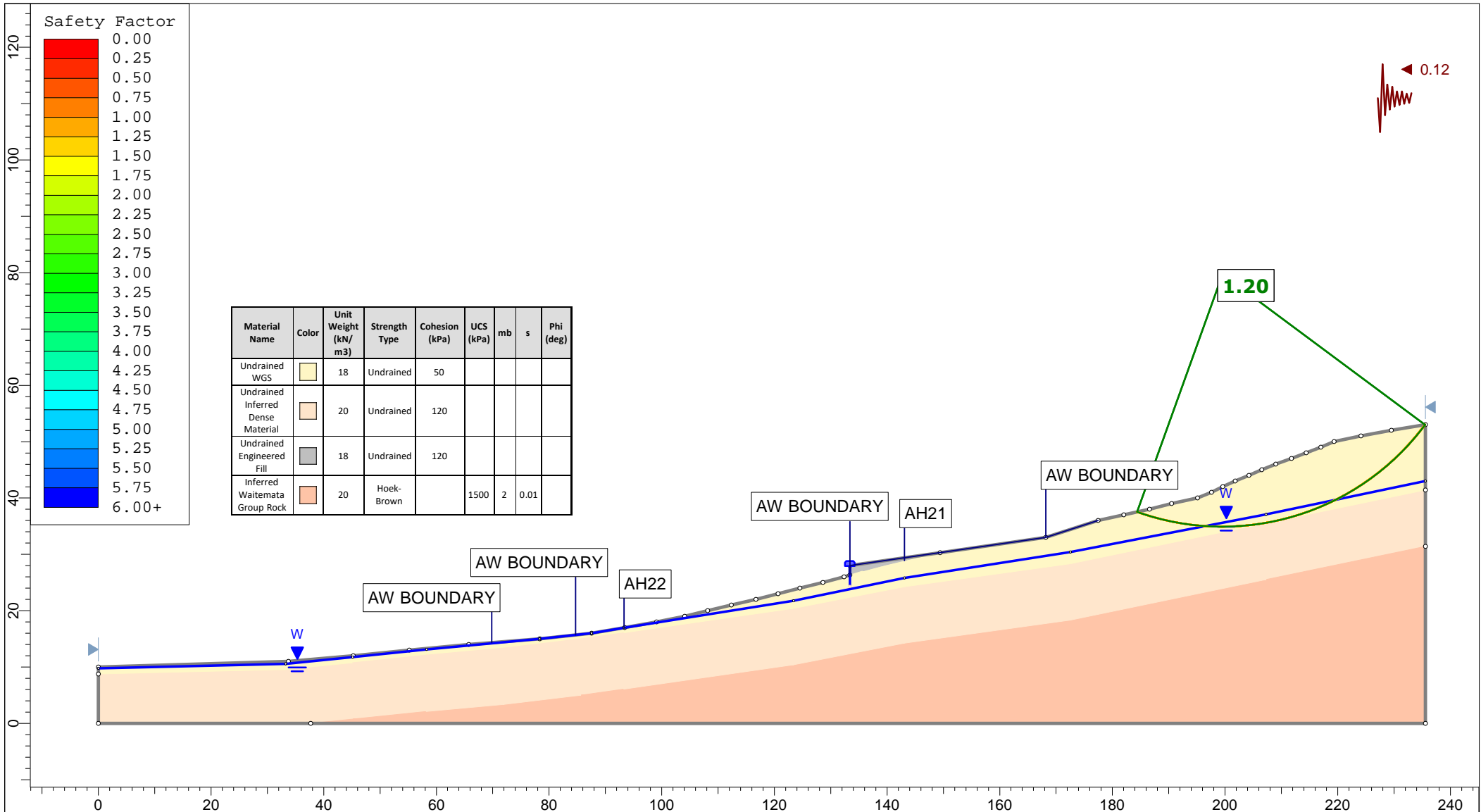
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section H-H' - Proposed Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd




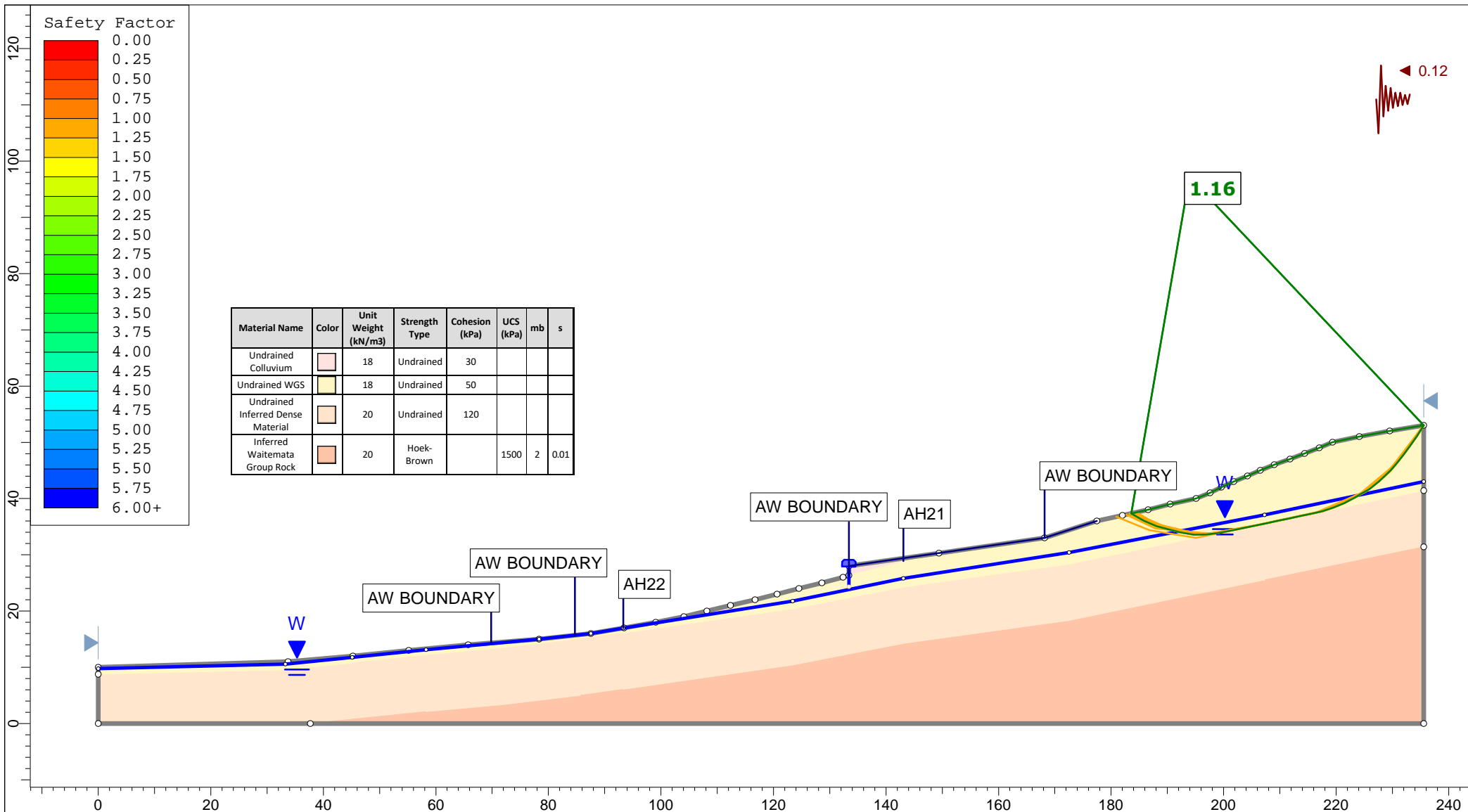
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section H-H' - Proposed Ground		
	Scenario		Run 3 - Raised Groundwater - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



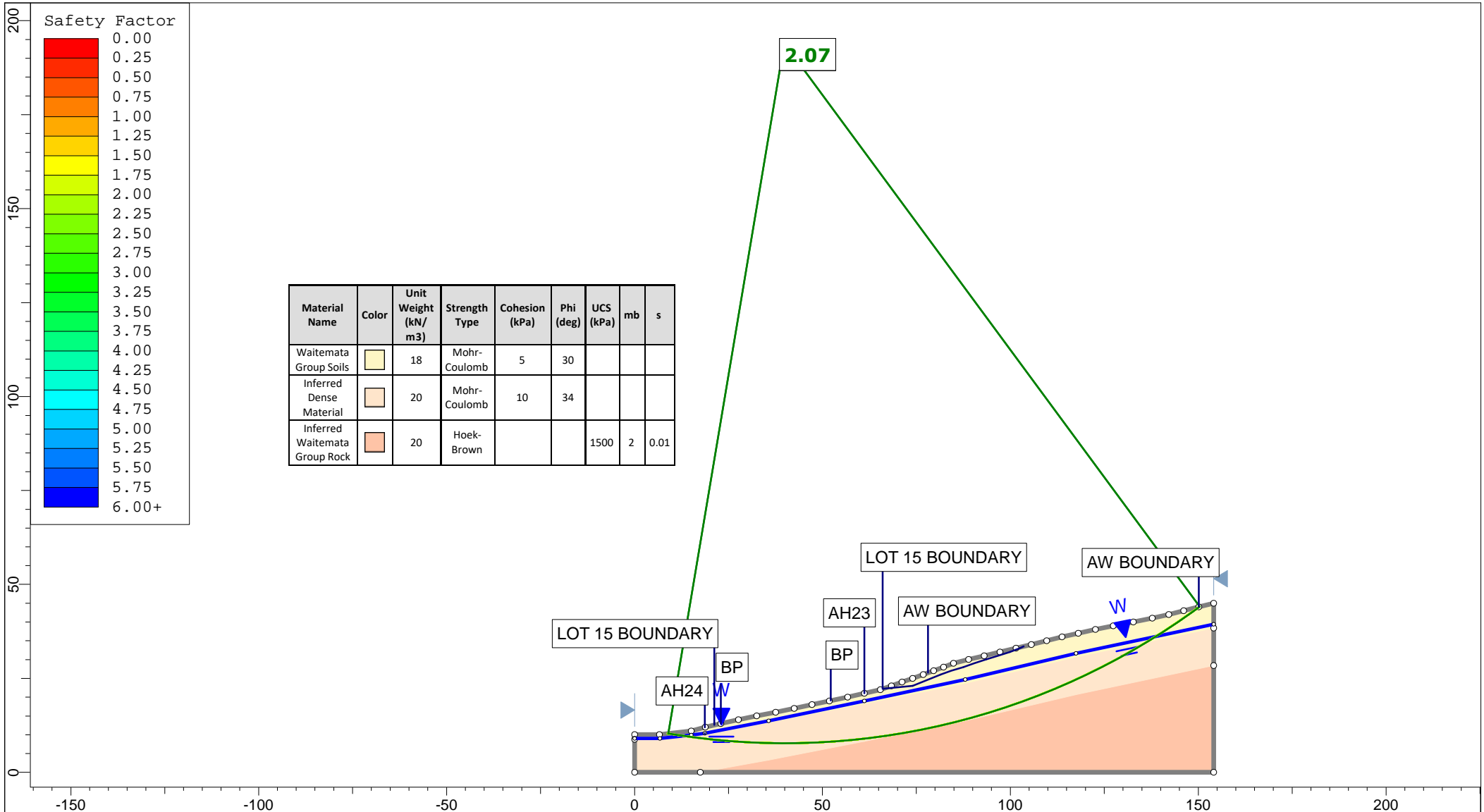
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group	Cross-Section H-H' - Proposed Ground	Scenario	Run 4 - Raised Groundwater - Non-Cicular
	Drawn By	TR	Company	KGA Geotechnical Group Limited
	Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd




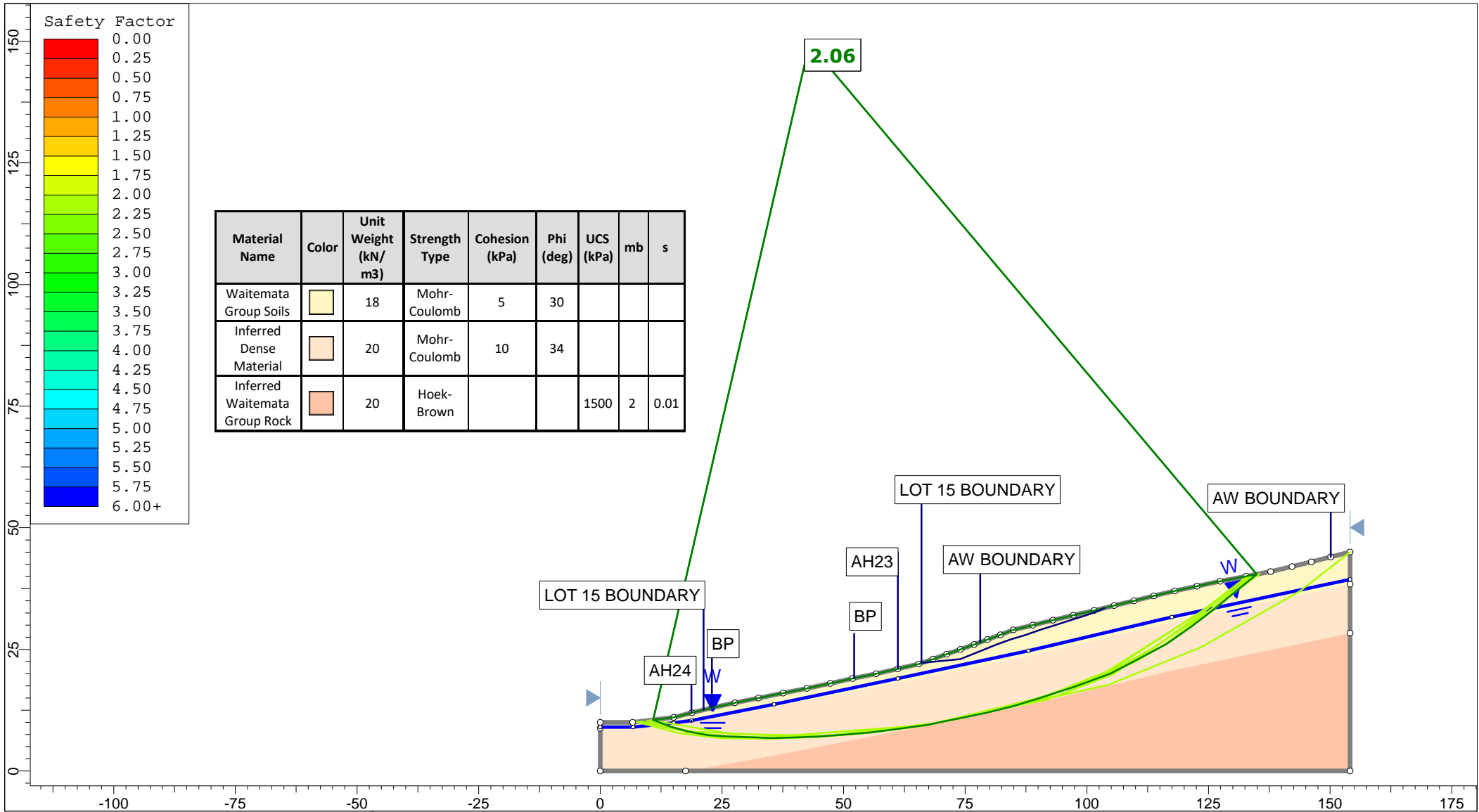
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section H-H' - Proposed Ground		
	Scenario		Run 5 - Seismic Loading - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
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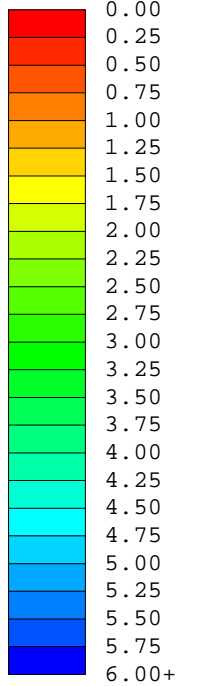
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section H-H' - Proposed Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section I-I' - Measured Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



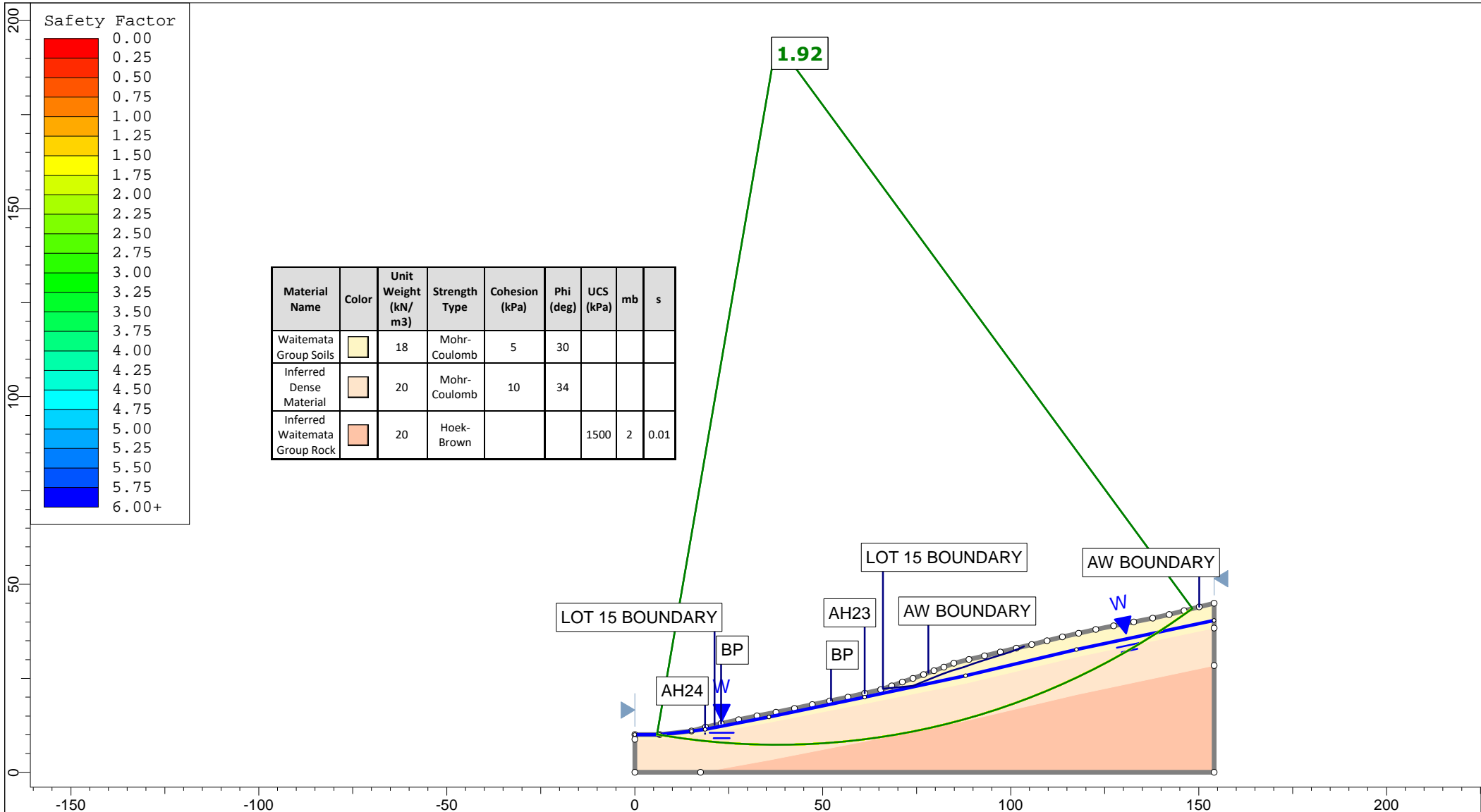
Safety Factor



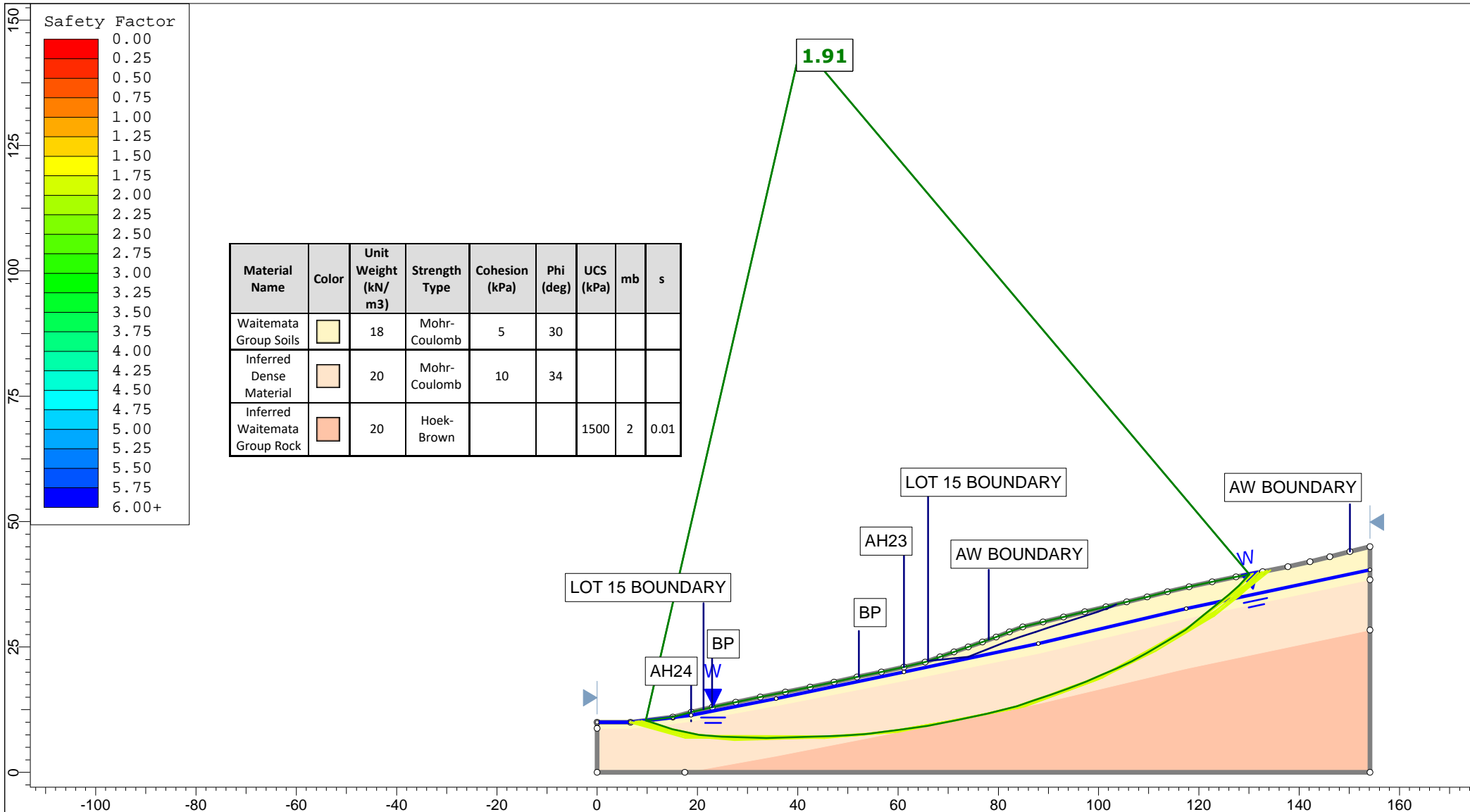
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils		18	Mohr-Coulomb	5	30			
Inferred Dense Material		20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock		20	Hoek-Brown			1500	2	0.01

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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section I-I' - Measured Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd

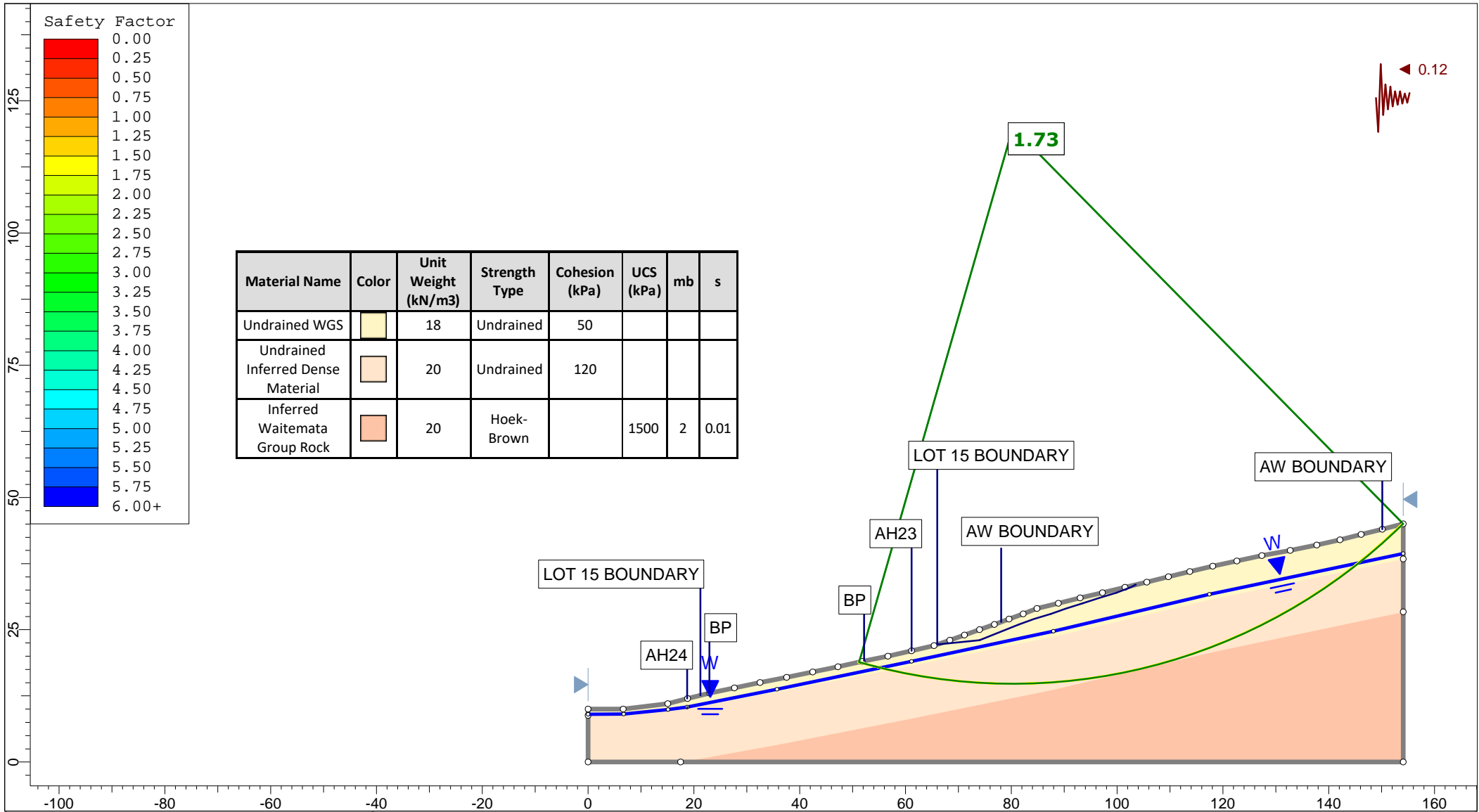


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section I-I' - Measured Ground				
	Scenario		Run 3 - Raised Groundwater - Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		File Name		Master redo lower soil with seismic.slmd	
Date		24 May 2021					

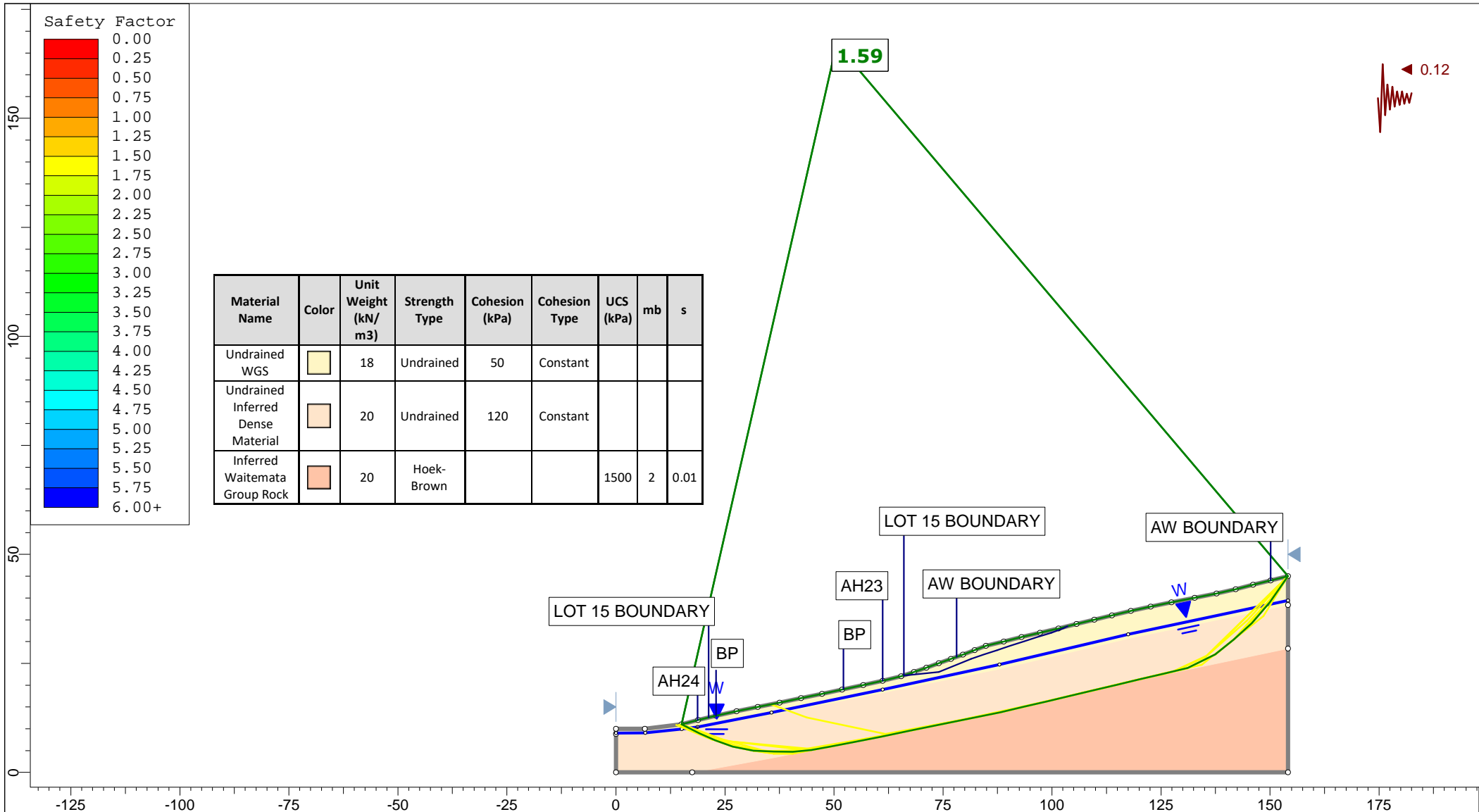


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

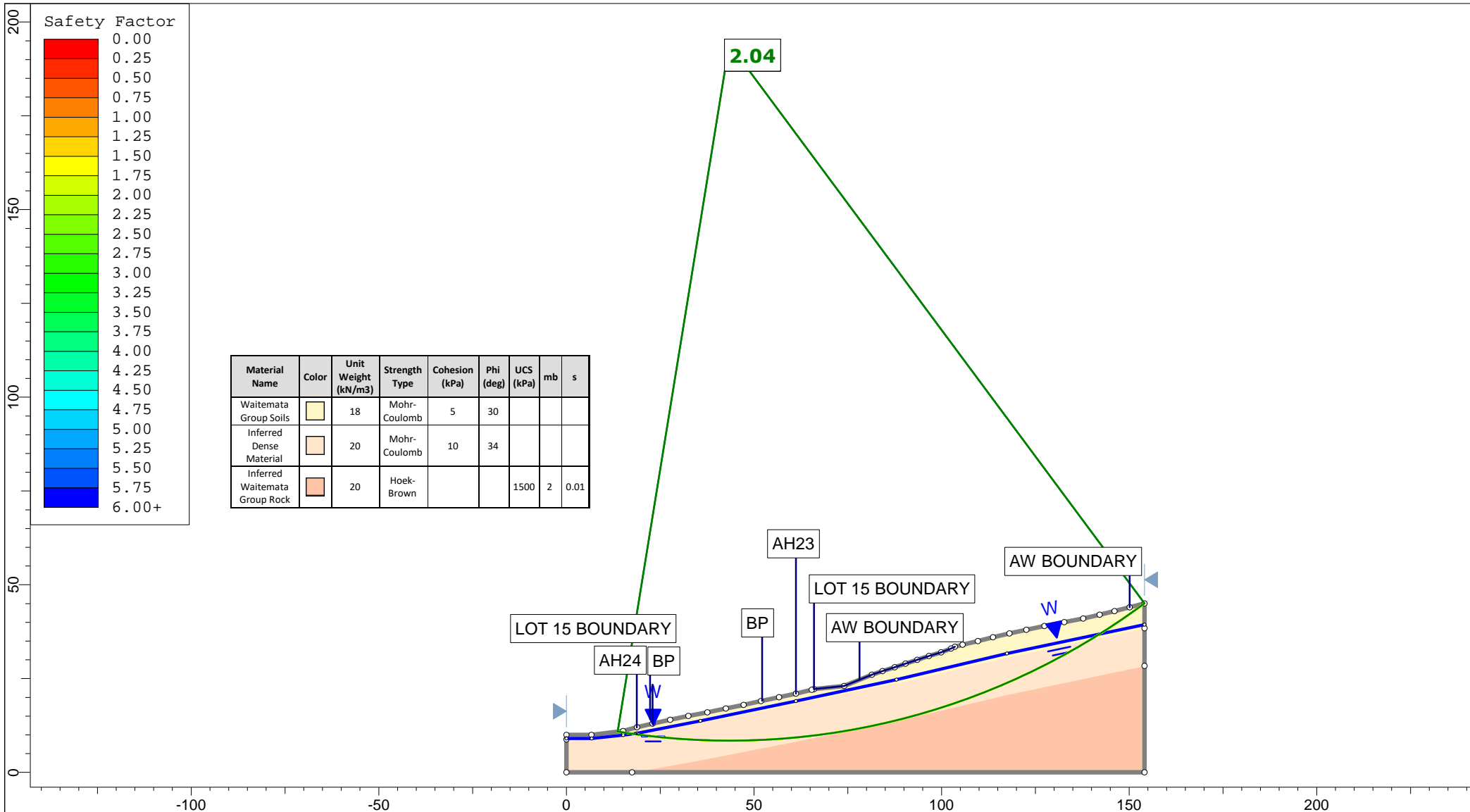
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section I-I' - Measured Ground				
	Scenario		Run 4 - Raised Groundwater - Non-Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		File Name		Master redo lower soil with seismic.slmd	
Date		24 May 2021					



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section I-I' - Measured Ground	
	Scenario		Run 5 - Seismic Loading - Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		24 May 2021		
File Name		Master redo lower soil with seismic.slm		

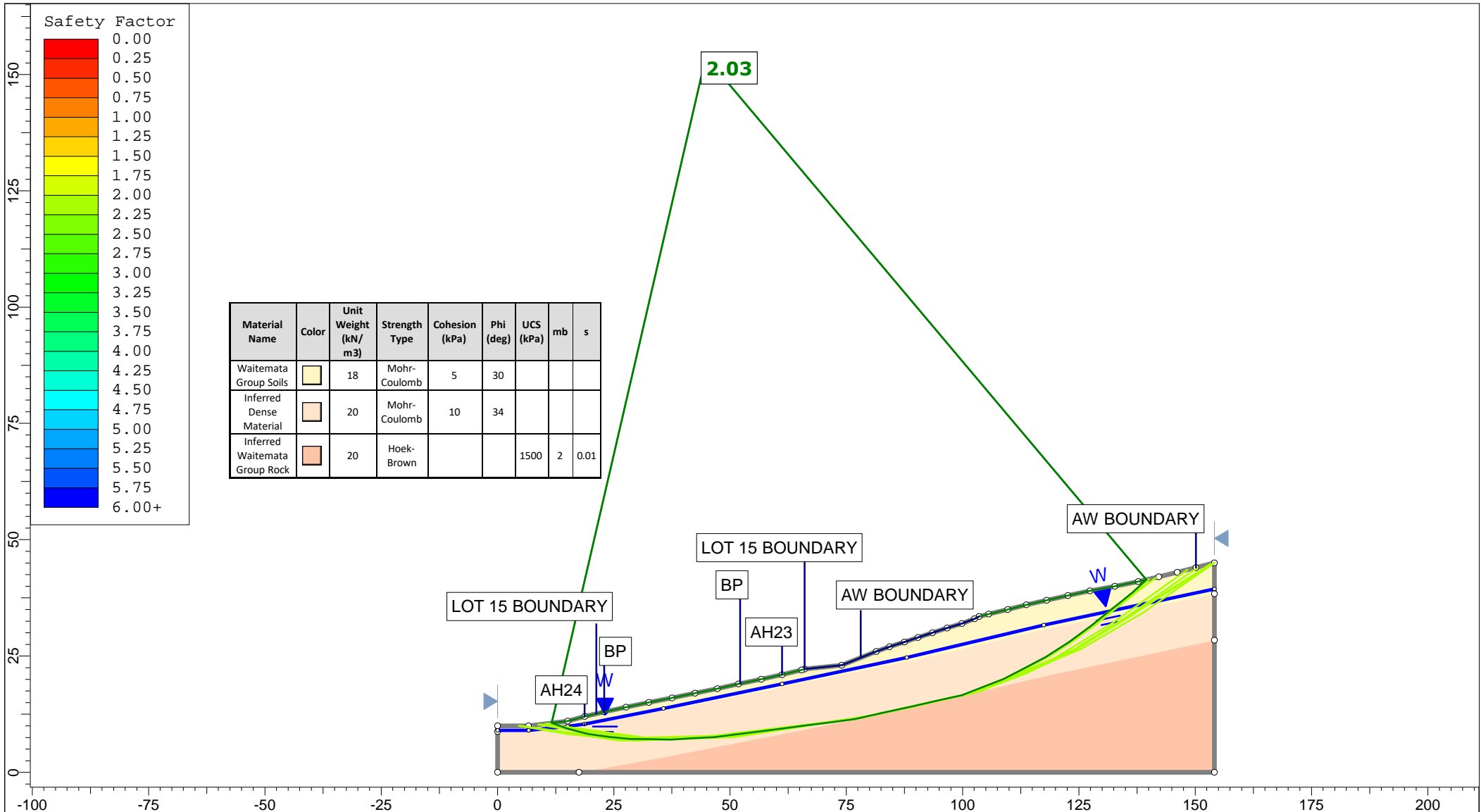


 Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section I-I' - Measured Ground	
	Scenario		Run 6 - Seismic Loading - Non-Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		24 May 2021		
File Name		Master redo lower soil with seismic.slmd		

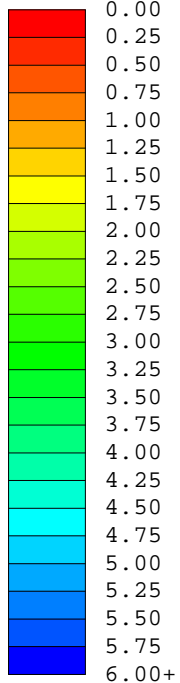


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils		18	Mohr-Coulomb	5	30			
Inferred Dense Material		20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock		20	Hoek-Brown			1500	2	0.01

 Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section I-I' - Proposed Ground				
	Scenario		Run 1 - Measured Groundwater - Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		Date		24 May 2021	
File Name		Master redo lower soil with seismic.slmd					



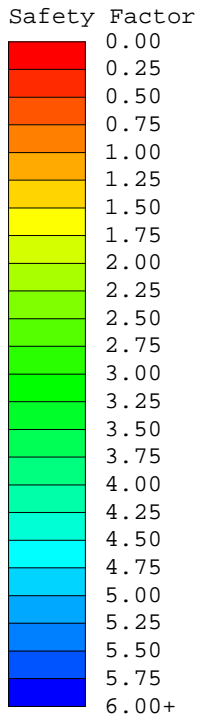
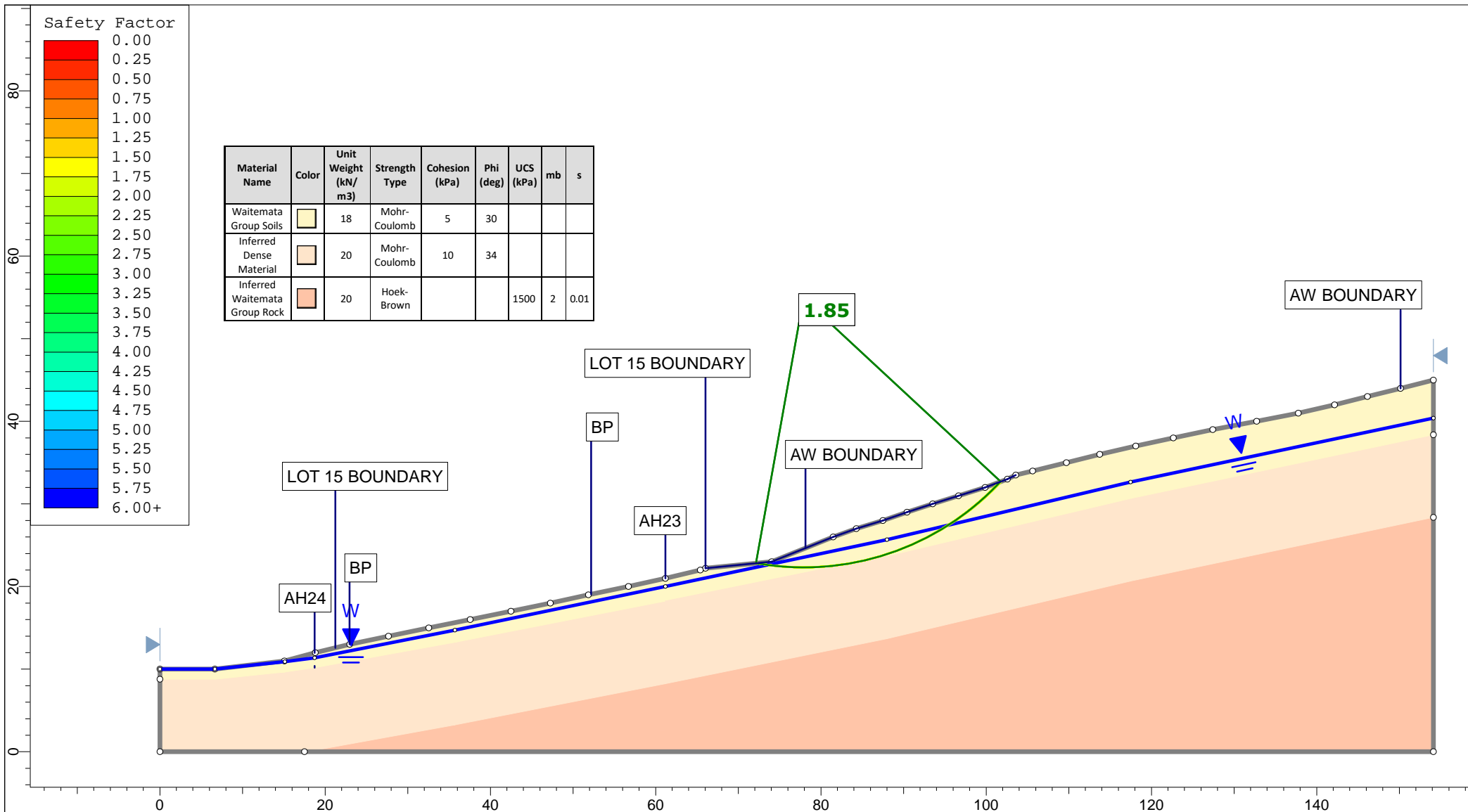
Safety Factor



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils		18	Mohr-Coulomb	5	30			
Inferred Dense Material		20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock		20	Hoek-Brown			1500	2	0.01

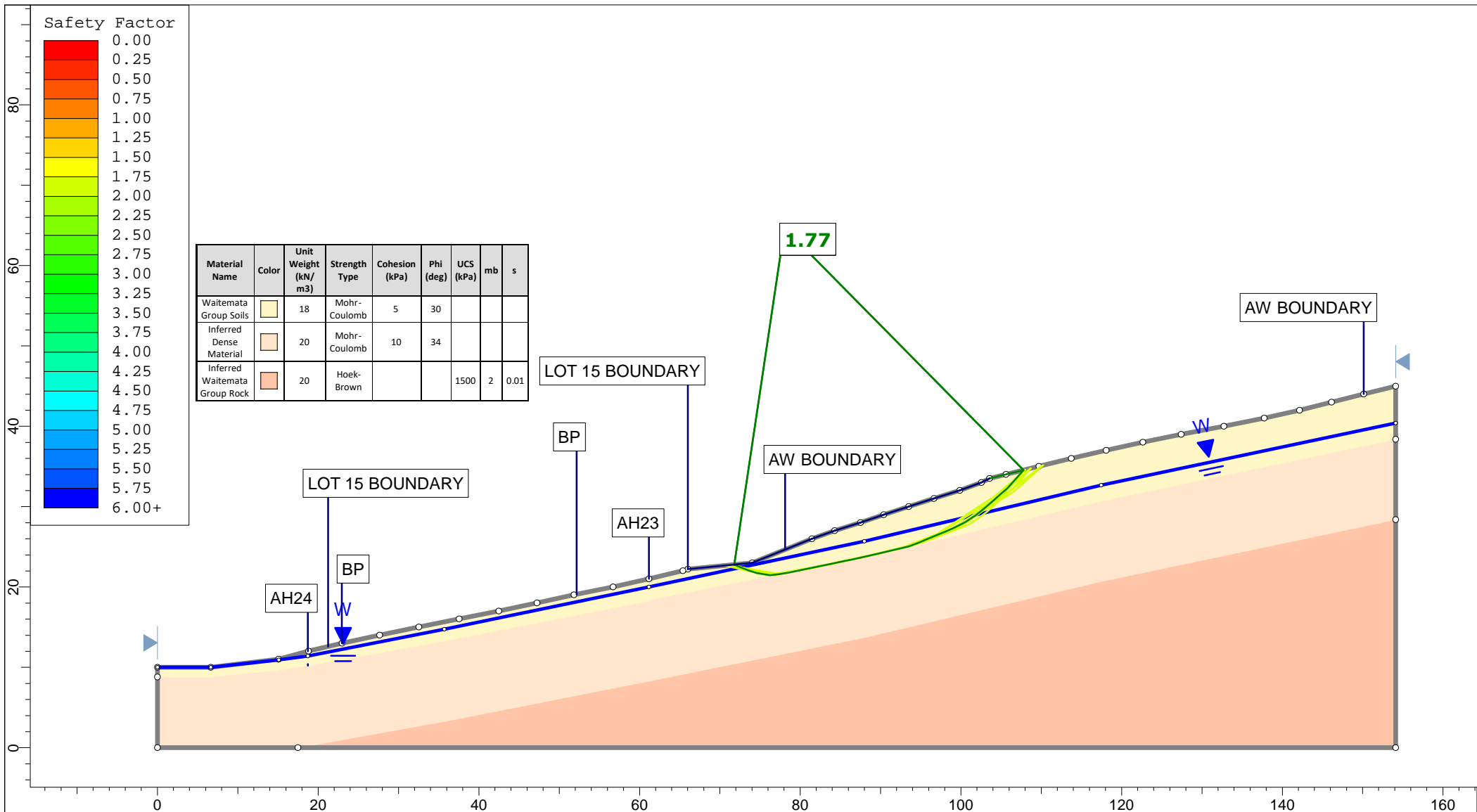
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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section I-I' - Proposed Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

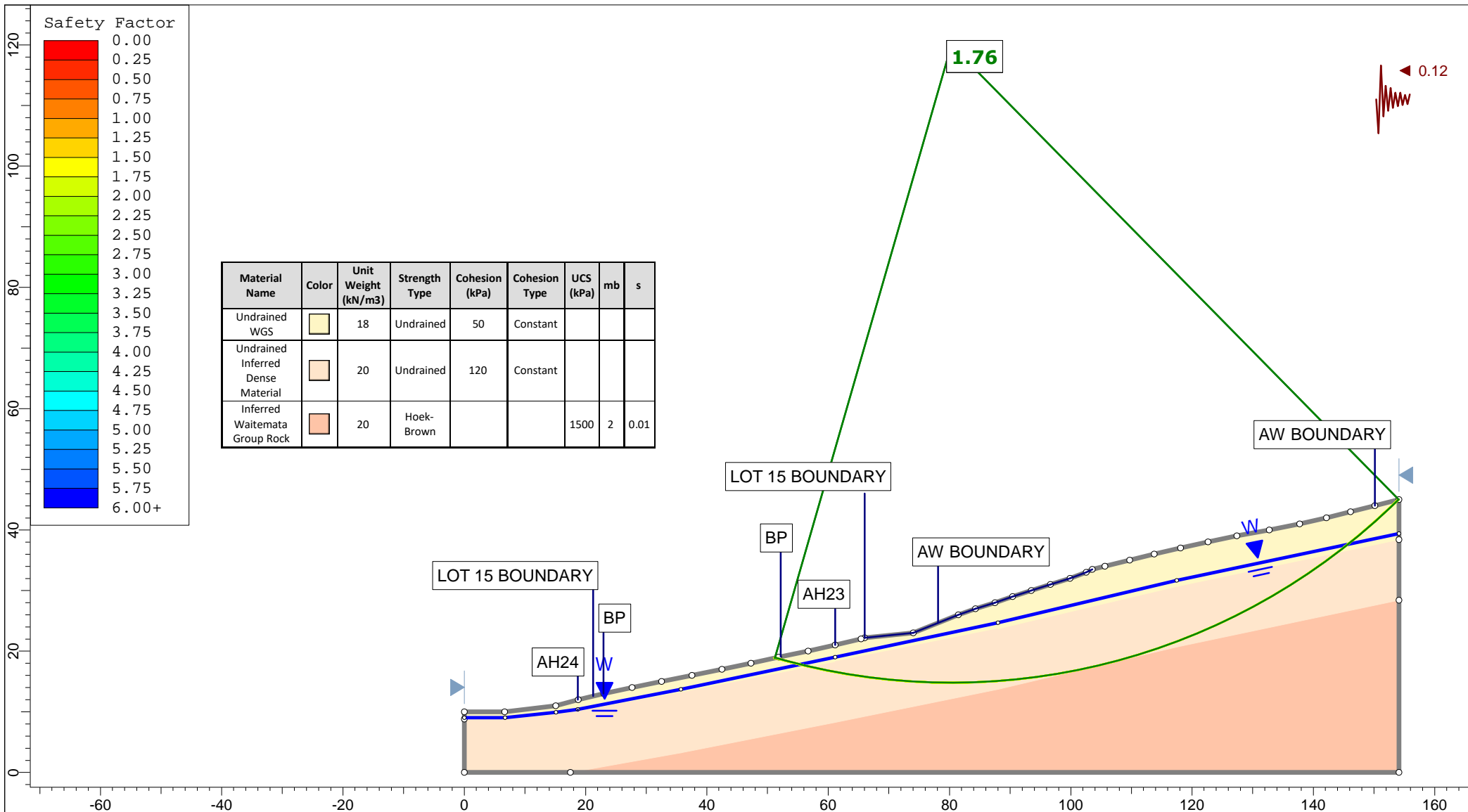
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section I-I' - Proposed Ground				
	Scenario		Run 3 - Raised Groundwater - Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		File Name		Master redo lower soil with seismic.slmd	
Date		24 May 2021					



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Light Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Orange	20	Hoek-Brown			1500	2	0.01

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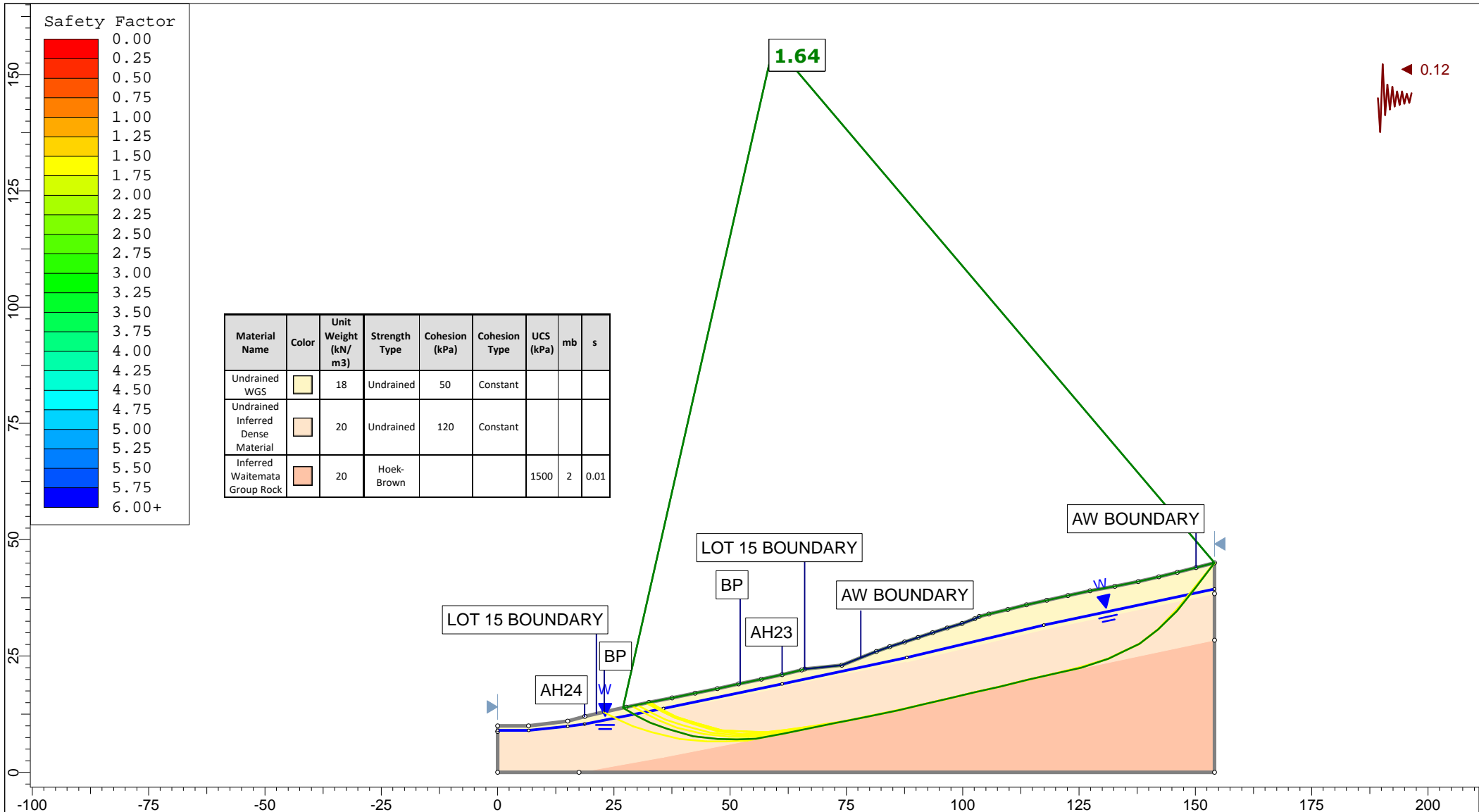
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section I-I' - Proposed Ground	Scenario	Run 4 - Raised Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



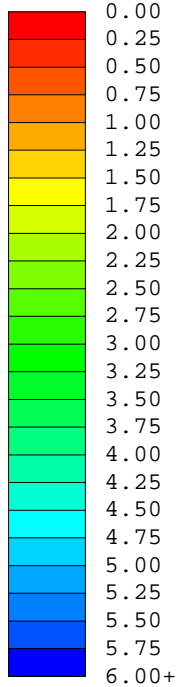
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Cohesion Type	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50	Constant			
Undrained Inferred Dense Material		20	Undrained	120	Constant			
Inferred Waitemata Group Rock		20	Hoek-Brown			1500	2	0.01

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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section I-I' - Proposed Ground	Scenario	Run 5 - Seismic Loading - Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



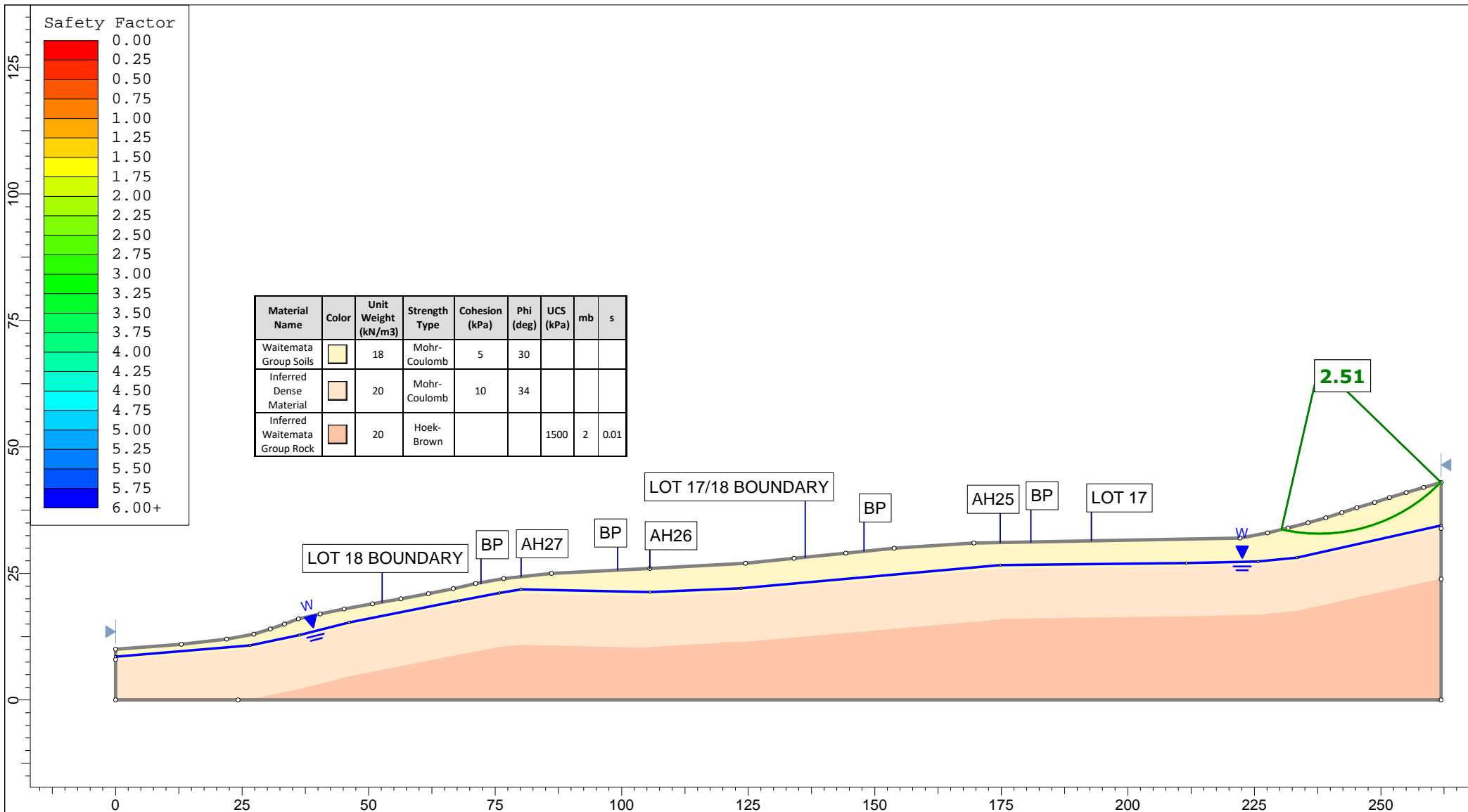
Safety Factor



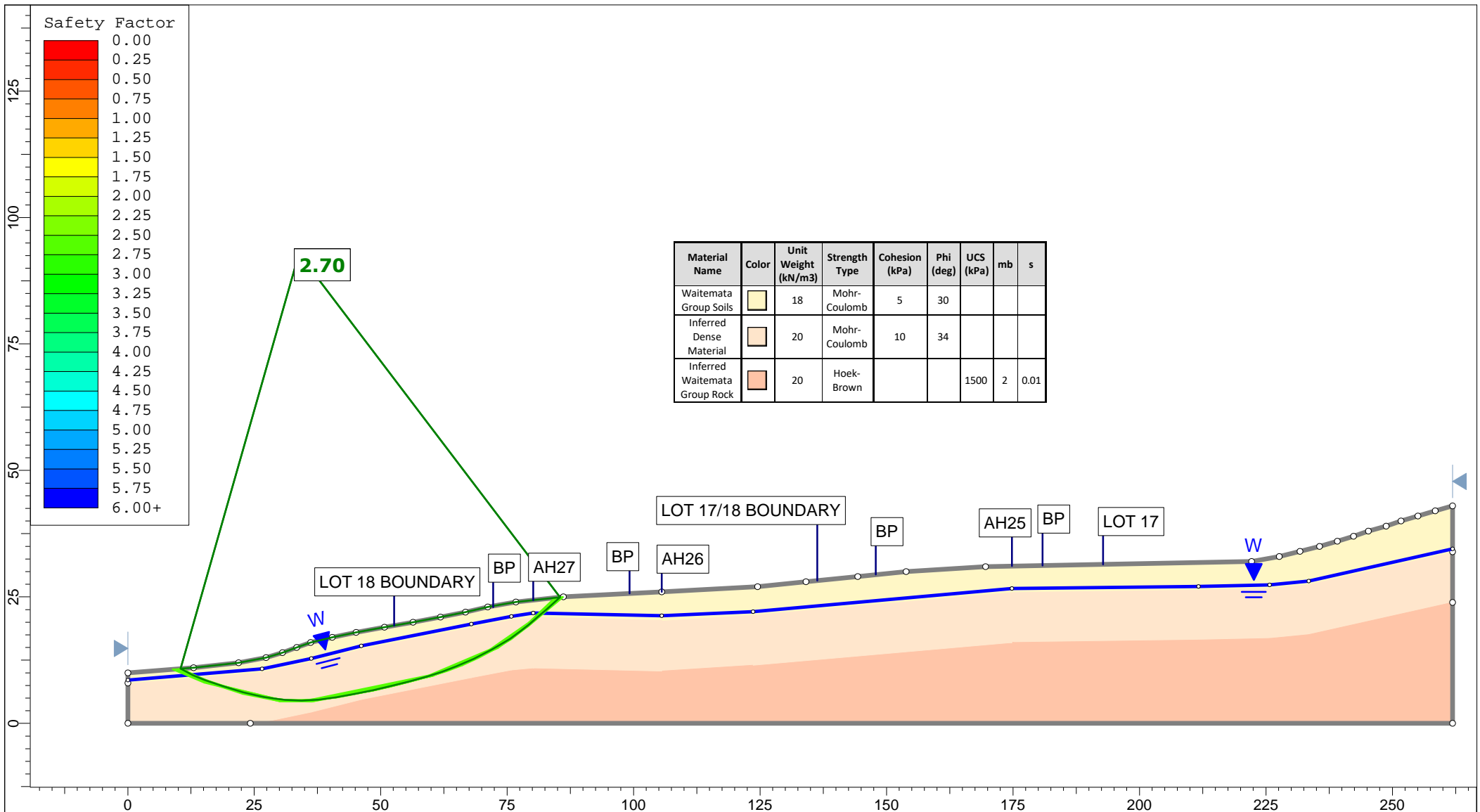
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Cohesion Type	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50	Constant			
Undrained Inferred Dense Material		20	Undrained	120	Constant			
Inferred Waitemata Group Rock		20	Hoek-Brown			1500	2	0.01

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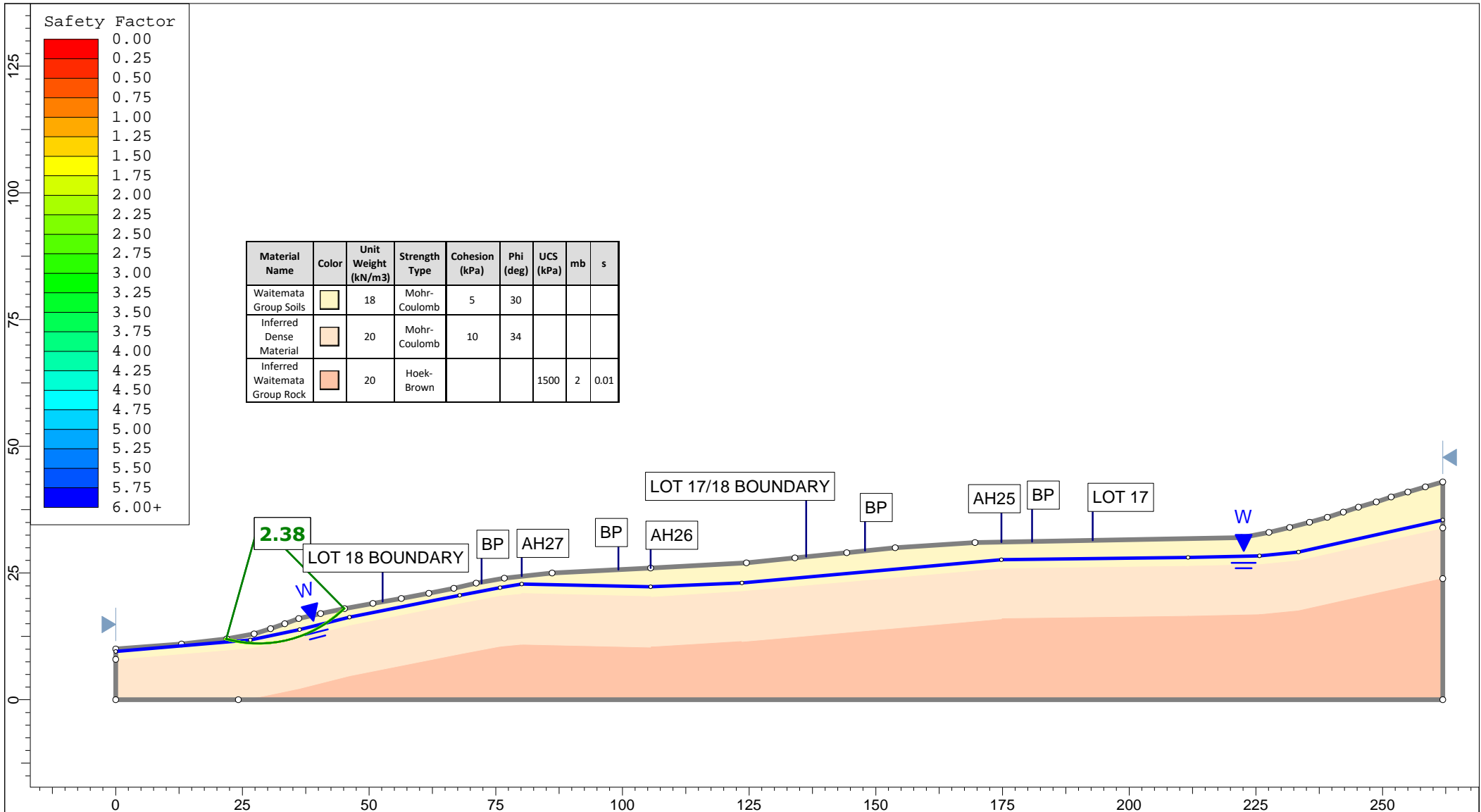
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section I-I' - Proposed Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



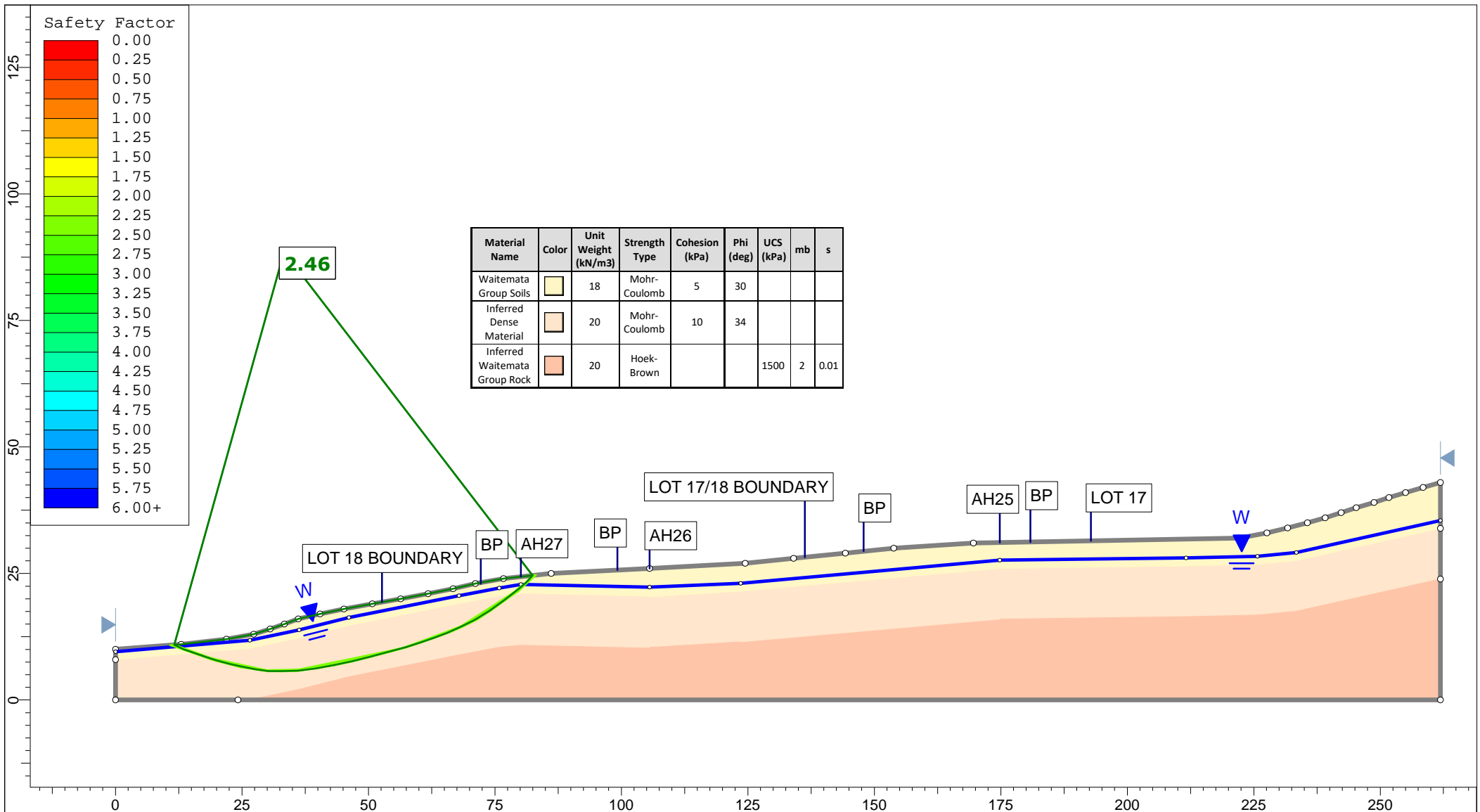
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section J-J' - Measured Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



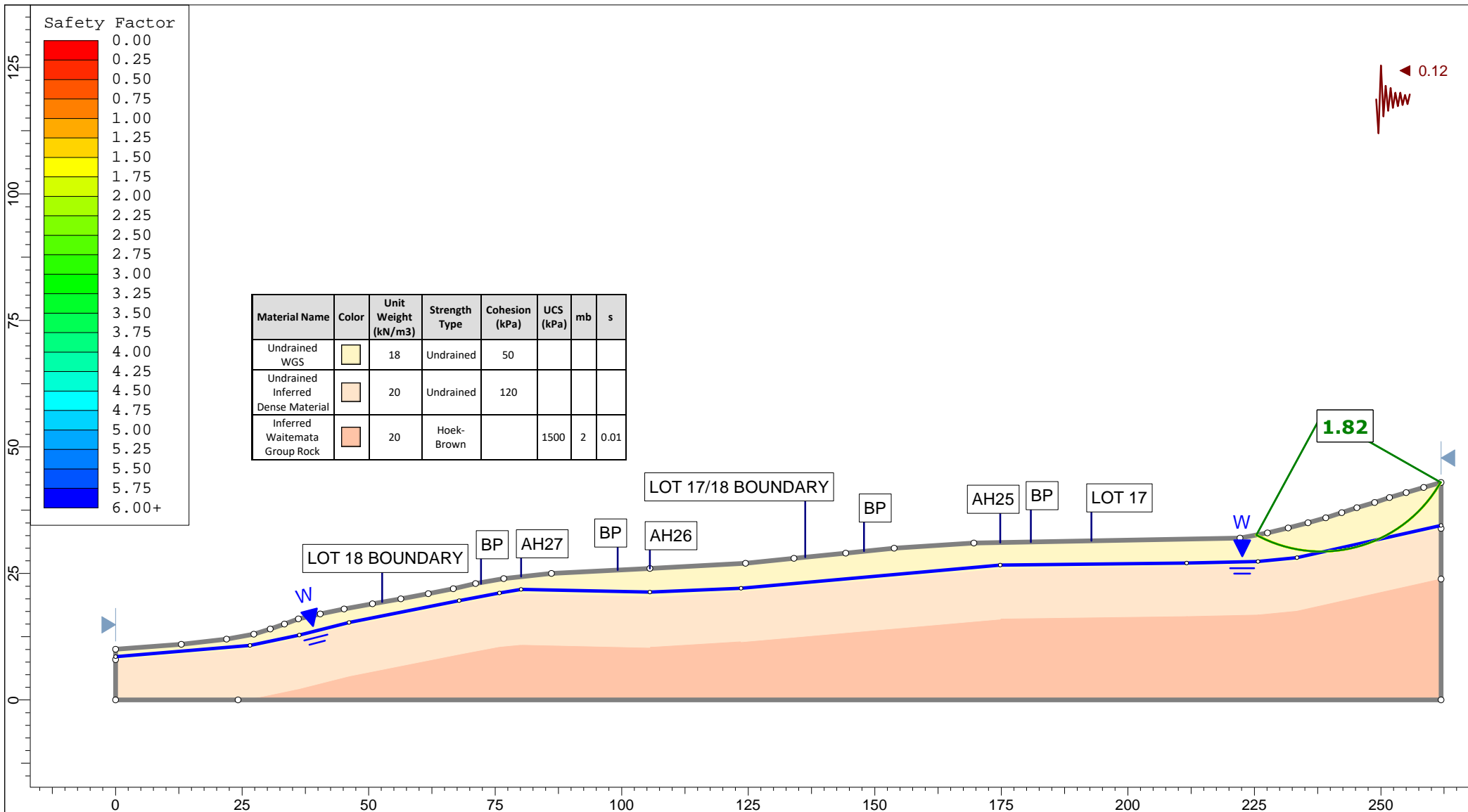
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section J-J' - Measured Ground		
	Scenario		Run 2 - Measured Groundwater - Non-Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



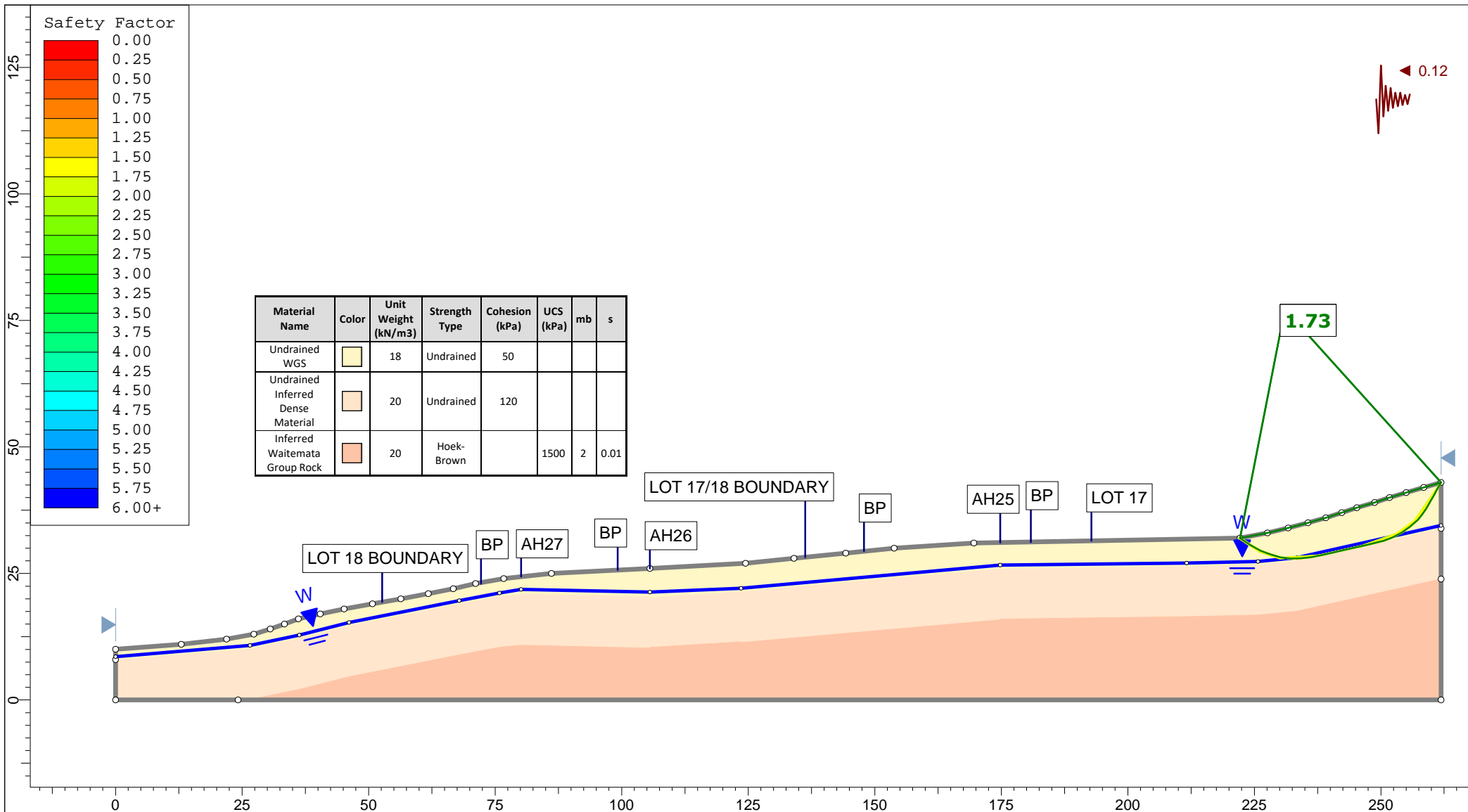
	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section J-J' - Measured Ground	
	Scenario		Run 3 - Raised Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



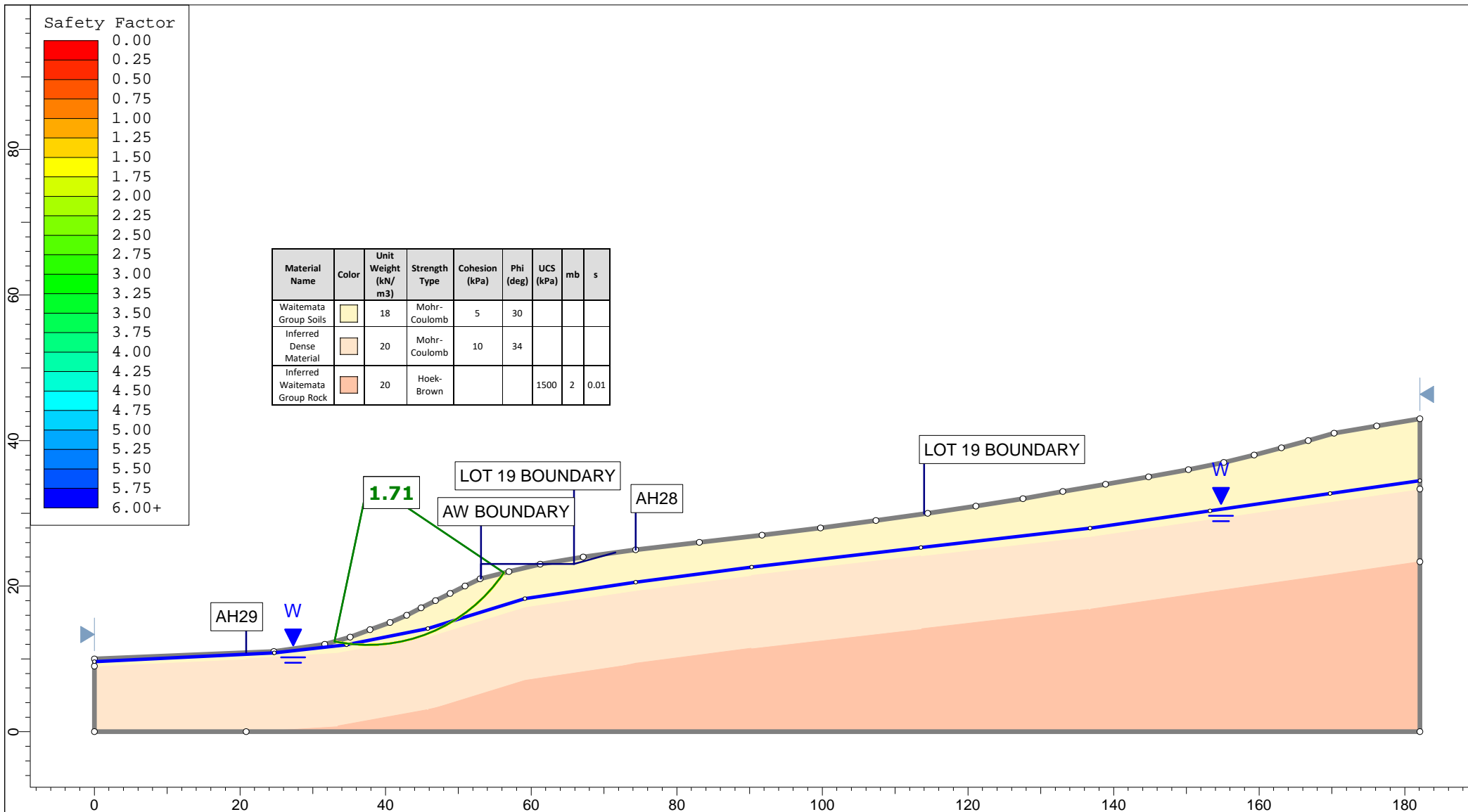
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section J-J' - Measured Ground	
	Scenario		Run 4 - Raised Groundwater - Non-Cicular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



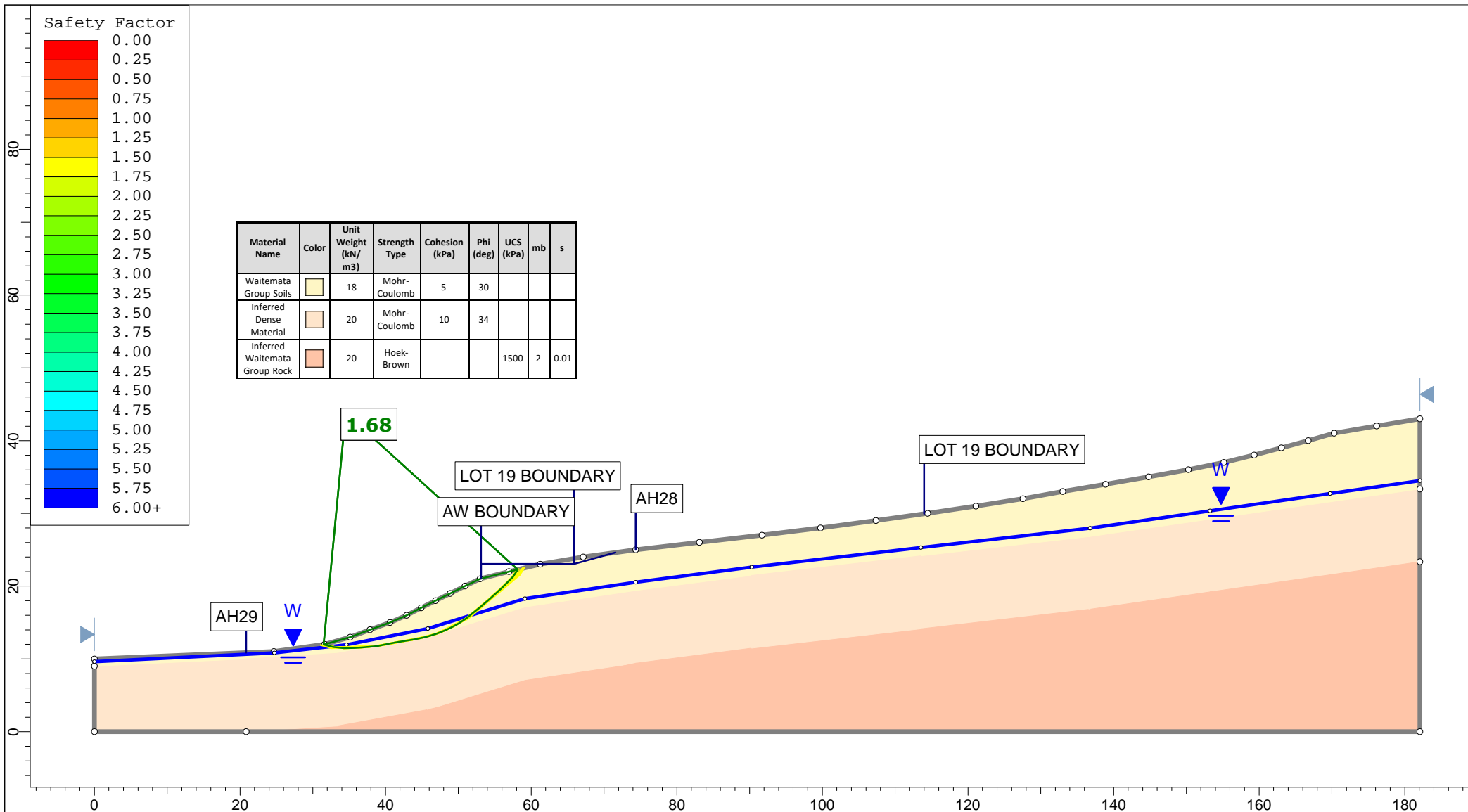
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section J-J' - Measured Ground	
	Scenario		Run 5 - Seismic Loading - Circular	
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Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



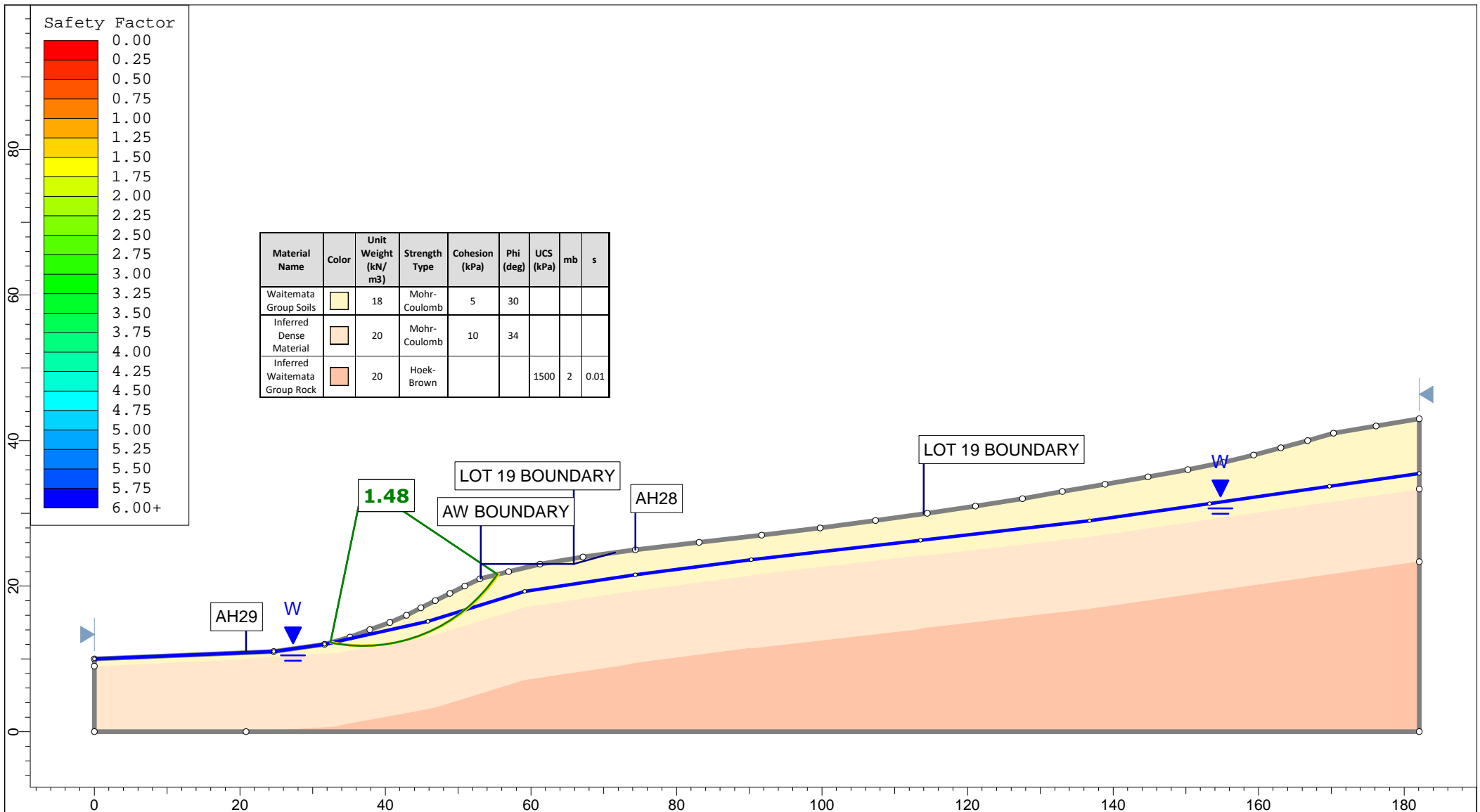
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section J-J' - Measured Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



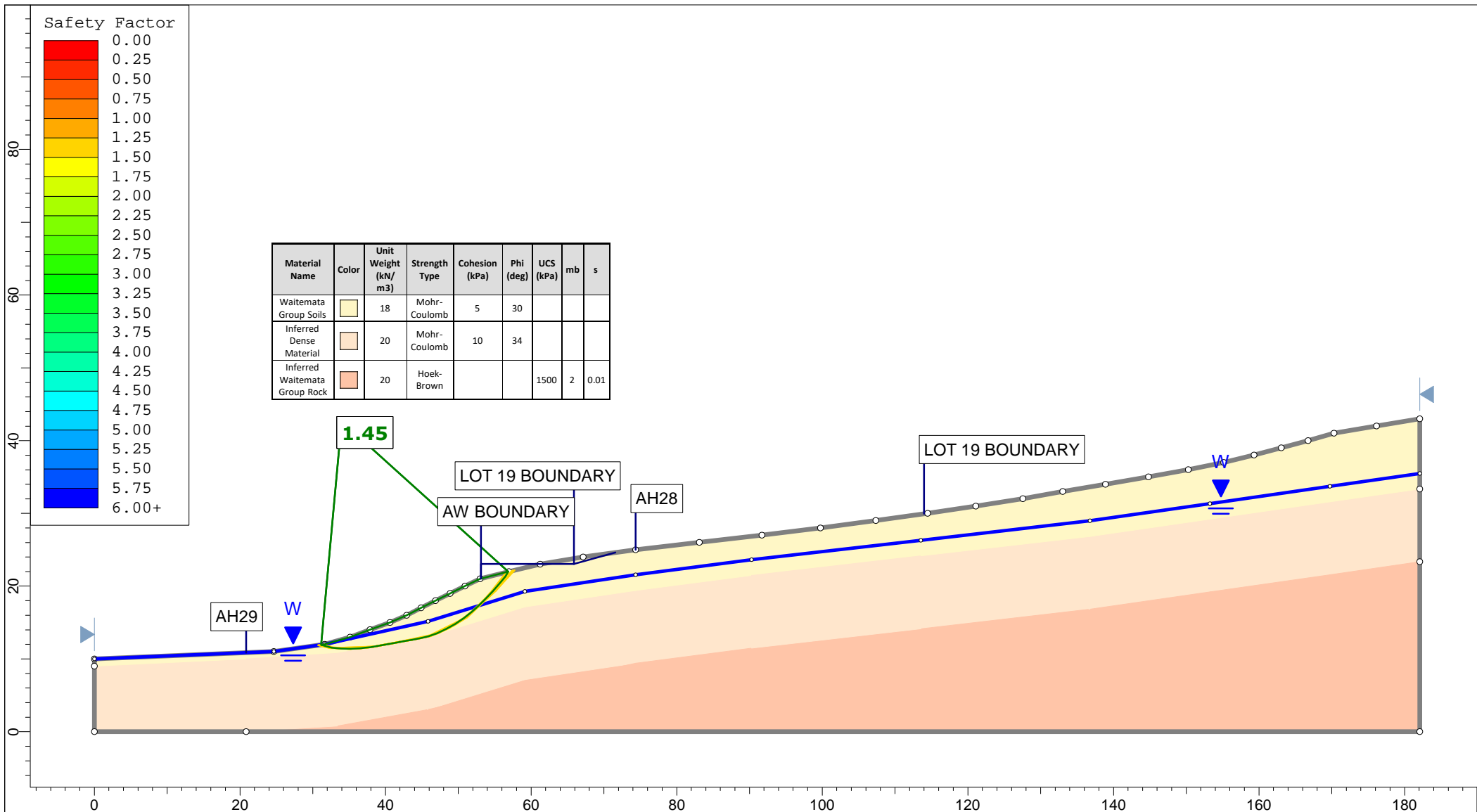
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section K-K' - Measured Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		24 May 2021		
File Name		Master redo lower soil with seismic.slmd		



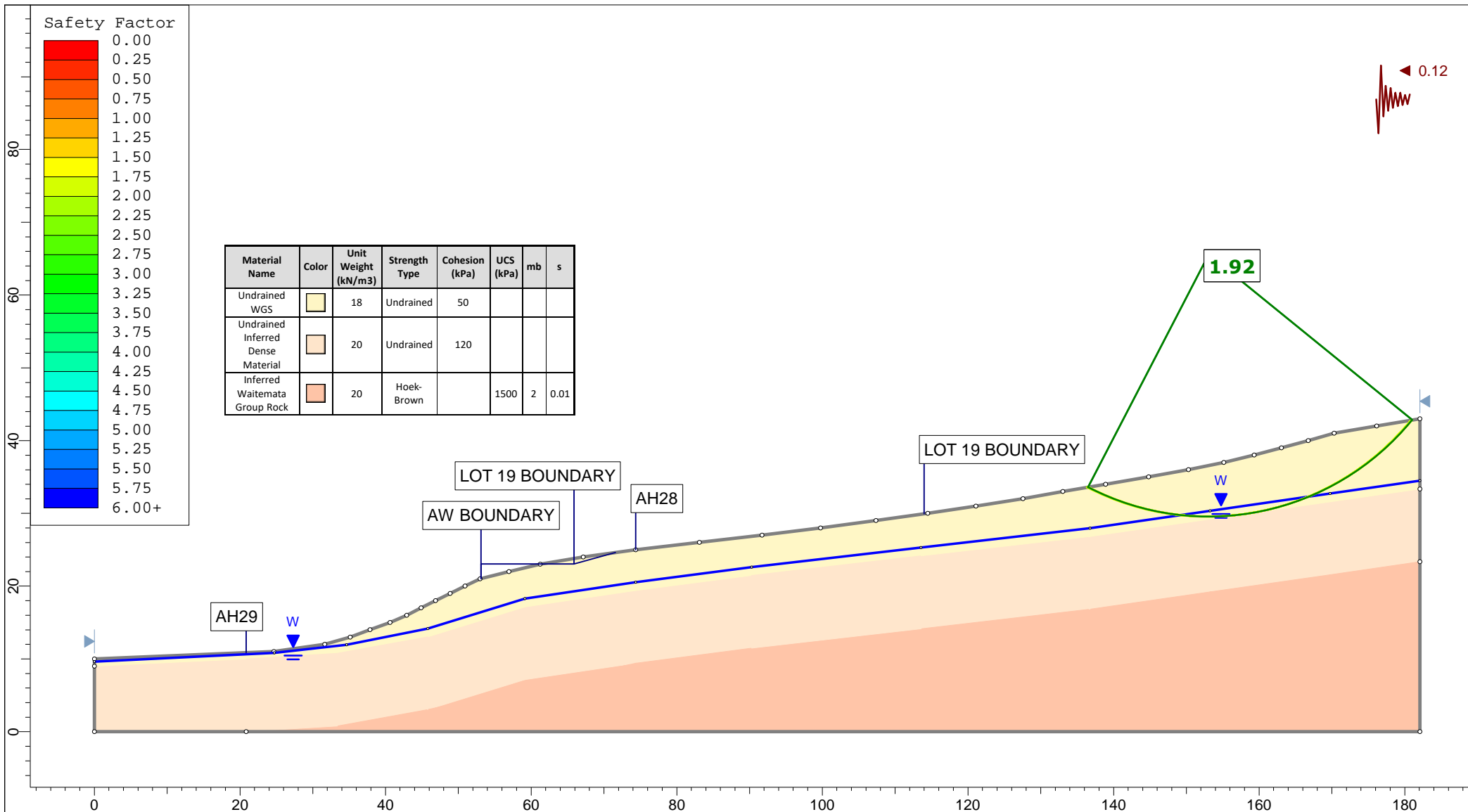
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section K-K' - Measured Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



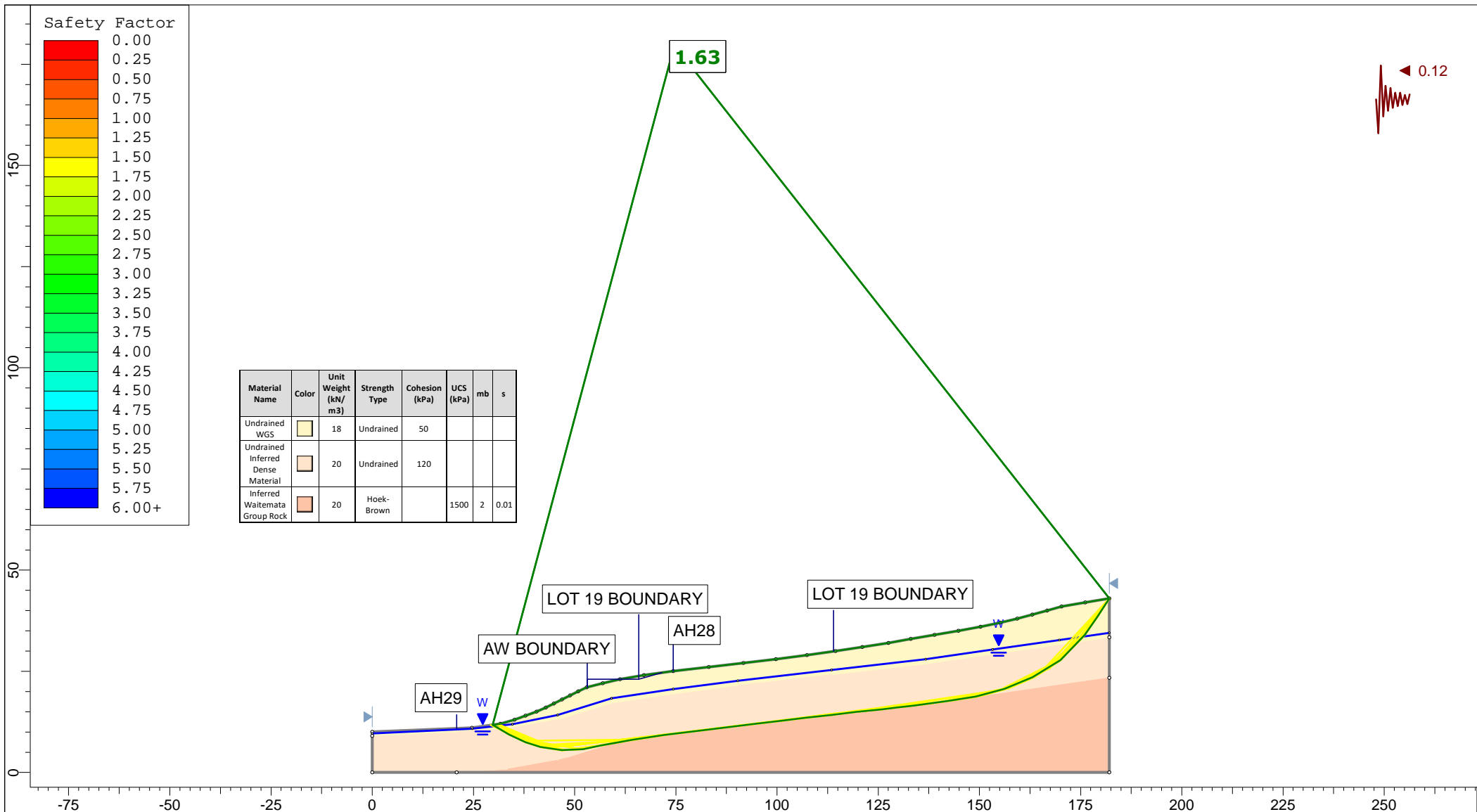
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section K-K' - Measured Ground	
	Scenario		Run 3 - Raised Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		




<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section K-K' - Measured Ground				
	Scenario		Run 4 - Raised Groundwater - Non-Cicular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		File Name		Master redo lower soil with seismic.slmd	
Date		24 May 2021					

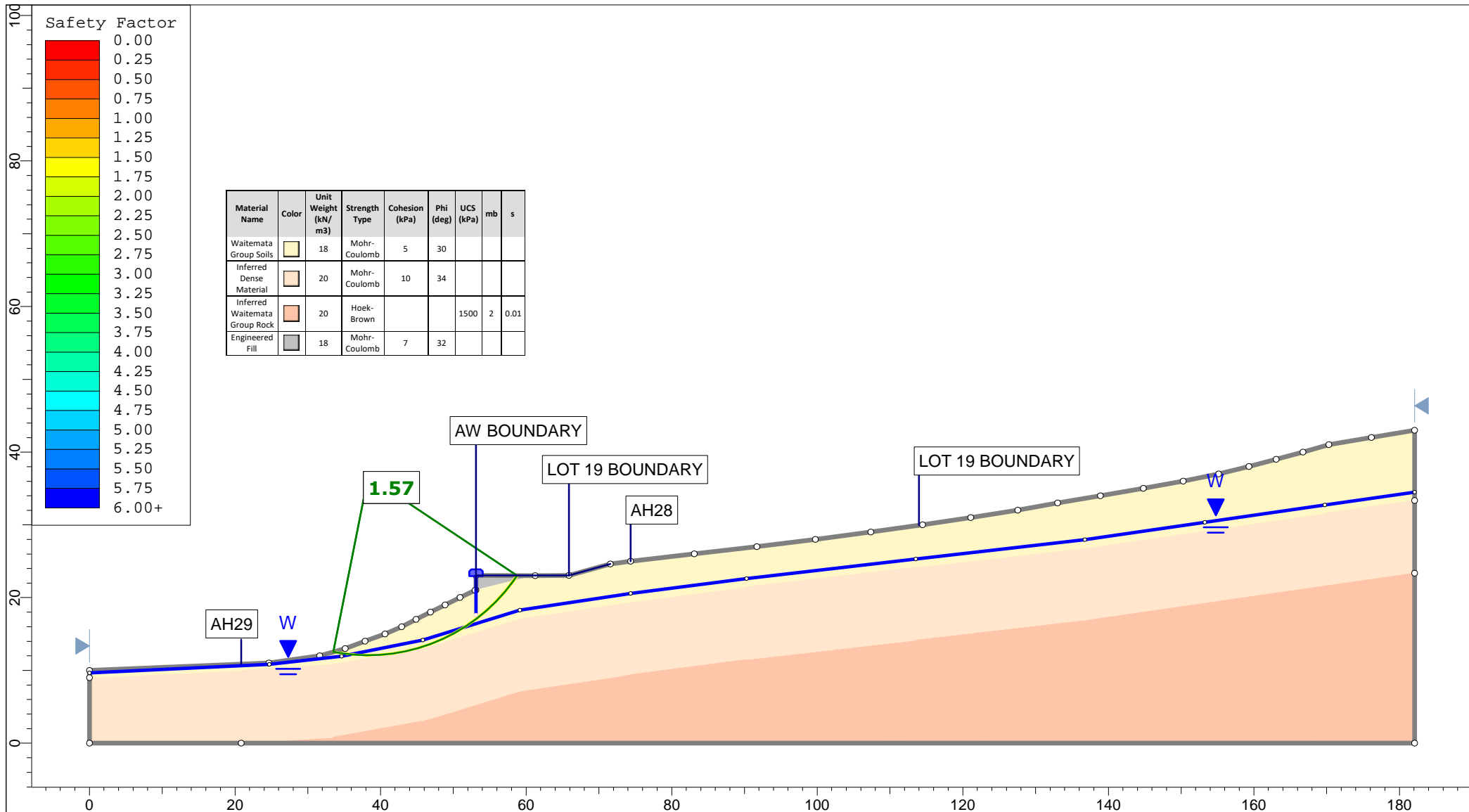


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section K-K' - Measured Ground	Scenario	Run 5 - Seismic Loading - Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd

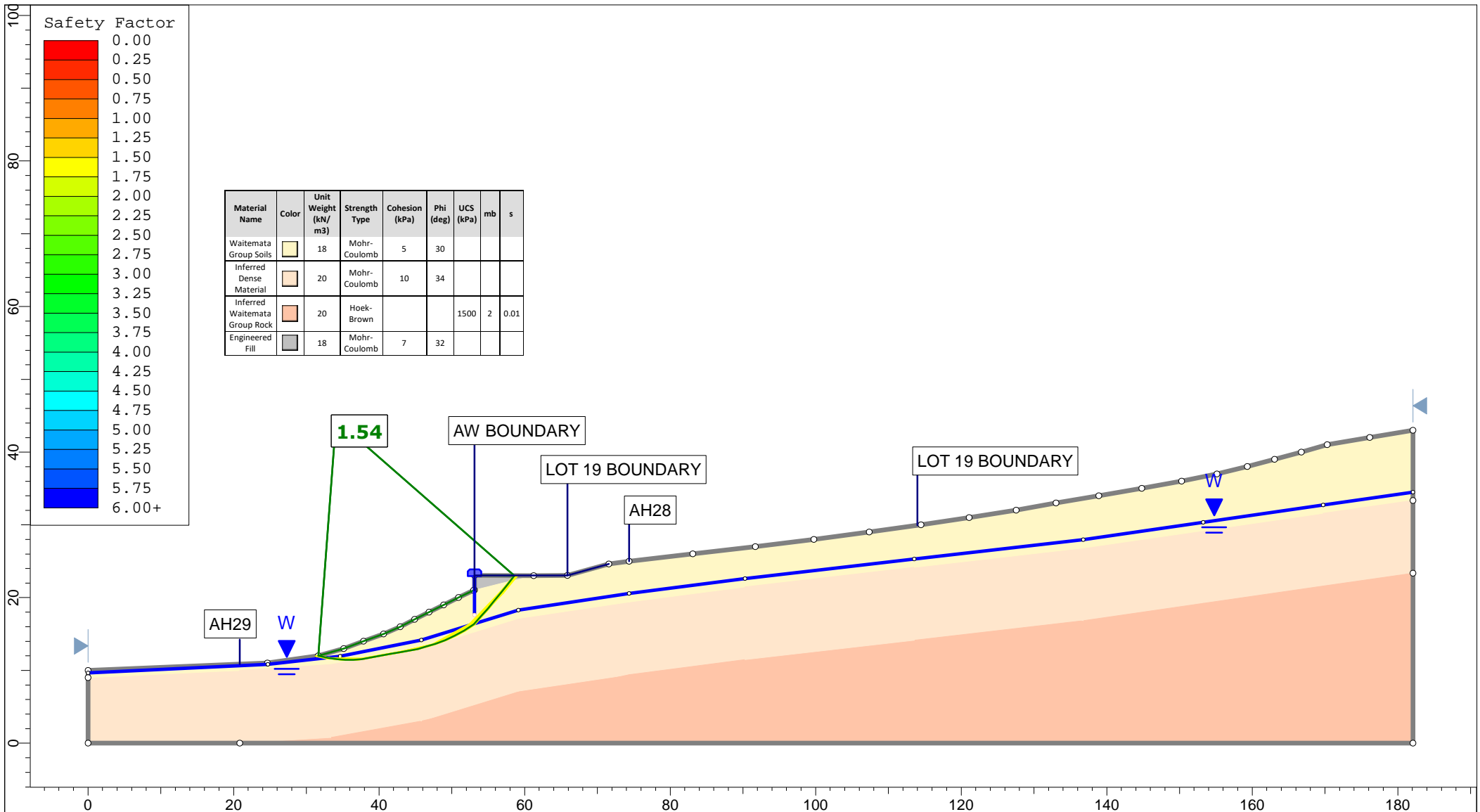


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS	Yellow	18	Undrained	50			
Undrained Inferred Dense Material	Orange	20	Undrained	120			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown		1500	2	0.01

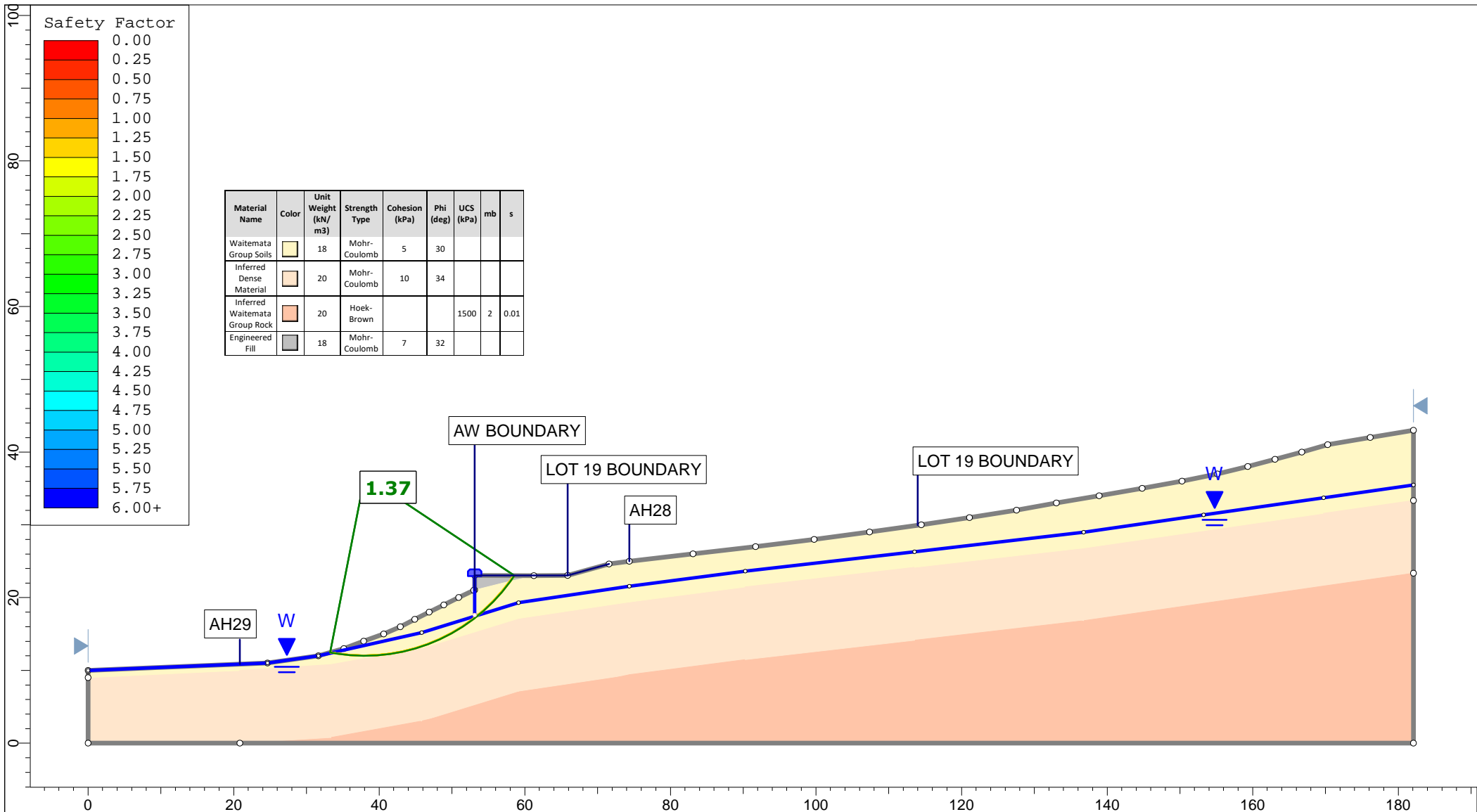
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section K-K' - Measured Ground		
	Scenario		Run 6 - Seismic Loading - Non-Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



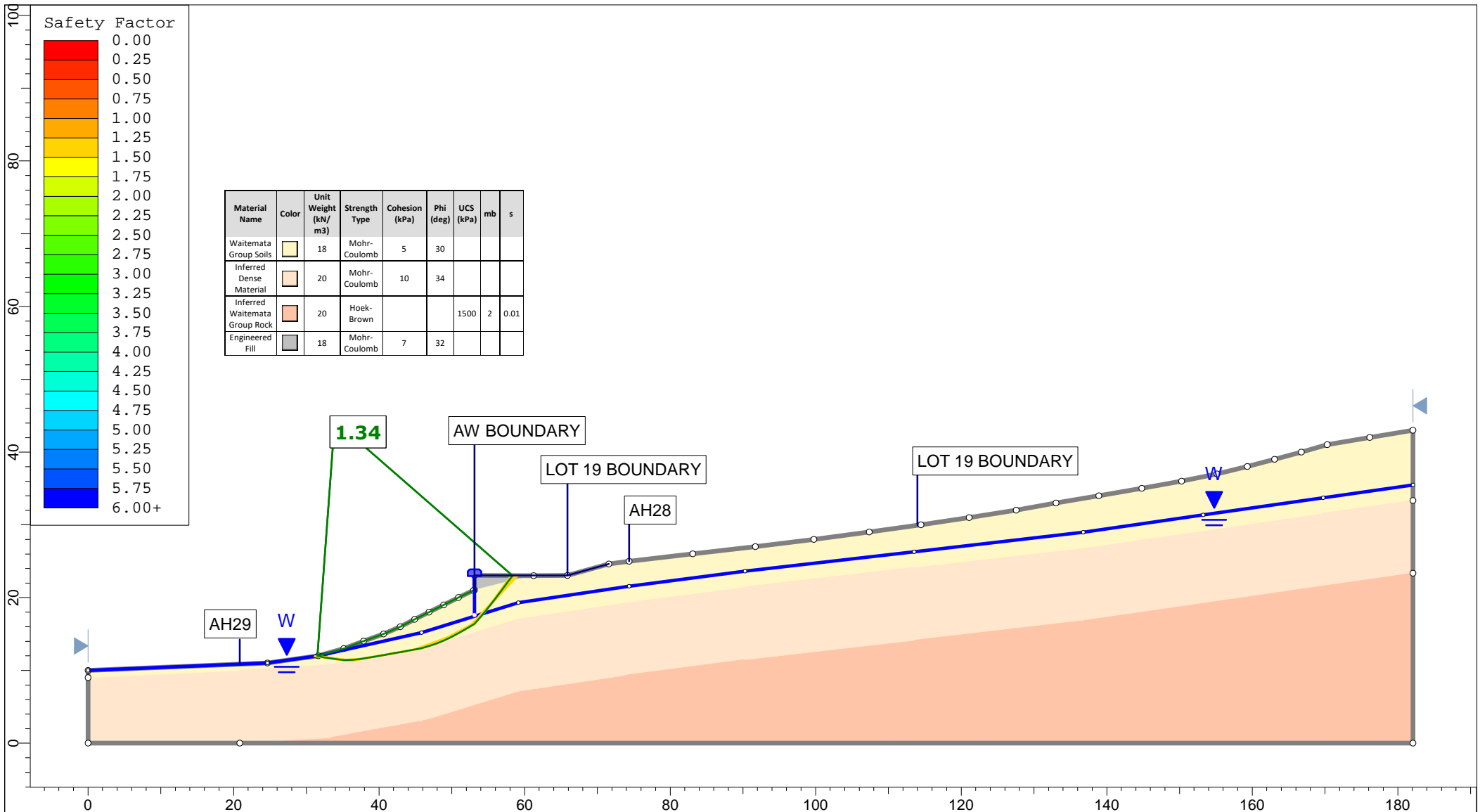
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section K-K' - Proposed Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



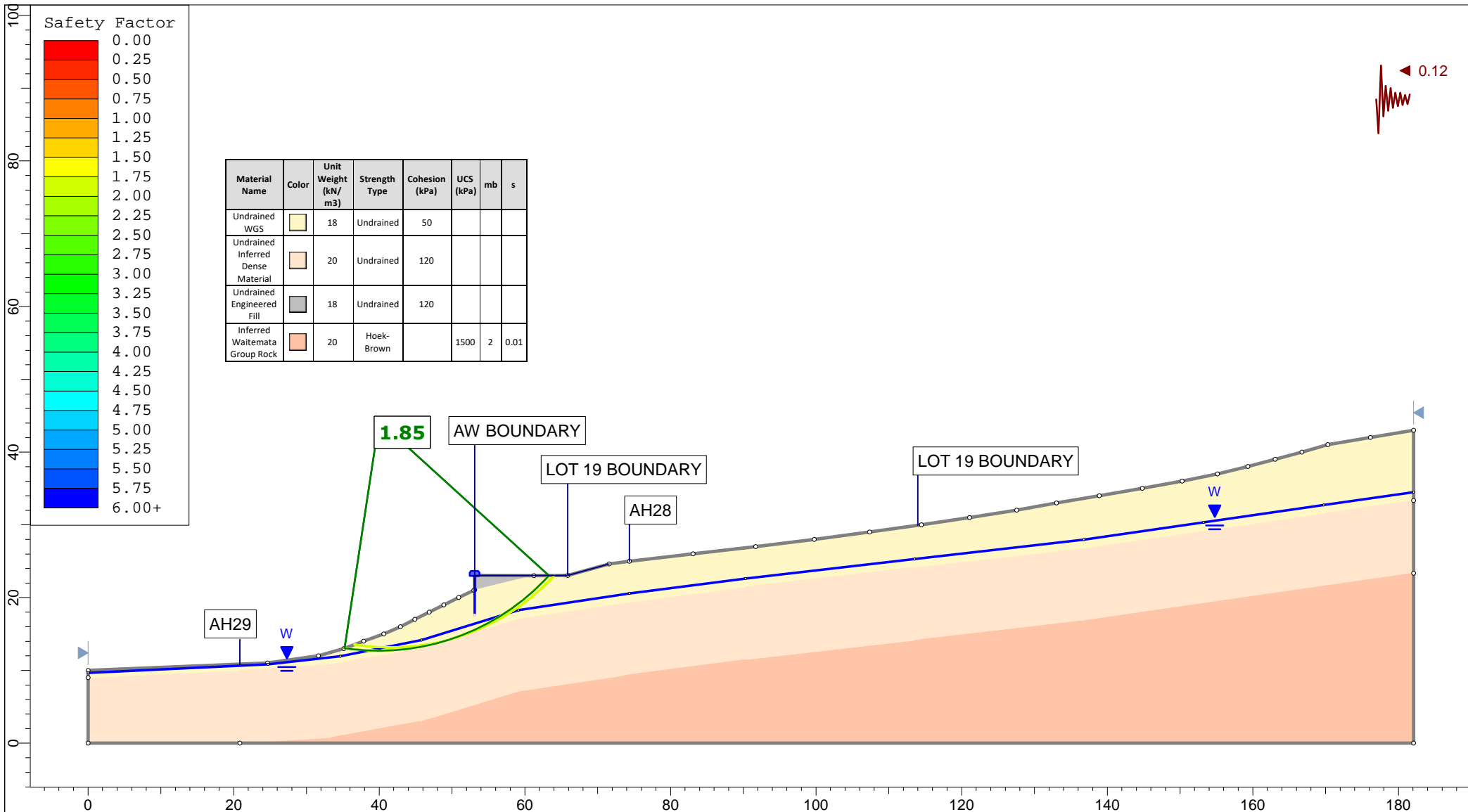
<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section K-K' - Proposed Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section K-K' - Proposed Ground	
	Drawn By		TR	
	Date		24 May 2021	
	Scenario		Run 3 - Raised Groundwater - Circular	
	Company		KGA Geotechnical Group Limited	
	File Name		Master redo lower soil with seismic.slmd	

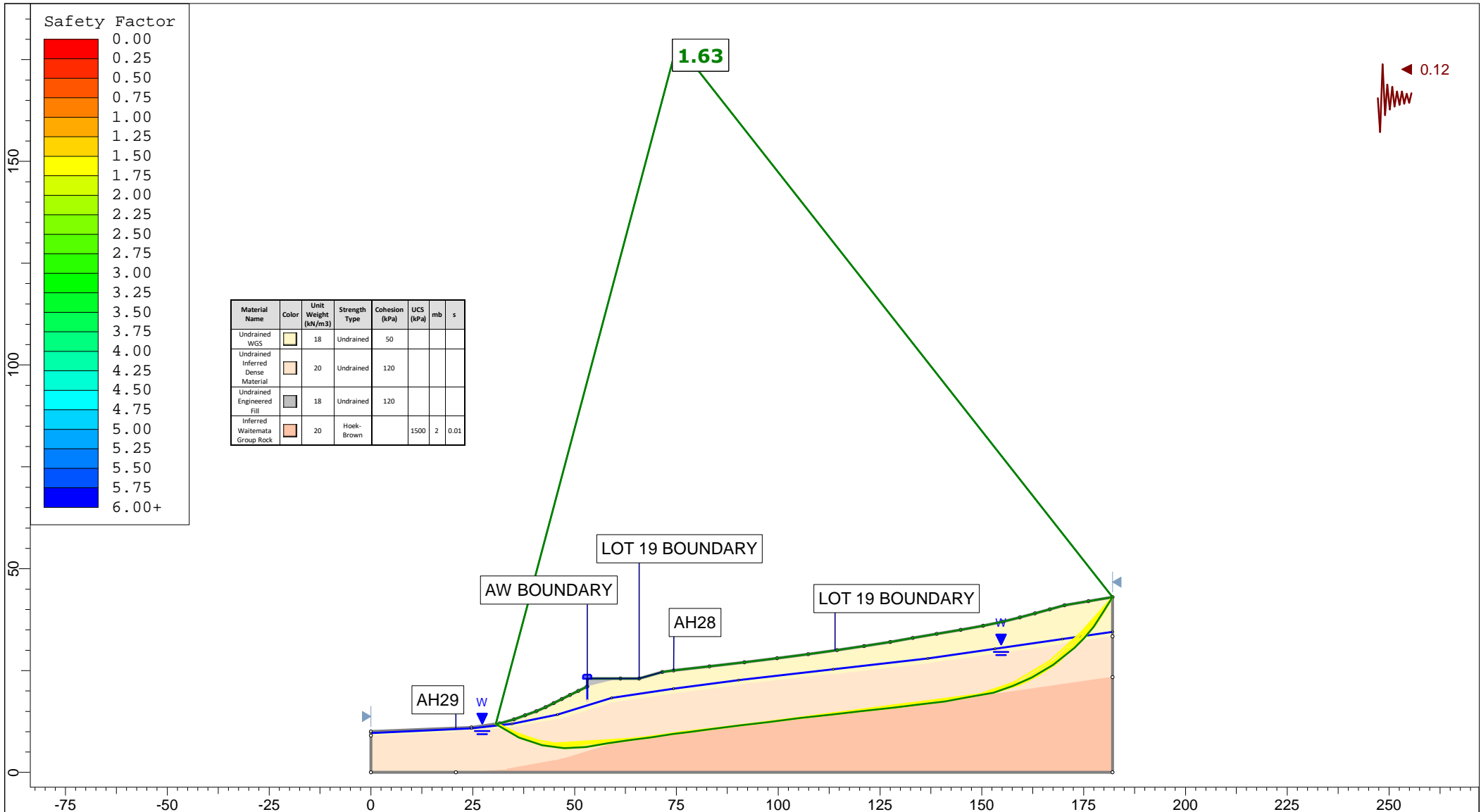


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section K-K' - Proposed Ground		
	Scenario		Run 4 - Raised Groundwater - Non-Cicular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	




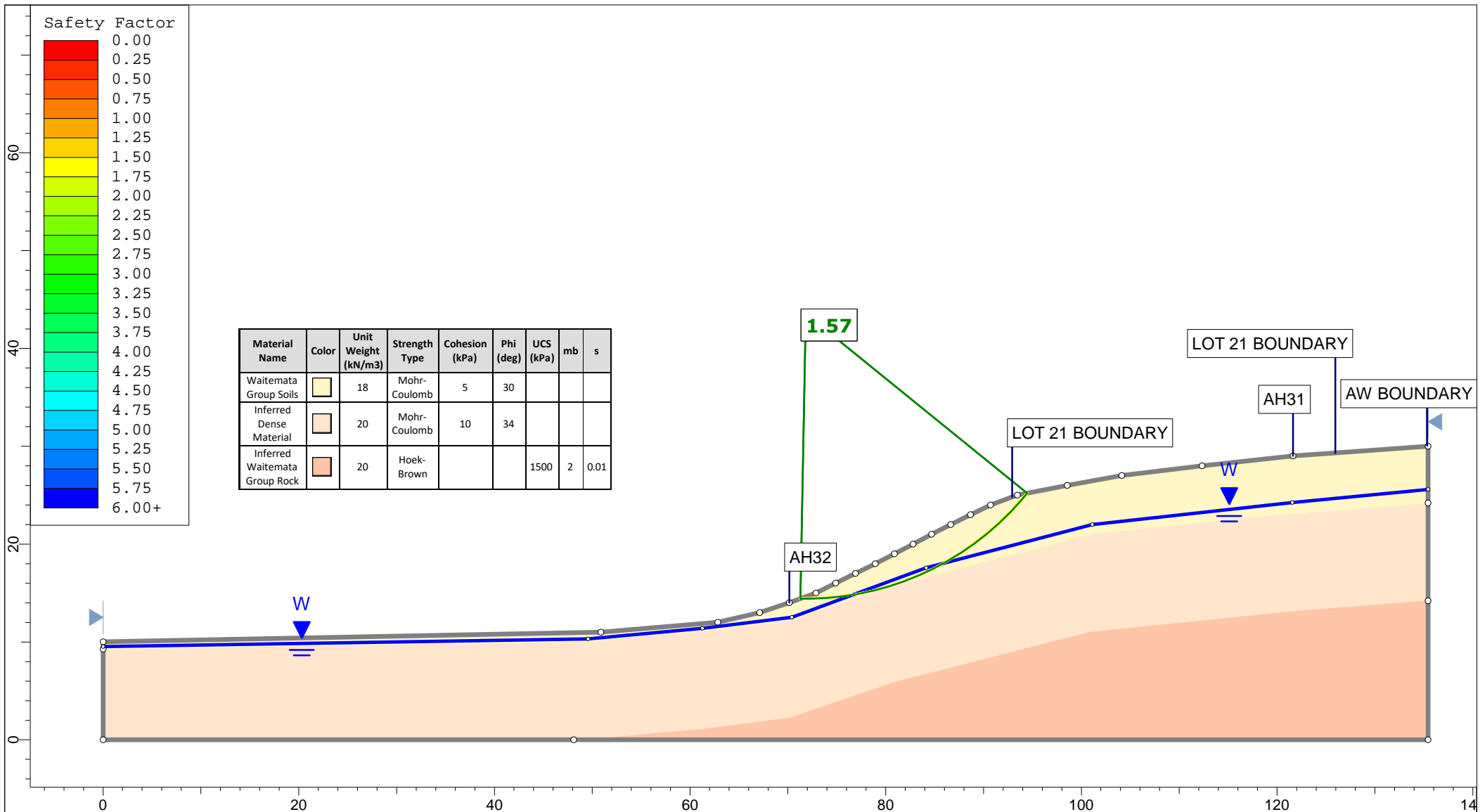
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS	Yellow	18	Undrained	50			
Undrained Inferred Dense Material	Orange	20	Undrained	120			
Undrained Engineered Fill	Grey	18	Undrained	120			
Inferred Waitemata Group Rock	Light Orange	20	Hoek-Brown		1500	2	0.01

<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section K-K' - Proposed Ground		
	Scenario		Run 5 - Seismic Loading - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	



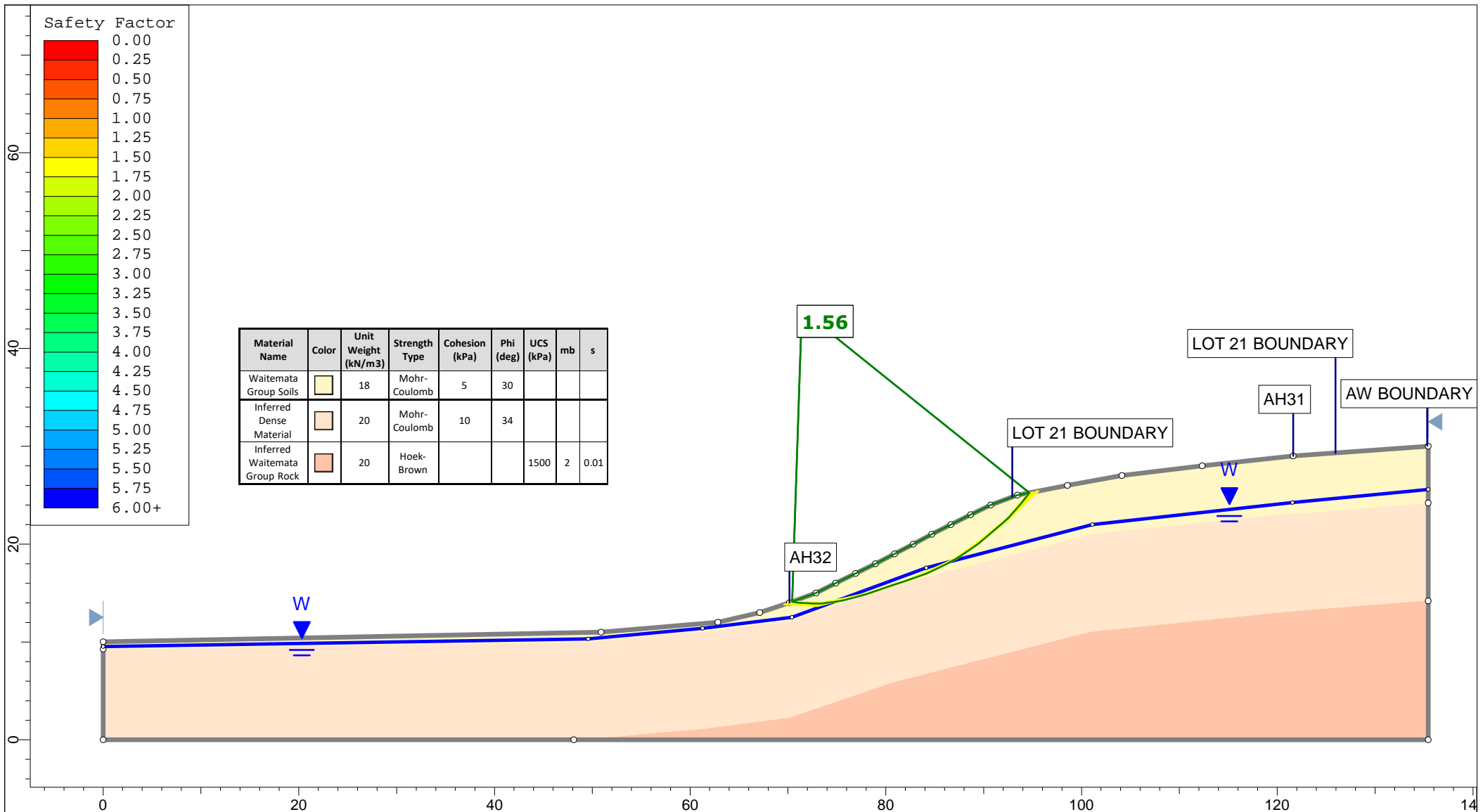
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS	Yellow	18	Undrained	50			
Undrained Inferred Dense Material	Orange	20	Undrained	120			
Undrained Engineered Fill	Grey	18	Undrained	120			
Inferred Waitemata Group Rock	Orange	20	Hoek-Brown		1500	2	0.01

 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section K-K' - Proposed Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



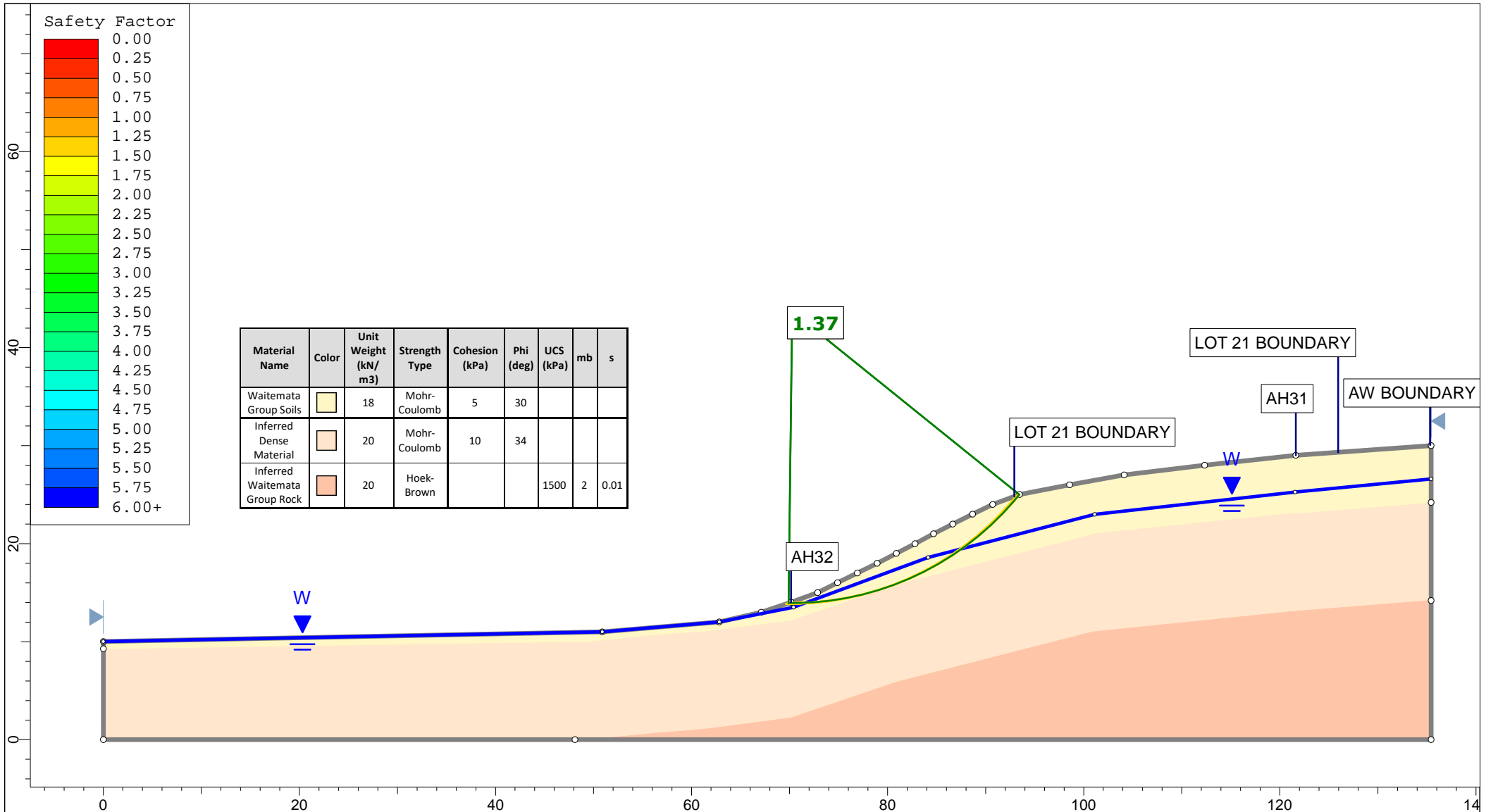
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Dark Orange	20	Hoek-Brown			1500	2	0.01

<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section L-L' - Proposed Ground		
	Drawn By		TR		
	Date		24 May 2021		
		Scenario		Run 1 - Measured Groundwater - Circular	
		Company		KGA Geotechnical Group Limited	
		File Name		Master redo lower soil with seismic.slmd	




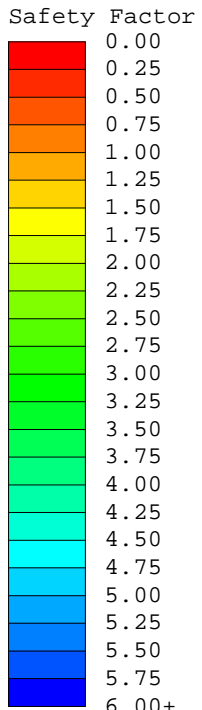
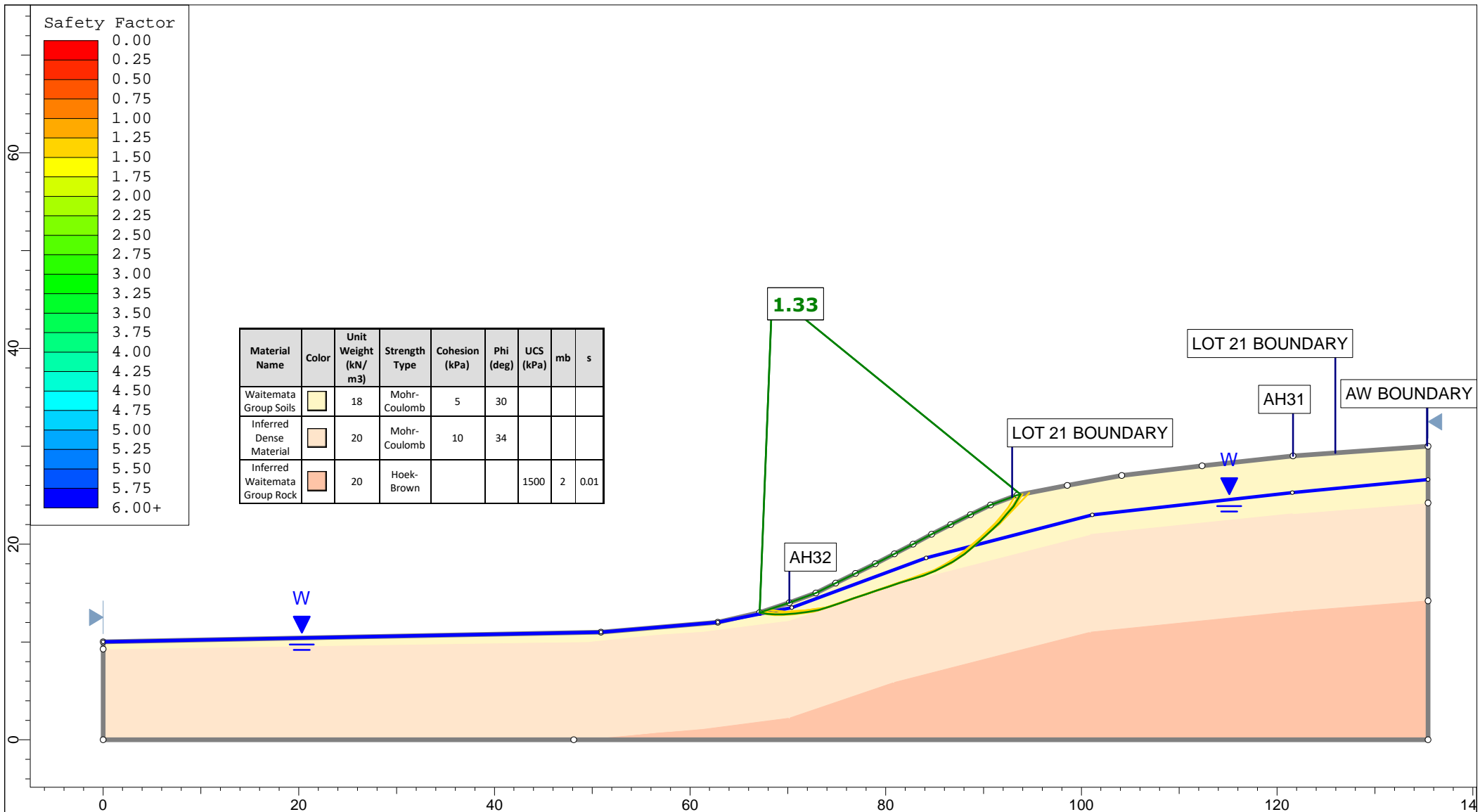
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section L-L' - Proposed Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Dark Orange	20	Hoek-Brown			1500	2	0.01

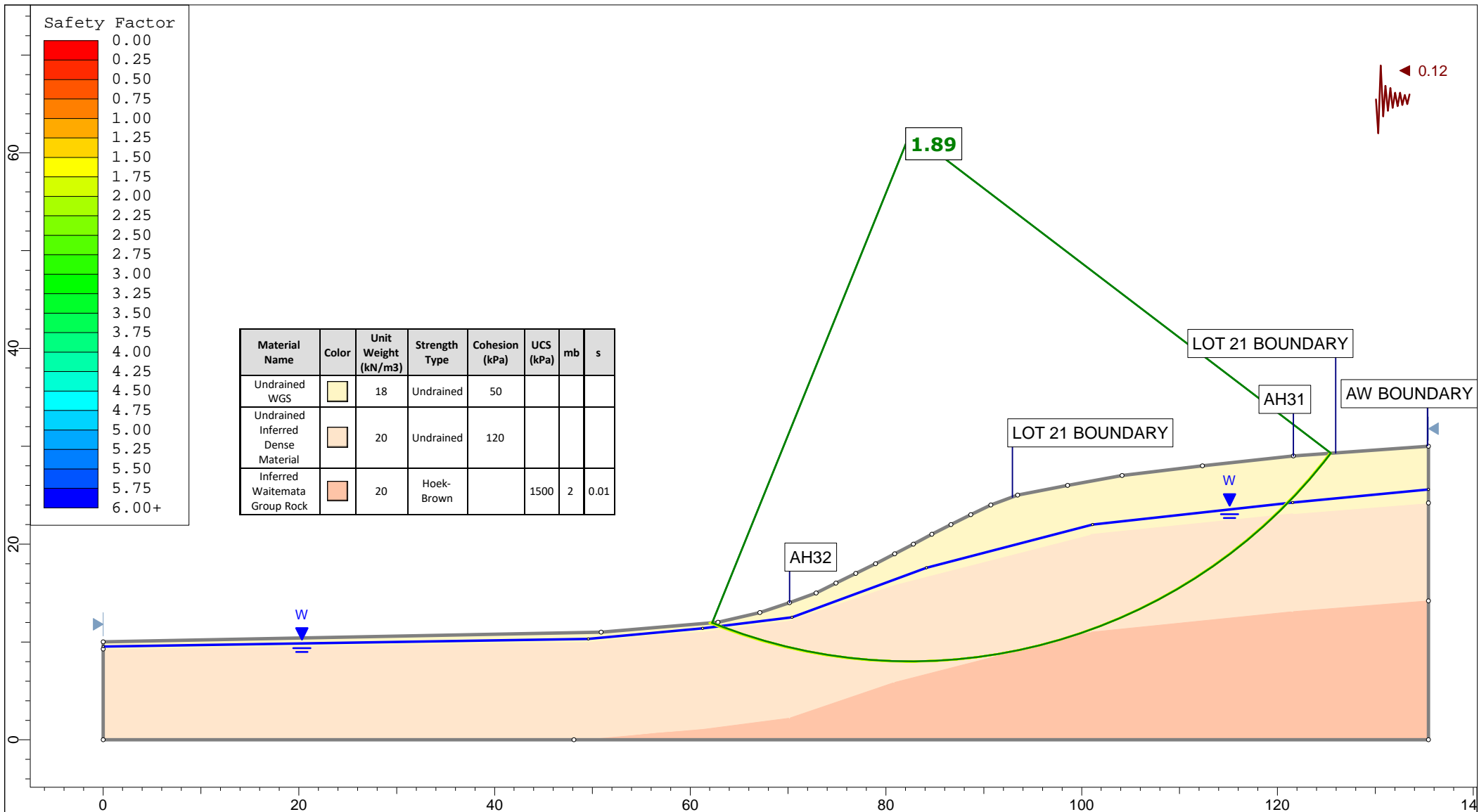
 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section L-L' - Proposed Ground				
	Scenario		Run 3 - Raised Groundwater - Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		File Name		Master redo lower soil with seismic.slmd	
Date		24 May 2021					



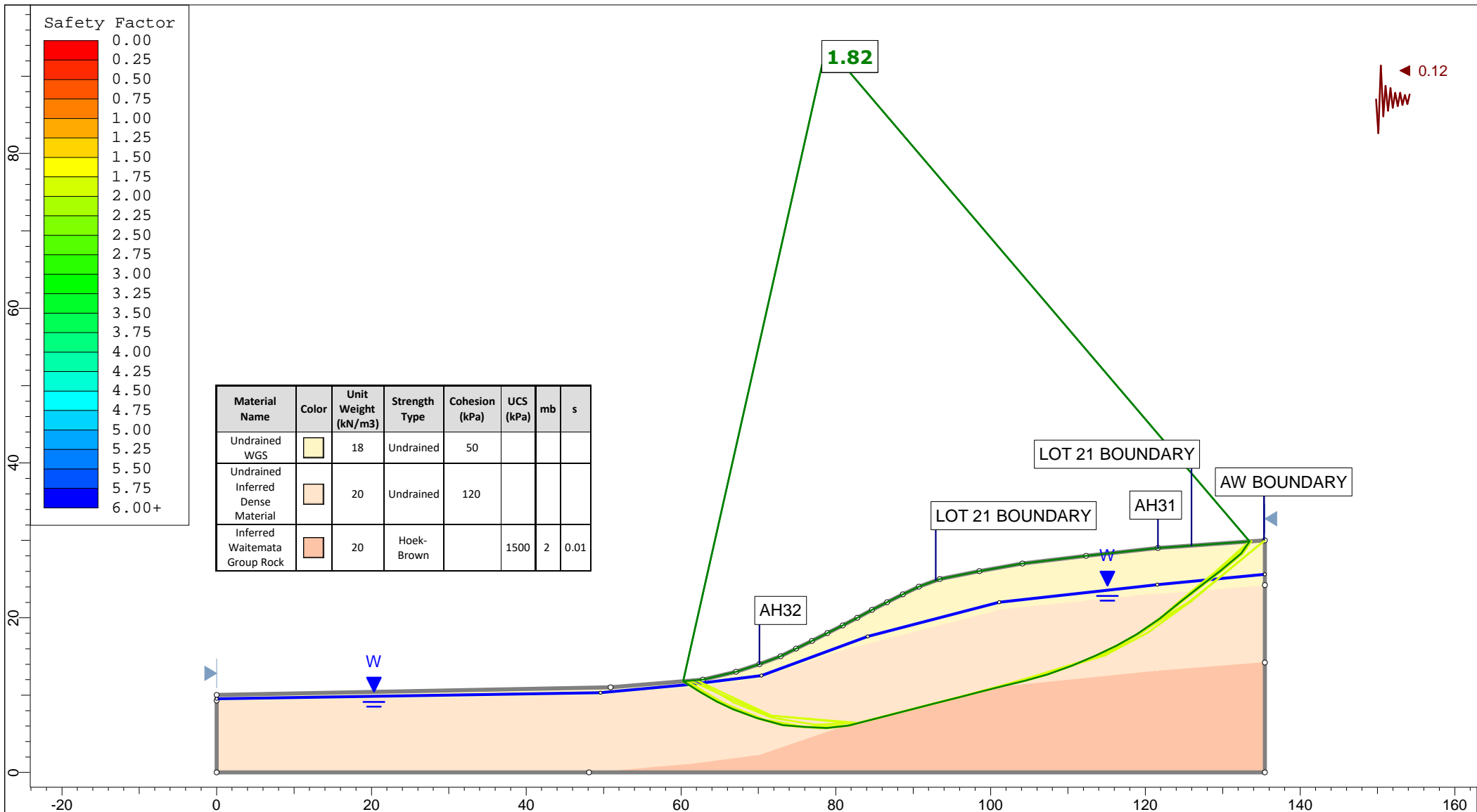
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils		18	Mohr-Coulomb	5	30			
Inferred Dense Material		20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock		20	Hoek-Brown			1500	2	0.01

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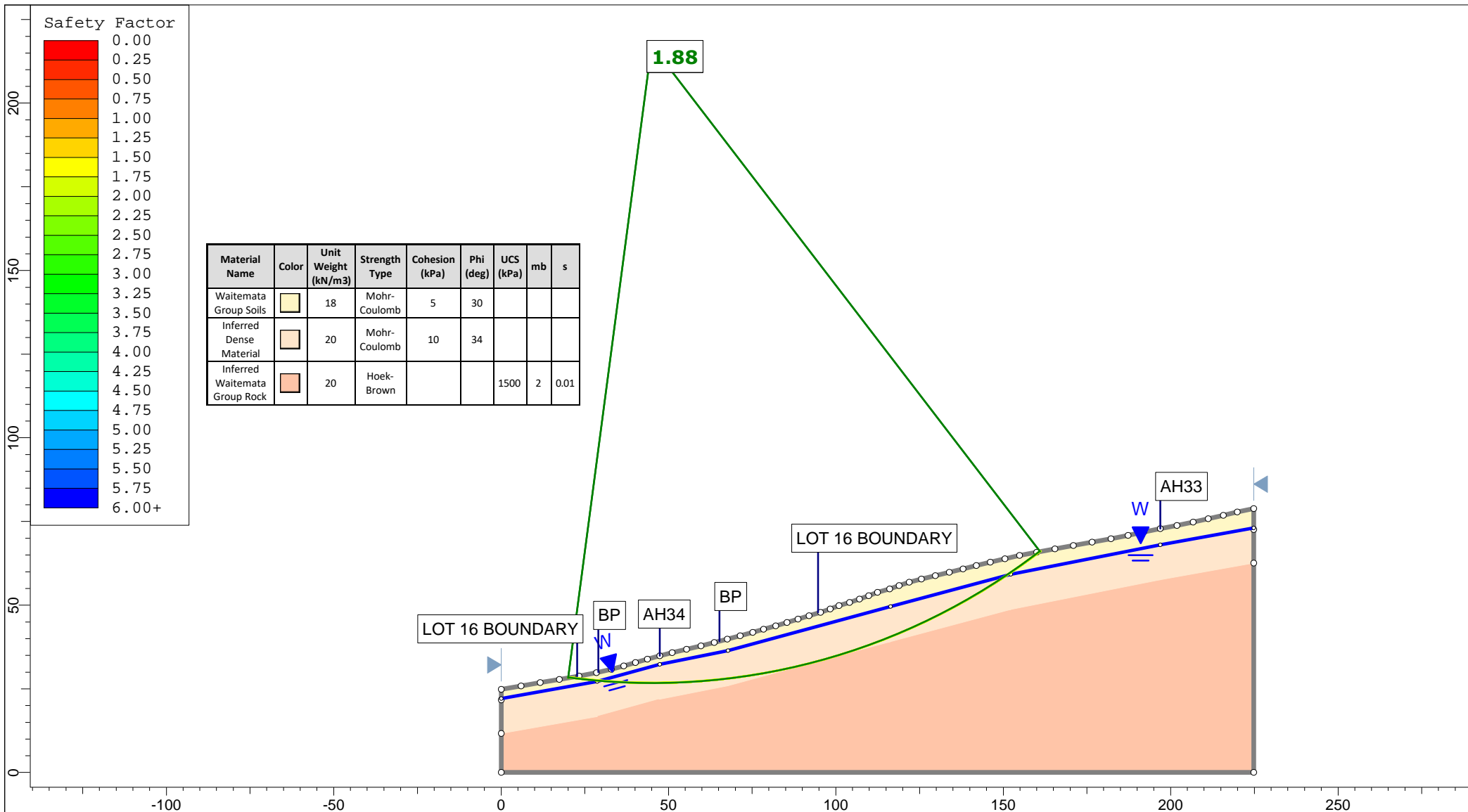
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section L-L' - Proposed Ground	Scenario	Run 4 - Raised Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section L-L' - Proposed Ground		
	Scenario		Run 5 - Seismic Loading - Circular		
	Company		KGA Geotechnical Group Limited		
Drawn By		TR		Date	
Date		24 May 2021		File Name	
				Master redo lower soil with seismic.slmd	

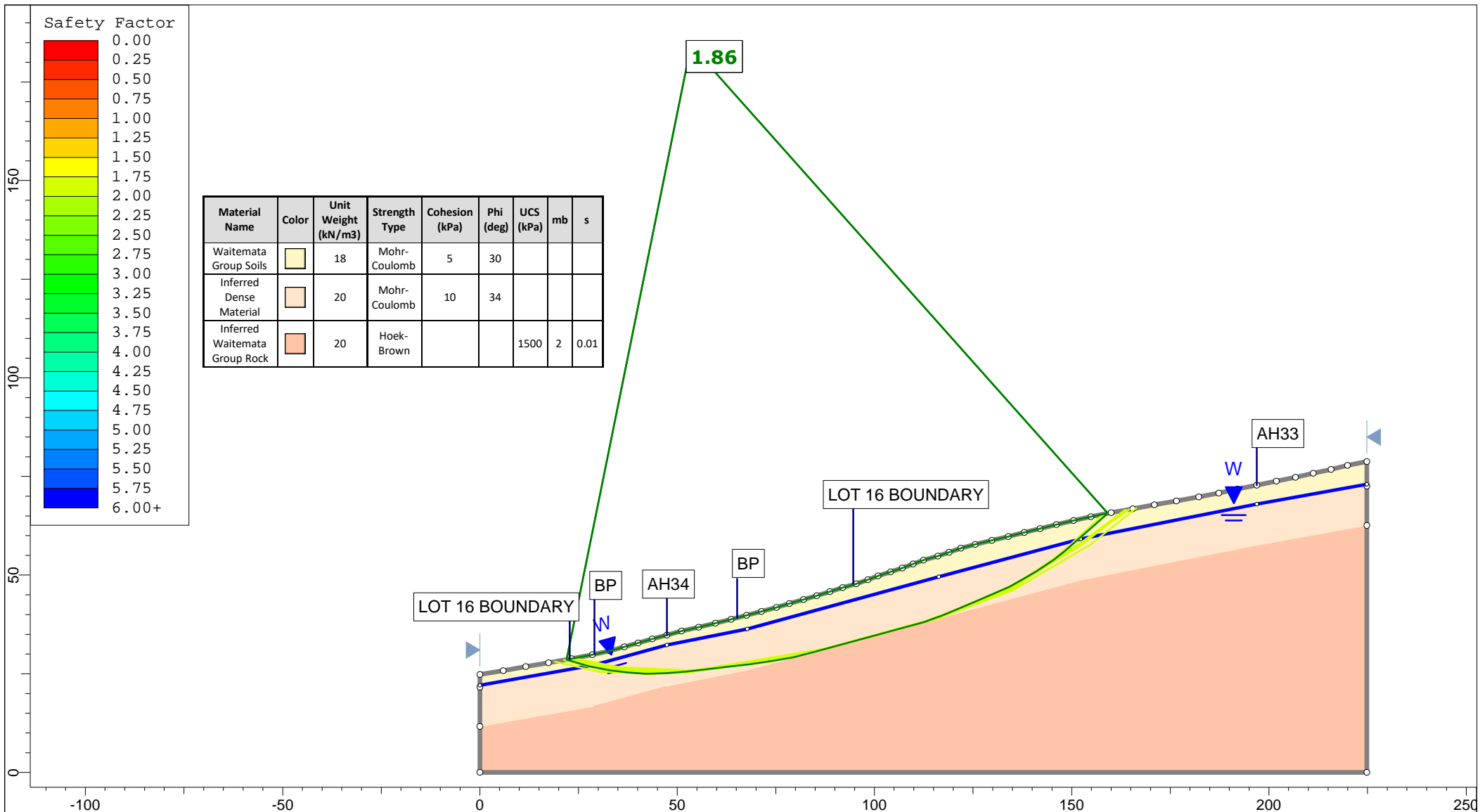


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	Group		Cross-Section L-L' - Proposed Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd

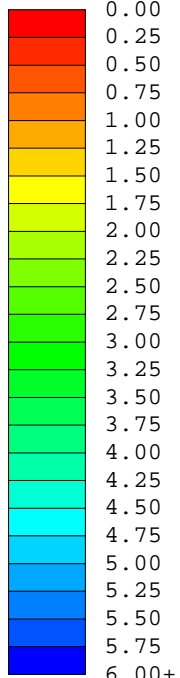


Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock	Red	20	Hoek-Brown			1500	2	0.01

<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section M-M' - Proposed Ground	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



Safety Factor



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	m	s
Waitemata Group Soils		18	Mohr-Coulomb	5	30			
Inferred Dense Material		20	Mohr-Coulomb	10	34			
Inferred Waitemata Group Rock		20	Hoek-Brown			1500	2	0.01

1.86

LOT 16 BOUNDARY

LOT 16 BOUNDARY

BP

AH34

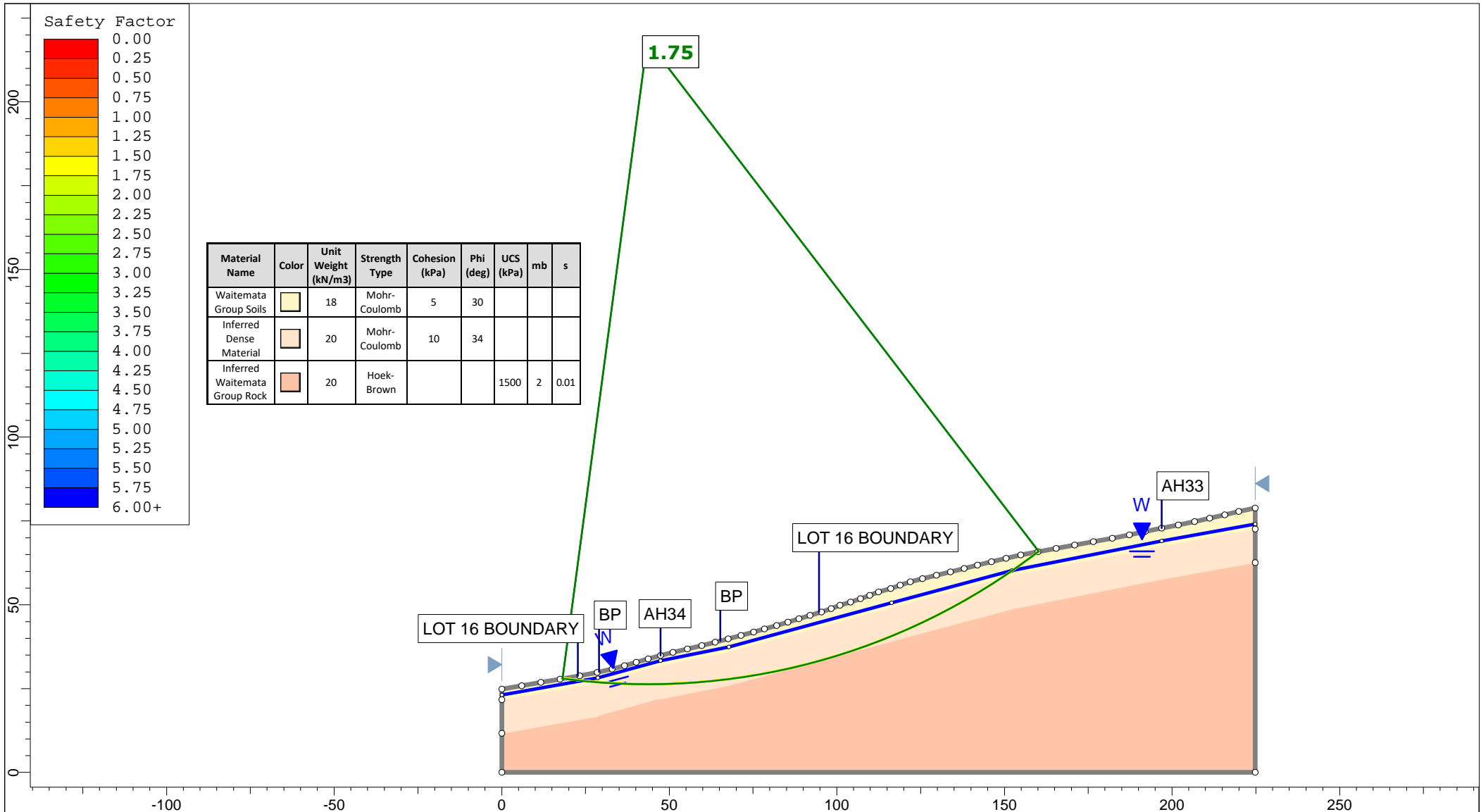
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AH33

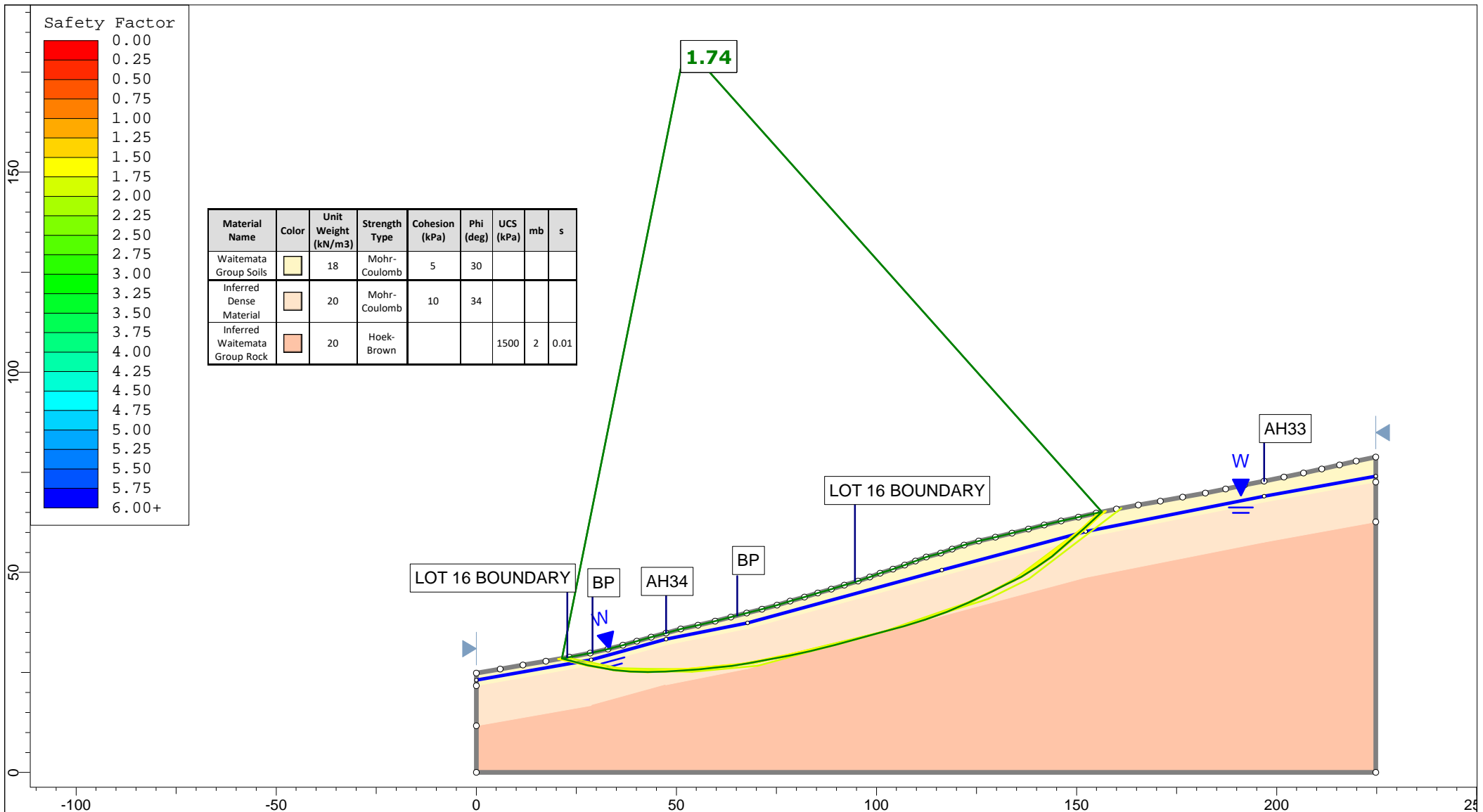
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Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section M-M' - Proposed Ground	Scenario	Run 2 - Measured Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd

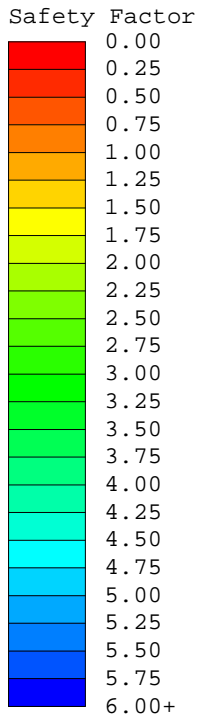
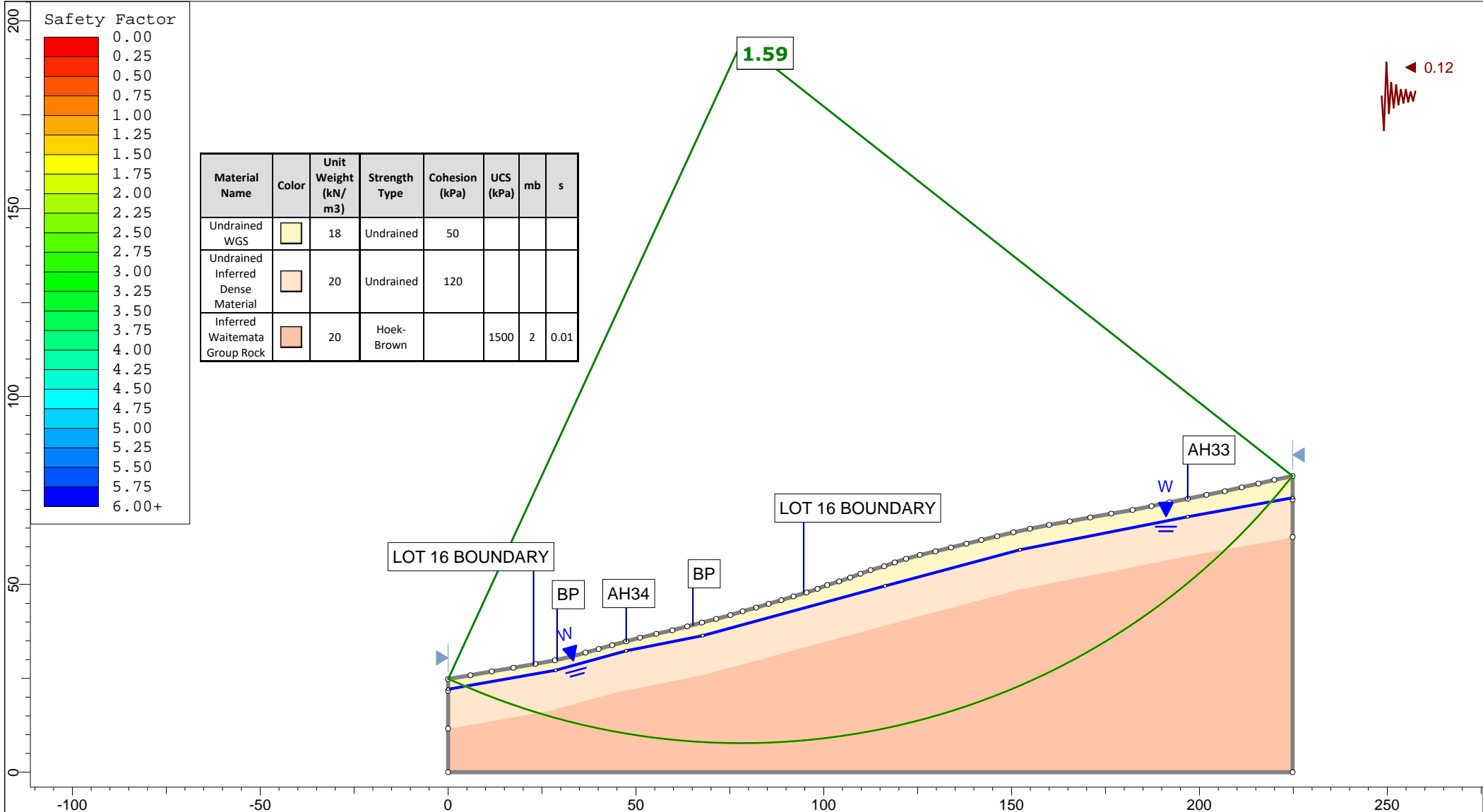


<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section M-M' - Proposed Ground	
	Scenario		Run 3 - Raised Groundwater - Circular	
	Drawn By		TR	
Date		24 May 2021		
Company		KGA Geotechnical Group Limited		
File Name		Master redo lower soil with seismic.slmd		



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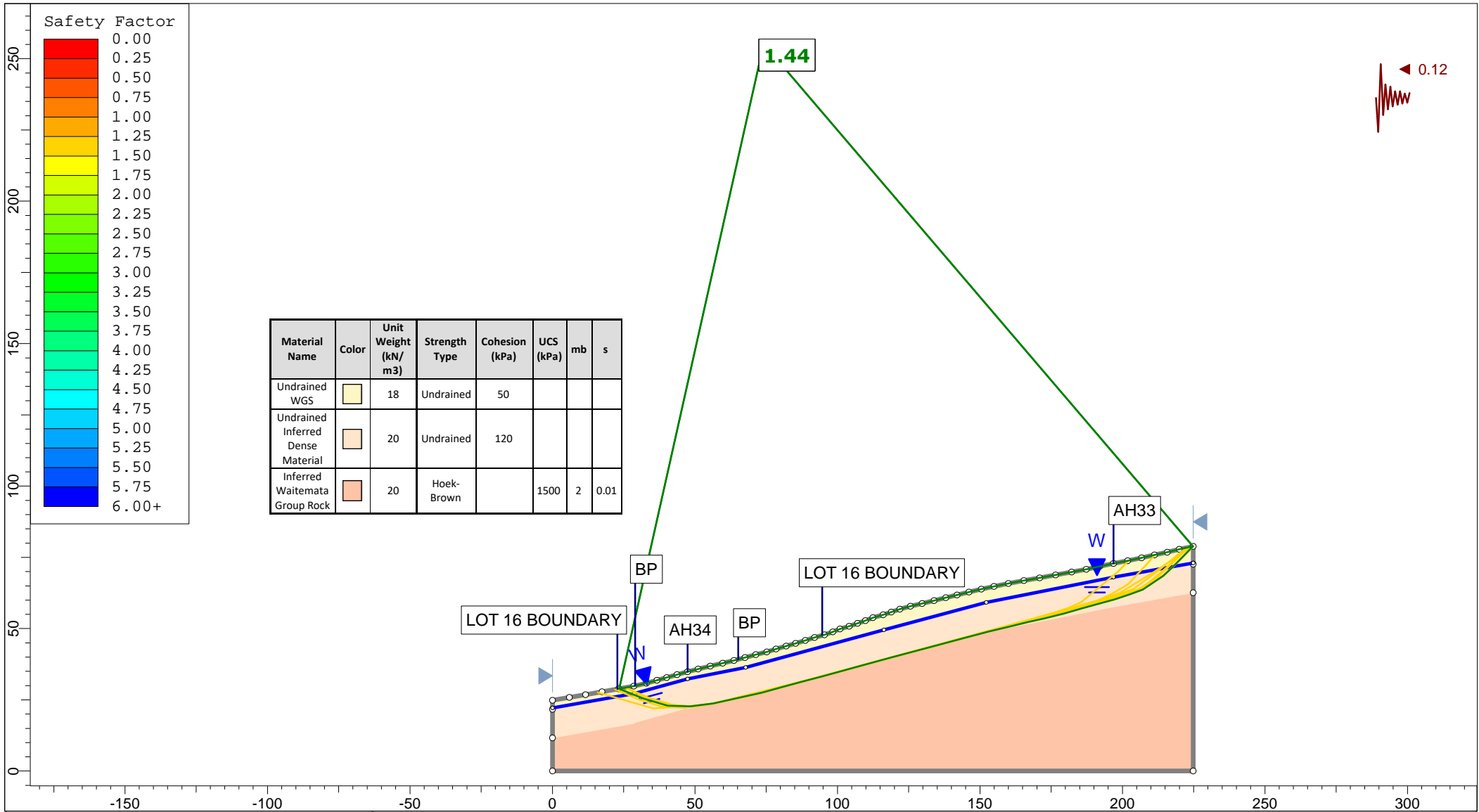
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section M-M' - Proposed Ground	Scenario	Run 4 - Raised Groundwater - Non-Cicular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd



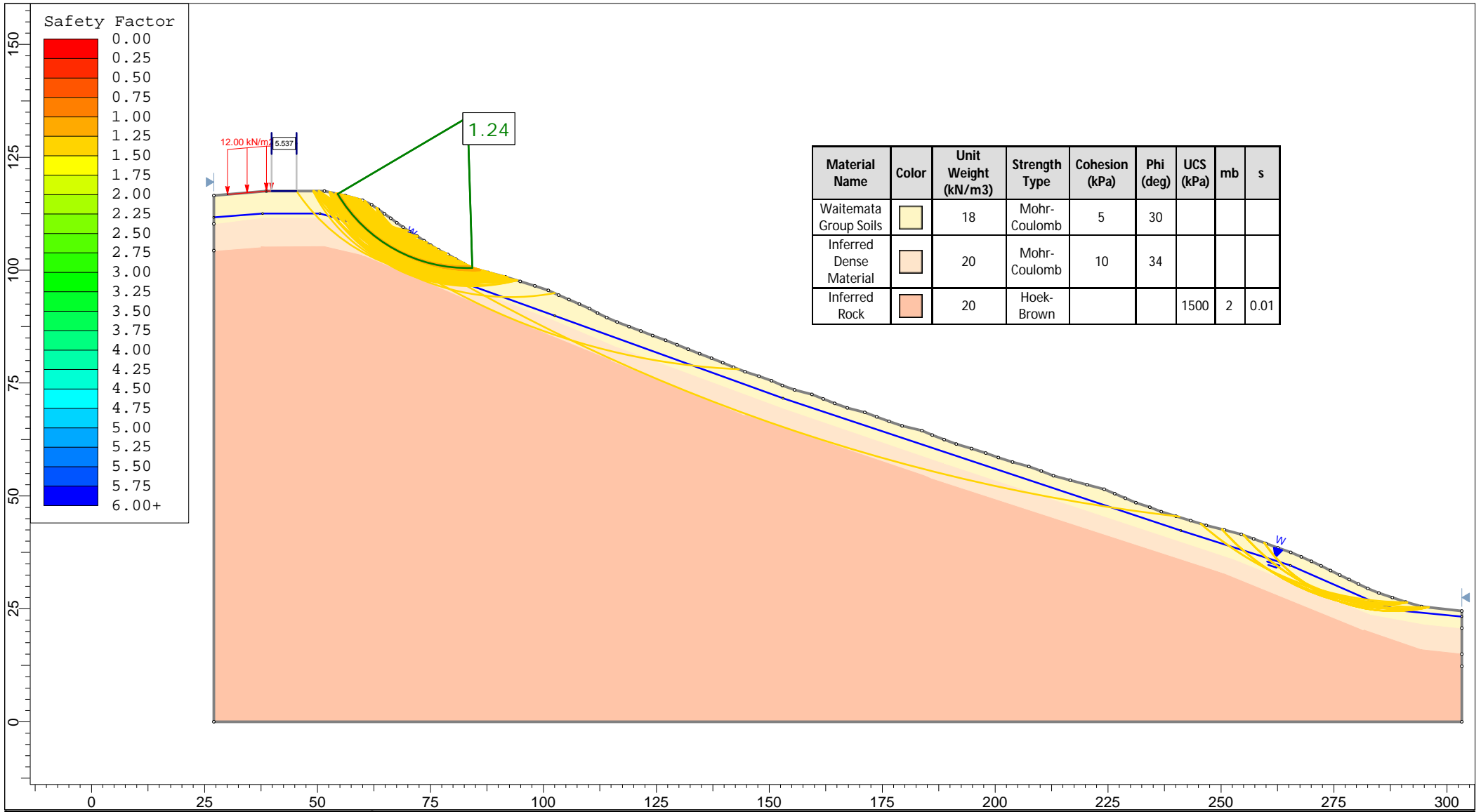
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50			
Undrained Inferred Dense Material		20	Undrained	120			
Inferred Waitemata Group Rock		20	Hoek-Brown		1500	2	0.01


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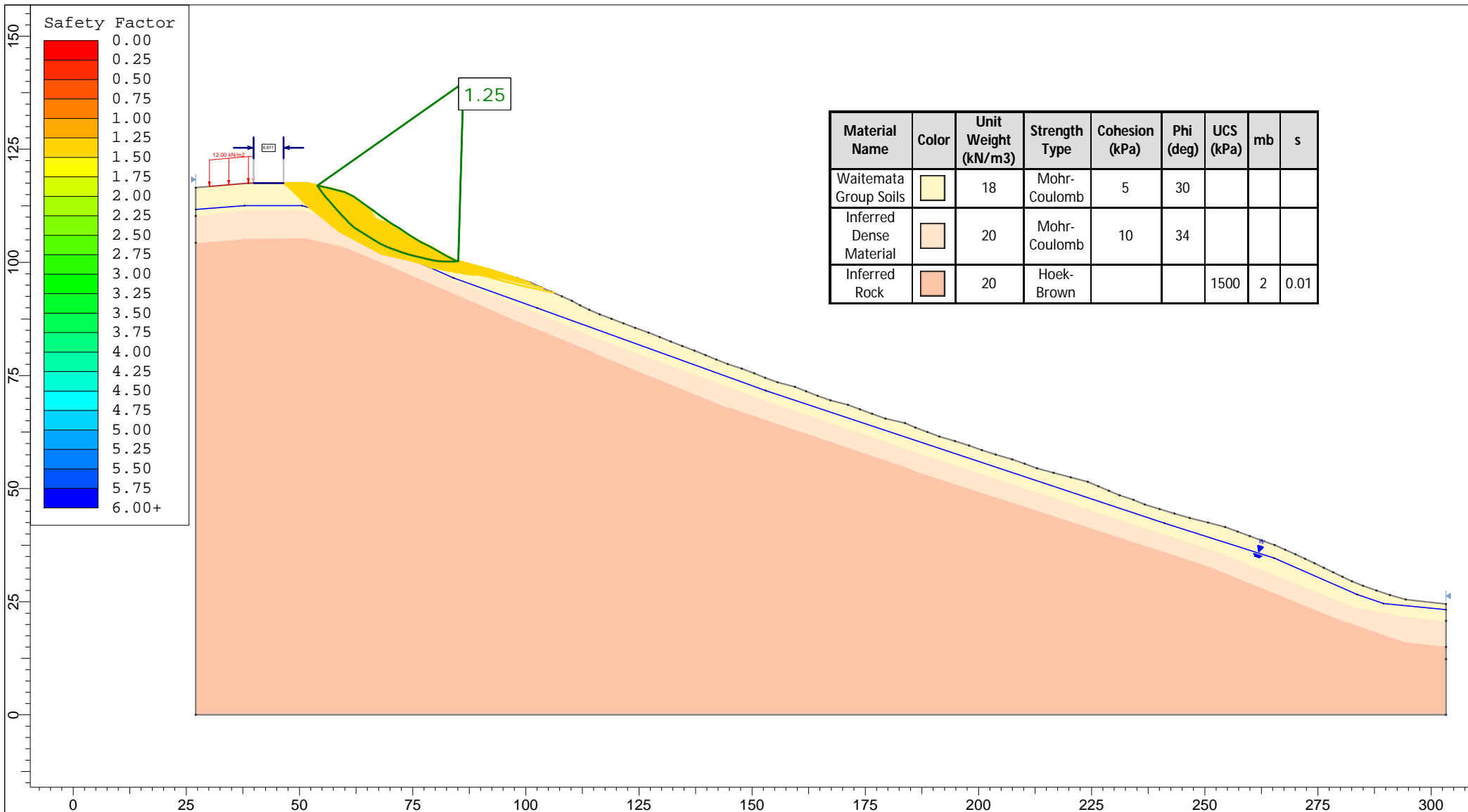
Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
Group	Cross-Section M-M' - Proposed Ground	Scenario	Run 5 - Seismic Loading - Circular
Drawn By	TR	Company	KGA Geotechnical Group Limited
Date	24 May 2021	File Name	Master redo lower soil with seismic.slmd




<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui		
	Group		Cross-Section M-M' - Proposed Ground	Scenario	Run 6 - Seismic Loading - Non-Circular
	Drawn By		TR	Company	KGA Geotechnical Group Limited
	Date		24 May 2021	File Name	Master redo lower soil with seismic.slmd

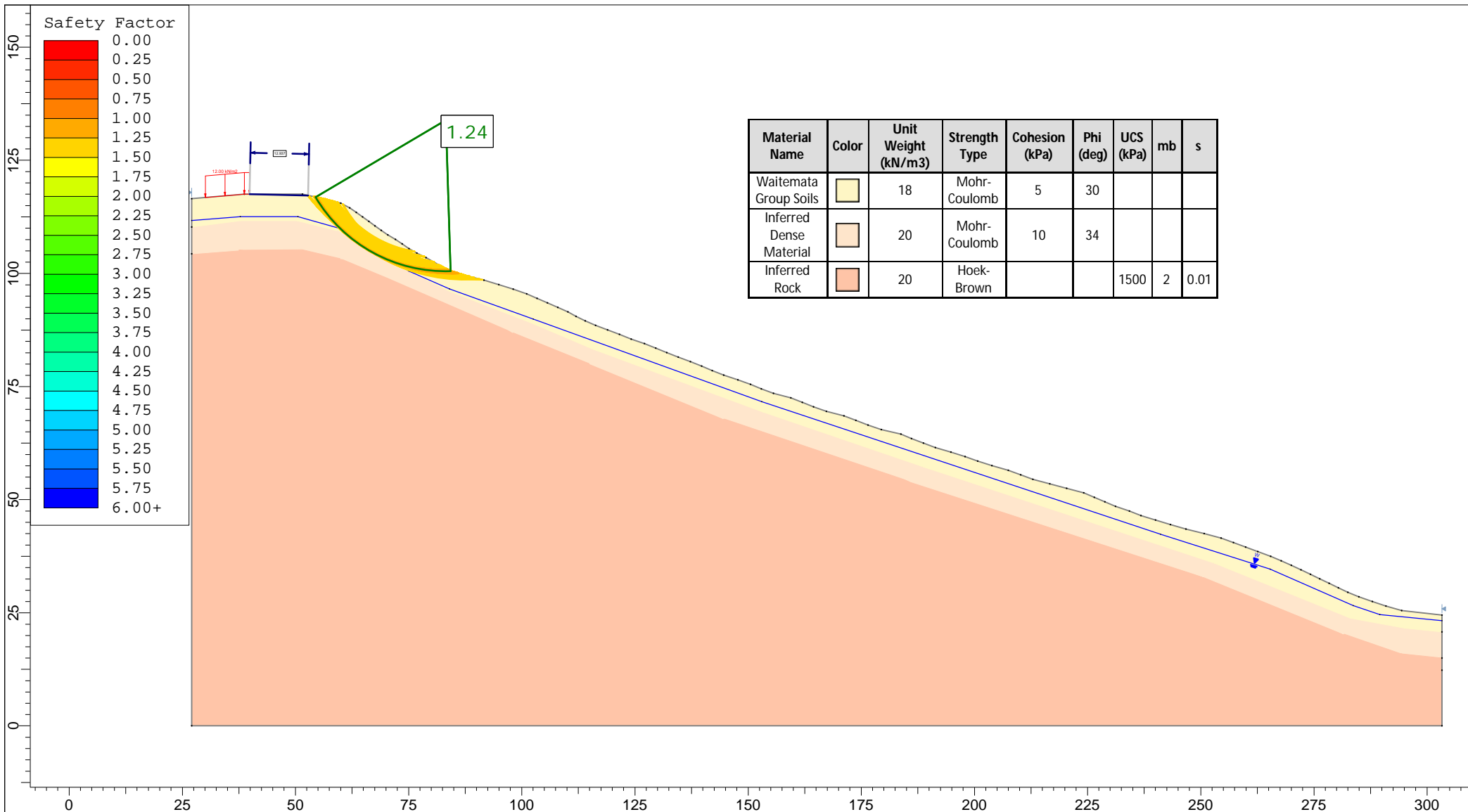


 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section N-N' - In-Ground Wall	
	Scenario		Run 1 - Measured Groundwater - Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		8 December 2021		
File Name		N and O 12-2021.slmd		




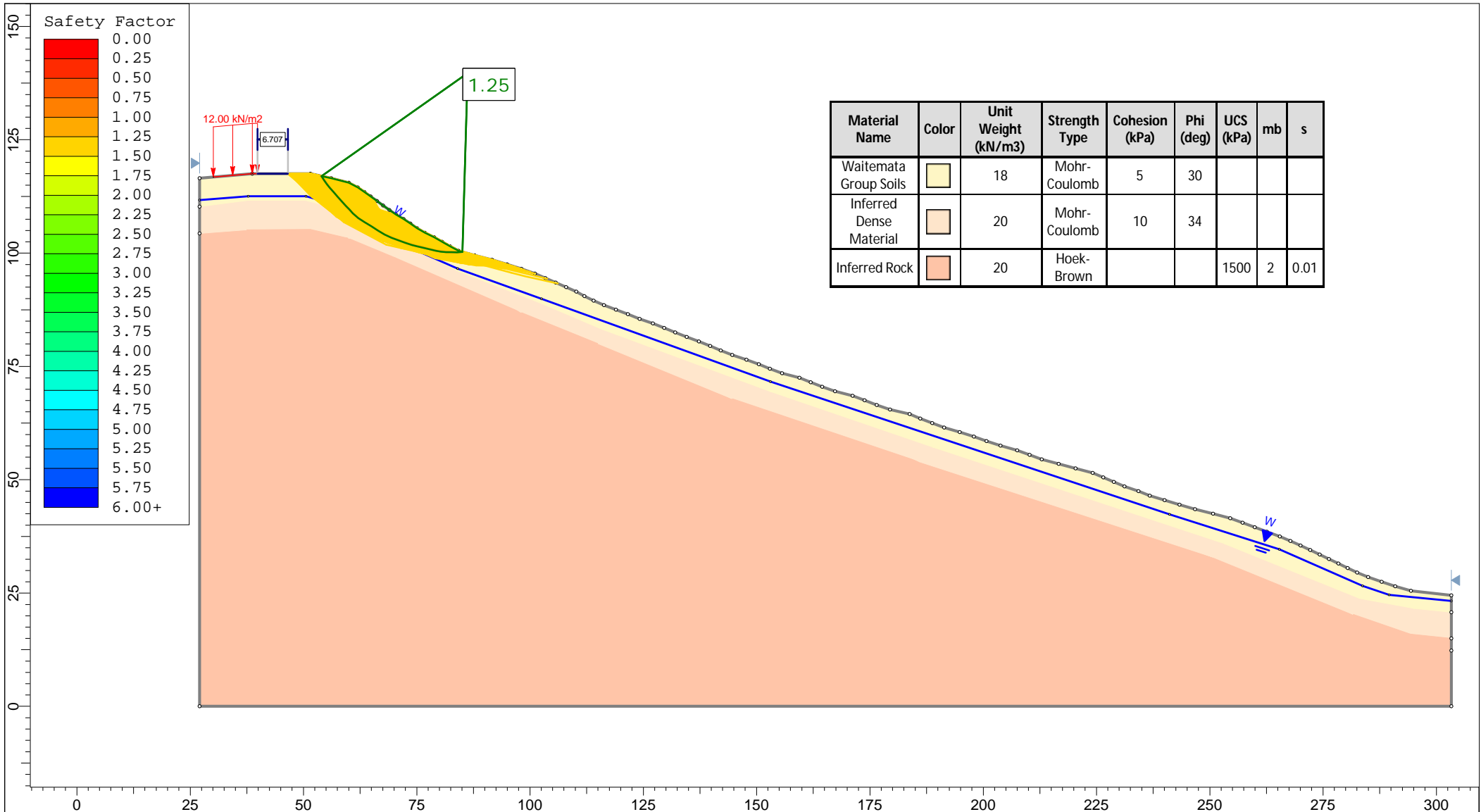
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Rock	Dark Orange	20	Hoek-Brown			1500	2	0.01

 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section N-N' - In-Ground Wall	
	Scenario		Run 2 - Measured Groundwater - Non-Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		8 December 2021		
File Name		N and O 12-2021.slm		




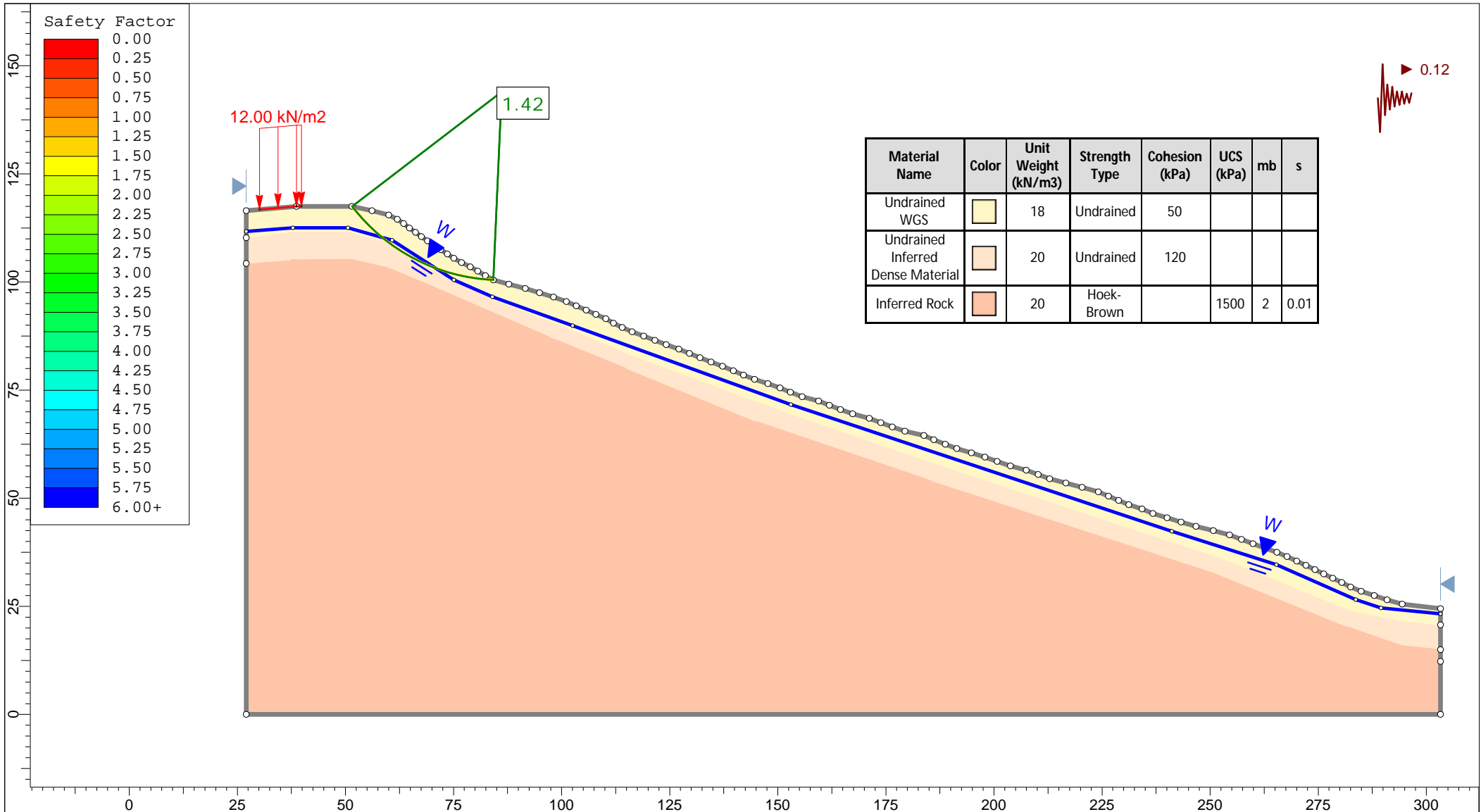
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Light Orange	20	Mohr-Coulomb	10	34			
Inferred Rock	Dark Orange	20	Hoek-Brown			1500	2	0.01

 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui				
	Group		Cross-Section N-N' - In-Ground Wall				
	Scenario		Run 3 - Raised Groundwater - Circular				
	Company		KGA Geotechnical Group Limited				
Drawn By		TR		Date		8 December 2021	
File Name		N and O 12-2021.slmd					

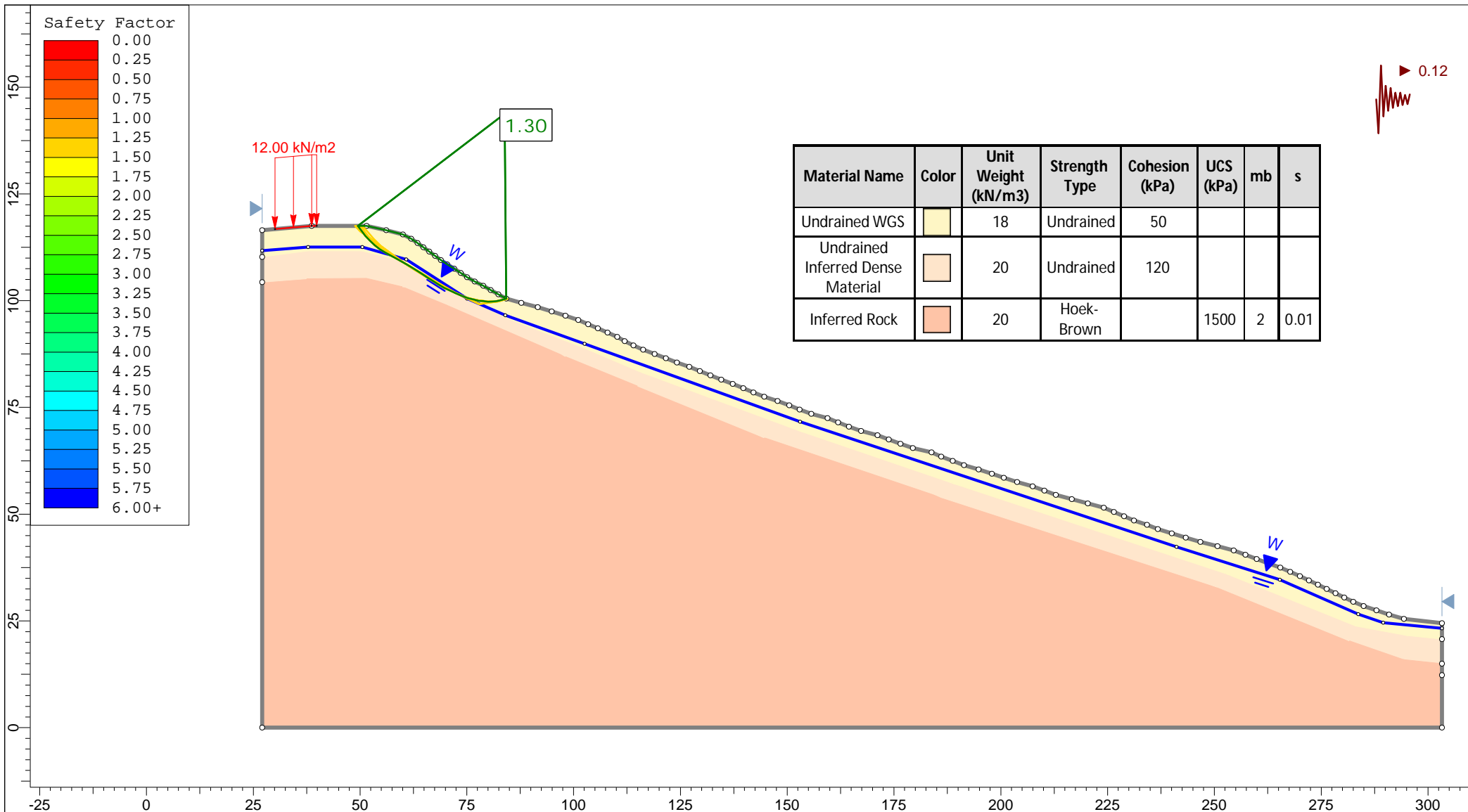


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	mb	s
Waitemata Group Soils	Yellow	18	Mohr-Coulomb	5	30			
Inferred Dense Material	Orange	20	Mohr-Coulomb	10	34			
Inferred Rock	Light Orange	20	Hoek-Brown			1500	2	0.01

 <p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section N-N' - In-Ground Wall	
	Scenario		Run 4 - Raised Groundwater - Non-Circular	
	Drawn By		TR	
Date		8 December 2021		
Company		KGA Geotechnical Group Limited		
File Name		N and O 12-2021.slmd		



<p>Auckland Christchurch 09 478 6655 03 343 5302 www.kga.co.nz</p>	Project		K200826 - 2127 Kaipara Coast Highway, Kakanui	
	Group		Cross-Section N-N' - In-Ground Wall	
	Drawn By		TR	
	Date		8 December 2021	
	Scenario		Run 5 - Seismic Loading - Circular	
	Company		KGA Geotechnical Group Limited	
	File Name		N and O 12-2021.slmd	



Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	UCS (kPa)	mb	s
Undrained WGS		18	Undrained	50			
Undrained Inferred Dense Material		20	Undrained	120			
Inferred Rock		20	Hoek-Brown		1500	2	0.01

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	Group		Cross-Section N-N' - In-Ground Wall	
	Scenario		Run 6 - Seismic Loading - Non-Circular	
	Company		KGA Geotechnical Group Limited	
Drawn By		TR		
Date		8 December 2021		
File Name		N and O 12-2021.slmd		