

--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION: Riolutato Profilo 1 stato di fatto

BOUNDARY COORDINATES

5 TOP BOUNDARIES
5 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	24.25	25.00	1
2	24.25	25.00	28.15	25.50	1
3	28.15	25.50	76.40	30.50	1
4	76.40	30.50	125.78	35.50	1
5	125.78	35.50	140.00	37.00	1

ISOTROPIC SOIL PARAMETERS

1 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 3 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
1	.00	20.70
2	24.25	20.70
3	140.45	32.72

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0 T/M2
A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 10.00 M
AND X = 25.00 M

EACH SURFACE TERMINATES BETWEEN X = 110.00 M
AND X = 130.00 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

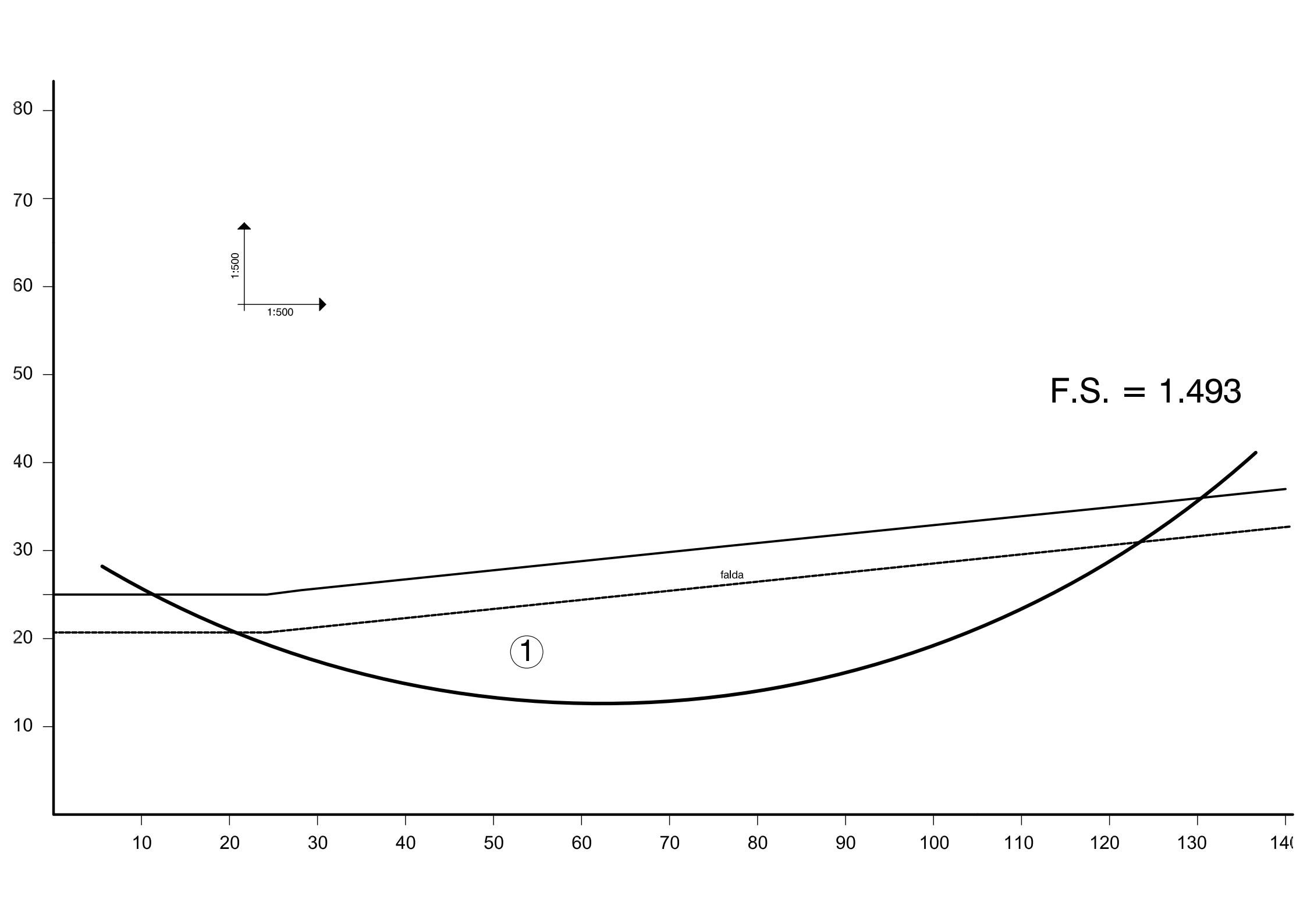
*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 14 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	10.00	25.00
2	19.04	20.72
3	28.43	17.28
4	38.09	14.70
5	47.95	13.02
6	57.92	12.23
7	67.92	12.35
8	77.86	13.38
9	87.67	15.31
10	97.27	18.12
11	106.57	21.79
12	115.50	26.29
13	123.99	31.59
14	129.70	35.91

CIRCLE CENTER AT X = 61.6 ; Y = 122.2 AND RADIUS, 110.1

F.S = 1.357 X 1.1 = 1.493



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION Riolunato profilo 1 progetto

BOUNDARY COORDINATES

8 TOP BOUNDARIES
 13 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	6.10	25.00	1
2	6.10	25.00	7.30	25.80	2
3	7.30	25.80	24.20	25.80	2
4	24.20	25.80	28.10	26.30	2
5	28.10	26.30	76.30	31.30	2
6	76.30	31.30	125.70	36.30	2
7	125.70	36.30	138.80	37.67	2
8	138.80	37.67	140.00	37.00	2
9	6.10	25.00	24.25	25.00	1
10	24.25	25.00	28.15	25.50	1
11	28.15	25.50	76.40	30.50	1
12	76.40	30.50	125.80	35.50	1
13	125.80	35.50	140.00	37.00	1

ISOTROPIC SOIL PARAMETERS

2 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1
2	1.8	1.8	.3	7.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 3 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
1	.00	20.70
2	24.25	20.70
3	140.45	32.72

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT
OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT
OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0 T/M2

A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 10.00 M
AND X = 25.00 M

EACH SURFACE TERMINATES BETWEEN X = 110.00 M
AND X = 130.00 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

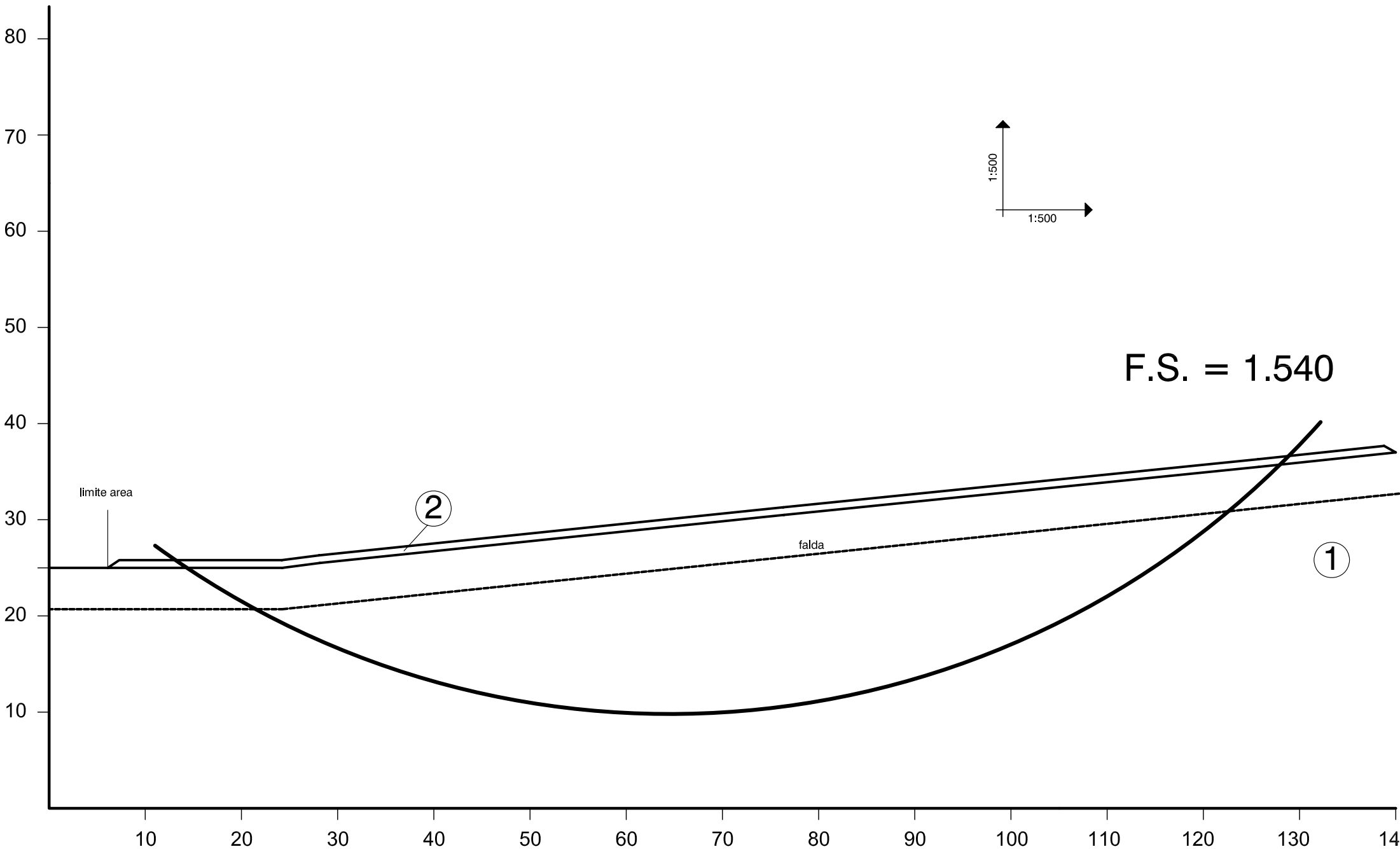
*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 14 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	13.33	25.80
2	21.86	20.58
3	30.91	16.33
4	40.38	13.11
5	50.15	10.96
6	60.09	9.91
7	70.09	9.96
8	80.03	11.12
9	89.77	13.37
10	99.20	16.69
11	108.21	21.03
12	116.68	26.34
13	124.52	32.56
14	128.59	36.60

CIRCLE CENTER AT X = 64.6 ; Y = 100.0 AND RADIUS, 90.2

F = 1.400 x 1.2 = 1.540



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION **Riolunato Profilo 2 stato di fatto**

BOUNDARY COORDINATES

9 TOP BOUNDARIES
9 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	4.21	25.50	1
2	4.21	25.50	11.49	26.00	1
3	11.49	26.00	26.12	26.50	1
4	26.12	26.50	62.85	31.00	1
5	62.85	31.00	73.06	31.50	1
6	73.06	31.50	86.27	33.50	1
7	86.27	33.50	103.13	34.00	1
8	103.13	34.00	105.96	36.00	1
9	105.96	36.00	116.25	38.00	1

ISOTROPIC SOIL PARAMETERS

1 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 10 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
1	.00	20.70
2	4.21	21.20
3	11.49	21.70
4	26.12	22.20
5	62.85	26.70
6	73.06	27.20
7	86.27	29.20
8	103.13	29.70
9	105.96	31.70
10	116.25	33.70

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT
OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT
OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0 T/M2

A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 37.00 M
AND X = 63.00 M

EACH SURFACE TERMINATES BETWEEN X = 104.00 M
AND X = 113.00 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

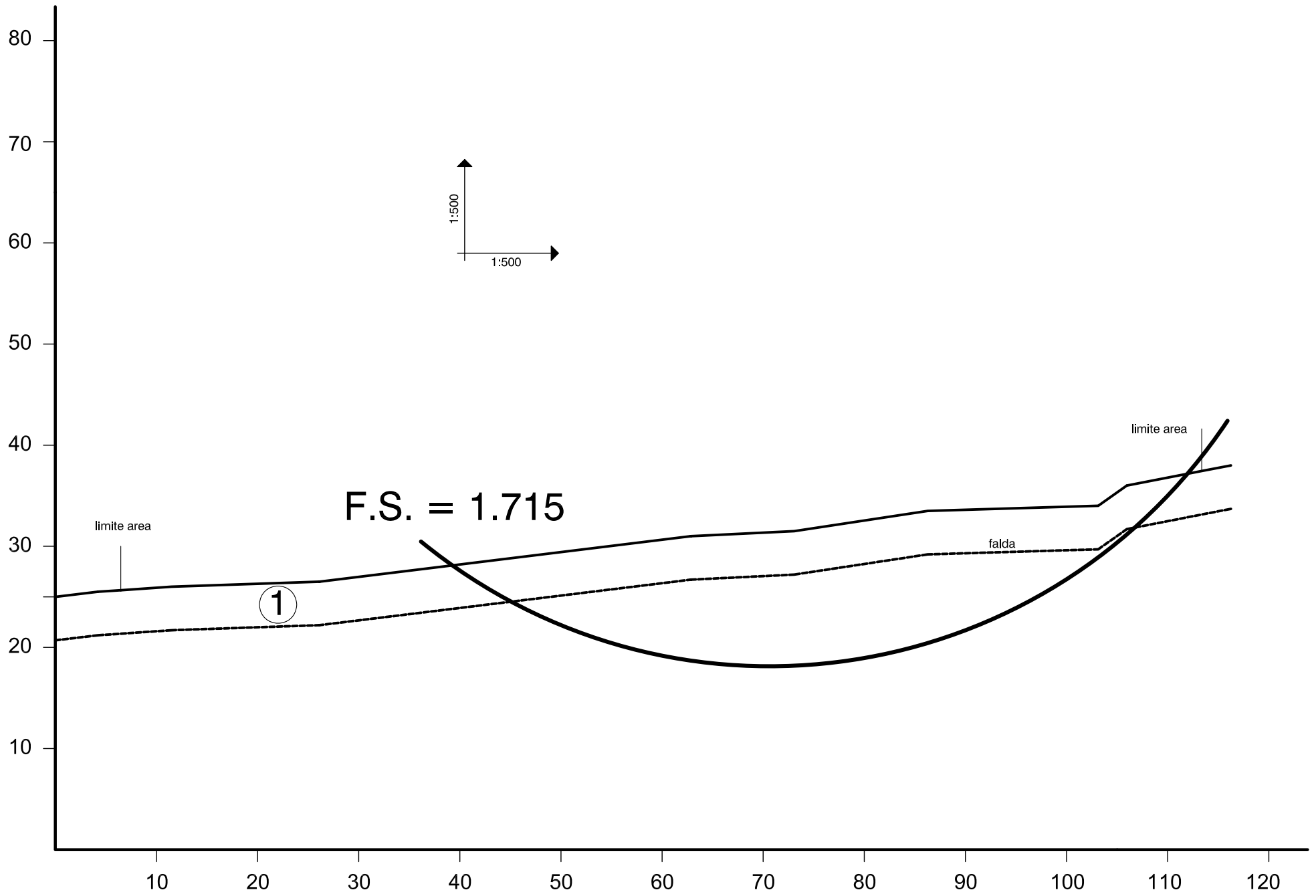
*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 10 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	37.00	27.83
2	45.24	22.17
3	54.42	18.19
4	64.18	16.03
5	74.18	15.77
6	84.04	17.43
7	93.40	20.93
8	101.93	26.16
9	109.30	32.92
10	112.51	37.27

CIRCLE CENTER AT X = 70.5 ; Y = 67.8 AND RADIUS, 52.2

$$F = 1.559 \times 1.1 = 1.715$$



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION Riolunato profilo 2 progetto

BOUNDARY COORDINATES

9 TOP BOUNDARIES
18 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	4.21	25.50	1
2	4.21	25.50	6.47	25.66	1
3	6.47	25.66	7.81	26.55	2
4	7.81	26.55	11.44	26.80	2
5	11.44	26.80	62.76	31.79	2
6	62.76	31.79	86.16	34.29	2
7	86.16	34.29	105.80	36.79	2
8	105.80	36.79	112.42	38.07	2
9	112.42	38.07	113.37	37.44	2
10	113.37	37.44	116.25	38.00	1
11	6.47	26.66	11.49	26.00	1
12	11.49	26.00	26.12	26.50	1
13	26.12	26.50	62.85	31.00	1
14	62.85	31.00	73.06	31.50	1
15	73.06	31.50	86.27	33.50	1
16	86.27	33.50	103.13	34.00	1
17	103.13	34.00	105.96	36.00	1
18	105.96	36.00	113.37	37.44	1

ISOTROPIC SOIL PARAMETERS

2 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1
2	1.8	1.8	.3	7.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 10 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
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1	.00	20.70
2	4.21	21.20
3	11.49	21.70
4	26.12	22.20
5	62.85	26.70
6	73.06	27.20
7	86.27	29.20
8	103.13	29.70
9	105.96	31.70
10	116.25	33.70

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0 T/M2
 A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED ALONG THE GROUND SURFACE BETWEEN X = 37.00 M AND X = 63.00 M

EACH SURFACE TERMINATES BETWEEN X = 104.00 M AND X = 113.00 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 10 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	37.00	29.29
2	45.46	23.95
3	54.75	20.26
4	64.57	18.36
5	74.57	18.31
6	84.41	20.11
7	93.74	23.70
8	102.25	28.95
9	109.65	35.68
10	111.28	37.85

CIRCLE CENTER AT X = 69.8 ; Y = 71.9 AND RADIUS, 53.8

F = 1.618 x 1.1 = 1.780

--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION Riolunato profilo 2 progetto riporto

BOUNDARY COORDINATES

9 TOP BOUNDARIES
18 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	4.21	25.50	1
2	4.21	25.50	6.47	25.66	1
3	6.47	25.66	7.81	26.55	2
4	7.81	26.55	11.44	26.80	2
5	11.44	26.80	62.76	31.79	2
6	62.76	31.79	86.16	34.29	2
7	86.16	34.29	105.80	36.79	2
8	105.80	36.79	112.42	38.07	2
9	112.42	38.07	113.37	37.44	2
10	113.37	37.44	116.25	38.00	1
11	6.47	26.66	11.49	26.00	1
12	11.49	26.00	26.12	26.50	1
13	26.12	26.50	62.85	31.00	1
14	62.85	31.00	73.06	31.50	1
15	73.06	31.50	86.27	33.50	1
16	86.27	33.50	103.13	34.00	1
17	103.13	34.00	105.96	36.00	1
18	105.96	36.00	113.37	37.44	1

ISOTROPIC SOIL PARAMETERS

2 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1
2	1.8	1.8	.3	7.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 10 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
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1	.00	20.70
2	4.21	21.20
3	11.49	21.70
4	26.12	22.20
5	62.85	26.70
6	73.06	27.20
7	86.27	29.20
8	103.13	29.70
9	105.96	31.70
10	116.25	33.70

**A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT
OF .150 HAS BEEN ASSIGNED**

**A VERTICAL EARTHQUAKE LOADING COEFFICIENT
OF .000 HAS BEEN ASSIGNED**

1 CAVITATION PRESSURE = .0 T/M2
A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 86.16 M
AND X = 95.98 M

EACH SURFACE TERMINATES BETWEEN X = 109.11 M
AND X = 112.42 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

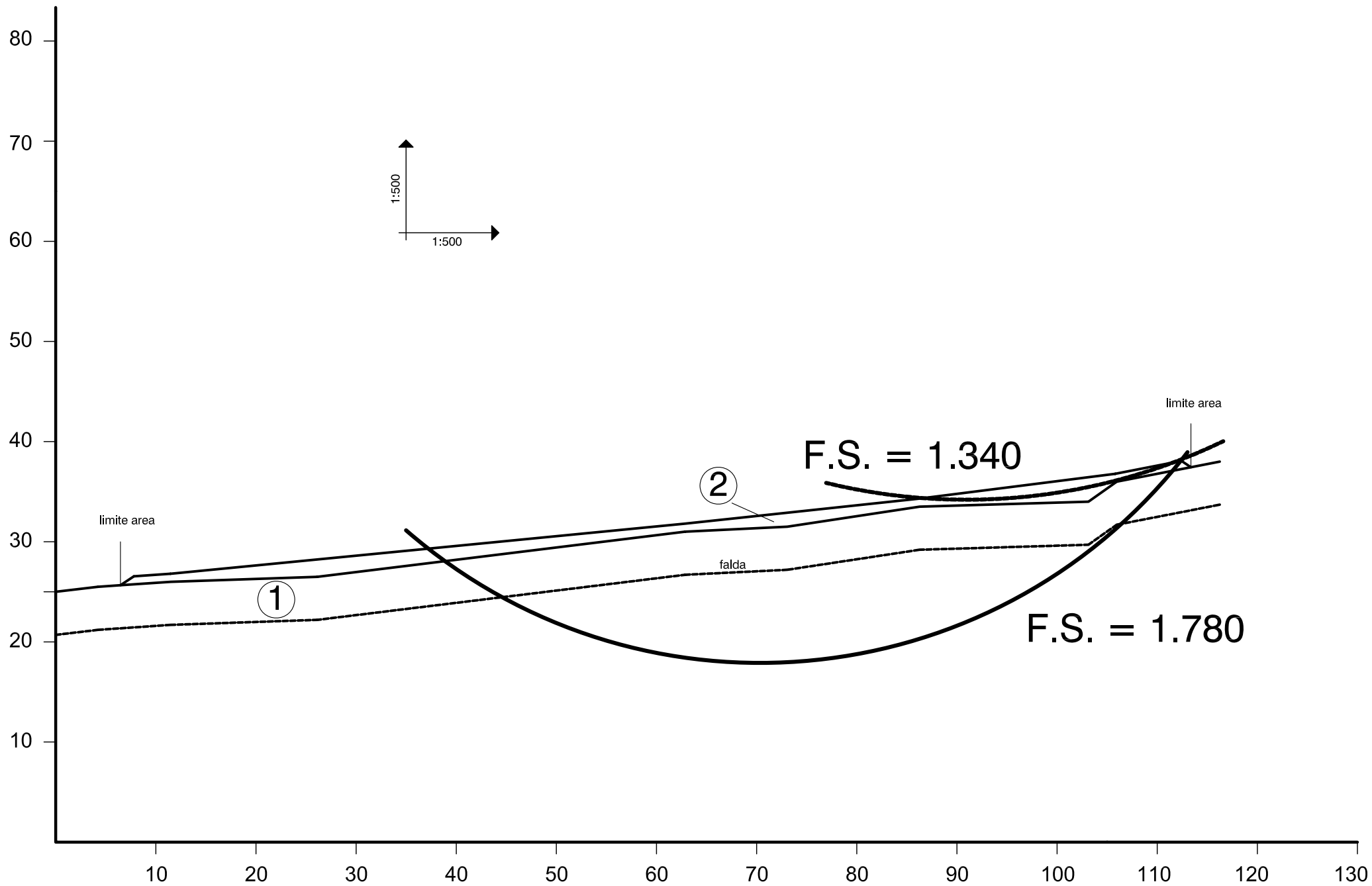
*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 4 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	90.52	34.85
2	100.50	34.21
3	110.07	37.12
4	110.93	37.78

CIRCLE CENTER AT X = 97.3 ; Y = 62.0 AND RADIUS, 27.9

$$F = 1.218 \times 1.1 = 1.340$$



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION Riolunato profilo 3 stato di fatto

BOUNDARY COORDINATES

5 TOP BOUNDARIES
5 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	2.38	26.30	1
2	2.38	26.30	8.60	27.00	1
3	8.60	27.00	50.07	32.00	1
4	50.07	32.00	90.35	37.00	1
5	90.35	37.00	93.43	37.50	1

ISOTROPIC SOIL PARAMETERS

1 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 6 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
1	.00	20.70
2	2.38	22.00
3	8.60	22.70
4	50.07	27.70
5	90.38	32.70
6	92.64	33.20

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0 T/M2
A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 8.60 M
AND X = 29.30 M

EACH SURFACE TERMINATES BETWEEN X = 50.07 M
AND X = 70.22 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

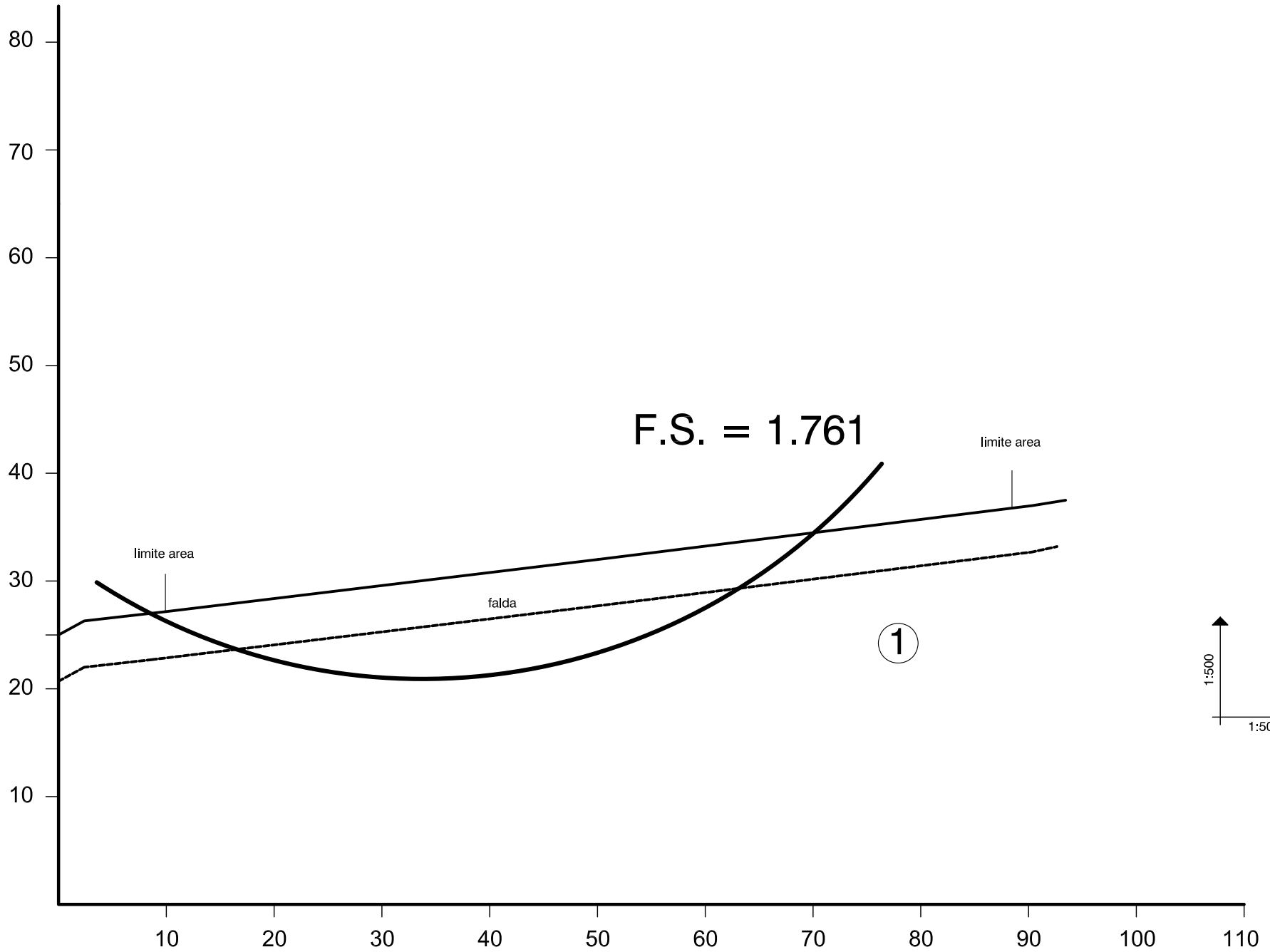
*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 8 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	8.60	27.00
2	17.88	23.26
3	27.67	21.26
4	37.67	21.05
5	47.54	22.65
6	56.96	26.01
7	65.62	31.01
8	69.65	34.43

CIRCLE CENTER AT X = 33.8 ; Y = 76.1 AND RADIUS, 55.2

F = 1.601 x 1.1 = 1.761



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION **Riolunato profilo 3 progetto**

BOUNDARY COORDINATES

7 TOP BOUNDARIES
9 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	2.38	26.30	1
2	2.38	26.30	9.91	27.16	1
3	9.91	27.16	11.39	28.15	2
4	11.39	28.15	87.44	37.45	2
5	87.44	37.45	88.46	36.76	2
6	88.46	36.76	90.35	37.00	1
7	90.35	37.00	93.43	37.50	1
8	9.91	27.16	50.07	32.00	1
9	50.07	32.00	88.46	36.76	1

ISOTROPIC SOIL PARAMETERS

2 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1
2	1.8	1.8	.3	7.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 6 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
1	.00	20.70
2	2.38	22.00
3	8.60	22.70
4	50.07	27.70
5	90.38	32.70
6	92.64	33.20

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT
OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0 T/M2
A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 8.60 M
AND X = 29.30 M

EACH SURFACE TERMINATES BETWEEN X = 50.07 M
AND X = 70.22 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

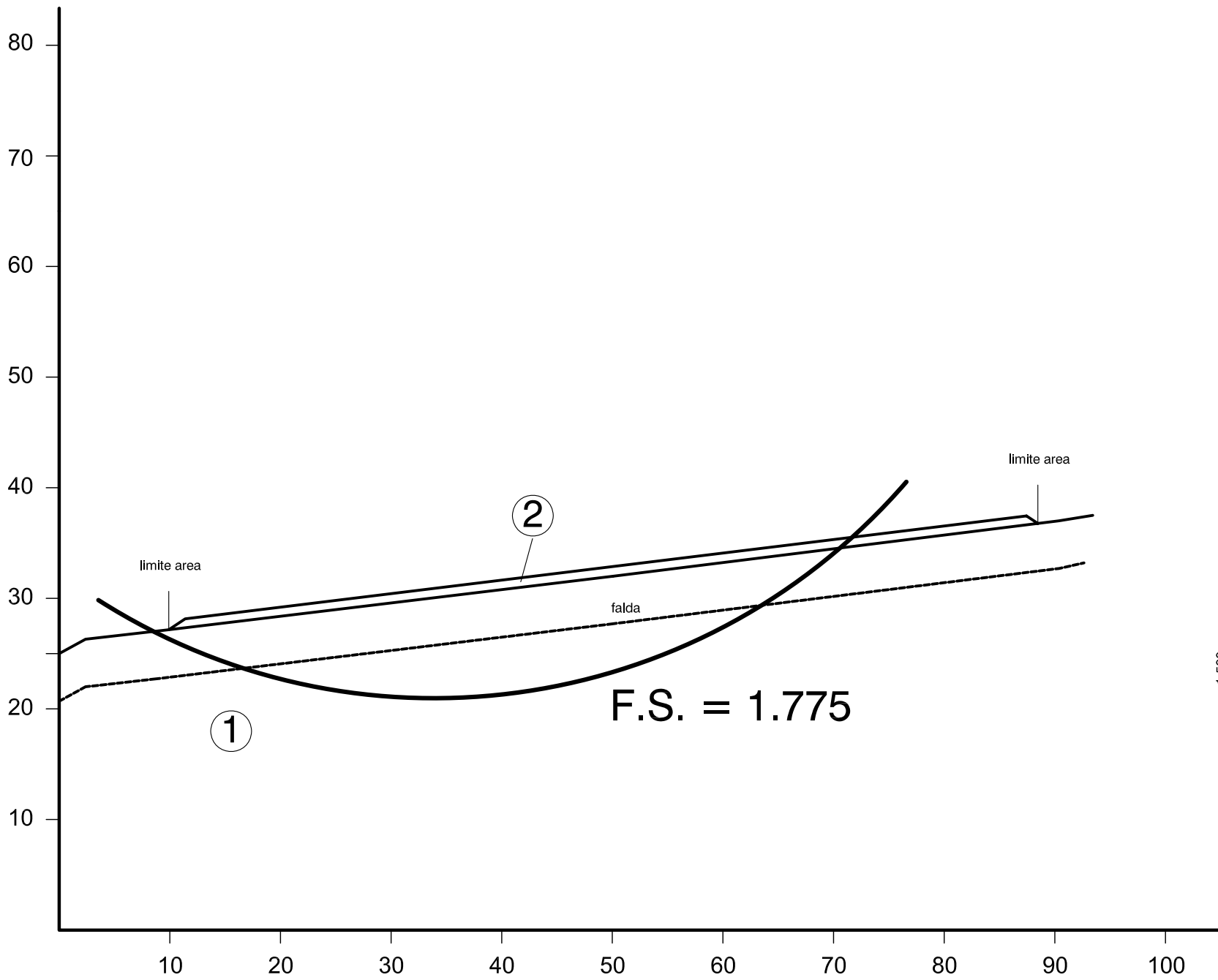
*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 8 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	8.60	27.01
2	17.86	23.24
3	27.66	21.25
4	37.66	21.11
5	47.52	22.82
6	56.88	26.32
7	65.44	31.50
8	69.66	35.28

CIRCLE CENTER AT X = 33.4 ; Y = 74.8 AND RADIUS, 53.8

F = 1.614 x 1.1 = 1.775



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION Riolunato profilo 4 stato di fatto

BOUNDARY COORDINATES

7 TOP BOUNDARIES
7 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	4.19	25.75	1
2	4.19	25.75	12.86	26.75	1
3	12.86	26.75	55.22	31.75	1
4	55.22	31.75	88.16	36.75	1
5	88.16	36.75	101.06	37.25	1
6	101.06	37.25	154.16	41.75	1
7	154.16	41.75	165.26	42.75	1

ISOTROPIC SOIL PARAMETERS

1 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 8 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
1	.00	20.70
2	4.19	21.45
3	12.86	22.45
4	55.22	27.45
5	88.16	32.45
6	101.06	32.95
7	154.16	37.45
8	165.26	38.45

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT
OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT
OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0 T/M2
A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 12.86 M
AND X = 34.04 M

EACH SURFACE TERMINATES BETWEEN X = 71.69 M
AND X = 88.16 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

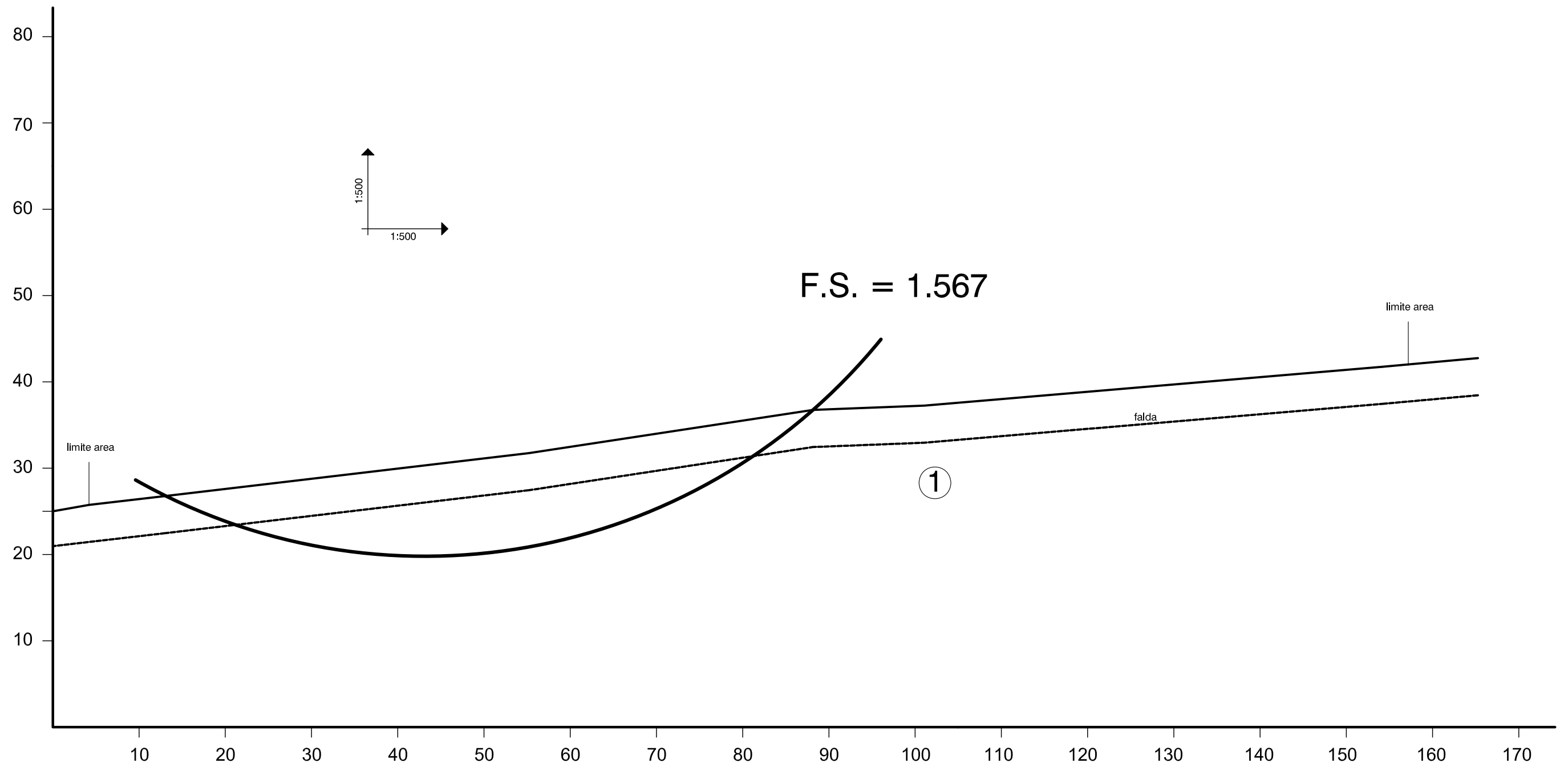
*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 10 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	12.86	26.75
2	22.13	23.00
3	31.85	20.65
4	41.81	19.74
5	51.79	20.30
6	61.59	22.31
7	70.98	25.74
8	79.78	30.50
9	87.78	36.50
10	88.00	36.73

CIRCLE CENTER AT X = 43.0 ; Y = 87.9 AND RADIUS, 68.2

F = 1.426 x 1.1 = 1.567



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU, SIMPLIFIED BISHOP
OR SPENCERS METHOD OF SLICES

PROBLEM DESCRIPTION **Riolunato profilo 4 progetto**

BOUNDARY COORDINATES

8 TOP BOUNDARIES
14 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT (M)	Y-LEFT (M)	X-RIGHT (M)	Y-RIGHT (M)	SOIL TYPE BELOW BND
1	.00	25.00	4.19	25.75	1
2	4.19	25.75	5.65	26.72	2
3	5.65	26.72	12.77	27.54	2
4	12.77	27.54	88.16	37.55	2
5	88.16	37.55	154.09	42.55	2
6	154.09	42.55	156.13	42.73	2
7	156.13	42.73	157.19	42.02	2
8	157.19	42.02	165.26	42.75	1
9	4.19	25.75	12.86	26.75	1
10	12.86	26.75	55.22	31.75	1
11	55.22	31.75	88.16	36.75	1
12	88.16	36.75	101.06	37.25	1
13	101.06	37.25	154.16	41.75	1
14	154.16	41.75	157.19	42.02	1

ISOTROPIC SOIL PARAMETERS

2 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT. (T/M3)	SATURATED UNIT WT. (T/M3)	COHESION INTERCEPT (T/M2)	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT (T/M2)	PIEZOMETRIC SURFACE NO.
1	2.0	2.0	.9	21.0	.00	.0	1
2	1.8	1.8	.3	7.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNIT WEIGHT OF WATER = 1.00

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 8 COORDINATE POINTS

POINT NO.	X-WATER (M)	Y-WATER (M)
1	.00	20.70
2	4.19	21.45
3	12.86	22.45
4	55.22	27.45
5	88.16	32.45

6	101.06	32.95
7	154.16	37.45
8	165.26	38.45

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT
OF .150 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT
OF .000 HAS BEEN ASSIGNED

1 CAVITATION PRESSURE = .0 T/M2
A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

100 TRIAL SURFACES HAVE BEEN GENERATED.

10 SURFACES INITIATE FROM EACH OF 10 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 12.86 M
AND X = 34.04 M

EACH SURFACE TERMINATES BETWEEN X = 71.69 M
AND X = 88.16 M

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00 M

10.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

FOLLOWING IS DISPLAYED THE MOST CRITICAL OF THE TRIAL FAILURE SURFACES EXAMINED.

*** * * SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD * * ***

FAILURE SURFACE SPECIFIED BY 10 COORDINATE POINTS

POINT NO.	X-SURF (M)	Y-SURF (M)
1	12.86	27.55
2	22.16	23.87
3	31.89	21.57
4	41.85	20.69
5	51.83	21.27
6	61.63	23.29
7	71.03	26.70
8	79.84	31.43
9	87.87	37.38
10	88.02	37.53

CIRCLE CENTER AT X = 42.9 ; Y = 89.7 AND RADIUS, 69.0

F = 1.485 x 1.1 = 1.633

