REGIONE BASILICATA
PROVINCIA DI MATERA
COMUNE DI FERRANDINA

AUTORIZZAZIONE UNICA EX. D. LGS. 387/03

Progetto Definitivo
Parco Eolico "Montagnola"

Titolo elaborato

A.2.3 - Report Verifica di Stabilità di Versante

Codice elaborato

COMMESSA	FASE	ELABORATO	REV.
F0302	A	R04	A

Riproduzione o consegna a terzi solo dietro specifica autorizzazione.

Scala

—

Aprile 2020	Prima emissione	M. Giacomino	FMO	GDS
DATA	DESCRIZIONE	REDATTO	VERIFICATO	APPROVATO

Proponente

GR VALUE DEVELOPMENT S.r.l.

c.so Venezia, 37
20121 Milano

Progettazione

F4 ingegneria srl
Via Di Giura - Centro direzionale, 85100 Potenza
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Il Direttore Tecnico
(ing. Giovanni DI SANTO)

Consulenza geologica
(dott. geol. Maurizio GIACOMINO)

Società certificata secondo la norma UNI-EN ISO 9001:2015 per l'erogazione di servizi di ingegneria nei settori: civile, idraulica, acustica, energia, ambiente (settore IAF: 34).

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1. Verifica di stabilità di versante

Lungo la linea di massima pendenza delle porzioni di versanti su cui è prevista l'ubicazione degli aerogeneratori in progetto è stata eseguita una verifica di stabilità in condizioni dinamiche (presenza di sisma) ed considerando l'influenza dell'opera in progetto.

Tale verifica ha mostrato che i terreni di sedime delle torri eoliche in progetto presentano, in relazione alle caratteristiche geotecniche assegnate rivenienti dalle analisi geotecniche eseguite sui campioni prelevati, in relazione alla pendenza, alle condizioni geomorfologiche ed idrogeologiche di contro e all'influenza dell'opera in progetto risultano stabili e presentano fattori di sicurezza minimi (Fs) maggiori di 1.10 limite di sicurezza imposto.

Di seguito si ripotano tutti i dati utilizzati per svolgere le verifiche e i risultati ottenuti con il Metodo di calcolo Jambo Rigoroso 1973 che è risultato quello con Fs minimi più bassi e dunque cautelativi.

Il software utilizzato è SSAP 4.9.6 - Slope Stability Analysis Program (1991,2018) WWW.SSAP.EU Build No. 10403 BY Dr. Geol. LORENZO BORSELLI - UASLP, San Luis Potosi, Mexico e-mail: lborselli@gmail.com CV e WEB page personale: WWW.LORENZO-BORSELLI.EU Gia' Ricercatore CNR-IRPI fino a Luglio 2011 - Ultima Revisione struttura tabelle del report: 14 aprile 2018

1.1 VERIFICA DELLA SEZIONE 1-1'

Località: Ferrandina (MT) Descrizione: Parco Eolico "Montagnola" FER A1

Modello pendio: MODELLO.mod

---------- PARAMETRI DEL MODELLO DEL PENDIO ----------

__ PARAMETRI GEOMETRICI - Coordinate X Y (in m) __

SUP T.		SUP 2		SUP 3		SUP 4	
X	Y	X	Y	X	Y	X	Y
0.00	400.00	312.80	481.00	264.20	460.00	40.20	410.00
4.30	402.00	345.06	481.00	345.06	460.00	345.06	410.00
16.80	407.00	-	-	-	-	-	-
40.20	410.00	-	-	-	-	-	-
49.40	412.00	-	-	-	-	-	-
56.35	414.50	-	-	-	-	-	-
63.30	417.00	-	-	-	-	-	-
85.50	422.00	-	-	-	-	-	-
94.95	424.50	-	-	-	-	-	-
108.43	428.24	-	-	-	-	-	-
120.60	432.00	-	-	-	-	-	-
135.55	435.17	-	-	-	-	-	-
144.20	437.00	-	-	-	-	-	-

179.80	447.00	-	-	-	-	-	-
200.66	450.62	-	-	-	-	-	-
208.60	452.00	-	-	-	-	-	-
248.60	457.00	-	-	-	-	-	-
264.20	460.00	-	-	-	-	-	-
270.80	462.00	-	-	-	-	-	-
284.11	467.61	-	-	-	-	-	-
302.80	477.00	-	-	-	-	-	-
312.80	481.00	-	-	-	-	-	-
314.52	482.00	-	-	-	-	-	-
345.06	492.00	-	-	-	-	-	-
345.06	492.00	-	-	-	-	-	-

---- SUP FALDA --------

X	Y (in m)
0.00	400.00
4.30	402.00
16.80	407.00
40.20	410.00
49.40	412.00
56.35	414.50
87.46	418.08
125.92	420.60
177.99	423.67
212.97	425.66
259.75	428.33
283.93	429.71
323.00	430.00
345.06	430.00

------ GESTIONE ACQUIFERI ------

Strati esclusi da acquifero:

Esclusione sovraccarico pendio sommerso: NON ATTIVATA

Peso unitario fluido (kN/m^3): 9.81

Parametri funzione dissipazione superficiale pressione dei fluidi:

Coefficiente A 0

Coefficiente K 0.000800

Pressione minima fluidi Uo_Min (kPa) 0.01

Coefficiente di soprapressione oltre pressione hidrostatica1.00

Limitazione dissipazionea a Pressione Idrostatica = ATTIVA

STABILITE CONDIZIONI PER LA VERIFICA CON SOVRAPPRESSIONE ACQUIFERI CON DISSIPAZIONE IN DIREZIONE DELLA SUPERFICIE

------- PARAMETRI GEOMECCANICI -------

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.60	7.20	0.00	19.31	20.45	1.778	0.00	0.00	0.00	0.00
STRATO 2	24.60	31.48	0.00	18.93	20.21	2.937	0.00	0.00	0.00	0.00
STRATO 3	27.67	10.20	0.00	19.70	20.45	1.992	0.00	0.00	0.00	0.00
STRATO 4	24.90	12.03	0.00	19.57	19.86	1.825	0.00	0.00	0.00	0.00

LEGENDA: fi`_____ Angolo di attrito interno efficace(in gradi)

C` _____ Coesione efficace (in Kpa)

Cu _____ Resistenza al taglio Non drenata (in Kpa)

Gamm _____ Peso di volume terreno fuori falda (in KN/m^3)

Gamm_sat __ Peso di volume terreno immerso (in KN/m^3)

STR_IDX ___ Indice di resistenza (usato in solo in 'SNIFF SEARCH) (adimensionale)

---- SOLO Per AMMASSI ROCCIOSI FRATTURATI - Parametri Criterio di Rottura di Hoek (2002)-

sigci _____ Resistenza Compressione Uniassiale Roccia Intatta (in MPa)

GSI _____ Geological Strenght Index ammasso(adimensionale)
mi _____ Indice litologico ammasso(adimensionale)
D _____ Fattore di disturbo ammasso(adimensionale)
Fattore di riduzione NTC2018 gammaPHI=1.25 e gammaC=1.25 - DISATTIVATO (solo per ROCCE)
Uso CRITERIO DI ROTTURA Hoek et al.(2002,2006) - non-lineare - Generalizzato secondo Lei et al.(2016)

----- SOVRACCARICHI PRESENTI -----
SOVRACCARICO N.1
Carico in X1 (Kpa): 147.10
Carico in X2 (Kpa): 147.10
Posizione carico da X1 m.: 155.00
a X2 m.: 161.00
Inclinazione carico (gradi): 90.00
Componenti distribuzione forza unitaria applicata:
#Orizzontale (per metro di proiezione Verticale) (kN/m): da 0.00 a 0.00
#Verticale (per metro di proiezione Orizzontale) (kN/m): da 147.10 a 147.10
##Nota: la distribuzione del carico e delle forze unitarie puo' variare
in modo lineare tra gli estremi di coordinate X1 e X2

---------- INFORMAZIONI GENERAZIONE SUPERFICI RANDOM ----------
*** PARAMETRI PER LA GENERAZIONE DELLE SUPERFICI
METODO DI RICERCA: CONVEX RANDOM - Chen (1992)
FILTRAGGIO SUPERFICI : ATTIVATO
COORDINATE X1,X2,Y OSTACOLO : 0.00 0.00 0.00
LUNGHEZZA MEDIA SEGMENTI (m): 5.0 (+/-) 50%
INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 0.10 310.65
LIVELLO MINIMO CONSIDERATO (Ymin): 317.20
INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 34.61 338.16

*** TOTALE SUPERFICI GENERATE : 10000

---------- INFORMAZIONI PARAMETRI DI CALCOLO ----------
METODO DI CALCOLO : JANBU RIGOROSO (Janbu, 1973)
COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0110
COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0055
COEFFICIENTE c=Kv/Kh UTILIZZATO : 0.5000
FORZA ORIZZONTALE ADDIZIONALE IN TESTA (kN/m): 0.00
FORZA ORIZZONTALE ADDIZIONALE ALLA BASE (kN/m): 0.00

N.B. Le forze orizzontali addizionali in testa e alla base sono poste uguali a 0 durante le tutte le verifiche globali.
I valori >0 impostati dall'utente sono utilizzati solo in caso di verifica singola

---------- RISULTATO FINALE ELABORAZIONI ----------
* DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Fattore di sicurezza (FS) 1.3207 - Min. - X Y Lambda= 1.0000

0.45	400.21
10.94	394.18
15.68	391.61
18.71	390.21
21.10	389.37
23.59	388.82
25.70	388.59
28.13	388.58
30.88	388.81
34.50	389.31
37.54	389.80
40.30	390.35
42.87	390.96
45.52	391.70

48.02 392.50
50.63 393.42
53.33 394.48
56.32 395.73
59.18 396.95
61.97 398.15
64.71 399.35
67.43 400.55
70.18 401.77
72.97 403.03
75.85 404.34
78.87 405.73
81.55 407.08
84.14 408.51
86.62 410.01
89.26 411.75
92.06 413.79
95.33 416.35
100.09 420.32
109.83 428.67

Fattore di sicurezza (FS) 1.3265 - N.2 -- X Y Lambda= 1.0000

1.19 400.55
11.82 394.00
16.61 391.21
19.66 389.69
22.03 388.78
24.53 388.18
26.62 387.92
29.04 387.90
31.77 388.11
35.40 388.61
38.49 389.09
41.32 389.61
43.98 390.18
46.67 390.84
49.28 391.55
51.99 392.37
54.83 393.30
57.99 394.41
60.80 395.49
63.48 396.61
66.04 397.79
68.73 399.12
71.29 400.50
73.95 402.04
76.71 403.74
79.75 405.70
82.61 407.59
85.38 409.47
88.09 411.36
90.82 413.31
93.84 415.53
97.24 418.09
102.06 421.81
111.53 429.20

Fattore di sicurezza (FS) 1.3281 - N.3 -- X Y Lambda= 1.0000

0.54 400.25

10.98 394.68
15.71 392.31
18.75 391.01
21.15 390.24
23.65 389.76
25.78 389.56
28.20 389.59
30.91 389.84
34.42 390.35
37.46 390.86
40.25 391.39
42.89 391.96
45.56 392.62
48.15 393.32
50.82 394.12
53.59 395.02
56.60 396.06
59.40 397.08
62.10 398.12
64.73 399.19
67.41 400.35
70.05 401.54
72.76 402.83
75.58 404.23
78.62 405.81
81.38 407.32
84.03 408.88
86.58 410.48
89.24 412.27
92.10 414.35
95.40 416.88
100.15 420.71
109.76 428.65

Fattore di sicurezza (FS) 1.3300 - N.4 -- X Y Lambda= 1.0000

1.34 400.62
11.54 394.29
16.21 391.54
19.24 389.98
21.66 388.98
24.14 388.25
26.29 387.84
28.74 387.61
31.47 387.56
35.04 387.69
37.98 387.89
40.65 388.18
43.12 388.57
45.71 389.10
48.13 389.70
50.69 390.47
53.40 391.38
56.49 392.53
59.32 393.64
62.02 394.75
64.63 395.88
67.28 397.09
69.89 398.34
72.58 399.68

75.39 401.15
78.45 402.80
81.14 404.38
83.72 406.02
86.18 407.72
88.79 409.68
91.55 411.96
94.77 414.81
99.46 419.21
109.03 428.43

Fattore di sicurezza (FS) 1.3317 - N.5 -- X Y Lambda= 1.0000

0.32 400.15
10.29 394.85
14.84 392.58
17.78 391.32
20.12 390.56
22.53 390.06
24.61 389.83
26.98 389.80
29.62 389.98
33.05 390.38
35.93 390.80
38.56 391.27
41.02 391.81
43.56 392.48
45.97 393.20
48.48 394.05
51.10 395.03
54.03 396.22
56.76 397.36
59.40 398.50
61.98 399.66
64.58 400.86
67.15 402.08
69.77 403.38
72.47 404.75
75.33 406.23
77.96 407.68
80.51 409.16
82.98 410.69
85.55 412.37
88.32 414.30
91.50 416.64
96.07 420.15
105.25 427.36

Fattore di sicurezza (FS) 1.3317 - N.6 -- X Y Lambda= 1.0000

0.24 400.11
8.52 394.96
12.33 392.72
14.80 391.44
16.78 390.62
18.80 390.02
20.56 389.67
22.56 389.47
24.81 389.42
27.74 389.51
30.13 389.66

32.28 389.90
34.25 390.23
36.35 390.69
38.29 391.23
40.34 391.90
42.51 392.72
45.01 393.75
47.35 394.75
49.58 395.72
51.76 396.70
53.93 397.70
56.10 398.73
58.32 399.81
60.63 400.96
63.09 402.21
65.26 403.41
67.33 404.67
69.31 406.00
71.43 407.55
73.67 409.36
76.28 411.64
80.09 415.18
87.92 422.64

Fattore di sicurezza (FS) 1.3318 - N.7 -- X Y Lambda= 1.0000

0.97 400.45
10.05 394.73
14.19 392.26
16.85 390.88
18.96 390.01
21.14 389.40
23.01 389.07
25.15 388.92
27.56 388.96
30.74 389.18
33.37 389.44
35.75 389.77
37.95 390.18
40.24 390.71
42.40 391.31
44.67 392.04
47.07 392.91
49.79 393.99
52.29 395.02
54.68 396.06
56.99 397.12
59.34 398.24
61.64 399.40
64.01 400.64
66.47 401.97
69.12 403.47
71.52 404.90
73.83 406.37
76.06 407.89
78.39 409.57
80.89 411.52
83.77 413.88
87.92 417.47
96.30 424.87

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Fattore di sicurezza (FS)	**1.3319**	**- N.8 --**	**X**	**Y**	**Lambda=**	**1.0000**
	0.44	400.20				
	9.58	394.84				
	13.75	392.54				
	16.44	391.25				
	18.57	390.45				
	20.78	389.90				
	22.67	389.63				
	24.82	389.53				
	27.21	389.62				
	30.33	389.90				
	32.98	390.19				
	35.42	390.54				
	37.71	390.93				
	40.05	391.42				
	42.30	391.95				
	44.62	392.57				
	47.03	393.29				
	49.69	394.15				
	52.17	394.98				
	54.58	395.83				
	56.93	396.69				
	59.30	397.60				
	61.67	398.55				
	64.11	399.56				
	66.67	400.67				
	69.48	401.91				
	71.84	403.09				
	74.08	404.37				
	76.17	405.73				
	78.47	407.41				
	80.84	409.39				
	83.67	411.97				
	87.85	416.09				
	96.56	424.95				

Fattore di sicurezza (FS)	**1.3321**	**- N.9 --**	**X**	**Y**	**Lambda=**	**1.0000**
	0.98	400.45				
	10.99	394.69				
	15.60	392.18				
	18.61	390.76				
	21.03	389.83				
	23.50	389.17				
	25.66	388.79				
	28.10	388.59				
	30.83	388.56				
	34.35	388.71				
	37.24	388.92				
	39.85	389.23				
	42.25	389.65				
	44.79	390.23				
	47.14	390.89				
	49.63	391.71				
	52.24	392.70				
	55.22	393.94				
	58.06	395.13				
	60.79	396.29				
	63.48	397.45				

66.12 398.60
68.81 399.78
71.54 400.99
74.37 402.26
77.37 403.62
79.95 404.92
82.44 406.33
84.78 407.83
87.34 409.63
90.00 411.75
93.14 414.47
97.77 418.77
107.35 427.94

Fattore di sicurezza (FS) 1.3327 - N.10 -- X Y Lambda= 1.0000

0.55 400.26
10.86 394.53
15.62 392.03
18.74 390.60
21.27 389.66
23.83 388.99
26.08 388.60
28.61 388.37
31.40 388.32
34.95 388.43
37.93 388.61
40.65 388.88
43.19 389.24
45.84 389.73
48.34 390.30
50.97 391.01
53.73 391.86
56.87 392.92
59.74 393.95
62.49 394.99
65.15 396.06
67.86 397.21
70.52 398.40
73.27 399.69
76.16 401.10
79.32 402.70
82.06 404.23
84.68 405.83
87.15 407.51
89.80 409.48
92.59 411.78
95.86 414.70
100.64 419.25
110.48 428.87

---------- ANALISI DEFICIT DI RESISTENZA ----------
DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Analisi Deficit in riferimento a FS(progetto) = 1.100

Sup N.	FS	FTR(kN/m)	FTA(kN/m)	Bilancio(kN/m)	ESITO
1	1.321	9074.5	6870.8	1516.6	Surplus
2	1.326	9426.4	7106.3	1609.5	Surplus
3	1.328	8831.1	6649.6	1516.6	Surplus
4	1.330	9788.9	7360.1	1692.8	Surplus

5	1.332	8053.9	6048.0	1401.1	Surplus
6	1.332	6541.4	4912.0	1138.2	Surplus
7	1.332	7498.9	5630.8	1305.0	Surplus
8	1.332	7705.3	5785.0	1341.8	Surplus
9	1.332	9170.8	6884.2	1598.2	Surplus
10	1.333	9926.2	7448.2	1733.1	Surplus

Esito analisi: SURPLUS di RESISTENZA!

Valore minimo di SURPLUS di RESISTENZA (kN/m): 1138.2

Note: FTR --> Forza totale Resistente rispetto alla superficie
di scivolamento (componente Orizzontale)
FTA --> Forza totale Agente rispetto alla superficie
di scivolamento (componente Orizzontale)

IMPORTANTE! : Il Deficit o il Surplus di resistenza viene espresso in kN
per metro di LARGHEZZA rispetto al fronte della scarpata

TABELLA PARAMETRI CONCI DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	dx (m)	alpha (°)	W (kN/m)	ru (-)	U (kPa)	phi' (°)	(c',Cu) (kPa)
0.448	0.814	-29.89	6.88	0.49	4.15	24.90	12.03
1.262	0.814	-29.89	20.63	0.49	12.45	24.90	12.03
2.076	0.814	-29.89	34.38	0.49	20.75	24.90	12.03
2.890	0.814	-29.89	48.13	0.49	29.57	24.90	12.03
3.703	0.597	-29.89	44.02	0.49	37.04	24.90	12.03
4.300	0.814	-29.89	71.53	0.49	42.58	24.90	12.03
5.114	0.814	-29.89	84.42	0.49	50.28	24.90	12.03
5.928	0.814	-29.89	97.31	0.49	58.25	24.90	12.03
6.741	0.814	-29.89	110.20	0.49	66.53	24.90	12.03
7.555	0.814	-29.89	123.09	0.49	74.31	24.90	12.03
8.369	0.814	-29.89	135.99	0.49	82.39	24.90	12.03
9.183	0.814	-29.89	148.88	0.49	90.83	24.90	12.03
9.997	0.814	-29.89	161.77	0.49	98.16	24.90	12.03
10.810	0.125	-29.89	26.00	0.49	104.56	24.90	12.03
10.936	0.814	-28.44	176.42	0.49	105.64	24.90	12.03
11.749	0.814	-28.44	188.87	0.49	112.35	24.90	12.03
12.563	0.814	-28.44	201.33	0.49	119.92	24.90	12.03
13.377	0.814	-28.44	213.78	0.49	128.80	24.90	12.03
14.191	0.814	-28.44	226.23	0.49	136.84	24.90	12.03
15.005	0.673	-28.44	196.64	0.49	144.25	24.90	12.03
15.678	0.814	-24.81	248.47	0.49	149.43	24.90	12.03
16.492	0.308	-24.81	97.07	0.49	155.41	24.90	12.03
16.800	0.814	-24.81	262.39	0.49	157.33	24.90	12.03
17.614	0.814	-24.81	270.20	0.49	162.13	24.90	12.03
18.428	0.287	-24.81	97.07	0.49	166.53	24.90	12.03
18.714	0.814	-19.49	280.05	0.49	167.93	24.90	12.03
19.528	0.814	-19.49	286.42	0.49	172.17	24.90	12.03
20.342	0.753	-19.49	270.83	0.49	175.84	24.90	12.03
21.095	0.814	-12.34	297.81	0.49	179.43	24.90	12.03
21.909	0.814	-12.34	302.40	0.49	182.70	24.90	12.03
22.723	0.814	-12.34	306.99	0.49	185.24	24.90	12.03
23.537	0.049	-12.34	18.77	0.49	187.33	24.90	12.03
23.586	0.814	-6.33	311.14	0.49	187.44	24.90	12.03
24.400	0.814	-6.33	314.30	0.49	189.17	24.90	12.03
25.214	0.485	-6.33	188.76	0.49	190.78	24.90	12.03
25.699	0.814	-0.10	318.63	0.49	191.70	24.90	12.03
26.512	0.814	-0.10	320.34	0.49	193.10	24.90	12.03
27.326	0.804	-0.10	318.05	0.49	194.07	24.90	12.03
28.130	0.814	4.70	323.21	0.49	194.86	24.90	12.03

28.944	0.814	4.70	323.81	0.49	195.41	24.90	12.03
29.757	0.814	4.70	324.42	0.49	195.76	24.90	12.03
30.571	0.305	4.70	121.66	0.49	195.95	24.90	12.03
30.876	0.814	7.80	324.89	0.49	195.99	24.90	12.03
31.690	0.814	7.80	324.78	0.49	196.02	24.90	12.03
32.504	0.814	7.80	324.66	0.49	195.97	24.90	12.03
33.317	0.814	7.80	324.54	0.49	195.87	24.90	12.03
34.131	0.370	7.80	147.43	0.49	195.74	24.90	12.03
34.501	0.814	9.31	324.20	0.49	195.66	24.90	12.03
35.315	0.814	9.31	323.72	0.49	195.42	24.90	12.03
36.129	0.814	9.31	323.25	0.49	195.11	24.90	12.03
36.942	0.594	9.31	235.65	0.49	194.73	24.90	12.03
37.537	0.814	11.24	322.21	0.49	194.43	24.90	12.03
38.350	0.814	11.24	321.28	0.49	193.86	24.90	12.03
39.164	0.814	11.24	320.34	0.49	193.39	24.90	12.03
39.978	0.222	11.24	87.26	0.49	193.06	24.90	12.03
40.200	0.097	11.24	38.27	0.49	192.99	24.90	12.03
40.297	0.814	13.38	319.57	0.49	192.96	24.90	12.03
41.111	0.814	13.38	319.38	0.49	192.75	24.90	12.03
41.925	0.814	13.38	319.20	0.49	192.52	24.90	12.03
42.739	0.129	13.38	50.66	0.49	192.22	24.90	12.03
42.868	0.814	15.58	318.71	0.49	192.15	24.90	12.03
43.682	0.814	15.58	317.98	0.49	191.72	24.90	12.03
44.496	0.814	15.58	317.26	0.49	191.21	24.90	12.03
45.309	0.209	15.58	81.27	0.49	190.62	24.90	12.03
45.518	0.814	17.58	316.09	0.49	190.39	24.90	12.03
46.332	0.814	17.58	314.86	0.49	189.64	24.90	12.03
47.146	0.814	17.58	313.63	0.49	188.81	24.90	12.03
47.960	0.065	17.58	24.88	0.49	188.03	24.90	12.03
48.024	0.814	19.56	312.05	0.49	187.96	24.90	12.03
48.838	0.562	19.56	214.42	0.49	187.35	24.90	12.03
49.400	0.814	19.56	310.08	0.49	187.03	24.90	12.03
50.214	0.418	19.56	159.31	0.49	186.65	24.90	12.03
50.632	0.814	21.32	310.15	0.49	186.46	24.90	12.03
51.446	0.814	21.32	309.89	0.49	186.21	24.90	12.03
52.259	0.814	21.32	309.62	0.49	185.93	24.90	12.03
53.073	0.258	21.32	98.29	0.49	185.60	24.90	12.03
53.332	0.814	22.82	309.07	0.49	185.45	24.90	12.03
54.145	0.814	22.82	308.41	0.49	184.80	24.90	12.03
54.959	0.814	22.82	307.74	0.49	183.97	24.90	12.03
55.773	0.543	22.82	204.91	0.49	182.97	24.90	12.03
56.316	0.034	23.04	12.87	0.49	182.27	24.90	12.03
56.350	0.814	23.04	306.51	0.49	182.22	24.90	12.03
57.164	0.814	23.04	305.66	0.48	180.52	24.90	12.03
57.978	0.814	23.04	304.81	0.48	178.33	24.90	12.03
58.791	0.391	23.04	146.18	0.47	175.66	24.90	12.03
59.182	0.814	23.29	303.52	0.47	174.36	24.90	12.03
59.996	0.814	23.29	302.61	0.46	171.74	24.90	12.03
60.810	0.814	23.29	301.69	0.46	169.05	24.90	12.03
61.624	0.344	23.29	127.17	0.45	166.53	24.90	12.03
61.968	0.814	23.53	300.35	0.45	165.62	24.90	12.03
62.781	0.519	23.53	190.86	0.45	163.41	24.90	12.03
63.300	0.814	23.53	297.86	0.44	161.92	24.90	12.03
64.114	0.601	23.53	218.28	0.44	159.35	24.90	12.03
64.715	0.814	23.78	293.05	0.44	157.26	24.90	12.03
65.529	0.814	23.78	290.24	0.43	154.25	24.90	12.03
66.343	0.814	23.78	287.42	0.43	151.60	24.90	12.03
67.156	0.278	23.78	97.48	0.43	149.15	24.90	12.03
67.434	0.814	24.03	283.61	0.43	148.26	24.90	12.03

68.248	0.814	24.03	280.72	0.42	145.64	24.90	12.03
69.062	0.814	24.03	277.84	0.42	143.00	24.90	12.03
69.876	0.308	24.03	104.41	0.42	140.32	24.90	12.03
70.184	0.814	24.28	273.82	0.42	139.33	24.90	12.03
70.997	0.814	24.28	270.87	0.41	136.66	24.90	12.03
71.811	0.814	24.28	267.92	0.41	133.95	24.90	12.03
72.625	0.348	24.28	113.61	0.41	131.22	24.90	12.03
72.973	0.814	24.51	263.67	0.40	130.12	24.90	12.03
73.787	0.814	24.51	260.65	0.40	127.41	24.90	12.03
74.601	0.814	24.51	257.63	0.40	124.65	24.90	12.03
75.414	0.438	24.51	137.49	0.39	121.83	24.90	12.03
75.853	0.814	24.74	252.96	0.39	120.46	24.90	12.03
76.666	0.814	24.74	249.87	0.39	117.71	24.90	12.03
77.480	0.814	24.74	246.79	0.38	114.84	24.90	12.03
78.294	0.573	24.74	172.04	0.38	111.84	24.90	12.03
78.867	0.814	26.68	241.27	0.37	109.87	24.90	12.03
79.681	0.814	26.68	237.63	0.37	106.64	24.90	12.03
80.495	0.814	26.68	234.00	0.36	103.53	24.90	12.03
81.309	0.238	26.68	67.87	0.36	100.52	24.90	12.03
81.547	0.814	28.89	228.98	0.36	99.44	24.90	12.03
82.361	0.814	28.89	224.69	0.35	95.97	24.90	12.03
83.175	0.814	28.89	220.41	0.34	92.21	24.90	12.03
83.989	0.148	28.89	39.69	0.34	88.40	24.90	12.03
84.137	0.814	31.21	214.98	0.33	87.54	24.90	12.03
84.951	0.549	31.21	142.27	0.33	83.56	24.90	12.03
85.500	0.814	31.21	206.86	0.32	81.07	24.90	12.03
86.314	0.287	31.21	72.01	0.31	77.68	24.90	12.03
86.601	0.014	31.21	3.52	0.31	76.41	27.67	10.20
86.615	0.814	33.39	200.23	0.31	76.34	27.67	10.20
87.429	0.031	33.39	7.47	0.30	72.86	27.67	10.20
87.460	0.814	33.39	194.57	0.30	72.70	27.67	10.20
88.274	0.814	33.39	189.09	0.29	68.60	27.67	10.20
89.088	0.176	33.39	40.22	0.28	63.44	27.67	10.20
89.264	0.814	36.08	181.96	0.28	62.13	27.67	10.20
90.078	0.814	36.08	175.54	0.26	56.12	27.67	10.20
90.891	0.814	36.08	169.13	0.24	50.49	27.67	10.20
91.705	0.359	36.08	72.51	0.22	44.66	27.67	10.20
92.064	0.814	38.12	159.49	0.22	42.09	27.67	10.20
92.878	0.814	38.12	152.31	0.19	35.92	27.67	10.20
93.692	0.814	38.12	145.13	0.17	29.85	27.67	10.20
94.505	0.445	38.12	76.26	0.14	24.22	27.67	10.20
94.950	0.377	38.12	63.01	0.13	21.79	27.67	10.20
95.327	0.814	39.81	130.52	0.12	19.69	27.67	10.20
96.141	0.814	39.81	122.85	0.09	14.48	27.67	10.20
96.955	0.814	39.81	115.17	0.06	9.28	27.67	10.20
97.768	0.477	39.81	63.89	0.02	4.49	27.67	10.20
98.245	0.814	39.81	103.19	0.01	2.94	27.67	10.20
99.059	0.814	39.81	95.90	0.00	1.27	27.67	10.20
99.873	0.214	39.81	23.98	0.00	0.45	27.67	10.20
100.087	0.814	40.61	86.53	0.00	0.35	27.67	10.20
100.900	0.814	40.61	78.92	0.00	0.07	27.67	10.20
101.714	0.814	40.61	71.32	0.00	0.02	27.67	10.20
102.528	0.814	40.61	63.71	0.00	0.00	27.67	10.20
103.342	0.814	40.61	56.10	0.00	0.00	27.67	10.20
104.156	0.814	40.61	48.49	0.00	0.00	27.67	10.20
104.969	0.814	40.61	40.89	0.00	0.00	27.67	10.20
105.783	0.814	40.61	33.28	0.00	0.00	27.67	10.20
106.597	0.814	40.61	25.67	0.00	0.00	27.67	10.20
107.411	0.814	40.61	18.06	0.00	0.00	27.67	10.20

108.225	0.205	40.61	3.36	0.00	0.00	27.67	10.20
108.430	0.814	40.61	8.74	0.00	0.00	27.67	10.20
109.244	0.582	40.61	1.84	0.00	0.00	27.67	10.20

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
alpha(°) : Angolo pendenza base concio
W(kN/m) : Forza peso concio
ru(-) : Coefficiente locale pressione interstiziale
U(kPa) : Pressione totale dei pori base concio
phi'(°) : Angolo di attrito efficace base concio
c'/Cu (kPa) : Coesione efficace o Resistenza al taglio in condizioni non drenate

TABELLA DIAGRAMMA DELLE FORZE DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X	ht	yt	yt'	E(x)	T(x)	E'	rho(x)	FS_FEM	FS_p-qFEM	
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)	(kN)	(--)	(--)	(--)	
0.448	0.000	400.208	-0.311	0.0000000000E+000	0.0000000000E+000	5.5866586498E-001	0.044	1.716	1.829	
1.262	0.212	399.953	-0.311	6.9881889230E-001	2.0596703835E-001	1.1587456826E+000	0.044	1.716	1.829	
2.076	0.430	399.703	-0.313	1.8859856288E+000	9.7288600543E-001	1.9684990571E+000	0.080	1.112	1.096	
2.890	0.638	399.444	-0.289	3.9027669092E+000	3.5330550674E+000	3.3441233876E+000	0.184	0.889	0.825	
3.703	0.895	399.232	-0.253	7.3289130499E+000	9.3177661800E+000	5.6051521377E+000	0.347	0.798	0.710	
4.300	1.092	399.087	-0.242	1.1283018822E+001	1.7349535411E+001	8.2858580405E+000	0.530	0.766	0.669	
5.114	1.364	398.891	-0.245	1.9866624429E+001	3.3689565608E+001	1.4232895030E+001	0.815	0.752	0.649	
5.928	1.629	398.689	-0.246	3.4448615799E+001	6.0386601028E+001	2.4179110969E+001	1.161	0.761	0.661	
6.741	1.898	398.490	-0.228	5.9220778225E+001	9.6397932293E+001	4.1075930513E+001	1.454	0.770	0.689	
7.555	2.193	398.317	-0.202	1.0130419576E+002	1.3591319660E+002	7.1009362651E+001	1.566	0.787	0.718	
8.369	2.504	398.161	-0.193	1.7479630051E+002	1.8049616875E+002	1.1327243360E+002	1.519	0.810	0.746	
9.183	2.814	398.003	-0.191	2.8566749922E+002	2.3313583466E+002	1.5229428599E+002	1.416	0.836	0.773	
9.997	3.128	397.849	-0.184	4.2267194660E+002	2.8900366883E+002	1.7847390823E+002	1.315	0.863	0.797	
10.810	3.450	397.704	-0.179	5.7615335050E+002	3.4528460954E+002	2.0188993021E+002	1.230	0.889	0.819	
10.936	3.500	397.681	-0.169	6.0166004754E+002	3.5408728726E+002	2.0369742297E+002	1.219	0.893	0.823	
11.749	3.804	397.545	-0.162	7.6618323866E+002	4.0586382153E+002	2.1244214834E+002	1.150	0.919	0.840	
12.563	4.117	397.417	-0.151	9.4743293345E+002	4.5589025280E+002	2.2545283829E+002	1.082	0.942	0.856	
13.377	4.440	397.299	-0.141	1.1331324488E+003	5.0943324853E+002	2.2484058292E+002	1.038	0.963	0.873	
14.191	4.769	397.187	-0.133	1.3133856308E+003	5.6306383587E+002	2.1558710658E+002	1.004	0.985	0.891	
15.005	5.105	397.083	-0.127	1.4840240990E+003	6.1659480302E+002	2.0393180455E+002	0.982	1.008	0.910	
15.678	5.386	396.998	-0.123	1.6181620066E+003	6.5912234023E+002	1.9731643109E+002	0.969	1.028	0.925	
16.492	5.663	396.900	-0.119	1.7769113900E+003	7.0888512267E+002	1.8849307597E+002	0.953	1.057	0.944	
16.800	5.771	396.865	-0.113	1.8342355766E+003	7.2735897955E+002	1.8316762016E+002	0.950	1.069	0.952	
17.614	6.055	396.773	-0.109	1.9772070916E+003	7.7330178038E+002	1.7617691365E+002	0.944	1.104	0.971	
18.428	6.345	396.687	-0.105	2.1209828174E+003	8.1651298310E+002	1.7463324465E+002	0.935	1.149	0.990	
18.714	6.449	396.658	-0.091	2.1708534161E+003	8.3066825060E+002	1.7384892045E+002	0.932	1.170	0.997	
19.528	6.665	396.586	-0.081	2.3121793937E+003	8.6935703149E+002	1.7212769558E+002	0.923	1.233	1.017	
20.342	6.893	396.526	-0.068	2.4510101106E+003	9.0454922659E+002	1.6760884234E+002	0.911	1.309	1.039	
21.095	7.113	396.479	-0.056	2.5751949337E+003	9.3368936143E+002	1.6281786568E+002	0.899	1.399	1.060	
21.909	7.250	396.439	-0.043	2.7059148938E+003	9.6080620105E+002	1.5756911590E+002	0.883	1.508	1.084	
22.723	7.399	396.409	-0.028	2.8316559437E+003	9.8070925510E+002	1.5108053532E+002	0.863	1.625	1.109	
23.537	7.561	396.393	-0.019	2.9518150276E+003	9.9579809391E+002	1.4239851840E+002	0.841	1.751	1.134	
23.586	7.571	396.393	-0.001	2.9588295616E+003	9.9644956986E+002	1.4203032316E+002	0.840	1.760	1.136	
24.400	7.661	396.393	0.008	3.0737498543E+003	1.0052995963E+003	1.3756574764E+002	0.819	1.890	1.164	
25.214	7.765	396.406	0.012	3.1827328969E+003	1.0094792396E+003	1.2994515788E+002	0.797	2.014	1.193	
25.699	7.821	396.409	0.034	3.2445898538E+003	1.0095290569E+003	1.2463433494E+002	0.785	2.088	1.212	
26.512	7.864	396.450	0.050	3.3419967088E+003	1.0061522624E+003	1.1588009001E+002	0.763	2.176	1.244	
27.326	7.906	396.490	0.050	3.4331974039E+003	9.9759869363E+002	1.0368749438E+002	0.739	2.224	1.277	
28.130	7.948	396.531	0.076	3.5098789260E+003	9.8535655061E+002	9.0671590992E+001	0.715	2.229	1.311	
28.944	7.963	396.613	0.101	3.5797614660E+003	9.6971735371E+002	8.1443767153E+001	0.690	2.213	1.345	
29.757	7.978	396.695	0.101	3.6424375855E+003	9.4925498176E+002	7.2500097951E+001	0.664	2.167	1.382	
30.571	7.993	396.776	0.101	3.6977633234E+003	9.2651290636E+002	6.2113966630E+001	0.639	2.114	1.419	

30.876	7.998	396.807	0.125	3.7160253370E+003	9.1801260868E+002	5.8813732847E+001	0.630	2.092	1.432
31.690	7.995	396.916	0.134	3.7614944025E+003	8.9426996868E+002	5.1487682177E+001	0.608	2.047	1.469
32.504	7.993	397.024	0.134	3.7998271842E+003	8.6939725660E+002	4.3068661778E+001	0.586	2.015	1.506
33.317	7.990	397.133	0.134	3.8315933711E+003	8.4471153380E+002	3.4322746018E+001	0.565	1.994	1.542
34.131	7.987	397.242	0.134	3.8556912160E+003	8.2084215888E+002	2.5559846487E+001	0.545	1.977	1.578
34.501	7.986	397.291	0.145	3.8644622212E+003	8.1040334627E+002	2.2281515118E+001	0.538	1.969	1.593
35.315	7.974	397.413	0.150	3.8800207956E+003	7.8965741461E+002	1.5555993697E+001	0.522	1.952	1.625
36.129	7.962	397.535	0.150	3.8897813063E+003	7.7085919409E+002	9.4539404200E+000	0.509	1.937	1.654
36.942	7.951	397.656	0.150	3.8954081200E+003	7.5496241957E+002	3.9943536901E+000	0.498	1.923	1.680
37.537	7.942	397.745	0.162	3.8965148216E+003	7.4522570665E+002	1.8993891644E-001	0.491	1.910	1.698
38.350	7.919	397.884	0.170	3.8948039609E+003	7.3444606225E+002	-4.1237445200E+000	0.484	1.891	1.720
39.164	7.896	398.023	0.170	3.8898029753E+003	7.2611786565E+002	-8.1447811954E+000	0.478	1.871	1.738
39.978	7.873	398.161	0.170	3.8815474366E+003	7.2060153863E+002	-1.5371361047E+001	0.475	1.851	1.754
40.200	7.867	398.199	0.181	3.8778170693E+003	7.1987671852E+002	-1.7185784670E+001	0.474	1.845	1.758
40.297	7.868	398.219	0.227	3.8761257819E+003	7.1967488868E+002	-1.7537019478E+001	0.475	1.842	1.759
41.111	7.861	398.406	0.230	3.8606242242E+003	7.1823425894E+002	-2.0662992124E+001	0.475	1.816	1.770
41.925	7.854	398.593	0.230	3.8424944970E+003	7.1775179624E+002	-2.3886254640E+001	0.477	1.790	1.777
42.739	7.848	398.780	0.230	3.8217467262E+003	7.1882684220E+002	-2.8439103147E+001	0.480	1.763	1.781
42.868	7.847	398.810	0.251	3.8180117252E+003	7.1918893906E+002	-2.9127900626E+001	0.481	1.758	1.781
43.682	7.827	399.017	0.246	3.7931728929E+003	7.2128121060E+002	-3.1936782385E+001	0.485	1.728	1.781
44.496	7.793	399.210	0.242	3.7660311107E+003	7.2404967566E+002	-3.4696532713E+001	0.490	1.696	1.777
45.309	7.767	399.411	0.250	3.7367004822E+003	7.2753040819E+002	-3.7969540989E+001	0.495	1.664	1.772
45.518	7.764	399.466	0.266	3.7286701954E+003	7.2847862994E+002	-3.9038700576E+001	0.497	1.655	1.769
46.332	7.723	399.683	0.273	3.6950778482E+003	7.3197043880E+002	-4.3005696099E+001	0.503	1.626	1.758
47.146	7.692	399.910	0.285	3.6586737104E+003	7.3516319977E+002	-4.5788722346E+001	0.509	1.599	1.745
47.960	7.671	400.147	0.292	3.6205516829E+003	7.3760481785E+002	-4.8819283860E+001	0.515	1.571	1.729
48.024	7.670	400.167	0.313	3.6173833024E+003	7.3772946189E+002	-4.9096601943E+001	0.515	1.568	1.728
48.838	7.637	400.422	0.308	3.5761965799E+003	7.3810195608E+002	-5.1801637939E+001	0.521	1.540	1.709
49.400	7.606	400.591	0.330	3.5466306456E+003	7.3770204347E+002	-5.3546728429E+001	0.525	1.520	1.696
50.214	7.603	400.877	0.343	3.5019666720E+003	7.3559635013E+002	-5.6052384232E+001	0.529	1.492	1.675
50.632	7.591	401.014	0.344	3.4782907044E+003	7.3369960025E+002	-5.7636011517E+001	0.531	1.476	1.664
51.446	7.560	401.300	0.352	3.4298283457E+003	7.2730353344E+002	-6.0829012155E+001	0.532	1.447	1.641
52.259	7.528	401.586	0.355	3.3792848186E+003	7.1891858207E+002	-6.3099955257E+001	0.532	1.419	1.618
53.073	7.502	401.877	0.358	3.3271262510E+003	7.0889988014E+002	-6.5081719879E+001	0.531	1.392	1.594
53.332	7.493	401.970	0.367	3.3102214941E+003	7.0538196367E+002	-6.5972859212E+001	0.531	1.384	1.587
54.145	7.452	402.271	0.372	3.2550545942E+003	6.9276737885E+002	-6.8901812424E+001	0.529	1.363	1.563
54.959	7.413	402.574	0.380	3.1980762409E+003	6.7859918058E+002	-7.0807113952E+001	0.525	1.346	1.540
55.773	7.385	402.889	0.386	3.1398082538E+003	6.6264206980E+002	-7.2238158797E+001	0.520	1.332	1.518
56.316	7.367	403.099	0.384	3.1003629958E+003	6.5097256925E+002	-7.5244444561E+001	0.516	1.326	1.504
56.350	7.364	403.111	0.371	3.0977906833E+003	6.5018361719E+002	-7.5318901843E+001	0.516	1.325	1.503
57.164	7.321	403.413	0.370	3.0381981959E+003	6.3046596227E+002	-7.3466358992E+001	0.509	1.317	1.482
57.978	7.275	403.714	0.371	2.9782161301E+003	6.0940533483E+002	-7.4266299153E+001	0.500	1.311	1.462
58.791	7.231	404.017	0.366	2.9173216524E+003	5.8716416102E+002	-7.5635742245E+001	0.491	1.307	1.443
59.182	7.203	404.155	0.371	2.8875902716E+003	5.7644169623E+002	-7.5845427592E+001	0.486	1.305	1.435
59.996	7.162	404.464	0.380	2.8261700542E+003	5.5294873696E+002	-7.5827296440E+001	0.475	1.303	1.417
60.810	7.122	404.774	0.380	2.7641730339E+003	5.2883102133E+002	-7.6478362459E+001	0.462	1.301	1.401
61.624	7.079	405.082	0.373	2.7016931352E+003	5.0419727865E+002	-7.6145182711E+001	0.448	1.300	1.386
61.968	7.055	405.205	0.371	2.6756075864E+003	4.9395932105E+002	-7.5959833413E+001	0.443	1.299	1.379
62.781	7.006	405.511	0.378	2.6136355961E+003	4.6870711238E+002	-7.5786606846E+001	0.428	1.298	1.365
63.300	6.978	405.709	0.379	2.5744596934E+003	4.5223984044E+002	-7.6061391296E+001	0.419	1.297	1.356
64.114	6.930	406.015	0.370	2.5119131091E+003	4.2639099132E+002	-7.6365236123E+001	0.404	1.295	1.342
64.715	6.886	406.232	0.356	2.4662222381E+003	4.0813755457E+002	-7.6012149693E+001	0.393	1.294	1.333
65.529	6.814	406.519	0.351	2.4043519680E+003	3.8320305225E+002	-7.5885471876E+001	0.378	1.293	1.320
66.343	6.739	406.803	0.347	2.3427103135E+003	3.5902289477E+002	-7.5470018667E+001	0.361	1.291	1.308
67.156	6.661	407.084	0.344	2.2815162390E+003	3.3577576221E+002	-7.3422616239E+001	0.346	1.289	1.296
67.434	6.633	407.178	0.340	2.2612841405E+003	3.2859147509E+002	-7.3577861260E+001	0.341	1.288	1.292
68.248	6.547	407.455	0.340	2.1995936832E+003	3.0845263154E+002	-7.6039342429E+001	0.328	1.286	1.281
69.062	6.461	407.732	0.340	2.1375217747E+003	2.8948218811E+002	-7.6414141519E+001	0.315	1.282	1.270
69.876	6.375	408.009	0.337	2.0752212907E+003	2.7166464374E+002	-7.5352535961E+001	0.304	1.279	1.260

70.184	6.339	408.110	0.333	2.0521507424E+003	2.6541223979E+002	-7.6095622236E+001	0.300	1.277	1.256
70.997	6.244	408.383	0.331	1.9876478524E+003	2.4973576332E+002	-8.0402241925E+001	0.290	1.273	1.246
71.811	6.144	408.649	0.329	1.9212872794E+003	2.3546797166E+002	-8.1214047301E+001	0.281	1.268	1.237
72.625	6.045	408.918	0.328	1.8554630872E+003	2.2274313838E+002	-7.9148649363E+001	0.274	1.262	1.228
72.973	6.001	409.031	0.338	1.8281916771E+003	2.1806230687E+002	-7.8222374638E+001	0.272	1.260	1.225
73.787	5.910	409.311	0.348	1.7648849976E+003	2.0774159247E+002	-7.7327855153E+001	0.267	1.254	1.217
74.601	5.826	409.598	0.355	1.7023321155E+003	1.9883110777E+002	-7.6427410364E+001	0.264	1.246	1.211
75.414	5.746	409.888	0.350	1.6404910087E+003	1.9062678130E+002	-7.5416945278E+001	0.261	1.237	1.205
75.853	5.693	410.036	0.358	1.6075739039E+003	1.8653069576E+002	-7.4960054919E+001	0.260	1.232	1.202
76.666	5.619	410.337	0.375	1.5467950451E+003	1.7934424774E+002	-7.4280730812E+001	0.259	1.220	1.199
77.480	5.553	410.645	0.382	1.4866738713E+003	1.7260881197E+002	-7.3490375704E+001	0.258	1.206	1.197
78.294	5.491	410.958	0.395	1.4271814021E+003	1.6648143454E+002	-7.2248908764E+001	0.257	1.189	1.196
78.867	5.462	411.194	0.420	1.3860992987E+003	1.6276478810E+002	-7.2038192475E+001	0.258	1.176	1.196
79.681	5.400	411.541	0.426	1.3270216887E+003	1.5757201780E+002	-7.1502125591E+001	0.259	1.158	1.198
80.495	5.338	411.888	0.422	1.2697217507E+003	1.5263968396E+002	-6.9510427366E+001	0.260	1.139	1.202
81.309	5.269	412.227	0.415	1.2138858479E+003	1.4817114453E+002	-6.8110184493E+001	0.262	1.121	1.207
81.547	5.246	412.324	0.405	1.1976804184E+003	1.4701814348E+002	-6.8057152258E+001	0.263	1.116	1.209
82.361	5.126	412.653	0.400	1.1420349709E+003	1.4327181914E+002	-6.7865099734E+001	0.267	1.102	1.216
83.175	4.999	412.975	0.393	1.0872225287E+003	1.3992291763E+002	-6.6974733082E+001	0.271	1.093	1.225
83.989	4.868	413.293	0.391	1.0330262506E+003	1.3694635318E+002	-6.5003180785E+001	0.277	1.086	1.236
84.137	4.844	413.351	0.386	1.0234332948E+003	1.3645526025E+002	-6.4712250693E+001	0.278	1.085	1.238
84.951	4.665	413.665	0.381	9.7077355250E+002	1.3393919029E+002	-6.4284199996E+001	0.284	1.083	1.252
85.500	4.538	413.870	0.380	9.3562131921E+002	1.3245854884E+002	-6.3496779248E+001	0.290	1.084	1.262
86.314	4.356	414.182	0.386	8.8455181069E+002	1.3061030481E+002	-6.1615684539E+001	0.299	1.087	1.279
86.601	4.296	414.296	0.396	8.6695336960E+002	1.3004490086E+002	-5.8648097424E+001	0.303	1.089	1.350
86.615	4.293	414.301	0.414	8.6612774787E+002	1.3002069748E+002	-5.8541429417E+001	0.303	1.089	1.350
87.429	4.094	414.639	0.415	8.1758400038E+002	1.2842279155E+002	-5.7812896013E+001	0.315	1.095	1.370
87.460	4.087	414.652	0.438	8.1580608361E+002	1.2834824828E+002	-5.7786829672E+001	0.315	1.095	1.370
88.274	3.907	415.009	0.449	7.6784422421E+002	1.2641759740E+002	-5.8674166583E+001	0.328	1.103	1.393
89.088	3.746	415.384	0.463	7.2030744520E+002	1.2425326547E+002	-5.6964751304E+001	0.342	1.112	1.418
89.264	3.713	415.467	0.483	7.1032566634E+002	1.2365635154E+002	-5.6542663384E+001	0.344	1.115	1.423
90.078	3.514	415.861	0.502	6.6471890079E+002	1.2082958166E+002	-5.5711500906E+001	0.357	1.130	1.451
90.891	3.344	416.284	0.534	6.1964909111E+002	1.1764235349E+002	-5.4969265787E+001	0.370	1.148	1.481
91.705	3.198	416.731	0.568	5.7525039458E+002	1.1393228360E+002	-5.4015197572E+001	0.382	1.168	1.511
92.064	3.156	416.950	0.607	5.5596076424E+002	1.1199578586E+002	-5.3437564308E+001	0.387	1.178	1.525
92.878	3.010	417.442	0.617	5.1309864794E+002	1.0691382718E+002	-5.3536798155E+001	0.395	1.202	1.556
93.692	2.882	417.954	0.636	4.6882375614E+002	1.0091807083E+002	-5.6904908100E+001	0.402	1.228	1.586
94.505	2.767	418.477	0.637	4.2047967166E+002	9.4039122728E+001	-5.9521418670E+001	0.409	1.254	1.616
94.950	2.697	418.756	0.613	3.9398437014E+002	8.9982628442E+001	-6.0013522809E+001	0.413	1.267	1.631
95.327	2.626	418.981	0.597	3.7121854468E+002	8.6384864322E+001	-6.0171908266E+001	0.416	1.278	1.643
96.141	2.433	419.466	0.598	3.2261036807E+002	7.8319649580E+001	-6.0295022498E+001	0.422	1.298	1.665
96.955	2.243	419.954	0.600	2.7308178558E+002	6.9837402647E+001	-5.9549661352E+001	0.427	1.315	1.682
97.768	2.053	420.442	0.598	2.2568676594E+002	6.1125125716E+001	-5.8608479727E+001	0.431	1.325	1.689
98.245	1.939	420.726	0.601	1.9764904788E+002	5.6203658941E+001	-5.4254775648E+001	0.435	1.327	1.687
99.059	1.753	421.218	0.614	1.5984658161E+002	4.7958942641E+001	-4.3013742049E+001	0.432	1.321	1.697
99.873	1.582	421.725	0.622	1.2763946721E+002	3.8320328085E+001	-3.5840517935E+001	0.404	1.307	1.698
100.087	1.536	421.857	0.656	1.2018686561E+002	3.5828276554E+001	-3.4697660047E+001	0.394	1.302	1.696
100.900	1.380	422.399	0.680	9.2450131416E+001	2.6088676701E+001	-3.1400080080E+001	0.342	1.273	1.674
101.714	1.246	422.963	0.707	6.9079792965E+001	1.8370143369E+001	-2.7706024350E+001	0.290	1.235	1.629
102.528	1.135	423.549	0.703	4.7355539446E+001	1.2461875961E+001	-2.3352296176E+001	0.244	1.187	1.555
103.342	0.996	424.108	0.714	3.1071370886E+001	8.8640158109E+000	-1.8856401315E+001	0.216	1.130	1.449
104.156	0.901	424.711	0.767	1.6664679127E+001	5.2936080200E+000	-1.6381499330E+001	0.167	1.065	1.304
104.969	0.848	425.356	0.744	4.4086848644E+000	1.1106157904E+000	-1.2107517140E+001	0.146	0.990	1.133
105.783	0.717	425.922	0.697	-3.0416323350E+000	-2.1361536147E+000	-7.3679112483E+000	0.129	0.918	0.950
106.597	0.588	426.491	0.694	-7.5833984175E+000	-4.3292235055E+000	-3.8591674528E+000	0.390	0.847	0.746
107.411	0.451	427.052	0.659	-9.3228504351E+000	-5.7615189323E+000	-7.0274479532E-001	0.850	0.790	0.543
108.225	0.264	427.563	0.576	-8.7271926120E+000	-4.8271633261E+000	1.3979431419E+000	1.434	0.775	0.384
108.430	0.164	427.639	0.677	-8.4054505380E+000	-4.6832879376E+000	2.2582597021E+000	1.819	0.775	0.361
109.244	0.080	428.253	0.677	-4.3363205036E+000	-2.4160533354E+000	6.4289559424E+000	3.250	1.127	0.502

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LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio

ht(m) : Altezza linea di thrust da nodo sinistro base concio

yt(m) : coordinata Y linea di trust

yt'(-) : gradiente pendenza locale linea di trust

E(x)(kN/m) : Forza Normale interconcio

T(x)(kN/m) : Forza Tangenziale interconcio

E' (kN) : derivata Forza normale interconcio

Rho(x) (-) : fattore mobilizzazione resistenza al taglio verticale interconcio ZhU et al.(2003)

FS_FEM(x) (-) : fattore di sicurezza locale stimato (locale in X) by qFEM

FS_SRM(x) (-) : fattore di sicurezza locale stimato (locale in X) by SRM Procedure

TABELLA SFORZI DI TAGLIO DISTRIBUITI LUNGO SUPERFICIE INDIVIDUATA CON MINOR FS

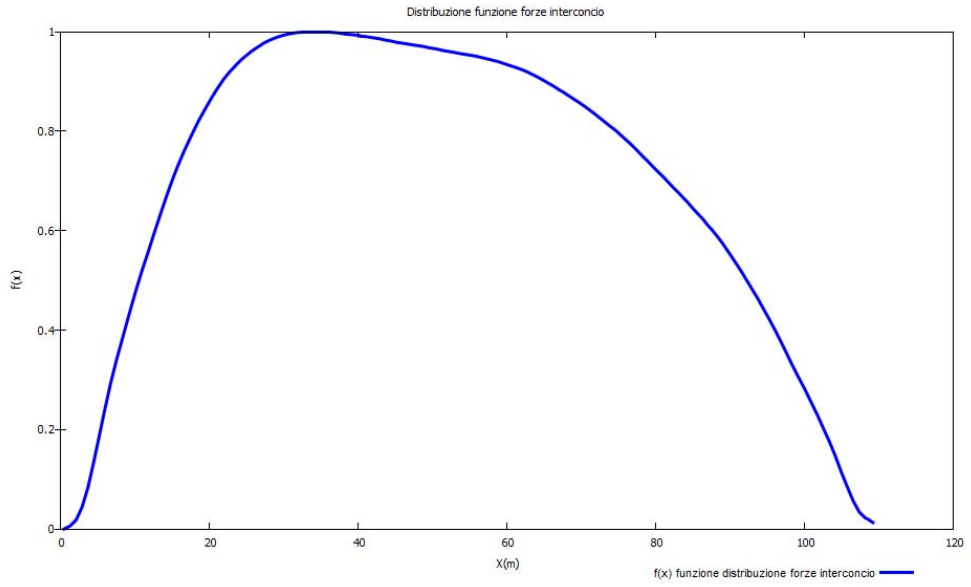
X (m)	dx (m)	dl (m)	alpha (°)	TauStress (kPa)	TauF (kN/m)	TauStrength (kPa)	TauS (kN/m)
0.448	0.814	0.939	-29.886	-3.580	-3.360	13.303	12.486
1.262	0.814	0.939	-29.886	-10.741	-10.081	16.017	15.034
2.076	0.814	0.939	-29.886	-17.901	-16.802	20.124	18.888
2.890	0.814	0.939	-29.886	-25.061	-23.523	25.608	24.036
3.703	0.597	0.688	-29.886	-31.266	-21.514	33.125	22.793
4.300	0.814	0.939	-29.886	-37.247	-34.960	41.595	39.042
5.114	0.814	0.939	-29.886	-43.959	-41.260	55.284	51.890
5.928	0.814	0.939	-29.886	-50.670	-47.560	67.668	63.515
6.741	0.814	0.939	-29.886	-57.382	-53.860	73.350	68.848
7.555	0.814	0.939	-29.886	-64.094	-60.160	81.026	76.053
8.369	0.814	0.939	-29.886	-70.806	-66.460	91.940	86.297
9.183	0.814	0.939	-29.886	-77.518	-72.760	97.233	91.264
9.997	0.814	0.939	-29.886	-84.230	-79.060	99.859	93.730
10.810	0.125	0.144	-29.886	-88.102	-12.709	101.220	14.602
10.936	0.814	0.926	-28.443	-88.945	-82.321	99.282	91.888
11.749	0.814	0.926	-28.443	-95.223	-88.132	99.730	92.303
12.563	0.814	0.926	-28.443	-101.502	-93.943	105.683	97.812
13.377	0.814	0.926	-28.443	-107.781	-99.754	107.181	99.199
14.191	0.814	0.926	-28.443	-114.060	-105.566	108.865	100.757
15.005	0.673	0.766	-28.443	-119.797	-91.756	108.071	82.774
15.678	0.814	0.897	-24.808	-113.516	-101.771	114.180	102.366
16.492	0.308	0.340	-24.808	-117.107	-39.760	114.051	38.723
16.800	0.814	0.897	-24.808	-119.877	-107.474	112.934	101.250
17.614	0.814	0.897	-24.808	-123.445	-110.673	111.425	99.896
18.428	0.287	0.316	-24.808	-125.857	-39.759	108.570	34.298
18.714	0.814	0.863	-19.488	-104.862	-90.524	115.948	100.094
19.528	0.814	0.863	-19.488	-107.250	-92.585	113.669	98.126
20.342	0.753	0.799	-19.488	-109.548	-87.543	111.308	88.949
21.095	0.814	0.833	-12.343	-72.577	-60.461	115.187	95.957
21.909	0.814	0.833	-12.343	-73.696	-61.393	109.799	91.469
22.723	0.814	0.833	-12.343	-74.814	-62.325	106.875	89.034
23.537	0.049	0.051	-12.343	-75.407	-3.811	103.390	5.225
23.586	0.814	0.819	-6.325	-37.710	-30.876	107.114	87.704
24.400	0.814	0.819	-6.325	-38.093	-31.190	104.632	85.671
25.214	0.485	0.488	-6.325	-38.399	-18.732	102.272	49.891
25.699	0.814	0.814	-0.102	3.610	2.938	102.854	83.703
26.512	0.814	0.814	-0.102	3.629	2.953	100.215	81.556
27.326	0.804	0.804	-0.102	3.648	2.932	98.536	79.192
28.130	0.814	0.817	4.702	36.783	30.035	97.740	79.810
28.944	0.814	0.817	4.702	36.852	30.091	95.735	78.173
29.757	0.814	0.817	4.702	36.921	30.148	94.928	77.514
30.571	0.305	0.306	4.702	36.968	11.306	95.096	29.083
30.876	0.814	0.821	7.803	58.012	47.652	94.569	77.680
31.690	0.814	0.821	7.803	57.991	47.635	94.104	77.298
32.504	0.814	0.821	7.803	57.970	47.617	94.126	77.316
33.317	0.814	0.821	7.803	57.950	47.600	94.387	77.531
34.131	0.370	0.373	7.803	57.934	21.624	94.707	35.349
34.501	0.814	0.825	9.306	67.839	55.944	94.817	78.191
35.315	0.814	0.825	9.306	67.740	55.863	95.243	78.543
36.129	0.814	0.825	9.306	67.642	55.781	95.983	79.153
36.942	0.594	0.602	9.306	67.556	40.664	96.693	58.203
37.537	0.814	0.830	11.237	79.865	66.265	95.626	79.342
38.350	0.814	0.830	11.237	79.634	66.073	95.966	79.624

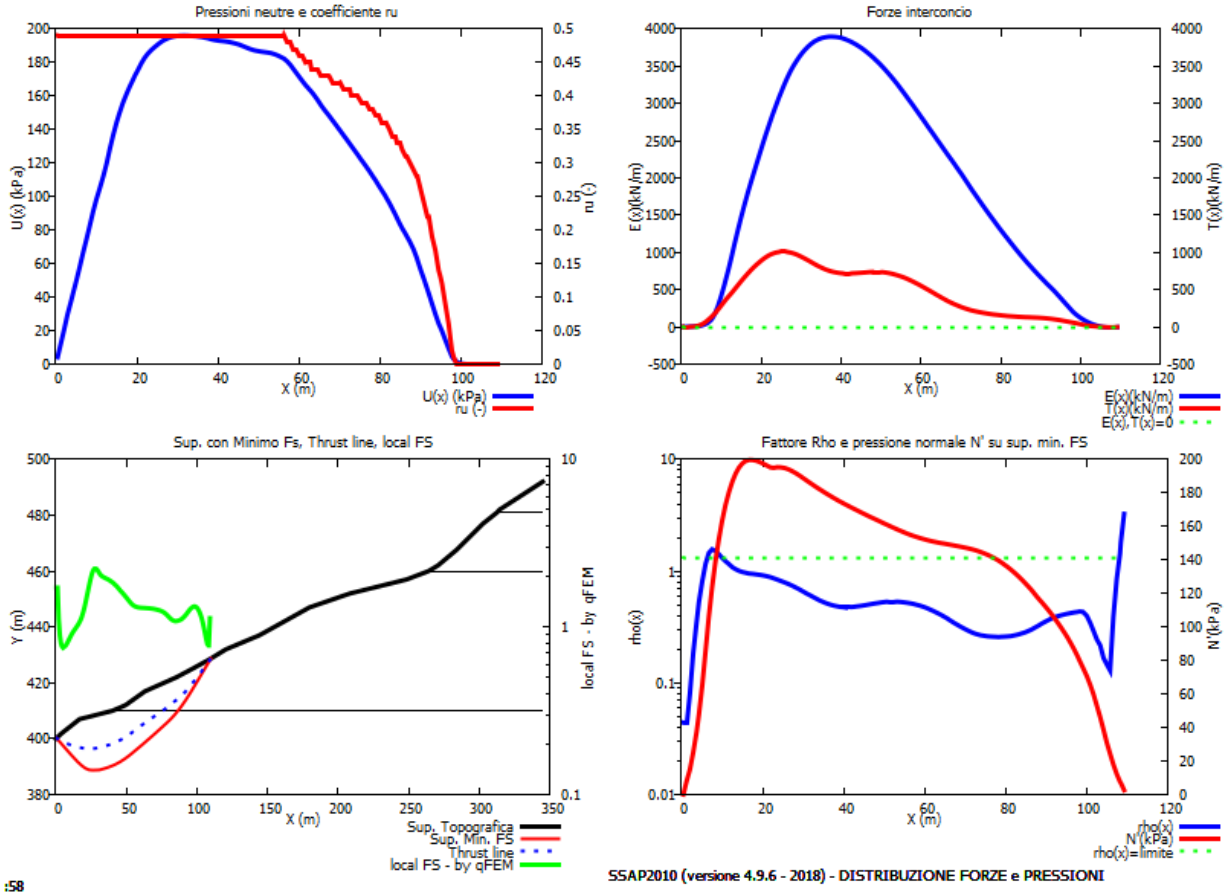
39.164	0.814	0.830	11.237	79.403	65.881	96.341	79.935
39.978	0.222	0.226	11.237	79.256	17.945	96.852	21.929
40.200	0.097	0.099	11.237	79.228	7.871	97.055	9.643
40.297	0.814	0.837	13.383	92.510	77.386	94.272	78.860
41.111	0.814	0.837	13.383	92.456	77.341	94.438	78.999
41.925	0.814	0.837	13.383	92.402	77.296	94.716	79.232
42.739	0.129	0.133	13.383	92.371	12.268	95.006	12.618
42.868	0.814	0.845	15.582	105.330	88.989	91.220	77.068
43.682	0.814	0.845	15.582	105.089	88.785	91.109	76.974
44.496	0.814	0.845	15.582	104.849	88.582	91.040	76.915
45.309	0.209	0.217	15.582	104.698	22.692	91.097	19.744
45.518	0.814	0.854	17.580	115.719	98.786	87.110	74.363
46.332	0.814	0.854	17.580	115.269	98.402	86.806	74.104
47.146	0.814	0.854	17.580	114.818	98.018	86.517	73.858
47.960	0.065	0.068	17.580	114.575	7.775	86.489	5.869
48.024	0.814	0.864	19.560	124.711	107.706	82.201	70.992
48.838	0.562	0.596	19.560	124.123	74.007	81.747	48.741
49.400	0.814	0.864	19.560	123.924	107.026	81.656	70.521
50.214	0.418	0.444	19.560	123.984	54.988	81.916	36.330
50.632	0.814	0.874	21.325	132.743	115.967	78.681	68.738
51.446	0.814	0.874	21.325	132.630	115.868	78.777	68.821
52.259	0.814	0.874	21.325	132.516	115.769	78.862	68.896
53.073	0.258	0.277	21.325	132.442	36.752	78.991	21.920
53.332	0.814	0.883	22.816	139.299	122.985	76.240	67.311
54.145	0.814	0.883	22.816	138.999	122.721	76.370	67.426
54.959	0.814	0.883	22.816	138.699	122.456	76.605	67.633
55.773	0.543	0.589	22.816	138.449	81.536	76.949	45.317
56.316	0.034	0.037	23.045	139.378	5.167	76.895	2.851
56.350	0.814	0.884	23.045	139.178	123.086	76.798	67.918
57.164	0.814	0.884	23.045	138.792	122.745	77.313	68.374
57.978	0.814	0.884	23.045	138.406	122.404	78.041	69.018
58.791	0.391	0.425	23.045	138.121	58.700	78.987	33.569
59.182	0.814	0.886	23.286	138.894	123.057	79.013	70.004
59.996	0.814	0.886	23.286	138.475	122.686	79.855	70.750
60.810	0.814	0.886	23.286	138.056	122.314	80.723	71.519
61.624	0.344	0.374	23.286	137.758	51.558	81.536	30.516
61.968	0.814	0.888	23.532	138.517	122.951	81.365	72.222
62.781	0.519	0.566	23.532	138.146	78.128	82.075	46.417
63.300	0.814	0.888	23.532	137.368	121.931	81.963	72.752
64.114	0.601	0.656	23.532	136.266	89.352	81.885	53.693
64.715	0.814	0.889	23.784	136.206	121.132	81.344	72.342
65.529	0.814	0.889	23.784	134.897	119.968	81.314	72.315
66.343	0.814	0.889	23.784	133.588	118.804	81.090	72.116
67.156	0.278	0.304	23.784	132.710	40.295	81.063	24.613
67.434	0.814	0.891	24.034	132.827	118.357	80.058	71.336
68.248	0.814	0.891	24.034	131.476	117.152	79.756	71.067
69.062	0.814	0.891	24.034	130.124	115.948	79.471	70.813
69.876	0.308	0.337	24.034	129.193	43.573	79.606	26.849
70.184	0.814	0.893	24.278	129.184	115.330	78.598	70.169
70.997	0.814	0.893	24.278	127.791	114.086	78.258	69.865
71.811	0.814	0.893	24.278	126.398	112.843	77.913	69.557
72.625	0.348	0.382	24.278	125.404	47.849	77.949	29.743
72.973	0.814	0.894	24.515	125.267	112.044	76.957	68.833
73.787	0.814	0.894	24.515	123.833	110.761	76.597	68.511
74.601	0.814	0.894	24.515	122.399	109.478	76.362	68.301
75.414	0.438	0.482	24.515	121.295	58.426	76.495	36.846
75.853	0.814	0.896	24.737	120.952	108.376	75.582	67.723
76.666	0.814	0.896	24.737	119.479	107.055	75.349	67.515
77.480	0.814	0.896	24.737	118.005	105.735	75.149	67.335
78.294	0.573	0.631	24.737	116.750	73.708	75.190	47.470
78.867	0.814	0.911	26.678	121.541	110.695	71.312	64.948
79.681	0.814	0.911	26.678	119.710	109.028	71.117	64.771
80.495	0.814	0.911	26.678	117.880	107.361	70.825	64.505
81.309	0.238	0.267	26.678	116.697	31.141	71.053	18.961
81.547	0.814	0.929	28.887	121.382	112.819	66.325	61.646
82.361	0.814	0.929	28.887	119.111	110.707	65.973	61.319
83.175	0.814	0.929	28.887	116.839	108.596	65.763	61.124
83.989	0.148	0.169	28.887	115.497	19.554	66.362	11.235
84.137	0.814	0.952	31.213	119.208	113.431	61.252	58.284
84.951	0.549	0.642	31.213	116.885	75.068	61.262	39.345
85.500	0.814	0.952	31.213	114.706	109.147	60.686	57.746

86.314	0.287	0.336	31.213	113.023	37.993	60.928	20.481
86.601	0.014	0.016	31.213	112.561	1.857	65.509	1.081
86.615	0.814	0.975	33.386	114.937	112.023	59.939	58.419
87.429	0.031	0.037	33.386	113.315	4.179	60.615	2.235
87.460	0.814	0.975	33.386	111.685	108.853	59.418	57.911
88.274	0.814	0.975	33.386	108.545	105.792	59.200	57.699
89.088	0.176	0.211	33.386	106.634	22.502	60.596	12.787
89.264	0.814	1.007	36.078	108.027	108.775	54.586	54.963
90.078	0.814	1.007	36.078	104.216	104.937	55.181	55.563
90.891	0.814	1.007	36.078	100.405	101.100	55.641	56.026
91.705	0.359	0.444	36.078	97.660	43.343	57.006	25.300
92.064	0.814	1.034	38.123	96.517	99.844	53.157	54.990
92.878	0.814	1.034	38.123	92.170	95.347	53.910	55.768
93.692	0.814	1.034	38.123	87.823	90.850	54.596	56.478
94.505	0.445	0.565	38.123	84.462	47.741	55.568	31.409
94.950	0.377	0.479	38.123	82.291	39.442	55.555	26.628
95.327	0.814	1.059	39.806	79.920	84.662	52.421	55.532
96.141	0.814	1.059	39.806	75.220	79.683	52.435	55.547
96.955	0.814	1.059	39.806	70.519	74.704	52.365	55.473
97.768	0.477	0.620	39.806	66.793	41.441	52.455	32.545
98.245	0.814	1.059	39.806	63.184	66.933	50.982	54.007
99.059	0.814	1.059	39.806	58.719	62.203	49.695	52.644
99.873	0.214	0.278	39.806	55.900	15.557	48.326	13.449
100.087	0.814	1.072	40.608	53.216	57.045	46.043	49.356
100.900	0.814	1.072	40.608	48.537	52.030	42.517	45.576
101.714	0.814	1.072	40.608	43.859	47.015	38.969	41.774
102.528	0.814	1.072	40.608	39.180	42.000	35.183	37.715
103.342	0.814	1.072	40.608	34.502	36.984	32.374	34.704
104.156	0.814	1.072	40.608	29.823	31.969	29.840	31.987
104.969	0.814	1.072	40.608	25.145	26.954	26.638	28.555
105.783	0.814	1.072	40.608	20.466	21.939	23.386	25.069
106.597	0.814	1.072	40.608	15.787	16.923	20.260	21.718
107.411	0.814	1.072	40.608	11.109	11.908	16.442	17.625
108.225	0.205	0.271	40.608	8.179	2.213	14.847	4.018
108.430	0.814	1.072	40.608	5.376	5.763	12.439	13.335
109.244	0.582	0.767	40.608	1.582	1.213	9.692	7.430

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
dl(m) : lunghezza base concio
alpha(°) : Angolo pendenza base concio
TauStress(kPa) : Sforzo di taglio su base concio
TauF (kN/m) : Forza di taglio su base concio
TauStrength(kPa) : Resistenza al taglio su base concio
TauS (kN/m) : Forza resistente al taglio su base concio





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SSAP 4.9.6 (2018) - Slope Stability Analysis Program
Software by Dr.Geol. Lorenzo Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 1.5.2 (2018)

Data : 21/4/2020
Localita' : Ferrandina (MT)
Descrizione : Parco Eolico "Montagnola" FER AI
(n)  = N. strato o lente

Sn --> Sovraccarico

Modello di calcolo : Janbu  Rigoroso (1973)
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```
DATI 10 SUP. CON MINOR Fs

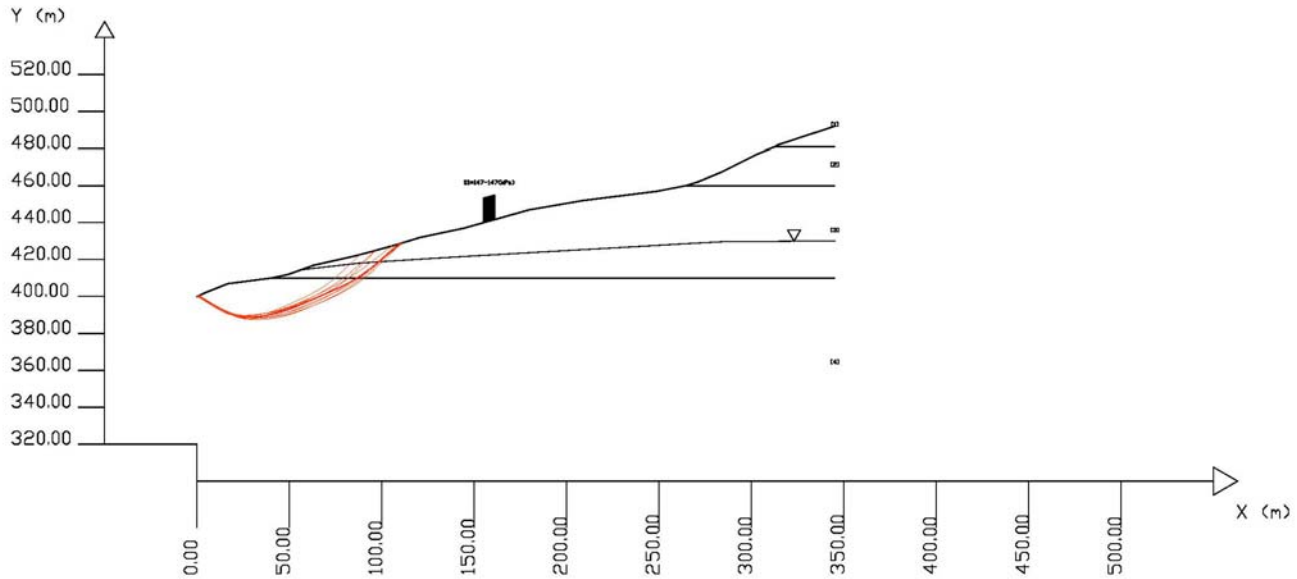
Fs minimo : 1.3207
Range Fs : 1.3207  1.3327
Differenza X Range Fs : 0.90
Coefficiente Sismico orizzontale  - Kh=  0.0110

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.:  10000
Lunghezza media segmenti (m) : 5.0
Range X inizio generazione :  0.1  -  310.7
Range X termine generazione :  34.6  -  338.2
Livello Y minimo considerato : 317.2
```

Parametri Geotecnici degli strati

N.	phi'	C'	Cu	Gamn	GamnSat	sgci	GSI	mi	D
"	deg	kPa	kPa	kN/m3	kN/m3	MPa	"	"	"
1	26.60	7.20	0	19.31	20.45	0	0	0	0
2	24.60	31.48	0	18.93	20.21	0	0	0	0
3	27.67	10.20	0	19.70	20.45	0	0	0	0
4	24.90	12.03	0	19.57	19.86	0	0	0	0



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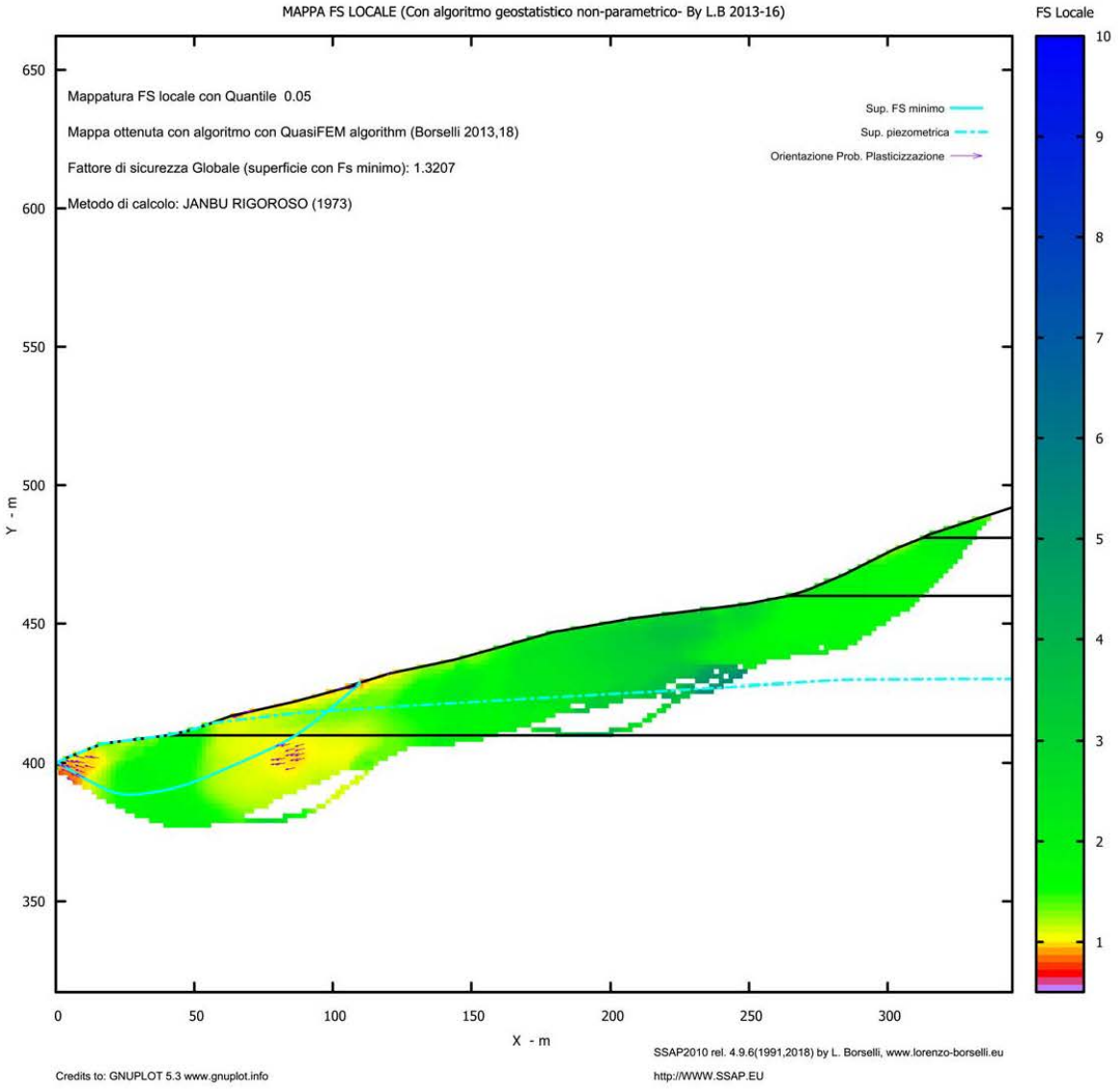
Via Lucana, 337 – 75100 Matera Cell. 3396629531 e-mail: mauriziogiacomino@gmail.com



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1.2 VERIFICA DELLA SEZIONE 2-2'

Localita' : Ferrandina (MT) Descrizione: Parco Eolico "Montagnola" - FER A2

Modello pendio: MODELLO.mod

---------- PARAMETRI DEL MODELLO DEL PENDIO ----------

__ PARAMETRI GEOMETRICI - Coordinate X Y (in m) __

SUP T.		SUP 2		SUP 3		SUP 4	
X	Y	X	Y	X	Y	X	Y
0.00	400.00	353.90	467.00	303.20	450.00	0.00	395.85
29.70	405.00	371.10	467.00	371.10	450.00	371.10	398.13
55.70	410.00	-	-	-	-	-	-
95.10	415.00	-	-	-	-	-	-
143.60	420.00	-	-	-	-	-	-
185.40	425.00	-	-	-	-	-	-
219.20	430.00	-	-	-	-	-	-
247.20	435.00	-	-	-	-	-	-
271.60	440.00	-	-	-	-	-	-
283.70	442.00	-	-	-	-	-	-
291.10	445.00	-	-	-	-	-	-
303.20	450.00	-	-	-	-	-	-
317.50	455.00	-	-	-	-	-	-
333.40	460.00	-	-	-	-	-	-
346.80	465.00	-	-	-	-	-	-
353.90	467.00	-	-	-	-	-	-
363.00	470.00	-	-	-	-	-	-
371.10	471.00	-	-	-	-	-	-

---- SUP FALDA --------

X	Y (in m)
0.00	398.34
112.87	406.04
163.07	409.33
314.97	418.00
371.10	418.00

------ GESTIONE ACQUIFERI ------

Strati esclusi da acquifero:

Esclusione sovraccarico pendio sommerso: NON ATTIVATA

Peso unitario fluido (kN/m^3): 9.81

Parametri funzione dissipazione superficiale pressione dei fluidi:

Coefficiente A 0

Coefficiente K 0.000800

Pressione minima fluidi Uo_Min (kPa) 0.01

Coefficiente di soprapressione oltre pressione hidrostatica1.00

Limitazione dissipazionea a Pressione Idrostatica = ATTIVA

STABILITE CONDIZIONI PER LA VERIFICA CON SOVRAPPRESSIONE ACQUIFERI CON DISSIPAZIONE IN DIREZIONE DELLA SUPERFICIE

------- PARAMETRI GEOMECCANICI -------

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.60	7.20	0.00	19.31	20.45	1.778	0.00	0.00	0.00	0.00
STRATO 2	24.60	31.48	0.00	18.93	20.21	2.937	0.00	0.00	0.00	0.00
STRATO 3	27.67	10.20	0.00	19.70	20.45	1.992	0.00	0.00	0.00	0.00
STRATO 4	24.90	12.03	0.00	19.57	19.86	1.825	0.00	0.00	0.00	0.00

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LEGENDA: fi`_____ Angolo di attrito interno efficace(in gradi)
C` _____ Coesione efficace (in Kpa)
Cu _____ Resistenza al taglio Non drenata (in Kpa)
Gamm _____ Peso di volume terreno fuori falda (in KN/m^3)
Gamm_sat __ Peso di volume terreno immerso (in KN/m^3)
STR_IDX ___ Indice di resistenza (usato in solo in 'SNIFF SEARCH) (adimensionale)
---- SOLO Per AMMASSI ROCCIOSI FRATTURATI - Parametri Criterio di Rottura di Hoek (2002)-
sigci _____ Resistenza Compressione Uniassiale Roccia Intatta (in MPa)
GSI _____ Geological Strenght Index ammasso(adimensionale)
mi _____ Indice litologico ammasso(adimensionale)
D _____ Fattore di disturbo ammasso(adimensionale)
Fattore di riduzione NTC2018 gammaPHI=1.25 e gammaC=1.25 - DISATTIVATO (solo per ROCCE)
Uso CRITERIO DI ROTTURA Hoek et al.(2002,2006) - non-lineare - Generalizzato secondo Lei et al.(2016)

----- SOVRACCARICHI PRESENTI -----
SOVRACCARICO N.1
Carico in X1 (Kpa): 147.10
Carico in X2 (Kpa): 147.10
Posizione carico da X1 m.: 285.00
a X2 m.: 301.00
Inclinazione carico (gradi): 90.00
Componenti distribuzione forza unitaria applicata:
#Orizzontale (per metro di proiezione Verticale) (kN/m): da 0.00 a 0.00
#Verticale (per metro di proiezione Orizzontale) (kN/m): da 147.10 a 147.10
##Nota: la distribuzione del carico e delle forze unitarie puo' variare
in modo lineare tra gli estremi di coordinate X1 e X2

---------- INFORMAZIONI GENERAZIONE SUPERFICI RANDOM ----------
*** PARAMETRI PER LA GENERAZIONE DELLE SUPERFICI
METODO DI RICERCA: CONVEX RANDOM - Chen (1992)
FILTRAGGIO SUPERFICI : ATTIVATO
COORDINATE X1,X2,Y OSTACOLO : 0.00 0.00 0.00
LUNGHEZZA MEDIA SEGMENTI (m): 5.0 (+/-) 50%
INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 0.10 334.09
LIVELLO MINIMO CONSIDERATO (Ymin): 328.22
INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 37.21 363.68

*** TOTALE SUPERFICI GENERATE : 10000

---------- INFORMAZIONI PARAMETRI DI CALCOLO ----------
METODO DI CALCOLO : JANBU RIGOROSO (Janbu, 1973)
COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0110
COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0055
COEFFICIENTE c=Kv/Kh UTILIZZATO : 0.5000
FORZA ORIZZONTALE ADDIZIONALE IN TESTA (kN/m): 0.00
FORZA ORIZZONTALE ADDIZIONALE ALLA BASE (kN/m): 0.00

N.B. Le forze orizzontali addizionali in testa e alla base sono poste uguali a 0
durante le tutte le verifiche globali.
I valori >0 impostati dall'utente sono utilizzati solo in caso di verifica singola

---------- RISULTATO FINALE ELABORAZIONI ----------
* DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *

Fattore di sicurezza (FS) 1.3178 - Min. - X Y Lambda= 1.0000
278.83 441.20
280.09 440.49
280.70 440.16
281.11 439.95

281.47 439.79
281.81 439.66
282.13 439.54
282.48 439.44
282.86 439.35
283.32 439.25
283.67 439.18
283.99 439.15
284.28 439.15
284.60 439.17
284.88 439.22
285.20 439.30
285.55 439.41
285.99 439.58
286.37 439.73
286.73 439.88
287.07 440.03
287.41 440.20
287.74 440.37
288.08 440.55
288.43 440.75
288.80 440.97
289.16 441.18
289.52 441.39
289.87 441.61
290.22 441.81
290.57 442.02
290.92 442.23
291.28 442.44
291.63 442.65
291.98 442.86
292.32 443.07
292.67 443.28
293.02 443.49
293.37 443.71
293.72 443.93
294.08 444.15
294.43 444.37
294.78 444.60
295.13 444.82
295.48 445.05
295.82 445.29
296.17 445.53
296.51 445.77
296.77 445.95
296.77 447.34

Fattore di sicurezza (FS) 1.3214 - N.2 -- X Y Lambda= 1.0000

278.99 441.22
280.06 440.63
280.62 440.32
281.01 440.11
281.36 439.92
281.68 439.75
282.00 439.58
282.33 439.41
282.69 439.23
283.08 439.04
283.39 438.90

283.66 438.80
283.91 438.73
284.20 438.69
284.44 438.68
284.72 438.69
285.04 438.73
285.46 438.81
285.81 438.89
286.13 438.97
286.43 439.05
286.74 439.15
287.03 439.26
287.34 439.38
287.66 439.52
288.01 439.68
288.34 439.83
288.65 439.99
288.96 440.15
289.27 440.32
289.57 440.49
289.88 440.67
290.20 440.86
290.52 441.06
290.85 441.26
291.17 441.46
291.49 441.66
291.80 441.86
292.12 442.06
292.44 442.25
292.76 442.45
293.07 442.65
293.39 442.85
293.70 443.04
294.02 443.24
294.34 443.44
294.66 443.64
294.97 443.84
295.30 444.04
295.62 444.25
295.94 444.45
296.25 444.66
296.55 444.87
296.87 445.09
297.18 445.31
297.49 445.54
297.81 445.78
298.15 446.05
298.47 446.30
298.78 446.56
299.09 446.82
299.34 447.04
299.34 448.41

Fattore di sicurezza (FS) 1.3236 - N.3 -- X Y Lambda= 1.0000
277.99 441.06
279.06 440.44
279.62 440.12
280.02 439.89
280.38 439.69

280.70 439.51
281.03 439.32
281.36 439.12
281.72 438.92
282.10 438.70
282.41 438.54
282.69 438.42
282.95 438.34
283.24 438.27
283.49 438.24
283.78 438.23
284.10 438.25
284.54 438.29
284.88 438.34
285.20 438.40
285.48 438.48
285.79 438.57
286.07 438.67
286.37 438.80
286.69 438.95
287.06 439.14
287.40 439.32
287.72 439.50
288.03 439.67
288.35 439.86
288.65 440.05
288.97 440.25
289.28 440.46
289.62 440.68
289.94 440.91
290.26 441.13
290.58 441.35
290.90 441.57
291.22 441.80
291.53 442.02
291.85 442.25
292.17 442.48
292.49 442.72
292.81 442.95
293.13 443.18
293.45 443.41
293.77 443.65
294.09 443.88
294.41 444.12
294.72 444.35
295.04 444.59
295.36 444.82
295.68 445.06
296.00 445.30
296.32 445.53
296.64 445.77
296.90 445.96
296.90 447.39

Fattore di sicurezza (FS) 1.3244 - N.4 -- X Y Lambda= 1.0000
277.98 441.05
279.03 440.44
279.57 440.13
279.95 439.92

280.28 439.74
280.59 439.58
280.89 439.43
281.21 439.27
281.55 439.11
281.92 438.94
282.23 438.82
282.50 438.73
282.75 438.67
283.04 438.62
283.29 438.60
283.57 438.61
283.89 438.64
284.30 438.69
284.63 438.75
284.93 438.82
285.21 438.90
285.50 439.00
285.77 439.12
286.05 439.25
286.36 439.42
286.71 439.62
287.03 439.81
287.35 440.00
287.66 440.19
287.97 440.38
288.27 440.57
288.57 440.76
288.88 440.95
289.19 441.15
289.50 441.35
289.81 441.55
290.12 441.75
290.43 441.95
290.73 442.15
291.04 442.35
291.35 442.55
291.65 442.74
291.96 442.94
292.27 443.14
292.58 443.34
292.88 443.54
293.19 443.74
293.50 443.94
293.81 444.13
294.11 444.33
294.42 444.53
294.73 444.73
295.04 444.93
295.34 445.13
295.65 445.33
295.91 445.49
295.91 446.99

Fattore di sicurezza (FS) 1.3287 - N.5 -- X Y Lambda= 1.0000
277.19 440.92
278.30 440.38
278.87 440.10
279.28 439.90

279.65 439.72
279.98 439.56
280.32 439.39
280.67 439.22
281.04 439.04
281.43 438.85
281.75 438.71
282.04 438.61
282.29 438.54
282.59 438.49
282.85 438.48
283.15 438.49
283.48 438.53
283.92 438.61
284.28 438.68
284.61 438.76
284.91 438.85
285.22 438.96
285.52 439.08
285.83 439.22
286.15 439.38
286.51 439.58
286.86 439.77
287.20 439.95
287.53 440.14
287.85 440.32
288.18 440.51
288.50 440.69
288.83 440.88
289.16 441.08
289.49 441.27
289.82 441.46
290.15 441.66
290.48 441.85
290.81 442.04
291.14 442.24
291.46 442.43
291.79 442.62
292.12 442.81
292.45 443.01
292.78 443.20
293.10 443.39
293.43 443.58
293.76 443.78
294.10 443.97
294.43 444.17
294.75 444.36
295.08 444.56
295.40 444.76
295.73 444.96
296.05 445.17
296.38 445.38
296.72 445.60
297.07 445.83
297.40 446.05
297.72 446.29
297.72 447.73

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Fattore di sicurezza (FS) 1.3288 - N.6 -- X Y Lambda= 1.0000

276.75	440.85
277.99	440.32
278.64	440.04
279.10	439.85
279.51	439.67
279.88	439.51
280.26	439.35
280.64	439.18
281.05	439.01
281.48	438.82
281.84	438.69
282.17	438.59
282.47	438.52
282.81	438.47
283.11	438.45
283.44	438.46
283.82	438.49
284.29	438.56
284.68	438.63
285.05	438.70
285.40	438.78
285.75	438.88
286.09	438.99
286.44	439.11
286.80	439.26
287.20	439.43
287.59	439.59
287.96	439.75
288.33	439.91
288.70	440.07
289.06	440.24
289.44	440.40
289.81	440.58
290.20	440.76
290.57	440.93
290.92	441.12
291.27	441.30
291.63	441.51
291.98	441.72
292.34	441.94
292.70	442.17
293.09	442.43
293.47	442.69
293.84	442.94
294.21	443.19
294.58	443.43
294.95	443.68
295.31	443.93
295.68	444.17
296.05	444.42
296.41	444.67
296.78	444.91
297.15	445.16
297.52	445.41
297.89	445.66
298.26	445.91
298.64	446.16
299.03	446.42

299.39 446.68
299.74 446.94
300.09 447.21
300.45 447.50
300.73 447.73
300.73 448.98

Fattore di sicurezza (FS) 1.3306 - N.7 -- X Y Lambda= 1.0000

277.63 441.00
278.67 440.42
279.21 440.12
279.59 439.91
279.93 439.73
280.24 439.56
280.55 439.40
280.87 439.23
281.21 439.05
281.59 438.86
281.88 438.72
282.16 438.62
282.40 438.55
282.68 438.50
282.92 438.48
283.20 438.48
283.51 438.51
283.91 438.56
284.25 438.62
284.56 438.69
284.84 438.76
285.14 438.85
285.42 438.94
285.71 439.06
286.01 439.19
286.36 439.35
286.68 439.50
286.99 439.65
287.29 439.80
287.59 439.95
287.89 440.11
288.20 440.28
288.50 440.44
288.81 440.62
289.13 440.80
289.43 440.97
289.74 441.15
290.05 441.32
290.36 441.49
290.66 441.67
290.97 441.84
291.28 442.01
291.58 442.18
291.89 442.36
292.20 442.53
292.50 442.70
292.81 442.88
293.13 443.06
293.45 443.24
293.78 443.42
294.08 443.61

294.37 443.80
294.65 443.99
294.95 444.21
295.24 444.44
295.53 444.68
295.83 444.95
296.16 445.25
296.48 445.55
296.79 445.83
297.04 446.07
297.04 447.46

Fattore di sicurezza (FS) 1.3310 - N.8 -- X Y Lambda= 1.0000
276.54 440.82
278.27 439.85
279.12 439.40
279.70 439.11
280.20 438.88
280.67 438.69
281.13 438.52
281.63 438.37
282.17 438.21
282.82 438.05
283.31 437.95
283.74 437.91
284.12 437.90
284.56 437.95
284.93 438.03
285.37 438.17
285.85 438.37
286.48 438.65
287.02 438.92
287.53 439.17
288.00 439.43
288.48 439.71
288.94 439.98
289.41 440.28
289.90 440.60
290.41 440.95
290.91 441.30
291.41 441.64
291.90 441.98
292.39 442.32
292.88 442.66
293.37 443.01
293.87 443.36
294.39 443.72
294.87 444.07
295.34 444.44
295.80 444.81
296.28 445.21
296.81 445.67
297.32 446.14
297.32 447.57

Fattore di sicurezza (FS) 1.3343 - N.9 -- X Y Lambda= 1.0000
276.16 440.75
278.23 439.84
279.21 439.42

279.88 439.18
280.43 439.00
280.98 438.87
281.48 438.78
282.04 438.71
282.65 438.67
283.39 438.64
283.98 438.64
284.51 438.68
284.98 438.76
285.51 438.89
285.98 439.04
286.50 439.25
287.06 439.51
287.74 439.87
288.37 440.20
288.95 440.53
289.52 440.85
290.08 441.18
290.63 441.52
291.19 441.86
291.75 442.22
292.34 442.61
292.92 442.99
293.49 443.37
294.06 443.74
294.63 444.12
295.19 444.50
295.76 444.88
296.33 445.26
296.90 445.65
297.47 446.04
298.04 446.42
298.60 446.81
298.60 448.10

Fattore di sicurezza (FS) 1.3362 - N.10 -- X Y Lambda= 1.0000
275.66 440.67
277.88 439.38
278.89 438.83
279.53 438.52
280.04 438.34
280.57 438.22
281.03 438.16
281.55 438.15
282.14 438.19
282.93 438.29
283.57 438.39
284.14 438.50
284.67 438.64
285.23 438.81
285.75 439.00
286.29 439.22
286.86 439.48
287.50 439.80
288.12 440.10
288.72 440.40
289.31 440.69
289.89 440.98

290.48	441.27
291.06	441.56
291.66	441.85
292.25	442.15
292.83	442.44
293.40	442.74
293.96	443.05
294.54	443.37
295.11	443.70
295.69	444.04
296.28	444.40
296.91	444.79
297.50	445.17
298.06	445.55
298.61	445.95
299.18	446.37
299.80	446.87
300.51	447.46
301.00	447.88
301.00	449.09

---------- ANALISI DEFICIT DI RESISTENZA ----------
DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Analisi Deficit in riferimento a FS(progetto) = 1.100

Sup N.	FS	FTR(kN/m)	FTA(kN/m)	Bilancio(kN/m)	ESITO
1	1.318	1484.6	1126.6	245.3	Surplus
2	1.321	1883.0	1425.1	315.4	Surplus
3	1.324	1673.3	1264.3	282.6	Surplus
4	1.324	1467.8	1108.3	248.7	Surplus
5	1.329	1680.2	1264.6	289.2	Surplus
6	1.329	2096.0	1577.3	360.9	Surplus
7	1.331	1638.3	1231.3	283.9	Surplus
8	1.331	1808.0	1358.4	313.8	Surplus
9	1.334	1833.6	1374.2	322.0	Surplus
10	1.336	2160.0	1616.6	381.8	Surplus

Esito analisi: SURPLUS di RESISTENZA!

Valore minimo di SURPLUS di RESISTENZA (kN/m): 245.3

Note: FTR --> Forza totale Resistente rispetto alla superficie
di scivolamento (componente Orizzontale)
FTA --> Forza totale Agente rispetto alla superficie
di scivolamento (componente Orizzontale)

IMPORTANTE! : Il Deficit o il Surplus di resistenza viene espresso in kN
per metro di LARGHEZZA rispetto al fronte della scarpata

TABELLA PARAMETRI CONCI DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	dx (m)	alpha (°)	W (kN/m)	ru (-)	U (kPa)	phi' (°)	(c',Cu) (kPa)
278.834	0.253	-29.41	0.46	0.00	0.00	27.67	10.20
279.087	0.253	-29.41	1.39	0.00	0.00	27.67	10.20
279.340	0.253	-29.41	2.31	0.00	0.00	27.67	10.20
279.592	0.253	-29.41	3.23	0.00	0.00	27.67	10.20
279.845	0.242	-29.41	3.96	0.00	0.00	27.67	10.20

280.088	0.253	-28.52	5.03	0.00	0.00	27.67	10.20
280.341	0.253	-28.52	5.92	0.00	0.00	27.67	10.20
280.593	0.103	-28.52	2.67	0.00	0.00	27.67	10.20
280.696	0.253	-26.63	7.16	0.00	0.00	27.67	10.20
280.949	0.163	-26.63	5.08	0.00	0.00	27.67	10.20
281.113	0.253	-24.35	8.52	0.00	0.00	27.67	10.20
281.366	0.103	-24.35	3.68	0.00	0.00	27.67	10.20
281.468	0.253	-21.41	9.58	0.00	0.00	27.67	10.20
281.721	0.086	-21.41	3.42	0.00	0.00	27.67	10.20
281.807	0.253	-18.92	10.50	0.00	0.00	27.67	10.20
282.060	0.070	-18.92	3.04	0.00	0.00	27.67	10.20
282.130	0.253	-16.43	11.29	0.00	0.00	27.67	10.20
282.383	0.095	-16.43	4.41	0.00	0.00	27.67	10.20
282.479	0.253	-14.19	12.07	0.00	0.00	27.67	10.20
282.731	0.128	-14.19	6.32	0.00	0.00	27.67	10.20
282.860	0.253	-12.44	12.84	0.00	0.00	27.67	10.20
283.113	0.204	-12.44	10.71	0.00	0.00	27.67	10.20
283.316	0.253	-9.75	13.69	0.00	0.00	27.67	10.20
283.569	0.104	-9.75	5.77	0.00	0.00	27.67	10.20
283.674	0.026	-5.77	1.47	0.00	0.00	27.67	10.20
283.700	0.253	-5.77	14.44	0.00	0.00	27.67	10.20
283.953	0.041	-5.77	2.37	0.00	0.00	27.67	10.20
283.993	0.253	-0.69	15.13	0.00	0.00	27.67	10.20
284.246	0.031	-0.69	1.88	0.00	0.00	27.67	10.20
284.277	0.253	4.40	15.67	0.00	0.00	27.67	10.20
284.530	0.070	4.40	4.43	0.00	0.00	27.67	10.20
284.600	0.253	9.36	16.14	0.00	0.00	27.67	10.20
284.853	0.031	9.36	1.97	0.00	0.00	27.67	10.20
284.884	0.116	14.22	7.54	0.00	0.00	27.67	10.20
285.000	0.201	14.22	42.75	0.00	0.00	27.67	10.20
285.201	0.253	17.97	54.02	0.00	0.00	27.67	10.20
285.453	0.097	17.97	20.80	0.00	0.00	27.67	10.20
285.551	0.253	20.52	54.13	0.00	0.00	27.67	10.20
285.804	0.186	20.52	39.89	0.00	0.00	27.67	10.20
285.990	0.253	21.63	54.19	0.00	0.00	27.67	10.20
286.243	0.131	21.63	28.16	0.00	0.00	27.67	10.20
286.374	0.253	22.95	54.19	0.00	0.00	27.67	10.20
286.627	0.104	22.95	22.32	0.00	0.00	27.67	10.20
286.731	0.253	24.37	54.14	0.00	0.00	27.67	10.20
286.984	0.086	24.37	18.42	0.00	0.00	27.67	10.20
287.070	0.253	25.81	54.04	0.00	0.00	27.67	10.20
287.323	0.090	25.81	19.26	0.00	0.00	27.67	10.20
287.413	0.253	27.12	53.89	0.00	0.00	27.67	10.20
287.666	0.078	27.12	16.59	0.00	0.00	27.67	10.20
287.744	0.253	28.42	53.69	0.00	0.00	27.67	10.20
287.997	0.086	28.42	18.18	0.00	0.00	27.67	10.20
288.083	0.253	29.61	53.44	0.00	0.00	27.67	10.20
288.335	0.093	29.61	19.59	0.00	0.00	27.67	10.20
288.428	0.253	30.67	53.14	0.00	0.00	27.67	10.20
288.681	0.115	30.67	24.18	0.00	0.00	27.67	10.20
288.797	0.253	30.68	52.80	0.00	0.00	27.67	10.20
289.050	0.110	30.68	22.84	0.00	0.00	27.67	10.20
289.159	0.253	30.68	52.46	0.00	0.00	27.67	10.20
289.412	0.103	30.68	21.38	0.00	0.00	27.67	10.20
289.516	0.253	30.68	52.12	0.00	0.00	27.67	10.20
289.768	0.102	30.68	20.90	0.00	0.00	27.67	10.20
289.870	0.253	30.68	51.79	0.00	0.00	27.67	10.20
290.123	0.097	30.68	19.73	0.00	0.00	27.67	10.20
290.220	0.253	30.68	51.46	0.00	0.00	27.67	10.20

290.473	0.099	30.68	20.12	0.00	0.00	27.67	10.20
290.572	0.253	30.68	51.13	0.00	0.00	27.67	10.20
290.825	0.098	30.68	19.83	0.00	0.00	27.67	10.20
290.923	0.177	30.68	35.59	0.00	0.00	27.67	10.20
291.100	0.176	30.68	35.18	0.00	0.00	27.67	10.20
291.276	0.253	30.68	50.48	0.00	0.00	27.67	10.20
291.528	0.098	30.68	19.54	0.00	0.00	27.67	10.20
291.627	0.253	30.88	50.16	0.00	0.00	27.67	10.20
291.879	0.097	30.88	19.18	0.00	0.00	27.67	10.20
291.976	0.253	31.08	49.83	0.00	0.00	27.67	10.20
292.229	0.096	31.08	18.79	0.00	0.00	27.67	10.20
292.325	0.253	31.28	49.50	0.00	0.00	27.67	10.20
292.578	0.096	31.28	18.63	0.00	0.00	27.67	10.20
292.673	0.253	31.47	49.16	0.00	0.00	27.67	10.20
292.926	0.096	31.47	18.54	0.00	0.00	27.67	10.20
293.022	0.253	31.67	48.81	0.00	0.00	27.67	10.20
293.275	0.097	31.67	18.57	0.00	0.00	27.67	10.20
293.371	0.253	31.87	48.45	0.00	0.00	27.67	10.20
293.624	0.098	31.87	18.65	0.00	0.00	27.67	10.20
293.722	0.253	32.06	48.08	0.00	0.00	27.67	10.20
293.975	0.101	32.06	19.17	0.00	0.00	27.67	10.20
294.076	0.253	32.25	47.70	0.00	0.00	27.67	10.20
294.329	0.106	32.25	19.82	0.00	0.00	27.67	10.20
294.434	0.253	32.69	47.30	0.00	0.00	27.67	10.20
294.687	0.098	32.69	18.18	0.00	0.00	27.67	10.20
294.785	0.253	33.15	46.89	0.00	0.00	27.67	10.20
295.038	0.094	33.15	17.39	0.00	0.00	27.67	10.20
295.132	0.253	33.61	46.47	0.00	0.00	27.67	10.20
295.385	0.092	33.61	16.79	0.00	0.00	27.67	10.20
295.477	0.253	34.06	46.02	0.00	0.00	27.67	10.20
295.730	0.095	34.06	17.12	0.00	0.00	27.67	10.20
295.824	0.253	34.51	45.56	0.00	0.00	27.67	10.20
296.077	0.092	34.51	16.41	0.00	0.00	27.67	10.20
296.168	0.253	34.95	45.08	0.00	0.00	27.67	10.20
296.421	0.093	34.95	16.57	0.00	0.00	27.67	10.20
296.515	0.253	35.39	44.58	0.00	0.00	27.67	10.20

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
alpha(°) : Angolo pendenza base concio
W(kN/m) : Forza peso concio
ru(-) : Coefficiente locale pressione interstiziale
U(kPa) : Pressione totale dei pori base concio
phi'(°) : Angolo di attrito efficace base concio
c'/Cu (kPa) : Coesione efficace o Resistenza al taglio in condizioni non drenate

TABELLA DIAGRAMMA DELLE FORZE DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	ht (m)	yt (m)	yt' (--)	E(x) (kN/m)	T(x) (kN/m)	E' (kN)	rho(x) (--)	FS_FEM (--)	FS_p-qFEM (--)		
278.834	0.000	441.196	-0.380	0.0000000000E+000	0.0000000000E+000	1.4061955054E+000	0.044	28.190	29.903		
279.087	0.046	441.099	-0.380	4.6255659146E-001	6.3414493834E-002	2.2523339665E+000	0.044	28.190	29.903		
279.340	0.093	441.003	-0.380	1.1390717832E+000	9.4595550884E-002	3.2941658889E+000	0.044	13.436	13.704		
279.592	0.139	440.907	-0.391	2.1285135361E+000	2.3508696358E-001	4.8179040341E+000	0.046	10.834	6.991		
279.845	0.180	440.806	-0.389	3.5756280937E+000	1.3541269483E+000	7.0388104495E+000	0.190	12.871	4.185		
280.088	0.226	440.714	-0.363	5.5867968675E+000	2.8968952404E+000	1.4004898077E+001	0.312	15.389	3.081		
280.341	0.274	440.626	-0.341	1.0633563175E+001	4.9200826848E+000	2.5573158178E+001	0.388	17.489	2.454		
280.593	0.328	440.542	-0.325	1.8519897962E+001	6.8205891049E+000	3.6108970794E+001	0.396	16.512	2.088		

280.696	0.352	440.510	-0.301	2.2449241421E+001	7.5125597387E+000	3.8716505726E+001	0.388	16.298	2.001
280.949	0.403	440.435	-0.283	3.2612210426E+001	9.2369300250E+000	4.1200366947E+001	0.374	15.604	1.821
281.113	0.443	440.392	-0.256	3.9449536496E+001	1.0435381578E+001	4.3760744110E+001	0.369	16.175	1.729
281.366	0.493	440.328	-0.248	5.1262040045E+001	1.2318273470E+001	5.1916610016E+001	0.361	16.925	1.616
281.468	0.516	440.304	-0.220	5.6803913907E+001	1.3071898274E+001	5.1882488919E+001	0.355	17.361	1.579
281.721	0.561	440.250	-0.208	6.8586520181E+001	1.5027416418E+001	4.5467189223E+001	0.352	14.284	1.501
281.807	0.578	440.234	-0.185	7.2459228887E+001	1.5738490559E+001	4.5814752686E+001	0.353	12.858	1.479
282.060	0.618	440.187	-0.175	8.4588432246E+001	1.8665936201E+001	4.7208836885E+001	0.371	8.397	1.422
282.130	0.633	440.177	-0.147	8.7901658169E+001	1.9575309889E+001	4.7979360205E+001	0.377	7.440	1.408
282.383	0.670	440.140	-0.148	1.0092455198E+002	2.3622986644E+001	5.2003092238E+001	0.407	5.073	1.370
282.479	0.684	440.126	-0.133	1.0590744917E+002	2.5229379781E+001	5.2140227815E+001	0.418	4.458	1.359
282.731	0.715	440.094	-0.119	1.1905686420E+002	3.0423131513E+001	5.1395297058E+001	0.458	3.303	1.342
282.860	0.735	440.081	-0.085	1.2560694770E+002	3.3466493815E+001	5.1223013504E+001	0.482	2.827	1.338
283.113	0.771	440.061	-0.056	1.3862687899E+002	3.9932818486E+001	5.0826923010E+001	0.530	2.181	1.338
283.316	0.810	440.055	-0.008	1.4888318152E+002	4.6206047453E+001	4.8390429074E+001	0.577	1.828	1.348
283.569	0.856	440.058	0.026	1.6052307952E+002	5.4096349980E+001	4.4980175082E+001	0.634	1.580	1.365
283.674	0.881	440.064	0.069	1.6516585360E+002	5.7121159170E+001	4.3142352766E+001	0.653	1.509	1.373
283.700	0.886	440.067	0.110	1.6629723141E+002	5.7939425043E+001	4.2635267532E+001	0.658	1.494	1.375
283.953	0.939	440.095	0.115	1.7671351820E+002	6.5909050019E+001	4.0697325779E+001	0.708	1.385	1.399
283.993	0.949	440.100	0.161	1.7835858253E+002	6.7065481477E+001	4.0247698479E+001	0.714	1.370	1.402
284.246	0.994	440.142	0.170	1.8795132857E+002	7.4723063363E+001	3.5101370717E+001	0.758	1.322	1.427
284.277	1.001	440.149	0.228	1.8902109794E+002	7.5652364774E+001	3.4724253277E+001	0.763	1.319	1.430
284.530	1.039	440.207	0.237	1.9773506069E+002	8.2861468508E+001	3.1166733831E+001	0.803	1.309	1.452
284.600	1.052	440.225	0.295	1.9985990034E+002	8.4814660824E+001	3.0122054238E+001	0.814	1.311	1.457
284.853	1.088	440.302	0.307	2.0735869452E+002	9.1544831149E+001	2.5915700821E+001	0.850	1.326	1.472
284.884	1.093	440.312	0.359	2.0813681859E+002	9.2382631082E+001	2.5425058936E+001	0.855	1.329	1.474
285.000	1.106	440.355	0.388	2.1108074016E+002	9.5265230369E+001	2.4791100689E+001	0.871	1.333	1.477
285.201	1.135	440.435	0.432	2.1588501446E+002	9.9882687398E+001	2.2482214990E+001	0.896	1.337	1.480
285.453	1.169	440.551	0.472	2.2110095131E+002	1.0516712752E+002	1.8972586804E+001	0.925	1.328	1.477
285.551	1.187	440.600	0.520	2.2288360859E+002	1.0659759312E+002	1.7577766069E+001	0.931	1.320	1.473
285.804	1.225	440.733	0.535	2.2682948321E+002	1.0950299322E+002	1.4143624498E+001	0.943	1.297	1.456
285.990	1.257	440.835	0.567	2.2926254662E+002	1.1063282234E+002	1.1923153313E+001	0.944	1.279	1.442
286.243	1.304	440.982	0.548	2.3188438621E+002	1.1093386805E+002	8.8509809976E+000	0.938	1.257	1.419
286.374	1.315	441.046	0.486	2.3294364056E+002	1.1054017551E+002	6.5349641504E+000	0.932	1.245	1.407
286.627	1.331	441.168	0.483	2.3385267471E+002	1.0885428336E+002	1.9007167074E+000	0.915	1.228	1.386
286.731	1.337	441.218	0.452	2.3397798489E+002	1.0777137844E+002	3.5223966722E-001	0.906	1.221	1.378
286.984	1.334	441.330	0.441	2.3354532157E+002	1.0496937227E+002	-3.3607276084E+000	0.884	1.207	1.363
287.070	1.333	441.367	0.448	2.3320761491E+002	1.0397657770E+002	-4.5491330573E+000	0.877	1.203	1.359
287.323	1.325	441.482	0.452	2.3159186271E+002	1.0108438972E+002	-7.6055416744E+000	0.858	1.192	1.349
287.413	1.322	441.523	0.465	2.3086647920E+002	1.0007403599E+002	-8.6961679254E+000	0.852	1.189	1.347
287.666	1.311	441.641	0.470	2.2820207661E+002	9.7222924709E+001	-1.1565632147E+001	0.837	1.183	1.342
287.744	1.308	441.678	0.480	2.2727531243E+002	9.6330608563E+001	-1.2382791607E+001	0.832	1.181	1.341
287.997	1.293	441.800	0.475	2.2373433594E+002	9.3449749919E+001	-1.4815723097E+001	0.819	1.178	1.339
288.083	1.285	441.839	0.486	2.2243935534E+002	9.2486764765E+001	-1.5520271132E+001	0.815	1.178	1.339
288.335	1.267	441.965	0.488	2.1819523153E+002	8.9764304081E+001	-1.7688564580E+001	0.805	1.178	1.340
288.428	1.258	442.008	0.504	2.1652059657E+002	8.8717570812E+001	-1.8441302589E+001	0.802	1.178	1.341
288.681	1.239	442.139	0.507	2.1156819416E+002	8.6063186157E+001	-1.9692950813E+001	0.794	1.181	1.343
288.797	1.226	442.194	0.519	2.0928954034E+002	8.4739632047E+001	-2.0301285570E+001	0.790	1.182	1.343
289.050	1.212	442.330	0.520	2.0384630741E+002	8.1839556953E+001	-2.1412734784E+001	0.781	1.187	1.345
289.159	1.199	442.383	0.521	2.0150140011E+002	8.0464899415E+001	-2.1897749895E+001	0.776	1.189	1.346
289.412	1.185	442.519	0.518	1.9565298540E+002	7.7277571711E+001	-2.2569541532E+001	0.766	1.193	1.347
289.516	1.173	442.568	0.517	1.9334272530E+002	7.5947004674E+001	-2.2849793337E+001	0.760	1.195	1.347
289.768	1.158	442.703	0.525	1.8725015822E+002	7.2850053458E+001	-2.3205675569E+001	0.750	1.198	1.346
289.870	1.148	442.754	0.511	1.8492629203E+002	7.1551977823E+001	-2.3337676988E+001	0.745	1.199	1.345
290.123	1.129	442.884	0.500	1.7871736175E+002	6.8486102195E+001	-2.3538281062E+001	0.735	1.201	1.343
290.220	1.116	442.928	0.501	1.7648031934E+002	6.7327669721E+001	-2.3570174890E+001	0.731	1.201	1.341
290.473	1.097	443.059	0.503	1.7024222048E+002	6.4497814685E+001	-2.3648649483E+001	0.722	1.202	1.337
290.572	1.084	443.105	0.504	1.6793637743E+002	6.3403994215E+001	-2.3614582720E+001	0.719	1.202	1.334
290.825	1.065	443.237	0.505	1.6172885456E+002	6.0764122480E+001	-2.3584448444E+001	0.712	1.202	1.328

290.923	1.053	443.283	0.510	1.5944543133E+002	5.9727227504E+001	-2.3756936496E+001	0.708	1.201	1.325
291.100	1.042	443.377	0.514	1.5506481769E+002	5.7993619789E+001	-2.4104342248E+001	0.704	1.200	1.319
291.276	1.025	443.464	0.522	1.5094431727E+002	5.6181564219E+001	-2.3927407323E+001	0.698	1.199	1.312
291.528	1.012	443.601	0.526	1.4472787996E+002	5.3667832309E+001	-2.3651602265E+001	0.691	1.195	1.301
291.627	1.002	443.649	0.527	1.4244103799E+002	5.2630454372E+001	-2.3695870369E+001	0.687	1.194	1.296
291.879	0.987	443.786	0.528	1.3618458034E+002	5.0049357595E+001	-2.3758182251E+001	0.679	1.189	1.283
291.976	0.977	443.834	0.529	1.3391697331E+002	4.8979351477E+001	-2.3816486851E+001	0.674	1.187	1.278
292.229	0.962	443.971	0.529	1.2760733370E+002	4.6244958908E+001	-2.3944793279E+001	0.663	1.181	1.263
292.325	0.951	444.018	0.514	1.2535352831E+002	4.5136278978E+001	-2.4032830454E+001	0.656	1.179	1.257
292.578	0.930	444.150	0.513	1.1896277436E+002	4.2318608372E+001	-2.4223918511E+001	0.643	1.173	1.241
292.673	0.918	444.197	0.526	1.1668679318E+002	4.1210248630E+001	-2.4332686854E+001	0.636	1.171	1.235
292.926	0.900	444.333	0.526	1.1019572597E+002	3.8382878461E+001	-2.4573016794E+001	0.621	1.165	1.218
293.022	0.888	444.380	0.529	1.0788328437E+002	3.7288689166E+001	-2.4697414304E+001	0.614	1.162	1.212
293.275	0.870	444.517	0.529	1.0127766673E+002	3.4376630824E+001	-2.4992297007E+001	0.596	1.157	1.194
293.371	0.858	444.565	0.534	9.8905857945E+001	3.3200966460E+001	-2.5150255630E+001	0.586	1.155	1.187
293.624	0.839	444.704	0.535	9.2155711487E+001	3.0242225624E+001	-2.5521491718E+001	0.565	1.150	1.169
293.722	0.827	444.752	0.540	8.9705785261E+001	2.9021668147E+001	-2.5572758536E+001	0.554	1.149	1.161
293.975	0.810	444.893	0.542	8.2909133873E+001	2.5986368518E+001	-2.5985249328E+001	0.527	1.144	1.143
294.076	0.797	444.944	0.547	8.0315543992E+001	2.4682560302E+001	-2.5945934800E+001	0.513	1.141	1.136
294.329	0.781	445.087	0.549	7.3553673094E+001	2.1542411100E+001	-2.6181778374E+001	0.479	1.135	1.119
294.434	0.768	445.141	0.552	7.0815530763E+001	2.0178900348E+001	-2.6392077585E+001	0.462	1.133	1.112
294.687	0.749	445.285	0.553	6.3873053507E+001	1.7141980553E+001	-2.6688349773E+001	0.423	1.127	1.097
294.785	0.737	445.335	0.555	6.1296678770E+001	1.5992943022E+001	-2.6894565524E+001	0.407	1.125	1.092
295.038	0.716	445.479	0.556	5.4166984559E+001	1.3179563964E+001	-2.7173876106E+001	0.366	1.122	1.077
295.132	0.703	445.528	0.558	5.1643302156E+001	1.2099678504E+001	-2.7416814660E+001	0.348	1.121	1.072
295.385	0.680	445.673	0.554	4.4287260925E+001	9.0487594916E+000	-2.7797637213E+001	0.288	1.122	1.061
295.477	0.665	445.719	0.555	4.1778301996E+001	8.0828479593E+000	-2.8252530851E+001	0.268	1.123	1.057
295.730	0.639	445.864	0.558	3.3990421430E+001	5.4479269539E+000	-2.9083480787E+001	0.205	1.125	1.053
295.824	0.624	445.913	0.573	3.1302320128E+001	4.8105199571E+000	-2.9847897194E+001	0.190	1.127	1.053
296.077	0.601	446.063	0.566	2.2803982090E+001	4.2801048642E+000	-3.0136836280E+001	0.200	1.129	1.055
296.168	0.583	446.108	0.580	2.0160166177E+001	4.7390822083E+000	-3.1257031273E+001	0.235	1.128	1.055
296.421	0.561	446.263	0.546	1.0596154646E+001	7.3642806963E+000	-2.6888099860E+001	0.466	1.121	1.056
296.515	0.530	446.297	0.546	8.4606408755E+000	7.6924383062E+000	-2.5710430418E+001	0.522	1.118	1.057

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
ht(m) : Altezza linea di thrust da nodo sinistro base concio
yt(m) : coordinata Y linea di trust
yt'(-) : gradiente pendenza locale linea di trust
E(x)(kN/m) : Forza Normale interconcio
T(x)(kN/m) : Forza Tangenziale interconcio
E' (kN) : derivata Forza normale interconcio
Rho(x) (-) : fattore mobilizzazione resistenza al taglio verticale interconcio ZhU et al.(2003)
FS_FEM(x) (-) : fattore di sicurezza locale stimato (locale in X) by qFEM
FS_SRM(x) (-) : fattore di sicurezza locale stimato (locale in X) by SRM Procedure

TABELLA SFORZI DI TAGLIO DISTRIBUITI LUNGO SUPERFICIE INDIVIDUATA CON MINOR FS

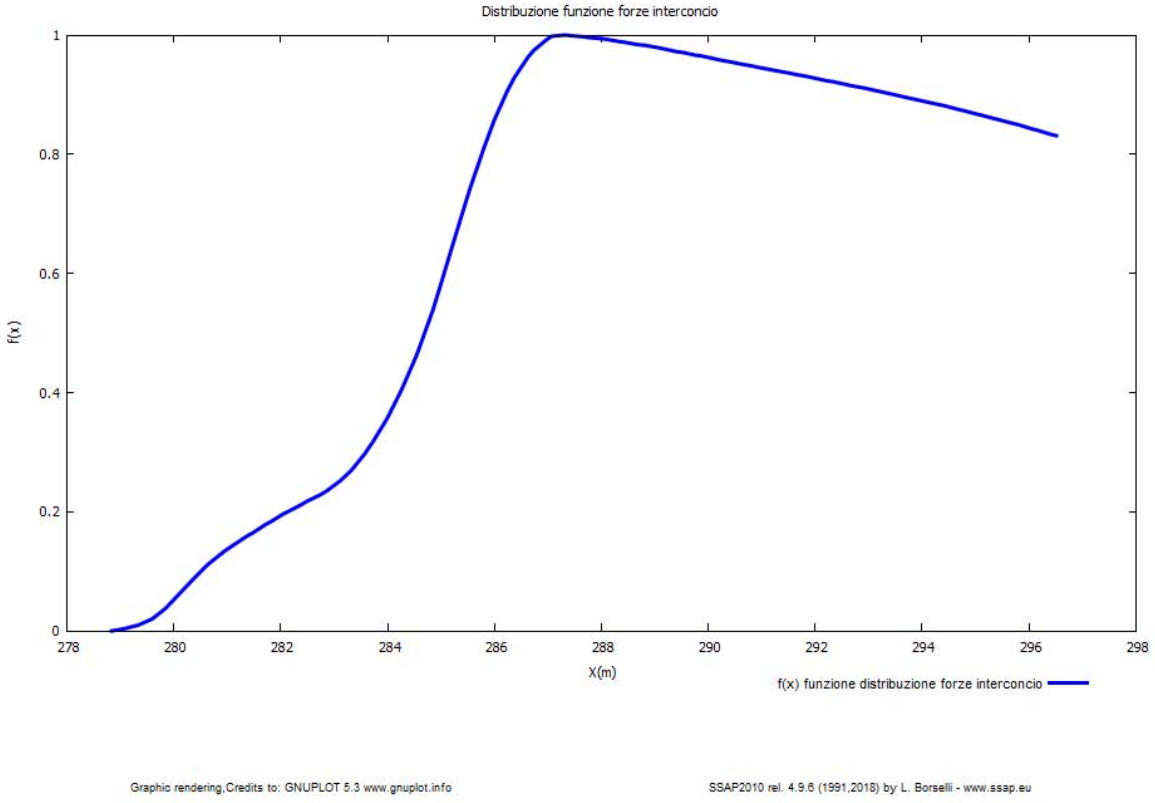
X	dx	dl	alpha	TauStress	TauF	TauStrength	TauS
(m)	(m)	(m)	(°)	(kPa)	(kN/m)	(kPa)	(kN/m)
278.834	0.253	0.290	-29.414	-0.766	-0.222	11.172	3.243
279.087	0.253	0.290	-29.414	-2.298	-0.667	12.512	3.632
279.340	0.253	0.290	-29.414	-3.830	-1.112	14.389	4.177
279.592	0.253	0.290	-29.414	-5.361	-1.556	19.573	5.682
279.845	0.242	0.278	-29.414	-6.861	-1.909	22.871	6.362
280.088	0.253	0.288	-28.515	-8.171	-2.351	25.959	7.470
280.341	0.253	0.288	-28.515	-9.630	-2.771	26.940	7.753
280.593	0.103	0.117	-28.515	-10.656	-1.250	27.188	3.190
280.696	0.253	0.283	-26.628	-11.098	-3.139	28.591	8.087
280.949	0.163	0.183	-26.628	-12.175	-2.225	30.238	5.526
281.113	0.253	0.278	-24.350	-12.350	-3.428	31.865	8.844
281.366	0.103	0.113	-24.350	-13.147	-1.480	32.723	3.684

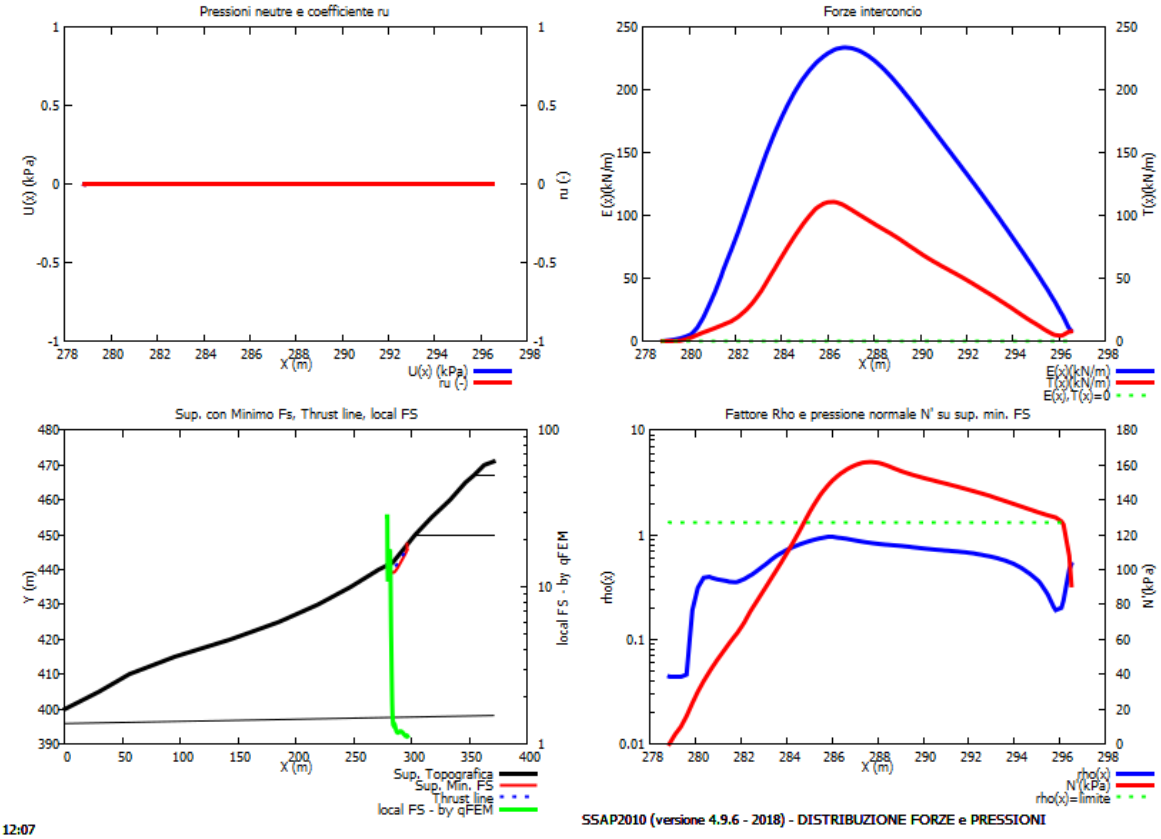
281.468	0.253	0.272	-21.413	-12.519	-3.400	34.474	9.364
281.721	0.086	0.092	-21.413	-13.137	-1.212	35.819	3.305
281.807	0.253	0.267	-18.917	-12.323	-3.294	39.864	10.656
282.060	0.070	0.075	-18.917	-12.806	-0.954	41.785	3.114
282.130	0.253	0.264	-16.427	-11.658	-3.073	45.252	11.929
282.383	0.095	0.100	-16.427	-12.073	-1.202	46.707	4.649
282.479	0.253	0.261	-14.185	-10.843	-2.828	50.336	13.129
282.731	0.128	0.132	-14.185	-11.202	-1.481	53.693	7.101
282.860	0.253	0.259	-12.436	-10.148	-2.628	55.532	14.379
283.113	0.204	0.209	-12.436	-10.497	-2.192	60.439	12.622
283.316	0.253	0.257	-9.752	-8.463	-2.171	60.592	15.546
283.569	0.104	0.106	-9.752	-8.649	-0.915	59.610	6.304
283.674	0.026	0.027	-5.768	-4.969	-0.132	59.319	1.577
283.700	0.253	0.254	-5.768	-5.088	-1.293	60.386	15.347
283.953	0.041	0.041	-5.768	-5.219	-0.212	59.222	2.411
283.993	0.253	0.253	-0.691	-0.063	-0.016	57.927	14.649
284.246	0.031	0.031	-0.691	-0.064	-0.002	58.493	1.801
284.277	0.253	0.254	4.396	5.412	1.373	54.455	13.810
284.530	0.070	0.070	4.396	5.504	0.388	54.707	3.854
284.600	0.253	0.256	9.359	10.926	2.800	50.685	12.989
284.853	0.031	0.031	9.359	11.041	0.342	51.269	1.588
284.884	0.116	0.120	14.216	16.086	1.933	46.448	5.580
285.000	0.201	0.207	14.216	52.945	10.954	119.048	24.631
285.201	0.253	0.266	17.966	64.813	17.229	113.040	30.049
285.453	0.097	0.102	17.966	64.898	6.633	112.630	11.511
285.551	0.253	0.270	20.519	72.346	19.533	108.571	29.314
285.804	0.186	0.199	20.519	72.392	14.392	108.485	21.567
285.990	0.253	0.272	21.628	75.464	20.527	106.880	29.073
286.243	0.131	0.141	21.628	75.476	10.667	106.889	15.107
286.374	0.253	0.275	22.954	78.957	21.682	105.224	28.895
286.627	0.104	0.113	22.954	78.933	8.933	105.302	11.917
286.731	0.253	0.278	24.371	82.428	22.882	103.550	28.746
286.984	0.086	0.095	24.371	82.367	7.785	103.508	9.783
287.070	0.253	0.281	25.813	85.674	24.065	101.572	28.531
287.323	0.090	0.100	25.813	85.568	8.576	101.438	10.167
287.413	0.253	0.284	27.124	88.328	25.095	99.558	28.286
287.666	0.078	0.088	27.124	88.182	7.727	99.434	8.713
287.744	0.253	0.288	28.419	90.678	26.071	97.467	28.023
287.997	0.086	0.098	28.419	90.484	8.828	97.258	9.489
288.083	0.253	0.291	29.611	92.548	26.918	95.267	27.708
288.335	0.093	0.107	29.611	92.303	9.866	95.132	10.168
288.428	0.253	0.294	30.674	93.927	27.615	93.187	27.397
288.681	0.115	0.134	30.674	93.621	12.564	93.107	12.495
288.797	0.253	0.294	30.675	93.317	27.436	92.842	27.296
289.050	0.110	0.128	30.675	93.016	11.871	92.783	11.841
289.159	0.253	0.294	30.676	92.716	27.259	92.537	27.207
289.412	0.103	0.120	30.676	92.420	11.112	92.332	11.101
289.516	0.253	0.294	30.677	92.125	27.086	91.957	27.036
289.768	0.102	0.118	30.677	91.831	10.860	91.801	10.856
289.870	0.253	0.294	30.678	91.538	26.913	91.424	26.880
290.123	0.097	0.112	30.678	91.247	10.252	91.147	10.241
290.220	0.253	0.294	30.680	90.958	26.743	90.743	26.680
290.473	0.099	0.115	30.680	90.666	10.456	90.460	10.432
290.572	0.253	0.294	30.681	90.375	26.572	90.094	26.489
290.825	0.098	0.114	30.681	90.082	10.305	89.861	10.280
290.923	0.177	0.206	30.682	89.855	18.498	89.519	18.429
291.100	0.176	0.204	30.682	89.568	18.283	89.373	18.243
291.276	0.253	0.294	30.683	89.228	26.235	89.004	26.170
291.528	0.098	0.114	30.683	88.948	10.156	88.882	10.148
291.627	0.253	0.295	30.879	88.981	26.216	88.290	26.013
291.879	0.097	0.113	30.879	88.693	10.023	88.205	9.968
291.976	0.253	0.295	31.077	88.714	26.192	87.636	25.874
292.229	0.096	0.112	31.077	88.419	9.874	87.540	9.776
292.325	0.253	0.296	31.275	88.427	26.162	86.923	25.717
292.578	0.096	0.112	31.275	88.124	9.849	86.761	9.696
292.673	0.253	0.296	31.472	88.116	26.125	86.144	25.540
292.926	0.096	0.112	31.472	87.805	9.855	85.935	9.645
293.022	0.253	0.297	31.670	87.783	26.081	85.416	25.378
293.275	0.097	0.113	31.670	87.462	9.924	85.288	9.677
293.371	0.253	0.298	31.866	87.422	26.029	84.651	25.204
293.624	0.098	0.115	31.866	87.092	10.022	84.547	9.729

293.722	0.253	0.298	32.060	87.032	25.968	83.906	25.035
293.975	0.101	0.119	32.060	86.690	10.352	83.817	10.009
294.076	0.253	0.299	32.248	86.606	25.894	83.180	24.870
294.329	0.106	0.125	32.248	86.251	10.761	83.003	10.356
294.434	0.253	0.300	32.693	86.484	25.985	81.908	24.611
294.687	0.098	0.116	32.693	86.117	9.989	81.561	9.461
294.785	0.253	0.302	33.148	86.325	26.071	80.493	24.310
295.038	0.094	0.112	33.148	85.941	9.668	80.272	9.031
295.132	0.253	0.304	33.608	86.111	26.144	79.486	24.133
295.385	0.092	0.110	33.608	85.709	9.448	78.799	8.686
295.477	0.253	0.305	34.062	85.826	26.197	77.833	23.757
295.730	0.095	0.114	34.062	85.400	9.743	76.585	8.737
295.824	0.253	0.307	34.510	85.460	26.225	74.408	22.833
296.077	0.092	0.111	34.510	85.016	9.445	72.234	8.025
296.168	0.253	0.309	34.954	85.030	26.233	69.744	21.517
296.421	0.093	0.114	34.954	84.562	9.644	71.233	8.124
296.515	0.253	0.310	35.386	84.514	26.213	79.482	24.652

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
dl(m) : lunghezza base concio
alpha(°) : Angolo pendenza base concio
TauStress(kPa) : Sforzo di taglio su base concio
TauF (kN/m) : Forza di taglio su base concio
TauStrength(kPa) : Resistenza al taglio su base concio
TauS (kN/m) : Forza resistente al taglio su base concio





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SSAP2010 (versione 4.9.6 - 2018) - DISTRIBUZIONE FORZE e PRESSIONI

SSAP 4.9.6 (2018) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 1.5.2 (2018)

Data : 21/4/2020
Localita' : Ferrandina (MT)
Descrizione : Parco Eolico 'Montagnola' - FER A2
[n] = N. strato o lente

Sn --> Sovraccarico

Modello di calcolo : Janbu Rigoroso (1973)

DATI 10 SUP. CON MINOR Fs

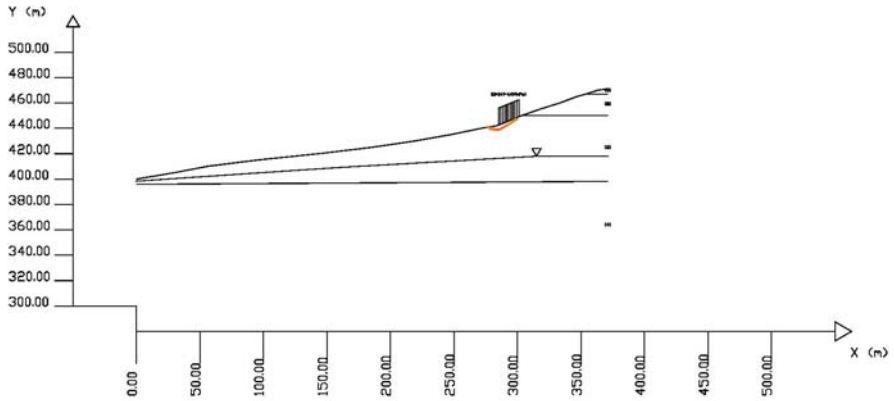
Fs minimo : 1.3178
Range Fs : 1.3178 1.3362
Differenza % Range Fs : 1.38
Coefficiente Sismico orizzontale - Kh: 0.0110

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 5.0
Range X inizio generazione : 0.1 - 334.1
Range X termine generazione : 37.2 - 363.7
Livello Y minimo considerato : 328.2

Parametri Geotecnici degli strati # ----------

N.	phi' deg	C' kPa	Cu kPa	Gamm kN/m3	GammSat kN/m3	sgcl MPa	GSI	mi	D
1	26.60	7.20	0	19.31	20.45	0	0	0	0
2	24.60	31.48	0	18.93	20.21	0	0	0	0
3	27.67	10.20	0	19.70	20.45	0	0	0	0
4	24.90	12.03	0	19.57	19.86	0	0	0	0



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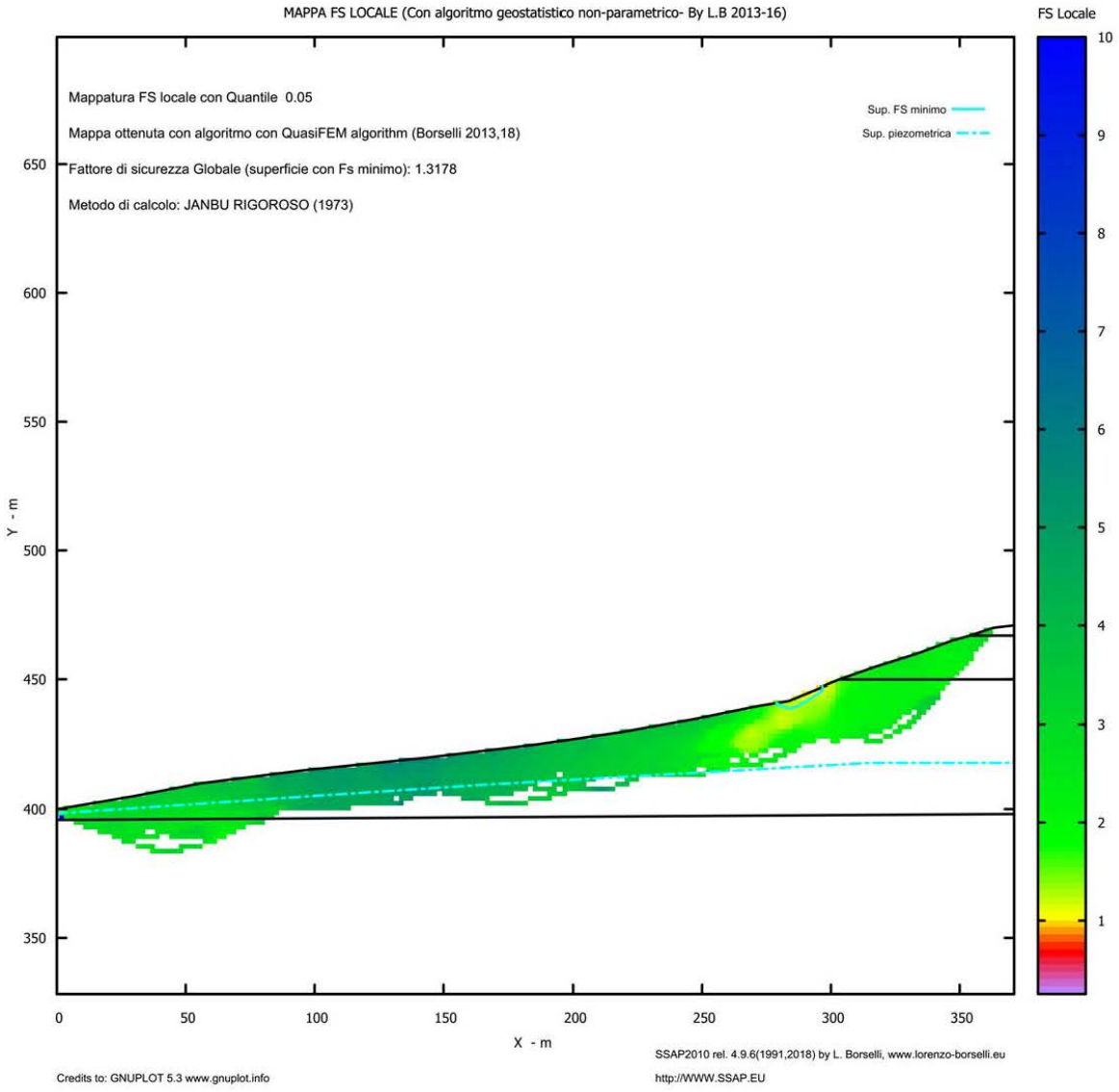

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1.3 VERIFICA DELLA SEZIONE 3-3'

Localita' : Ferrandina (MT) Descrizione: Parc Eolico "Montagnola" - FER A3

Modello pendio: MODELLO-A3.mod

---------- PARAMETRI DEL MODELLO DEL PENDIO ----------

__ PARAMETRI GEOMETRICI - Coordinate X Y (in m) __

SUP T.		SUP 2		SUP 3		SUP 4	
X	Y	X	Y	X	Y	X	Y
0.00	350.00	486.90	428.00	-	-	-	-
11.30	352.00	570.10	428.00	-	-	-	-
24.10	357.00	-	-	-	-	-	-
42.80	362.00	-	-	-	-	-	-
54.60	367.00	-	-	-	-	-	-
73.13	372.00	-	-	-	-	-	-
93.10	377.00	-	-	-	-	-	-
124.50	382.00	-	-	-	-	-	-
165.90	387.00	-	-	-	-	-	-
204.70	392.00	-	-	-	-	-	-
236.10	397.00	-	-	-	-	-	-
286.80	402.00	-	-	-	-	-	-
329.20	407.00	-	-	-	-	-	-
364.70	412.00	-	-	-	-	-	-
400.10	417.00	-	-	-	-	-	-
431.10	422.00	-	-	-	-	-	-
483.10	427.00	-	-	-	-	-	-
486.90	428.00	-	-	-	-	-	-
520.30	432.00	-	-	-	-	-	-
570.10	437.00	-	-	-	-	-	-

ASSENZA DI FALDA

------- PARAMETRI GEOMECCANICI -------

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	27.70	10.20	0.00	19.70	20.50	1.995	0.00	0.00	0.00	0.00
STRATO 2	24.90	12.03	0.00	19.57	19.86	1.825	0.00	0.00	0.00	0.00

LEGENDA: fi`_____ Angolo di attrito interno efficace(in gradi)
C` _____ Coesione efficace (in Kpa)
Cu _____ Resistenza al taglio Non drenata (in Kpa)
Gamm _____ Peso di volume terreno fuori falda (in KN/m^3)
Gamm_sat __ Peso di volume terreno immerso (in KN/m^3)
STR_IDX ___ Indice di resistenza (usato in solo in 'SNIFF SEARCH) (adimensionale)
---- SOLO Per AMMASSI ROCCIOSI FRATTURATI - Parametri Criterio di Rottura di Hoek (2002)-
sigci _____ Resistenza Compressione Uniassiale Roccia Intatta (in MPa)
GSI _____ Geological Strenght Index ammasso(adimensionale)
mi _____ Indice litologico ammasso(adimensionale)
D _____ Fattore di disturbo ammasso(adimensionale)
Fattore di riduzione NTC2018 gammaPHI=1.25 e gammaC=1.25 - DISATTIVATO (solo per ROCCE)

Uso CRITERIO DI ROTTURA Hoek et al.(2002,2006) - non-lineare - Generalizzato secondo Lei et al.(2016)

----- SOVRACCARICHI PRESENTI -----

SOVRACCARICO N.1
Carico in X1 (Kpa): 147.10
Carico in X2 (Kpa): 147.10
Posizione carico da X1 m.: 158.00
a X2 m.: 174.00

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Inclinazione carico (gradi): 90.00
Componenti distribuzione forza unitaria applicata:
#Orizzontale (per metro di proiezione Verticale) (kN/m): da 0.00 a 0.00
#Verticale (per metro di proiezione Orizzontale) (kN/m): da 147.10 a 147.10
##Nota: la distribuzione del carico e delle forze unitarie puo' variare
in modo lineare tra gli estremi di coordinate X1 e X2

---------- INFORMAZIONI GENERAZIONE SUPERFICI RANDOM ----------
*** PARAMETRI PER LA GENERAZIONE DELLE SUPERFICI
METODO DI RICERCA: CONVEX RANDOM - Chen (1992)
FILTRAGGIO SUPERFICI : ATTIVATO
COORDINATE X1,X2,Y OSTACOLO : 0.00 0.00 0.00
LUNGHEZZA MEDIA SEGMENTI (m): 5.0 (+/-) 50%
INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 0.10 513.19
LIVELLO MINIMO CONSIDERATO (Ymin): 271.70
INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 57.11 558.70

*** TOTALE SUPERFICI GENERATE : 10000

---------- INFORMAZIONI PARAMETRI DI CALCOLO ----------
METODO DI CALCOLO : JANBU RIGOROSO (Janbu, 1973)
COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0140
COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0070
COEFFICIENTE c=Kv/Kh UTILIZZATO : 0.5000
FORZA ORIZZONTALE ADDIZIONALE IN TESTA (kN/m): 0.00
FORZA ORIZZONTALE ADDIZIONALE ALLA BASE (kN/m): 0.00

N.B. Le forze orizzontali addizionali in testa e alla base sono poste uguali a 0 durante le tutte le verifiche globali.
I valori >0 impostati dall'utente sono utilizzati solo in caso di verifica singola

---------- RISULTATO FINALE ELABORAZIONI ----------
* DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *

Fattore di sicurezza (FS) 1.8396 - Min. - X Y Lambda= 1.0000

1.35 350.24
9.69 347.93
13.57 346.95
16.15 346.45
18.26 346.19
20.38 346.11
22.28 346.17
24.36 346.38
26.60 346.73
29.34 347.28
31.76 347.82
34.03 348.37
36.20 348.96
38.40 349.61
40.53 350.29
42.72 351.04
44.97 351.87
47.38 352.81
49.69 353.72
51.94 354.64
54.16 355.57
56.39 356.53
58.61 357.51
60.86 358.52
63.16 359.59
65.57 360.72

67.81 361.83
70.00 362.97
72.14 364.14
74.35 365.41
76.75 366.87
79.49 368.62
83.41 371.23
88.86 374.92
88.86 375.94

Fattore di sicurezza (FS) 1.8409 - N.2 -- X Y Lambda= 1.0000

2.78 350.49
11.72 348.35
15.89 347.45
18.67 347.00
20.96 346.79
23.25 346.77
25.30 346.88
27.52 347.15
29.91 347.58
32.77 348.21
35.38 348.81
37.85 349.42
40.24 350.04
42.63 350.70
44.99 351.39
47.39 352.12
49.85 352.90
52.45 353.76
54.89 354.61
57.26 355.49
59.58 356.40
61.95 357.38
64.27 358.39
66.65 359.48
69.08 360.64
71.67 361.92
74.13 363.18
76.54 364.45
78.90 365.73
81.29 367.06
83.94 368.58
86.91 370.34
91.14 372.91
97.46 376.80
97.46 377.69

Fattore di sicurezza (FS) 1.8416 - N.3 -- X Y Lambda= 1.0000

0.77 350.14
9.70 347.98
13.91 347.06
16.74 346.59
19.09 346.33
21.41 346.25
23.52 346.31
25.80 346.50
28.24 346.82
31.15 347.33
33.74 347.83

36.19 348.36
38.54 348.92
40.92 349.55
43.23 350.21
45.61 350.96
48.05 351.77
50.66 352.70
53.16 353.61
55.60 354.53
58.00 355.46
60.42 356.42
62.82 357.40
65.27 358.43
67.78 359.51
70.42 360.67
72.85 361.80
75.21 362.98
77.49 364.20
79.88 365.55
82.45 367.12
85.39 369.02
89.64 371.89
96.76 376.83
96.76 377.58

Fattore di sicurezza (FS) 1.8419 - N.4 -- X Y Lambda= 1.0000

0.44 350.08
9.66 347.62
13.95 346.59
16.79 346.06
19.12 345.80
21.46 345.75
23.54 345.84
25.80 346.10
28.23 346.53
31.15 347.17
33.85 347.78
36.42 348.38
38.91 348.98
41.37 349.60
43.84 350.24
46.33 350.91
48.90 351.61
51.57 352.37
54.04 353.12
56.44 353.92
58.78 354.77
61.20 355.72
63.55 356.71
65.97 357.80
68.48 359.00
71.21 360.37
73.75 361.69
76.22 363.03
78.62 364.39
81.07 365.82
83.75 367.47
86.78 369.42
91.11 372.28

98.31 377.12
98.31 377.83

Fattore di sicurezza (FS) 1.8423 - N.5 -- X Y Lambda= 1.0000

4.82 350.85
13.63 348.20
17.68 347.09
20.35 346.52
22.50 346.23
24.70 346.16
26.63 346.24
28.77 346.50
31.09 346.93
33.94 347.59
36.51 348.22
38.91 348.86
41.22 349.51
43.54 350.20
45.81 350.93
48.12 351.70
50.50 352.54
53.03 353.48
55.41 354.39
57.73 355.33
60.00 356.28
62.32 357.30
64.59 358.34
66.90 359.45
69.27 360.62
71.76 361.90
74.15 363.15
76.48 364.41
78.78 365.69
81.10 367.01
83.67 368.53
86.56 370.28
90.66 372.83
96.64 376.59
96.64 377.56

Fattore di sicurezza (FS) 1.8428 - N.6 -- X Y Lambda= 1.0000

1.64 350.29
9.94 348.42
13.84 347.63
16.45 347.23
18.62 347.04
20.76 347.01
22.71 347.10
24.82 347.33
27.07 347.69
29.76 348.23
32.18 348.76
34.45 349.30
36.64 349.87
38.86 350.50
41.01 351.16
43.20 351.88
45.44 352.66
47.82 353.54

50.14 354.40
52.42 355.25
54.68 356.11
56.93 356.97
59.20 357.85
61.50 358.75
63.86 359.68
66.32 360.65
68.54 361.61
70.69 362.63
72.76 363.70
74.95 364.93
77.29 366.37
79.99 368.16
83.92 370.92
90.07 375.37
90.07 376.24

Fattore di sicurezza (FS) 1.8431 - N.7 -- X Y Lambda= 1.0000

4.56 350.81
12.74 349.18
16.61 348.50
19.21 348.16
21.38 348.01
23.52 348.02
25.47 348.13
27.56 348.37
29.79 348.73
32.42 349.27
34.80 349.79
37.07 350.32
39.25 350.88
41.45 351.48
43.60 352.11
45.80 352.80
48.06 353.54
50.45 354.37
52.73 355.18
54.95 356.01
57.14 356.85
59.35 357.73
61.55 358.64
63.78 359.59
66.08 360.59
68.50 361.68
70.74 362.75
72.92 363.85
75.05 364.98
77.24 366.21
79.62 367.64
82.34 369.35
86.24 371.91
92.35 376.01
92.35 376.81

Fattore di sicurezza (FS) 1.8432 - N.8 -- X Y Lambda= 1.0000

3.16 350.56
12.15 347.85
16.25 346.73

18.93 346.17
21.08 345.91
23.29 345.88
25.22 346.01
27.34 346.34
29.65 346.85
32.51 347.62
35.14 348.35
37.63 349.05
40.04 349.75
42.40 350.45
44.76 351.16
47.13 351.89
49.54 352.65
51.99 353.43
54.37 354.22
56.73 355.02
59.07 355.83
61.43 356.67
63.79 357.54
66.20 358.45
68.69 359.41
71.33 360.46
73.68 361.47
75.95 362.55
78.12 363.69
80.42 365.01
82.87 366.55
85.71 368.50
89.85 371.50
96.68 376.62
96.68 377.57

Fattore di sicurezza (FS) 1.8440 - N.9 -- X Y Lambda= 1.0000

3.79 350.67
11.48 348.97
15.10 348.26
17.51 347.91
19.52 347.75
21.50 347.74
23.30 347.84
25.24 348.08
27.32 348.44
29.80 348.97
32.04 349.48
34.16 350.01
36.20 350.55
38.26 351.15
40.26 351.76
42.31 352.43
44.39 353.15
46.59 353.94
48.73 354.73
50.83 355.51
52.91 356.30
54.99 357.10
57.08 357.92
59.21 358.76
61.39 359.63

63.67 360.56
65.73 361.47
67.73 362.43
69.65 363.44
71.68 364.59
73.85 365.94
76.36 367.61
79.99 370.19
85.74 374.37
85.74 375.16

Fattore di sicurezza (FS) 1.8443 - N.10 -- X Y Lambda= 1.0000

3.26 350.58
11.15 348.56
14.85 347.71
17.32 347.27
19.36 347.04
21.38 346.98
23.21 347.04
25.20 347.23
27.35 347.56
29.93 348.06
32.22 348.55
34.37 349.06
36.43 349.61
38.52 350.22
40.55 350.86
42.64 351.57
44.80 352.36
47.13 353.27
49.32 354.15
51.45 355.05
53.53 355.96
55.64 356.92
57.72 357.90
59.83 358.94
61.98 360.03
64.25 361.21
66.42 362.37
68.54 363.54
70.64 364.72
72.76 365.95
75.11 367.35
77.74 368.96
81.48 371.29
86.05 374.18
86.05 375.23

---------- ANALISI DEFICIT DI RESISTENZA ----------
DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Analisi Deficit in riferimento a FS(progetto) = 1.100

Sup N.	FS	FTR(kN/m)	FTA(kN/m)	Bilancio(kN/m)	ESITO
1	1.840	7541.6	4099.6	3032.0	Surplus
2	1.841	8392.3	4558.8	3377.6	Surplus
3	1.842	8855.6	4808.6	3566.2	Surplus
4	1.842	9322.9	5061.6	3755.2	Surplus
5	1.842	8583.8	4659.2	3458.7	Surplus
6	1.843	7349.9	3988.4	2962.7	Surplus

7	1.843	7139.5	3873.6	2878.6	Surplus
8	1.843	8916.9	4837.8	3595.3	Surplus
9	1.844	6410.7	3476.5	2586.5	Surplus
10	1.844	6739.3	3654.2	2719.7	Surplus

Esito analisi: SURPLUS di RESISTENZA!

Valore minimo di SURPLUS di RESISTENZA (kN/m): 2586.5

Note: FTR --> Forza totale Resistente rispetto alla superficie di scivolamento (componente Orizzontale)
FTA --> Forza totale Agente rispetto alla superficie di scivolamento (componente Orizzontale)

IMPORTANTE! : Il Deficit o il Surplus di resistenza viene espresso in kN per metro di LARGHEZZA rispetto al fronte della scarpata

TABELLA PARAMETRI CONCI DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	dx (m)	alpha (°)	W (kN/m)	ru (-)	U (kPa)	phi' (°)	(c',Cu) (kPa)
1.351	0.681	-15.47	2.07	0.00	0.00	24.90	12.03
2.032	0.681	-15.47	6.22	0.00	0.00	24.90	12.03
2.712	0.681	-15.47	10.37	0.00	0.00	24.90	12.03
3.393	0.681	-15.47	14.52	0.00	0.00	24.90	12.03
4.074	0.681	-15.47	18.66	0.00	0.00	24.90	12.03
4.755	0.681	-15.47	22.81	0.00	0.00	24.90	12.03
5.436	0.681	-15.47	26.96	0.00	0.00	24.90	12.03
6.117	0.681	-15.47	31.10	0.00	0.00	24.90	12.03
6.798	0.681	-15.47	35.25	0.00	0.00	24.90	12.03
7.479	0.681	-15.47	39.40	0.00	0.00	24.90	12.03
8.160	0.681	-15.47	43.55	0.00	0.00	24.90	12.03
8.841	0.681	-15.47	47.69	0.00	0.00	24.90	12.03
9.522	0.166	-15.47	12.26	0.00	0.00	24.90	12.03
9.688	0.681	-14.12	52.74	0.00	0.00	24.90	12.03
10.369	0.681	-14.12	56.65	0.00	0.00	24.90	12.03
11.050	0.250	-14.12	21.77	0.00	0.00	24.90	12.03
11.300	0.681	-14.12	62.98	0.00	0.00	24.90	12.03
11.981	0.681	-14.12	68.85	0.00	0.00	24.90	12.03
12.662	0.681	-14.12	74.72	0.00	0.00	24.90	12.03
13.343	0.228	-14.12	26.35	0.00	0.00	24.90	12.03
13.571	0.681	-11.04	82.30	0.00	0.00	24.90	12.03
14.252	0.681	-11.04	87.65	0.00	0.00	24.90	12.03
14.933	0.681	-11.04	93.00	0.00	0.00	24.90	12.03
15.614	0.536	-11.04	76.92	0.00	0.00	24.90	12.03
16.150	0.681	-7.10	102.24	0.00	0.00	24.90	12.03
16.831	0.681	-7.10	106.95	0.00	0.00	24.90	12.03
17.512	0.681	-7.10	111.66	0.00	0.00	24.90	12.03
18.193	0.072	-7.10	12.02	0.00	0.00	24.90	12.03
18.264	0.681	-2.15	116.46	0.00	0.00	24.90	12.03
18.945	0.681	-2.15	120.38	0.00	0.00	24.90	12.03
19.626	0.681	-2.15	124.29	0.00	0.00	24.90	12.03
20.307	0.075	-2.15	13.98	0.00	0.00	24.90	12.03
20.382	0.681	1.78	128.32	0.00	0.00	24.90	12.03
21.063	0.681	1.78	131.61	0.00	0.00	24.90	12.03
21.744	0.538	1.78	106.27	0.00	0.00	24.90	12.03
22.282	0.681	5.73	137.17	0.00	0.00	24.90	12.03
22.963	0.681	5.73	139.82	0.00	0.00	24.90	12.03
23.644	0.456	5.73	95.09	0.00	0.00	24.90	12.03
24.100	0.258	5.73	54.24	0.00	0.00	24.90	12.03
24.358	0.681	9.00	144.00	0.00	0.00	24.90	12.03

25.039	0.681	9.00	144.99	0.00	0.00	24.90	12.03
25.720	0.681	9.00	145.99	0.00	0.00	24.90	12.03
26.401	0.203	9.00	43.76	0.00	0.00	24.90	12.03
26.604	0.681	11.41	147.08	0.00	0.00	24.90	12.03
27.285	0.681	11.41	147.68	0.00	0.00	24.90	12.03
27.966	0.681	11.41	148.28	0.00	0.00	24.90	12.03
28.647	0.681	11.41	148.88	0.00	0.00	24.90	12.03
29.328	0.008	11.41	1.76	0.00	0.00	24.90	12.03
29.336	0.681	12.47	149.40	0.00	0.00	24.90	12.03
30.017	0.681	12.47	149.82	0.00	0.00	24.90	12.03
30.698	0.681	12.47	150.25	0.00	0.00	24.90	12.03
31.379	0.378	12.47	83.56	0.00	0.00	24.90	12.03
31.757	0.681	13.73	150.80	0.00	0.00	24.90	12.03
32.438	0.681	13.73	151.01	0.00	0.00	24.90	12.03
33.119	0.681	13.73	151.22	0.00	0.00	24.90	12.03
33.800	0.228	13.73	50.69	0.00	0.00	24.90	12.03
34.028	0.681	15.07	151.39	0.00	0.00	24.90	12.03
34.709	0.681	15.07	151.37	0.00	0.00	24.90	12.03
35.390	0.681	15.07	151.35	0.00	0.00	24.90	12.03
36.071	0.126	15.07	28.04	0.00	0.00	24.90	12.03
36.197	0.681	16.44	151.21	0.00	0.00	24.90	12.03
36.878	0.681	16.44	150.96	0.00	0.00	24.90	12.03
37.559	0.681	16.44	150.71	0.00	0.00	24.90	12.03
38.240	0.159	16.44	35.13	0.00	0.00	24.90	12.03
38.399	0.681	17.73	150.28	0.00	0.00	24.90	12.03
39.080	0.681	17.73	149.80	0.00	0.00	24.90	12.03
39.760	0.681	17.73	149.33	0.00	0.00	24.90	12.03
40.441	0.089	17.73	19.55	0.00	0.00	24.90	12.03
40.531	0.681	19.00	148.67	0.00	0.00	24.90	12.03
41.212	0.681	19.00	147.97	0.00	0.00	24.90	12.03
41.893	0.681	19.00	147.27	0.00	0.00	24.90	12.03
42.574	0.146	19.00	31.39	0.00	0.00	24.90	12.03
42.719	0.081	20.18	17.40	0.00	0.00	24.90	12.03
42.800	0.681	20.18	146.91	0.00	0.00	24.90	12.03
43.481	0.681	20.18	147.43	0.00	0.00	24.90	12.03
44.162	0.681	20.18	147.94	0.00	0.00	24.90	12.03
44.843	0.124	20.18	26.97	0.00	0.00	24.90	12.03
44.967	0.681	21.23	148.45	0.00	0.00	24.90	12.03
45.648	0.681	21.23	148.78	0.00	0.00	24.90	12.03
46.329	0.681	21.23	149.10	0.00	0.00	24.90	12.03
47.010	0.370	21.23	81.11	0.00	0.00	24.90	12.03
47.379	0.681	21.71	149.55	0.00	0.00	24.90	12.03
48.060	0.681	21.71	149.79	0.00	0.00	24.90	12.03
48.741	0.681	21.71	150.02	0.00	0.00	24.90	12.03
49.422	0.266	21.71	58.57	0.00	0.00	24.90	12.03
49.688	0.681	22.21	150.30	0.00	0.00	24.90	12.03
50.369	0.681	22.21	150.44	0.00	0.00	24.90	12.03
51.050	0.681	22.21	150.58	0.00	0.00	24.90	12.03
51.731	0.210	22.21	46.55	0.00	0.00	24.90	12.03
51.941	0.681	22.73	150.72	0.00	0.00	24.90	12.03
52.622	0.681	22.73	150.76	0.00	0.00	24.90	12.03
53.303	0.681	22.73	150.80	0.00	0.00	24.90	12.03
53.984	0.177	22.73	39.19	0.00	0.00	24.90	12.03
54.161	0.439	23.25	97.22	0.00	0.00	24.90	12.03
54.600	0.681	23.25	150.07	0.00	0.00	24.90	12.03
55.281	0.681	23.25	148.61	0.00	0.00	24.90	12.03
55.962	0.425	23.25	92.09	0.00	0.00	24.90	12.03
56.387	0.681	23.77	146.19	0.00	0.00	24.90	12.03
57.068	0.681	23.77	144.63	0.00	0.00	24.90	12.03

57.749	0.681	23.77	143.07	0.00	0.00	24.90	12.03
58.430	0.176	23.77	36.73	0.00	0.00	24.90	12.03
58.606	0.681	24.27	141.06	0.00	0.00	24.90	12.03
59.287	0.681	24.27	139.41	0.00	0.00	24.90	12.03
59.968	0.681	24.27	137.75	0.00	0.00	24.90	12.03
60.649	0.208	24.27	41.66	0.00	0.00	24.90	12.03
60.857	0.681	24.76	135.55	0.00	0.00	24.90	12.03
61.538	0.681	24.76	133.80	0.00	0.00	24.90	12.03
62.219	0.681	24.76	132.05	0.00	0.00	24.90	12.03
62.900	0.261	24.76	50.15	0.00	0.00	24.90	12.03
63.161	0.681	25.21	129.59	0.00	0.00	24.90	12.03
63.842	0.681	25.21	127.75	0.00	0.00	24.90	12.03
64.523	0.681	25.21	125.91	0.00	0.00	24.90	12.03
65.203	0.362	25.21	66.12	0.00	0.00	24.90	12.03
65.565	0.681	26.30	122.99	0.00	0.00	24.90	12.03
66.246	0.681	26.30	120.94	0.00	0.00	24.90	12.03
66.927	0.681	26.30	118.89	0.00	0.00	24.90	12.03
67.608	0.202	26.30	34.95	0.00	0.00	24.90	12.03
67.810	0.681	27.48	116.11	0.00	0.00	24.90	12.03
68.491	0.681	27.48	113.82	0.00	0.00	24.90	12.03
69.172	0.681	27.48	111.53	0.00	0.00	24.90	12.03
69.853	0.150	27.48	24.22	0.00	0.00	24.90	12.03
70.003	0.681	28.70	108.62	0.00	0.00	24.90	12.03
70.684	0.681	28.70	106.08	0.00	0.00	24.90	12.03
71.365	0.681	28.70	103.54	0.00	0.00	24.90	12.03
72.046	0.098	28.70	14.64	0.00	0.00	24.90	12.03
72.144	0.681	29.88	100.52	0.00	0.00	24.90	12.03
72.825	0.305	29.88	44.18	0.00	0.00	24.90	12.03
73.130	0.681	29.88	96.40	0.00	0.00	24.90	12.03
73.811	0.541	29.88	74.42	0.00	0.00	24.90	12.03
74.352	0.681	31.39	90.92	0.00	0.00	24.90	12.03
75.033	0.681	31.39	87.63	0.00	0.00	24.90	12.03
75.714	0.681	31.39	84.34	0.00	0.00	24.90	12.03
76.394	0.359	31.39	43.16	0.00	0.00	24.90	12.03
76.754	0.681	32.57	79.19	0.00	0.00	24.90	12.03
77.435	0.681	32.57	75.64	0.00	0.00	24.90	12.03
78.116	0.681	32.57	72.09	0.00	0.00	24.90	12.03
78.797	0.681	32.57	68.54	0.00	0.00	24.90	12.03
79.477	0.012	32.57	1.18	0.00	0.00	24.90	12.03
79.490	0.681	33.62	64.80	0.00	0.00	24.90	12.03
80.170	0.681	33.62	61.02	0.00	0.00	24.90	12.03
80.851	0.681	33.62	57.23	0.00	0.00	24.90	12.03
81.532	0.681	33.62	53.44	0.00	0.00	24.90	12.03
82.213	0.681	33.62	49.65	0.00	0.00	24.90	12.03
82.894	0.513	33.62	34.92	0.00	0.00	24.90	12.03
83.408	0.681	34.15	42.95	0.00	0.00	24.90	12.03
84.089	0.681	34.15	39.03	0.00	0.00	24.90	12.03
84.770	0.681	34.15	35.12	0.00	0.00	24.90	12.03
85.450	0.681	34.15	31.21	0.00	0.00	24.90	12.03
86.131	0.681	34.15	27.30	0.00	0.00	24.90	12.03
86.812	0.681	34.15	23.39	0.00	0.00	24.90	12.03
87.493	0.681	34.15	19.48	0.00	0.00	24.90	12.03
88.174	0.681	34.15	15.56	0.00	0.00	24.90	12.03

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio

dx(m) : Larghezza concio

alpha(°) : Angolo pendenza base concio

W(kN/m) : Forza peso concio

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ru(-) : Coefficiente locale pressione interstiziale
U(kPa) : Pressione totale dei pori base concio
phi'(°) : Angolo di attrito efficace base concio
c'/Cu (kPa) : Coesione efficace o Resistenza al taglio in condizioni non drenate

TABELLA DIAGRAMMA DELLE FORZE DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X	ht	yt	yt'	E(x)	T(x)	E'	rho(x)	FS_FEM	FS_p-qFEM		
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)	(kN)	(--)	(--)	(--)		
1.351	0.000	350.239	-0.162	0.0000000000E+000	0.0000000000E+000	7.0332926917E-001	0.061	14.615	9.987		
2.032	0.077	350.128	-0.162	7.9478041493E-001	2.7192863739E-002	1.6309483276E+000	0.061	14.615	9.987		
2.712	0.156	350.018	-0.159	2.2212367378E+000	2.7749940942E-001	2.9271941162E+000	0.061	7.633	6.101		
3.393	0.238	349.912	-0.153	4.7814126088E+000	1.2749783644E+000	5.2536706705E+000	0.175	5.347	4.544		
4.074	0.324	349.809	-0.147	9.3763661210E+000	4.2300276034E+000	9.4291852258E+000	0.405	4.644	3.254		
4.755	0.415	349.712	-0.140	1.7623298692E+001	8.2722780657E+000	1.6923316972E+001	0.568	4.319	2.477		
5.436	0.510	349.618	-0.145	3.2424731754E+001	1.3118276894E+001	3.1842142587E+001	0.646	4.086	2.075		
6.117	0.595	349.514	-0.146	6.0990053926E+001	1.9771253674E+001	4.3544311744E+001	0.669	3.839	1.847		
6.798	0.688	349.419	-0.129	9.1729017076E+001	2.8076628966E+001	4.5789166279E+001	0.714	3.644	1.737		
7.479	0.797	349.339	-0.111	1.2335167300E+002	3.7065915783E+001	4.9671897463E+001	0.752	3.452	1.688		
8.160	0.914	349.268	-0.102	1.5937864252E+002	4.7836817445E+001	5.3268945923E+001	0.792	3.285	1.671		
8.841	1.035	349.201	-0.091	1.9590022506E+002	5.9059646600E+001	5.4323197086E+001	0.824	3.133	1.671		
9.522	1.166	349.143	-0.083	2.3336301041E+002	7.0857164601E+001	5.5367977744E+001	0.852	2.982	1.680		
9.688	1.200	349.131	-0.068	2.4257199898E+002	7.3789757637E+001	5.6927886871E+001	0.858	2.944	1.683		
10.369	1.325	349.085	-0.060	2.8545286202E+002	8.6425509815E+001	6.3801911703E+001	0.876	2.802	1.693		
11.050	1.461	349.049	-0.051	3.2946570850E+002	9.8169560054E+001	6.6764936115E+001	0.879	2.677	1.698		
11.300	1.512	349.038	-0.034	3.4634411265E+002	1.0261791954E+002	6.7317256475E+001	0.880	2.637	1.701		
11.981	1.663	349.017	-0.022	3.9175805218E+002	1.1540305574E+002	6.5557406287E+001	0.881	2.524	1.713		
12.662	1.825	349.008	-0.006	4.3562868213E+002	1.2876994056E+002	6.5199551543E+001	0.889	2.418	1.728		
13.343	1.997	349.009	0.004	4.8055524871E+002	1.4224768103E+002	6.3798269398E+001	0.894	2.318	1.745		
13.571	2.057	349.012	0.025	4.9494895614E+002	1.4681310940E+002	6.3014455223E+001	0.897	2.286	1.751		
14.252	2.210	349.031	0.038	5.3774918194E+002	1.6055272125E+002	6.0686568291E+001	0.907	2.198	1.769		
14.933	2.375	349.063	0.054	5.7759978738E+002	1.7431197886E+002	5.7815070687E+001	0.919	2.122	1.789		
15.614	2.550	349.105	0.070	6.1648923571E+002	1.8825394827E+002	5.6771490229E+001	0.931	2.056	1.807		
16.150	2.697	349.148	0.086	6.4675917668E+002	1.9940609736E+002	5.6932680218E+001	0.941	2.013	1.821		
16.831	2.844	349.210	0.099	6.8589791990E+002	2.1314269308E+002	5.6902082903E+001	0.951	1.969	1.838		
17.512	3.001	349.282	0.117	7.2425580539E+002	2.2642341886E+002	5.5547126169E+001	0.959	1.937	1.852		
18.193	3.173	349.370	0.129	7.6154919298E+002	2.3947062262E+002	5.3319984178E+001	0.967	1.916	1.864		
18.264	3.192	349.379	0.142	7.6535717155E+002	2.4085511818E+002	5.3179489587E+001	0.968	1.914	1.865		
18.945	3.315	349.477	0.149	8.0164525825E+002	2.5261009553E+002	5.2418183055E+001	0.972	1.899	1.873		
19.626	3.446	349.582	0.162	8.3674704452E+002	2.6383228587E+002	5.0584106851E+001	0.974	1.889	1.879		
20.307	3.587	349.698	0.170	8.7053724863E+002	2.7418036383E+002	4.8639422662E+001	0.975	1.882	1.883		
20.382	3.603	349.711	0.181	8.7419010342E+002	2.7524300047E+002	4.8413656513E+001	0.975	1.881	1.883		
21.063	3.705	349.835	0.187	9.0643567411E+002	2.8498887920E+002	4.6621411180E+001	0.976	1.873	1.885		
21.744	3.814	349.965	0.195	9.3768518143E+002	2.9432004011E+002	4.4754045436E+001	0.976	1.865	1.885		
22.282	3.905	350.072	0.205	9.6127455663E+002	3.0133100002E+002	4.2821857042E+001	0.976	1.857	1.885		
22.963	3.979	350.215	0.218	9.8954252733E+002	3.0910342216E+002	4.0007579027E+001	0.975	1.847	1.884		
23.644	4.065	350.369	0.228	1.0157620611E+003	3.1629669089E+002	3.7363275513E+001	0.973	1.838	1.882		
24.100	4.124	350.473	0.229	1.0324472587E+003	3.2067554553E+002	3.5285278895E+001	0.971	1.830	1.881		
24.358	4.157	350.533	0.230	1.0413563666E+003	3.2309712803E+002	3.3774037865E+001	0.971	1.826	1.880		
25.039	4.206	350.690	0.232	1.0629755352E+003	3.2879474597E+002	3.0792806683E+001	0.971	1.816	1.878		
25.720	4.257	350.848	0.234	1.0832940002E+003	3.3394093862E+002	2.8726999738E+001	0.970	1.807	1.876		
26.401	4.309	351.008	0.234	1.1020996853E+003	3.3851442567E+002	2.6130251919E+001	0.969	1.799	1.874		
26.604	4.324	351.055	0.231	1.1073194395E+003	3.3973134762E+002	2.5097216834E+001	0.968	1.797	1.874		
27.285	4.344	351.213	0.236	1.1230643111E+003	3.4330889151E+002	2.2182173871E+001	0.967	1.791	1.873		
27.966	4.370	351.376	0.240	1.1375299978E+003	3.4605614823E+002	2.0217414038E+001	0.964	1.786	1.872		
28.647	4.396	351.540	0.239	1.1505990049E+003	3.4824015212E+002	1.8141800015E+001	0.960	1.783	1.871		
29.328	4.420	351.701	0.236	1.1622378515E+003	3.4975430000E+002	1.5093625417E+001	0.956	1.780	1.871		
29.336	4.420	351.703	0.252	1.1623592555E+003	3.4976572256E+002	1.5066198396E+001	0.956	1.780	1.871		
30.017	4.441	351.875	0.257	1.1724006954E+003	3.5037904990E+002	1.3860044266E+001	0.950	1.778	1.871		
30.698	4.469	352.053	0.253	1.1812356595E+003	3.5044868877E+002	1.2120462097E+001	0.944	1.777	1.871		

31.379	4.485	352.219	0.242	1.1889079110E+003	3.4995857895E+002	9.5797775646E+000	0.937	1.775	1.872
31.757	4.492	352.310	0.249	1.1921742076E+003	3.4959135181E+002	8.2060614607E+000	0.934	1.774	1.873
32.438	4.498	352.482	0.254	1.1972252792E+003	3.4860351217E+002	6.6475381282E+000	0.928	1.771	1.873
33.119	4.504	352.655	0.254	1.2012276863E+003	3.4736231153E+002	4.9677672158E+000	0.922	1.769	1.874
33.800	4.510	352.828	0.254	1.2039910282E+003	3.4591625905E+002	3.0244025646E+000	0.916	1.766	1.875
34.028	4.513	352.886	0.265	1.2046018354E+003	3.4540196371E+002	2.3783807370E+000	0.914	1.765	1.875
34.709	4.512	353.068	0.269	1.2056117206E+003	3.4383768240E+002	8.2888935983E-001	0.910	1.762	1.876
35.390	4.512	353.251	0.269	1.2057307244E+003	3.4237226210E+002	-5.0989722584E-001	0.906	1.758	1.876
36.071	4.511	353.434	0.269	1.2049172765E+003	3.4106155637E+002	-1.8502172111E+000	0.903	1.755	1.875
36.197	4.511	353.468	0.282	1.2046684676E+003	3.4085038858E+002	-2.1416240284E+000	0.902	1.754	1.875
36.878	4.503	353.661	0.284	1.2025857340E+003	3.3974118285E+002	-3.7442285144E+000	0.901	1.750	1.874
37.559	4.496	353.855	0.284	1.1995690921E+003	3.3877072253E+002	-5.0525810791E+000	0.901	1.745	1.873
38.240	4.488	354.048	0.284	1.1957044745E+003	3.3802275464E+002	-6.2614055762E+000	0.901	1.741	1.871
38.399	4.487	354.093	0.296	1.1946877762E+003	3.3791674622E+002	-6.5923605113E+000	0.902	1.739	1.871
39.080	4.472	354.297	0.299	1.1896319980E+003	3.3751600177E+002	-8.0480775783E+000	0.904	1.734	1.868
39.760	4.458	354.500	0.299	1.1837268614E+003	3.3728451894E+002	-9.1834226416E+000	0.908	1.728	1.865
40.441	4.444	354.704	0.299	1.1771248233E+003	3.3722081077E+002	-1.0260565533E+001	0.912	1.722	1.861
40.531	4.442	354.730	0.312	1.1762016994E+003	3.3723473013E+002	-1.0431368682E+001	0.913	1.721	1.861
41.212	4.421	354.944	0.314	1.1685966344E+003	3.3734044644E+002	-1.1989166141E+001	0.919	1.716	1.857
41.893	4.400	355.157	0.314	1.1598732996E+003	3.3749924187E+002	-1.3240193358E+001	0.926	1.710	1.852
42.574	4.379	355.371	0.314	1.1505644237E+003	3.3771233596E+002	-1.3824260176E+001	0.933	1.704	1.847
42.719	4.375	355.417	0.318	1.1485470492E+003	3.3777875504E+002	-1.3952128250E+001	0.935	1.703	1.845
42.800	4.371	355.443	0.383	1.1474162042E+003	3.3783458813E+002	-1.4140947483E+001	0.936	1.702	1.845
43.481	4.387	355.709	0.373	1.1370046982E+003	3.3785651129E+002	-1.5779781915E+001	0.942	1.696	1.839
44.162	4.379	355.951	0.359	1.1259252528E+003	3.3734409735E+002	-1.6720304601E+001	0.947	1.691	1.832
44.843	4.375	356.197	0.361	1.1142328211E+003	3.3634014067E+002	-1.7534444819E+001	0.952	1.685	1.825
44.967	4.374	356.241	0.372	1.1120526799E+003	3.3609887834E+002	-1.7729595873E+001	0.952	1.684	1.824
45.648	4.364	356.497	0.388	1.0994967825E+003	3.3415168500E+002	-1.9133076291E+001	0.955	1.678	1.817
46.329	4.373	356.770	0.409	1.0859947778E+003	3.3117375110E+002	-2.0244329838E+001	0.955	1.672	1.809
47.010	4.392	357.054	0.408	1.0719254313E+003	3.2748124715E+002	-2.0802227748E+001	0.954	1.667	1.801
47.379	4.393	357.198	0.420	1.0642041028E+003	3.2516359196E+002	-2.1306906487E+001	0.953	1.665	1.796
48.060	4.419	357.495	0.447	1.0491582660E+003	3.2004761222E+002	-2.2568974852E+001	0.948	1.661	1.788
48.741	4.460	357.807	0.439	1.0334667489E+003	3.1417002637E+002	-2.3329924900E+001	0.941	1.657	1.780
49.422	4.475	358.093	0.417	1.0173845516E+003	3.0751862703E+002	-2.3358265815E+001	0.932	1.655	1.772
49.688	4.478	358.202	0.413	1.0112081129E+003	3.0479225931E+002	-2.3644685267E+001	0.928	1.654	1.769
50.369	4.482	358.484	0.415	9.9443075236E+002	2.9646906981E+002	-2.5005202595E+001	0.914	1.653	1.761
51.050	4.486	358.766	0.415	9.7715278829E+002	2.8738006186E+002	-2.5520227497E+001	0.898	1.652	1.753
51.731	4.490	359.049	0.410	9.5967400016E+002	2.7774973912E+002	-2.5446321981E+001	0.880	1.652	1.746
51.941	4.487	359.131	0.394	9.5433435577E+002	2.7479549955E+002	-2.5602309699E+001	0.874	1.652	1.744
52.622	4.470	359.399	0.390	9.3640556321E+002	2.6444611612E+002	-2.6709348101E+001	0.854	1.653	1.739
53.303	4.448	359.663	0.383	9.1795810507E+002	2.5395478797E+002	-2.7096499998E+001	0.832	1.655	1.733
53.984	4.420	359.920	0.371	8.9950203890E+002	2.4364283706E+002	-2.7189620328E+001	0.811	1.657	1.728
54.161	4.407	359.982	0.373	8.9468743704E+002	2.4110436237E+002	-2.7185553257E+001	0.806	1.658	1.727
54.600	4.388	360.150	0.379	8.8278342822E+002	2.3454694319E+002	-2.7706272701E+001	0.792	1.660	1.725
55.281	4.351	360.406	0.376	8.6329656514E+002	2.2444383029E+002	-2.8752632991E+001	0.772	1.664	1.722
55.962	4.314	360.662	0.367	8.4362436743E+002	2.1452360922E+002	-2.8132144777E+001	0.753	1.668	1.719
56.387	4.282	360.813	0.366	8.3185854107E+002	2.0869496180E+002	-2.7915341702E+001	0.741	1.671	1.718
57.068	4.236	361.067	0.372	8.1257031860E+002	1.9933653720E+002	-2.8789636322E+001	0.723	1.677	1.717
57.749	4.189	361.320	0.370	7.9264908435E+002	1.9022461177E+002	-2.9083030499E+001	0.704	1.683	1.717
58.430	4.141	361.571	0.362	7.7296127967E+002	1.8146845751E+002	-2.8894645243E+001	0.686	1.690	1.717
58.606	4.122	361.630	0.356	7.6787634122E+002	1.7946294413E+002	-2.8989341906E+001	0.683	1.692	1.717
59.287	4.061	361.876	0.363	7.4787456347E+002	1.7160393724E+002	-2.9787693385E+001	0.668	1.698	1.718
59.968	4.003	362.125	0.367	7.2730760108E+002	1.6396965670E+002	-3.0516965577E+001	0.653	1.706	1.721
60.649	3.946	362.375	0.362	7.0631260597E+002	1.5669457530E+002	-3.0744736917E+001	0.640	1.713	1.724
60.857	3.924	362.446	0.350	6.9993594138E+002	1.5473490763E+002	-3.0783924656E+001	0.637	1.715	1.725
61.538	3.850	362.686	0.358	6.7882672131E+002	1.4830271337E+002	-3.1089974623E+001	0.626	1.723	1.729
62.219	3.784	362.934	0.365	6.5759358593E+002	1.4202596128E+002	-3.1187982813E+001	0.616	1.730	1.734
62.900	3.719	363.183	0.360	6.3635088560E+002	1.3597058431E+002	-3.0498663398E+001	0.606	1.738	1.740
63.161	3.688	363.273	0.369	6.2846028257E+002	1.3391887294E+002	-3.0521077191E+001	0.603	1.740	1.742

63.842	3.625	363.531	0.384	6.0716249771E+002	1.2848007571E+002	-3.1468846010E+001	0.595	1.747	1.749
64.523	3.569	363.796	0.389	5.8560193098E+002	1.2306958631E+002	-3.1607039275E+001	0.587	1.753	1.756
65.203	3.514	364.061	0.379	5.6411593662E+002	1.1779335193E+002	-3.1076121098E+001	0.580	1.759	1.765
65.565	3.474	364.191	0.386	5.5297000107E+002	1.1519781258E+002	-3.0925038706E+001	0.576	1.761	1.769
66.246	3.410	364.463	0.408	5.3178063119E+002	1.1036803038E+002	-3.1718242588E+001	0.570	1.765	1.778
66.927	3.357	364.747	0.410	5.0977198891E+002	1.0565627668E+002	-3.2091154366E+001	0.565	1.769	1.788
67.608	3.295	365.022	0.399	4.8807473945E+002	1.0118653394E+002	-3.1160065901E+001	0.560	1.773	1.798
67.810	3.272	365.099	0.390	4.8180857930E+002	9.9905424786E+001	-3.0950136305E+001	0.559	1.774	1.801
68.491	3.186	365.367	0.393	4.6073512312E+002	9.5635423205E+001	-3.0918248214E+001	0.555	1.777	1.811
69.172	3.099	365.635	0.390	4.3970010312E+002	9.1491822674E+001	-3.0582671626E+001	0.552	1.781	1.822
69.853	3.009	365.899	0.386	4.1908367862E+002	8.7556841571E+001	-3.0558600184E+001	0.549	1.786	1.834
70.003	2.988	365.955	0.390	4.1449830376E+002	8.6756508132E+001	-3.0590443230E+001	0.549	1.786	1.836
70.684	2.882	366.223	0.394	3.9376158845E+002	8.3075270673E+001	-3.0412872736E+001	0.548	1.791	1.848
71.365	2.779	366.492	0.398	3.7307811338E+002	7.9204810385E+001	-2.9989958825E+001	0.545	1.795	1.860
72.046	2.678	366.765	0.398	3.5291737703E+002	7.5424085325E+001	-2.8993653656E+001	0.543	1.800	1.873
72.144	2.662	366.802	0.392	3.5009473703E+002	7.4918515800E+001	-2.8916742231E+001	0.543	1.801	1.875
72.825	2.538	367.069	0.402	3.3035160766E+002	7.1377666522E+001	-2.9073035187E+001	0.542	1.806	1.888
73.130	2.492	367.199	0.442	3.2146140798E+002	6.9781983547E+001	-2.9022124674E+001	0.542	1.809	1.895
73.811	2.407	367.505	0.455	3.0183024560E+002	6.6205463493E+001	-2.8166773747E+001	0.541	1.815	1.909
74.352	2.346	367.755	0.456	2.8688628721E+002	6.3273315498E+001	-2.7611974303E+001	0.539	1.821	1.920
75.033	2.238	368.062	0.458	2.6810878508E+002	5.9474104700E+001	-2.7434787960E+001	0.535	1.830	1.934
75.714	2.139	368.378	0.471	2.4952203852E+002	5.5588818953E+001	-2.8489264284E+001	0.530	1.842	1.949
76.394	2.049	368.704	0.474	2.2930841392E+002	5.1609988013E+001	-2.9594028615E+001	0.526	1.856	1.964
76.754	1.997	368.871	0.474	2.1869697686E+002	4.9598923276E+001	-2.9560051582E+001	0.524	1.863	1.972
77.435	1.888	369.197	0.485	1.9855035958E+002	4.5690283876E+001	-2.9692287462E+001	0.520	1.878	1.985
78.116	1.787	369.532	0.495	1.7825817287E+002	4.1724727673E+001	-2.9431192858E+001	0.515	1.894	1.998
78.797	1.692	369.872	0.488	1.5846714805E+002	3.7727060335E+001	-2.9096599217E+001	0.508	1.909	2.010
79.477	1.582	370.196	0.476	1.3863065430E+002	3.3913158458E+001	-2.5631891844E+001	0.502	1.924	2.019
79.490	1.580	370.202	0.466	1.3832318687E+002	3.3847213514E+001	-2.5597841900E+001	0.502	1.924	2.020
80.170	1.444	370.519	0.475	1.1982298473E+002	3.0078947134E+001	-2.6850341745E+001	0.494	1.937	2.036
80.851	1.321	370.848	0.488	1.0175491276E+002	2.5709656377E+001	-2.4622658581E+001	0.472	1.947	2.048
81.532	1.202	371.183	0.500	8.6288658171E+001	2.1634065942E+001	-2.1989025267E+001	0.444	1.954	2.057
82.213	1.095	371.529	0.516	7.1807409257E+001	1.7869975341E+001	-2.0849327934E+001	0.413	1.956	2.060
82.894	0.999	371.885	0.527	5.7893342158E+001	1.4388207563E+001	-1.9269659697E+001	0.380	1.954	2.056
83.408	0.930	372.157	0.564	4.8453340167E+001	1.2088643127E+001	-1.8444528099E+001	0.354	1.952	2.044
84.089	0.869	372.559	0.561	3.5846665815E+001	9.0571548407E+000	-1.6364582223E+001	0.312	1.946	2.017
84.770	0.771	372.922	0.534	2.6165931905E+001	6.6139113255E+000	-1.3029730294E+001	0.268	1.934	1.976
85.450	0.673	373.287	0.557	1.8101090972E+001	4.2884832657E+000	-1.1169653186E+001	0.207	1.919	1.921
86.131	0.606	373.681	0.562	1.0953651059E+001	2.1557872124E+000	-8.9470405727E+000	0.127	1.912	1.864
86.812	0.514	374.052	0.547	5.9158519441E+000	8.8384661193E-001	-6.3177583008E+000	0.064	1.952	1.854
87.493	0.426	374.425	0.551	2.3493092778E+000	2.6825639883E-001	-4.1769071160E+000	0.061	2.113	1.980
88.174	0.341	374.802	0.551	2.2719867460E-001	2.7764164943E-001	-1.7249858930E+000	0.061	2.429	2.271

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio

ht(m) : Altezza linea di thrust da nodo sinistro base concio

yt(m) : coordinata Y linea di trust

yt'(-) : gradiente pendenza locale linea di trust

E(x)(kN/m) : Forza Normale interconcio

T(x)(kN/m) : Forza Tangenziale interconcio

E' (kN) : derivata Forza normale interconcio

Rho(x) (-) : fattore mobilizzazione resistenza al taglio verticale interconcio ZhU et al.(2003)

FS_FEM(x) (-) : fattore di sicurezza locale stimato (locale in X) by qFEM

FS_SRM(x) (-) : fattore di sicurezza locale stimato (locale in X) by SRM Procedure

TABELLA SFORZI DI TAGLIO DISTRIBUITI LUNGO SUPERFICIE INDIVIDUATA CON MINOR FS

X	dx	dl	alpha	TauStress	TauF	TauStrength	TauS
(m)	(m)	(m)	(°)	(kPa)	(kN/m)	(kPa)	(kN/m)
1.351	0.681	0.707	-15.474	-0.743	-0.525	13.384	9.457

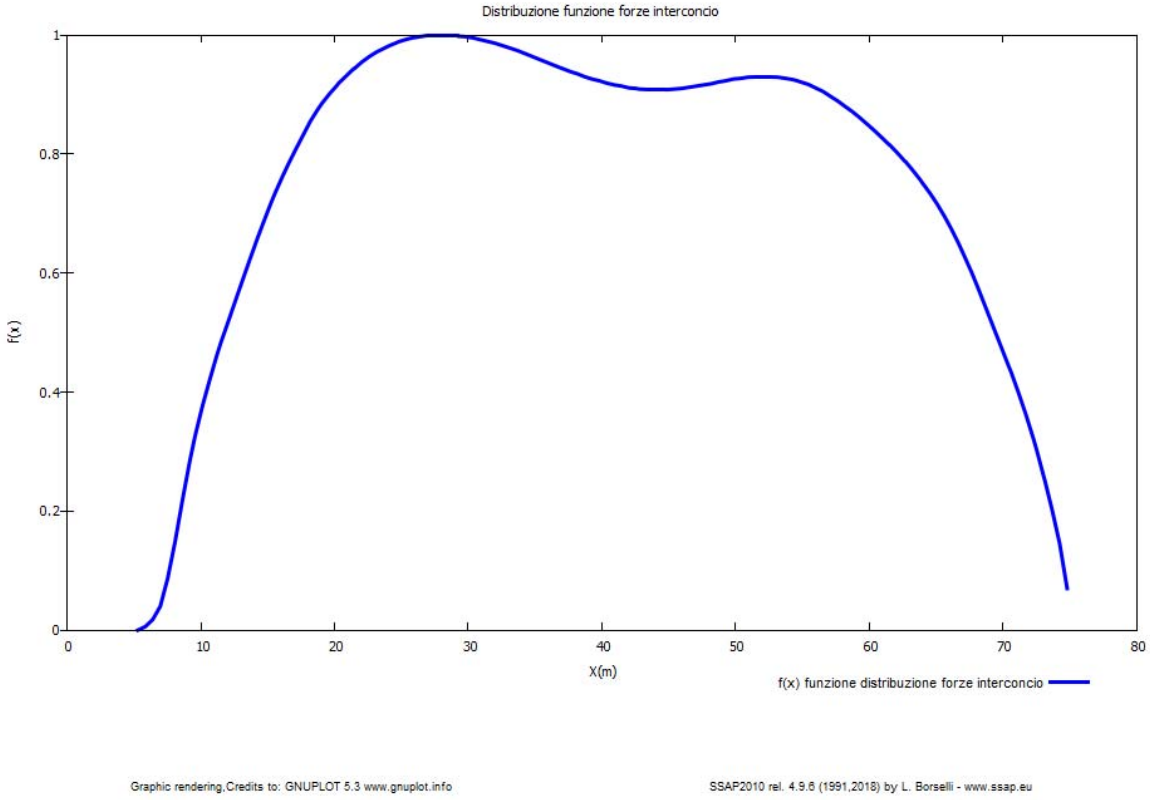
2.032	0.681	0.707	-15.474	-2.230	-1.576	16.316	11.529
2.712	0.681	0.707	-15.474	-3.717	-2.626	19.944	14.092
3.393	0.681	0.707	-15.474	-5.204	-3.677	25.179	17.791
4.074	0.681	0.707	-15.474	-6.691	-4.727	29.259	20.674
4.755	0.681	0.707	-15.474	-8.177	-5.778	32.962	23.290
5.436	0.681	0.707	-15.474	-9.664	-6.828	37.997	26.848
6.117	0.681	0.707	-15.474	-11.151	-7.879	42.827	30.261
6.798	0.681	0.707	-15.474	-12.638	-8.929	46.371	32.765
7.479	0.681	0.707	-15.474	-14.124	-9.980	51.373	36.299
8.160	0.681	0.707	-15.474	-15.611	-11.031	54.609	38.585
8.841	0.681	0.707	-15.474	-17.098	-12.081	58.008	40.987
9.522	0.166	0.172	-15.474	-18.023	-3.105	59.949	10.330
9.688	0.681	0.702	-14.118	-17.300	-12.148	62.134	43.629
10.369	0.681	0.702	-14.118	-18.585	-13.050	63.512	44.596
11.050	0.250	0.258	-14.118	-19.463	-5.015	65.718	16.933
11.300	0.681	0.702	-14.118	-20.661	-14.508	68.916	48.391
11.981	0.681	0.702	-14.118	-22.586	-15.859	73.436	51.565
12.662	0.681	0.702	-14.118	-24.511	-17.211	77.353	54.316
13.343	0.228	0.235	-14.118	-25.796	-6.071	80.059	18.840
13.571	0.681	0.694	-11.044	-21.092	-14.634	82.217	57.043
14.252	0.681	0.694	-11.044	-22.464	-15.586	85.764	59.505
14.933	0.681	0.694	-11.044	-23.836	-16.538	89.502	62.098
15.614	0.536	0.546	-11.044	-25.062	-13.679	92.924	50.718
16.150	0.681	0.686	-7.098	-16.340	-11.213	94.551	64.883
16.831	0.681	0.686	-7.098	-17.092	-11.729	97.260	66.742
17.512	0.681	0.686	-7.098	-17.844	-12.245	100.191	68.753
18.193	0.072	0.072	-7.098	-18.260	-1.318	102.057	7.366
18.264	0.681	0.681	-2.149	-4.019	-2.739	100.540	68.512
18.945	0.681	0.681	-2.149	-4.154	-2.831	102.788	70.044
19.626	0.681	0.681	-2.149	-4.289	-2.923	104.769	71.395
20.307	0.075	0.075	-2.149	-4.364	-0.329	105.675	7.960
20.382	0.681	0.681	1.782	8.491	5.785	105.197	71.670
21.063	0.681	0.681	1.782	8.709	5.933	107.186	73.025
21.744	0.538	0.538	1.782	8.903	4.791	108.915	58.611
22.282	0.681	0.684	5.735	22.820	15.618	107.627	73.659
22.963	0.681	0.684	5.735	23.261	15.920	109.178	74.721
23.644	0.456	0.458	5.735	23.629	10.826	110.405	50.585
24.100	0.258	0.259	5.735	23.825	6.176	111.138	28.809
24.358	0.681	0.689	9.004	35.576	24.528	108.980	75.138
25.039	0.681	0.689	9.004	35.822	24.698	109.504	75.499
25.720	0.681	0.689	9.004	36.068	24.867	110.023	75.857
26.401	0.203	0.206	9.004	36.227	7.454	110.329	22.699
26.604	0.681	0.695	11.407	44.782	31.109	108.566	75.419
27.285	0.681	0.695	11.407	44.964	31.236	108.849	75.616
27.966	0.681	0.695	11.407	45.147	31.363	109.166	75.837
28.647	0.681	0.695	11.407	45.329	31.490	109.470	76.047
29.328	0.008	0.008	11.407	45.422	0.373	109.596	0.901
29.336	0.681	0.697	12.471	49.188	34.305	108.869	75.928
30.017	0.681	0.697	12.471	49.327	34.402	109.099	76.088
30.698	0.681	0.697	12.471	49.467	34.499	109.328	76.248
31.379	0.378	0.387	12.471	49.575	19.186	109.527	42.389
31.757	0.681	0.701	13.727	53.973	37.835	108.681	76.184
32.438	0.681	0.701	13.727	54.049	37.888	108.811	76.275
33.119	0.681	0.701	13.727	54.125	37.941	108.942	76.367
33.800	0.228	0.235	13.727	54.175	12.719	109.031	25.597
34.028	0.681	0.705	15.072	58.720	41.411	107.950	76.129
34.709	0.681	0.705	15.072	58.713	41.406	107.935	76.118
35.390	0.681	0.705	15.072	58.706	41.401	107.917	76.106
36.071	0.126	0.131	15.072	58.702	7.671	107.903	14.101
36.197	0.681	0.710	16.442	63.140	44.829	106.574	75.667
36.878	0.681	0.710	16.442	63.034	44.754	106.401	75.544
37.559	0.681	0.710	16.442	62.929	44.679	106.219	75.415
38.240	0.159	0.166	16.442	62.863	10.415	106.090	17.577
38.399	0.681	0.715	17.726	66.806	47.760	104.624	74.796
39.080	0.681	0.715	17.726	66.594	47.608	104.302	74.566
39.760	0.681	0.715	17.726	66.381	47.456	103.980	74.336
40.441	0.089	0.094	17.726	66.261	6.214	103.786	9.732
40.531	0.681	0.720	18.998	69.935	50.367	102.174	73.585
41.212	0.681	0.720	18.998	69.605	50.129	101.736	73.269
41.893	0.681	0.720	18.998	69.274	49.891	101.297	72.954
42.574	0.146	0.154	18.998	69.073	10.635	101.017	15.554

42.719	0.081	0.086	20.178	72.413	6.229	99.555	8.564
42.800	0.681	0.725	20.178	72.513	52.608	99.799	72.403
43.481	0.681	0.725	20.178	72.767	52.792	100.252	72.732
44.162	0.681	0.725	20.178	73.020	52.976	100.694	73.053
44.843	0.124	0.132	20.178	73.170	9.656	100.964	13.324
44.967	0.681	0.731	21.228	76.232	55.690	100.101	73.127
45.648	0.681	0.731	21.228	76.397	55.811	100.620	73.507
46.329	0.681	0.731	21.228	76.563	55.932	101.038	73.812
47.010	0.370	0.397	21.228	76.691	30.426	101.369	40.216
47.379	0.681	0.733	21.706	78.120	57.257	101.276	74.229
48.060	0.681	0.733	21.706	78.242	57.347	101.672	74.519
48.741	0.681	0.733	21.706	78.365	57.437	102.073	74.813
49.422	0.266	0.286	21.706	78.450	22.424	102.283	29.236
49.688	0.681	0.736	22.213	79.897	58.768	102.345	75.280
50.369	0.681	0.736	22.213	79.972	58.823	102.703	75.543
51.050	0.681	0.736	22.213	80.046	58.878	102.980	75.747
51.731	0.210	0.227	22.213	80.095	18.203	103.009	23.411
51.941	0.681	0.738	22.731	81.514	60.183	102.877	75.955
52.622	0.681	0.738	22.731	81.538	60.200	102.957	76.014
53.303	0.681	0.738	22.731	81.562	60.218	102.914	75.982
53.984	0.177	0.192	22.731	81.576	15.649	102.722	19.705
54.161	0.439	0.478	23.251	82.947	39.628	102.408	48.925
54.600	0.681	0.741	23.251	82.536	61.172	101.952	75.562
55.281	0.681	0.741	23.251	81.733	60.577	101.043	74.889
55.962	0.425	0.463	23.251	81.080	37.539	100.126	46.356
56.387	0.681	0.744	23.766	81.697	60.788	98.963	73.635
57.068	0.681	0.744	23.766	80.826	60.140	97.974	72.899
57.749	0.681	0.744	23.766	79.956	59.492	96.939	72.128
58.430	0.176	0.192	23.766	79.408	15.271	95.958	18.454
58.606	0.681	0.747	24.272	80.036	59.786	94.939	70.918
59.287	0.681	0.747	24.272	79.097	59.085	93.907	70.148
59.968	0.681	0.747	24.272	78.158	58.383	92.815	69.332
60.649	0.208	0.228	24.272	77.545	17.658	91.830	20.911
60.857	0.681	0.750	24.759	77.999	58.491	90.722	68.032
61.538	0.681	0.750	24.759	76.992	57.736	89.673	67.245
62.219	0.681	0.750	24.759	75.986	56.982	88.593	66.436
62.900	0.261	0.287	24.759	75.290	21.640	87.591	25.176
63.161	0.681	0.753	25.214	75.524	56.845	86.485	65.095
63.842	0.681	0.753	25.214	74.453	56.039	85.453	64.319
64.523	0.681	0.753	25.214	73.383	55.233	84.370	63.503
65.203	0.362	0.400	25.214	72.563	29.003	83.403	33.335
65.565	0.681	0.760	26.304	73.783	56.047	81.476	61.891
66.246	0.681	0.760	26.304	72.552	55.112	80.298	60.996
66.927	0.681	0.760	26.304	71.321	54.177	79.055	60.052
67.608	0.202	0.226	26.304	70.523	15.927	78.247	17.671
67.810	0.681	0.768	27.483	71.686	55.025	76.300	58.567
68.491	0.681	0.768	27.483	70.273	53.941	75.009	57.576
69.172	0.681	0.768	27.483	68.861	52.857	73.672	56.550
69.853	0.150	0.169	27.483	67.999	11.478	72.761	12.282
70.003	0.681	0.776	28.701	68.908	53.496	70.817	54.979
70.684	0.681	0.776	28.701	67.298	52.246	69.613	54.043
71.365	0.681	0.776	28.701	65.688	50.997	68.237	52.976
72.046	0.098	0.111	28.701	64.768	7.210	67.326	7.495
72.144	0.681	0.785	29.884	65.322	51.303	65.443	51.398
72.825	0.305	0.352	29.884	64.011	22.548	64.429	22.695
73.130	0.681	0.785	29.884	62.642	49.198	63.370	49.771
73.811	0.541	0.624	29.884	60.914	37.983	62.095	38.719
74.352	0.681	0.798	31.393	60.728	48.445	59.479	47.449
75.033	0.681	0.798	31.393	58.531	46.693	57.920	46.205
75.714	0.681	0.798	31.393	56.335	44.940	56.367	44.966
76.394	0.359	0.421	31.393	54.657	22.996	55.013	23.146
76.754	0.681	0.808	32.573	53.913	43.566	52.918	42.761
77.435	0.681	0.808	32.573	51.496	41.612	51.257	41.419
78.116	0.681	0.808	32.573	49.079	39.659	49.578	40.062
78.797	0.681	0.808	32.573	46.662	37.706	47.739	38.576
79.477	0.012	0.014	32.573	45.432	0.648	46.813	0.668
79.490	0.681	0.818	33.620	44.801	36.636	45.289	37.035
80.170	0.681	0.818	33.620	42.182	34.495	43.980	35.965
80.851	0.681	0.818	33.620	39.564	32.353	41.979	34.328
81.532	0.681	0.818	33.620	36.945	30.212	39.964	32.681
82.213	0.681	0.818	33.620	34.326	28.070	37.972	31.052

82.894	0.513	0.616	33.620	32.030	19.741	36.084	22.240
83.408	0.681	0.823	34.155	29.906	24.609	34.277	28.206
84.089	0.681	0.823	34.155	27.182	22.368	32.004	26.336
84.770	0.681	0.823	34.155	24.458	20.126	30.103	24.771
85.450	0.681	0.823	34.155	21.734	17.885	28.142	23.158
86.131	0.681	0.823	34.155	19.010	15.643	25.655	21.111
86.812	0.681	0.823	34.155	16.286	13.401	23.329	19.197
87.493	0.681	0.823	34.155	13.562	11.160	21.027	17.303
88.174	0.681	0.823	34.155	10.838	8.918	19.445	16.001

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
dl(m) : lunghezza base concio
alpha(°) : Angolo pendenza base concio
TauStress(kPa) : Sforzo di taglio su base concio
TauF (kN/m) : Forza di taglio su base concio
TauStrength(kPa) : Resistenza al taglio su base concio
TauS (kN/m) : Forza resistente al taglio su base concio



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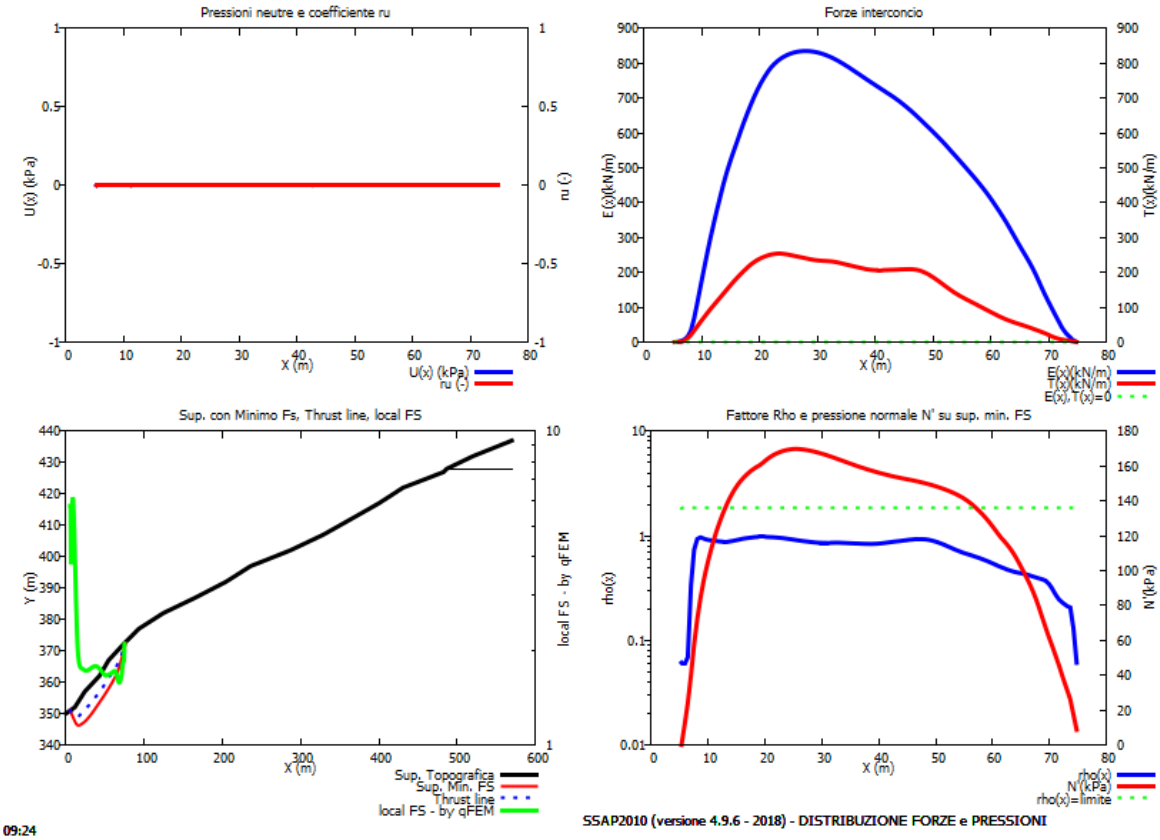
Via Lucana, 337 – 75100 Matera Cell. 3396629531 e-mail: mauriziogiacomino@gmail.com



21/04/20 09:24

SSAP2010 (versione 4.9.6 - 2018) - DISTRIBUZIONE FORZE e PRESSIONI

SSAP 4.9.6 (2018) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 1.5.2 (2018)

Data : 21/4/2020
Localita' : Ferrandina (MT)
Descrizione : Parc Eolico 'Montagnola' - FER A3
(n) = N. strato o lente

Sn --> Sovraccarico

Modello di calcolo : Janbu Rigoroso (1973)

DATI 10 SUP. CON MINOR Fs

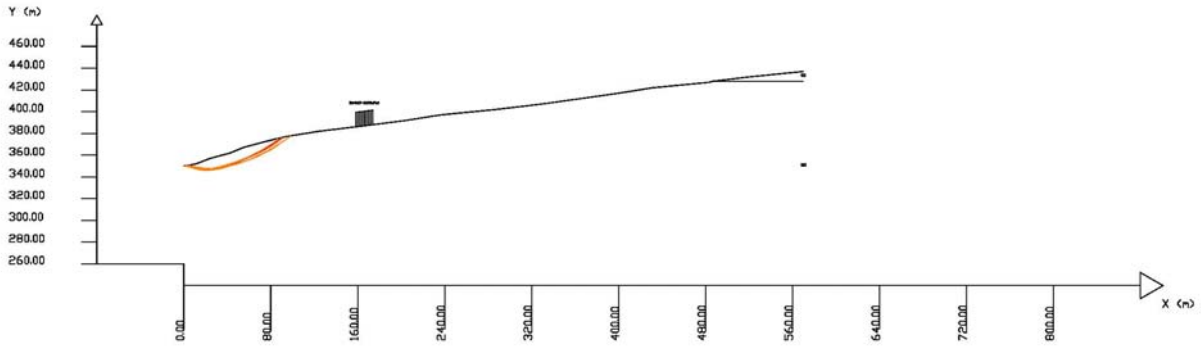
Fs minimo : 1.8396
Range Fs : 1.8396 1.8443
Differenza X Range Fs : 0.25
Coefficiente Sismico orizzontale - Kh= 0.0140

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 5.0
Range X inizio generazione : 0.1 - 513.2
Range X termine generazione : 57.1 - 558.7
Livello Y minimo considerato : 271.7

Parametri Geotecnici degli strati # ----------

N.	phi' deg	C' kPa	Cu kPa	Gamn kN/m3	GammSat kN/m3	sgci MPa	GSI	mi	D
1	27.70	10.20	0	19.70	20.50	0	0	0	0
2	24.90	12.03	0	19.57	19.86	0	0	0	0



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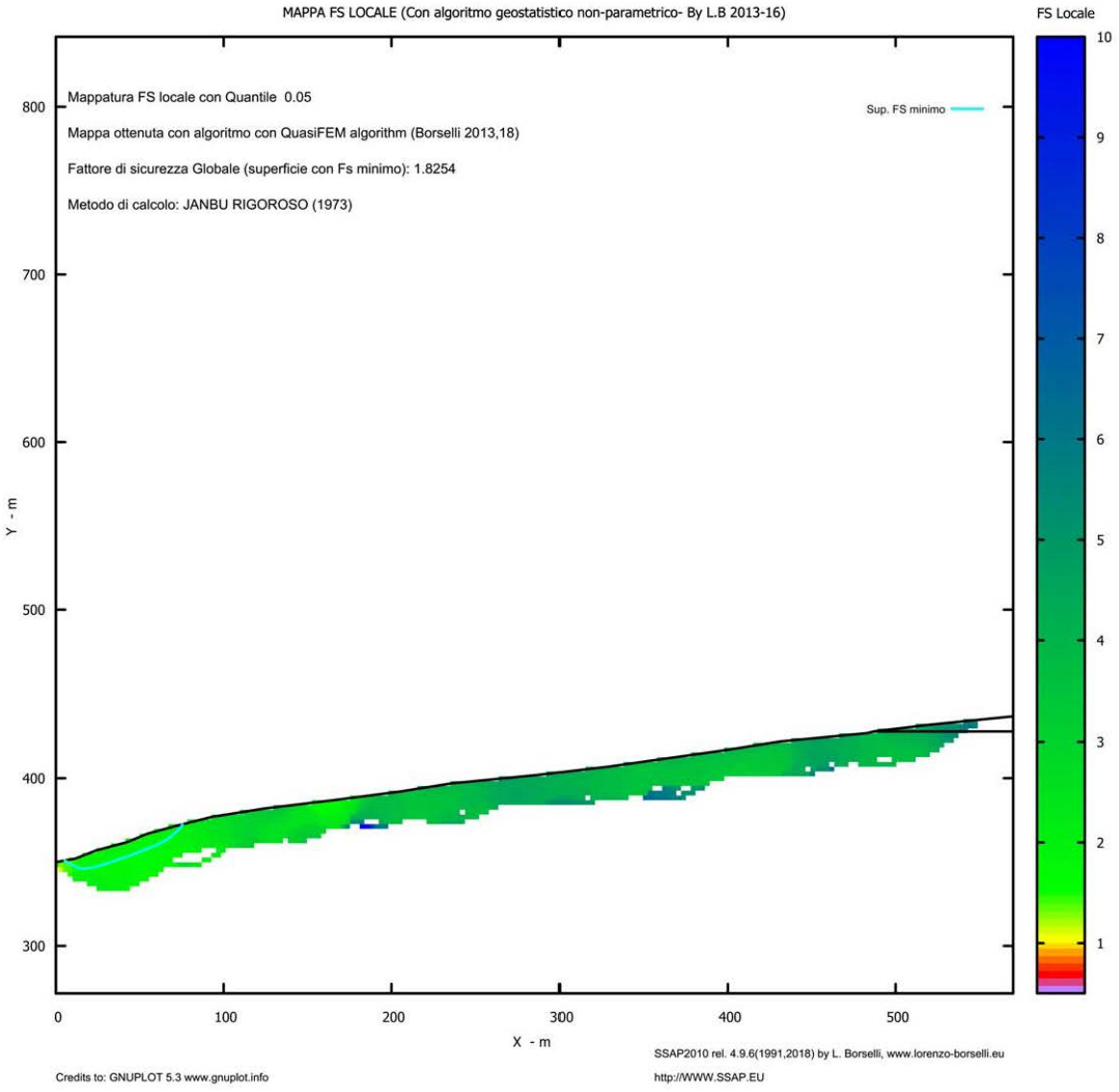

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1.4 VERIFICA DELLA SEZIONE 4-4'

Localita' : Ferrandina (MT)

Descrizione: Parco Eolico "Montagnola" - FER A4

Modello pendio: MODELLO - A4.mod

---------- PARAMETRI DEL MODELLO DEL PENDIO ----------

__ PARAMETRI GEOMETRICI - Coordinate X Y (in m) __

SUP T.		SUP 2		SUP 3		SUP 4	
X	Y	X	Y	X	Y	X	Y
0.00	400.00	340.60	480.00	309.90	465.00	43.80	406.00
40.60	405.00	488.40	480.00	488.40	465.00	488.40	406.00
43.80	406.00	-	-	-	-	-	-
72.50	410.00	-	-	-	-	-	-
103.40	415.00	-	-	-	-	-	-
130.40	420.00	-	-	-	-	-	-
142.90	425.00	-	-	-	-	-	-
165.00	430.00	-	-	-	-	-	-
176.90	435.00	-	-	-	-	-	-
185.70	440.00	-	-	-	-	-	-
204.70	445.00	-	-	-	-	-	-
225.40	450.00	-	-	-	-	-	-
241.30	455.00	-	-	-	-	-	-
286.40	460.00	-	-	-	-	-	-
309.90	465.00	-	-	-	-	-	-
323.10	470.00	-	-	-	-	-	-
331.60	475.00	-	-	-	-	-	-
340.60	480.00	-	-	-	-	-	-
348.40	485.00	-	-	-	-	-	-
354.90	490.00	-	-	-	-	-	-
361.40	495.00	-	-	-	-	-	-
388.20	497.00	-	-	-	-	-	-
428.40	500.00	-	-	-	-	-	-
488.40	505.00	-	-	-	-	-	-

---- SUP FALDA --------

X	Y (in m)
0.00	400.00
40.60	405.00
43.80	406.00
72.50	410.00
75.35	410.46
230.17	423.04
280.37	426.33
432.27	435.00
488.40	435.00

------ GESTIONE ACQUIFERI ------

Strati esclusi da acquifero:

Esclusione sovraccarico pendio sommerso: NON ATTIVATA

Peso unitario fluido (kN/m^3): 9.81

Parametri funzione dissipazione superficiale pressione dei fluidi:

Coefficiente A	0
Coefficiente K	0.000800

Pressione minima fluidi Uo_Min (kPa) 0.01
Coefficiente di soprapressione oltre pressione hidrostatica1.00
Limitazione dissipazionea a Pressione Idrostatica = ATTIVA
STABILITE CONDIZIONI PER LA VERIFICA CON SOVRAPPRESSIONE ACQUIFERI CON DISSIPAZIONE IN DIREZIONE DELLA SUPERFICIE

------- PARAMETRI GEOMECCANICI -------

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.60	7.20	0.00	19.32	20.45	1.778	0.00	0.00	0.00	0.00
STRATO 2	24.60	31.48	0.00	18.93	20.21	2.937	0.00	0.00	0.00	0.00
STRATO 3	27.67	10.20	0.00	19.70	20.45	1.992	0.00	0.00	0.00	0.00
STRATO 4	24.90	12.03	0.00	19.57	19.86	1.825	0.00	0.00	0.00	0.00

LEGENDA: fi`_____ Angolo di attrito interno efficace(in gradi)
C` _____ Coesione efficace (in Kpa)
Cu _____ Resistenza al taglio Non drenata (in Kpa)
Gamm _____ Peso di volume terreno fuori falda (in KN/m^3)
Gamm_sat __ Peso di volume terreno immerso (in KN/m^3)
STR_IDX ___ Indice di resistenza (usato in solo in 'SNIFF SEARCH) (adimensionale)
---- SOLO Per AMMASSI ROCCIOSI FRATTURATI - Parametri Criterio di Rottura di Hoek (2002)-
sigci _____ Resistenza Compressione Uniassiale Roccia Intatta (in MPa)
GSI _____ Geological Strenght Index ammasso(adimensionale)
mi _____ Indice litologico ammasso(adimensionale)
D _____ Fattore di disturbo ammasso(adimensionale)
Fattore di riduzione NTC2018 gammaPHI=1.25 e gammaC=1.25 - DISATTIVATO (solo per ROCCE)
Uso CRITERIO DI ROTTURA Hoek et al.(2002,2006) - non-lineare - Generalizzato secondo Lei et al.(2016)

----- SOVRACCARICHI PRESENTI -----
SOVRACCARICO N.1
Carico in X1 (Kpa): 147.10
Carico in X2 (Kpa): 147.10
Posizione carico da X1 m.: 380.00
a X2 m.: 396.00
Inclinazione carico (gradi): 90.00
Componenti distribuzione forza unitaria applicata:
#Orizzontale (per metro di proiezione Verticale) (kN/m): da 0.00 a 0.00
#Verticale (per metro di proiezione Orizzontale) (kN/m): da 147.10 a 147.10
##Nota: la distribuzione del carico e delle forze unitarie puo' variare
in modo lineare tra gli estremi di coordinate X1 e X2

---------- INFORMAZIONI GENERAZIONE SUPERFICI RANDOM ----------
*** PARAMETRI PER LA GENERAZIONE DELLE SUPERFICI
METODO DI RICERCA: CONVEX RANDOM - Chen (1992)
FILTRAGGIO SUPERFICI : ATTIVATO
COORDINATE X1,X2,Y OSTACOLO : 0.00 0.00 0.00
LUNGHEZZA MEDIA SEGMENTI (m): 5.0 (+/-) 50%
INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 2.00 340.00
LIVELLO MINIMO CONSIDERATO (Ymin): 305.50
INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 363.00 478.63

*** TOTALE SUPERFICI GENERATE : 10000
---------- INFORMAZIONI PARAMETRI DI CALCOLO ----------
METODO DI CALCOLO : JANBU RIGOROSO (Janbu, 1973)
COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0110
COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0055
COEFFICIENTE c=Kv/Kh UTILIZZATO : 0.5000
FORZA ORIZZONTALE ADDIZIONALE IN TESTA (kN/m): 0.00
FORZA ORIZZONTALE ADDIZIONALE ALLA BASE (kN/m): 0.00

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N.B. Le forze orizzontali addizionali in testa e alla base sono poste uguali a 0
durante le tutte le verifiche globali.
I valori >0 impostati dall'utente sono utilizzati solo in caso di verifica singola

---------- RISULTATO FINALE ELABORAZIONI ----------
* DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *

Fattore di sicurezza (FS)	**1.1260 - Min. -**	**X**	**Y**	**Lambda= 1.0000**
	339.93	479.63		
	342.02	480.26		
	343.11	480.59		
	343.89	480.83		
	344.59	481.04		
	345.21	481.23		
	345.84	481.42		
	346.48	481.61		
	347.13	481.81		
	347.79	482.01		
	348.40	482.21		
	349.00	482.42		
	349.58	482.65		
	350.18	482.91		
	350.77	483.17		
	351.38	483.47		
	352.02	483.79		
	352.71	484.17		
	353.35	484.52		
	353.96	484.89		
	354.55	485.26		
	355.16	485.67		
	355.76	486.08		
	356.37	486.53		
	357.01	487.02		
	357.71	487.57		
	358.34	488.09		
	358.95	488.63		
	359.53	489.18		
	360.14	489.79		
	360.79	490.49		
	361.54	491.33		
	362.63	492.61		
	363.97	494.24		
	363.97	495.19		

Fattore di sicurezza (FS)	**1.1261 - N.2 --**	**X**	**Y**	**Lambda= 1.0000**
	339.92	479.62		
	342.06	480.22		
	343.17	480.53		
	343.96	480.75		
	344.68	480.95		
	345.31	481.12		
	345.95	481.30		
	346.60	481.48		
	347.26	481.67		
	347.95	481.86		
	348.57	482.05		
	349.17	482.26		
	349.75	482.48		
	350.37	482.74		

350.95 483.02
351.57 483.32
352.21 483.67
352.93 484.08
353.59 484.48
354.21 484.87
354.82 485.27
355.44 485.71
356.04 486.15
356.67 486.63
357.31 487.14
358.01 487.72
358.66 488.28
359.28 488.84
359.89 489.41
360.51 490.02
361.19 490.72
361.96 491.55
363.06 492.78
364.42 494.33
364.42 495.23

Fattore di sicurezza (FS) 1.1272 - N.3 -- X Y Lambda= 1.0000
339.92 479.62
342.03 480.28
343.13 480.63
343.92 480.87
344.62 481.10
345.25 481.29
345.88 481.49
346.52 481.69
347.17 481.90
347.83 482.10
348.45 482.31
349.05 482.53
349.65 482.76
350.26 483.02
350.86 483.28
351.48 483.57
352.11 483.88
352.81 484.24
353.45 484.58
354.06 484.93
354.66 485.29
355.28 485.68
355.88 486.07
356.51 486.50
357.16 486.96
357.88 487.48
358.51 487.98
359.11 488.49
359.68 489.02
360.29 489.62
360.94 490.32
361.69 491.18
362.78 492.51
364.13 494.18
364.13 495.20

Fattore di sicurezza (FS)	**1.1273**	**- N.4 --**	**X**	**Y**	**Lambda=**	**1.0000**
	339.93	479.63				
	342.07	480.16				
	343.17	480.44				
	343.94	480.65				
	344.63	480.84				
	345.25	481.03				
	345.87	481.22				
	346.50	481.42				
	347.14	481.63				
	347.82	481.86				
	348.45	482.09				
	349.06	482.33				
	349.65	482.58				
	350.26	482.86				
	350.86	483.14				
	351.47	483.46				
	352.11	483.80				
	352.80	484.19				
	353.44	484.57				
	354.06	484.95				
	354.66	485.34				
	355.28	485.76				
	355.88	486.18				
	356.50	486.64				
	357.15	487.13				
	357.85	487.68				
	358.48	488.20				
	359.09	488.73				
	359.68	489.28				
	360.29	489.88				
	360.95	490.58				
	361.71	491.41				
	362.80	492.67				
	364.15	494.27				
	364.15	495.21				

Fattore di sicurezza (FS)	**1.1274**	**- N.5 --**	**X**	**Y**	**Lambda=**	**1.0000**
	339.91	479.61				
	342.02	480.20				
	343.12	480.50				
	343.90	480.72				
	344.60	480.91				
	345.23	481.09				
	345.86	481.27				
	346.49	481.46				
	347.14	481.65				
	347.81	481.84				
	348.43	482.04				
	349.03	482.25				
	349.62	482.48				
	350.23	482.73				
	350.82	482.99				
	351.43	483.29				
	352.07	483.61				
	352.78	483.99				
	353.42	484.35				
	354.03	484.71				
	354.62	485.09				

355.24 485.50
355.83 485.92
356.44 486.38
357.09 486.88
357.79 487.46
358.43 488.00
359.04 488.56
359.63 489.12
360.24 489.74
360.90 490.45
361.66 491.31
362.75 492.61
364.10 494.24
364.10 495.20

Fattore di sicurezza (FS) 1.1274 - N.6 -- X Y Lambda= 1.0000
339.91 479.61
342.08 480.20
343.20 480.51
343.99 480.73
344.70 480.94
345.34 481.13
345.97 481.32
346.61 481.52
347.27 481.73
347.95 481.95
348.59 482.17
349.21 482.41
349.82 482.65
350.44 482.91
351.06 483.18
351.69 483.48
352.34 483.81
353.05 484.17
353.70 484.53
354.32 484.89
354.93 485.26
355.55 485.66
356.16 486.08
356.79 486.53
357.45 487.02
358.17 487.58
358.82 488.11
359.44 488.65
360.04 489.20
360.67 489.81
361.34 490.51
362.11 491.37
363.22 492.65
364.59 494.26
364.59 495.24

Fattore di sicurezza (FS) 1.1275 - N.7 -- X Y Lambda= 1.0000
339.92 479.62
342.09 480.26
343.21 480.59
344.01 480.83
344.72 481.05
345.36 481.25

345.99 481.46
346.64 481.67
347.30 481.88
347.99 482.11
348.62 482.34
349.24 482.58
349.84 482.84
350.47 483.12
351.08 483.41
351.70 483.72
352.35 484.07
353.05 484.46
353.71 484.84
354.34 485.23
354.96 485.61
355.59 486.02
356.21 486.44
356.85 486.89
357.51 487.36
358.22 487.89
358.86 488.40
359.48 488.91
360.08 489.44
360.71 490.03
361.38 490.70
362.15 491.52
363.27 492.76
364.64 494.31
364.64 495.24

Fattore di sicurezza (FS) 1.1276 - N.8 -- X Y Lambda= 1.0000

339.90 479.61
342.03 480.21
343.14 480.53
343.93 480.75
344.64 480.95
345.27 481.13
345.92 481.31
346.56 481.49
347.22 481.68
347.89 481.87
348.51 482.06
349.12 482.27
349.71 482.48
350.32 482.73
350.92 482.99
351.54 483.28
352.19 483.60
352.91 483.98
353.55 484.33
354.17 484.70
354.76 485.07
355.38 485.48
355.98 485.90
356.60 486.37
357.25 486.87
357.96 487.45
358.60 488.00
359.22 488.56

359.82 489.13
360.44 489.76
361.11 490.47
361.87 491.33
362.98 492.63
364.33 494.25
364.33 495.22

Fattore di sicurezza (FS) 1.1277 - N.9 -- X Y Lambda= 1.0000
339.92 479.62
342.09 480.39
343.22 480.80
344.03 481.08
344.75 481.34
345.40 481.57
346.05 481.81
346.70 482.04
347.36 482.27
348.02 482.51
348.66 482.75
349.29 482.99
349.92 483.24
350.56 483.51
351.19 483.79
351.83 484.08
352.50 484.39
353.21 484.73
353.86 485.06
354.48 485.41
355.08 485.77
355.71 486.16
356.32 486.57
356.94 487.02
357.60 487.51
358.32 488.07
358.98 488.61
359.62 489.15
360.24 489.70
360.87 490.29
361.57 490.96
362.35 491.75
363.48 492.93
364.85 494.39
364.85 495.26

Fattore di sicurezza (FS) 1.1281 - N.10 -- X Y Lambda= 1.0000
339.91 479.62
342.03 480.18
343.14 480.48
343.93 480.69
344.64 480.88
345.27 481.05
345.91 481.22
346.55 481.40
347.21 481.58
347.89 481.76
348.51 481.94
349.11 482.14
349.69 482.36

350.30	482.61
350.89	482.87
351.51	483.16
352.15	483.50
352.87	483.89
353.52	484.27
354.14	484.65
354.74	485.03
355.35	485.46
355.95	485.90
356.57	486.37
357.21	486.89
357.92	487.49
358.56	488.05
359.18	488.62
359.78	489.20
360.40	489.83
361.07	490.54
361.84	491.40
362.94	492.68
364.29	494.28
364.29	495.22

---------- ANALISI DEFICIT DI RESISTENZA ----------
DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Analisi Deficit in riferimento a FS(progetto) = 1.100

Sup N.	FS	FTR(kN/m)	FTA(kN/m)	Bilancio(kN/m)	ESITO
1	1.126	848.7	753.8	19.6	Surplus
2	1.126	897.0	796.5	20.8	Surplus
3	1.127	863.5	766.1	20.9	Surplus
4	1.127	876.7	777.7	21.2	Surplus
5	1.127	891.7	791.0	21.6	Surplus
6	1.127	918.4	814.6	22.3	Surplus
7	1.127	874.4	775.6	21.3	Surplus
8	1.128	912.5	809.3	22.3	Surplus
9	1.128	826.5	732.9	20.3	Surplus
10	1.128	918.2	814.0	22.8	Surplus

Esito analisi: SURPLUS di RESISTENZA!
Valore minimo di SURPLUS di RESISTENZA (kN/m): 19.6

Note: FTR --> Forza totale Resistente rispetto alla superficie
di scivolamento (componente Orizzontale)
FTA --> Forza totale Agente rispetto alla superficie
di scivolamento (componente Orizzontale)
IMPORTANTE! : Il Deficit o il Surplus di resistenza viene espresso in kN
per metro di LARGHEZZA rispetto al fronte della scarpata

TABELLA PARAMETRI CONCI DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	dx (m)	alpha (°)	W (kN/m)	ru (-)	U (kPa)	phi' (°)	(c',Cu) (kPa)
339.926	0.269	16.87	0.17	0.00	0.00	24.60	31.48
340.195	0.269	16.87	0.52	0.00	0.00	24.60	31.48
340.463	0.137	16.87	0.40	0.00	0.00	24.60	31.48
340.600	0.269	16.87	1.10	0.00	0.00	24.60	31.48
340.869	0.269	16.87	1.59	0.00	0.00	24.60	31.48
341.137	0.024	16.87	0.16	0.00	0.00	24.60	31.48
341.161	0.269	16.87	2.12	0.00	0.00	26.60	7.20
341.430	0.269	16.87	2.59	0.00	0.00	26.60	7.20

341.699	0.269	16.87	3.06	0.00	0.00	26.60	7.20
341.968	0.053	16.87	0.67	0.00	0.00	26.60	7.20
342.021	0.269	16.87	3.63	0.00	0.00	26.60	7.20
342.290	0.269	16.87	4.11	0.00	0.00	26.60	7.20
342.558	0.269	16.87	4.58	0.00	0.00	26.60	7.20
342.827	0.269	16.87	5.05	0.00	0.00	26.60	7.20
343.096	0.017	16.87	0.33	0.00	0.00	26.60	7.20
343.112	0.269	16.87	5.56	0.00	0.00	26.60	7.20
343.381	0.269	16.87	6.03	0.00	0.00	26.60	7.20
343.650	0.241	16.87	5.80	0.00	0.00	26.60	7.20
343.891	0.269	16.87	6.93	0.00	0.00	26.60	7.20
344.159	0.269	16.87	7.40	0.00	0.00	26.60	7.20
344.428	0.165	16.87	4.79	0.00	0.00	26.60	7.20
344.593	0.269	16.87	8.17	0.00	0.00	26.60	7.20
344.862	0.269	16.87	8.64	0.00	0.00	26.60	7.20
345.131	0.083	16.87	2.77	0.00	0.00	26.60	7.20
345.214	0.269	16.87	9.26	0.00	0.00	26.60	7.20
345.483	0.269	16.87	9.74	0.00	0.00	26.60	7.20
345.752	0.093	16.87	3.48	0.00	0.00	26.60	7.20
345.845	0.269	16.87	10.38	0.00	0.00	26.60	7.20
346.113	0.269	16.87	10.85	0.00	0.00	26.60	7.20
346.382	0.097	16.87	4.01	0.00	0.00	26.60	7.20
346.479	0.269	16.87	11.49	0.00	0.00	26.60	7.20
346.747	0.269	16.87	11.97	0.00	0.00	26.60	7.20
347.016	0.110	16.87	5.02	0.00	0.00	26.60	7.20
347.126	0.269	16.87	12.63	0.00	0.00	26.60	7.20
347.394	0.269	16.87	13.11	0.00	0.00	26.60	7.20
347.663	0.123	16.87	6.15	0.00	0.00	26.60	7.20
347.786	0.269	18.23	13.78	0.00	0.00	26.60	7.20
348.055	0.269	18.23	14.22	0.00	0.00	26.60	7.20
348.323	0.074	18.23	3.98	0.00	0.00	26.60	7.20
348.397	0.003	19.72	0.14	0.00	0.00	26.60	7.20
348.400	0.269	19.72	14.85	0.00	0.00	26.60	7.20
348.669	0.269	19.72	15.42	0.00	0.00	26.60	7.20
348.937	0.058	19.72	3.39	0.00	0.00	26.60	7.20
348.995	0.269	21.29	16.10	0.00	0.00	26.60	7.20
349.264	0.269	21.29	16.64	0.00	0.00	26.60	7.20
349.533	0.044	21.29	2.78	0.00	0.00	26.60	7.20
349.577	0.269	22.79	17.23	0.00	0.00	26.60	7.20
349.846	0.269	22.79	17.72	0.00	0.00	26.60	7.20
350.114	0.070	22.79	4.71	0.00	0.00	26.60	7.20
350.185	0.269	24.31	18.32	0.00	0.00	26.60	7.20
350.453	0.269	24.31	18.76	0.00	0.00	26.60	7.20
350.722	0.050	24.31	3.57	0.00	0.00	26.60	7.20
350.772	0.269	25.77	19.27	0.00	0.00	26.60	7.20
351.041	0.269	25.77	19.67	0.00	0.00	26.60	7.20
351.310	0.072	25.77	5.32	0.00	0.00	26.60	7.20
351.382	0.269	27.11	20.16	0.00	0.00	26.60	7.20
351.650	0.269	27.11	20.52	0.00	0.00	26.60	7.20
351.919	0.097	27.11	7.50	0.00	0.00	26.60	7.20
352.016	0.269	28.24	21.00	0.00	0.00	26.60	7.20
352.285	0.269	28.24	21.32	0.00	0.00	26.60	7.20
352.554	0.160	28.24	12.84	0.00	0.00	26.60	7.20
352.714	0.269	29.45	21.82	0.00	0.00	26.60	7.20
352.982	0.269	29.45	22.11	0.00	0.00	26.60	7.20
353.251	0.098	29.45	8.16	0.00	0.00	26.60	7.20
353.349	0.269	30.79	22.48	0.00	0.00	26.60	7.20
353.618	0.269	30.79	22.72	0.00	0.00	26.60	7.20
353.887	0.075	30.79	6.37	0.00	0.00	26.60	7.20

353.962	0.269	32.18	23.01	0.00	0.00	26.60	7.20
354.230	0.269	32.18	23.21	0.00	0.00	26.60	7.20
354.499	0.055	32.18	4.73	0.00	0.00	26.60	7.20
354.554	0.269	33.54	23.42	0.00	0.00	26.60	7.20
354.822	0.078	33.54	6.78	0.00	0.00	26.60	7.20
354.900	0.263	33.54	23.12	0.00	0.00	26.60	7.20
355.163	0.269	34.87	23.73	0.00	0.00	26.60	7.20
355.432	0.269	34.87	23.84	0.00	0.00	26.60	7.20
355.701	0.057	34.87	5.04	0.00	0.00	26.60	7.20
355.757	0.269	36.14	23.94	0.00	0.00	26.60	7.20
356.026	0.269	36.14	23.99	0.00	0.00	26.60	7.20
356.295	0.077	36.14	6.87	0.00	0.00	26.60	7.20
356.372	0.269	37.29	24.04	0.00	0.00	26.60	7.20
356.640	0.269	37.29	24.05	0.00	0.00	26.60	7.20
356.909	0.103	37.29	9.24	0.00	0.00	26.60	7.20
357.012	0.269	38.27	24.05	0.00	0.00	26.60	7.20
357.281	0.269	38.27	24.02	0.00	0.00	26.60	7.20
357.550	0.164	38.27	14.63	0.00	0.00	26.60	7.20
357.714	0.269	39.81	23.94	0.00	0.00	26.60	7.20
357.982	0.269	39.81	23.85	0.00	0.00	26.60	7.20
358.251	0.092	39.81	8.17	0.00	0.00	26.60	7.20
358.343	0.269	41.53	23.69	0.00	0.00	26.60	7.20
358.612	0.269	41.53	23.53	0.00	0.00	26.60	7.20
358.881	0.068	41.53	5.95	0.00	0.00	26.60	7.20
358.949	0.269	43.29	23.29	0.00	0.00	26.60	7.20
359.218	0.269	43.29	23.04	0.00	0.00	26.60	7.20
359.487	0.045	43.29	3.83	0.00	0.00	26.60	7.20
359.532	0.269	44.94	22.72	0.00	0.00	26.60	7.20
359.800	0.269	44.94	22.40	0.00	0.00	26.60	7.20
360.069	0.070	44.94	5.79	0.00	0.00	26.60	7.20
360.139	0.269	46.95	21.95	0.00	0.00	26.60	7.20
360.408	0.269	46.95	21.52	0.00	0.00	26.60	7.20
360.677	0.116	46.95	9.15	0.00	0.00	26.60	7.20
360.793	0.269	48.47	20.88	0.00	0.00	26.60	7.20
361.061	0.269	48.47	20.37	0.00	0.00	26.60	7.20
361.330	0.070	48.47	5.22	0.00	0.00	26.60	7.20
361.400	0.144	48.47	10.50	0.00	0.00	26.60	7.20
361.544	0.269	49.74	18.42	0.00	0.00	26.60	7.20
361.813	0.269	49.74	16.87	0.00	0.00	26.60	7.20
362.081	0.269	49.74	15.32	0.00	0.00	26.60	7.20
362.350	0.269	49.74	13.76	0.00	0.00	26.60	7.20
362.619	0.010	49.74	0.48	0.00	0.00	26.60	7.20
362.629	0.269	50.36	12.14	0.00	0.00	26.60	7.20
362.898	0.269	50.36	10.55	0.00	0.00	26.60	7.20
363.166	0.269	50.36	8.96	0.00	0.00	26.60	7.20
363.435	0.269	50.36	7.37	0.00	0.00	26.60	7.20
363.704	0.269	50.36	5.78	0.00	0.00	26.60	7.20

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
alpha(°) : Angolo pendenza base concio
W(kN/m) : Forza peso concio
ru(-) : Coefficiente locale pressione interstiziale
U(kPa) : Pressione totale dei pori base concio
phi'(°) : Angolo di attrito efficace base concio
c'/Cu (kPa) : Coesione efficace o Resistenza al taglio in condizioni non drenate

TABELLA DIAGRAMMA DELLE FORZE DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

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X	ht	yt	yt'	E(x)	T(x)	E'	rho(x)	FS_FEM	FS_p-qFEM		
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)	(kN)	(--)	(--)	(--)		
339.926	0.000	479.625	0.386	0.0000000000E+000	0.0000000000E+000	6.8482160482E+001	0.819	3.292	2.549		
340.195	0.017	479.724	0.386	1.5086877196E+001	6.5762612879E+000	4.3795456050E+001	0.819	3.292	2.549		
340.463	0.045	479.833	0.401	2.3539390578E+001	1.0709703868E+001	2.9723467935E+001	0.801	2.071	1.571		
340.600	0.057	479.887	0.384	2.7482681365E+001	1.1995518685E+001	2.7428312167E+001	0.753	1.988	1.499		
340.869	0.077	479.989	0.381	3.4105886363E+001	1.4004794425E+001	2.0828111136E+001	0.765	1.739	1.425		
341.137	0.098	480.091	0.382	3.8677473868E+001	1.5654632446E+001	1.4102459077E+001	0.800	1.440	1.357		
341.161	0.100	480.100	0.364	3.9007061872E+001	1.5791580681E+001	1.3637561652E+001	0.804	1.411	0.631		
341.430	0.116	480.198	0.385	4.2043302770E+001	1.7222379347E+001	1.1157086267E+001	0.798	1.127	0.643		
341.699	0.144	480.307	0.398	4.5003825807E+001	1.8781423666E+001	1.0474959497E+001	0.800	0.886	0.652		
341.968	0.167	480.411	0.387	4.7673433955E+001	2.0326248836E+001	9.1340293944E+000	0.805	0.715	0.660		
342.021	0.171	480.432	0.398	4.8152686651E+001	2.0624293240E+001	9.0215852051E+000	0.806	0.685	0.661		
342.290	0.198	480.540	0.397	5.0639991454E+001	2.2235698907E+001	9.3071019725E+000	0.816	0.598	0.669		
342.558	0.222	480.645	0.403	5.3155112205E+001	2.3917147853E+001	9.6819743158E+000	0.826	0.590	0.677		
342.827	0.251	480.756	0.409	5.5843905182E+001	2.5620844254E+001	1.0160149702E+001	0.834	0.599	0.685		
343.096	0.279	480.865	0.405	5.8616037920E+001	2.7362089911E+001	9.8381422460E+000	0.841	0.613	0.694		
343.112	0.280	480.872	0.392	5.8778576557E+001	2.7470680040E+001	9.8478113747E+000	0.841	0.614	0.694		
343.381	0.304	480.977	0.418	6.1595449852E+001	2.9256179240E+001	1.0545289122E+001	0.848	0.633	0.704		
343.650	0.342	481.097	0.443	6.4446508845E+001	3.1129229087E+001	1.0738922795E+001	0.857	0.657	0.715		
343.891	0.376	481.203	0.440	6.7059132079E+001	3.2718049049E+001	1.0802545125E+001	0.861	0.680	0.725		
344.159	0.412	481.321	0.439	6.9946381021E+001	3.4525285524E+001	1.0701244744E+001	0.866	0.708	0.739		
344.428	0.448	481.439	0.435	7.2810888138E+001	3.6387430771E+001	1.0680444213E+001	0.872	0.732	0.753		
344.593	0.469	481.509	0.450	7.4578684031E+001	3.7423025948E+001	1.0769155821E+001	0.873	0.744	0.762		
344.862	0.512	481.634	0.437	7.7505788498E+001	3.9245655060E+001	1.1111165775E+001	0.877	0.765	0.779		
345.131	0.541	481.744	0.402	8.0550766401E+001	4.1062667210E+001	1.1321145800E+001	0.879	0.783	0.796		
345.214	0.547	481.776	0.409	8.1493111286E+001	4.1641333228E+001	1.1365096657E+001	0.880	0.788	0.801		
345.483	0.578	481.888	0.411	8.4588025602E+001	4.3614605314E+001	1.1473840582E+001	0.885	0.807	0.820		
345.752	0.605	481.997	0.397	8.7660125841E+001	4.5472609325E+001	1.1246699988E+001	0.888	0.825	0.839		
345.845	0.612	482.032	0.415	8.8699126691E+001	4.6116231599E+001	1.1243548052E+001	0.889	0.831	0.846		
346.113	0.645	482.147	0.429	9.1767929758E+001	4.8161817278E+001	1.1426765185E+001	0.895	0.850	0.867		
346.382	0.680	482.263	0.421	9.4840838937E+001	5.0278848072E+001	1.1265071851E+001	0.902	0.868	0.890		
346.479	0.688	482.300	0.453	9.5922695468E+001	5.1031926939E+001	1.1293222433E+001	0.904	0.873	0.899		
346.747	0.734	482.428	0.486	9.9024225718E+001	5.3238317468E+001	1.1180446683E+001	0.911	0.891	0.923		
347.016	0.786	482.561	0.475	1.0193201527E+002	5.5381104029E+001	1.0495361913E+001	0.919	0.910	0.948		
347.126	0.799	482.608	0.468	1.0306819287E+002	5.6175425142E+001	1.0501107345E+001	0.921	0.917	0.958		
347.394	0.848	482.738	0.480	1.0598131116E+002	5.8344596489E+001	1.0632095531E+001	0.928	0.943	0.984		
347.663	0.894	482.866	0.459	1.0878278228E+002	6.0396129549E+001	1.0365187479E+001	0.933	0.971	1.009		
347.786	0.909	482.918	0.456	1.1005223305E+002	6.1266115485E+001	1.0287479547E+001	0.935	0.982	1.020		
348.055	0.947	483.044	0.459	1.1278711568E+002	6.3261413164E+001	9.8434593227E+000	0.940	1.010	1.045		
348.323	0.979	483.165	0.446	1.1534294251E+002	6.5138778838E+001	9.3863454756E+000	0.944	1.036	1.068		
348.397	0.987	483.197	0.436	1.1603363322E+002	6.5659391903E+001	9.2881031407E+000	0.946	1.042	1.074		
348.400	0.987	483.198	0.469	1.1605839654E+002	6.5679821762E+001	9.2843705624E+000	0.946	1.042	1.074		
348.669	1.017	483.324	0.477	1.1851517020E+002	6.7692330093E+001	8.8457663355E+000	0.950	1.066	1.097		
348.937	1.051	483.455	0.487	1.2081286121E+002	6.9666988561E+001	8.2684610698E+000	0.955	1.089	1.119		
348.995	1.059	483.483	0.521	1.2128747370E+002	7.0084255971E+001	8.1686400165E+000	0.956	1.094	1.124		
349.264	1.095	483.625	0.537	1.2343366083E+002	7.2029804690E+001	7.7078826235E+000	0.961	1.117	1.146		
349.533	1.138	483.772	0.550	1.2543034321E+002	7.3924122840E+001	6.9103731432E+000	0.967	1.140	1.167		
349.577	1.146	483.797	0.588	1.2573176974E+002	7.4207216608E+001	6.8118495585E+000	0.967	1.144	1.171		
349.846	1.192	483.956	0.606	1.2754085995E+002	7.5970835430E+001	6.5104890500E+000	0.972	1.162	1.192		
350.114	1.246	484.123	0.627	1.2923105844E+002	7.7680031074E+001	5.6810304919E+000	0.977	1.178	1.213		
350.185	1.262	484.168	0.605	1.2961837713E+002	7.8101881278E+001	5.4907141210E+000	0.979	1.182	1.218		
350.453	1.300	484.328	0.597	1.3106145537E+002	7.9638341992E+001	5.1419491529E+000	0.983	1.194	1.238		
350.722	1.340	484.489	0.600	1.3238209648E+002	8.1095881603E+001	4.2918901569E+000	0.987	1.205	1.258		
350.772	1.347	484.519	0.599	1.3259253435E+002	8.1344332810E+001	4.1369885457E+000	0.988	1.207	1.262		
351.041	1.379	484.680	0.609	1.3364958403E+002	8.2392357113E+001	3.6668692704E+000	0.989	1.213	1.278		
351.310	1.415	484.847	0.617	1.3456342074E+002	8.3317933881E+001	2.9690882885E+000	0.990	1.218	1.294		
351.382	1.424	484.890	0.620	1.3476814118E+002	8.3540711301E+001	2.7500888786E+000	0.990	1.219	1.298		
351.650	1.454	485.058	0.641	1.3540262695E+002	8.4190410291E+001	2.0817290335E+000	0.989	1.220	1.312		

351.919	1.494	485.235	0.650	1.3588703882E+002	8.4707359833E+001	1.4030762906E+000	0.987	1.220	1.325
352.016	1.504	485.295	0.661	1.3600923278E+002	8.4843098925E+001	1.0115687664E+000	0.986	1.220	1.329
352.285	1.541	485.477	0.693	1.3609714503E+002	8.5050781742E+001	-3.7613089778E-003	0.984	1.218	1.339
352.554	1.588	485.668	0.682	1.3600721113E+002	8.5070802166E+001	-7.2573786971E-001	0.980	1.215	1.348
352.714	1.603	485.769	0.689	1.3585397232E+002	8.4961453490E+001	-1.2423731477E+000	0.977	1.214	1.353
352.982	1.646	485.963	0.732	1.3539182839E+002	8.4659779079E+001	-2.0299488445E+000	0.972	1.210	1.359
353.251	1.694	486.163	0.720	1.3476290573E+002	8.4209699210E+001	-2.7044476151E+000	0.966	1.207	1.364
353.349	1.703	486.228	0.681	1.3448376461E+002	8.3993212081E+001	-3.0232102479E+000	0.963	1.206	1.365
353.618	1.728	486.413	0.673	1.3353513645E+002	8.3195194850E+001	-3.8167668386E+000	0.955	1.202	1.367
353.887	1.745	486.590	0.655	1.3243231057E+002	8.2266766013E+001	-4.3434927907E+000	0.947	1.198	1.369
353.962	1.748	486.637	0.669	1.3210240851E+002	8.1987312991E+001	-4.5634188064E+000	0.944	1.198	1.369
354.230	1.761	486.820	0.674	1.3072814144E+002	8.0862780677E+001	-5.3724274662E+000	0.935	1.194	1.368
354.499	1.772	487.000	0.667	1.2921481058E+002	7.9646383150E+001	-5.8680287054E+000	0.926	1.190	1.367
354.554	1.773	487.035	0.686	1.2889237031E+002	7.9383941349E+001	-6.0227831193E+000	0.924	1.190	1.367
354.822	1.781	487.221	0.693	1.2713238175E+002	7.7969886127E+001	-7.0618090977E+000	0.914	1.185	1.364
354.900	1.784	487.275	0.710	1.2657350206E+002	7.7551028431E+001	-7.2624727063E+000	0.911	1.184	1.364
355.163	1.797	487.463	0.727	1.2461502919E+002	7.6032161890E+001	-7.8419037218E+000	0.901	1.179	1.361
355.432	1.809	487.662	0.744	1.2239770743E+002	7.4240882350E+001	-8.6192191291E+000	0.888	1.174	1.357
355.701	1.823	487.863	0.741	1.1998233018E+002	7.2260248511E+001	-9.1741972540E+000	0.875	1.168	1.352
355.757	1.823	487.903	0.737	1.1945990283E+002	7.1831099789E+001	-9.3325423885E+000	0.872	1.167	1.351
356.026	1.827	488.103	0.754	1.1680028453E+002	6.9616772446E+001	-1.0338843574E+001	0.856	1.161	1.346
356.295	1.836	488.308	0.756	1.1390293188E+002	6.7143233903E+001	-1.0866367409E+001	0.839	1.156	1.340
356.372	1.836	488.364	0.757	1.1306627016E+002	6.6415789762E+001	-1.1076622636E+001	0.833	1.154	1.338
356.640	1.837	488.570	0.754	1.0991474969E+002	6.3691125672E+001	-1.2143383450E+001	0.813	1.148	1.332
356.909	1.832	488.770	0.741	1.0653938651E+002	6.0717957125E+001	-1.2523213329E+001	0.790	1.142	1.325
357.012	1.829	488.846	0.789	1.0524846112E+002	5.9613593023E+001	-1.2754289345E+001	0.782	1.140	1.323
357.281	1.834	489.063	0.807	1.0164928175E+002	5.6383518265E+001	-1.3766729068E+001	0.755	1.134	1.315
357.550	1.839	489.280	0.797	9.7849053924E+001	5.3113839075E+001	-1.3969775694E+001	0.728	1.127	1.309
357.714	1.838	489.408	0.798	9.5577766398E+001	5.1146564435E+001	-1.4475238720E+001	0.711	1.124	1.305
357.982	1.831	489.625	0.808	9.1418842165E+001	4.7627755764E+001	-1.5726032147E+001	0.681	1.117	1.298
358.251	1.824	489.842	0.808	8.7125263643E+001	4.4218664387E+001	-1.6038520051E+001	0.651	1.112	1.292
358.343	1.822	489.916	0.831	8.5643069906E+001	4.3085177887E+001	-1.6025070188E+001	0.641	1.110	1.290
358.612	1.809	490.142	0.839	8.1363631010E+001	3.9635975807E+001	-1.5959713881E+001	0.609	1.105	1.285
358.881	1.797	490.367	0.839	7.7064966778E+001	3.6276403798E+001	-1.6059187908E+001	0.576	1.100	1.281
358.949	1.793	490.425	0.839	7.5967670780E+001	3.5453723013E+001	-1.6323482382E+001	0.568	1.099	1.280
359.218	1.766	490.650	0.825	7.1318340535E+001	3.1816772127E+001	-1.7369200991E+001	0.529	1.096	1.278
359.487	1.730	490.868	0.802	6.6631989797E+001	2.8292836790E+001	-1.7032637524E+001	0.490	1.094	1.277
359.532	1.722	490.902	0.860	6.5869274813E+001	2.7747743910E+001	-1.7039097306E+001	0.484	1.094	1.277
359.800	1.690	491.138	0.889	6.1170810934E+001	2.4491000398E+001	-1.7432758750E+001	0.447	1.093	1.278
360.069	1.663	491.379	0.895	5.6499432503E+001	2.1312387549E+001	-1.7165529093E+001	0.407	1.093	1.279
360.139	1.655	491.441	0.849	5.5299547896E+001	2.0516924952E+001	-1.7145885439E+001	0.397	1.094	1.280
360.408	1.593	491.667	0.847	5.0653677728E+001	1.7522433172E+001	-1.7565636691E+001	0.357	1.097	1.285
360.677	1.535	491.896	0.830	4.5858285717E+001	1.4661162401E+001	-1.8443625832E+001	0.315	1.102	1.292
360.793	1.501	491.986	0.834	4.3690584217E+001	1.3575654977E+001	-1.8799859761E+001	0.300	1.105	1.295
361.061	1.428	492.217	0.853	3.8577482358E+001	1.1238125538E+001	-1.9395180506E+001	0.265	1.113	1.305
361.330	1.353	492.445	0.821	3.3265970103E+001	9.1436317384E+000	-2.0355997114E+001	0.232	1.125	1.319
361.400	1.324	492.495	0.737	3.1832511998E+001	8.7206002860E+000	-2.0200465224E+001	0.226	1.128	1.322
361.544	1.269	492.602	0.751	2.9016043932E+001	7.9598471705E+000	-1.9730237874E+001	0.219	1.137	1.329
361.813	1.154	492.805	0.741	2.3629858070E+001	6.2109069821E+000	-1.9887965223E+001	0.193	1.160	1.347
362.081	1.032	493.001	0.743	1.8326565538E+001	5.0264737979E+000	-1.9244046359E+001	0.180	1.189	1.372
362.350	0.918	493.204	0.753	1.3286476258E+001	4.7425381641E+000	-1.8049885747E+001	0.200	1.226	1.407
362.619	0.802	493.405	0.753	8.6250268667E+000	5.1495158447E+000	-1.9451423587E+001	0.261	1.273	1.457
362.629	0.799	493.414	0.689	8.4290106627E+000	5.1673130658E+000	-1.9290169599E+001	0.264	1.275	1.459
362.898	0.658	493.597	0.702	4.9712623989E+000	4.7101397356E+000	-1.1004281469E+001	0.293	1.326	1.511
363.166	0.528	493.791	0.821	2.5143769795E+000	3.1375977233E+000	-7.8640056938E+000	0.240	1.434	1.617
363.435	0.451	494.039	0.860	7.4447911517E-001	1.0441836140E+000	-4.3932174170E+000	0.101	1.606	1.792
363.704	0.341	494.254	0.860	1.5308953097E-001	2.0980643162E-001	-1.3851166733E+000	0.038	1.837	2.027

LEGENDA SIMBOLI

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X(m) : Ascissa sinistra concio
ht(m) : Altezza linea di thrust da nodo sinistro base concio
yt(m) : coordinata Y linea di trust
yt'(-) : gradiente pendenza locale linea di trust
E(x)(kN/m) : Forza Normale interconcio
T(x)(kN/m) : Forza Tangenziale interconcio
E' (kN) : derivata Forza normale interconcio
Rho(x) (-) : fattore mobilizzazione resistenza al taglio verticale interconcio ZhU et al.(2003)
FS_FEM(x) (-) : fattore di sicurezza locale stimato (locale in X) by qFEM
FS_SRM(x) (-) : fattore di sicurezza locale stimato (locale in X) by SRM Procedure

TABELLA SFORZI DI TAGLIO DISTRIBUITI LUNGO SUPERFICIE INDIVIDUATA CON MINOR FS

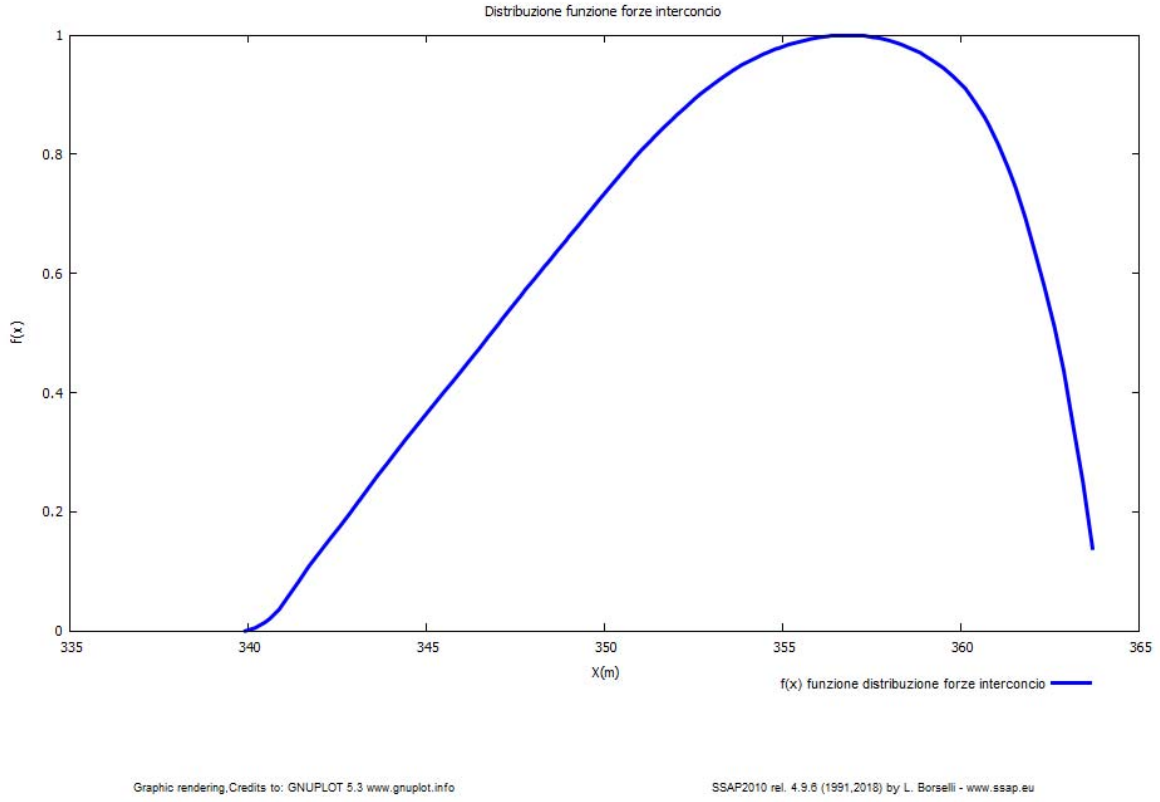
X (m)	dx (m)	dl (m)	alpha (°)	TauStress (kPa)	TauF (kN/m)	TauStrength (kPa)	TauS (kN/m)
339.926	0.269	0.281	16.865	0.186	0.052	34.357	9.648
340.195	0.269	0.281	16.865	0.557	0.156	33.928	9.528
340.463	0.137	0.143	16.865	0.837	0.120	33.698	4.814
340.600	0.269	0.281	16.865	1.181	0.332	33.991	9.545
340.869	0.269	0.281	16.865	1.707	0.479	34.613	9.720
341.137	0.024	0.025	16.865	1.988	0.049	34.981	0.870
341.161	0.269	0.281	16.865	2.265	0.636	11.575	3.250
341.430	0.269	0.281	16.865	2.772	0.779	12.450	3.496
341.699	0.269	0.281	16.865	3.280	0.921	13.249	3.721
341.968	0.053	0.056	16.865	3.584	0.200	13.708	0.765
342.021	0.269	0.281	16.866	3.888	1.092	14.251	4.002
342.290	0.269	0.281	16.866	4.396	1.234	15.096	4.239
342.558	0.269	0.281	16.866	4.903	1.377	15.914	4.469
342.827	0.269	0.281	16.866	5.411	1.519	16.740	4.701
343.096	0.017	0.017	16.866	5.680	0.098	17.179	0.297
343.112	0.269	0.281	16.867	5.950	1.671	17.620	4.948
343.381	0.269	0.281	16.867	6.457	1.813	18.474	5.188
343.650	0.241	0.251	16.867	6.938	1.745	19.184	4.825
343.891	0.269	0.281	16.868	7.420	2.084	19.966	5.607
344.159	0.269	0.281	16.868	7.927	2.226	20.802	5.842
344.428	0.165	0.173	16.868	8.337	1.440	21.356	3.689
344.593	0.269	0.281	16.869	8.747	2.456	22.082	6.201
344.862	0.269	0.281	16.869	9.255	2.599	22.885	6.427
345.131	0.083	0.087	16.869	9.587	0.834	23.440	2.039
345.214	0.269	0.281	16.870	9.920	2.786	24.025	6.747
345.483	0.269	0.281	16.870	10.427	2.928	24.768	6.956
345.752	0.093	0.097	16.870	10.769	1.046	25.313	2.458
345.845	0.269	0.281	16.871	11.111	3.120	25.954	7.289
346.113	0.269	0.281	16.871	11.618	3.263	26.799	7.526
346.382	0.097	0.101	16.871	11.963	1.207	27.335	2.758
346.479	0.269	0.281	16.872	12.309	3.457	27.943	7.847
346.747	0.269	0.281	16.872	12.816	3.599	28.714	8.064
347.016	0.110	0.115	16.872	13.174	1.509	29.175	3.343
347.126	0.269	0.281	16.873	13.531	3.800	29.863	8.386
347.394	0.269	0.281	16.873	14.039	3.943	30.605	8.595
347.663	0.123	0.128	16.873	14.409	1.849	31.112	3.992
347.786	0.269	0.283	18.232	15.746	4.455	31.148	8.813
348.055	0.269	0.283	18.232	16.246	4.597	31.829	9.006
348.323	0.074	0.078	18.232	16.564	1.288	32.303	2.512
348.397	0.003	0.003	19.724	17.737	0.050	31.800	0.090
348.400	0.269	0.285	19.724	18.090	5.165	32.262	9.211
348.669	0.269	0.285	19.724	18.793	5.365	33.198	9.478
348.937	0.058	0.061	19.724	19.219	1.181	33.762	2.074
348.995	0.269	0.288	21.287	20.841	6.011	33.528	9.670
349.264	0.269	0.288	21.287	21.530	6.210	34.375	9.915

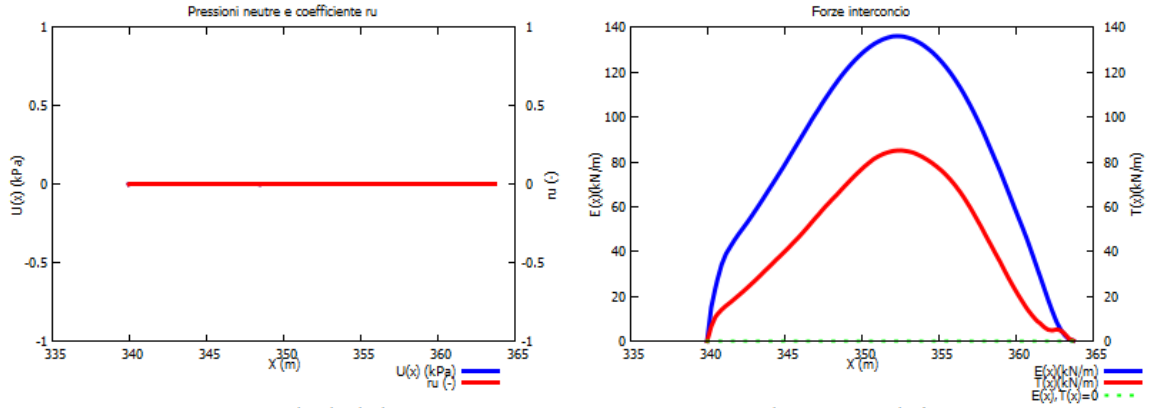
349.533	0.044	0.047	21.287	21.931	1.040	34.840	1.651
349.577	0.269	0.292	22.794	23.503	6.851	34.520	10.063
349.846	0.269	0.292	22.794	24.171	7.046	35.287	10.286
350.114	0.070	0.076	22.794	24.592	1.871	35.765	2.721
350.185	0.269	0.295	24.305	26.193	7.724	35.373	10.431
350.453	0.269	0.295	24.305	26.830	7.911	36.061	10.634
350.722	0.050	0.055	24.305	27.208	1.505	36.472	2.017
350.772	0.269	0.298	25.775	28.720	8.571	36.029	10.752
351.041	0.269	0.298	25.775	29.318	8.750	36.649	10.937
351.310	0.072	0.080	25.775	29.698	2.366	37.043	2.951
351.382	0.269	0.302	27.106	31.083	9.384	36.657	11.067
351.650	0.269	0.302	27.106	31.640	9.552	37.216	11.236
351.919	0.097	0.109	27.106	32.019	3.492	37.609	4.101
352.016	0.269	0.305	28.243	33.238	10.139	37.322	11.385
352.285	0.269	0.305	28.243	33.753	10.297	37.846	11.545
352.554	0.160	0.181	28.243	34.164	6.201	38.281	6.948
352.714	0.269	0.309	29.449	35.442	10.938	37.958	11.714
352.982	0.269	0.309	29.449	35.909	11.082	38.418	11.856
353.251	0.098	0.113	29.449	36.227	4.092	38.747	4.377
353.349	0.269	0.313	30.790	37.463	11.720	38.283	11.976
353.618	0.269	0.313	30.790	37.868	11.847	38.676	12.099
353.887	0.075	0.087	30.790	38.127	3.320	38.924	3.389
353.962	0.269	0.318	32.184	39.274	12.471	38.324	12.169
354.230	0.269	0.318	32.184	39.609	12.577	38.635	12.268
354.499	0.055	0.064	32.184	39.810	2.564	38.834	2.501
354.554	0.269	0.322	33.544	40.800	13.156	38.192	12.315
354.822	0.078	0.093	33.544	40.968	3.810	38.340	3.566
354.900	0.263	0.316	33.544	41.132	12.988	38.524	12.165
355.163	0.269	0.328	34.867	42.077	13.782	38.018	12.453
355.432	0.269	0.328	34.867	42.258	13.841	38.279	12.538
355.701	0.057	0.069	34.867	42.367	2.928	38.394	2.653
355.757	0.269	0.333	36.136	43.056	14.327	37.786	12.573
356.026	0.269	0.333	36.136	43.155	14.360	38.054	12.663
356.295	0.077	0.095	36.136	43.218	4.111	38.152	3.629
356.372	0.269	0.338	37.286	43.735	14.773	37.607	12.703
356.640	0.269	0.338	37.286	43.755	14.779	37.829	12.778
356.909	0.103	0.130	37.286	43.769	5.677	37.756	4.897
357.012	0.269	0.342	38.267	44.114	15.100	37.453	12.820
357.281	0.269	0.342	38.267	44.063	15.082	37.457	12.821
357.550	0.164	0.209	38.267	44.023	9.185	37.394	7.802
357.714	0.269	0.350	39.813	44.395	15.532	36.667	12.828
357.982	0.269	0.350	39.813	44.228	15.474	36.463	12.757
358.251	0.092	0.120	39.813	44.115	5.301	36.293	4.361
358.343	0.269	0.359	41.527	44.304	15.904	35.278	12.664
358.612	0.269	0.359	41.527	43.999	15.794	35.016	12.570
358.881	0.068	0.091	41.527	43.807	3.994	34.785	3.172
358.949	0.269	0.369	43.285	43.753	16.153	33.973	12.542
359.218	0.269	0.369	43.285	43.298	15.985	33.611	12.409
359.487	0.045	0.062	43.285	43.033	2.658	33.180	2.049
359.532	0.269	0.380	44.944	42.742	16.229	31.964	12.136
359.800	0.269	0.380	44.944	42.138	15.999	31.577	11.989
360.069	0.070	0.099	44.944	41.757	4.137	31.238	3.095
360.139	0.269	0.394	46.952	41.155	16.202	29.691	11.689
360.408	0.269	0.394	46.952	40.362	15.890	29.166	11.482
360.677	0.116	0.170	46.952	39.794	6.757	28.485	4.837
360.793	0.269	0.405	48.465	38.934	15.780	27.039	10.959
361.061	0.269	0.405	48.465	37.993	15.398	26.325	10.669
361.330	0.070	0.105	48.465	37.400	3.942	25.477	2.685
361.400	0.144	0.217	48.465	36.539	7.933	24.843	5.394

361.544	0.269	0.416	49.740	34.118	14.188	23.603	9.815
361.813	0.269	0.416	49.740	31.244	12.993	21.684	9.017
362.081	0.269	0.416	49.740	28.369	11.797	19.331	8.039
362.350	0.269	0.416	49.740	25.495	10.602	17.248	7.173
362.619	0.010	0.016	49.740	24.004	0.373	16.540	0.257
362.629	0.269	0.421	50.364	22.386	9.431	16.874	7.109
362.898	0.269	0.421	50.364	19.455	8.196	17.136	7.219
363.166	0.269	0.421	50.364	16.524	6.961	16.625	7.004
363.435	0.269	0.421	50.364	13.592	5.726	13.798	5.813
363.704	0.269	0.421	50.364	10.661	4.491	11.797	4.970

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
dl(m) : lunghezza base concio
alpha(°) : Angolo pendenza base concio
TauStress(kPa) : Sforzo di taglio su base concio
TauF (kN/m) : Forza di taglio su base concio
TauStrength(kPa) : Resistenza al taglio su base concio
TauS (kN/m) : Forza resistente al taglio su base concio





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SSAP2010 (versione 4.9.6 - 2018) - DISTRIBUZIONE FORZE e PRESSIONI

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SSAP 4.9.6 (2018) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 1.5.2 (2018)

Data : 21/4/2020
Localita' : Ferrandina (MT)
Descrizione : Parco Eolico 'Montagnola' - FER A4
(n)  = N. strato o lente

Sn --> Sovraccarico

Modello di calcolo : Janbu  Rigoroso (1973)
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DATI IO SUP. CON MINOR Fs

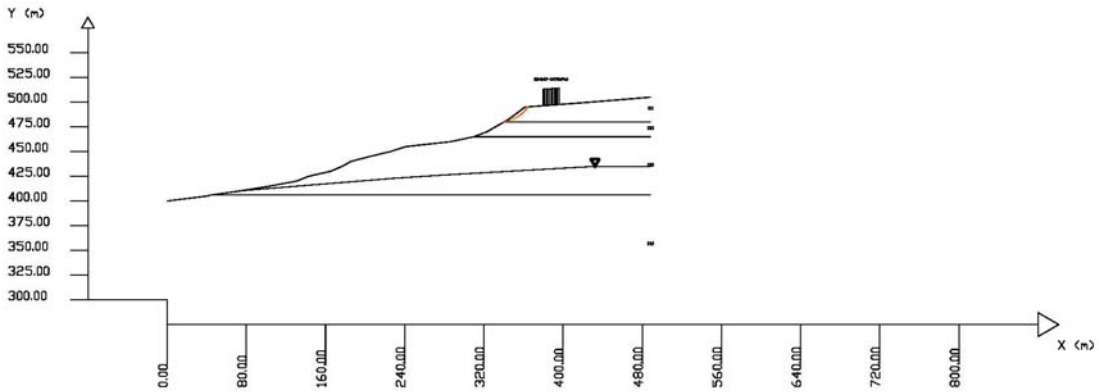
Fs minimo : 1.1260
Range Fs :  1.1260   1.1281
Differenza % Range Fs : 0.19
Coefficiente Sismico orizzontale  - Kh:   0.0110

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.:          10000
Lunghezza media segmenti (m) : 5.0
Range X inizio generazione :   2.0 - 340.0
Range X termine generazione :  363.0 - 478.6
Livello Y minimo considerato : 305.5
```

Parametri Geotecnici degli strati

N.	phi'	C'	Cu	Gamm	GammSat	sgci	GSI	mi	D
"	deg	kPa	kPa	kN/m3	kN/m3	MPa	"	"	"
1	26.60	7.20	0	19.32	20.45	0	0	0	0
2	24.60	31.48	0	18.93	20.21	0	0	0	0
3	27.67	10.20	0	19.70	20.45	0	0	0	0
4	24.90	12.03	0	19.57	19.86	0	0	0	0



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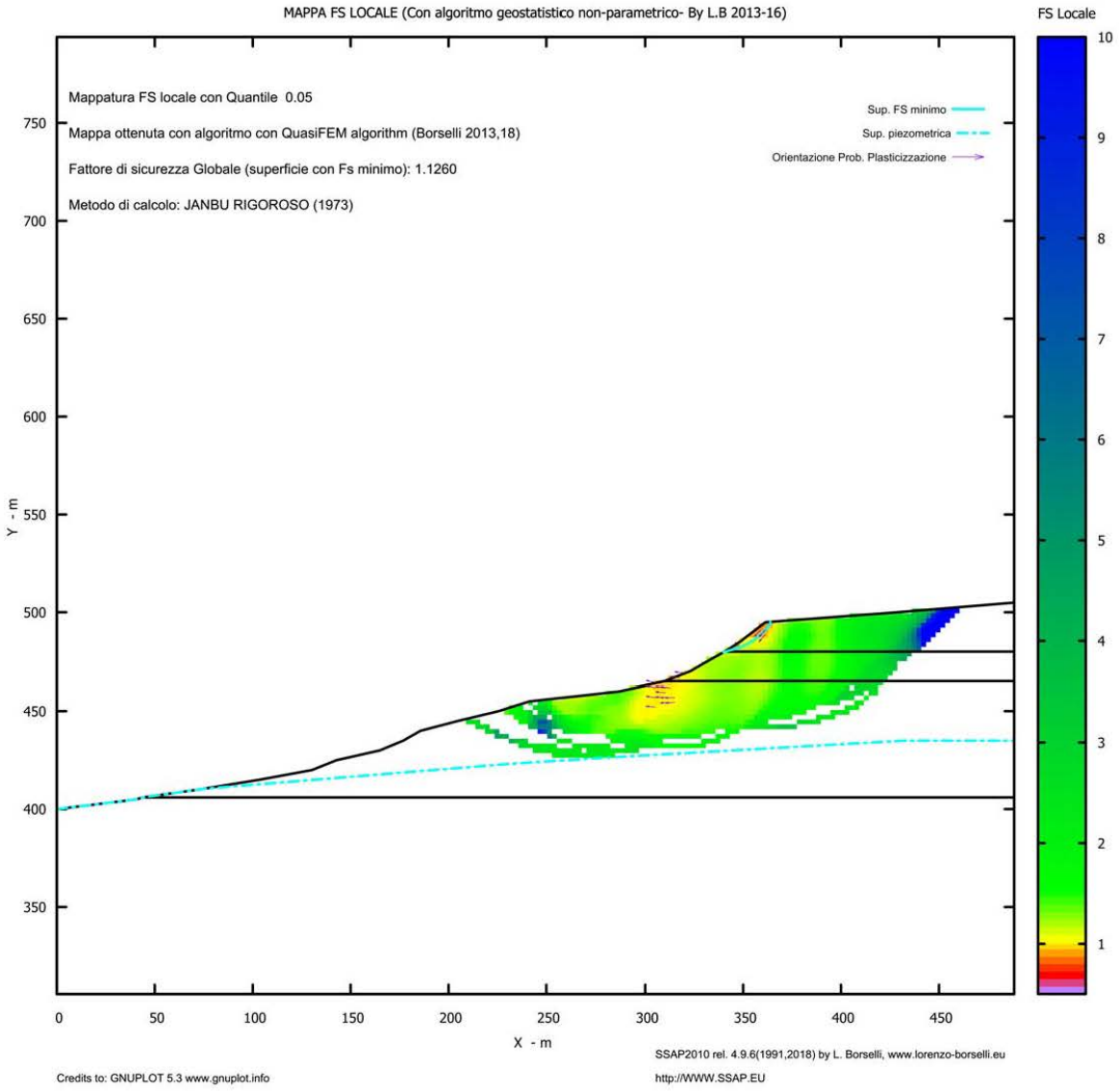

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1.5 VERIFICA DELLA SEZIONE 5-5'

Localita' : Ferrandina (MT) - Descrizione: Parco Eolico "Montagnola" - FER A5

Modello pendio: MODELLO.mod

---------- PARAMETRI DEL MODELLO DEL PENDIO ----------

__ PARAMETRI GEOMETRICI - Coordinate X Y (in m) __

SUP T.		SUP 2		SUP 3		SUP 4	
X	Y	X	Y	X	Y	X	Y
0.00	400.00	423.30	476.00	3.70	401.00	0.00	378.98
3.70	401.00	407.00	471.00	135.52	413.84	0.00	378.98
13.40	406.00	393.20	466.00	141.39	429.13	133.98	392.86
33.90	411.00	423.30	466.00	117.50	426.00	143.87	413.84
62.20	416.00	423.30	476.00	92.40	421.00	157.53	416.71
92.40	421.00	- - 62.20	416.00	209.26	428.67		
117.50	426.00	- - 33.90	411.00	295.92	435.43		
141.39	429.13	- - 13.40	406.00	357.16	451.00		
155.70	431.00	- - 3.70	401.00	423.30	451.00		
167.00	433.00	- - - - - -					
192.10	436.00	- - - - - -					
286.20	441.00	- - - - - -					
310.10	446.00	- - - - - -					
337.40	451.00	- - - - - -					
354.80	456.00	- - - - - -					
376.30	461.00	- - - - - -					
393.20	466.00	- - - - - -					
407.00	471.00	- - - - - -					
423.30	476.00	- - - - - -					

SUP 5		SUP 6		SUP 7		SUP 8	
X	Y	X	Y	X	Y	X	Y
0.00	328.98	- -	-	- -	-	- -	-
130.40	342.49	- -	-	- -	-	- -	-
141.83	390.32	- -	-	- -	-	- -	-
423.30	401.00	- -	-	- -	-	- -	-

---- SUP FALDA --------

X	Y (in m)
0.00	383.76
166.75	407.04
216.95	410.33
368.85	419.00
423.30	419.00

------ GESTIONE ACQUIFERI ------

Strati esclusi da acquifero:

Esclusione sovraccarico pendio sommerso: NON ATTIVATA

Peso unitario fluido (kN/m^3): 9.81

Parametri funzione dissipazione superficiale pressione dei fluidi:

Coefficiente A 0

Coefficiente K 0.000800

Pressione minima fluidi Uo_Min (kPa) 0.01

Coefficiente di soprapressione oltre pressione hidrostatica1.00

Limitazione dissipazionea a Pressione Idrostatica = ATTIVA

STABILITE CONDIZIONI PER LA VERIFICA CON SOVRAPPRESSIONE ACQUIFERI CON DISSIPAZIONE IN DIREZIONE DELLA SUPERFICIE

------- PARAMETRI GEOMECCANICI -------

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	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.60	7.20	0.00	19.31	20.45	1.778	0.00	0.00	0.00	0.00
STRATO 2	26.60	7.20	0.00	19.31	20.45	1.778	0.00	0.00	0.00	0.00
STRATO 3	24.60	31.48	0.00	19.93	20.21	2.937	0.00	0.00	0.00	0.00
STRATO 4	27.70	10.20	0.00	19.70	20.50	1.995	0.00	0.00	0.00	0.00
STRATO 5	24.90	12.03	0.00	19.57	19.86	1.825	0.00	0.00	0.00	0.00

LEGENDA: fi`_____ Angolo di attrito interno efficace(in gradi)
C` _____ Coesione efficace (in Kpa)
Cu _____ Resistenza al taglio Non drenata (in Kpa)
Gamm _____ Peso di volume terreno fuori falda (in KN/m^3)
Gamm_sat __ Peso di volume terreno immerso (in KN/m^3)
STR_IDX ___ Indice di resistenza (usato in solo in 'SNIFF SEARCH) (adimensionale)
---- SOLO Per AMMASSI ROCCIOSI FRATTURATI - Parametri Criterio di Rottura di Hoek (2002)-
sigci _____ Resistenza Compressione Uniassiale Roccia Intatta (in MPa)
GSI _____ Geological Strenght Index ammasso(adimensionale)
mi _____ Indice litologico ammasso(adimensionale)
D _____ Fattore di disturbo ammasso(adimensionale)
Fattore di riduzione NTC2018 gammaPHI=1.25 e gammaC=1.25 - DISATTIVATO (solo per ROCCE)
Uso CRITERIO DI ROTTURA Hoek et al.(2002,2006) - non-lineare - Generalizzato secondo Lei et al.(2016)

----- SOVRACCARICHI PRESENTI -----
SOVRACCARICO N.1
Carico in X1 (Kpa): 147.10
Carico in X2 (Kpa): 147.10
Posizione carico da X1 m.: 159.00
a X2 m.: 175.00
Inclinazione carico (gradi): 90.00
Componenti distribuzione forza unitaria applicata:
#Orizzontale (per metro di proiezione Verticale) (kN/m): da 0.00 a 0.00
#Verticale (per metro di proiezione Orizzontale) (kN/m): da 147.10 a 147.10
##Nota: la distribuzione del carico e delle forze unitarie puo' variare
in modo lineare tra gli estremi di coordinate X1 e X2
---------- INFORMAZIONI GENERAZIONE SUPERFICI RANDOM ----------
*** PARAMETRI PER LA GENERAZIONE DELLE SUPERFICI
METODO DI RICERCA: CONVEX RANDOM - Chen (1992)
FILTRAGGIO SUPERFICI : ATTIVATO
COORDINATE X1,X2,Y OSTACOLO : 0.00 0.00 0.00
LUNGHEZZA MEDIA SEGMENTI (m): 5.0 (+/-) 50%
INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 0.10 381.07
LIVELLO MINIMO CONSIDERATO (Ymin): 196.66
INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 42.43 414.83

*** TOTALE SUPERFICI GENERATE : 10000
---------- INFORMAZIONI PARAMETRI DI CALCOLO ----------
METODO DI CALCOLO : JANBU RIGOROSO (Janbu, 1973)
COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0110
COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0055
COEFFICIENTE c=Kv/Kh UTILIZZATO : 0.5000
FORZA ORIZZONTALE ADDIZIONALE IN TESTA (kN/m): 0.00
FORZA ORIZZONTALE ADDIZIONALE ALLA BASE (kN/m): 0.00

N.B. Le forze orizzontali addizionali in testa e alla base sono poste uguali a 0
durante le tutte le verifiche globali.
I valori >0 impostati dall'utente sono utilizzati solo in caso di verifica singola

---------- RISULTATO FINALE ELABORAZIONI ----------
---
* DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *

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Fattore di sicurezza (FS)	**1.8074**	**- Min. -**	**X**	**Y**	**Lambda=**	**1.0000**
	146.14	429.75				
	148.05	429.37				
	149.02	429.18				
	149.72	429.05				
	150.34	428.93				
	150.90	428.84				
	151.46	428.74				
	152.02	428.65				
	152.61	428.56				
	153.22	428.46				
	153.77	428.40				
	154.31	428.35				
	154.82	428.32				
	155.36	428.30				
	155.88	428.31				
	156.43	428.34				
	157.01	428.38				
	157.68	428.46				
	158.25	428.54				
	158.79	428.63				
	159.30	428.75				
	159.83	428.90				
	160.34	429.06				
	160.87	429.26				
	161.43	429.49				
	162.06	429.77				
	162.65	430.04				
	163.21	430.31				
	163.77	430.58				
	164.32	430.86				
	164.93	431.18				
	165.62	431.55				
	166.59	432.09				
	167.00	432.32				
	167.00	433.00				

Fattore di sicurezza (FS)	**1.8436**	**- N.2 --**	**X**	**Y**	**Lambda=**	**1.0000**
	142.04	429.21				
	144.47	428.39				
	145.66	428.00				
	146.48	427.76				
	147.20	427.57				
	147.86	427.43				
	148.50	427.31				
	149.17	427.22				
	149.87	427.13				
	150.65	427.06				
	151.36	427.01				
	152.04	426.98				
	152.69	426.97				
	153.36	426.97				
	154.02	426.99				
	154.70	427.02				
	155.42	427.08				
	156.23	427.16				
	156.92	427.25				
	157.57	427.36				
	158.19	427.50				

158.85 427.69
159.46 427.89
160.11 428.14
160.80 428.43
161.59 428.79
162.31 429.13
163.00 429.48
163.67 429.83
164.35 430.19
165.09 430.61
165.94 431.10
167.13 431.83
168.27 432.54
168.27 433.15

Fattore di sicurezza (FS) 1.8756 - N.3 -- X Y Lambda= 1.0000
143.64 429.42
146.25 428.24
147.52 427.68
148.40 427.33
149.15 427.06
149.86 426.84
150.54 426.66
151.25 426.50
152.00 426.36
152.86 426.22
153.62 426.12
154.34 426.05
155.02 426.00
155.73 425.97
156.42 425.97
157.14 425.99
157.91 426.03
158.80 426.11
159.54 426.20
160.24 426.32
160.89 426.46
161.59 426.66
162.25 426.87
162.95 427.14
163.70 427.47
164.58 427.88
165.34 428.27
166.07 428.66
166.76 429.06
167.47 429.51
168.24 430.04
169.12 430.68
170.40 431.67
172.17 433.07
172.17 433.62

Fattore di sicurezza (FS) 1.8904 - N.4 -- X Y Lambda= 1.0000
140.40 429.00
143.05 428.00
144.36 427.52
145.27 427.22
146.06 426.98
146.80 426.79

147.51 426.62
148.25 426.47
149.03 426.33
149.91 426.20
150.68 426.10
151.40 426.04
152.10 426.00
152.83 425.99
153.52 426.00
154.26 426.05
155.03 426.12
155.93 426.23
156.70 426.35
157.44 426.48
158.13 426.64
158.86 426.84
159.55 427.05
160.28 427.31
161.06 427.61
161.94 427.98
162.71 428.33
163.45 428.69
164.16 429.06
164.89 429.48
165.68 429.97
166.58 430.58
167.90 431.50
169.70 432.81
169.70 433.32

Fattore di sicurezza (FS) 1.8977 - N.5 -- X Y Lambda= 1.0000
146.66 429.82
148.52 429.50
149.48 429.34
150.16 429.23
150.77 429.14
151.31 429.06
151.85 428.99
152.41 428.92
152.97 428.85
153.57 428.78
154.11 428.73
154.64 428.69
155.15 428.67
155.69 428.67
156.20 428.67
156.74 428.70
157.30 428.74
157.93 428.80
158.49 428.86
159.02 428.94
159.53 429.03
160.07 429.15
160.58 429.27
161.11 429.42
161.68 429.60
162.31 429.81
162.87 430.01
163.40 430.22

163.91 430.45
164.45 430.71
165.01 431.01
165.67 431.39
166.62 431.97
167.25 432.36
167.25 433.03

Fattore di sicurezza (FS) 1.8983 - N.6 -- X Y Lambda= 1.0000
144.65 429.56
146.78 429.08
147.84 428.85
148.58 428.71
149.23 428.60
149.83 428.51
150.42 428.44
151.02 428.38
151.65 428.33
152.32 428.29
152.94 428.26
153.54 428.25
154.12 428.25
154.72 428.27
155.30 428.30
155.90 428.35
156.53 428.42
157.22 428.51
157.84 428.60
158.43 428.70
159.00 428.83
159.60 428.97
160.17 429.13
160.76 429.31
161.38 429.52
162.07 429.77
162.70 430.01
163.30 430.25
163.89 430.51
164.49 430.78
165.14 431.10
165.88 431.49
166.94 432.07
167.80 432.54
167.80 433.10

Fattore di sicurezza (FS) 1.9011 - N.7 -- X Y Lambda= 1.0000
142.72 429.30
145.21 428.61
146.45 428.28
147.32 428.06
148.07 427.89
148.77 427.75
149.46 427.64
150.16 427.53
150.89 427.43
151.69 427.35
152.42 427.28
153.11 427.24
153.78 427.22

154.47 427.22
155.14 427.23
155.84 427.27
156.58 427.33
157.40 427.42
158.13 427.52
158.82 427.63
159.48 427.76
160.17 427.93
160.83 428.11
161.53 428.32
162.26 428.57
163.08 428.87
163.82 429.17
164.51 429.47
165.18 429.78
165.87 430.14
166.62 430.55
167.47 431.07
168.71 431.86
170.17 432.81
170.17 433.38

Fattore di sicurezza (FS) 1.9021 - N.8 -- X Y Lambda= 1.0000

147.06 429.87
149.28 429.12
150.38 428.77
151.15 428.54
151.82 428.36
152.44 428.22
153.04 428.09
153.66 427.98
154.32 427.88
155.05 427.78
155.69 427.72
156.31 427.67
156.89 427.65
157.50 427.65
158.09 427.67
158.71 427.72
159.36 427.79
160.11 427.88
160.76 427.99
161.38 428.11
161.96 428.25
162.57 428.43
163.15 428.62
163.76 428.84
164.40 429.10
165.13 429.41
165.79 429.72
166.42 430.02
167.03 430.33
167.65 430.67
168.32 431.06
169.10 431.52
170.20 432.22
171.29 432.92
171.29 433.51

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Fattore di sicurezza (FS) 1.9039 - N.9 -- X Y Lambda= 1.0000

141.23	429.11
144.05	428.07
145.46	427.58
146.43	427.25
147.29	426.99
148.08	426.77
148.85	426.58
149.66	426.40
150.50	426.23
151.43	426.07
152.25	425.95
153.02	425.86
153.75	425.81
154.53	425.79
155.26	425.81
156.04	425.86
156.88	425.94
157.86	426.07
158.69	426.21
159.47	426.37
160.20	426.56
160.97	426.80
161.70	427.05
162.47	427.36
163.28	427.72
164.21	428.16
165.05	428.58
165.86	429.00
166.64	429.43
167.44	429.88
168.30	430.40
169.29	431.02
170.70	431.93
172.26	432.96
172.26	433.63

Fattore di sicurezza (FS) 1.9063 - N.10 -- X Y Lambda= 1.0000

141.17	429.10
143.97	428.16
145.37	427.72
146.34	427.43
147.19	427.20
147.98	427.01
148.74	426.85
149.54	426.71
150.37	426.58
151.29	426.45
152.11	426.36
152.88	426.30
153.61	426.27
154.39	426.27
155.13	426.30
155.91	426.36
156.74	426.45
157.70	426.59
158.53	426.73
159.30	426.89

160.03 427.08
160.81 427.32
161.53 427.57
162.30 427.87
163.10 428.22
164.00 428.64
164.84 429.05
165.65 429.45
166.44 429.85
167.24 430.27
168.11 430.75
169.10 431.31
170.50 432.12
172.06 433.04
172.06 433.61

---------- ANALISI DEFICIT DI RESISTENZA ----------
DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Analisi Deficit in riferimento a FS(progetto) = 1.100

Sup N.	FS	FTR(kN/m)	FTA(kN/m)	Bilancio(kN/m)	ESITO
1	1.807	1107.9	613.0	433.6	Surplus
2	1.844	1544.4	837.7	622.9	Surplus
3	1.876	2204.4	1175.3	911.5	Surplus
4	1.890	1956.2	1034.8	817.9	Surplus
5	1.898	1095.9	577.5	460.7	Surplus
6	1.898	1224.5	645.1	514.9	Surplus
7	1.901	1714.7	902.0	722.6	Surplus
8	1.902	1685.9	886.3	711.0	Surplus
9	1.904	2266.6	1190.5	957.1	Surplus
10	1.906	2127.7	1116.1	900.0	Surplus

Esito analisi: SURPLUS di RESISTENZA!
Valore minimo di SURPLUS di RESISTENZA (kN/m): 433.6

Note: FTR --> Forza totale Resistente rispetto alla superficie
di scivolamento (componente Orizzontale)
FTA --> Forza totale Agente rispetto alla superficie
di scivolamento (componente Orizzontale)
IMPORTANTE! : Il Deficit o il Surplus di resistenza viene espresso in kN
per metro di LARGHEZZA rispetto al fronte della scarpata

TABELLA PARAMETRI CONCI DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	dx (m)	alpha (°)	W (kN/m)	ru (-)	U (kPa)	phi' (°)	(c',Cu) (kPa)
146.143	0.253	-11.27	0.20	0.00	0.00	26.60	7.20
146.396	0.253	-11.27	0.61	0.00	0.00	26.60	7.20
146.648	0.253	-11.27	1.02	0.00	0.00	26.60	7.20
146.901	0.253	-11.27	1.43	0.00	0.00	26.60	7.20
147.153	0.253	-11.27	1.84	0.00	0.00	26.60	7.20
147.406	0.253	-11.27	2.25	0.00	0.00	26.60	7.20
147.658	0.253	-11.27	2.66	0.00	0.00	26.60	7.20
147.911	0.134	-11.27	1.58	0.00	0.00	26.60	7.20
148.045	0.253	-11.09	3.28	0.00	0.00	26.60	7.20
148.298	0.253	-11.09	3.68	0.00	0.00	26.60	7.20
148.550	0.253	-11.09	4.09	0.00	0.00	26.60	7.20
148.803	0.221	-11.09	3.92	0.00	0.00	26.60	7.20
149.024	0.253	-10.76	4.84	0.00	0.00	26.60	7.20
149.277	0.253	-10.76	5.24	0.00	0.00	26.60	7.20
149.529	0.189	-10.76	4.18	0.00	0.00	26.60	7.20

149.718	0.253	-10.40	5.93	0.00	0.00	26.60	7.20
149.971	0.253	-10.40	6.32	0.00	0.00	26.60	7.20
150.223	0.117	-10.40	3.05	0.00	0.00	26.60	7.20
150.340	0.253	-9.96	6.88	0.00	0.00	26.60	7.20
150.592	0.253	-9.96	7.26	0.00	0.00	26.60	7.20
150.845	0.051	-9.96	1.50	0.00	0.00	26.60	7.20
150.896	0.253	-9.61	7.72	0.00	0.00	26.60	7.20
151.148	0.253	-9.61	8.09	0.00	0.00	26.60	7.20
151.401	0.054	-9.61	1.79	0.00	0.00	26.60	7.20
151.455	0.253	-9.27	8.54	0.00	0.00	26.60	7.20
151.708	0.253	-9.27	8.90	0.00	0.00	26.60	7.20
151.960	0.063	-9.27	2.28	0.00	0.00	26.60	7.20
152.023	0.253	-8.94	9.35	0.00	0.00	26.60	7.20
152.276	0.253	-8.94	9.71	0.00	0.00	26.60	7.20
152.528	0.080	-8.94	3.16	0.00	0.00	26.60	7.20
152.609	0.253	-8.63	10.17	0.00	0.00	26.60	7.20
152.861	0.253	-8.63	10.52	0.00	0.00	26.60	7.20
153.114	0.108	-8.63	4.59	0.00	0.00	26.60	7.20
153.221	0.253	-7.08	11.01	0.00	0.00	26.60	7.20
153.474	0.253	-7.08	11.32	0.00	0.00	26.60	7.20
153.726	0.048	-7.08	2.18	0.00	0.00	26.60	7.20
153.774	0.253	-5.27	11.68	0.00	0.00	26.60	7.20
154.027	0.253	-5.27	11.95	0.00	0.00	26.60	7.20
154.279	0.029	-5.27	1.39	0.00	0.00	26.60	7.20
154.308	0.253	-3.27	12.24	0.00	0.00	26.60	7.20
154.561	0.253	-3.27	12.47	0.00	0.00	26.60	7.20
154.813	0.008	-3.27	0.40	0.00	0.00	26.60	7.20
154.822	0.253	-1.29	12.69	0.00	0.00	26.60	7.20
155.074	0.253	-1.29	12.88	0.00	0.00	26.60	7.20
155.327	0.037	-1.29	1.91	0.00	0.00	26.60	7.20
155.364	0.253	0.76	13.07	0.00	0.00	26.60	7.20
155.616	0.084	0.76	4.36	0.00	0.00	26.60	7.20
155.700	0.183	0.76	9.62	0.00	0.00	26.60	7.20
155.883	0.253	2.79	13.42	0.00	0.00	26.60	7.20
156.136	0.253	2.79	13.58	0.00	0.00	26.60	7.20
156.388	0.043	2.79	2.31	0.00	0.00	26.60	7.20
156.431	0.253	4.61	13.75	0.00	0.00	26.60	7.20
156.684	0.253	4.61	13.87	0.00	0.00	26.60	7.20
156.936	0.077	4.61	4.26	0.00	0.00	26.60	7.20
157.013	0.253	6.10	14.01	0.00	0.00	26.60	7.20
157.266	0.253	6.10	14.09	0.00	0.00	26.60	7.20
157.518	0.012	6.10	0.65	0.00	0.00	26.60	7.20
157.530	0.150	6.10	8.42	0.00	0.00	26.60	7.20
157.680	0.253	7.99	14.21	0.00	0.00	26.60	7.20
157.933	0.253	7.99	14.26	0.00	0.00	26.60	7.20
158.185	0.067	7.99	3.81	0.00	0.00	26.60	7.20
158.253	0.253	10.31	14.29	0.00	0.00	26.60	7.20
158.505	0.253	10.31	14.29	0.00	0.00	26.60	7.20
158.758	0.033	10.31	1.87	0.00	0.00	26.60	7.20
158.791	0.209	12.90	11.82	0.00	0.00	26.60	7.20
159.000	0.253	12.90	51.55	0.00	0.00	26.60	7.20
159.253	0.044	12.90	8.98	0.00	0.00	26.60	7.20
159.297	0.253	15.43	51.44	0.00	0.00	26.60	7.20
159.549	0.253	15.43	51.32	0.00	0.00	26.60	7.20
159.802	0.033	15.43	6.72	0.00	0.00	26.60	7.20
159.835	0.253	17.87	51.15	0.00	0.00	26.60	7.20
160.087	0.252	17.87	50.84	0.00	0.00	26.60	7.20
160.339	0.253	20.25	50.77	0.00	0.00	26.60	7.20
160.592	0.253	20.25	50.53	0.00	0.00	26.60	7.20

160.844	0.026	20.25	5.23	0.00	0.00	26.60	7.20
160.870	0.253	22.33	50.24	0.00	0.00	26.60	7.20
161.123	0.253	22.33	49.95	0.00	0.00	26.60	7.20
161.376	0.052	22.33	10.33	0.00	0.00	26.60	7.20
161.428	0.253	24.00	49.58	0.00	0.00	26.60	7.20
161.681	0.253	24.00	49.25	0.00	0.00	26.60	7.20
161.933	0.127	24.00	24.67	0.00	0.00	26.60	7.20
162.060	0.253	24.64	48.74	0.00	0.00	26.60	7.20
162.313	0.253	24.64	48.39	0.00	0.00	26.60	7.20
162.565	0.083	24.64	15.90	0.00	0.00	26.60	7.20
162.649	0.253	25.35	47.92	0.00	0.00	26.60	7.20
162.901	0.253	25.35	47.55	0.00	0.00	26.60	7.20
163.154	0.060	25.35	11.32	0.00	0.00	26.60	7.20
163.214	0.253	26.08	47.09	0.00	0.00	26.60	7.20
163.467	0.253	26.08	46.70	0.00	0.00	26.60	7.20
163.719	0.046	26.08	8.46	0.00	0.00	26.60	7.20
163.765	0.253	26.81	46.23	0.00	0.00	26.60	7.20
164.018	0.253	26.81	45.82	0.00	0.00	26.60	7.20
164.270	0.048	26.81	8.68	0.00	0.00	26.60	7.20
164.318	0.253	27.74	45.33	0.00	0.00	26.60	7.20
164.571	0.253	27.74	44.90	0.00	0.00	26.60	7.20
164.824	0.106	27.74	18.68	0.00	0.00	26.60	7.20
164.929	0.253	28.47	44.27	0.00	0.00	26.60	7.20
165.182	0.253	28.47	43.82	0.00	0.00	26.60	7.20
165.434	0.183	28.47	31.47	0.00	0.00	26.60	7.20
165.617	0.253	29.14	43.03	0.00	0.00	26.60	7.20
165.870	0.253	29.14	42.56	0.00	0.00	26.60	7.20
166.122	0.253	29.14	42.09	0.00	0.00	26.60	7.20
166.375	0.220	29.14	36.21	0.00	0.00	26.60	7.20
166.595	0.155	29.49	25.42	0.00	0.00	26.60	7.20
166.750	0.250	29.49	40.50	0.00	0.00	26.60	7.20

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
alpha(°) : Angolo pendenza base concio
W(kN/m) : Forza peso concio
ru(-) : Coefficiente locale pressione interstiziale
U(kPa) : Pressione totale dei pori base concio
phi'(°) : Angolo di attrito efficace base concio
c'/Cu (kPa) : Coesione efficace o Resistenza al taglio in condizioni non drenate

TABELLA DIAGRAMMA DELLE FORZE DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X	ht	yt	yt'	E(x)	T(x)	E'	rho(x)	FS_FEM	FS_p-qFEM		
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)	(kN)	(--)	(--)	(--)		
146.143	0.000	429.751	-0.116	0.0000000000E+000	0.0000000000E+000	9.8217595631E-001	0.060	14.144	6.839		
146.396	0.021	429.722	-0.116	2.9013060063E-001	4.6798867744E-003	1.3154871440E+000	0.060	14.144	6.839		
146.648	0.042	429.692	-0.116	6.6443696669E-001	4.1318321236E-003	1.6971502192E+000	0.060	11.119	4.907		
146.901	0.063	429.663	-0.120	1.1473410635E+000	2.4082904048E-002	2.1895454316E+000	0.060	13.881	4.431		
147.153	0.082	429.631	-0.121	1.7703504161E+000	1.1674055748E-001	2.8247995628E+000	0.064	16.184	3.740		
147.406	0.103	429.602	-0.112	2.5741138463E+000	3.3194216845E-001	3.6443603567E+000	0.140	16.366	3.165		
147.658	0.126	429.575	-0.106	3.6110736432E+000	5.8748737766E-001	4.7017008159E+000	0.196	14.836	2.753		
147.911	0.150	429.549	-0.103	4.9488872088E+000	8.2489941983E-001	6.0342492587E+000	0.223	12.369	2.469		
148.045	0.163	429.535	-0.104	5.8115895514E+000	9.3883459533E-001	9.6604225151E+000	0.228	11.129	2.350		
148.298	0.186	429.508	-0.105	9.7878401192E+000	1.1407991338E+000	1.4215099051E+001	0.206	9.172	2.184		
148.550	0.209	429.482	-0.105	1.2991467620E+001	1.3381288361E+000	1.3534410138E+001	0.198	7.850	2.059		
148.803	0.232	429.455	-0.106	1.6623910285E+001	1.5361767565E+000	1.5178656528E+001	0.190	7.009	1.962		
149.024	0.251	429.432	-0.106	2.0139167781E+001	1.7277712790E+000	1.6188544216E+001	0.185	6.589	1.891		
149.277	0.273	429.405	-0.108	2.4317541616E+001	1.9401995367E+000	1.5371664911E+001	0.179	6.367	1.828		

149.529	0.293	429.377	-0.105	2.7903213559E+001	2.1863239832E+000	1.4626699942E+001	0.180	6.311	1.778
149.718	0.310	429.358	-0.096	3.0726499878E+001	2.3888691880E+000	1.5146942471E+001	0.181	6.363	1.749
149.971	0.332	429.334	-0.094	3.4619220761E+001	2.6810476516E+000	1.5881157512E+001	0.184	6.511	1.718
150.223	0.356	429.311	-0.090	3.8747884331E+001	3.0044053599E+000	1.6266392808E+001	0.187	6.766	1.696
150.340	0.367	429.301	-0.087	4.0639534592E+001	3.1621617858E+000	1.6407210107E+001	0.189	6.918	1.687
150.592	0.389	429.279	-0.084	4.4880810340E+001	3.5363303008E+000	1.7404792840E+001	0.194	7.390	1.672
150.845	0.413	429.259	-0.079	4.9430489193E+001	3.9508899674E+000	1.7505469575E+001	0.200	7.964	1.661
150.896	0.419	429.255	-0.077	5.0312388100E+001	4.0393521599E+000	1.7555458716E+001	0.201	8.091	1.659
151.148	0.441	429.235	-0.077	5.4937607129E+001	4.4869196286E+000	1.8719460785E+001	0.207	9.037	1.650
151.401	0.465	429.216	-0.074	5.9767365899E+001	4.9852847484E+000	1.9030141584E+001	0.214	10.325	1.643
151.455	0.471	429.213	-0.073	6.0800461815E+001	5.0987085634E+000	1.9069993982E+001	0.216	10.621	1.641
151.708	0.493	429.194	-0.073	6.5687055027E+001	5.6399552988E+000	1.9992376669E+001	0.223	12.855	1.635
151.960	0.516	429.176	-0.072	7.0898374342E+001	6.2467753878E+000	2.0715199825E+001	0.231	16.496	1.629
152.023	0.522	429.171	-0.069	7.2204939423E+001	6.4125240851E+000	2.0752360558E+001	0.234	17.551	1.628
152.276	0.545	429.154	-0.070	7.7463256164E+001	7.0905043015E+000	2.1281609106E+001	0.243	23.079	1.622
152.528	0.567	429.136	-0.068	8.2954027976E+001	7.8486455021E+000	2.2463231696E+001	0.253	27.578	1.615
152.609	0.574	429.131	-0.063	8.4777409642E+001	8.1013626264E+000	2.2728536130E+001	0.256	27.478	1.612
152.861	0.597	429.115	-0.061	9.0545768042E+001	8.9760568717E+000	2.2630940750E+001	0.268	20.826	1.604
153.114	0.621	429.101	-0.056	9.6208029617E+001	9.9276790192E+000	2.1981170331E+001	0.281	13.418	1.595
153.221	0.632	429.095	-0.048	9.8555337232E+001	1.0341451385E+001	2.2156770367E+001	0.286	11.245	1.591
153.474	0.651	429.083	-0.042	1.0436592769E+002	1.1454460655E+001	2.2591087904E+001	0.302	7.298	1.579
153.726	0.673	429.074	-0.035	1.0996582801E+002	1.2619326268E+001	2.1258689590E+001	0.317	5.292	1.567
153.774	0.678	429.073	-0.025	1.1097521358E+002	1.2855343262E+001	2.1301575095E+001	0.320	5.045	1.564
154.027	0.695	429.067	-0.019	1.1664307980E+002	1.4162029362E+001	2.1790635425E+001	0.338	3.811	1.550
154.279	0.715	429.063	-0.013	1.2198140529E+002	1.5468804042E+001	2.0222762754E+001	0.355	3.065	1.536
154.308	0.717	429.063	-0.001	1.2256366609E+002	1.5621607573E+001	2.0248545588E+001	0.357	3.003	1.534
154.561	0.731	429.063	0.004	1.2796531868E+002	1.7160672474E+001	2.0963333066E+001	0.377	2.479	1.519
154.813	0.748	429.065	0.008	1.3315199718E+002	1.8724409718E+001	2.1131245878E+001	0.397	2.095	1.506
154.822	0.748	429.065	0.024	1.3332298813E+002	1.8772866132E+001	2.1113062659E+001	0.398	2.087	1.505
155.074	0.760	429.071	0.028	1.3836162890E+002	2.0509673161E+001	1.9619193364E+001	0.421	1.851	1.494
155.327	0.774	429.079	0.033	1.4323241019E+002	2.2361613830E+001	1.8839397040E+001	0.445	1.685	1.485
155.364	0.776	429.081	0.049	1.4393041339E+002	2.2625432388E+001	1.8742941721E+001	0.449	1.670	1.484
155.616	0.786	429.093	0.051	1.4861137704E+002	2.4733961512E+001	1.8739574995E+001	0.477	1.580	1.481
155.700	0.789	429.098	0.063	1.5018485597E+002	2.5526775832E+001	1.8489345673E+001	0.488	1.562	1.483
155.883	0.799	429.110	0.078	1.5344399951E+002	2.7276329093E+001	1.7709490285E+001	0.511	1.532	1.487
156.136	0.808	429.132	0.094	1.5788724209E+002	2.9746483446E+001	1.7572902076E+001	0.544	1.516	1.500
156.388	0.822	429.158	0.104	1.6231986409E+002	3.2567847515E+001	1.6345619300E+001	0.581	1.515	1.525
156.431	0.824	429.162	0.111	1.6300986400E+002	3.3013496003E+001	1.6164722027E+001	0.587	1.518	1.529
156.684	0.832	429.191	0.125	1.6712690347E+002	3.5867790047E+001	1.6231472695E+001	0.624	1.533	1.567
156.936	0.847	429.226	0.139	1.7120818850E+002	3.9063837067E+001	1.5059484382E+001	0.665	1.550	1.620
157.013	0.851	429.236	0.150	1.7234437996E+002	4.0004483008E+001	1.4657395952E+001	0.677	1.557	1.639
157.266	0.863	429.275	0.163	1.7599181234E+002	4.3130432329E+001	1.3930837977E+001	0.717	1.580	1.709
157.518	0.880	429.319	0.173	1.7938068113E+002	4.6275129796E+001	1.2304468313E+001	0.756	1.608	1.792
157.530	0.881	429.321	0.182	1.7952343329E+002	4.6413099358E+001	1.2249710914E+001	0.758	1.610	1.796
157.680	0.892	429.348	0.211	1.8135596280E+002	4.8223710428E+001	1.1981426571E+001	0.781	1.631	1.849
157.933	0.914	429.406	0.230	1.8428614048E+002	5.1118396178E+001	1.0730099718E+001	0.816	1.671	1.944
158.185	0.937	429.464	0.233	1.8677560900E+002	5.3739534091E+001	9.1580323841E+000	0.848	1.710	2.040
158.253	0.944	429.481	0.274	1.8737962126E+002	5.4402095913E+001	8.8145972154E+000	0.856	1.720	2.064
158.505	0.970	429.552	0.280	1.8945701485E+002	5.6668417625E+001	7.2865748056E+000	0.884	1.755	2.154
158.758	0.994	429.622	0.279	1.9105998384E+002	5.8340639366E+001	5.4910269555E+000	0.904	1.773	2.228
158.791	0.997	429.632	0.294	1.9123742394E+002	5.8515304667E+001	5.1937126202E+000	0.906	1.774	2.235
159.000	1.011	429.694	0.296	1.9207840059E+002	5.9382561283E+001	3.3184108182E+000	0.917	1.777	2.279
159.253	1.028	429.768	0.291	1.9270384026E+002	5.9885499570E+001	1.4042396160E+000	0.923	1.771	2.308
159.297	1.030	429.780	0.315	1.9275743473E+002	5.9945273296E+001	1.0692213184E+000	0.924	1.769	2.311
159.549	1.042	429.862	0.331	1.9281295757E+002	5.9666200388E+001	-1.0937901100E+000	0.920	1.751	2.313
159.802	1.058	429.947	0.336	1.9220497431E+002	5.8694123191E+001	-3.8104081230E+000	0.909	1.726	2.292
159.835	1.059	429.958	0.351	1.9207264365E+002	5.8526862309E+001	-4.0997469686E+000	0.907	1.723	2.288
160.087	1.067	430.047	0.362	1.9083456088E+002	5.6721009337E+001	-6.4165293366E+000	0.886	1.689	2.250
160.339	1.079	430.140	0.358	1.8883799448E+002	5.4418168020E+001	-8.9218524836E+000	0.859	1.653	2.206

160.592	1.073	430.228	0.342	1.8633283607E+002	5.1720802710E+001	-1.1460310344E+001	0.828	1.623	2.160
160.844	1.065	430.313	0.332	1.8304952754E+002	4.8707710772E+001	-1.3488231836E+001	0.794	1.597	2.115
160.870	1.063	430.321	0.315	1.8269488966E+002	4.8387791251E+001	-1.3706115884E+001	0.791	1.595	2.111
161.123	1.039	430.401	0.317	1.7882604522E+002	4.5474578319E+001	-1.6796999105E+001	0.759	1.579	2.075
161.376	1.016	430.481	0.317	1.7421092447E+002	4.2406329340E+001	-1.8484043573E+001	0.726	1.568	2.043
161.428	1.011	430.497	0.316	1.7323973455E+002	4.1823313950E+001	-1.8845068052E+001	0.720	1.566	2.039
161.681	0.978	430.577	0.324	1.6809417638E+002	3.9089244392E+001	-2.1632263987E+001	0.693	1.561	2.018
161.933	0.950	430.661	0.332	1.6231353437E+002	3.6310659943E+001	-2.2929232653E+001	0.666	1.562	2.002
162.060	0.935	430.703	0.350	1.5939560813E+002	3.5118307999E+001	-2.3438808132E+001	0.656	1.564	1.997
162.313	0.910	430.794	0.357	1.5323066721E+002	3.2754623624E+001	-2.4974820024E+001	0.635	1.571	1.989
162.565	0.884	430.884	0.351	1.4678112251E+002	3.0437161380E+001	-2.6007477611E+001	0.615	1.580	1.982
162.649	0.874	430.912	0.357	1.4460036068E+002	2.9686873999E+001	-2.6285024433E+001	0.608	1.582	1.980
162.901	0.846	431.004	0.353	1.3786836013E+002	2.7455025795E+001	-2.6622085077E+001	0.589	1.588	1.975
163.154	0.813	431.090	0.340	1.3115386100E+002	2.5393503362E+001	-2.6826750075E+001	0.571	1.592	1.969
163.214	0.804	431.110	0.347	1.2952972366E+002	2.4899897600E+001	-2.7023852789E+001	0.567	1.592	1.967
163.467	0.769	431.198	0.346	1.2255736370E+002	2.2903767499E+001	-2.8637125103E+001	0.549	1.592	1.959
163.719	0.732	431.285	0.340	1.1506545114E+002	2.0998796172E+001	-2.9567841392E+001	0.534	1.590	1.946
163.765	0.724	431.300	0.340	1.1370670564E+002	2.0658361032E+001	-2.9609490714E+001	0.531	1.589	1.943
164.018	0.683	431.386	0.350	1.0614650486E+002	1.8777741303E+001	-3.0154562077E+001	0.515	1.583	1.923
164.270	0.646	431.477	0.352	9.8475993693E+001	1.6943130480E+001	-3.0259630770E+001	0.498	1.575	1.896
164.318	0.637	431.492	0.349	9.7022046479E+001	1.6591409488E+001	-3.0378389919E+001	0.495	1.573	1.890
164.571	0.594	431.582	0.363	8.9164019429E+001	1.4744270958E+001	-3.2377578539E+001	0.476	1.561	1.849
164.824	0.555	431.675	0.368	8.0668515263E+001	1.2915098144E+001	-3.2943551363E+001	0.456	1.541	1.805
164.929	0.537	431.714	0.377	7.7214636936E+001	1.2183423522E+001	-3.3539078485E+001	0.448	1.530	1.787
165.182	0.497	431.810	0.397	6.8209666601E+001	1.0237986831E+001	-3.6812874315E+001	0.421	1.497	1.733
165.434	0.464	431.914	0.418	5.8620890386E+001	8.1947978548E+000	-3.8928961124E+001	0.385	1.452	1.661
165.617	0.443	431.993	0.419	5.1369380125E+001	6.5951621383E+000	-3.9108816858E+001	0.346	1.411	1.596
165.870	0.406	432.097	0.413	4.1672501229E+001	4.5055518978E+000	-3.8676610967E+001	0.282	1.349	1.485
166.122	0.370	432.201	0.408	3.1834282279E+001	2.8249321086E+000	-3.8603176616E+001	0.272	1.278	1.360
166.375	0.331	432.302	0.383	2.2174494204E+001	2.5807930238E+000	-3.6412901394E+001	0.263	1.211	1.254
166.595	0.288	432.382	0.334	1.4531096983E+001	3.4600953577E+000	-3.1152596756E+001	0.471	1.163	1.207
166.750	0.246	432.428	0.334	1.0091690709E+001	3.8982030725E+000	-3.3085866135E+001	0.663	1.176	1.210

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
ht(m) : Altezza linea di thrust da nodo sinistro base concio
yt(m) : coordinata Y linea di trust
yt'(-) : gradiente pendenza locale linea di trust
E(x)(kN/m) : Forza Normale interconcio
T(x)(kN/m) : Forza Tangenziale interconcio
E' (kN) : derivata Forza normale interconcio
Rho(x) (-) : fattore mobilizzazione resistenza al taglio verticale interconcio ZhU et al.(2003)
FS_FEM(x) (-) : fattore di sicurezza locale stimato (locale in X) by qFEM
FS_SRM(x) (-) : fattore di sicurezza locale stimato (locale in X) by SRM Procedure

TABELLA SFORZI DI TAGLIO DISTRIBUITI LUNGO SUPERFICIE INDIVIDUATA CON MINOR FS

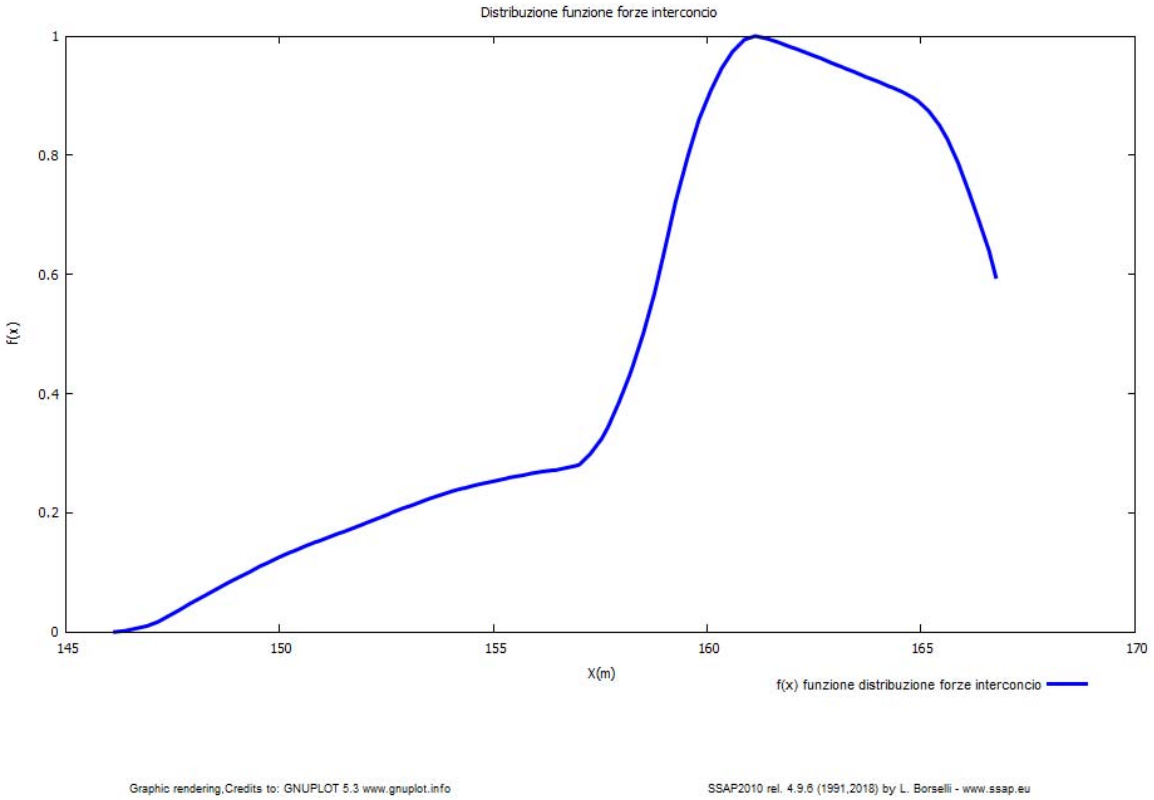
X (m)	dx (m)	dl (m)	alpha (°)	TauStress (kPa)	TauF (kN/m)	TauStrength (kPa)	TauS (kN/m)
146.143	0.253	0.258	-11.273	-0.147	-0.038	7.606	1.959
146.396	0.253	0.258	-11.273	-0.440	-0.113	8.370	2.155
146.648	0.253	0.258	-11.273	-0.733	-0.189	9.218	2.374
146.901	0.253	0.258	-11.273	-1.026	-0.264	10.238	2.636
147.153	0.253	0.258	-11.273	-1.319	-0.340	11.421	2.941
147.406	0.253	0.258	-11.273	-1.612	-0.415	12.334	3.176
147.658	0.253	0.258	-11.273	-1.905	-0.491	13.056	3.362
147.911	0.134	0.137	-11.273	-2.130	-0.292	13.578	1.859
148.045	0.253	0.257	-11.091	-2.314	-0.596	14.136	3.638
148.298	0.253	0.257	-11.091	-2.600	-0.669	14.895	3.833
148.550	0.253	0.257	-11.091	-2.885	-0.742	15.671	4.033
148.803	0.221	0.226	-11.091	-3.153	-0.711	16.464	3.715
149.024	0.253	0.257	-10.755	-3.314	-0.852	17.177	4.415

149.277	0.253	0.257	-10.755	-3.585	-0.922	18.047	4.639
149.529	0.189	0.192	-10.755	-3.822	-0.735	18.792	3.613
149.718	0.253	0.257	-10.402	-3.921	-1.007	19.534	5.016
149.971	0.253	0.257	-10.402	-4.178	-1.073	20.381	5.233
150.223	0.117	0.119	-10.402	-4.366	-0.517	20.986	2.487
150.340	0.253	0.256	-9.959	-4.353	-1.116	21.645	5.550
150.592	0.253	0.256	-9.959	-4.593	-1.178	22.503	5.770
150.845	0.051	0.051	-9.959	-4.736	-0.244	23.024	1.185
150.896	0.253	0.256	-9.613	-4.704	-1.205	23.490	6.017
151.148	0.253	0.256	-9.613	-4.930	-1.263	24.366	6.241
151.401	0.054	0.055	-9.613	-5.068	-0.279	24.891	1.372
151.455	0.253	0.256	-9.274	-5.013	-1.283	25.375	6.493
151.708	0.253	0.256	-9.274	-5.227	-1.338	26.281	6.725
151.960	0.063	0.064	-9.274	-5.361	-0.342	26.897	1.717
152.023	0.253	0.256	-8.943	-5.288	-1.352	27.381	7.000
152.276	0.253	0.256	-8.943	-5.490	-1.404	28.315	7.239
152.528	0.080	0.081	-8.943	-5.623	-0.457	28.881	2.349
152.609	0.253	0.255	-8.633	-5.546	-1.417	29.576	7.555
152.861	0.253	0.255	-8.633	-5.736	-1.465	30.486	7.787
153.114	0.108	0.109	-8.633	-5.872	-0.640	31.026	3.380
153.221	0.253	0.254	-7.080	-4.859	-1.236	31.868	8.110
153.474	0.253	0.254	-7.080	-4.998	-1.272	32.632	8.304
153.726	0.048	0.048	-7.080	-5.081	-0.245	33.226	1.603
153.774	0.253	0.254	-5.266	-3.721	-0.944	33.606	8.523
154.027	0.253	0.254	-5.266	-3.809	-0.966	34.149	8.661
154.279	0.029	0.029	-5.266	-3.858	-0.112	34.521	1.003
154.308	0.253	0.253	-3.268	-2.227	-0.563	35.073	8.872
154.561	0.253	0.253	-3.268	-2.269	-0.574	35.591	9.003
154.813	0.008	0.008	-3.268	-2.291	-0.019	35.709	0.289
154.822	0.253	0.253	-1.288	-0.577	-0.146	36.077	9.113
155.074	0.253	0.253	-1.288	-0.585	-0.148	36.700	9.271
155.327	0.037	0.037	-1.288	-0.590	-0.022	36.787	1.368
155.364	0.253	0.253	0.764	1.259	0.318	37.096	9.369
155.616	0.084	0.084	0.764	1.269	0.106	37.825	3.165
155.700	0.183	0.183	0.764	1.278	0.234	38.054	6.971
155.883	0.253	0.253	2.788	3.166	0.800	37.764	9.548
156.136	0.253	0.253	2.788	3.203	0.810	38.651	9.773
156.388	0.043	0.043	2.788	3.225	0.138	38.527	1.649
156.431	0.253	0.253	4.610	4.955	1.255	38.245	9.690
156.684	0.253	0.253	4.610	4.998	1.266	38.957	9.870
156.936	0.077	0.077	4.610	5.026	0.389	38.946	3.015
157.013	0.253	0.254	6.099	6.463	1.641	38.390	9.750
157.266	0.253	0.254	6.099	6.503	1.652	38.583	9.799
157.518	0.012	0.012	6.099	6.524	0.076	38.487	0.451
157.530	0.150	0.151	6.099	6.536	0.987	38.607	5.829
157.680	0.253	0.255	7.985	8.350	2.129	37.578	9.583
157.933	0.253	0.255	7.985	8.377	2.136	37.403	9.538
158.185	0.067	0.068	7.985	8.394	0.571	37.329	2.538
158.253	0.253	0.257	10.312	10.569	2.713	36.069	9.259
158.505	0.253	0.257	10.312	10.564	2.712	35.666	9.155
158.758	0.033	0.034	10.312	10.562	0.354	35.438	1.188
158.791	0.209	0.215	12.896	12.870	2.765	34.332	7.375
159.000	0.253	0.259	12.896	46.541	12.058	104.245	27.008
159.253	0.044	0.045	12.896	46.507	2.101	104.121	4.703
159.297	0.253	0.262	15.433	54.335	14.235	101.696	26.643
159.549	0.253	0.262	15.433	54.205	14.201	101.466	26.583
159.802	0.033	0.034	15.433	54.132	1.860	101.336	3.483
159.835	0.253	0.265	17.865	61.163	16.229	99.291	26.346
160.087	0.252	0.265	17.865	60.948	16.129	99.117	26.230
160.339	0.253	0.269	20.253	67.232	18.098	97.002	26.112
160.592	0.253	0.269	20.253	66.917	18.013	96.772	26.050
160.844	0.026	0.028	20.253	66.743	1.863	96.585	2.697
160.870	0.253	0.273	22.325	71.777	19.596	94.443	25.784
161.123	0.253	0.273	22.325	71.364	19.483	94.082	25.685
161.376	0.052	0.057	22.325	71.114	4.030	93.574	5.303
161.428	0.253	0.276	24.001	74.753	20.665	91.590	25.320
161.681	0.253	0.276	24.001	74.252	20.527	91.088	25.181
161.933	0.127	0.139	24.001	73.876	10.282	90.265	12.563
162.060	0.253	0.278	24.643	74.898	20.810	89.179	24.778
162.313	0.253	0.278	24.643	74.362	20.661	88.560	24.607
162.565	0.083	0.092	24.643	74.005	6.787	88.135	8.083

162.649	0.253	0.279	25.348	75.115	20.991	86.962	24.301
162.901	0.253	0.279	25.348	74.539	20.830	86.174	24.081
163.154	0.060	0.067	25.348	74.182	4.959	85.809	5.736
163.214	0.253	0.281	26.077	75.269	21.163	84.565	23.777
163.467	0.253	0.281	26.077	74.650	20.989	83.838	23.572
163.719	0.046	0.051	26.077	74.285	3.803	83.431	4.271
163.765	0.253	0.283	26.814	75.303	21.308	82.260	23.277
164.018	0.253	0.283	26.814	74.640	21.121	81.561	23.079
164.270	0.048	0.054	26.814	74.246	4.000	81.197	4.375
164.318	0.253	0.285	27.737	75.483	21.538	79.780	22.764
164.571	0.253	0.285	27.737	74.763	21.332	79.087	22.566
164.824	0.106	0.120	27.737	74.253	8.874	78.499	9.382
164.929	0.253	0.287	28.467	74.948	21.531	77.490	22.261
165.182	0.253	0.287	28.467	74.182	21.311	76.945	22.105
165.434	0.183	0.208	28.467	73.522	15.305	76.592	15.944
165.617	0.253	0.289	29.138	73.897	21.366	75.095	21.713
165.870	0.253	0.289	29.138	73.088	21.132	73.761	21.327
166.122	0.253	0.289	29.138	72.278	20.898	70.853	20.486
166.375	0.220	0.251	29.138	71.522	17.977	68.269	17.159
166.595	0.155	0.179	29.493	71.434	12.758	67.737	12.097
166.750	0.250	0.287	29.493	70.766	20.325	74.435	21.379

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
dl(m) : lunghezza base concio
alpha(°) : Angolo pendenza base concio
TauStress(kPa) : Sforzo di taglio su base concio
TauF (kN/m) : Forza di taglio su base concio
TauStrength(kPa) : Resistenza al taglio su base concio
TauS (kN/m) : Forza resistente al taglio su base concio



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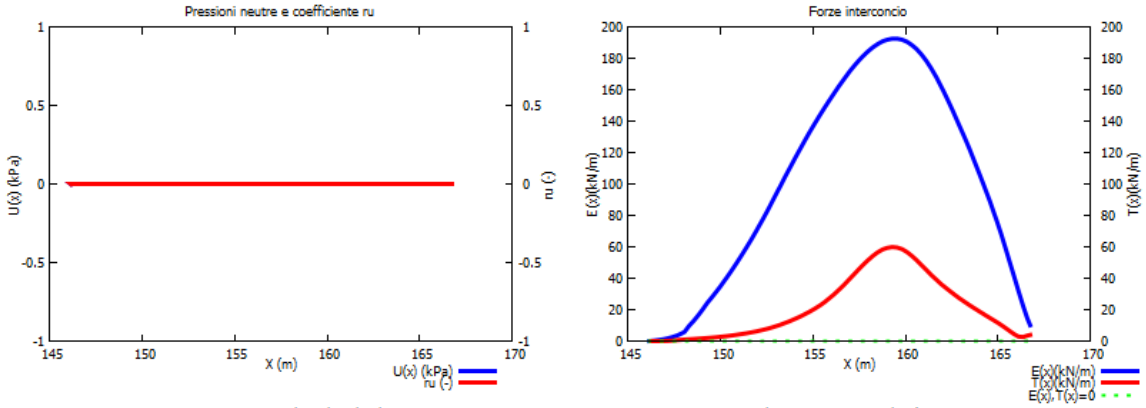


21/04/20 18:25

SSAP2010 (versione 4.9.6 - 2018) - DISTRIBUZIONE FORZE e PRESSIONI

SSAP 4.9.6 (2018) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 1.5.2 (2018)

Data : 21/4/2020
Localita' : Ferrandina (MT)
Descrizione : Parco Eolico 'Montagnola' - FER A5
[n] = N. strato o lente

Sn --> Sovraccarico

Modello di calcolo : Janbu Rigoroso (1973)

DATI IO SUP. CON MINOR Fs

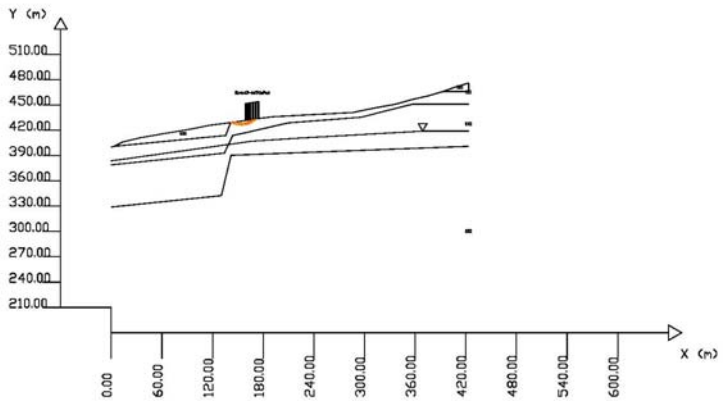
Fs minimo : 1.8074
Range Fs : 1.8074 1.9063
Differenza % Range Fs : 5.19
Coefficiente Sismico orizzontale - Kh: 0.0110

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 5.0
Range X inizio generazione : 0.1 - 381.1
Range X termine generazione : 42.4 - 414.8
Livello Y minimo considerato : 196.7

Parametri Geotecnici degli strati # ----------

N.	phi'	C'	Cu	Gamm	GammSat	sgci	GSI	mi	D
"	deg	kPa	kPa	kN/m3	kN/m3	MPa	"	"	"
1	26.60	7.20	0	19.31	20.45	0	0	0	0
2	26.60	7.20	0	19.31	20.45	0	0	0	0
3	24.60	31.48	0	19.93	20.21	0	0	0	0
4	27.70	10.20	0	19.70	20.50	0	0	0	0
5	24.90	12.03	0	19.57	19.86	0	0	0	0



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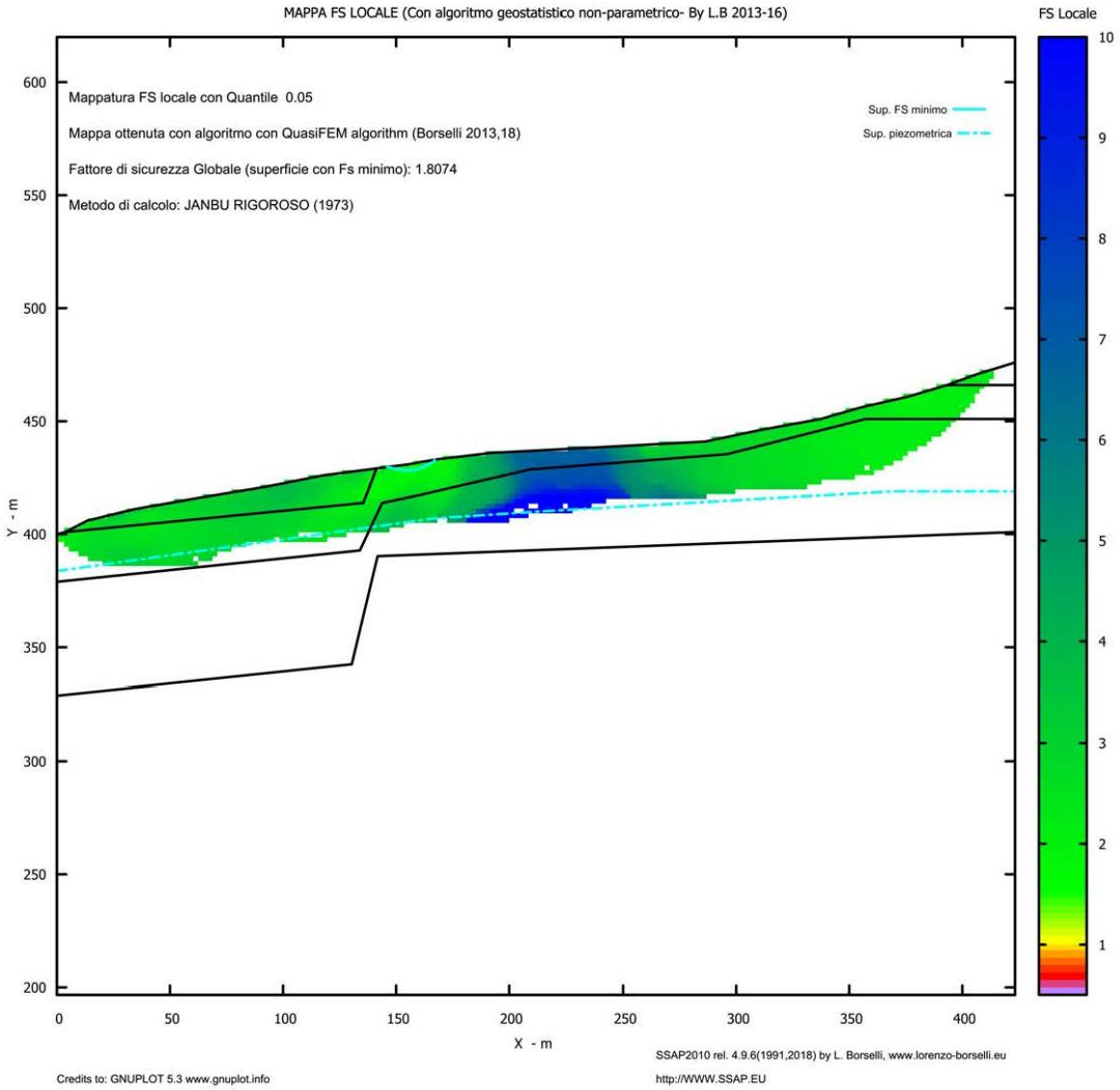

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1.6 VERIFICA DELLA SEZIONE 6-6'

Localita' : Ferrandina (MT) - Descrizione: Parco eolico "Montagnola" - FER A6
Modello pendio: MODELLO CON FALDA.mod
---------- PARAMETRI DEL MODELLO DEL PENDIO ----------
__ PARAMETRI GEOMETRICI - Coordinate X Y (in m) __

SUP T.		SUP 2		SUP 3		SUP 4	
X	Y	X	Y	X	Y	X	Y
0.00	350.00	178.10	384.00	60.54	367.69	0.00	323.65
6.80	353.00	474.10	384.00	474.10	367.69	215.40	346.50
16.30	358.00	-	-	-	-	265.60	349.80
24.30	363.00	-	-	-	-	417.51	358.47
60.54	367.69	-	-	-	-	474.10	358.47
96.50	373.00	-	-	-	-	-	-
139.30	378.00	-	-	-	-	-	-
171.30	383.00	-	-	-	-	-	-
178.10	384.00	-	-	-	-	-	-
193.80	388.00	-	-	-	-	-	-
219.50	393.00	-	-	-	-	-	-
277.60	395.00	-	-	-	-	-	-
360.80	398.00	-	-	-	-	-	-
408.40	403.00	-	-	-	-	-	-
474.10	408.00	-	-	-	-	-	-

---- SUP FALDA --------

X	Y (in m)
0.00	323.65
215.40	346.50
265.60	349.80
417.51	358.47
474.10	358.47

------ GESTIONE ACQUIFERI ------
Strati esclusi da acquifero:
Esclusione sovraccarico pendio sommerso: NON ATTIVATA
Peso unitario fluido (kN/m^3): 9.81
Parametri funzione dissipazione superficiale pressione dei fluidi:
Coefficiente A 0
Coefficiente K 0.000800
Pressione minima fluidi Uo_Min (kPa) 0.01
Coefficiente di soprapressione oltre pressione hidrostatica1.00
Limitazione dissipazionea a Pressione Idrostatica = ATTIVA
STABILITE CONDIZIONI PER LA VERIFICA CON SOVRAPPRESSIONE ACQUIFERI CON DISSIPAZIONE IN DIREZIONE DELLA SUPERFICIE
------- PARAMETRI GEOMECCANICI -------

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.60	7.20	0.00	19.31	20.45	1.778	0.00	0.00	0.00	0.00
STRATO 2	24.60	31.48	0.00	18.93	20.21	2.937	0.00	0.00	0.00	0.00
STRATO 3	27.67	10.20	0.00	19.70	20.45	1.992	0.00	0.00	0.00	0.00
STRATO 4	24.90	12.03	0.00	19.57	19.86	1.825	0.00	0.00	0.00	0.00

LEGENDA: fi`_____ Angolo di attrito interno efficace(in gradi)
C` _____ Coesione efficace (in Kpa)
Cu _____ Resistenza al taglio Non drenata (in Kpa)
Gamm _____ Peso di volume terreno fuori falda (in KN/m^3)
Gamm_sat __ Peso di volume terreno immerso (in KN/m^3)
STR_IDX ___ Indice di resistenza (usato in solo in 'SNIFF SEARCH) (adimensionale)

---- SOLO Per AMMASSI ROCCIOSI FRATTURATI - Parametri Criterio di Rottura di Hoek (2002)-
sigci _____ Resistenza Compressione Uniassiale Roccia Intatta (in MPa)
GSI _____ Geological Strenght Index ammasso(adimensionale)
mi _____ Indice litologico ammasso(adimensionale)
D _____ Fattore di disturbo ammasso(adimensionale)
Fattore di riduzione NTC2018 gammaPHI=1.25 e gammaC=1.25 - DISATTIVATO (solo per ROCCE)
Uso CRITERIO DI ROTTURA Hoek et al.(2002,2006) - non-lineare - Generalizzato secondo Lei et al.(2016)

SOVRACCARICHI PRESENTI ----- SOVRACCARICO N.1
Carico in X1 (Kpa): 147.10
Carico in X2 (Kpa): 147.10
Posizione carico da X1 m.: 269.00 a X2 m.: 285.00
Inclinazione carico (gradi): 90.00
Componenti distribuzione forza unitaria applicata:
#Orizzontale (per metro di proiezione Verticale) (kN/m): da 0.00 a 0.00
#Verticale (per metro di proiezione Orizzontale) (kN/m): da 147.10 a 147.10
##Nota: la distribuzione del carico e delle forze unitarie puo' variare
in modo lineare tra gli estremi di coordinate X1 e X2

---------- INFORMAZIONI GENERAZIONE SUPERFICI RANDOM ----------
*** PARAMETRI PER LA GENERAZIONE DELLE SUPERFICI
METODO DI RICERCA: CONVEX RANDOM - Chen (1992)
FILTRAGGIO SUPERFICI : ATTIVATO
COORDINATE X1,X2,Y OSTACOLO : 0.00 0.00 0.00
LUNGHEZZA MEDIA SEGMENTI (m): 19.0 (+/-) 50%
INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 0.10 426.79
LIVELLO MINIMO CONSIDERATO (Ymin): 247.74
INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 47.51 464.62

*** TOTALE SUPERFICI GENERATE : 10000
---------- INFORMAZIONI PARAMETRI DI CALCOLO ----------
METODO DI CALCOLO : JANBU RIGOROSO (Janbu, 1973)
COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0140
COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0070
COEFFICIENTE c=Kv/Kh UTILIZZATO : 0.5000
FORZA ORIZZONTALE ADDIZIONALE IN TESTA (kN/m): 0.00
FORZA ORIZZONTALE ADDIZIONALE ALLA BASE (kN/m): 0.00
N.B. Le forze orizzontali addizionali in testa e alla base sono poste uguali a 0 durante le tutte le verifiche globali.
I valori >0 impostati dall'utente sono utilizzati solo in caso di verifica singola –
RISULTATO FINALE ELABORAZIONI ----------
* DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Fattore di sicurezza (FS) 1.8276 - Min. - X Y Lambda= 1.0000
0.74 350.32
12.00 351.33
21.90 354.00
40.67 362.79
47.54 366.01
Fattore di sicurezza (FS) 1.8338 - N.2 -- X Y Lambda= 1.0000
0.26 350.11
11.11 351.17
23.76 354.70
47.53 366.01
Fattore di sicurezza (FS) 1.8362 - N.3 -- X Y Lambda= 1.0000
1.14 350.50
11.62 351.38
21.71 354.05
34.33 359.87
47.63 366.02
Fattore di sicurezza (FS) 1.8389 - N.4 -- X Y Lambda= 1.0000

0.53 350.24
12.81 351.42
23.44 354.38
47.87 366.05
Fattore di sicurezza (FS) 1.8392 - N.5 -- X Y Lambda= 1.0000
0.50 350.22
11.29 351.15
22.63 354.18
39.04 361.81
48.25 366.10
Fattore di sicurezza (FS) 1.8419 - N.6 -- X Y Lambda= 1.0000
0.31 350.14
11.15 351.13
23.61 354.53
48.11 366.08
Fattore di sicurezza (FS) 1.8432 - N.7 -- X Y Lambda= 1.0000
0.44 350.19
11.38 351.27
24.44 354.92
47.55 366.01
Fattore di sicurezza (FS) 1.8443 - N.8 -- X Y Lambda= 1.0000
0.64 350.28
15.01 351.84
24.18 354.51
47.56 366.01
Fattore di sicurezza (FS) 1.8455 - N.9 -- X Y Lambda= 1.0000
0.26 350.11
12.89 351.38
24.32 354.60
39.80 362.06
48.16 366.09
Fattore di sicurezza (FS) 1.8465 - N.10 -- X Y Lambda= 1.0000
0.37 350.16
11.30 351.27
21.49 354.15
39.06 361.92
48.61 366.15

---------- ANALISI DEFICIT DI RESISTENZA ----------
DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Analisi Deficit in riferimento a FS(progetto) = 1.100

Sup N.	FS	FTR(kN/m)	FTA(kN/m)	Bilancio(kN/m)	ESITO
1	1.828	2402.9	1314.8	956.6	Surplus
2	1.834	2421.1	1320.3	968.8	Surplus
3	1.836	2361.2	1285.9	946.7	Surplus
4	1.839	2476.8	1346.9	995.2	Surplus
5	1.839	2472.7	1344.4	993.8	Surplus
6	1.842	2476.1	1344.3	997.3	Surplus
7	1.843	2420.2	1313.0	975.8	Surplus
8	1.844	2488.9	1349.5	1004.4	Surplus
9	1.845	2532.2	1372.1	1022.9	Surplus
10	1.846	2401.8	1300.7	971.0	Surplus

Esito analisi: SURPLUS di RESISTENZA!
Valore minimo di SURPLUS di RESISTENZA (kN/m): 946.7
Note: FTR --> Forza totale Resistente rispetto alla superficie
di scivolamento (componente Orizzontale)
FTA --> Forza totale Agente rispetto alla superficie
di scivolamento (componente Orizzontale)

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IMPORTANTE! : Il Deficit o il Surplus di resistenza viene espresso in kN per metro di LARGHEZZA rispetto al fronte della scarpata

TABELLA PARAMETRI CONCI DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	dx (m)	alpha (°)	W (kN/m)	ru (-)	U (kPa)	phi' (°)	(c',Cu) (kPa)
0.736	0.401	5.09	0.56	0.00	0.00	27.67	10.20
1.137	0.401	5.09	1.68	0.00	0.00	27.67	10.20
1.538	0.401	5.09	2.81	0.00	0.00	27.67	10.20
1.939	0.401	5.09	3.93	0.00	0.00	27.67	10.20
2.340	0.401	5.09	5.05	0.00	0.00	27.67	10.20
2.741	0.401	5.09	6.18	0.00	0.00	27.67	10.20
3.142	0.401	5.09	7.30	0.00	0.00	27.67	10.20
3.543	0.401	5.09	8.42	0.00	0.00	27.67	10.20
3.944	0.401	5.09	9.55	0.00	0.00	27.67	10.20
4.346	0.401	5.09	10.67	0.00	0.00	27.67	10.20
4.747	0.401	5.09	11.79	0.00	0.00	27.67	10.20
5.148	0.401	5.09	12.92	0.00	0.00	27.67	10.20
5.549	0.401	5.09	14.04	0.00	0.00	27.67	10.20
5.950	0.401	5.09	15.16	0.00	0.00	27.67	10.20
6.351	0.401	5.09	16.29	0.00	0.00	27.67	10.20
6.752	0.048	5.09	2.03	0.00	0.00	27.67	10.20
6.800	0.401	5.09	17.68	0.00	0.00	27.67	10.20
7.201	0.401	5.09	19.07	0.00	0.00	27.67	10.20
7.602	0.401	5.09	20.47	0.00	0.00	27.67	10.20
8.003	0.401	5.09	21.86	0.00	0.00	27.67	10.20
8.404	0.401	5.09	23.26	0.00	0.00	27.67	10.20
8.805	0.401	5.09	24.65	0.00	0.00	27.67	10.20
9.206	0.401	5.09	26.05	0.00	0.00	27.67	10.20
9.607	0.401	5.09	27.44	0.00	0.00	27.67	10.20
10.008	0.401	5.09	28.84	0.00	0.00	27.67	10.20
10.409	0.401	5.09	30.23	0.00	0.00	27.67	10.20
10.810	0.401	5.09	31.63	0.00	0.00	27.67	10.20
11.211	0.401	5.09	33.02	0.00	0.00	27.67	10.20
11.613	0.388	5.09	33.24	0.00	0.00	27.67	10.20
12.000	0.401	15.09	35.48	0.00	0.00	27.67	10.20
12.401	0.401	15.09	36.30	0.00	0.00	27.67	10.20
12.802	0.401	15.09	37.12	0.00	0.00	27.67	10.20
13.203	0.401	15.09	37.93	0.00	0.00	27.67	10.20
13.604	0.401	15.09	38.75	0.00	0.00	27.67	10.20
14.005	0.401	15.09	39.57	0.00	0.00	27.67	10.20
14.406	0.401	15.09	40.39	0.00	0.00	27.67	10.20
14.807	0.401	15.09	41.21	0.00	0.00	27.67	10.20
15.208	0.401	15.09	42.03	0.00	0.00	27.67	10.20
15.609	0.401	15.09	42.85	0.00	0.00	27.67	10.20
16.011	0.289	15.09	31.43	0.00	0.00	27.67	10.20
16.300	0.401	15.09	44.41	0.00	0.00	27.67	10.20
16.701	0.401	15.09	45.55	0.00	0.00	27.67	10.20
17.102	0.401	15.09	46.68	0.00	0.00	27.67	10.20
17.503	0.401	15.09	47.81	0.00	0.00	27.67	10.20
17.904	0.401	15.09	48.95	0.00	0.00	27.67	10.20
18.305	0.401	15.09	50.08	0.00	0.00	27.67	10.20
18.706	0.401	15.09	51.21	0.00	0.00	27.67	10.20
19.107	0.401	15.09	52.35	0.00	0.00	27.67	10.20
19.508	0.401	15.09	53.48	0.00	0.00	27.67	10.20
19.909	0.401	15.09	54.61	0.00	0.00	27.67	10.20
20.310	0.401	15.09	55.75	0.00	0.00	27.67	10.20
20.711	0.401	15.09	56.88	0.00	0.00	27.67	10.20
21.113	0.401	15.09	58.02	0.00	0.00	27.67	10.20
21.514	0.390	15.09	57.51	0.00	0.00	27.67	10.20
21.904	0.401	25.09	59.93	0.00	0.00	27.67	10.20
22.305	0.401	25.09	60.43	0.00	0.00	27.67	10.20
22.706	0.401	25.09	60.93	0.00	0.00	27.67	10.20
23.107	0.401	25.09	61.43	0.00	0.00	27.67	10.20
23.508	0.401	25.09	61.93	0.00	0.00	27.67	10.20
23.909	0.391	25.09	60.89	0.00	0.00	27.67	10.20
24.300	0.401	25.09	62.13	0.00	0.00	27.67	10.20
24.701	0.401	25.09	61.05	0.00	0.00	27.67	10.20
25.102	0.401	25.09	59.97	0.00	0.00	27.67	10.20
25.503	0.401	25.09	58.89	0.00	0.00	27.67	10.20
25.904	0.401	25.09	57.81	0.00	0.00	27.67	10.20

26.305	0.401	25.09	56.72	0.00	0.00	27.67	10.20
26.706	0.401	25.09	55.64	0.00	0.00	27.67	10.20
27.107	0.401	25.09	54.56	0.00	0.00	27.67	10.20
27.508	0.401	25.09	53.48	0.00	0.00	27.67	10.20
27.909	0.401	25.09	52.40	0.00	0.00	27.67	10.20
28.310	0.401	25.09	51.32	0.00	0.00	27.67	10.20
28.711	0.401	25.09	50.24	0.00	0.00	27.67	10.20
29.113	0.401	25.09	49.16	0.00	0.00	27.67	10.20
29.514	0.401	25.09	48.07	0.00	0.00	27.67	10.20
29.915	0.401	25.09	46.99	0.00	0.00	27.67	10.20
30.316	0.401	25.09	45.91	0.00	0.00	27.67	10.20
30.717	0.401	25.09	44.83	0.00	0.00	27.67	10.20
31.118	0.401	25.09	43.75	0.00	0.00	27.67	10.20
31.519	0.401	25.09	42.67	0.00	0.00	27.67	10.20
31.920	0.401	25.09	41.59	0.00	0.00	27.67	10.20
32.321	0.401	25.09	40.50	0.00	0.00	27.67	10.20
32.722	0.401	25.09	39.42	0.00	0.00	27.67	10.20
33.123	0.401	25.09	38.34	0.00	0.00	27.67	10.20
33.524	0.401	25.09	37.26	0.00	0.00	27.67	10.20
33.925	0.401	25.09	36.18	0.00	0.00	27.67	10.20
34.326	0.401	25.09	35.10	0.00	0.00	27.67	10.20
34.727	0.401	25.09	34.02	0.00	0.00	27.67	10.20
35.128	0.401	25.09	32.93	0.00	0.00	27.67	10.20
35.529	0.401	25.09	31.85	0.00	0.00	27.67	10.20
35.930	0.401	25.09	30.77	0.00	0.00	27.67	10.20
36.331	0.401	25.09	29.69	0.00	0.00	27.67	10.20
36.732	0.401	25.09	28.61	0.00	0.00	27.67	10.20
37.133	0.401	25.09	27.53	0.00	0.00	27.67	10.20
37.534	0.401	25.09	26.45	0.00	0.00	27.67	10.20
37.935	0.401	25.09	25.37	0.00	0.00	27.67	10.20
38.337	0.401	25.09	24.28	0.00	0.00	27.67	10.20
38.738	0.401	25.09	23.20	0.00	0.00	27.67	10.20
39.139	0.401	25.09	22.12	0.00	0.00	27.67	10.20
39.540	0.401	25.09	21.04	0.00	0.00	27.67	10.20
39.941	0.401	25.09	19.96	0.00	0.00	27.67	10.20
40.342	0.325	25.09	15.39	0.00	0.00	27.67	10.20
40.667	0.401	25.10	18.00	0.00	0.00	27.67	10.20
41.068	0.401	25.10	16.92	0.00	0.00	27.67	10.20
41.469	0.401	25.10	15.84	0.00	0.00	27.67	10.20
41.870	0.401	25.10	14.75	0.00	0.00	27.67	10.20
42.271	0.401	25.10	13.67	0.00	0.00	27.67	10.20
42.672	0.401	25.10	12.59	0.00	0.00	27.67	10.20
43.073	0.401	25.10	11.51	0.00	0.00	27.67	10.20
43.474	0.401	25.10	10.43	0.00	0.00	27.67	10.20
43.875	0.401	25.10	9.34	0.00	0.00	27.67	10.20
44.276	0.401	25.10	8.26	0.00	0.00	27.67	10.20
44.677	0.401	25.10	7.18	0.00	0.00	27.67	10.20
45.078	0.401	25.10	6.10	0.00	0.00	27.67	10.20
45.479	0.401	25.10	5.02	0.00	0.00	27.67	10.20
45.881	0.401	25.10	3.93	0.00	0.00	27.67	10.20
46.282	0.401	25.10	2.85	0.00	0.00	27.67	10.20
46.683	0.401	25.10	1.77	0.00	0.00	27.67	10.20
47.084	0.401	25.10	0.69	0.00	0.00	27.67	10.20
47.485	0.054	25.10	0.01	0.00	0.00	27.67	10.20

LEGENDA SIMBOLI

X(m): Ascissa sinistra concio dx(m): Larghezza concio alpha(°): Angolo pendenza base concio W(kN/m) : Forza peso concio ru(-) : Coefficiente locale pressione interstiziale U(kPa) : Pressione totale dei pori base concio phi'(°) : Angolo di attrito efficace base concio c'/Cu (kPa) : Coesione efficace o Resistenza al taglio in condizioni non drenate

TABELLA DIAGRAMMA DELLE FORZE DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X (m)	ht (m)	yt (m)	yt' (--)	E(x) (kN/m)	T(x) (kN/m)	E' (kN)	rho(x) (--)	FS_FEM (--)	FS_p-qFEM (--)
0.736	0.000	350.325	0.178	0.0000000000E+000	0.0000000000E+000	1.1631700332E+000	0.228	6.846	5.269
1.137	0.035	350.396	0.178	7.4108648684E-001	2.2770546274E-001	2.5326200939E+000	0.228	6.846	5.269
1.538	0.071	350.467	0.180	2.0313821547E+000	8.8460994674E-001	4.4095106219E+000	0.410	3.474	3.077
1.939	0.108	350.540	0.182	4.2778985059E+000	2.1621114476E+000	1.0170833837E+001	0.602	2.612	2.505
2.340	0.146	350.614	0.186	1.0189277768E+001	3.4849590133E+000	1.2260026060E+001	0.574	2.244	2.302
2.741	0.185	350.689	0.189	1.4111508456E+001	4.9667551654E+000	9.9009084089E+000	0.622	2.046	2.227
3.142	0.226	350.765	0.192	1.8130669650E+001	6.5632854625E+000	1.0245075504E+001	0.661	1.929	2.210
3.543	0.268	350.843	0.204	2.2328952360E+001	8.2432162720E+000	1.1310835626E+001	0.691	1.839	2.225
3.944	0.318	350.929	0.215	2.7202946104E+001	1.0200519452E+001	1.2445540860E+001	0.723	1.787	2.266

4.346	0.369	351.016	0.210	3.2311361355E+001	1.2264639931E+001	1.2591496393E+001	0.750	1.757	2.319
4.747	0.415	351.097	0.203	3.7302424164E+001	1.4305535983E+001	1.2518676283E+001	0.770	1.745	2.375
5.148	0.460	351.179	0.202	4.2352431337E+001	1.6422326598E+001	1.2784733212E+001	0.789	1.745	2.432
5.549	0.506	351.259	0.201	4.7556895003E+001	1.8603732834E+001	1.3237851239E+001	0.805	1.752	2.483
5.950	0.551	351.340	0.201	5.2970342345E+001	2.0745624592E+001	1.3799023242E+001	0.815	1.765	2.525
6.351	0.595	351.421	0.201	5.8624914890E+001	2.2980442516E+001	1.4420477518E+001	0.825	1.781	2.572
6.752	0.641	351.502	0.201	6.4536822751E+001	2.5303647944E+001	1.5101876176E+001	0.834	1.800	2.622
6.800	0.646	351.511	0.206	6.5266965254E+001	2.5584131443E+001	1.5139785537E+001	0.835	1.802	2.628
7.201	0.693	351.594	0.213	7.1320549356E+001	2.8053621466E+001	1.5091528356E+001	0.841	1.823	2.677
7.602	0.745	351.681	0.222	7.7371686946E+001	3.0663747752E+001	1.4785455549E+001	0.850	1.846	2.725
8.003	0.800	351.772	0.231	8.3179773967E+001	3.3393333453E+001	1.4436897829E+001	0.863	1.869	2.769
8.404	0.858	351.867	0.241	8.8951337873E+001	3.6231036367E+001	1.4455368344E+001	0.876	1.894	2.807
8.805	0.921	351.966	0.251	9.4774239858E+001	3.9161680886E+001	1.4546606699E+001	0.890	1.921	2.839
9.206	0.988	352.068	0.262	1.0061898488E+002	4.2164805598E+001	1.4654280025E+001	0.904	1.948	2.863
9.607	1.060	352.176	0.275	1.0652825026E+002	4.5211324674E+001	1.4689515086E+001	0.917	1.973	2.878
10.008	1.137	352.289	0.285	1.1240125687E+002	4.8266307552E+001	1.4561185262E+001	0.928	1.993	2.884
10.409	1.217	352.404	0.285	1.1820759055E+002	5.1298332884E+001	1.4355668930E+001	0.939	2.005	2.881
10.810	1.294	352.517	0.287	1.2391575514E+002	5.4292980532E+001	1.4070360207E+001	0.948	2.008	2.870
11.211	1.376	352.634	0.298	1.2949324634E+002	5.7236252844E+001	1.3702729609E+001	0.957	2.000	2.850
11.613	1.462	352.756	0.311	1.3490653914E+002	6.0011108816E+001	1.3249917218E+001	0.962	1.982	2.823
12.000	1.550	352.879	0.325	1.3994900254E+002	6.2482183438E+001	1.2728344525E+001	0.965	1.954	2.788
12.401	1.575	353.012	0.339	1.4493668195E+002	6.4895522330E+001	1.2157254354E+001	0.972	1.928	2.748
12.802	1.606	353.151	0.356	1.4970018062E+002	6.7169592737E+001	1.1607312433E+001	0.978	1.905	2.704
13.203	1.644	353.298	0.370	1.5424675866E+002	6.9307519582E+001	1.1076361497E+001	0.982	1.886	2.657
13.604	1.686	353.448	0.377	1.5858438838E+002	7.1315751326E+001	1.0377885607E+001	0.985	1.872	2.608
14.005	1.731	353.601	0.384	1.6257072785E+002	7.3203137076E+001	9.5091068263E+000	0.988	1.865	2.558
14.406	1.778	353.756	0.389	1.6621152122E+002	7.4981479222E+001	8.8279149534E+000	0.990	1.864	2.507
14.807	1.826	353.913	0.393	1.6965148541E+002	7.6664424143E+001	8.3475435811E+000	0.992	1.864	2.455
15.208	1.877	354.071	0.396	1.7290697907E+002	7.8262117837E+001	7.8683834264E+000	0.993	1.866	2.405
15.609	1.927	354.230	0.397	1.7596261503E+002	7.9778722253E+001	7.3498037997E+000	0.994	1.870	2.354
16.011	1.979	354.389	0.403	1.7880216260E+002	8.1205769443E+001	6.8199037262E+000	0.995	1.875	2.305
16.300	2.019	354.508	0.409	1.8072183933E+002	8.2192444611E+001	6.3966277744E+000	0.995	1.880	2.270
16.701	2.075	354.672	0.412	1.8315644642E+002	8.3437828358E+001	5.7605264911E+000	0.992	1.888	2.224
17.102	2.134	354.839	0.421	1.8534228388E+002	8.4520419681E+001	5.1201803845E+000	0.988	1.897	2.178
17.503	2.196	355.009	0.428	1.8726327756E+002	8.5406903226E+001	4.4428446698E+000	0.983	1.909	2.134
17.904	2.261	355.183	0.436	1.8890583272E+002	8.6107197215E+001	3.7320169006E+000	0.977	1.923	2.093
18.305	2.329	355.359	0.443	1.9025668054E+002	8.6569446919E+001	2.9895674172E+000	0.969	1.938	2.053
18.706	2.400	355.538	0.450	1.9130372647E+002	8.6721118529E+001	2.2133487606E+000	0.959	1.956	2.015
19.107	2.474	355.720	0.457	1.9203197924E+002	8.6500599711E+001	1.4049975688E+000	0.946	1.975	1.980
19.508	2.550	355.905	0.458	1.9243065703E+002	8.5847867549E+001	5.4494878953E-001	0.930	1.996	1.947
19.909	2.625	356.087	0.458	1.9246907569E+002	8.4693033122E+001	-3.9124524420E-001	0.909	2.000	1.916
20.310	2.701	356.272	0.462	1.9211684423E+002	8.2983696757E+001	-1.4028674339E+000	0.884	1.985	1.888
20.711	2.780	356.458	0.469	1.9134385368E+002	8.0697274018E+001	-2.4892008352E+000	0.855	1.950	1.862
21.113	2.861	356.648	0.476	1.9012028811E+002	7.7832852881E+001	-3.6494718872E+000	0.821	1.898	1.839
21.514	2.945	356.840	0.446	1.8841665900E+002	7.4401896104E+001	-4.8856848336E+000	0.782	1.829	1.819
21.904	3.001	357.001	0.473	1.8626912441E+002	7.0641370397E+001	-6.1614006203E+000	0.741	1.749	1.802
22.305	3.026	357.214	0.518	1.8352783091E+002	6.6328871567E+001	-7.4641329501E+000	0.699	1.688	1.787
22.706	3.040	357.416	0.490	1.8028223893E+002	6.1507939576E+001	-8.6786418957E+000	0.652	1.644	1.773
23.107	3.043	357.607	0.470	1.7656680334E+002	5.6325938928E+001	-9.7958584516E+000	0.602	1.618	1.762
23.508	3.042	357.793	0.456	1.7242510627E+002	5.0921009808E+001	-1.0813525890E+001	0.549	1.607	1.753
23.909	3.034	357.973	0.439	1.6789341266E+002	4.5413680425E+001	-1.1739713501E+001	0.495	1.611	1.746
24.300	3.018	358.141	0.418	1.6313330183E+002	4.0057003496E+001	-1.2551349761E+001	0.441	1.628	1.741
24.701	2.993	358.304	0.395	1.5794239080E+002	3.4707552546E+001	-1.3285929650E+001	0.392	1.646	1.737
25.102	2.960	358.458	0.373	1.5247682774E+002	2.9611770785E+001	-1.3921457754E+001	0.344	1.665	1.734
25.503	2.917	358.603	0.353	1.4677616776E+002	2.4860684856E+001	-1.4458642561E+001	0.297	1.684	1.733
25.904	2.867	358.741	0.336	1.4087973564E+002	2.0529349408E+001	-1.4897965750E+001	0.252	1.704	1.734
26.305	2.811	358.873	0.322	1.3482670015E+002	1.6658525290E+001	-1.5239770997E+001	0.211	1.725	1.735
26.706	2.750	359.000	0.312	1.2865611043E+002	1.3267949684E+001	-1.5484325647E+001	0.174	1.745	1.738
27.107	2.686	359.123	0.305	1.2240692078E+002	1.0400722735E+001	-1.5631797995E+001	0.141	1.765	1.741
27.508	2.619	359.244	0.300	1.1611804537E+002	8.0844260411E+000	-1.5682249117E+001	0.114	1.785	1.746
27.909	2.551	359.364	0.299	1.0982838953E+002	6.2718857302E+000	-1.5635762768E+001	0.091	1.805	1.751
28.310	2.483	359.483	0.299	1.0357680023E+002	4.8872677367E+000	-1.5492582287E+001	0.074	1.824	1.756
28.711	2.415	359.603	0.299	9.7401987615E+001	3.8673208063E+000	-1.5239525407E+001	0.061	1.843	1.762
29.113	2.347	359.723	0.300	9.1353371996E+001	3.1574141953E+000	-1.4907778411E+001	0.061	1.860	1.768
29.514	2.280	359.844	0.302	8.5444649402E+001	2.6917742754E+000	-1.4550757488E+001	0.061	1.877	1.774
29.915	2.213	359.965	0.303	7.9682395694E+001	2.4152916959E+000	-1.4177884587E+001	0.061	1.893	1.779
30.316	2.147	360.087	0.305	7.4072749680E+001	2.2784303643E+000	-1.3790406667E+001	0.061	1.908	1.784
30.717	2.082	360.210	0.306	6.8621287052E+001	2.2384471068E+000	-1.3389867859E+001	0.061	1.921	1.788
31.118	2.017	360.333	0.308	6.3332908088E+001	2.2601918750E+000	-1.2966525311E+001	0.061	1.932	1.791
31.519	1.953	360.457	0.310	5.8221003098E+001	2.3159443062E+000	-1.2532744257E+001	0.061	1.942	1.793
31.920	1.890	360.581	0.312	5.3280554364E+001	2.3845300140E+000	-1.2101386111E+001	0.061	1.948	1.792

32.321	1.828	360.707	0.314	4.8514636221E+001	2.4501741948E+000	-1.1662587459E+001	0.061	1.952	1.789
32.722	1.766	360.833	0.315	4.3926142268E+001	2.5069781832E+000	-1.1216862152E+001	0.062	1.953	1.784
33.123	1.705	360.960	0.317	3.9517734687E+001	2.5615430253E+000	-1.0764817869E+001	0.066	1.950	1.775
33.524	1.645	361.087	0.319	3.5291819666E+001	2.6176975660E+000	-1.0340848184E+001	0.071	1.944	1.763
33.925	1.585	361.216	0.321	3.1223472743E+001	2.6425945860E+000	-9.9060182130E+000	0.076	1.935	1.747
34.326	1.527	361.345	0.323	2.7346329275E+001	2.6187324653E+000	-9.4279051430E+000	0.080	1.923	1.728
34.727	1.469	361.474	0.325	2.3661470724E+001	2.5455373908E+000	-8.9475498053E+000	0.082	1.909	1.705
35.128	1.411	361.605	0.326	2.0169614123E+001	2.4223316824E+000	-8.4658234990E+000	0.083	1.892	1.677
35.529	1.355	361.736	0.328	1.6871142075E+001	2.2484150778E+000	-7.9835176935E+000	0.082	1.873	1.646
35.930	1.299	361.868	0.330	1.3766136786E+001	2.0217754911E+000	-7.5013238506E+000	0.078	1.851	1.611
36.331	1.244	362.001	0.332	1.0854426247E+001	1.7305274663E+000	-7.0198262048E+000	0.071	1.827	1.572
36.732	1.189	362.134	0.334	8.1356240555E+000	1.3799865185E+000	-6.5395293951E+000	0.061	1.801	1.530
37.133	1.136	362.269	0.339	5.6091534385E+000	9.6911783674E-001	-6.0608918196E+000	0.061	1.772	1.485
37.534	1.085	362.406	0.343	3.2742603188E+000	4.9759137200E-001	-5.5843220741E+000	0.061	1.742	1.437
37.935	1.035	362.543	0.343	1.1300401936E+000	-3.5100666696E-002	-5.1101675317E+000	0.061	1.712	1.388
38.337	0.985	362.681	0.343	-8.2453963787E-001	-6.2912165932E-001	-4.6387278774E+000	0.061	1.682	1.337
38.738	0.934	362.819	0.343	-2.5906240517E+000	-1.1842010700E+000	-4.1701354516E+000	0.074	1.652	1.285
39.139	0.884	362.956	0.343	-4.1693518973E+000	-1.6983093086E+000	-3.7043633308E+000	0.116	1.624	1.233
39.540	0.834	363.094	0.343	-5.5618464559E+000	-2.1692888789E+000	-3.2413686855E+000	0.160	1.599	1.181
39.941	0.784	363.232	0.344	-6.7692122239E+000	-2.5947879671E+000	-2.7811067766E+000	0.209	1.576	1.129
40.342	0.734	363.369	0.347	-7.7925365976E+000	-2.9727056116E+000	-2.6538472309E+000	0.261	1.555	1.078
40.667	0.696	363.483	0.348	-8.6825776262E+000	-3.2416051359E+000	-2.8385987318E+000	0.308	1.539	1.036
41.068	0.647	363.622	0.349	-9.8713628526E+000	-3.5140381497E+000	-2.6968405653E+000	0.373	1.522	0.984
41.469	0.600	363.763	0.352	-1.0845678919E+001	-3.7184076044E+000	-2.1647010719E+000	0.444	1.509	0.933
41.870	0.554	363.905	0.356	-1.1607641870E+001	-3.8503666100E+000	-1.6379322001E+000	0.520	1.499	0.882
42.271	0.509	364.048	0.359	-1.2159443367E+001	-3.9054679356E+000	-1.1163116528E+000	0.602	1.496	0.832
42.672	0.466	364.193	0.363	-1.2503021155E+001	-3.8789395201E+000	-5.9844224097E-001	0.690	1.497	0.786
43.073	0.424	364.339	0.366	-1.2639446228E+001	-3.8192141401E+000	-8.1451666516E-002	0.791	1.505	0.737
43.474	0.384	364.487	0.370	-1.2568352494E+001	-3.7608833079E+000	4.3805441228E-001	0.920	1.516	0.684
43.875	0.345	364.636	0.369	-1.2288088391E+001	-3.6512315619E+000	9.6203523128E-001	1.071	1.532	0.632
44.276	0.304	364.783	0.366	-1.1796716351E+001	-3.4757677960E+000	1.4867871589E+000	1.245	1.553	0.580
44.677	0.263	364.930	0.368	-1.1095555445E+001	-3.2485320766E+000	2.0112904180E+000	1.455	1.592	0.529
45.078	0.223	365.078	0.370	-1.0183486056E+001	-2.9692119461E+000	2.5366388970E+000	1.711	1.663	0.478
45.479	0.185	365.227	0.373	-9.0609498601E+000	-2.6366006456E+000	3.0605788213E+000	2.030	1.741	0.429
45.881	0.147	365.377	0.375	-7.7286349648E+000	-2.2554652209E+000	3.5836746744E+000	2.447	1.876	0.391
46.282	0.110	365.528	0.378	-6.1865302821E+000	-1.8178671861E+000	4.1060086534E+000	3.004	2.190	0.382
46.683	0.074	365.680	0.381	-4.4352579893E+000	-1.3145155144E+000	4.6263906910E+000	3.771	3.215	0.464
47.084	0.039	365.833	0.382	-2.4757615361E+000	-7.3859349726E-001	5.1433275425E+000	4.869	6.243	0.883
47.485	0.005	365.987	0.382	-3.0986081252E-001	-9.2159985998E-002	5.6613926419E+000	6.560	3.560	2.327

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio
ht(m) : Altezza linea di thrust da nodo sinistro base concio
yt(m) : coordinata Y linea di trust
yt'(-) : gradiente pendenza locale linea di trust
E(x)(kN/m) : Forza Normale interconcio
T(x)(kN/m) : Forza Tangenziale interconcio
E' (kN) : derivata Forza normale interconcio
Rho(x) (-) : fattore mobilizzazione resistenza al taglio verticale interconcio ZhU et al.(2003)
FS_FEM(x) (-) : fattore di sicurezza locale stimato (locale in X) by qFEM
FS_SRM(x) (-) : fattore di sicurezza locale stimato (locale in X) by SRM Procedure

TABELLA SFORZI DI TAGLIO DISTRIBUITI LUNGO SUPERFICIE INDIVIDUATA CON MINOR FS

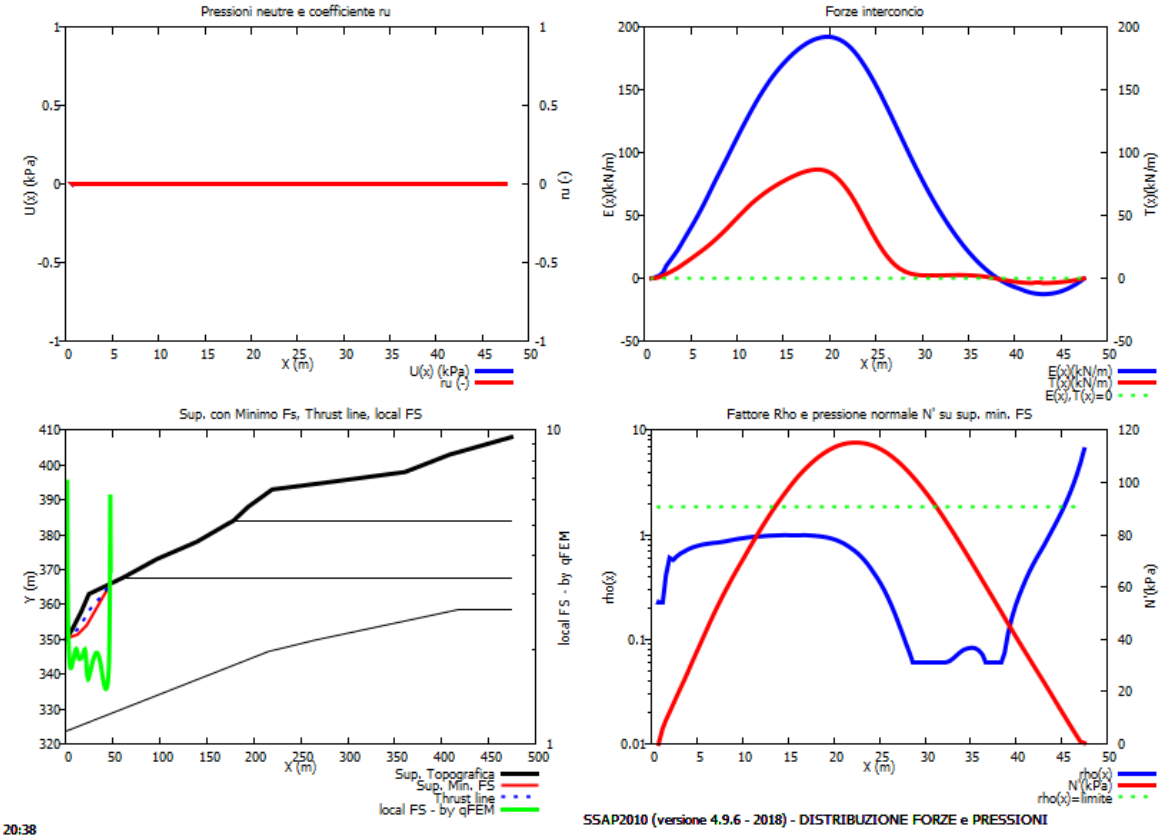
X (m)	dx (m)	dl (m)	alpha (°)	TauStress (kPa)	TauF (kN/m)	TauStrength (kPa)	TauS (kN/m)
0.736	0.401	0.403	5.095	0.143	0.058	11.131	4.482
1.137	0.401	0.403	5.095	0.430	0.173	12.970	5.222
1.538	0.401	0.403	5.095	0.717	0.289	14.980	6.031
1.939	0.401	0.403	5.095	1.003	0.404	16.475	6.634
2.340	0.401	0.403	5.095	1.290	0.519	18.073	7.277
2.741	0.401	0.403	5.095	1.576	0.635	19.630	7.904
3.142	0.401	0.403	5.095	1.863	0.750	21.160	8.520
3.543	0.401	0.403	5.095	2.150	0.866	22.863	9.205
3.944	0.401	0.403	5.095	2.436	0.981	24.414	9.830
4.346	0.401	0.403	5.095	2.723	1.096	25.848	10.407
4.747	0.401	0.403	5.095	3.010	1.212	27.371	11.020
5.148	0.401	0.403	5.095	3.296	1.327	28.884	11.630
5.549	0.401	0.403	5.095	3.583	1.443	30.304	12.201
5.950	0.401	0.403	5.095	3.869	1.558	31.842	12.821
6.351	0.401	0.403	5.095	4.156	1.673	33.376	13.438
6.752	0.048	0.048	5.095	4.317	0.209	34.200	1.655

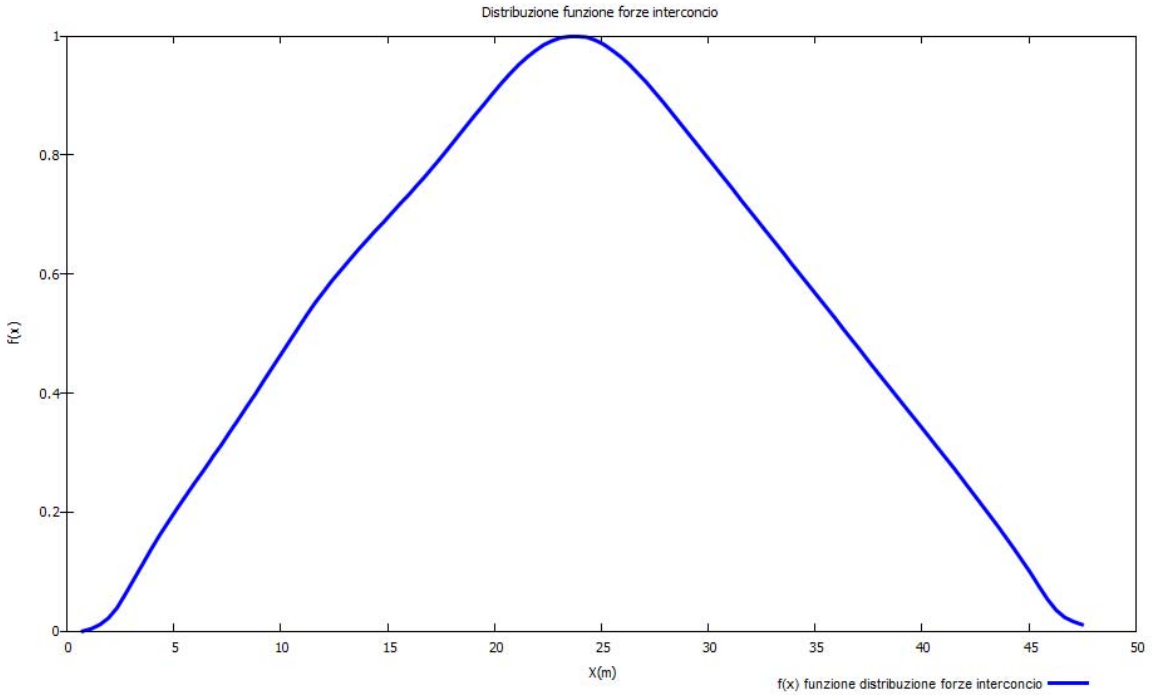
6.800	0.401	0.403	5.095	4.512	1.817	35.313	14.218
7.201	0.401	0.403	5.095	4.868	1.960	37.245	14.996
7.602	0.401	0.403	5.095	5.224	2.103	39.159	15.767
8.003	0.401	0.403	5.095	5.580	2.247	41.063	16.533
8.404	0.401	0.403	5.095	5.936	2.390	42.953	17.294
8.805	0.401	0.403	5.095	6.292	2.533	44.825	18.048
9.206	0.401	0.403	5.095	6.648	2.677	46.670	18.791
9.607	0.401	0.403	5.095	7.003	2.820	48.485	19.522
10.008	0.401	0.403	5.095	7.359	2.963	50.272	20.241
10.409	0.401	0.403	5.095	7.715	3.106	52.045	20.955
10.810	0.401	0.403	5.095	8.071	3.250	53.806	21.664
11.211	0.401	0.403	5.095	8.427	3.393	55.463	22.331
11.613	0.388	0.389	5.095	8.777	3.415	57.044	22.197
12.000	0.401	0.415	15.095	23.397	9.719	53.452	22.203
12.401	0.401	0.415	15.095	23.937	9.943	54.436	22.611
12.802	0.401	0.415	15.095	24.477	10.167	55.420	23.020
13.203	0.401	0.415	15.095	25.017	10.391	56.405	23.429
13.604	0.401	0.415	15.095	25.557	10.616	57.390	23.838
14.005	0.401	0.415	15.095	26.097	10.840	58.376	24.248
14.406	0.401	0.415	15.095	26.637	11.064	59.363	24.658
14.807	0.401	0.415	15.095	27.177	11.288	60.351	25.068
15.208	0.401	0.415	15.095	27.716	11.513	61.339	25.479
15.609	0.401	0.415	15.095	28.256	11.737	62.327	25.889
16.011	0.289	0.300	15.095	28.721	8.611	63.178	18.941
16.300	0.401	0.415	15.095	29.290	12.166	64.216	26.674
16.701	0.401	0.415	15.095	30.037	12.477	65.581	27.241
17.102	0.401	0.415	15.095	30.785	12.787	66.943	27.806
17.503	0.401	0.415	15.095	31.532	13.098	68.305	28.372
17.904	0.401	0.415	15.095	32.280	13.408	69.664	28.937
18.305	0.401	0.415	15.095	33.028	13.719	71.018	29.499
18.706	0.401	0.415	15.095	33.775	14.029	72.367	30.060
19.107	0.401	0.415	15.095	34.523	14.340	73.712	30.618
19.508	0.401	0.415	15.095	35.270	14.650	75.052	31.175
19.909	0.401	0.415	15.095	36.018	14.961	76.387	31.729
20.310	0.401	0.415	15.095	36.765	15.271	77.722	32.284
20.711	0.401	0.415	15.095	37.513	15.582	79.056	32.838
21.113	0.401	0.415	15.095	38.261	15.893	80.391	33.392
21.514	0.390	0.404	15.095	38.998	15.754	81.716	33.012
21.904	0.401	0.443	25.095	59.116	26.179	76.969	34.085
22.305	0.401	0.443	25.095	59.609	26.398	77.846	34.474
22.706	0.401	0.443	25.095	60.102	26.616	78.623	34.818
23.107	0.401	0.443	25.095	60.595	26.834	79.307	35.121
23.508	0.401	0.443	25.095	61.088	27.053	79.909	35.387
23.909	0.391	0.432	25.095	61.575	26.597	80.424	34.739
24.300	0.401	0.443	25.095	61.283	27.139	80.012	35.433
24.701	0.401	0.443	25.095	60.216	26.666	78.688	34.846
25.102	0.401	0.443	25.095	59.150	26.194	77.302	34.233
25.503	0.401	0.443	25.095	58.083	25.722	75.866	33.597
25.904	0.401	0.443	25.095	57.016	25.249	74.401	32.948
26.305	0.401	0.443	25.095	55.950	24.777	72.924	32.294
26.706	0.401	0.443	25.095	54.883	24.305	71.417	31.627
27.107	0.401	0.443	25.095	53.817	23.832	69.892	30.951
27.508	0.401	0.443	25.095	52.750	23.360	68.398	30.290
27.909	0.401	0.443	25.095	51.683	22.888	66.956	29.651
28.310	0.401	0.443	25.095	50.617	22.415	65.557	29.032
28.711	0.401	0.443	25.095	49.550	21.943	64.195	28.428
29.113	0.401	0.443	25.095	48.484	21.471	62.878	27.845
29.514	0.401	0.443	25.095	47.417	20.998	61.597	27.278
29.915	0.401	0.443	25.095	46.351	20.526	60.351	26.726
30.316	0.401	0.443	25.095	45.284	20.054	59.133	26.187
30.717	0.401	0.443	25.095	44.217	19.581	57.940	25.658
31.118	0.401	0.443	25.095	43.151	19.109	56.765	25.138
31.519	0.401	0.443	25.095	42.084	18.637	55.604	24.624
31.920	0.401	0.443	25.095	41.018	18.164	54.454	24.115
32.321	0.401	0.443	25.095	39.951	17.692	53.308	23.607
32.722	0.401	0.443	25.095	38.885	17.220	52.158	23.098
33.123	0.401	0.443	25.095	37.818	16.748	51.005	22.587
33.524	0.401	0.443	25.095	36.751	16.275	49.874	22.087
33.925	0.401	0.443	25.095	35.685	15.803	48.755	21.591
34.326	0.401	0.443	25.095	34.618	15.331	47.637	21.096
34.727	0.401	0.443	25.095	33.552	14.858	46.519	20.601

35.128	0.401	0.443	25.095	32.485	14.386	45.401	20.106
35.529	0.401	0.443	25.095	31.419	13.914	44.285	19.612
35.930	0.401	0.443	25.095	30.352	13.441	43.177	19.121
36.331	0.401	0.443	25.095	29.285	12.969	42.066	18.629
36.732	0.401	0.443	25.095	28.219	12.497	40.955	18.137
37.133	0.401	0.443	25.095	27.152	12.024	39.844	17.645
37.534	0.401	0.443	25.095	26.086	11.552	38.733	17.153
37.935	0.401	0.443	25.095	25.019	11.080	37.623	16.661
38.337	0.401	0.443	25.095	23.952	10.607	36.445	16.139
38.738	0.401	0.443	25.095	22.886	10.135	35.265	15.617
39.139	0.401	0.443	25.095	21.819	9.663	34.084	15.094
39.540	0.401	0.443	25.095	20.753	9.190	32.901	14.570
39.941	0.401	0.443	25.095	19.686	8.718	31.717	14.046
40.342	0.325	0.359	25.095	18.720	6.723	30.643	11.004
40.667	0.401	0.443	25.105	17.759	7.865	29.556	13.090
41.068	0.401	0.443	25.105	16.692	7.392	28.358	12.559
41.469	0.401	0.443	25.105	15.624	6.920	27.156	12.027
41.870	0.401	0.443	25.105	14.557	6.447	25.951	11.493
42.271	0.401	0.443	25.105	13.489	5.974	24.744	10.958
42.672	0.401	0.443	25.105	12.422	5.501	23.569	10.438
43.073	0.401	0.443	25.105	11.354	5.028	22.417	9.928
43.474	0.401	0.443	25.105	10.286	4.556	21.230	9.402
43.875	0.401	0.443	25.105	9.219	4.083	20.033	8.872
44.276	0.401	0.443	25.105	8.151	3.610	18.845	8.346
44.677	0.401	0.443	25.105	7.084	3.137	17.657	7.820
45.078	0.401	0.443	25.105	6.016	2.664	16.469	7.294
45.479	0.401	0.443	25.105	4.949	2.192	15.284	6.769
45.881	0.401	0.443	25.105	3.881	1.719	14.093	6.241
46.282	0.401	0.443	25.105	2.814	1.246	12.896	5.711
46.683	0.401	0.443	25.105	1.746	0.773	11.694	5.179
47.084	0.401	0.443	25.105	0.679	0.301	10.494	4.648
47.485	0.054	0.060	25.105	0.072	0.004	9.817	0.590

LEGENDA SIMBOLI

X(m): Ascissa sinistra concio dx(m): Larghezza concio dl(m) : lunghezza base concio alpha(°): Angolo pendenza base concio TauStress(kPa): Sforzo di taglio su base concio TauF (kN/m): Forza di taglio su base concio TauStrength(kPa) : Resistenza al taglio su base concio TauS (kN/m) : Forza resistente al taglio su base concio





SSAP 4.9.6 (2018) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 1.5.2 (2018)

Data : 27/4/2020
Localita' : Ferrandina (MT)
Descrizione : Parco eolico 'Montagnola' - FER A6
[n] = N. strato o lente

Sn --> Sovraccarico

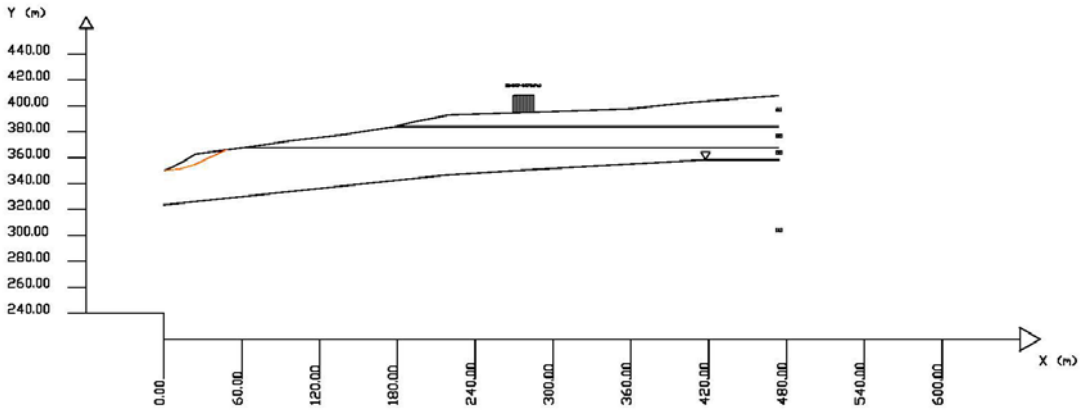
Modello di calcolo : Janbu Rigoroso (1973)

DATI 10 SUP. CON MINOR Fs

Fs minimo : 1.8276
Range Fs : 1.8276 _1.8465
Differenza % Range Fs : 1.03
Coefficiente Sismico orizzontale - Kh: 0.0140

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 19.0
Range X inizio generazione : 0.1 - 426.8
Range X termine generazione : 47.5 - 464.6
Livello Y minimo considerato : 247.7



Parametri Geotecnici degli strati

N.	phi'	C'	Cu	Gamm	GammSat	sgcl	GSI	mi	D
"	deg	kPa	kPa	kN/m3	kN/m3	MPa	"	"	"
1	26.60	7.20	0	19.31	20.45	0	0	0	0
2	24.60	31.48	0	18.93	20.21	0	0	0	0
3	27.67	10.20	0	19.70	20.45	0	0	0	0
4	24.90	12.03	0	19.57	19.86	0	0	0	0

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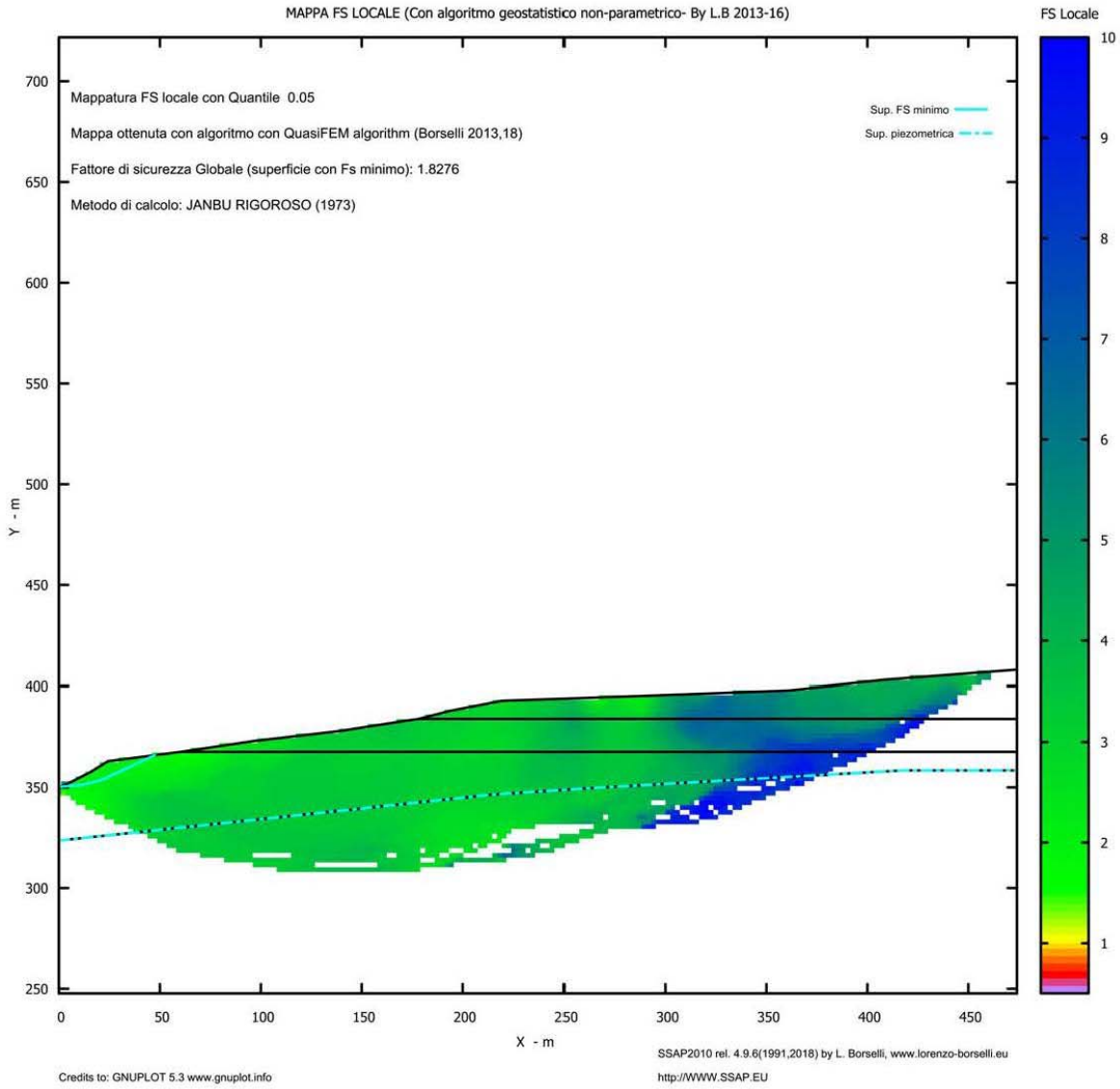

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INDICE