



COMUNE DI FERRANDINA
PROVINCIA DI MATERA

**PROGETTO DI RIQUALIFICAZIONE E
RIFUNZIONALIZZAZIONE DELLE AREE URBANE
DENOMINATE SOTTO S. LUCIA E ZONA D'ONOFRIO
PER LA REALIZZAZIONE DI PARCHEGGI, AREE
CAMPER E MERCATALE
CUP: E42C22000120006 - CIG: 9343429985**

STUDIO GEOLOGICO

STUDIO TECNICO DI GEOLOGIA

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GEOLOGO

Geol. Antonio DIBIASE

ELABORATO:

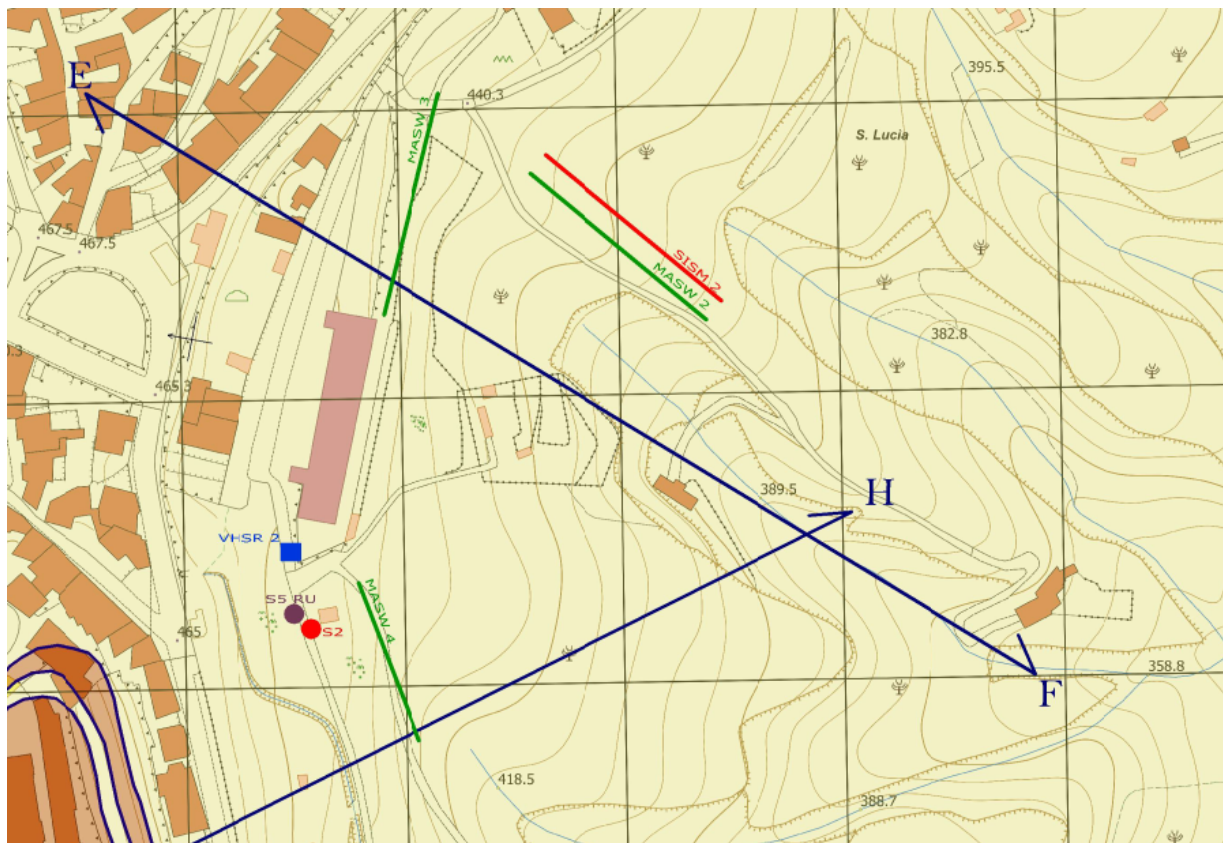
ANALISI DI STABILITA'

ELABORATO:

GEL04

REVISIONE	DATA	DESCRIZIONE	VERIFICATO	APPROVATO	Scala:
0	DICEMBRE 2022	Prima emissione	A.V.	A.V.	Data: GENNAIO 2023
1					
2					
3					

SEZIONE EF



SEZIONE E F

METODOLOGIA DI CALCOLO

MORGESTERN PRICE

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

Ultima Revisione struttura tabelle del report: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\EF\risultati\ef.txt

Data: 27/1/2023

Localita' :FERRANDINA

Descrizione: SEZIONE EF

Modello pendio: EF.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	405.37	-	-	-	-	-	-
1.61	405.44	-	-	-	-	-	-
3.87	405.53	-	-	-	-	-	-
7.37	405.83	-	-	-	-	-	-
9.37	406.08	-	-	-	-	-	-
10.37	406.39	-	-	-	-	-	-
11.68	406.61	-	-	-	-	-	-
16.14	406.96	-	-	-	-	-	-
17.37	407.37	-	-	-	-	-	-
18.37	408.25	-	-	-	-	-	-
19.87	408.79	-	-	-	-	-	-
23.87	409.95	-	-	-	-	-	-
28.37	409.96	-	-	-	-	-	-
30.37	410.12	-	-	-	-	-	-
69.37	417.81	-	-	-	-	-	-
82.87	420.16	-	-	-	-	-	-
103.37	424.64	-	-	-	-	-	-
111.87	427.13	-	-	-	-	-	-
119.87	428.44	-	-	-	-	-	-
124.37	431.44	-	-	-	-	-	-
127.87	433.36	-	-	-	-	-	-
141.87	434.77	-	-	-	-	-	-
151.87	437.98	-	-	-	-	-	-
164.37	445.34	-	-	-	-	-	-
172.37	449.28	-	-	-	-	-	-
187.37	454.24	-	-	-	-	-	-
190.87	455.63	-	-	-	-	-	-
193.37	457.56	-	-	-	-	-	-
216.37	460.83	-	-	-	-	-	-
230.87	463.90	-	-	-	-	-	-
236.87	465.91	-	-	-	-	-	-

245.37	468.23	-	-	-	-	-	-
260.37	477.16	-	-	-	-	-	-
263.37	479.03	-	-	-	-	-	-
274.37	479.18	-	-	-	-	-	-
286.87	484.50	-	-	-	-	-	-
307.87	484.65	-	-	-	-	-	-
320.37	484.90	-	-	-	-	-	-
324.87	484.92	-	-	-	-	-	-
330.87	493.67	-	-	-	-	-	-
334.87	497.40	-	-	-	-	-	-
337.87	498.95	-	-	-	-	-	-
348.37	498.95	-	-	-	-	-	-
360.87	506.00	-	-	-	-	-	-
368.37	508.61	-	-	-	-	-	-
370.87	508.55	-	-	-	-	-	-
374.87	507.60	-	-	-	-	-	-
391.37	508.24	-	-	-	-	-	-

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.00	0.00	0.00	19.10	19.30	1.484	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)-

sgci _____ 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)

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

----- 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): 15.7 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 7.83 270.00

LIVELLO MINIMO CONSIDERATO (Ymin): 312.45

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 46.96 383.54

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : MORGENSTERN - PRICE (Morgenstern & Price, 1965)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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)	0.7452	- Min. -	X	Y	Lambda= 1.2500
	250.28	471.15			
	253.26	472.32			
	257.91	475.26			
	263.88	479.04			

Fattore di sicurezza (FS)	0.7457	- N.2 --	X	Y	Lambda= 1.2500
	245.51	468.32			
	248.81	469.58			
	252.51	471.75			
	256.46	474.06			
	261.85	477.21			
	264.02	479.04			

Fattore di sicurezza (FS)	0.7475	- N.3 --	X	Y	Lambda= 1.2500
	245.75	468.46			
	249.59	470.21			
	253.57	472.51			
	255.94	474.53			

Fattore di sicurezza (FS)	0.7496	- N.4 --	X	Y	Lambda= 1.2500
	153.30	438.82			
	155.94	440.08			
	158.05	441.49			
	159.65	442.56			

Fattore di sicurezza (FS)	0.7541	- N.5 --	X	Y	Lambda= 1.2500
	246.02	468.61			
	250.06	470.35			
	253.66	471.91			
	258.81	475.38			
	263.34	478.43			
	264.25	479.04			

Fattore di sicurezza (FS)	0.7577	- N.6 --	X	Y	Lambda= 1.2500
	244.58	468.02			
	247.93	468.62			
	253.33	472.07			
	258.07	475.21			
	263.03	478.71			
	263.48	479.03			

Fattore di sicurezza (FS)	0.7600	- N.7 --	X	Y	Lambda= 1.2500
	247.78	469.66			
	249.98	470.30			
	255.28	473.78			
	256.31	474.74			

Fattore di sicurezza (FS) 0.7634 - N.8 -- X Y Lambda= 1.2500
 249.98 470.97
 255.20 472.76
 261.93 477.54
 263.80 479.04

Fattore di sicurezza (FS) 0.7642 - N.9 -- X Y Lambda= 1.2500
 153.03 438.67
 156.38 439.97
 159.72 442.02
 161.71 443.77

Fattore di sicurezza (FS) 0.7659 - N.10 -- X Y Lambda= 1.2500
 244.65 468.03
 246.91 468.38
 249.86 470.12
 252.11 471.73
 256.32 474.75

----- 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	0.745	42.6	57.2	-20.3	Deficit
2	0.746	99.3	133.1	-47.2	Deficit
3	0.748	31.9	42.7	-15.0	Deficit
4	0.750	7.6	10.2	-3.6	Deficit
5	0.754	110.2	146.1	-50.5	Deficit
6	0.758	98.5	130.0	-44.5	Deficit
7	0.760	29.6	38.9	-13.2	Deficit
8	0.763	85.3	111.7	-37.6	Deficit
9	0.764	30.5	40.0	-13.4	Deficit
10	0.766	44.6	58.2	-19.4	Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -50.5

Note: FTR --> Forza totale Resistente lungo la superficie
 di scivolamento

FTA --> Forza totale Agente lungo la superficie
 di scivolamento

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	dx	alpha	W	ru	U	phi'	(c',Cu)
(m)	(m)	(°)	(kN/m)	(-)	(kPa)	(°)	(kPa)
250.281	0.185	21.46	0.07	0.00	0.00	26.00	0.00
250.465	0.185	21.46	0.20	0.00	0.00	26.00	0.00
250.650	0.185	21.46	0.34	0.00	0.00	26.00	0.00
250.835	0.185	21.46	0.47	0.00	0.00	26.00	0.00

251.019	0.185	21.46	0.61	0.00	0.00	26.00	0.00
251.204	0.185	21.46	0.74	0.00	0.00	26.00	0.00
251.389	0.185	21.46	0.88	0.00	0.00	26.00	0.00
251.574	0.185	21.46	1.01	0.00	0.00	26.00	0.00
251.758	0.185	21.46	1.15	0.00	0.00	26.00	0.00
251.943	0.185	21.46	1.28	0.00	0.00	26.00	0.00
252.128	0.185	21.46	1.42	0.00	0.00	26.00	0.00
252.312	0.185	21.46	1.55	0.00	0.00	26.00	0.00
252.497	0.185	21.46	1.69	0.00	0.00	26.00	0.00
252.682	0.185	21.46	1.82	0.00	0.00	26.00	0.00
252.866	0.185	21.46	1.96	0.00	0.00	26.00	0.00
253.051	0.185	21.46	2.09	0.00	0.00	26.00	0.00
253.236	0.020	21.46	0.24	0.00	0.00	26.00	0.00
253.256	0.185	32.28	2.16	0.00	0.00	26.00	0.00
253.440	0.185	32.28	2.14	0.00	0.00	26.00	0.00
253.625	0.185	32.28	2.11	0.00	0.00	26.00	0.00
253.810	0.185	32.28	2.09	0.00	0.00	26.00	0.00
253.994	0.185	32.28	2.07	0.00	0.00	26.00	0.00
254.179	0.185	32.28	2.04	0.00	0.00	26.00	0.00
254.364	0.185	32.28	2.02	0.00	0.00	26.00	0.00
254.549	0.185	32.28	1.99	0.00	0.00	26.00	0.00
254.733	0.185	32.28	1.97	0.00	0.00	26.00	0.00
254.918	0.185	32.28	1.94	0.00	0.00	26.00	0.00
255.103	0.185	32.28	1.92	0.00	0.00	26.00	0.00
255.287	0.185	32.28	1.90	0.00	0.00	26.00	0.00
255.472	0.185	32.28	1.87	0.00	0.00	26.00	0.00
255.657	0.185	32.28	1.85	0.00	0.00	26.00	0.00
255.841	0.185	32.28	1.82	0.00	0.00	26.00	0.00
256.026	0.185	32.28	1.80	0.00	0.00	26.00	0.00
256.211	0.185	32.28	1.77	0.00	0.00	26.00	0.00
256.395	0.185	32.28	1.75	0.00	0.00	26.00	0.00
256.580	0.185	32.28	1.73	0.00	0.00	26.00	0.00
256.765	0.185	32.28	1.70	0.00	0.00	26.00	0.00
256.950	0.185	32.28	1.68	0.00	0.00	26.00	0.00
257.134	0.185	32.28	1.65	0.00	0.00	26.00	0.00
257.319	0.185	32.28	1.63	0.00	0.00	26.00	0.00
257.504	0.185	32.28	1.60	0.00	0.00	26.00	0.00
257.688	0.185	32.28	1.58	0.00	0.00	26.00	0.00
257.873	0.037	32.28	0.31	0.00	0.00	26.00	0.00
257.910	0.185	32.29	1.55	0.00	0.00	26.00	0.00
258.095	0.185	32.29	1.53	0.00	0.00	26.00	0.00
258.279	0.185	32.29	1.50	0.00	0.00	26.00	0.00
258.464	0.185	32.29	1.48	0.00	0.00	26.00	0.00
258.649	0.185	32.29	1.45	0.00	0.00	26.00	0.00
258.833	0.185	32.29	1.43	0.00	0.00	26.00	0.00
259.018	0.185	32.29	1.40	0.00	0.00	26.00	0.00
259.203	0.185	32.29	1.38	0.00	0.00	26.00	0.00
259.387	0.185	32.29	1.35	0.00	0.00	26.00	0.00
259.572	0.185	32.29	1.33	0.00	0.00	26.00	0.00
259.757	0.185	32.29	1.31	0.00	0.00	26.00	0.00
259.941	0.185	32.29	1.28	0.00	0.00	26.00	0.00
260.126	0.185	32.29	1.26	0.00	0.00	26.00	0.00
260.311	0.059	32.29	0.40	0.00	0.00	26.00	0.00
260.370	0.185	32.29	1.23	0.00	0.00	26.00	0.00
260.555	0.185	32.29	1.23	0.00	0.00	26.00	0.00
260.739	0.185	32.29	1.22	0.00	0.00	26.00	0.00
260.924	0.185	32.29	1.22	0.00	0.00	26.00	0.00
261.109	0.185	32.29	1.21	0.00	0.00	26.00	0.00
261.293	0.185	32.29	1.20	0.00	0.00	26.00	0.00
261.478	0.185	32.29	1.20	0.00	0.00	26.00	0.00
261.663	0.185	32.29	1.19	0.00	0.00	26.00	0.00

261.848	0.185	32.29	1.19	0.00	0.00	26.00	0.00
262.032	0.185	32.29	1.18	0.00	0.00	26.00	0.00
262.217	0.185	32.29	1.18	0.00	0.00	26.00	0.00
262.402	0.185	32.29	1.17	0.00	0.00	26.00	0.00
262.586	0.185	32.29	1.16	0.00	0.00	26.00	0.00
262.771	0.185	32.29	1.16	0.00	0.00	26.00	0.00
262.956	0.185	32.29	1.15	0.00	0.00	26.00	0.00
263.140	0.185	32.29	1.15	0.00	0.00	26.00	0.00
263.325	0.045	32.29	0.28	0.00	0.00	26.00	0.00
263.370	0.185	32.29	0.94	0.00	0.00	26.00	0.00
263.555	0.185	32.29	0.52	0.00	0.00	26.00	0.00
263.739	0.142	32.29	0.12	0.00	0.00	26.00	0.00

----- 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_qFEM (--)	FS_srmFEM (--)			
250.281	0.000	471.153	0.445	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	9.7982226199E-003	0.025	1.983	1.296		
250.465	0.009	471.235	0.445	7.6454461041E-003	6.9848480669E-005	7.2994501823E-002	0.025	1.983	1.296			
250.650	0.019	471.318	0.448	2.6962539684E-002	1.6171098031E-003	1.8495476427E-001	0.092	1.571	1.293			
250.835	0.030	471.401	0.454	7.5963607702E-002	1.5010134311E-002	3.7011995792E-001	0.302	1.144	1.071			
251.019	0.041	471.485	0.461	1.6367659080E-001	5.5881215072E-002	5.6609284159E-001	0.522	0.940	0.923			
251.204	0.055	471.571	0.465	2.8506566779E-001	1.2266706716E-001	6.7711787842E-001	0.657	0.837	0.844			
251.389	0.068	471.657	0.468	4.1378882133E-001	1.9248289047E-001	7.6312826923E-001	0.711	0.781	0.804			
251.574	0.082	471.744	0.473	5.6694821688E-001	2.7681995945E-001	8.9854148585E-001	0.746	0.744	0.776			
251.758	0.097	471.832	0.478	7.4568999012E-001	3.7342455907E-001	1.0332850644E+000	0.765	0.723	0.758			
251.943	0.113	471.920	0.482	9.4862065600E-001	4.8072947744E-001	1.1608484656E+000	0.774	0.714	0.750			
252.128	0.130	472.010	0.485	1.1744815023E+000	5.9665278553E-001	1.2831394120E+000	0.776	0.714	0.749			
252.312	0.147	472.099	0.521	1.4225837142E+000	7.1850483331E-001	1.5149867813E+000	0.772	0.719	0.751			
252.497	0.177	472.202	0.520	1.7340838038E+000	8.5825828164E-001	1.6418009418E+000	0.756	0.729	0.757			
252.682	0.194	472.292	0.479	2.0290283359E+000	9.8568158881E-001	1.5105106406E+000	0.742	0.738	0.762			
252.866	0.209	472.379	0.474	2.2920327187E+000	1.0954952692E+000	1.2999698132E+000	0.730	0.746	0.767			
253.051	0.224	472.467	0.474	2.5092081687E+000	1.1835253106E+000	1.0177995454E+000	0.721	0.753	0.771			
253.236	0.239	472.554	0.474	2.6679851528E+000	1.2473973454E+000	6.3408011129E-001	0.714	0.758	0.773			
253.256	0.241	472.564	0.569	2.6801979095E+000	1.2527039937E+000	5.8694133052E-001	0.714	0.758	0.773			
253.440	0.231	472.671	0.565	2.7500095767E+000	1.2888813418E+000	2.3834372629E-001	0.716	0.762	0.774			
253.625	0.216	472.772	0.575	2.7682367620E+000	1.3063622044E+000	-1.8090475597E-002	0.721	0.765	0.773			
253.810	0.210	472.883	0.624	2.7433273588E+000	1.3066683992E+000	-2.2393862711E-001	0.728	0.766	0.771			
253.994	0.213	473.003	0.673	2.6855188316E+000	1.2925269938E+000	-3.6876580501E-001	0.735	0.765	0.769			
254.179	0.225	473.131	0.655	2.6071135015E+000	1.2674276623E+000	-4.0066750978E-001	0.743	0.763	0.766			
254.364	0.222	473.245	0.613	2.5375211967E+000	1.2374648084E+000	-3.7477256955E-001	0.745	0.759	0.763			
254.549	0.218	473.358	0.612	2.4686808795E+000	1.2050020065E+000	-3.7061263852E-001	0.746	0.755	0.761			
254.733	0.214	473.471	0.612	2.4006251603E+000	1.1718306678E+000	-3.6630240196E-001	0.746	0.752	0.760			
254.918	0.211	473.584	0.612	2.3333769484E+000	1.1388980170E+000	-3.6189308404E-001	0.746	0.750	0.759			
255.103	0.207	473.697	0.613	2.2669499328E+000	1.1064991127E+000	-3.5742974895E-001	0.746	0.749	0.758			
255.287	0.204	473.810	0.613	2.2013503772E+000	1.0745082129E+000	-3.5294208797E-001	0.746	0.748	0.758			
255.472	0.200	473.923	0.613	2.1365810034E+000	1.0429196822E+000	-3.4844508833E-001	0.746	0.749	0.757			
255.657	0.197	474.037	0.613	2.0726425391E+000	1.0117350908E+000	-3.4394654427E-001	0.746	0.749	0.757			

255.841	0.193	474.150	0.613	2.0095348271E+000	9.8095500907E-001	-3.3944954067E-001	0.746	0.749	0.757
256.026	0.190	474.263	0.613	1.9472574555E+000	9.5057947556E-001	-3.3495510506E-001	0.746	0.749	0.757
256.211	0.187	474.376	0.613	1.8858098877E+000	9.2060076361E-001	-3.3046867465E-001	0.746	0.749	0.758
256.395	0.183	474.490	0.613	1.8251897034E+000	8.9089013618E-001	-3.2599114453E-001	0.746	0.747	0.758
256.580	0.180	474.603	0.614	1.7653960353E+000	8.6138953555E-001	-3.2151401410E-001	0.745	0.745	0.758
256.765	0.176	474.716	0.614	1.7064296030E+000	8.3210413359E-001	-3.1702907931E-001	0.745	0.743	0.758
256.950	0.173	474.830	0.652	1.6482925697E+000	8.0309557403E-001	-3.3139470737E-001	0.744	0.740	0.758
257.134	0.184	474.957	0.654	1.5840197951E+000	7.7115079314E-001	-3.3565771237E-001	0.744	0.739	0.758
257.319	0.181	475.071	0.618	1.5243081029E+000	7.4181480024E-001	-3.1203465598E-001	0.744	0.739	0.757
257.504	0.179	475.185	0.613	1.4687611580E+000	7.1503316890E-001	-2.9044714180E-001	0.744	0.741	0.757
257.688	0.174	475.298	0.578	1.4170234117E+000	6.9059458754E-001	-2.7068883594E-001	0.745	0.745	0.757
257.873	0.159	475.399	0.540	1.3687747440E+000	6.6816075657E-001	-2.3854194764E-001	0.746	0.750	0.756
257.910	0.154	475.417	0.540	1.3601347049E+000	6.6417125087E-001	-2.3772709648E-001	0.746	0.750	0.756
258.095	0.139	475.519	0.564	1.3127893082E+000	6.4219486035E-001	-2.6172118752E-001	0.747	0.755	0.755
258.279	0.129	475.626	0.597	1.2634607400E+000	6.1896232983E-001	-2.7291317872E-001	0.748	0.759	0.755
258.464	0.126	475.739	0.633	1.2119812716E+000	5.9420843704E-001	-2.8505962484E-001	0.749	0.760	0.754
258.649	0.129	475.860	0.672	1.1581660774E+000	5.6780153526E-001	-2.9826351476E-001	0.749	0.758	0.754
258.833	0.141	475.988	0.654	1.1018093867E+000	5.3968456877E-001	-2.8536837432E-001	0.748	0.753	0.754
259.018	0.137	476.101	0.615	1.0527573695E+000	5.1491380720E-001	-2.6332065079E-001	0.747	0.746	0.754
259.203	0.134	476.215	0.615	1.0045446158E+000	4.9052946499E-001	-2.5876693717E-001	0.746	0.737	0.754
259.387	0.131	476.328	0.650	9.5717463878E-001	4.6663153555E-001	-2.6752485021E-001	0.745	0.729	0.753
259.572	0.141	476.455	0.667	9.0572690749E-001	4.4094254321E-001	-2.6938029108E-001	0.744	0.721	0.752
259.757	0.144	476.575	0.634	8.5767157201E-001	4.1729062763E-001	-2.5176556735E-001	0.743	0.716	0.750
259.941	0.142	476.689	0.605	8.1273032650E-001	3.9552412778E-001	-2.3564912839E-001	0.744	0.713	0.749
260.126	0.134	476.798	0.577	7.7062804384E-001	3.7548577066E-001	-2.2101822239E-001	0.744	0.712	0.748
260.311	0.122	476.902	0.549	7.3109112843E-001	3.5692621939E-001	-1.9446170228E-001	0.746	0.711	0.748
260.370	0.114	476.932	0.551	7.1995813029E-001	3.5174339350E-001	-1.9356373268E-001	0.746	0.711	0.747
260.555	0.102	477.037	0.582	6.8110478973E-001	3.3351677647E-001	-2.1453272897E-001	0.748	0.708	0.745
260.739	0.095	477.147	0.613	6.4071452873E-001	3.1431457636E-001	-2.2340444530E-001	0.750	0.704	0.741
260.924	0.095	477.263	0.645	5.9858417419E-001	2.9392528502E-001	-2.3336050839E-001	0.750	0.696	0.732
261.109	0.100	477.385	0.679	5.5451636570E-001	2.7224002083E-001	-2.4436838479E-001	0.750	0.687	0.719
261.293	0.112	477.514	0.662	5.0831994732E-001	2.4926836781E-001	-2.3708150980E-001	0.749	0.676	0.702
261.478	0.111	477.630	0.627	4.6694374781E-001	2.2862890779E-001	-2.2350219520E-001	0.748	0.668	0.682
261.663	0.111	477.746	0.626	4.2576322514E-001	2.0817619911E-001	-2.2245080596E-001	0.747	0.662	0.662
261.848	0.109	477.861	0.624	3.8477538535E-001	1.8782130740E-001	-2.2141540758E-001	0.746	0.662	0.644
262.032	0.108	477.976	0.621	3.4397731573E-001	1.6690539209E-001	-2.2039147592E-001	0.741	0.667	0.629
262.217	0.105	478.091	0.618	3.0336769344E-001	1.4498096333E-001	-2.1937271510E-001	0.730	0.678	0.618
262.402	0.103	478.205	0.651	2.6294593133E-001	1.2186753795E-001	-2.3126619861E-001	0.708	0.695	0.611
262.586	0.113	478.331	0.664	2.1794312170E-001	9.5205586587E-002	-2.3577356623E-001	0.667	0.720	0.609
262.771	0.114	478.450	0.622	1.7585643860E-001	6.9959280742E-002	-2.1972389628E-001	0.608	0.746	0.608
262.956	0.109	478.561	0.591	1.3678201880E-001	4.7596588368E-002	-2.0822586541E-001	0.532	0.775	0.610
263.140	0.099	478.668	0.555	9.8942451668E-002	2.5341769336E-002	-1.9493770247E-001	0.391	0.808	0.613
263.325	0.080	478.766	0.498	6.4776382661E-002	9.2715286517E-003	-1.3921421394E-001	0.219	0.837	0.615
263.370	0.068	478.783	0.459	5.9016180932E-002	7.5447862564E-003	-1.3323664649E-001	0.195	0.842	0.616
263.555	0.040	478.871	0.506	3.0487252954E-002	2.2377102180E-003	-1.4858744678E-001	0.112	0.861	0.617
263.739	0.022	478.970	0.506	4.1312946705E-003	8.2260452947E-005	-7.8436358475E-002	0.030	0.888	0.617

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 mobilitazione resistenza al taglio verticale interconcio ZhU et al.(2003)
FS_qFEM(x)(-) : fattore di sicurezza locale stimato (locale in X) by qFEM
FS_srmFEM(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)
250.281	0.185	0.198	21.461	0.140	0.028	0.151	0.030
250.465	0.185	0.198	21.461	0.421	0.084	0.456	0.090
250.650	0.185	0.198	21.461	0.702	0.139	0.769	0.153
250.835	0.185	0.198	21.461	0.982	0.195	1.097	0.218
251.019	0.185	0.198	21.461	1.263	0.251	1.424	0.283
251.204	0.185	0.198	21.461	1.543	0.306	1.729	0.343
251.389	0.185	0.198	21.461	1.824	0.362	2.045	0.406
251.574	0.185	0.198	21.461	2.105	0.418	2.359	0.468
251.758	0.185	0.198	21.461	2.385	0.473	2.672	0.530
251.943	0.185	0.198	21.461	2.666	0.529	2.983	0.592
252.128	0.185	0.198	21.461	2.947	0.585	3.291	0.653
252.312	0.185	0.198	21.461	3.227	0.640	3.610	0.716
252.497	0.185	0.198	21.461	3.508	0.696	3.901	0.774
252.682	0.185	0.198	21.461	3.788	0.752	4.188	0.831
252.866	0.185	0.198	21.461	4.069	0.807	4.471	0.887
253.051	0.185	0.198	21.461	4.350	0.863	4.752	0.943
253.236	0.020	0.022	21.461	4.505	0.097	4.906	0.106
253.256	0.185	0.218	32.283	5.707	1.247	3.956	0.864
253.440	0.185	0.218	32.283	5.643	1.233	3.911	0.854
253.625	0.185	0.218	32.283	5.579	1.219	3.865	0.844
253.810	0.185	0.218	32.283	5.514	1.205	3.820	0.834
253.994	0.185	0.218	32.283	5.450	1.191	3.774	0.825
254.179	0.185	0.218	32.283	5.386	1.177	3.730	0.815
254.364	0.185	0.218	32.283	5.322	1.163	3.685	0.805
254.549	0.185	0.218	32.283	5.258	1.149	3.640	0.795
254.733	0.185	0.218	32.283	5.194	1.135	3.596	0.786
254.918	0.185	0.218	32.283	5.129	1.121	3.552	0.776
255.103	0.185	0.218	32.283	5.065	1.107	3.507	0.766
255.287	0.185	0.218	32.283	5.001	1.093	3.463	0.756
255.472	0.185	0.218	32.283	4.937	1.079	3.418	0.747
255.657	0.185	0.218	32.283	4.873	1.064	3.374	0.737
255.841	0.185	0.218	32.283	4.809	1.050	3.329	0.727
256.026	0.185	0.218	32.283	4.744	1.036	3.285	0.718
256.211	0.185	0.218	32.283	4.680	1.022	3.241	0.708
256.395	0.185	0.218	32.283	4.616	1.008	3.196	0.698
256.580	0.185	0.218	32.283	4.552	0.994	3.152	0.689
256.765	0.185	0.218	32.283	4.488	0.980	3.107	0.679
256.950	0.185	0.218	32.283	4.424	0.966	3.063	0.669
257.134	0.185	0.218	32.283	4.359	0.952	3.018	0.659
257.319	0.185	0.218	32.283	4.295	0.938	2.974	0.650
257.504	0.185	0.218	32.283	4.231	0.924	2.930	0.640
257.688	0.185	0.218	32.283	4.167	0.910	2.885	0.630
257.873	0.037	0.044	32.283	4.128	0.180	2.859	0.125
257.910	0.185	0.218	32.293	4.090	0.894	2.831	0.619
258.095	0.185	0.218	32.293	4.026	0.880	2.787	0.609
258.279	0.185	0.218	32.293	3.961	0.865	2.742	0.599
258.464	0.185	0.218	32.293	3.896	0.851	2.697	0.589
258.649	0.185	0.218	32.293	3.832	0.837	2.652	0.579
258.833	0.185	0.218	32.293	3.767	0.823	2.607	0.570
259.018	0.185	0.218	32.293	3.703	0.809	2.563	0.560
259.203	0.185	0.218	32.293	3.638	0.795	2.518	0.550
259.387	0.185	0.218	32.293	3.573	0.781	2.473	0.540
259.572	0.185	0.218	32.293	3.509	0.767	2.429	0.531
259.757	0.185	0.218	32.293	3.444	0.753	2.384	0.521
259.941	0.185	0.218	32.293	3.380	0.738	2.339	0.511
260.126	0.185	0.218	32.293	3.315	0.724	2.295	0.501

260.311	0.059	0.070	32.293	3.272	0.229	2.265	0.159
260.370	0.185	0.218	32.293	3.254	0.711	2.253	0.492
260.555	0.185	0.218	32.293	3.239	0.708	2.242	0.490
260.739	0.185	0.218	32.293	3.224	0.704	2.231	0.488
260.924	0.185	0.218	32.293	3.209	0.701	2.221	0.485
261.109	0.185	0.218	32.293	3.193	0.698	2.210	0.483
261.293	0.185	0.218	32.293	3.178	0.694	2.200	0.481
261.478	0.185	0.218	32.293	3.163	0.691	2.189	0.478
261.663	0.185	0.218	32.293	3.148	0.688	2.179	0.476
261.848	0.185	0.218	32.293	3.132	0.684	2.168	0.474
262.032	0.185	0.218	32.293	3.117	0.681	2.157	0.471
262.217	0.185	0.218	32.293	3.102	0.678	2.147	0.469
262.402	0.185	0.218	32.293	3.086	0.674	2.136	0.467
262.586	0.185	0.218	32.293	3.071	0.671	2.125	0.464
262.771	0.185	0.218	32.293	3.056	0.668	2.115	0.462
262.956	0.185	0.218	32.293	3.041	0.664	2.104	0.460
263.140	0.185	0.218	32.293	3.025	0.661	2.094	0.458
263.325	0.045	0.053	32.293	3.016	0.160	2.088	0.111
263.370	0.185	0.218	32.293	2.469	0.539	1.710	0.374
263.555	0.185	0.218	32.293	1.380	0.301	0.955	0.209
263.739	0.142	0.167	32.293	0.417	0.070	0.289	0.048

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

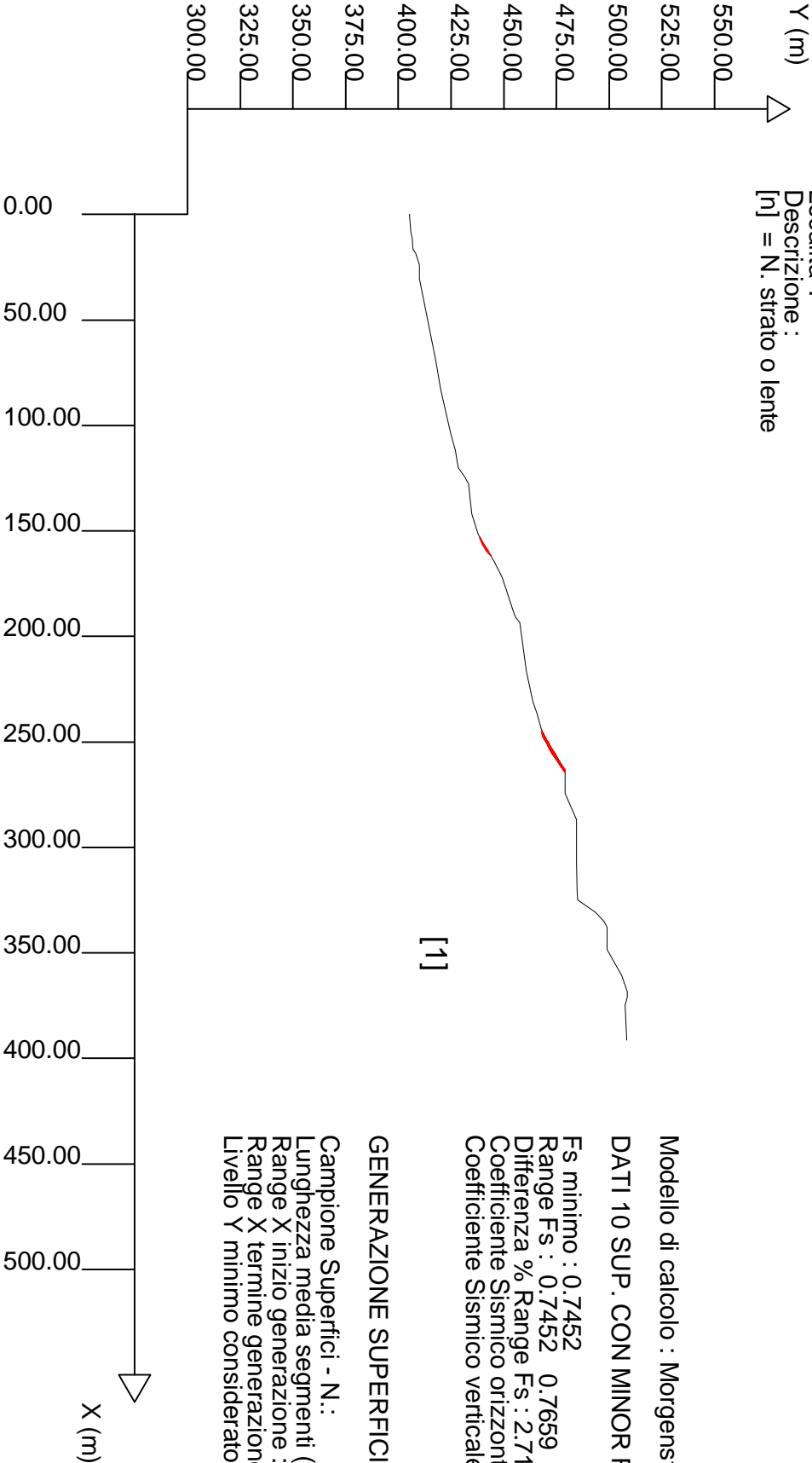
TauS (kN/m) : Forza resistente al taglio su base concio

Data : 27/1/2023

Localita' :

Descrizione :

[n] = N. strato o lente



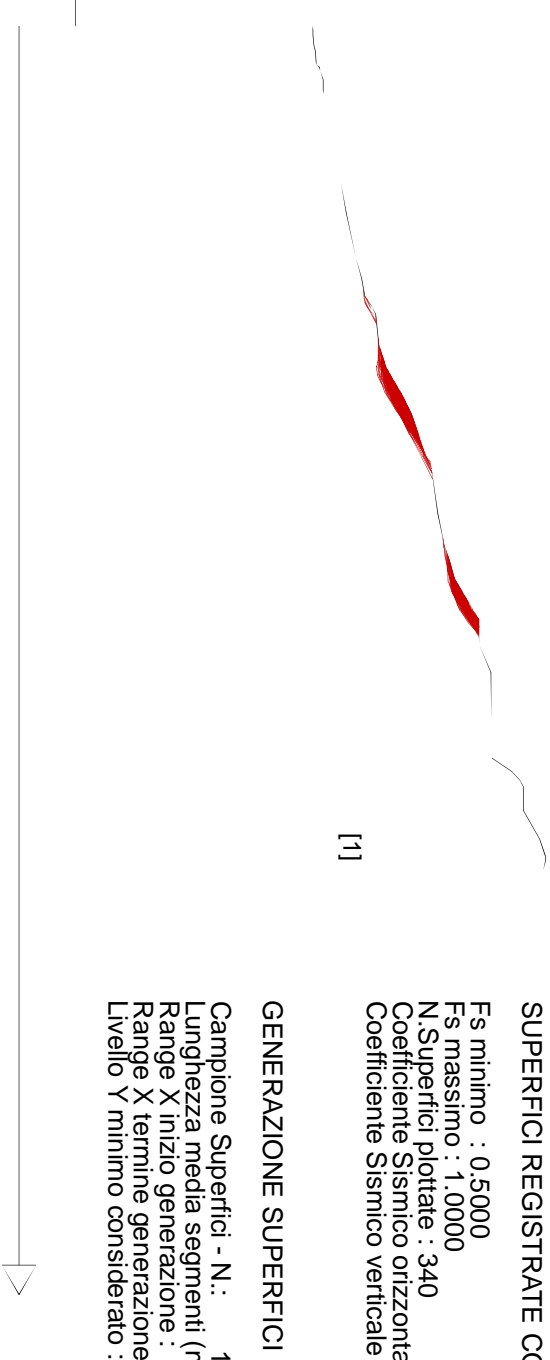
Parametri Geotecnici degli strati # -----

N.	phi`	C`	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0

SSAP 5.0 (2020) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

Y (m)
550.00
525.00
500.00
475.00
450.00
425.00
400.00
375.00
350.00
325.00
300.00

Data : 27/1/2023
Localita' :
Descrizione :
[n] = N. strato o lente

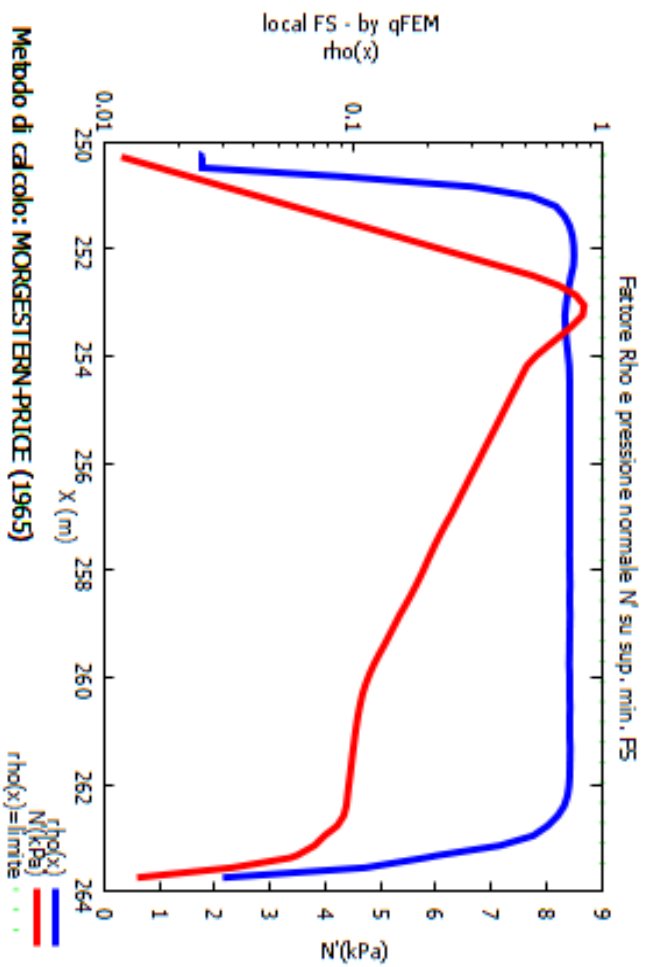
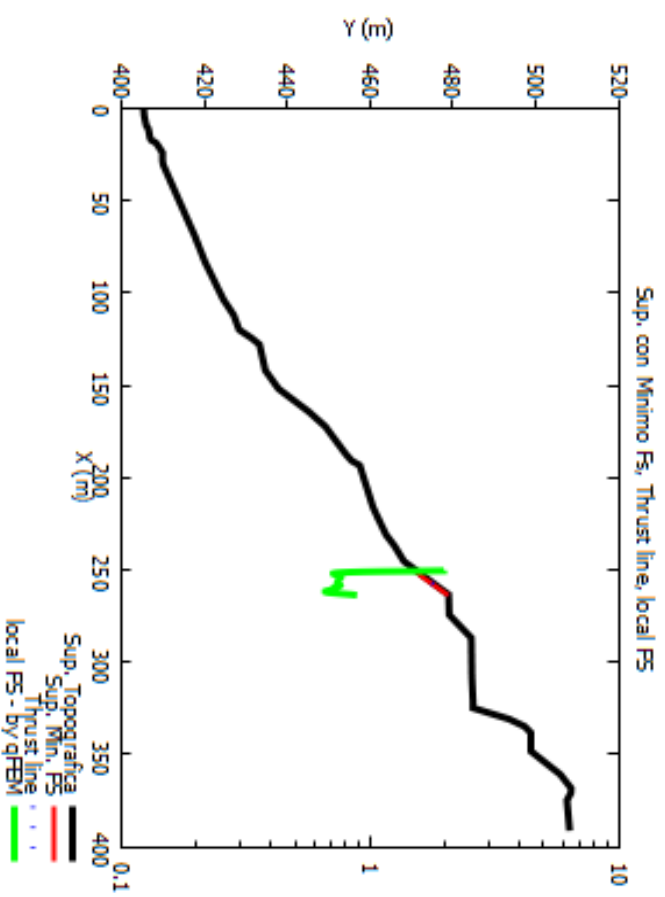
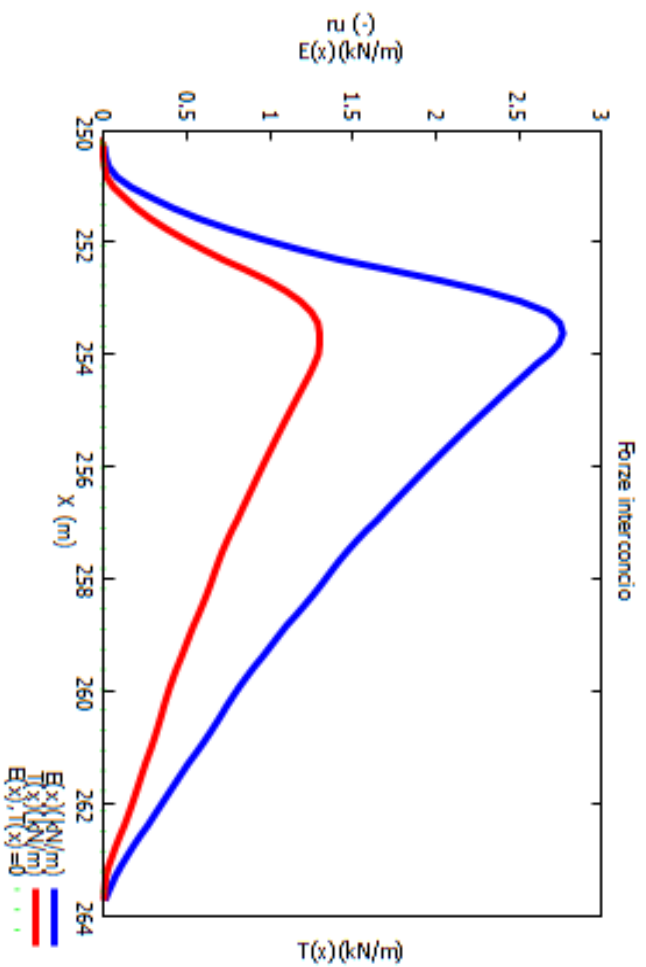
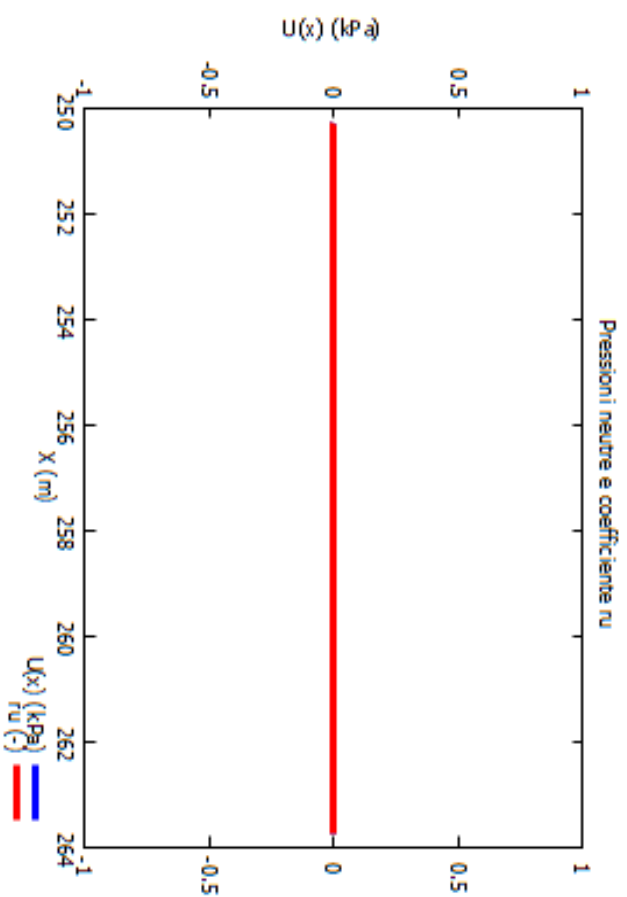


Modello di calcolo : Morgenstern - Price (1965)
SUPERFICI REGISTRATE CON Fs ENTRO INTERVALLO PREDEFINITO
Fs minimo : 0.5000
Fs massimo : 1.0000
N:Superfici plottate : 340
Coefficiente Sismico orizzontale - Kr: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM
Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 15.7
Range X inizio generazione : 7.8 - 270.0
Range X termine generazione : 47.0 - 383.5
Livello Y minimo considerato : 312.5

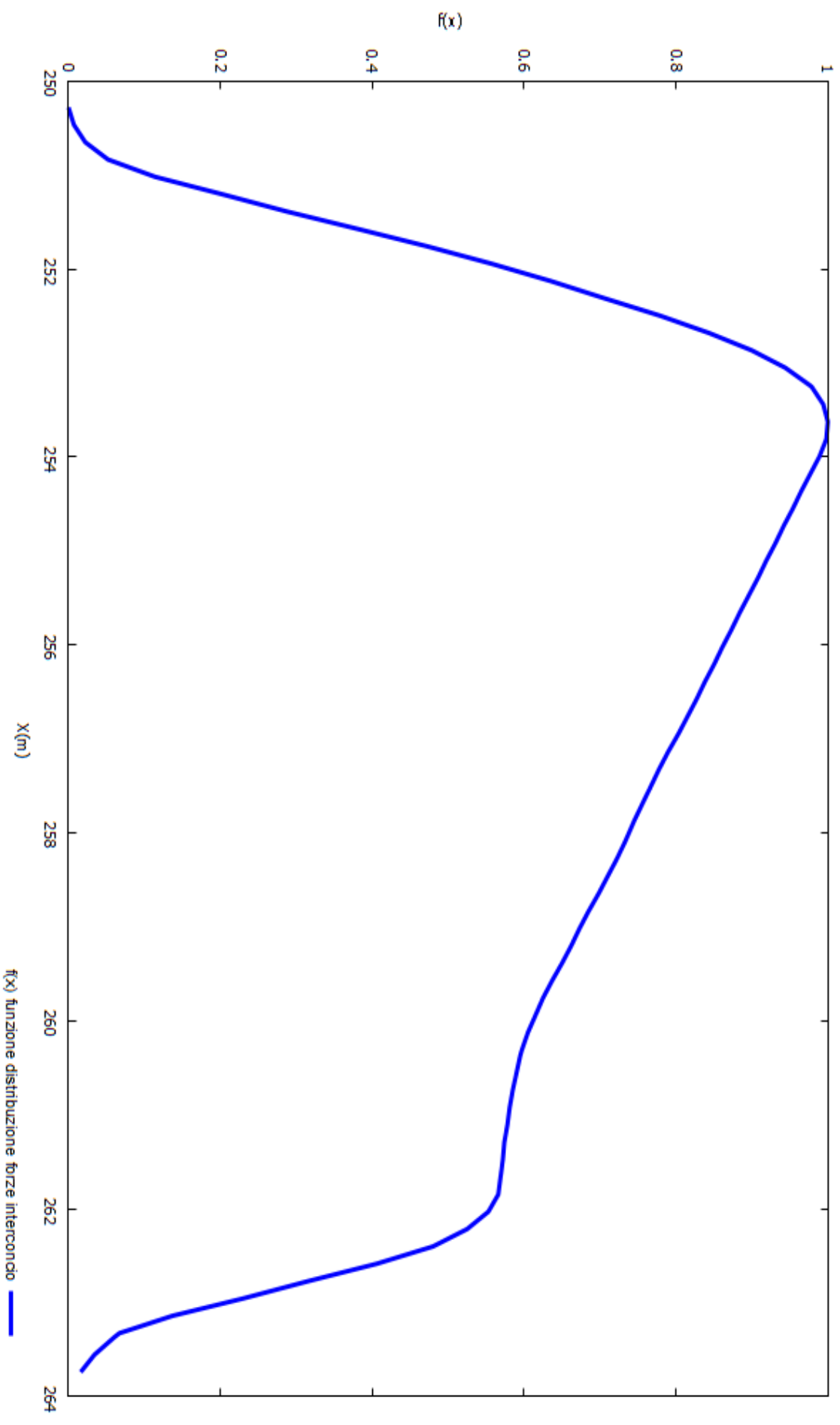
Parametri Geotecnici degli strati # -----

N.	phi	C'	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa
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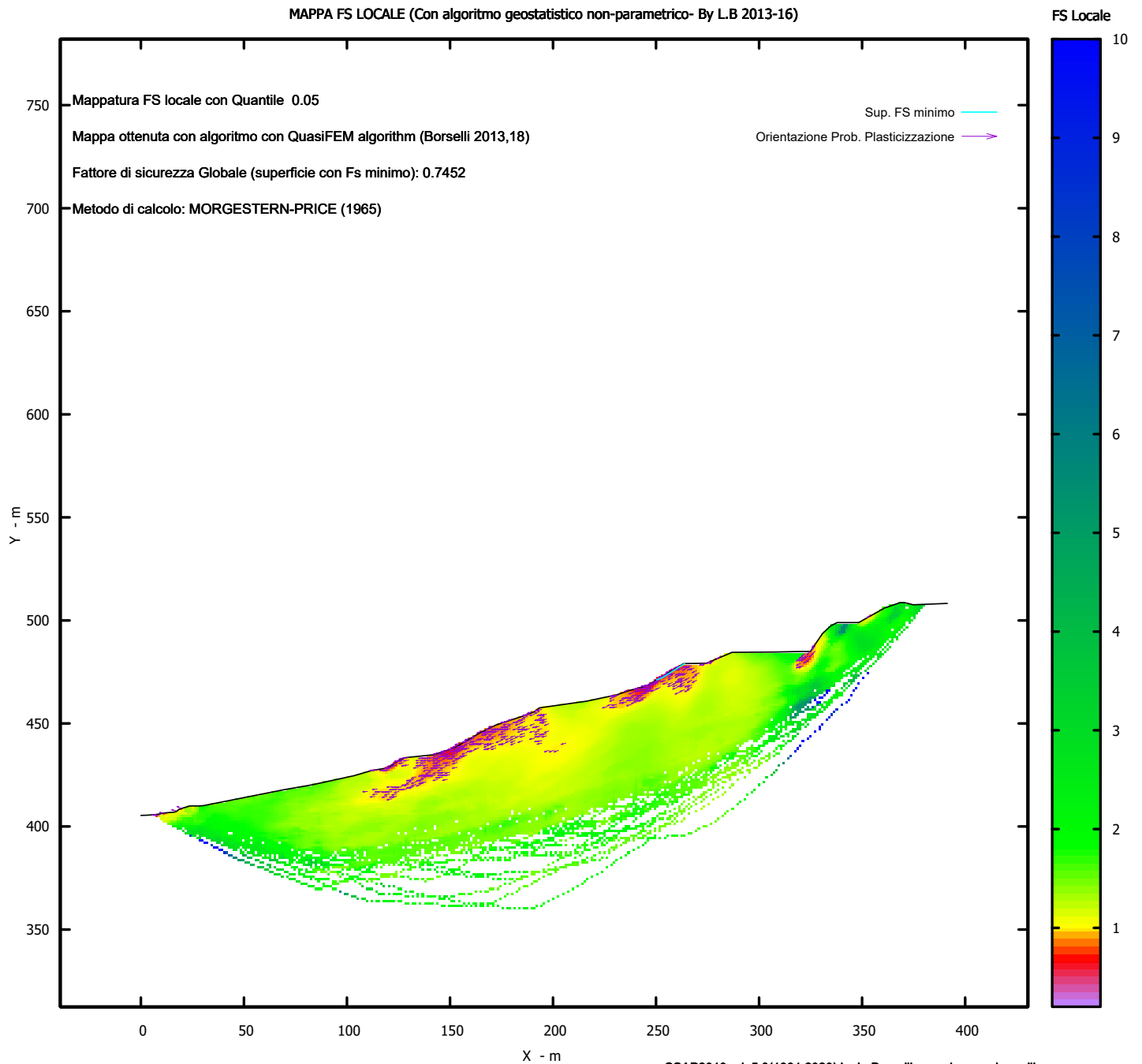


Metodo di calcolo: MORGESTERN-PRICE (1965)
SSAP2010 (versione 5.0 - 2020) - DISTRIBUZIONE FORZE e PRESSIONI

Distribuzione funzione forze interconco



MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



Credits to: GNUPLOT 5.4.1 www.gnuplot.info

SSAP2010 rel. 5.0(1991,2020) by L. Borselli, www.lorenzo-borselli.eu
<https://WWW.SSAP.EU>

SEZIONE E F

**METODOLOGIA DI CALCOLO
SARMA**

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

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File report: C:\SSAP\FERRANDINA\EF\risultati\sarma\sarma.txt

Data: 27/1/2023

Localita' : FERRANDINA

Descrizione: SEZIONE EF

Modello pendio: EF.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	405.37	-	-	-	-	-	-
1.61	405.44	-	-	-	-	-	-
3.87	405.53	-	-	-	-	-	-
7.37	405.83	-	-	-	-	-	-
9.37	406.08	-	-	-	-	-	-
10.37	406.39	-	-	-	-	-	-
11.68	406.61	-	-	-	-	-	-
16.14	406.96	-	-	-	-	-	-
17.37	407.37	-	-	-	-	-	-
18.37	408.25	-	-	-	-	-	-
19.87	408.79	-	-	-	-	-	-
23.87	409.95	-	-	-	-	-	-
28.37	409.96	-	-	-	-	-	-
30.37	410.12	-	-	-	-	-	-
69.37	417.81	-	-	-	-	-	-
82.87	420.16	-	-	-	-	-	-
103.37	424.64	-	-	-	-	-	-
111.87	427.13	-	-	-	-	-	-
119.87	428.44	-	-	-	-	-	-
124.37	431.44	-	-	-	-	-	-
127.87	433.36	-	-	-	-	-	-
141.87	434.77	-	-	-	-	-	-
151.87	437.98	-	-	-	-	-	-
164.37	445.34	-	-	-	-	-	-
172.37	449.28	-	-	-	-	-	-
187.37	454.24	-	-	-	-	-	-
190.87	455.63	-	-	-	-	-	-
193.37	457.56	-	-	-	-	-	-
216.37	460.83	-	-	-	-	-	-
230.87	463.90	-	-	-	-	-	-
236.87	465.91	-	-	-	-	-	-

245.37	468.23	-	-	-	-	-	-
260.37	477.16	-	-	-	-	-	-
263.37	479.03	-	-	-	-	-	-
274.37	479.18	-	-	-	-	-	-
286.87	484.50	-	-	-	-	-	-
307.87	484.65	-	-	-	-	-	-
320.37	484.90	-	-	-	-	-	-
324.87	484.92	-	-	-	-	-	-
330.87	493.67	-	-	-	-	-	-
334.87	497.40	-	-	-	-	-	-
337.87	498.95	-	-	-	-	-	-
348.37	498.95	-	-	-	-	-	-
360.87	506.00	-	-	-	-	-	-
368.37	508.61	-	-	-	-	-	-
370.87	508.55	-	-	-	-	-	-
374.87	507.60	-	-	-	-	-	-
391.37	508.24	-	-	-	-	-	-

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.00	0.00	0.00	19.10	19.30	1.484	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)-

sgci _____ 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)

----- 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): 15.7 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 7.83 270.00

LIVELLO MINIMO CONSIDERATO (Ymin): 312.45

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 46.96 383.54

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : SARMA II (Sarma, 1979)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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)	0.7466	- Min. -	X	Y	Lambda= 1.2500
	247.52	469.51			
	252.80	471.99			
	261.41	477.25			
	264.13	479.04			

Fattore di sicurezza (FS)	0.7468	- N.2 --	X	Y	Lambda= 1.2500
	249.33	470.59			
	252.42	471.82			
	257.79	475.34			
	259.44	476.61			

Fattore di sicurezza (FS)	0.7597	- N.3 --	X	Y	Lambda= 1.2500
	251.79	472.05			
	256.28	473.85			
	261.40	477.67			
	261.64	477.95			

Fattore di sicurezza (FS)	0.7636	- N.4 --	X	Y	Lambda= 1.2500
	246.28	468.77			
	250.48	470.26			
	253.24	471.62			
	257.46	474.13			
	259.23	475.80			
	261.08	477.60			

Fattore di sicurezza (FS)	0.7641	- N.5 --	X	Y	Lambda= 1.2500
	247.38	469.43			
	253.83	471.98			
	257.69	474.39			
	259.58	476.11			
	261.55	477.90			

Fattore di sicurezza (FS)	0.7665	- N.6 --	X	Y	Lambda= 1.2500
	252.71	472.60			
	255.15	473.20			
	260.35	476.88			
	263.40	479.03			

Fattore di sicurezza (FS)	0.7769	- N.7 --	X	Y	Lambda= 1.2500
	247.73	469.63			
	253.76	471.88			
	259.31	476.35			
	260.15	477.03			

Fattore di sicurezza (FS)	0.7803	- N.8 --	X	Y	Lambda= 1.2500
	247.48	469.49			

253.45 471.81
256.09 473.91
257.92 475.70

Fattore di sicurezza (FS) 0.7823 - N.9 -- X Y Lambda= 1.2500
250.69 471.40
254.80 472.51
260.53 476.85
262.97 478.78

Fattore di sicurezza (FS) 0.7828 - N.10 -- X Y Lambda= 1.2500
247.51 469.50
251.86 471.36
258.19 474.07
260.83 476.55
263.07 478.85

----- 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	0.747	65.6	87.9	-31.1	Deficit
2	0.747	28.6	38.2	-13.5	Deficit
3	0.760	36.1	47.6	-16.2	Deficit
4	0.764	106.3	139.2	-46.8	Deficit
5	0.764	90.1	118.0	-39.6	Deficit
6	0.767	35.5	46.3	-15.5	Deficit
7	0.777	67.9	87.4	-28.2	Deficit
8	0.780	56.0	71.7	-22.9	Deficit
9	0.782	67.0	85.6	-27.2	Deficit
10	0.783	114.9	146.8	-46.6	Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -46.8

Note: FTR --> Forza totale Resistente lungo la superficie
di scivolamento

FTA --> Forza totale Agente lungo la superficie
di scivolamento

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)
247.520	0.211	25.10	0.06	0.00	0.00	26.00	0.00
247.731	0.211	25.10	0.17	0.00	0.00	26.00	0.00
247.942	0.211	25.10	0.28	0.00	0.00	26.00	0.00
248.152	0.211	25.10	0.39	0.00	0.00	26.00	0.00
248.363	0.211	25.10	0.50	0.00	0.00	26.00	0.00
248.574	0.211	25.10	0.61	0.00	0.00	26.00	0.00
248.785	0.211	25.10	0.72	0.00	0.00	26.00	0.00

248.996	0.211	25.10	0.83	0.00	0.00	26.00	0.00
249.207	0.211	25.10	0.94	0.00	0.00	26.00	0.00
249.418	0.211	25.10	1.05	0.00	0.00	26.00	0.00
249.629	0.211	25.10	1.16	0.00	0.00	26.00	0.00
249.839	0.211	25.10	1.27	0.00	0.00	26.00	0.00
250.050	0.211	25.10	1.38	0.00	0.00	26.00	0.00
250.261	0.211	25.10	1.49	0.00	0.00	26.00	0.00
250.472	0.211	25.10	1.60	0.00	0.00	26.00	0.00
250.683	0.211	25.10	1.71	0.00	0.00	26.00	0.00
250.894	0.211	25.10	1.82	0.00	0.00	26.00	0.00
251.105	0.211	25.10	1.93	0.00	0.00	26.00	0.00
251.316	0.211	25.10	2.04	0.00	0.00	26.00	0.00
251.527	0.211	25.10	2.15	0.00	0.00	26.00	0.00
251.737	0.211	25.10	2.26	0.00	0.00	26.00	0.00
251.948	0.211	25.10	2.38	0.00	0.00	26.00	0.00
252.159	0.211	25.10	2.49	0.00	0.00	26.00	0.00
252.370	0.211	25.10	2.60	0.00	0.00	26.00	0.00
252.581	0.211	25.10	2.71	0.00	0.00	26.00	0.00
252.792	0.013	25.10	0.17	0.00	0.00	26.00	0.00
252.805	0.211	31.43	2.76	0.00	0.00	26.00	0.00
253.016	0.211	31.43	2.75	0.00	0.00	26.00	0.00
253.227	0.211	31.43	2.73	0.00	0.00	26.00	0.00
253.438	0.211	31.43	2.72	0.00	0.00	26.00	0.00
253.648	0.211	31.43	2.71	0.00	0.00	26.00	0.00
253.859	0.211	31.43	2.69	0.00	0.00	26.00	0.00
254.070	0.211	31.43	2.68	0.00	0.00	26.00	0.00
254.281	0.211	31.43	2.67	0.00	0.00	26.00	0.00
254.492	0.211	31.43	2.65	0.00	0.00	26.00	0.00
254.703	0.211	31.43	2.64	0.00	0.00	26.00	0.00
254.914	0.211	31.43	2.62	0.00	0.00	26.00	0.00
255.125	0.211	31.43	2.61	0.00	0.00	26.00	0.00
255.335	0.211	31.43	2.60	0.00	0.00	26.00	0.00
255.546	0.211	31.43	2.58	0.00	0.00	26.00	0.00
255.757	0.211	31.43	2.57	0.00	0.00	26.00	0.00
255.968	0.211	31.43	2.55	0.00	0.00	26.00	0.00
256.179	0.211	31.43	2.54	0.00	0.00	26.00	0.00
256.390	0.211	31.43	2.53	0.00	0.00	26.00	0.00
256.601	0.211	31.43	2.51	0.00	0.00	26.00	0.00
256.812	0.211	31.43	2.50	0.00	0.00	26.00	0.00
257.023	0.211	31.43	2.49	0.00	0.00	26.00	0.00
257.233	0.211	31.43	2.47	0.00	0.00	26.00	0.00
257.444	0.211	31.43	2.46	0.00	0.00	26.00	0.00
257.655	0.211	31.43	2.44	0.00	0.00	26.00	0.00
257.866	0.211	31.43	2.43	0.00	0.00	26.00	0.00
258.077	0.211	31.43	2.42	0.00	0.00	26.00	0.00
258.288	0.211	31.43	2.40	0.00	0.00	26.00	0.00
258.499	0.211	31.43	2.39	0.00	0.00	26.00	0.00
258.710	0.211	31.43	2.38	0.00	0.00	26.00	0.00
258.920	0.211	31.43	2.36	0.00	0.00	26.00	0.00
259.131	0.211	31.43	2.35	0.00	0.00	26.00	0.00
259.342	0.211	31.43	2.33	0.00	0.00	26.00	0.00
259.553	0.211	31.43	2.32	0.00	0.00	26.00	0.00
259.764	0.211	31.43	2.31	0.00	0.00	26.00	0.00
259.975	0.211	31.43	2.29	0.00	0.00	26.00	0.00
260.186	0.184	31.43	1.99	0.00	0.00	26.00	0.00
260.370	0.211	31.43	2.28	0.00	0.00	26.00	0.00
260.581	0.211	31.43	2.29	0.00	0.00	26.00	0.00
260.792	0.211	31.43	2.30	0.00	0.00	26.00	0.00
261.003	0.211	31.43	2.31	0.00	0.00	26.00	0.00
261.214	0.201	31.43	2.21	0.00	0.00	26.00	0.00
261.415	0.211	33.42	2.31	0.00	0.00	26.00	0.00

261.626	0.211	33.42	2.28	0.00	0.00	26.00	0.00
261.836	0.211	33.42	2.25	0.00	0.00	26.00	0.00
262.047	0.211	33.42	2.21	0.00	0.00	26.00	0.00
262.258	0.211	33.42	2.18	0.00	0.00	26.00	0.00
262.469	0.211	33.42	2.15	0.00	0.00	26.00	0.00
262.680	0.211	33.42	2.12	0.00	0.00	26.00	0.00
262.891	0.211	33.42	2.09	0.00	0.00	26.00	0.00
263.102	0.211	33.42	2.06	0.00	0.00	26.00	0.00
263.313	0.057	33.42	0.55	0.00	0.00	26.00	0.00
263.370	0.211	33.42	1.75	0.00	0.00	26.00	0.00
263.581	0.211	33.42	1.19	0.00	0.00	26.00	0.00
263.792	0.211	33.42	0.63	0.00	0.00	26.00	0.00
264.003	0.129	33.42	0.11	0.00	0.00	26.00	0.00

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_qFEM (--)	FS_srmFEM (--)			
247.520	0.000	469.510	0.494	0.0000000000E+000	0.0000000000E+000	9.3690089845E-003	0.025	2.824	2.419			
247.731	0.005	469.614	0.494	5.1232749207E-003	2.5560678490E-005	3.9219935911E-002	0.025	2.824	2.419			
247.942	0.011	469.718	0.494	1.6541582821E-002	4.4323911964E-004	8.5347021787E-002	0.041	2.607	2.534			
248.152	0.016	469.822	0.494	4.1119632300E-002	3.1396385979E-003	1.4727211588E-001	0.117	2.177	2.138			
248.363	0.021	469.926	0.494	7.8655756275E-002	1.0907498975E-002	2.1101384673E-001	0.212	1.802	1.694			
248.574	0.027	470.031	0.494	1.3011781501E-001	2.5858969575E-002	2.6282289692E-001	0.304	1.526	1.403			
248.785	0.032	470.135	0.494	1.8950516527E-001	4.6165865838E-002	2.9925015312E-001	0.373	1.344	1.233			
248.996	0.037	470.239	0.494	2.5633095323E-001	7.1082949894E-002	3.4576690364E-001	0.424	1.209	1.117			
249.207	0.043	470.343	0.494	3.3533742482E-001	1.0413782290E-001	4.0311552552E-001	0.475	1.093	1.022			
249.418	0.048	470.447	0.494	4.2635083462E-001	1.4633298744E-001	4.5970704438E-001	0.525	0.996	0.945			
249.629	0.054	470.551	0.494	5.2922560876E-001	1.9842432015E-001	5.1572411682E-001	0.574	0.915	0.884			
249.839	0.059	470.655	0.494	6.4386503991E-001	2.6044334457E-001	5.7062788153E-001	0.619	0.847	0.834			
250.050	0.064	470.759	0.494	7.6989628155E-001	3.3151686914E-001	6.2399478686E-001	0.659	0.793	0.795			
250.261	0.070	470.864	0.494	9.0704398723E-001	4.1041036768E-001	6.7636337501E-001	0.693	0.749	0.765			
250.472	0.075	470.968	0.494	1.0551624485E+000	4.9549089522E-001	7.2804064607E-001	0.719	0.716	0.741			
250.683	0.080	471.072	0.494	1.2141058007E+000	5.8472427449E-001	7.7910209591E-001	0.737	0.690	0.724			
250.894	0.086	471.176	0.494	1.3837601768E+000	6.7656948495E-001	8.2965960936E-001	0.748	0.673	0.713			
251.105	0.091	471.280	0.494	1.5640269013E+000	7.7129790474E-001	8.7964218782E-001	0.755	0.661	0.707			
251.316	0.096	471.384	0.494	1.7547621625E+000	8.6881738814E-001	9.2879373551E-001	0.758	0.656	0.705			
251.527	0.102	471.488	0.507	1.9557592727E+000	9.6856752751E-001	1.0054025230E+000	0.758	0.654	0.707			
251.737	0.112	471.598	0.535	2.1788054129E+000	1.0740776042E+000	1.1087382739E+000	0.755	0.657	0.711			
251.948	0.130	471.714	0.537	2.4233858906E+000	1.1835474260E+000	1.1133655243E+000	0.748	0.666	0.717			
252.159	0.141	471.824	0.511	2.6483836415E+000	1.2811028174E+000	9.9941729038E-001	0.740	0.680	0.722			
252.370	0.148	471.930	0.492	2.8449047814E+000	1.3637345605E+000	8.4529074475E-001	0.734	0.698	0.726			
252.581	0.151	472.032	0.477	3.0048974026E+000	1.4293382950E+000	6.5474433850E-001	0.728	0.720	0.729			
252.792	0.151	472.131	0.472	3.1210528028E+000	1.4769200116E+000	4.1959282507E-001	0.724	0.747	0.729			
252.805	0.152	472.137	0.522	3.1264244106E+000	1.4793114839E+000	4.0225919478E-001	0.724	0.749	0.729			
253.016	0.133	472.248	0.566	3.1798766421E+000	1.5073837341E+000	1.6539390434E-001	0.726	0.778	0.727			
253.227	0.133	472.376	0.608	3.1961817140E+000	1.5218804970E+000	2.8606236284E-003	0.729	0.804	0.724			
253.438	0.132	472.504	0.608	3.1810831521E+000	1.5238354400E+000	-1.3007018281E-001	0.733	0.826	0.720			

253.648	0.131	472.633	0.608	3.1413227079E+000	1.5150115403E+000	-2.2831944405E-001	0.738	0.842	0.716
253.859	0.131	472.761	0.608	3.0847860801E+000	1.4976552600E+000	-2.6856904743E-001	0.743	0.849	0.713
254.070	0.130	472.889	0.608	3.0280497757E+000	1.4752972028E+000	-2.6251828143E-001	0.746	0.847	0.710
254.281	0.129	473.017	0.608	2.9740651471E+000	1.4505977828E+000	-2.5552120337E-001	0.747	0.842	0.710
254.492	0.129	473.145	0.608	2.9202799630E+000	1.4247359034E+000	-2.5449503512E-001	0.747	0.836	0.710
254.703	0.128	473.274	0.608	2.8667281359E+000	1.3985771537E+000	-2.5333438367E-001	0.747	0.829	0.712
254.914	0.127	473.402	0.608	2.8134324736E+000	1.3725276986E+000	-2.5208880118E-001	0.747	0.824	0.714
255.125	0.127	473.530	0.608	2.7604059891E+000	1.3466594314E+000	-2.5079751055E-001	0.747	0.818	0.716
255.335	0.126	473.658	0.608	2.7076549475E+000	1.3209361851E+000	-2.4948500014E-001	0.747	0.813	0.719
255.546	0.125	473.787	0.608	2.6551820336E+000	1.2953457061E+000	-2.4816397862E-001	0.747	0.808	0.722
255.757	0.125	473.915	0.608	2.6029881522E+000	1.2698898794E+000	-2.4684048920E-001	0.747	0.803	0.725
255.968	0.124	474.043	0.608	2.5510734393E+000	1.2445696167E+000	-2.4551677626E-001	0.747	0.798	0.728
256.179	0.123	474.171	0.608	2.4994378532E+000	1.2193853031E+000	-2.4419321144E-001	0.747	0.793	0.731
256.390	0.123	474.299	0.608	2.4480813732E+000	1.1943370770E+000	-2.4286969077E-001	0.747	0.788	0.734
256.601	0.122	474.428	0.608	2.3970040014E+000	1.1694249766E+000	-2.4154615707E-001	0.747	0.784	0.738
256.812	0.121	474.556	0.608	2.3462057411E+000	1.1446490065E+000	-2.4022261331E-001	0.747	0.779	0.741
257.023	0.121	474.684	0.608	2.2956865932E+000	1.1200091617E+000	-2.3889907269E-001	0.747	0.774	0.744
257.233	0.120	474.812	0.608	2.2454465556E+000	1.0955054328E+000	-2.3757556964E-001	0.747	0.769	0.747
257.444	0.119	474.941	0.608	2.1954856146E+000	1.0711377994E+000	-2.3625218351E-001	0.747	0.764	0.750
257.655	0.119	475.069	0.608	2.1458037344E+000	1.0469062247E+000	-2.3492902919E-001	0.747	0.759	0.754
257.866	0.118	475.197	0.608	2.0964008531E+000	1.0228106523E+000	-2.3360622691E-001	0.747	0.755	0.757
258.077	0.117	475.325	0.608	2.0472768842E+000	9.9885100826E-001	-2.3228427532E-001	0.747	0.750	0.760
258.288	0.117	475.453	0.608	1.9984315554E+000	9.7502163340E-001	-2.3096412584E-001	0.747	0.745	0.763
258.499	0.116	475.582	0.608	1.9498643789E+000	9.5130941853E-001	-2.2964570359E-001	0.747	0.740	0.767
258.710	0.115	475.710	0.608	1.9015751140E+000	9.2770801290E-001	-2.2832800687E-001	0.747	0.735	0.770
258.920	0.115	475.838	0.608	1.8535636954E+000	9.0421723027E-001	-2.2701069799E-001	0.747	0.730	0.773
259.131	0.114	475.966	0.614	1.8058300248E+000	8.8084212172E-001	-2.2787501661E-001	0.747	0.725	0.776
259.342	0.116	476.097	0.617	1.7574540671E+000	8.5714165084E-001	-2.2776491724E-001	0.747	0.719	0.779
259.553	0.117	476.227	0.612	1.7097668326E+000	8.3379201799E-001	-2.2456719226E-001	0.746	0.714	0.782
259.764	0.116	476.355	0.607	1.6627395623E+000	8.1074953039E-001	-2.2155173664E-001	0.746	0.709	0.785
259.975	0.115	476.483	0.603	1.6163241403E+000	7.8786521377E-001	-2.1881062699E-001	0.746	0.703	0.788
260.186	0.113	476.609	0.600	1.5704529732E+000	7.6484513037E-001	-2.1712232988E-001	0.745	0.698	0.790
260.370	0.111	476.720	0.606	1.5305187242E+000	7.4409963382E-001	-2.1981145740E-001	0.744	0.692	0.791
260.581	0.111	476.849	0.612	1.4834313029E+000	7.1885620648E-001	-2.3292711026E-001	0.742	0.685	0.792
260.792	0.111	476.978	0.614	1.4322783014E+000	6.9123525695E-001	-2.5853498343E-001	0.739	0.678	0.790
261.003	0.112	477.108	0.618	1.3743903842E+000	6.6036902996E-001	-2.9665534747E-001	0.735	0.670	0.787
261.214	0.114	477.239	0.629	1.3071595605E+000	6.2548667432E-001	-3.4699368705E-001	0.732	0.661	0.780
261.415	0.119	477.367	0.635	1.2319474619E+000	5.8791127755E-001	-4.0361970996E-001	0.730	0.652	0.771
261.626	0.114	477.501	0.637	1.1402569916E+000	5.4411365471E-001	-4.6106925310E-001	0.730	0.644	0.758
261.836	0.110	477.636	0.647	1.0374847465E+000	4.9462658756E-001	-5.0664075272E-001	0.730	0.638	0.742
262.047	0.108	477.773	0.655	9.2657382826E-001	4.3905063953E-001	-5.4272687532E-001	0.725	0.634	0.725
262.258	0.108	477.912	0.689	8.0858173202E-001	3.7687537913E-001	-5.8687750927E-001	0.713	0.634	0.707
262.469	0.120	478.064	0.697	6.7904963680E-001	3.0501018563E-001	-5.9465618981E-001	0.688	0.639	0.689
262.680	0.124	478.206	0.656	5.5777676803E-001	2.3562379068E-001	-5.5302969381E-001	0.647	0.648	0.674
262.891	0.119	478.340	0.629	4.4580125762E-001	1.7168357857E-001	-5.2053768948E-001	0.589	0.660	0.661
263.102	0.111	478.472	0.613	3.3823236792E-001	1.1105034773E-001	-4.8953974070E-001	0.503	0.675	0.648
263.313	0.099	478.599	0.614	2.3933069675E-001	5.6190314635E-002	-4.0247849870E-001	0.359	0.696	0.641
263.370	0.098	478.636	0.557	2.1728075185E-001	4.5756344486E-002	-3.8687944322E-001	0.322	0.702	0.640
263.581	0.071	478.748	0.531	1.3376178029E-001	1.7020493712E-002	-4.0508783994E-001	0.195	0.725	0.640
263.792	0.044	478.860	0.531	4.6429017938E-002	2.3760813146E-003	-3.0354416221E-001	0.078	0.760	0.643
264.003	0.017	478.972	0.531	5.7375808065E-003	7.0066992831E-005	-1.0083181363E-001	0.025	0.792	0.644

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 mobilitazione resistenza al taglio verticale interconcio ZhU et al.(2003)

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

FS_srmFEM(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)
247.520	0.211	0.233	25.100	0.111	0.026	0.102	0.024
247.731	0.211	0.233	25.100	0.334	0.078	0.307	0.072
247.942	0.211	0.233	25.100	0.557	0.130	0.513	0.119
248.152	0.211	0.233	25.100	0.780	0.182	0.720	0.168
248.363	0.211	0.233	25.100	1.002	0.233	0.929	0.216
248.574	0.211	0.233	25.100	1.225	0.285	1.136	0.265
248.785	0.211	0.233	25.100	1.448	0.337	1.344	0.313
248.996	0.211	0.233	25.100	1.671	0.389	1.553	0.362
249.207	0.211	0.233	25.100	1.893	0.441	1.762	0.410
249.418	0.211	0.233	25.100	2.116	0.493	1.972	0.459
249.629	0.211	0.233	25.100	2.339	0.545	2.182	0.508
249.839	0.211	0.233	25.100	2.561	0.596	2.391	0.557
250.050	0.211	0.233	25.100	2.784	0.648	2.600	0.606
250.261	0.211	0.233	25.100	3.007	0.700	2.808	0.654
250.472	0.211	0.233	25.100	3.230	0.752	3.015	0.702
250.683	0.211	0.233	25.100	3.452	0.804	3.221	0.750
250.894	0.211	0.233	25.100	3.675	0.856	3.427	0.798
251.105	0.211	0.233	25.100	3.898	0.908	3.633	0.846
251.316	0.211	0.233	25.100	4.121	0.960	3.839	0.894
251.527	0.211	0.233	25.100	4.343	1.011	4.047	0.942
251.737	0.211	0.233	25.100	4.566	1.063	4.254	0.991
251.948	0.211	0.233	25.100	4.789	1.115	4.452	1.037
252.159	0.211	0.233	25.100	5.012	1.167	4.649	1.083
252.370	0.211	0.233	25.100	5.234	1.219	4.844	1.128
252.581	0.211	0.233	25.100	5.457	1.271	5.039	1.173
252.792	0.013	0.014	25.100	5.575	0.080	5.143	0.074
252.805	0.211	0.247	31.433	6.305	1.558	4.512	1.115
253.016	0.211	0.247	31.433	6.273	1.550	4.488	1.109
253.227	0.211	0.247	31.433	6.242	1.543	4.464	1.103
253.438	0.211	0.247	31.433	6.210	1.535	4.440	1.097
253.648	0.211	0.247	31.433	6.179	1.527	4.417	1.092
253.859	0.211	0.247	31.433	6.147	1.519	4.393	1.086
254.070	0.211	0.247	31.433	6.116	1.511	4.371	1.080
254.281	0.211	0.247	31.433	6.084	1.504	4.348	1.075
254.492	0.211	0.247	31.433	6.053	1.496	4.325	1.069
254.703	0.211	0.247	31.433	6.021	1.488	4.303	1.063
254.914	0.211	0.247	31.433	5.989	1.480	4.280	1.058
255.125	0.211	0.247	31.433	5.958	1.473	4.258	1.052
255.335	0.211	0.247	31.433	5.926	1.465	4.235	1.047
255.546	0.211	0.247	31.433	5.895	1.457	4.213	1.041
255.757	0.211	0.247	31.433	5.863	1.449	4.190	1.036
255.968	0.211	0.247	31.433	5.832	1.441	4.168	1.030
256.179	0.211	0.247	31.433	5.800	1.434	4.145	1.024
256.390	0.211	0.247	31.433	5.769	1.426	4.123	1.019
256.601	0.211	0.247	31.433	5.737	1.418	4.100	1.013
256.812	0.211	0.247	31.433	5.706	1.410	4.078	1.008
257.023	0.211	0.247	31.433	5.674	1.402	4.055	1.002
257.233	0.211	0.247	31.433	5.643	1.395	4.033	0.997
257.444	0.211	0.247	31.433	5.611	1.387	4.010	0.991
257.655	0.211	0.247	31.433	5.580	1.379	3.987	0.986
257.866	0.211	0.247	31.433	5.548	1.371	3.965	0.980

258.077	0.211	0.247	31.433	5.517	1.363	3.942	0.974
258.288	0.211	0.247	31.433	5.485	1.356	3.920	0.969
258.499	0.211	0.247	31.433	5.454	1.348	3.897	0.963
258.710	0.211	0.247	31.433	5.422	1.340	3.875	0.958
258.920	0.211	0.247	31.433	5.391	1.332	3.852	0.952
259.131	0.211	0.247	31.433	5.359	1.324	3.830	0.947
259.342	0.211	0.247	31.433	5.327	1.317	3.807	0.941
259.553	0.211	0.247	31.433	5.296	1.309	3.785	0.935
259.764	0.211	0.247	31.433	5.264	1.301	3.762	0.930
259.975	0.211	0.247	31.433	5.233	1.293	3.740	0.924
260.186	0.184	0.216	31.433	5.203	1.123	3.718	0.803
260.370	0.211	0.247	31.433	5.202	1.286	3.717	0.919
260.581	0.211	0.247	31.433	5.226	1.292	3.734	0.923
260.792	0.211	0.247	31.433	5.250	1.298	3.751	0.927
261.003	0.211	0.247	31.433	5.274	1.303	3.768	0.931
261.214	0.201	0.236	31.433	5.298	1.249	3.784	0.892
261.415	0.211	0.253	33.415	5.417	1.369	3.600	0.910
261.626	0.211	0.253	33.415	5.342	1.350	3.551	0.897
261.836	0.211	0.253	33.415	5.268	1.331	3.502	0.885
262.047	0.211	0.253	33.415	5.194	1.312	3.452	0.872
262.258	0.211	0.253	33.415	5.119	1.293	3.403	0.860
262.469	0.211	0.253	33.415	5.045	1.275	3.353	0.847
262.680	0.211	0.253	33.415	4.971	1.256	3.304	0.835
262.891	0.211	0.253	33.415	4.896	1.237	3.254	0.822
263.102	0.211	0.253	33.415	4.822	1.218	3.205	0.810
263.313	0.057	0.069	33.415	4.774	0.328	3.173	0.218
263.370	0.211	0.253	33.415	4.105	1.037	2.728	0.689
263.581	0.211	0.253	33.415	2.786	0.704	1.851	0.468
263.792	0.211	0.253	33.415	1.466	0.370	0.975	0.246
264.003	0.129	0.155	33.415	0.403	0.062	0.268	0.041

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

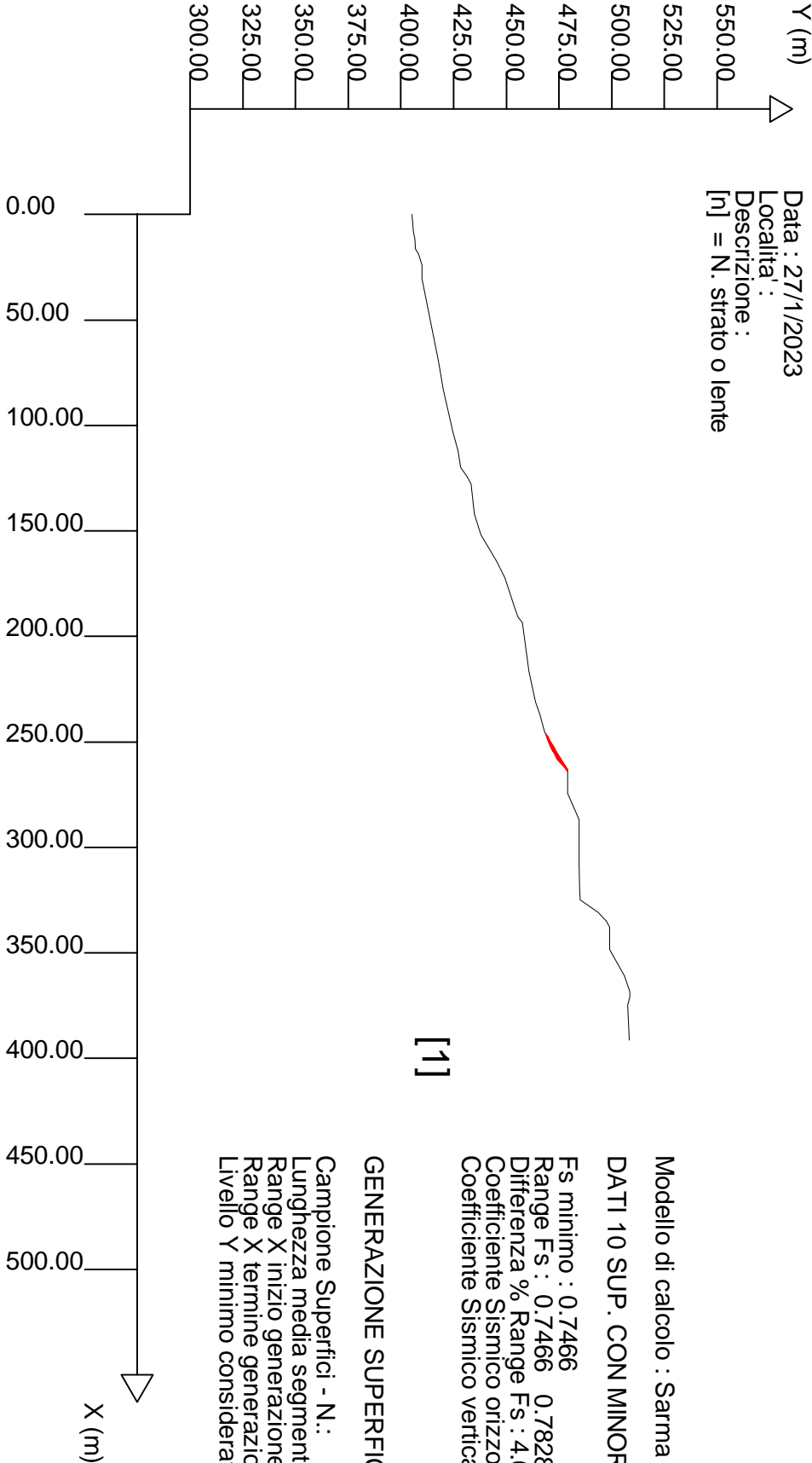
TauS (kN/m) : Forza resistente al taglio su base concio

Data : 27/1/2023

Localita' :

Descrizione :

[n] = N. strato o lente



Modello di calcolo : Sarma II (1979)

DATI 10 SUP. CON MINOR Fs

Fs minimo : 0.7466
Range Fs : 0.7466 0.7828
Differenza % Range Fs : 4.62
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

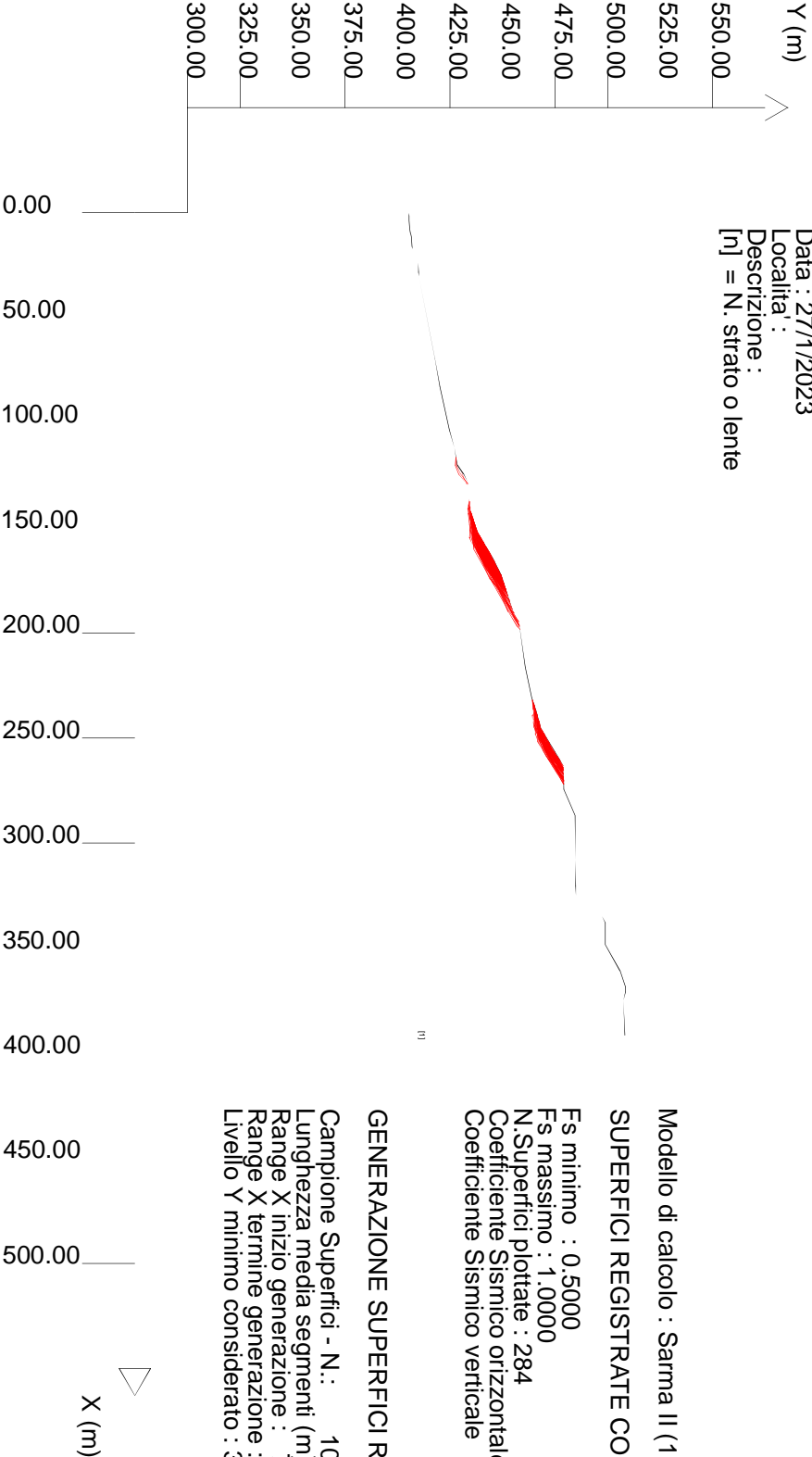
GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 15.7
Range X inizio generazione : 7.8 - 270.0
Range X termine generazione : 47.0 - 383.5
Livello Y minimo considerato : 312.5

Parametri Geotecnici degli strati # -----

N.	phi`	C`	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0

Data : 27/1/2023
Localita' :
Descrizione :
[n] = N. strato o lente



Modello di calcolo : Sarma II (1979)

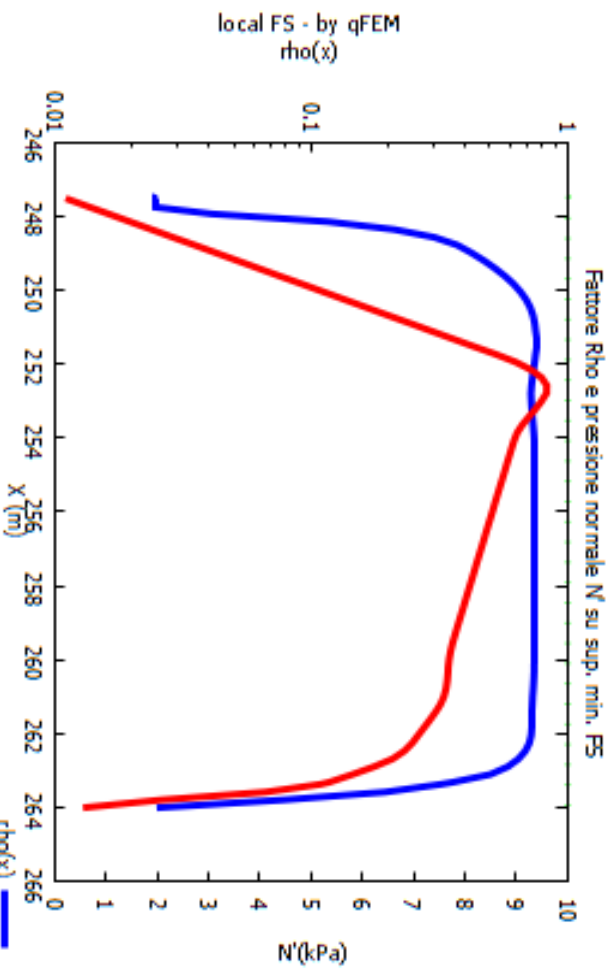
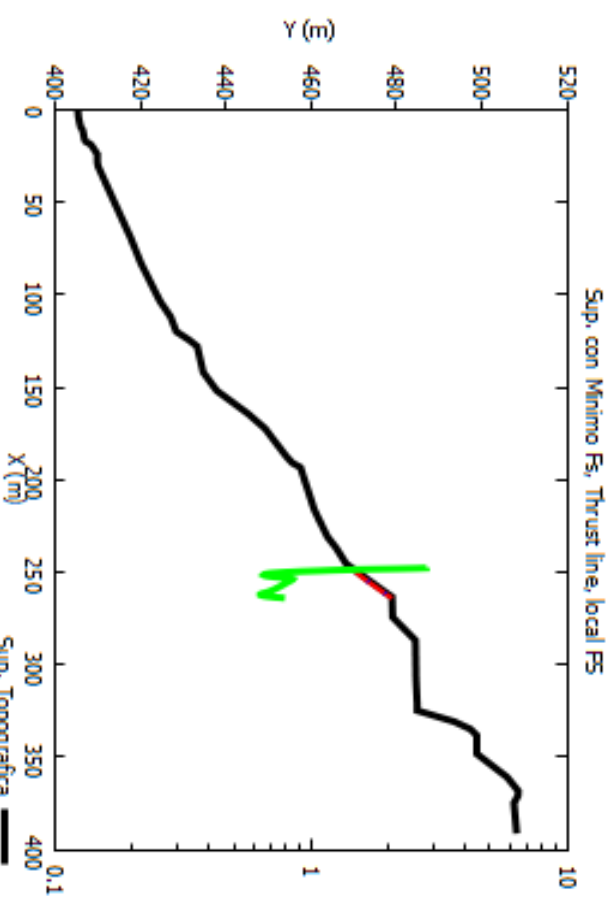
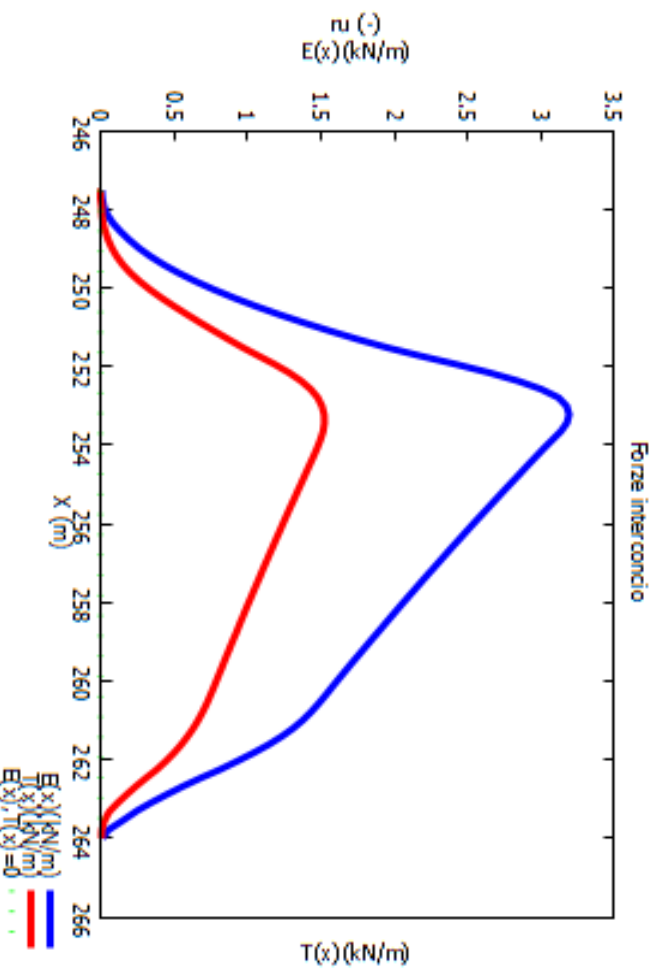
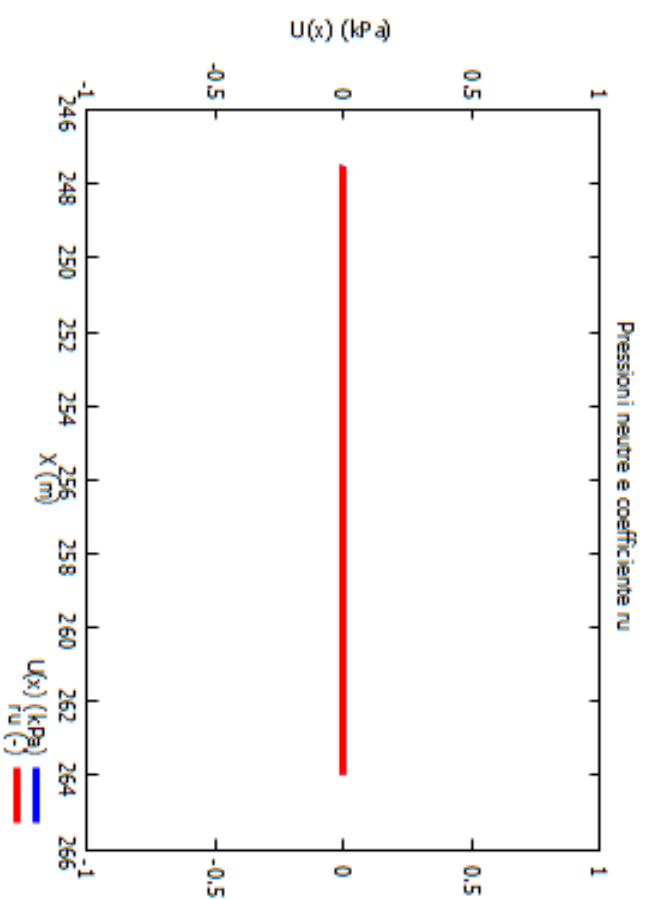
SUPERFICI REGISTRATE CON Fs ENTRO INTERVALLO PREDEFINITO

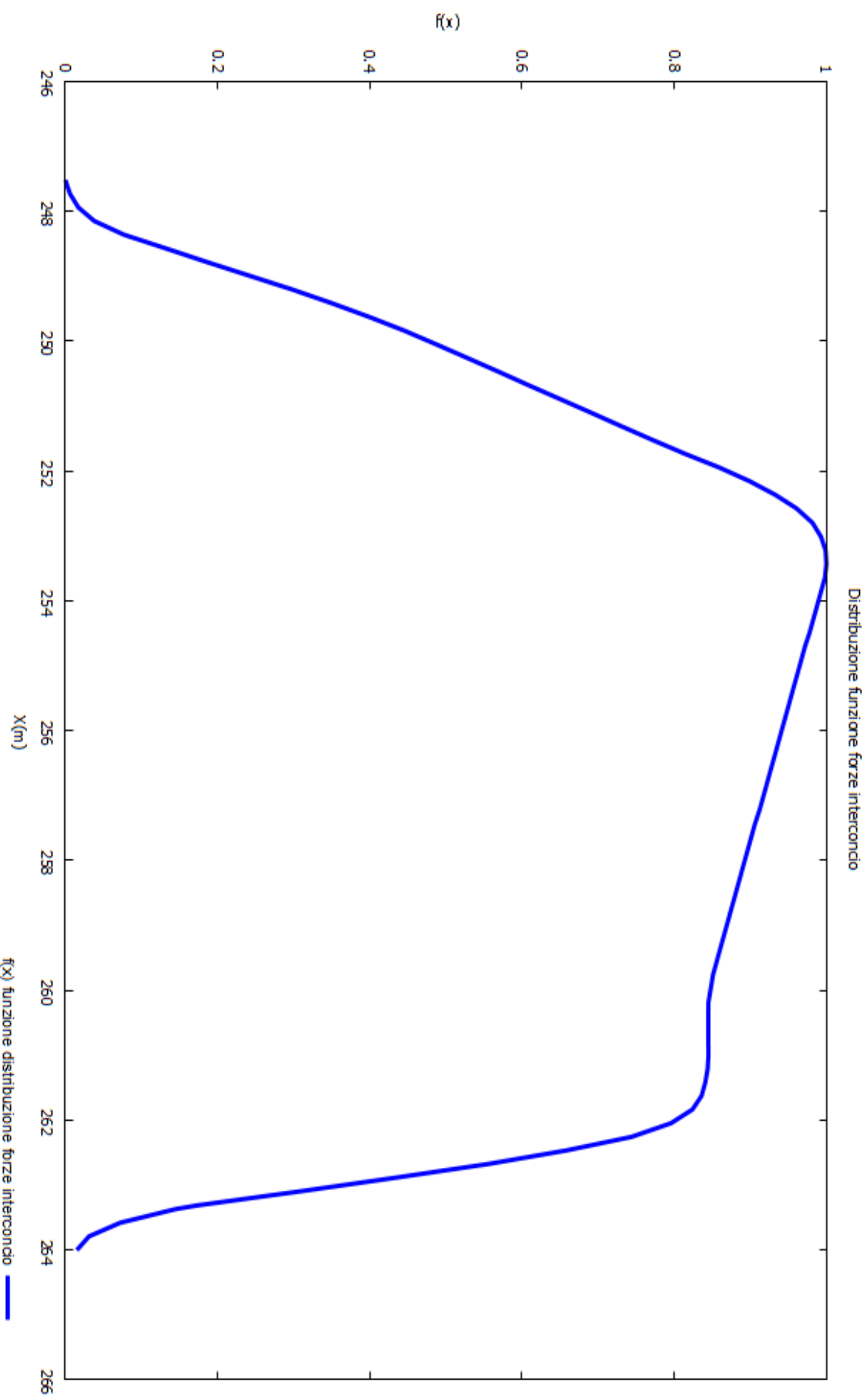
Fs minimo : 0.5000
Fs massimo : 1.0000
N.Superfici plottate : 284
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

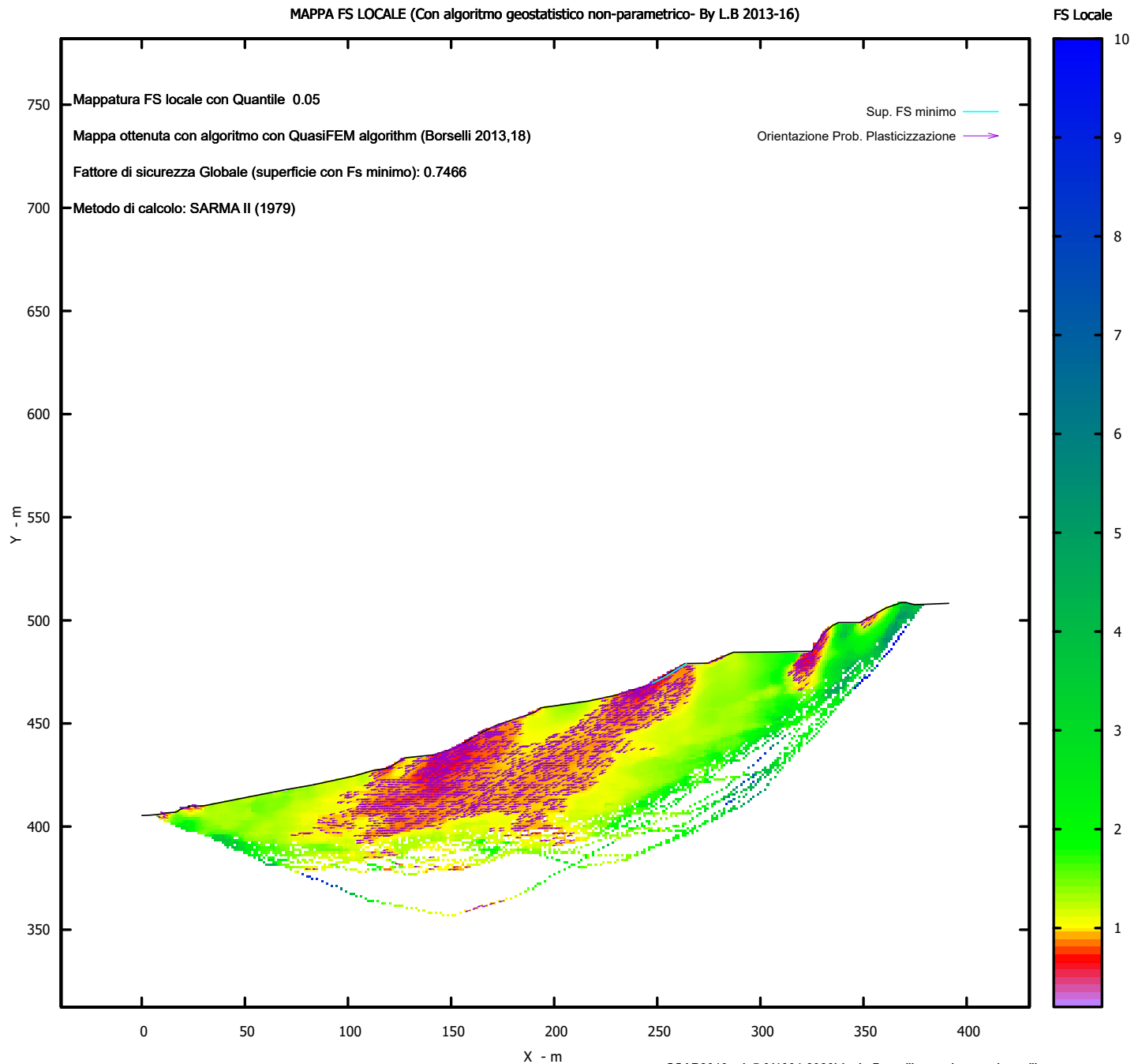
GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 15.7
Range X inizio generazione : 7.8 - 270.0
Range X termine generazione : 47.0 - 383.5
Livello Y minimo considerato : 312.5

# Parametri Geotecnici degli strati #									
N.	phi`	C`	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0







SEZIONE E F

**METODOLOGIA DI CALCOLO
BERSELLI**

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

Ultima Revisione struttura tabelle del report: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\EF\risultati\berselli\berselli.txt

Data: 27/1/2023

Localita' : FERRANDINA

Descrizione: SEZIONE EF

Modello pendio: EF.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	405.37	-	-	-	-	-	-
1.61	405.44	-	-	-	-	-	-
3.87	405.53	-	-	-	-	-	-
7.37	405.83	-	-	-	-	-	-
9.37	406.08	-	-	-	-	-	-
10.37	406.39	-	-	-	-	-	-
11.68	406.61	-	-	-	-	-	-
16.14	406.96	-	-	-	-	-	-
17.37	407.37	-	-	-	-	-	-
18.37	408.25	-	-	-	-	-	-
19.87	408.79	-	-	-	-	-	-
23.87	409.95	-	-	-	-	-	-
28.37	409.96	-	-	-	-	-	-
30.37	410.12	-	-	-	-	-	-
69.37	417.81	-	-	-	-	-	-
82.87	420.16	-	-	-	-	-	-
103.37	424.64	-	-	-	-	-	-
111.87	427.13	-	-	-	-	-	-
119.87	428.44	-	-	-	-	-	-
124.37	431.44	-	-	-	-	-	-
127.87	433.36	-	-	-	-	-	-
141.87	434.77	-	-	-	-	-	-
151.87	437.98	-	-	-	-	-	-
164.37	445.34	-	-	-	-	-	-
172.37	449.28	-	-	-	-	-	-
187.37	454.24	-	-	-	-	-	-
190.87	455.63	-	-	-	-	-	-
193.37	457.56	-	-	-	-	-	-
216.37	460.83	-	-	-	-	-	-
230.87	463.90	-	-	-	-	-	-
236.87	465.91	-	-	-	-	-	-

245.37	468.23	-	-	-	-	-	-
260.37	477.16	-	-	-	-	-	-
263.37	479.03	-	-	-	-	-	-
274.37	479.18	-	-	-	-	-	-
286.87	484.50	-	-	-	-	-	-
307.87	484.65	-	-	-	-	-	-
320.37	484.90	-	-	-	-	-	-
324.87	484.92	-	-	-	-	-	-
330.87	493.67	-	-	-	-	-	-
334.87	497.40	-	-	-	-	-	-
337.87	498.95	-	-	-	-	-	-
348.37	498.95	-	-	-	-	-	-
360.87	506.00	-	-	-	-	-	-
368.37	508.61	-	-	-	-	-	-
370.87	508.55	-	-	-	-	-	-
374.87	507.60	-	-	-	-	-	-
391.37	508.24	-	-	-	-	-	-

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.00	0.00	0.00	19.10	19.30	1.484	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)-

sgci _____ 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)

----- 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): 15.7 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 7.83 270.00

LIVELLO MINIMO CONSIDERATO (Ymin): 312.45

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 46.96 383.54

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : BORSELLI (Borselli, 2016)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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)	0.7332	- Min. -	X	Y	Lambda= 1.2500
	252.74	472.62			
	254.94	473.60			
	257.78	475.35			
	262.80	478.45			
	263.56	479.03			

Fattore di sicurezza (FS)	0.7429	- N.2 --	X	Y	Lambda= 1.2500
	249.59	470.74			
	256.20	473.87			
	262.51	478.35			
	263.48	479.03			

Fattore di sicurezza (FS)	0.7520	- N.3 --	X	Y	Lambda= 1.2500
	248.22	469.93			
	251.76	471.38			
	254.82	473.24			
	257.15	475.13			
	257.68	475.56			

Fattore di sicurezza (FS)	0.7546	- N.4 --	X	Y	Lambda= 1.2500
	247.23	469.34			
	250.43	470.74			
	253.46	472.64			
	254.29	473.54			

Fattore di sicurezza (FS)	0.7591	- N.5 --	X	Y	Lambda= 1.2500
	247.28	469.36			
	251.31	470.85			
	255.31	473.70			
	259.02	476.35			
	259.07	476.39			

Fattore di sicurezza (FS)	0.7608	- N.6 --	X	Y	Lambda= 1.2500
	246.49	468.90			
	252.34	471.30			
	254.91	473.25			
	256.89	474.74			
	259.03	476.36			

Fattore di sicurezza (FS)	0.7615	- N.7 --	X	Y	Lambda= 1.2500
	251.31	471.77			
	253.74	472.87			
	257.39	474.53			
	259.26	476.07			
	260.80	477.35			
	261.04	477.58			

Fattore di sicurezza (FS) 0.7625 - N.8 -- X Y Lambda= 1.2500
 245.69 468.42
 249.05 469.88
 255.18 473.05
 257.49 475.32
 257.80 475.63

Fattore di sicurezza (FS) 0.7631 - N.9 -- X Y Lambda= 1.2500
 154.79 439.70
 158.60 441.17
 163.94 444.64
 165.05 445.68

Fattore di sicurezza (FS) 0.7636 - N.10 -- X Y Lambda= 1.2500
 249.03 470.41
 254.97 473.04
 258.14 475.52
 258.58 476.09

----- 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	0.733	19.8	27.0	-9.9	Deficit
2	0.743	45.4	61.1	-21.8	Deficit
3	0.752	32.1	42.6	-14.8	Deficit
4	0.755	18.8	25.0	-8.6	Deficit
5	0.759	43.9	57.8	-19.7	Deficit
6	0.761	54.6	71.8	-24.3	Deficit
7	0.761	33.7	44.3	-15.0	Deficit
8	0.763	56.7	74.3	-25.1	Deficit
9	0.763	40.5	53.1	-17.9	Deficit
10	0.764	37.8	49.5	-16.7	Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -25.1

Note: FTR --> Forza totale Resistente lungo la superficie
 di scivolamento

FTA --> Forza totale Agente lungo la superficie
 di scivolamento

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)
252.745	0.156	24.00	0.04	0.00	0.00	26.00	0.00
252.901	0.156	24.00	0.11	0.00	0.00	26.00	0.00
253.058	0.156	24.00	0.18	0.00	0.00	26.00	0.00
253.214	0.156	24.00	0.25	0.00	0.00	26.00	0.00

253.370	0.156	24.00	0.32	0.00	0.00	26.00	0.00
253.526	0.156	24.00	0.40	0.00	0.00	26.00	0.00
253.683	0.156	24.00	0.47	0.00	0.00	26.00	0.00
253.839	0.156	24.00	0.54	0.00	0.00	26.00	0.00
253.995	0.156	24.00	0.61	0.00	0.00	26.00	0.00
254.152	0.156	24.00	0.68	0.00	0.00	26.00	0.00
254.308	0.156	24.00	0.75	0.00	0.00	26.00	0.00
254.464	0.156	24.00	0.83	0.00	0.00	26.00	0.00
254.621	0.156	24.00	0.90	0.00	0.00	26.00	0.00
254.777	0.156	24.00	0.97	0.00	0.00	26.00	0.00
254.933	0.010	24.00	0.06	0.00	0.00	26.00	0.00
254.943	0.156	31.67	1.00	0.00	0.00	26.00	0.00
255.099	0.156	31.67	0.99	0.00	0.00	26.00	0.00
255.255	0.156	31.67	0.98	0.00	0.00	26.00	0.00
255.412	0.156	31.67	0.97	0.00	0.00	26.00	0.00
255.568	0.156	31.67	0.96	0.00	0.00	26.00	0.00
255.724	0.156	31.67	0.95	0.00	0.00	26.00	0.00
255.881	0.156	31.67	0.94	0.00	0.00	26.00	0.00
256.037	0.156	31.67	0.93	0.00	0.00	26.00	0.00
256.193	0.156	31.67	0.92	0.00	0.00	26.00	0.00
256.350	0.156	31.67	0.91	0.00	0.00	26.00	0.00
256.506	0.156	31.67	0.90	0.00	0.00	26.00	0.00
256.662	0.156	31.67	0.89	0.00	0.00	26.00	0.00
256.818	0.156	31.67	0.88	0.00	0.00	26.00	0.00
256.975	0.156	31.67	0.87	0.00	0.00	26.00	0.00
257.131	0.156	31.67	0.86	0.00	0.00	26.00	0.00
257.287	0.156	31.67	0.85	0.00	0.00	26.00	0.00
257.444	0.156	31.67	0.84	0.00	0.00	26.00	0.00
257.600	0.156	31.67	0.83	0.00	0.00	26.00	0.00
257.756	0.024	31.67	0.13	0.00	0.00	26.00	0.00
257.781	0.156	31.68	0.82	0.00	0.00	26.00	0.00
257.937	0.156	31.68	0.81	0.00	0.00	26.00	0.00
258.093	0.156	31.68	0.80	0.00	0.00	26.00	0.00
258.250	0.156	31.68	0.79	0.00	0.00	26.00	0.00
258.406	0.156	31.68	0.77	0.00	0.00	26.00	0.00
258.562	0.156	31.68	0.76	0.00	0.00	26.00	0.00
258.718	0.156	31.68	0.75	0.00	0.00	26.00	0.00
258.875	0.156	31.68	0.74	0.00	0.00	26.00	0.00
259.031	0.156	31.68	0.73	0.00	0.00	26.00	0.00
259.187	0.156	31.68	0.72	0.00	0.00	26.00	0.00
259.344	0.156	31.68	0.71	0.00	0.00	26.00	0.00
259.500	0.156	31.68	0.70	0.00	0.00	26.00	0.00
259.656	0.156	31.68	0.69	0.00	0.00	26.00	0.00
259.813	0.156	31.68	0.68	0.00	0.00	26.00	0.00
259.969	0.156	31.68	0.67	0.00	0.00	26.00	0.00
260.125	0.156	31.68	0.66	0.00	0.00	26.00	0.00
260.282	0.088	31.68	0.37	0.00	0.00	26.00	0.00
260.370	0.156	31.68	0.65	0.00	0.00	26.00	0.00
260.526	0.156	31.68	0.65	0.00	0.00	26.00	0.00
260.683	0.156	31.68	0.66	0.00	0.00	26.00	0.00
260.839	0.156	31.68	0.66	0.00	0.00	26.00	0.00
260.995	0.156	31.68	0.66	0.00	0.00	26.00	0.00
261.152	0.156	31.68	0.66	0.00	0.00	26.00	0.00
261.308	0.156	31.68	0.67	0.00	0.00	26.00	0.00
261.464	0.156	31.68	0.67	0.00	0.00	26.00	0.00
261.620	0.156	31.68	0.67	0.00	0.00	26.00	0.00
261.777	0.156	31.68	0.68	0.00	0.00	26.00	0.00
261.933	0.156	31.68	0.68	0.00	0.00	26.00	0.00
262.089	0.156	31.68	0.68	0.00	0.00	26.00	0.00
262.246	0.156	31.68	0.68	0.00	0.00	26.00	0.00
262.402	0.156	31.68	0.69	0.00	0.00	26.00	0.00

262.558	0.156	31.68	0.69	0.00	0.00	26.00	0.00
262.715	0.087	31.68	0.39	0.00	0.00	26.00	0.00
262.802	0.156	37.50	0.66	0.00	0.00	26.00	0.00
262.958	0.156	37.50	0.59	0.00	0.00	26.00	0.00
263.115	0.156	37.50	0.52	0.00	0.00	26.00	0.00
263.271	0.099	37.50	0.30	0.00	0.00	26.00	0.00
263.370	0.156	37.50	0.26	0.00	0.00	26.00	0.00
263.526	0.036	37.50	0.01	0.00	0.00	26.00	0.00

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_qFEM (--)	FS_srmFEM (--)			
252.745	0.000	472.621	0.483	0.0000000000E+000	0.0000000000E+000	4.6232509852E-003	0.733	0.567	0.646			
252.901	0.006	472.696	0.483	3.8653986739E-003	1.8852809011E-003	4.4835515783E-002	0.733	0.567	0.646			
253.058	0.012	472.772	0.486	1.4016293133E-002	8.6189276702E-003	1.1170993985E-001	0.924	0.558	0.636			
253.214	0.019	472.848	0.491	3.8787697111E-002	2.3154835405E-002	2.0120886916E-001	0.897	0.566	0.639			
253.370	0.026	472.925	0.497	7.6917375942E-002	4.3358933090E-002	2.7633437329E-001	0.847	0.583	0.651			
253.526	0.035	473.003	0.500	1.2517420368E-001	6.7938900034E-002	3.1885501858E-001	0.816	0.601	0.667			
253.683	0.044	473.082	0.504	1.7659651042E-001	9.4080577874E-002	3.6006931722E-001	0.801	0.616	0.680			
253.839	0.053	473.161	0.508	2.3773758139E-001	1.2490921639E-001	4.2104771548E-001	0.790	0.632	0.695			
253.995	0.063	473.240	0.512	3.0822270229E-001	1.6009399289E-001	4.7956121956E-001	0.781	0.649	0.711			
254.152	0.074	473.321	0.543	3.8765602241E-001	1.9891804365E-001	5.7850835583E-001	0.771	0.665	0.726			
254.308	0.094	473.410	0.539	4.8907358698E-001	2.4505482180E-001	6.4897963364E-001	0.753	0.682	0.742			
254.464	0.103	473.489	0.505	5.9053734592E-001	2.8922099797E-001	6.1713304938E-001	0.736	0.696	0.754			
254.621	0.113	473.568	0.505	6.8199916330E-001	3.2756435794E-001	5.3699317119E-001	0.722	0.709	0.763			
254.777	0.122	473.647	0.505	7.5840992564E-001	3.5854127815E-001	4.2611984099E-001	0.711	0.719	0.769			
254.933	0.131	473.726	0.505	8.1521098203E-001	3.8131697245E-001	2.4072617696E-001	0.703	0.729	0.772			
254.943	0.132	473.731	0.547	8.1742974950E-001	3.8226377456E-001	2.3018900855E-001	0.703	0.729	0.772			
255.099	0.121	473.817	0.549	8.4551819199E-001	3.9635531733E-001	1.2719359090E-001	0.705	0.738	0.772			
255.255	0.111	473.903	0.575	8.5719248276E-001	4.0464266883E-001	3.1088536138E-002	0.710	0.745	0.771			
255.412	0.108	473.997	0.627	8.5523696132E-001	4.0765176277E-001	-4.4772421934E-002	0.717	0.750	0.768			
255.568	0.114	474.099	0.668	8.4319591377E-001	4.0631859427E-001	-9.2921625443E-002	0.724	0.751	0.765			
255.724	0.124	474.205	0.644	8.2618818787E-001	4.0179150024E-001	-1.0316944399E-001	0.731	0.749	0.762			
255.881	0.122	474.300	0.606	8.1094350975E-001	3.9540860259E-001	-9.7155473476E-002	0.733	0.745	0.760			
256.037	0.121	474.395	0.605	7.9581584639E-001	3.8830400922E-001	-9.6339470826E-002	0.734	0.741	0.758			
256.193	0.119	474.489	0.605	7.8082626364E-001	3.8099946063E-001	-9.5410637452E-002	0.734	0.738	0.756			
256.350	0.117	474.584	0.605	7.6598896832E-001	3.7374271224E-001	-9.4413212678E-002	0.734	0.736	0.756			
256.506	0.115	474.679	0.606	7.5131119637E-001	3.6656237739E-001	-9.3383039283E-002	0.733	0.736	0.755			
256.662	0.113	474.773	0.606	7.3679594959E-001	3.5940971177E-001	-9.2338542880E-002	0.733	0.736	0.755			
256.818	0.112	474.868	0.606	7.2244470377E-001	3.5228114856E-001	-9.1284673574E-002	0.733	0.737	0.754			
256.975	0.110	474.963	0.621	7.0825891325E-001	3.4519071759E-001	-9.5121490159E-002	0.733	0.738	0.754			
257.131	0.113	475.062	0.623	6.9270821773E-001	3.3743814906E-001	-9.7362151034E-002	0.732	0.742	0.752			
257.287	0.112	475.157	0.608	6.7782196109E-001	3.3010538086E-001	-9.1606545649E-002	0.732	0.748	0.750			
257.444	0.110	475.252	0.608	6.6407055907E-001	3.2347033519E-001	-8.4711136731E-002	0.732	0.755	0.745			
257.600	0.109	475.347	0.594	6.5133991659E-001	3.1747082251E-001	-7.8506967714E-002	0.733	0.765	0.740			
257.756	0.103	475.438	0.563	6.3952803618E-001	3.1200529498E-001	-6.6345847202E-002	0.733	0.775	0.734			
257.781	0.099	475.449	0.526	6.3795167841E-001	3.1128407575E-001	-6.6215203424E-002	0.734	0.777	0.733			

257.937	0.086	475.533	0.553	6.2629165886E-001	3.0589923769E-001	-7.6655610226E-002	0.734	0.788	0.727
258.093	0.079	475.622	0.590	6.1398791923E-001	3.0011980066E-001	-8.0972601474E-002	0.735	0.798	0.721
258.250	0.078	475.717	0.631	6.0097833976E-001	2.9386205675E-001	-8.5707600835E-002	0.735	0.806	0.717
258.406	0.084	475.819	0.664	5.8719436425E-001	2.8708522294E-001	-8.9109402713E-002	0.735	0.810	0.715
258.562	0.093	475.925	0.641	5.7312132758E-001	2.8007084237E-001	-8.4837823265E-002	0.735	0.810	0.715
258.718	0.091	476.020	0.607	5.6067271554E-001	2.7383705153E-001	-7.9093071085E-002	0.734	0.807	0.717
258.875	0.089	476.114	0.607	5.4839557948E-001	2.6772536612E-001	-7.7993742935E-002	0.734	0.803	0.720
259.031	0.088	476.209	0.607	5.3629063485E-001	2.6174111123E-001	-7.6893140841E-002	0.734	0.799	0.722
259.187	0.086	476.304	0.607	5.2435756446E-001	2.5586806708E-001	-7.5796434519E-002	0.734	0.796	0.724
259.344	0.084	476.399	0.607	5.1259546761E-001	2.5007884049E-001	-7.4704915038E-002	0.733	0.794	0.726
259.500	0.083	476.494	0.621	5.0100362352E-001	2.4435224732E-001	-7.5216280151E-002	0.733	0.793	0.727
259.656	0.086	476.593	0.636	4.8908166583E-001	2.3845677286E-001	-7.5850150401E-002	0.733	0.793	0.727
259.813	0.089	476.693	0.626	4.7729166384E-001	2.3265225139E-001	-7.3575614593E-002	0.733	0.796	0.725
259.969	0.088	476.789	0.605	4.6608076211E-001	2.2718534674E-001	-7.0016352829E-002	0.733	0.800	0.722
260.125	0.085	476.882	0.586	4.5540344179E-001	2.2203841545E-001	-6.6769047399E-002	0.733	0.807	0.718
260.282	0.079	476.972	0.569	4.4520769923E-001	2.1716987155E-001	-6.3373944916E-002	0.733	0.814	0.714
260.370	0.073	477.021	0.571	4.3969271597E-001	2.1454645674E-001	-6.3113095547E-002	0.734	0.817	0.712
260.526	0.067	477.112	0.591	4.2960976787E-001	2.0973061657E-001	-6.5601666281E-002	0.734	0.820	0.711
260.683	0.065	477.206	0.614	4.1918459493E-001	2.0470330994E-001	-6.7949534178E-002	0.734	0.817	0.712
260.839	0.066	477.304	0.638	4.0836766610E-001	1.9942531680E-001	-7.0593049752E-002	0.734	0.808	0.716
260.995	0.071	477.405	0.649	3.9711608828E-001	1.9388106836E-001	-7.1997545587E-002	0.734	0.794	0.723
261.152	0.076	477.507	0.634	3.8586009177E-001	1.8830943173E-001	-7.0614767895E-002	0.734	0.777	0.731
261.308	0.077	477.604	0.620	3.7504079219E-001	1.8295906093E-001	-6.9375984229E-002	0.733	0.760	0.740
261.464	0.077	477.701	0.620	3.6417205910E-001	1.7759489188E-001	-6.9702608332E-002	0.733	0.744	0.748
261.620	0.077	477.797	0.619	3.5325065164E-001	1.7219486498E-001	-7.0056864963E-002	0.733	0.729	0.753
261.777	0.078	477.894	0.618	3.4227117231E-001	1.6667933469E-001	-7.0454400925E-002	0.732	0.716	0.755
261.933	0.077	477.990	0.630	3.3122548880E-001	1.6086940437E-001	-7.2621016143E-002	0.730	0.705	0.754
262.089	0.081	478.091	0.642	3.1956869121E-001	1.5394323813E-001	-7.7080712720E-002	0.724	0.695	0.749
262.246	0.085	478.191	0.631	3.0712883584E-001	1.4584518012E-001	-8.8734390157E-002	0.714	0.685	0.741
262.402	0.086	478.288	0.612	2.9182891390E-001	1.3642750173E-001	-1.1354502713E-001	0.703	0.676	0.732
262.558	0.084	478.383	0.619	2.7163286002E-001	1.2498966748E-001	-1.5911223954E-001	0.692	0.666	0.722
262.715	0.086	478.482	0.622	2.4208790498E-001	1.0979612465E-001	-2.0812214726E-001	0.682	0.655	0.710
262.802	0.085	478.534	0.610	2.2299103340E-001	1.0068737865E-001	-2.2635121700E-001	0.679	0.648	0.704
262.958	0.061	478.630	0.656	1.8549412057E-001	8.3752301751E-002	-3.0148240889E-001	0.679	0.633	0.691
263.115	0.050	478.739	0.725	1.2874285216E-001	6.0581947677E-002	-3.9047271906E-001	0.707	0.613	0.676
263.271	0.047	478.857	0.684	6.3426157371E-002	3.2084396960E-002	-3.2391269230E-001	0.760	0.589	0.647
263.370	0.029	478.914	0.608	3.7214832322E-002	1.9876976274E-002	-2.5143094593E-001	0.803	0.573	0.627
263.526	0.007	479.012	0.608	1.0840741454E-003	4.3746508212E-004	-6.7716495672E-002	0.607	0.632	0.603

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_qFEM(x)(-) : fattore di sicurezza locale stimato (locale in X) by qFEM
 FS_srmFEM(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)
252.745	0.156	0.171	23.998	0.095	0.016	0.093	0.016
252.901	0.156	0.171	23.998	0.285	0.049	0.280	0.048
253.058	0.156	0.171	23.998	0.475	0.081	0.470	0.080

253.214	0.156	0.171	23.998	0.665	0.114	0.657	0.112
253.370	0.156	0.171	23.998	0.855	0.146	0.844	0.144
253.526	0.156	0.171	23.998	1.044	0.179	1.028	0.176
253.683	0.156	0.171	23.998	1.234	0.211	1.215	0.208
253.839	0.156	0.171	23.998	1.424	0.244	1.402	0.240
253.995	0.156	0.171	23.998	1.614	0.276	1.588	0.272
254.152	0.156	0.171	23.998	1.804	0.309	1.777	0.304
254.308	0.156	0.171	23.998	1.994	0.341	1.958	0.335
254.464	0.156	0.171	23.998	2.184	0.374	2.136	0.365
254.621	0.156	0.171	23.998	2.374	0.406	2.313	0.396
254.777	0.156	0.171	23.998	2.564	0.439	2.488	0.426
254.933	0.010	0.010	23.998	2.664	0.028	2.579	0.027
254.943	0.156	0.184	31.674	3.105	0.570	2.203	0.405
255.099	0.156	0.184	31.674	3.073	0.564	2.179	0.400
255.255	0.156	0.184	31.674	3.041	0.559	2.156	0.396
255.412	0.156	0.184	31.674	3.009	0.553	2.132	0.392
255.568	0.156	0.184	31.674	2.977	0.547	2.109	0.387
255.724	0.156	0.184	31.674	2.945	0.541	2.086	0.383
255.881	0.156	0.184	31.674	2.913	0.535	2.063	0.379
256.037	0.156	0.184	31.674	2.881	0.529	2.040	0.375
256.193	0.156	0.184	31.674	2.849	0.523	2.018	0.371
256.350	0.156	0.184	31.674	2.817	0.517	1.995	0.366
256.506	0.156	0.184	31.674	2.785	0.511	1.972	0.362
256.662	0.156	0.184	31.674	2.753	0.506	1.950	0.358
256.818	0.156	0.184	31.674	2.721	0.500	1.927	0.354
256.975	0.156	0.184	31.674	2.689	0.494	1.904	0.350
257.131	0.156	0.184	31.674	2.657	0.488	1.882	0.346
257.287	0.156	0.184	31.674	2.625	0.482	1.859	0.341
257.444	0.156	0.184	31.674	2.593	0.476	1.836	0.337
257.600	0.156	0.184	31.674	2.561	0.470	1.814	0.333
257.756	0.024	0.029	31.674	2.542	0.073	1.801	0.051
257.781	0.156	0.184	31.684	2.524	0.464	1.787	0.328
257.937	0.156	0.184	31.684	2.492	0.458	1.764	0.324
258.093	0.156	0.184	31.684	2.459	0.452	1.741	0.320
258.250	0.156	0.184	31.684	2.427	0.446	1.718	0.316
258.406	0.156	0.184	31.684	2.394	0.440	1.695	0.311
258.562	0.156	0.184	31.684	2.362	0.434	1.672	0.307
258.718	0.156	0.184	31.684	2.330	0.428	1.649	0.303
258.875	0.156	0.184	31.684	2.297	0.422	1.626	0.299
259.031	0.156	0.184	31.684	2.265	0.416	1.604	0.295
259.187	0.156	0.184	31.684	2.233	0.410	1.581	0.290
259.344	0.156	0.184	31.684	2.200	0.404	1.558	0.286
259.500	0.156	0.184	31.684	2.168	0.398	1.535	0.282
259.656	0.156	0.184	31.684	2.135	0.392	1.512	0.278
259.813	0.156	0.184	31.684	2.103	0.386	1.489	0.273
259.969	0.156	0.184	31.684	2.071	0.380	1.466	0.269
260.125	0.156	0.184	31.684	2.038	0.374	1.443	0.265
260.282	0.088	0.104	31.684	2.013	0.209	1.425	0.148
260.370	0.156	0.184	31.684	2.008	0.369	1.422	0.261
260.526	0.156	0.184	31.684	2.017	0.371	1.428	0.262
260.683	0.156	0.184	31.684	2.026	0.372	1.435	0.264
260.839	0.156	0.184	31.684	2.035	0.374	1.441	0.265
260.995	0.156	0.184	31.684	2.044	0.376	1.447	0.266
261.152	0.156	0.184	31.684	2.053	0.377	1.454	0.267
261.308	0.156	0.184	31.684	2.062	0.379	1.460	0.268
261.464	0.156	0.184	31.684	2.071	0.380	1.466	0.269
261.620	0.156	0.184	31.684	2.080	0.382	1.473	0.271
261.777	0.156	0.184	31.684	2.089	0.384	1.479	0.272
261.933	0.156	0.184	31.684	2.098	0.385	1.485	0.273
262.089	0.156	0.184	31.684	2.107	0.387	1.492	0.274
262.246	0.156	0.184	31.684	2.116	0.389	1.498	0.275

262.402	0.156	0.184	31.684	2.125	0.390	1.504	0.276
262.558	0.156	0.184	31.684	2.134	0.392	1.510	0.277
262.715	0.087	0.103	31.684	2.141	0.220	1.514	0.155
262.802	0.156	0.197	37.503	2.169	0.427	1.250	0.246
262.958	0.156	0.197	37.503	1.943	0.383	1.122	0.221
263.115	0.156	0.197	37.503	1.716	0.338	0.993	0.196
263.271	0.099	0.125	37.503	1.530	0.191	0.884	0.111
263.370	0.156	0.197	37.503	0.865	0.170	0.502	0.099
263.526	0.036	0.045	37.503	0.136	0.006	0.079	0.004

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 5.0 (2020) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

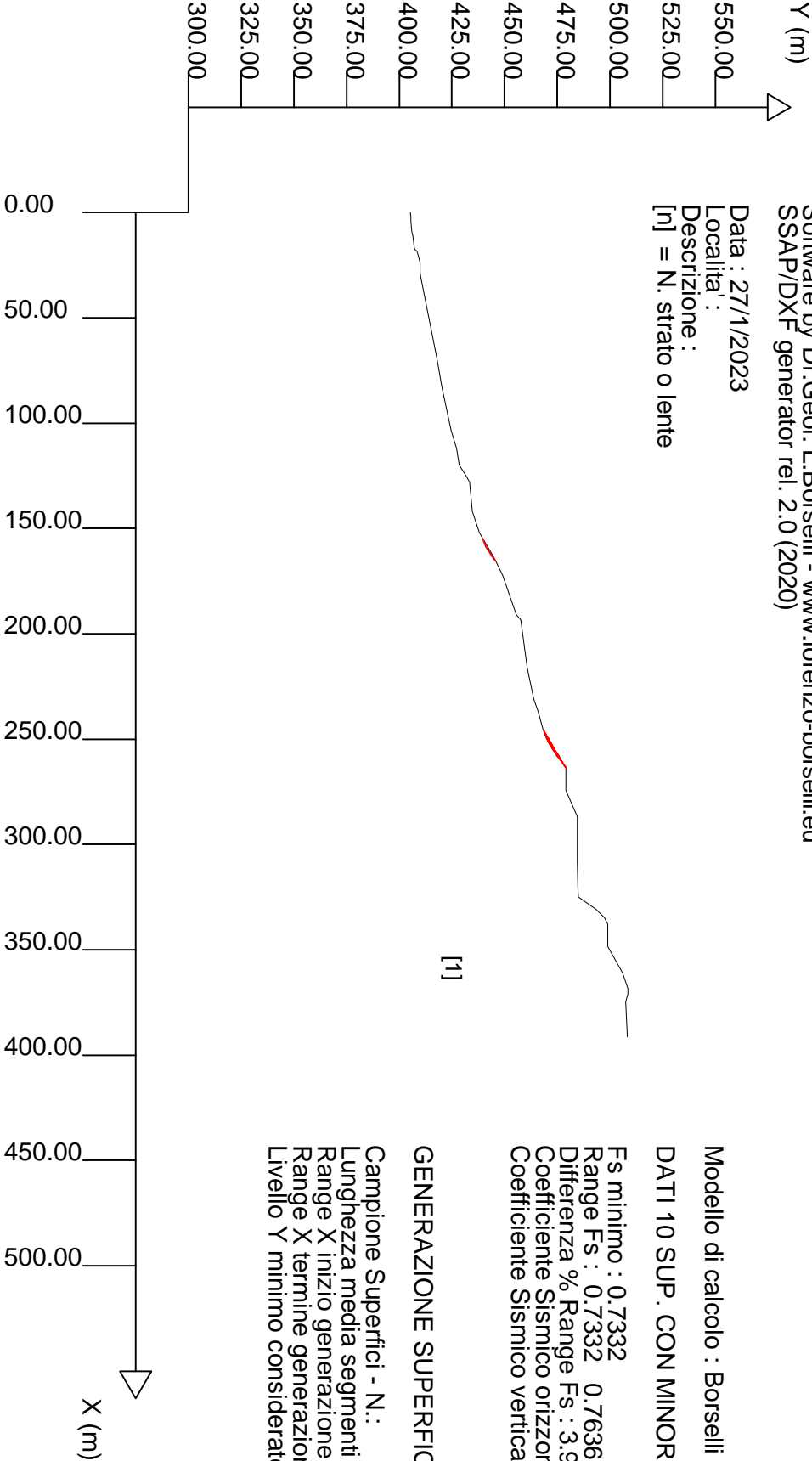
Data : 27/1/2023
Localita' :
Descrizione :
[n] = N, strato o lente

Modello di calcolo : Borselli (2016)
DATI 10 SUP. CON MINOR Fs

Fs minimo : 0.7332
Range Fs : 0.7332 0.7636
Differenza % Range Fs : 3.97
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 15.7
Range X inizio generazione : 7.8 - 270.0
Range X termine generazione : 47.0 - 383.5
Livello Y minimo considerato : 312.5



Parametri Geotecnici degli strati # -----

N.	phi°	C' kPa	Cu kPa	Gamm kN/m3	GammSat kN/m3	sgci MPa	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0

SSAP 5.0 (2020) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

Data : 27/1/2023
Localita' :
Descrizione :
[n] = N. strato o lente

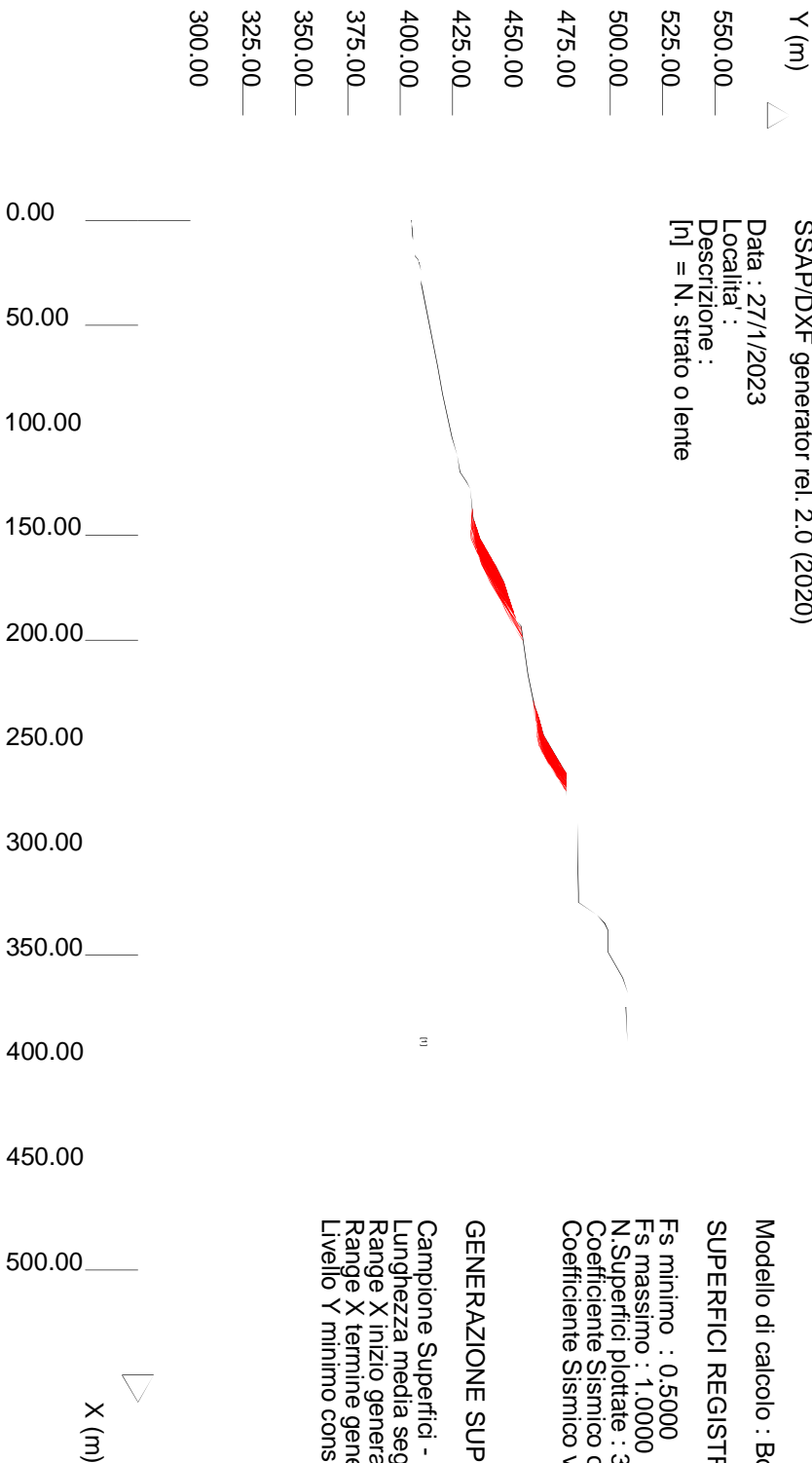
Modello di calcolo : Borselli (2016)

SUPERFICI REGISTRATE CON Fs ENTRO INTERVALLO PREDEFINITO

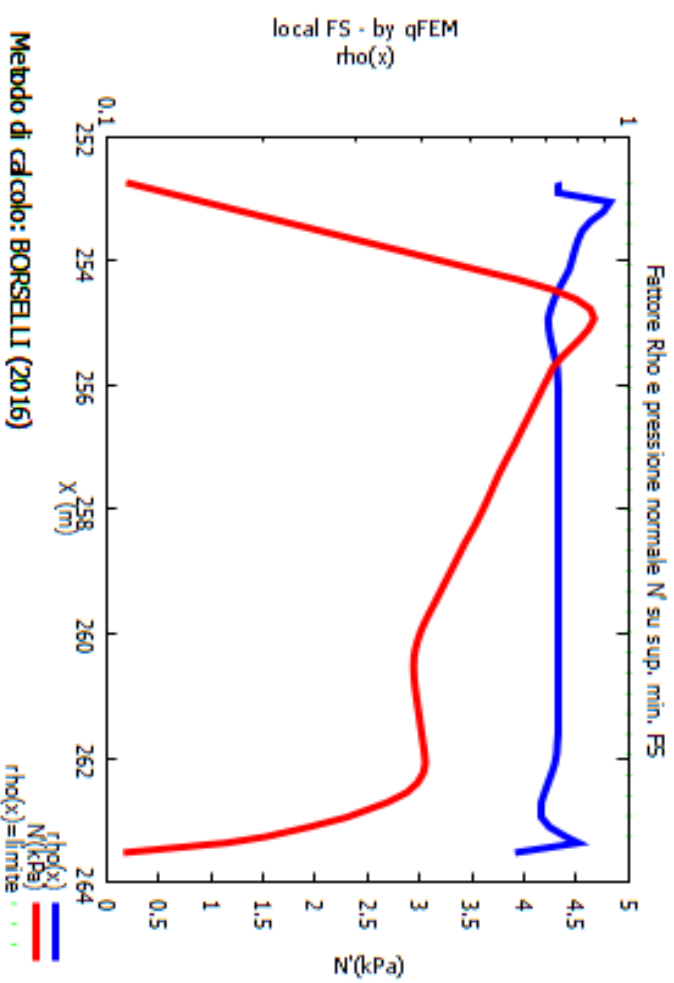
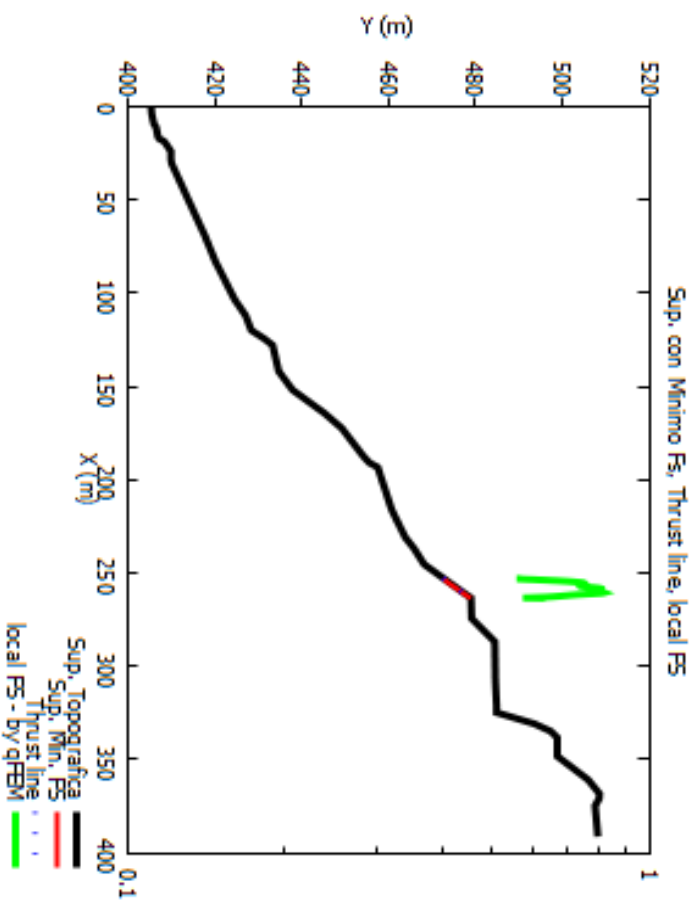
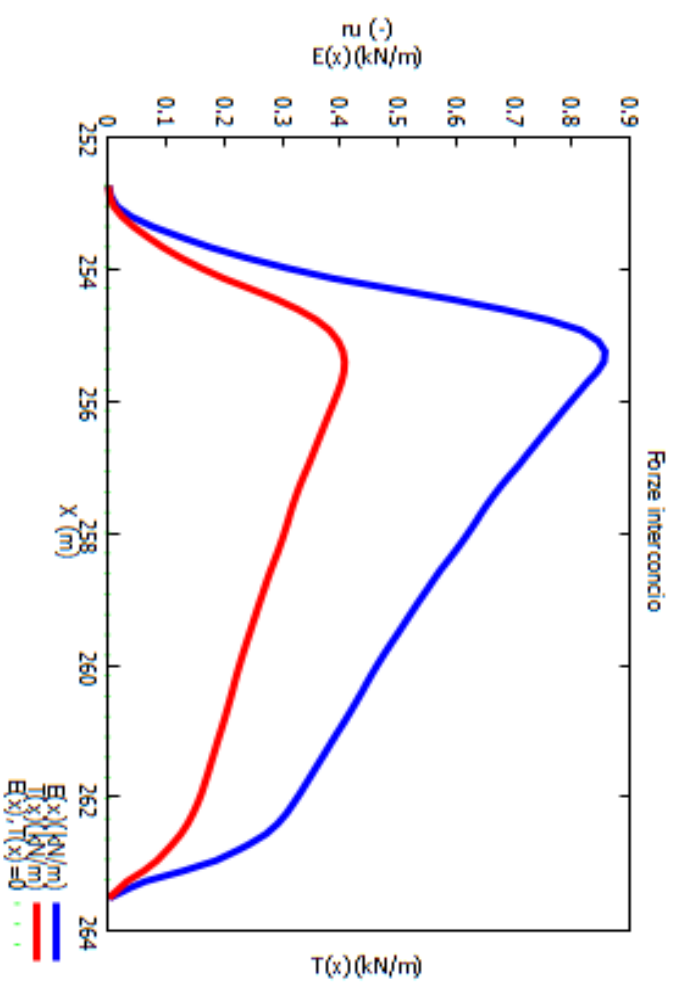
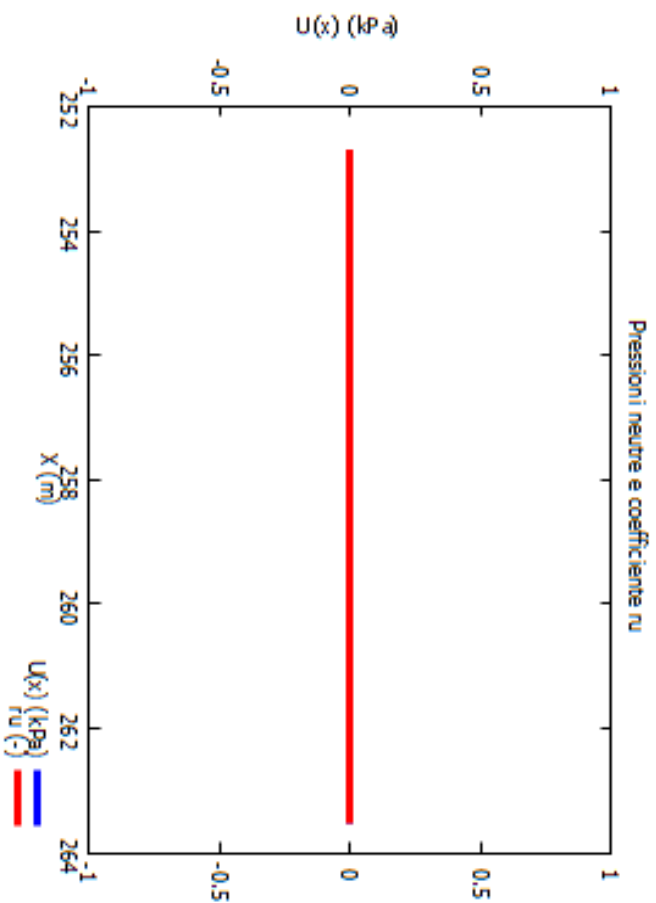
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Fs massimo : 1.0000
N.Superfici plottate : 321
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM

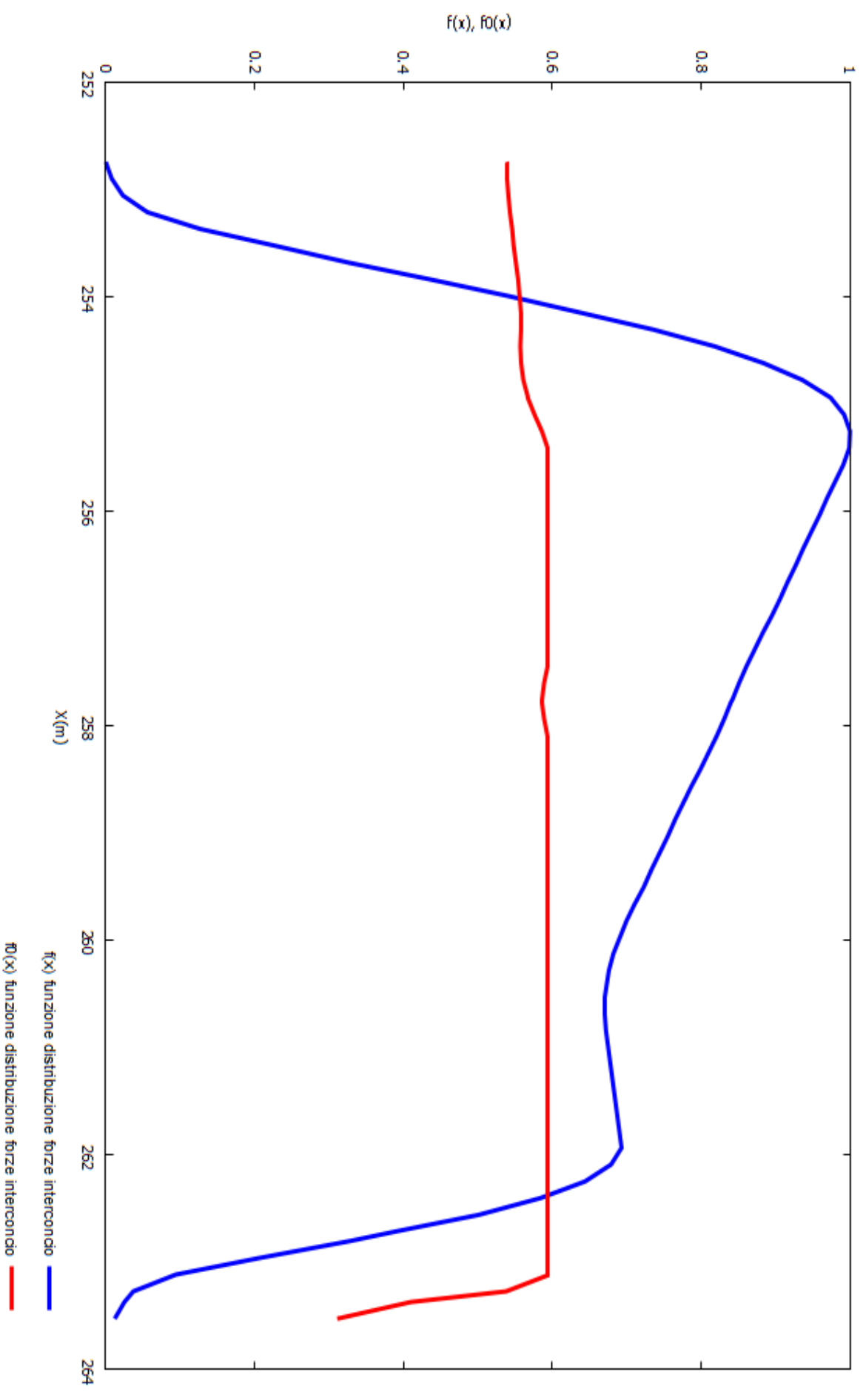
Campione Superfici - N.: 10000
Lunghhezza media segmenti (m) : 15.7
Range X inizio generazione : 7.8 - 270.0
Range X termine generazione : 47.0 - 383.5
Livello Y minimo considerato : 312.5



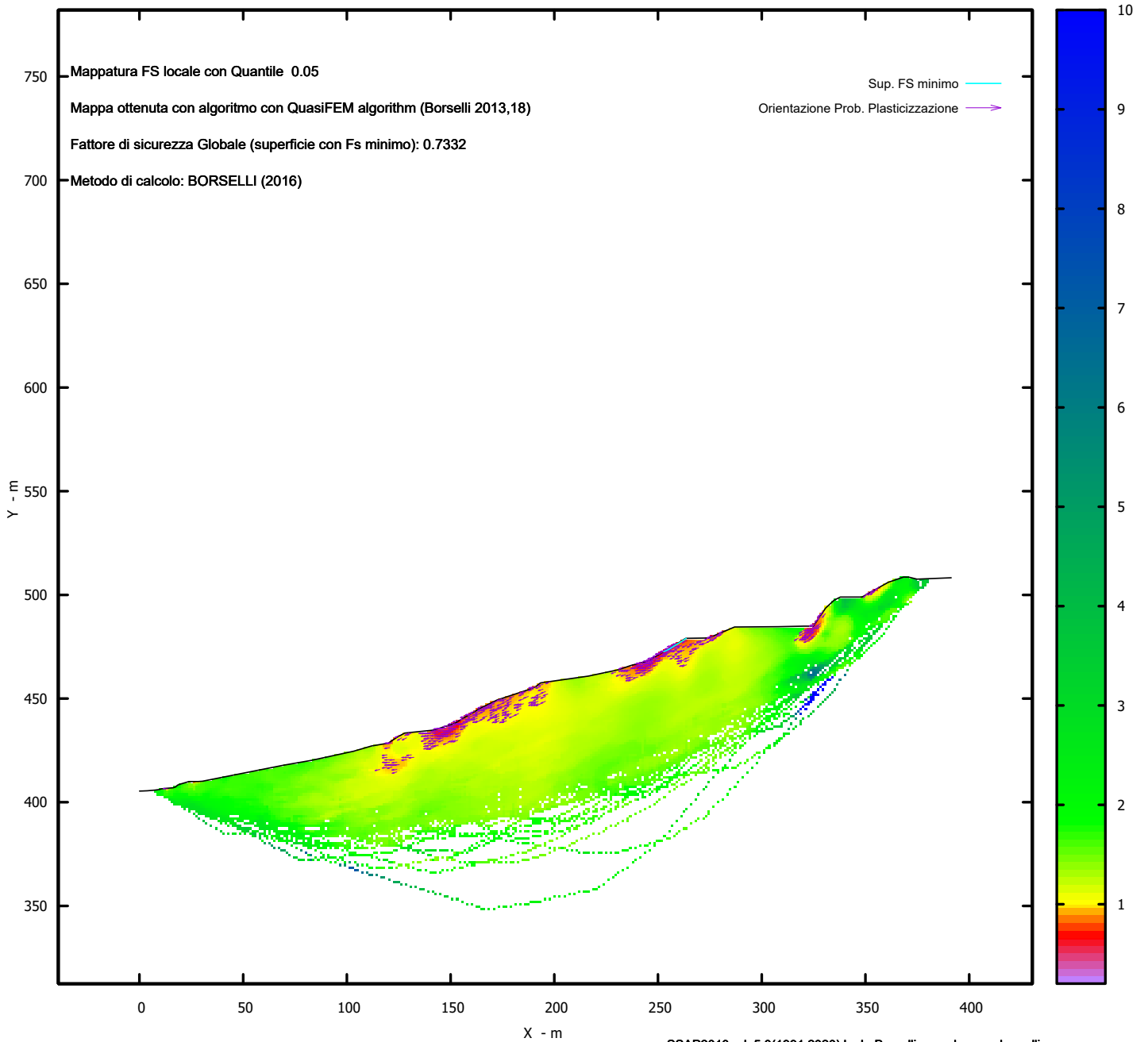
# Parametri Geotecnici degli strati #									
N.	phi	C	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa
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Distribuzione funzione forze interconco



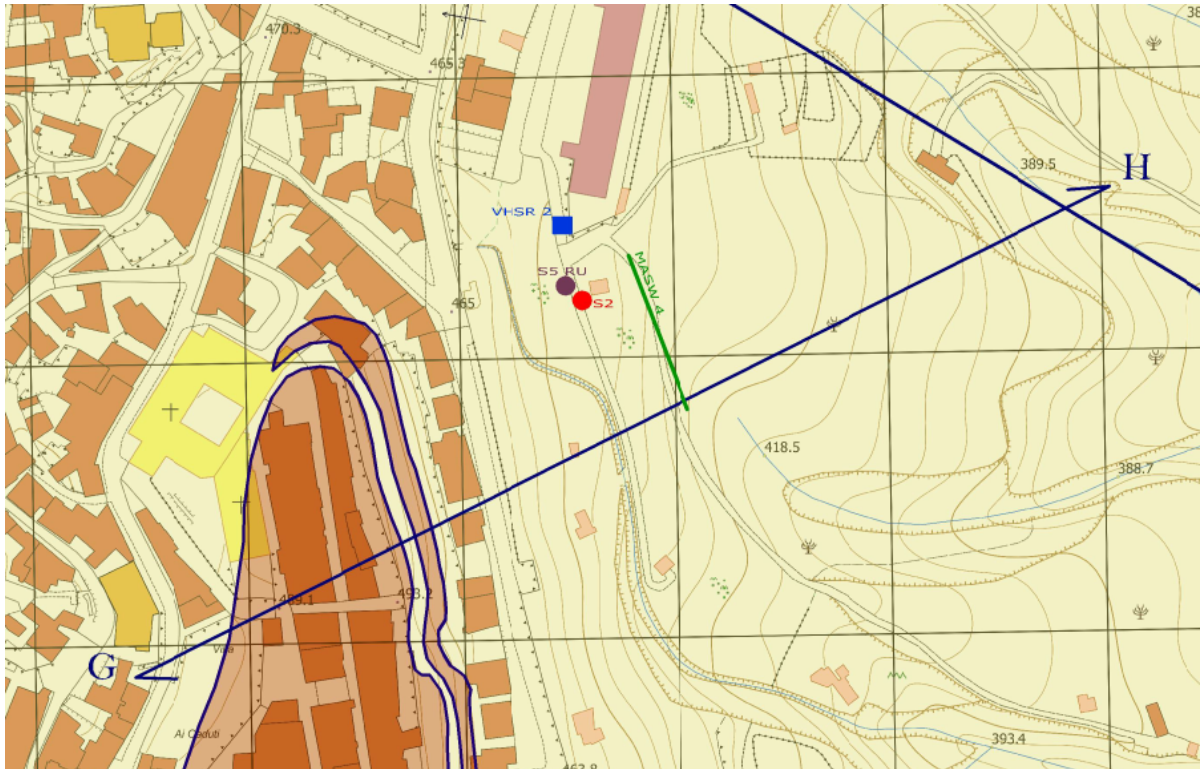
MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



Credits to: GNUPLOT 5.4.1 www.gnuplot.info

SSAP2010 rel. 5.0(1991,2020) by L. Borselli, www.lorenzo-borselli.eu
<https://WWW.SSAP.EU>

SEZIONE G H



SEZIONE G H

**METODOLOGIA DI CALCOLO
MORGESTERN PRICE**

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

Dr. Geol. LORENZO BORSELLI *,**

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

Ultima Revisione struttura tabelle del report: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\GH\IRISULTATI\MORG\MORG.txt

Data: 27/1/2023

Localita' :

Descrizione:

Modello pendio: GH.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	399.50	0.00	399.50	268.13	482.99	-	-		
1.50	399.53	1.50	399.53	274.98	482.65	-	-		
5.50	400.25	5.50	400.25	277.55	482.52	-	-		
7.50	400.53	7.50	400.53	283.83	482.45	-	-		
10.50	402.57	10.50	402.57	290.63	482.38	-	-		
14.50	403.28	14.50	403.28	301.40	482.26	-	-		
18.00	406.31	18.00	406.31	307.32	482.20	-	-		
20.50	406.82	20.50	406.82	309.13	481.96	-	-		
25.50	411.82	25.50	411.82	309.84	481.87	-	-		
29.50	416.11	29.50	416.11	309.68	481.42	-	-		
36.50	419.22	36.50	419.22	309.52	480.98	-	-		
43.00	424.49	43.00	424.49	301.58	480.82	-	-		
62.00	427.86	62.00	427.86	289.75	480.86	-	-		
108.50	438.77	108.50	438.77	281.07	480.90	-	-		
113.50	440.93	113.50	440.93	273.14	480.94	-	-		
136.50	442.44	136.50	442.44	268.06	480.96	-	-		
153.00	442.24	153.00	442.24	266.00	480.97	-	-		
161.00	443.12	161.00	443.12	268.13	482.99	-	-		
173.00	447.80	173.00	447.80	-	-	-	-		
187.00	455.57	187.00	455.57	-	-	-	-		
192.50	457.64	192.50	457.64	-	-	-	-		
196.00	456.66	196.00	456.66	-	-	-	-		
201.50	459.01	201.50	459.01	-	-	-	-		
208.00	459.85	208.00	459.85	-	-	-	-		
211.50	461.71	211.50	461.71	-	-	-	-		
214.50	462.15	214.50	462.15	-	-	-	-		
230.00	468.91	230.00	468.91	-	-	-	-		
245.00	477.67	245.00	477.67	-	-	-	-		
255.50	477.88	255.50	477.88	-	-	-	-		
266.00	480.97	266.00	480.97	-	-	-	-		
268.13	482.99	268.13	482.99	-	-	-	-		

273.50	488.08	273.50	488.08	-	-	-	-
290.50	500.78	323.72	488.45	-	-	-	-
298.50	505.93	338.50	488.00	-	-	-	-
303.50	506.26	-	-	-	-	-	-
318.00	505.66	-	-	-	-	-	-
321.00	505.63	-	-	-	-	-	-
338.50	503.95	-	-	-	-	-	-

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	34.00	0.00	0.00	18.80	19.20	2.287	0.00	0.00	0.00	0.00
STRATO 2	26.00	0.00	0.00	19.10	19.30	1.484	0.00	0.00	0.00	0.00
STRATO 3	34.00	0.00	0.00	18.80	19.20	2.287	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)-

sgci _____ 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)

----- 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): 13.5 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 6.77 220.00

LIVELLO MINIMO CONSIDERATO (Ymin): 303.42

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 40.62 230.00

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : MORGENSTERN - PRICE (Morgenstern & Price, 1965)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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) 0.5672 - Min. - X Y Lambda= 1.2500

37.30	419.87
37.75	420.10
37.98	420.23
38.15	420.31
38.30	420.39
38.43	420.46
38.57	420.54
38.70	420.61
38.84	420.68
38.98	420.75
39.12	420.83
39.24	420.90
39.37	420.98
39.50	421.07
39.62	421.16
39.75	421.26
39.89	421.37
40.04	421.49
40.17	421.61
40.31	421.72
40.44	421.84
40.57	421.97
40.70	422.09
40.83	422.22
40.96	422.36
41.10	422.50
41.24	422.65
41.37	422.79
41.50	422.93
41.64	423.08
41.79	423.24
41.95	423.42
42.19	423.69
42.64	424.20

Fattore di sicurezza (FS) 0.5901 - N.2 -- X Y Lambda= 1.2500

20.71	407.03
22.71	408.19
23.73	408.79
24.45	409.22
25.09	409.62
25.67	409.98
26.24	410.35
26.82	410.74
27.41	411.14
28.03	411.56
28.62	411.97
29.19	412.39
29.76	412.81
30.34	413.25
30.91	413.69
31.48	414.15
32.06	414.62
32.66	415.13
33.25	415.62
33.84	416.12
34.43	416.61
35.01	417.10
35.60	417.59
36.18	418.08

36.77	418.57
37.35	419.05
37.93	419.54
38.51	420.03
39.10	420.52
39.68	421.01
40.34	421.56
41.07	422.17
42.10	423.03
44.06	424.68

Fattore di sicurezza (FS)	0.5908	- N.3 --	X	Y	Lambda= 1.2500
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16.39	404.92
18.76	405.88
19.94	406.38
20.76	406.74
21.48	407.09
22.15	407.43
22.79	407.79
23.45	408.17
24.14	408.58
24.88	409.05
25.58	409.50
26.25	409.96
26.90	410.42
27.57	410.90
28.22	411.39
28.88	411.91
29.56	412.45
30.26	413.03
30.95	413.60
31.64	414.17
32.32	414.74
33.00	415.29
33.68	415.86
34.36	416.42
35.05	416.99
35.74	417.56
36.41	418.13
37.08	418.70
37.75	419.28
38.42	419.87
39.17	420.54
40.01	421.31
41.20	422.41
43.51	424.58

Fattore di sicurezza (FS)	0.5944	- N.4 --	X	Y	Lambda= 1.2500
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22.40	408.72
24.15	409.99
25.06	410.66
25.72	411.13
26.30	411.56
26.82	411.93
27.34	412.31
27.87	412.69
28.39	413.07
28.91	413.45
29.43	413.83

29.95	414.21
30.47	414.59
30.99	414.98
31.51	415.36
32.03	415.75
32.55	416.14
33.07	416.54
33.59	416.93
34.11	417.33
34.63	417.73
35.15	418.13
35.67	418.53
36.18	418.94
36.70	419.35
37.22	419.76
37.75	420.18
38.27	420.59
38.79	421.01
39.31	421.42
39.90	421.89
40.55	422.41
41.46	423.13
43.22	424.53

Fattore di sicurezza (FS)	0.5969	- N.5 --	X	Y	Lambda= 1.2500
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15.69	404.31
18.13	405.55
19.36	406.19
20.22	406.65
20.97	407.08
21.66	407.49
22.34	407.91
23.03	408.36
23.73	408.82
24.47	409.33
25.19	409.83
25.90	410.33
26.60	410.82
27.29	411.33
27.99	411.83
28.69	412.35
29.39	412.87
30.10	413.41
30.81	413.94
31.51	414.47
32.22	415.01
32.92	415.54
33.63	416.07
34.34	416.61
35.06	417.15
35.78	417.69
36.47	418.23
37.16	418.78
37.85	419.34
38.54	419.92
39.31	420.58
40.18	421.34
41.41	422.44
43.82	424.64

Fattore di sicurezza (FS)	0.5971	- N.6 --	X	Y	Lambda= 1.2500
	22.07	408.39			
	23.93	409.76			
	24.90	410.48			
	25.59	410.99			
	26.22	411.45			
	26.77	411.85			
	27.33	412.26			
	27.88	412.67			
	28.44	413.08			
	28.99	413.48			
	29.54	413.89			
	30.09	414.30			
	30.65	414.71			
	31.20	415.11			
	31.76	415.52			
	32.31	415.93			
	32.86	416.34			
	33.41	416.74			
	33.97	417.15			
	34.52	417.56			
	35.08	417.97			
	35.63	418.38			
	36.18	418.78			
	36.74	419.19			
	37.29	419.60			
	37.84	420.01			
	38.40	420.41			
	38.95	420.82			
	39.51	421.23			
	40.06	421.64			
	40.68	422.10			
	41.37	422.61			
	42.35	423.33			
	44.21	424.70			

Fattore di sicurezza (FS)	0.5994	- N.7 --	X	Y	Lambda= 1.2500
	21.00	407.32			
	23.00	408.73			
	24.04	409.47			
	24.78	409.99			
	25.45	410.47			
	26.04	410.89			
	26.63	411.31			
	27.23	411.73			
	27.83	412.15			
	28.42	412.58			
	29.01	413.00			
	29.60	413.42			
	30.19	413.85			
	30.78	414.28			
	31.37	414.72			
	31.96	415.16			
	32.55	415.60			
	33.14	416.05			
	33.74	416.50			
	34.34	416.95			
	34.93	417.40			
	35.52	417.85			

36.12	418.30
36.71	418.75
37.30	419.19
37.89	419.64
38.49	420.09
39.08	420.54
39.67	420.99
40.26	421.43
40.93	421.94
41.68	422.50
42.71	423.28
44.71	424.79

Fattore di sicurezza (FS)	0.5997	- N.8 --	X	Y	Lambda= 1.2500
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16.13	404.69
18.60	405.88
19.85	406.49
20.73	406.94
21.51	407.35
22.22	407.73
22.92	408.13
23.63	408.55
24.36	408.99
25.12	409.46
25.85	409.92
26.55	410.39
27.25	410.87
27.95	411.37
28.64	411.88
29.34	412.41
30.05	412.96
30.79	413.56
31.53	414.15
32.25	414.73
32.98	415.31
33.69	415.89
34.41	416.46
35.13	417.04
35.85	417.62
36.56	418.19
37.28	418.76
37.99	419.34
38.71	419.92
39.43	420.49
40.24	421.14
41.13	421.86
42.39	422.87
44.81	424.81

Fattore di sicurezza (FS)	0.5998	- N.9 --	X	Y	Lambda= 1.2500
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21.55	407.87
23.48	408.89
24.44	409.41
25.12	409.80
25.72	410.15
26.27	410.49
26.80	410.84
27.34	411.20
27.89	411.59

28.47	412.00
29.04	412.42
29.60	412.82
30.16	413.23
30.71	413.64
31.26	414.05
31.82	414.47
32.37	414.89
32.93	415.31
33.49	415.74
34.04	416.16
34.60	416.58
35.15	417.01
35.72	417.43
36.28	417.86
36.85	418.30
37.43	418.74
37.97	419.17
38.52	419.61
39.05	420.07
39.59	420.55
40.19	421.10
40.87	421.75
41.84	422.70
43.76	424.63

Fattore di sicurezza (FS)	0.6003	- N.10 --	X	Y	Lambda= 1.2500
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22.70	409.02
24.44	410.27
25.35	410.92
26.00	411.39
26.59	411.80
27.10	412.18
27.62	412.55
28.14	412.92
28.66	413.29
29.18	413.66
29.70	414.04
30.21	414.41
30.73	414.79
31.25	415.16
31.76	415.54
32.28	415.93
32.80	416.31
33.32	416.70
33.84	417.09
34.36	417.48
34.87	417.87
35.39	418.27
35.91	418.66
36.42	419.06
36.94	419.46
37.46	419.87
37.98	420.28
38.50	420.68
39.02	421.09
39.53	421.50
40.12	421.96
40.76	422.47
41.67	423.18

43.42 424.56

----- 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	0.567	14.1	24.8	-13.2	Deficit
2	0.590	272.1	461.2	-235.1	Deficit
3	0.591	314.0	531.5	-270.7	Deficit
4	0.594	119.5	201.1	-101.7	Deficit
5	0.597	273.8	458.6	-230.7	Deficit
6	0.597	146.0	244.5	-123.0	Deficit
7	0.599	216.8	361.8	-181.1	Deficit
8	0.600	321.1	535.3	-267.8	Deficit
9	0.600	277.4	462.5	-231.3	Deficit
10	0.600	123.9	206.4	-103.2	Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -270.7

Note: FTR --> Forza totale Resistente lungo la superficie
di scivolamento

FTA --> Forza totale Agente lungo la superficie
di scivolamento

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)
37.297	0.086	27.77	0.02	0.00	0.00	26.00	0.00
37.382	0.086	27.77	0.06	0.00	0.00	26.00	0.00
37.468	0.086	27.77	0.10	0.00	0.00	26.00	0.00
37.553	0.086	27.77	0.14	0.00	0.00	26.00	0.00
37.639	0.086	27.77	0.18	0.00	0.00	26.00	0.00
37.725	0.022	27.77	0.05	0.00	0.00	26.00	0.00
37.747	0.086	27.77	0.23	0.00	0.00	26.00	0.00
37.832	0.086	27.77	0.27	0.00	0.00	26.00	0.00
37.918	0.063	27.77	0.23	0.00	0.00	26.00	0.00
37.981	0.086	27.77	0.35	0.00	0.00	26.00	0.00
38.066	0.081	27.77	0.37	0.00	0.00	26.00	0.00
38.148	0.086	27.77	0.43	0.00	0.00	26.00	0.00
38.233	0.065	27.77	0.35	0.00	0.00	26.00	0.00
38.299	0.086	27.77	0.50	0.00	0.00	26.00	0.00
38.384	0.048	27.77	0.29	0.00	0.00	26.00	0.00
38.432	0.086	27.77	0.56	0.00	0.00	26.00	0.00
38.517	0.050	27.77	0.35	0.00	0.00	26.00	0.00
38.567	0.086	27.77	0.62	0.00	0.00	26.00	0.00
38.653	0.051	27.77	0.39	0.00	0.00	26.00	0.00
38.703	0.086	27.77	0.69	0.00	0.00	26.00	0.00
38.789	0.054	27.77	0.45	0.00	0.00	26.00	0.00
38.843	0.086	27.77	0.76	0.00	0.00	26.00	0.00
38.928	0.057	27.77	0.52	0.00	0.00	26.00	0.00
38.985	0.086	29.25	0.82	0.00	0.00	26.00	0.00

39.070	0.045	29.25	0.45	0.00	0.00	26.00	0.00
39.116	0.086	30.86	0.87	0.00	0.00	26.00	0.00
39.201	0.043	30.86	0.45	0.00	0.00	26.00	0.00
39.244	0.086	32.53	0.92	0.00	0.00	26.00	0.00
39.329	0.039	32.53	0.42	0.00	0.00	26.00	0.00
39.368	0.086	34.11	0.95	0.00	0.00	26.00	0.00
39.454	0.045	34.11	0.50	0.00	0.00	26.00	0.00
39.498	0.086	35.67	0.98	0.00	0.00	26.00	0.00
39.584	0.040	35.67	0.46	0.00	0.00	26.00	0.00
39.624	0.086	37.16	0.99	0.00	0.00	26.00	0.00
39.709	0.044	37.16	0.52	0.00	0.00	26.00	0.00
39.754	0.086	38.50	1.00	0.00	0.00	26.00	0.00
39.839	0.049	38.50	0.58	0.00	0.00	26.00	0.00
39.889	0.086	39.63	1.00	0.00	0.00	26.00	0.00
39.974	0.062	39.63	0.72	0.00	0.00	26.00	0.00
40.036	0.086	40.46	1.00	0.00	0.00	26.00	0.00
40.121	0.052	40.46	0.60	0.00	0.00	26.00	0.00
40.173	0.086	41.34	0.98	0.00	0.00	26.00	0.00
40.259	0.048	41.34	0.54	0.00	0.00	26.00	0.00
40.306	0.086	42.24	0.97	0.00	0.00	26.00	0.00
40.392	0.044	42.24	0.50	0.00	0.00	26.00	0.00
40.436	0.086	43.13	0.94	0.00	0.00	26.00	0.00
40.522	0.046	43.13	0.50	0.00	0.00	26.00	0.00
40.568	0.086	43.97	0.91	0.00	0.00	26.00	0.00
40.653	0.044	43.97	0.46	0.00	0.00	26.00	0.00
40.697	0.086	44.79	0.88	0.00	0.00	26.00	0.00
40.782	0.046	44.79	0.46	0.00	0.00	26.00	0.00
40.828	0.086	45.56	0.84	0.00	0.00	26.00	0.00
40.914	0.048	45.56	0.46	0.00	0.00	26.00	0.00
40.961	0.086	46.27	0.79	0.00	0.00	26.00	0.00
41.047	0.054	46.27	0.48	0.00	0.00	26.00	0.00
41.101	0.086	46.53	0.73	0.00	0.00	26.00	0.00
41.186	0.051	46.53	0.42	0.00	0.00	26.00	0.00
41.237	0.086	46.81	0.68	0.00	0.00	26.00	0.00
41.322	0.049	46.81	0.37	0.00	0.00	26.00	0.00
41.371	0.086	47.09	0.62	0.00	0.00	26.00	0.00
41.457	0.048	47.09	0.33	0.00	0.00	26.00	0.00
41.504	0.086	47.37	0.56	0.00	0.00	26.00	0.00
41.590	0.047	47.37	0.29	0.00	0.00	26.00	0.00
41.637	0.086	47.73	0.50	0.00	0.00	26.00	0.00
41.722	0.063	47.73	0.34	0.00	0.00	26.00	0.00
41.786	0.086	48.01	0.42	0.00	0.00	26.00	0.00
41.871	0.080	48.01	0.36	0.00	0.00	26.00	0.00
41.952	0.086	48.28	0.34	0.00	0.00	26.00	0.00
42.037	0.086	48.28	0.30	0.00	0.00	26.00	0.00
42.123	0.063	48.28	0.19	0.00	0.00	26.00	0.00
42.186	0.086	48.42	0.22	0.00	0.00	26.00	0.00
42.271	0.086	48.42	0.17	0.00	0.00	26.00	0.00
42.357	0.086	48.42	0.13	0.00	0.00	26.00	0.00
42.442	0.086	48.42	0.08	0.00	0.00	26.00	0.00
42.528	0.086	48.42	0.04	0.00	0.00	26.00	0.00
42.613	0.026	48.42	0.00	0.00	0.00	26.00	0.00

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

$\phi'(^{\circ})$: 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_qFEM	FS_srmFEM			
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)		(kN)	(--)	(--)			
37.297	0.000	419.866	0.599	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	7.0281470451E-003	0.019	1.495	1.262		
37.382	0.006	419.917	0.599	3.6047618130E-003	3.0151885218E-005	7.7265516175E-002	0.019	1.495	1.262			
37.468	0.012	419.969	0.655	1.3216831326E-002	7.6575839543E-004	1.9295296792E-001	0.067	1.079	0.934			
37.553	0.028	420.029	0.655	3.6610777397E-002	5.5178631810E-003	2.8090835480E-001	0.175	0.869	0.823			
37.639	0.034	420.080	0.581	6.1268258759E-002	1.3626526455E-002	3.1246011439E-001	0.259	0.783	0.772			
37.725	0.037	420.129	0.565	9.0059363941E-002	2.5518388414E-002	3.6200083813E-001	0.330	0.726	0.732			
37.747	0.038	420.141	0.559	9.8169816624E-002	2.9118619764E-002	3.8060900309E-001	0.345	0.714	0.723			
37.832	0.041	420.189	0.569	1.3473766979E-001	4.7362923690E-002	4.9087431983E-001	0.409	0.669	0.688			
37.918	0.046	420.239	0.600	1.8213745716E-001	7.3023767377E-002	6.4274516271E-001	0.466	0.629	0.656			
37.981	0.052	420.278	0.652	2.2690696581E-001	9.8506367626E-002	7.6854707896E-001	0.505	0.602	0.633			
38.066	0.064	420.336	0.683	2.9962368771E-001	1.4049011778E-001	9.2703808775E-001	0.545	0.572	0.607			
38.148	0.078	420.392	0.687	3.8113170908E-001	1.8665837513E-001	1.0493359306E+000	0.570	0.550	0.589			
38.233	0.091	420.450	0.665	4.7528701232E-001	2.3745345842E-001	1.1046404703E+000	0.581	0.536	0.576			
38.299	0.099	420.492	0.639	5.4762672085E-001	2.7512994922E-001	1.1369314071E+000	0.584	0.530	0.571			
38.384	0.108	420.547	0.623	6.4816026152E-001	3.2505840775E-001	1.1723315664E+000	0.583	0.525	0.567			
38.432	0.112	420.576	0.620	7.0399809792E-001	3.5217056023E-001	1.2162021971E+000	0.582	0.524	0.566			
38.517	0.121	420.629	0.606	8.1501169507E-001	4.0516822564E-001	1.2502335911E+000	0.578	0.524	0.565			
38.567	0.123	420.658	0.625	8.7592668126E-001	4.3408175513E-001	1.3208404559E+000	0.576	0.524	0.566			
38.653	0.134	420.714	0.634	1.0033441321E+000	4.9477082610E-001	1.4278818004E+000	0.573	0.525	0.566			
38.703	0.137	420.744	0.663	1.0738322935E+000	5.2828201531E-001	1.5112700740E+000	0.572	0.525	0.566			
38.789	0.152	420.804	0.672	1.2204213490E+000	5.9814203454E-001	1.6109886657E+000	0.570	0.526	0.566			
38.843	0.157	420.837	0.684	1.3033535733E+000	6.3748112968E-001	1.6422226539E+000	0.569	0.525	0.566			
38.928	0.174	420.899	0.692	1.4568745597E+000	7.1010030136E-001	1.6580198297E+000	0.567	0.525	0.565			
38.985	0.181	420.936	0.694	1.5457566051E+000	7.5180781426E-001	1.6107249042E+000	0.566	0.524	0.564			
39.070	0.195	420.998	0.696	1.6891322150E+000	8.1910913137E-001	1.4721314791E+000	0.564	0.522	0.562			
39.116	0.199	421.027	0.688	1.7510875220E+000	8.4796961007E-001	1.3766402620E+000	0.563	0.520	0.561			
39.201	0.209	421.088	0.692	1.8709210225E+000	9.0399625962E-001	1.2159116645E+000	0.562	0.518	0.559			
39.244	0.211	421.116	0.699	1.9186907073E+000	9.2629597009E-001	1.1184953682E+000	0.561	0.517	0.558			
39.329	0.218	421.178	0.717	2.0134265175E+000	9.7085230814E-001	9.7664437894E-001	0.561	0.514	0.557			
39.368	0.221	421.205	0.737	2.0490115857E+000	9.8766145287E-001	8.8883480414E-001	0.561	0.513	0.556			
39.454	0.227	421.269	0.742	2.1196805924E+000	1.0213634496E+000	7.0051889094E-001	0.560	0.511	0.554			
39.498	0.229	421.301	0.755	2.1480744158E+000	1.0350377001E+000	5.9410406804E-001	0.560	0.510	0.553			
39.584	0.234	421.368	0.759	2.1922395651E+000	1.0567388611E+000	4.0184652555E-001	0.561	0.509	0.552			
39.624	0.234	421.397	0.767	2.2061779545E+000	1.0637512420E+000	3.0787112411E-001	0.561	0.508	0.551			
39.709	0.237	421.464	0.757	2.2251297491E+000	1.0738500691E+000	1.3279008899E-001	0.561	0.507	0.549			
39.754	0.234	421.495	0.784	2.2289766395E+000	1.0761906564E+000	3.7078286441E-002	0.562	0.507	0.549			
39.839	0.237	421.566	0.800	2.2239525899E+000	1.0748503969E+000	-1.2044047526E-001	0.562	0.505	0.547			
39.889	0.235	421.603	0.834	2.2162893172E+000	1.0716479815E+000	-2.1461856230E-001	0.562	0.505	0.546			
39.974	0.239	421.678	0.849	2.1891949339E+000	1.0592904341E+000	-3.5807368456E-001	0.563	0.503	0.543			
40.036	0.238	421.728	0.830	2.1653266790E+000	1.0479814968E+000	-4.5373724870E-001	0.563	0.502	0.542			
40.121	0.237	421.800	0.843	2.1186808433E+000	1.0255744543E+000	-5.4948544200E-001	0.563	0.500	0.540			
40.173	0.236	421.843	0.846	2.0900499243E+000	1.0116974881E+000	-6.0866931078E-001	0.563	0.500	0.539			
40.259	0.234	421.916	0.852	2.0299955694E+000	9.8270259094E-001	-6.8684040528E-001	0.563	0.500	0.538			
40.306	0.233	421.957	0.863	1.9977150556E+000	9.6715527536E-001	-7.3602456216E-001	0.563	0.500	0.537			
40.392	0.229	422.031	0.846	1.9258936895E+000	9.3272404088E-001	-8.2968126393E-001	0.563	0.502	0.537			
40.436	0.225	422.067	0.859	1.8892820969E+000	9.1523687751E-001	-8.7867174904E-001	0.563	0.504	0.537			
40.522	0.221	422.143	0.863	1.8052003937E+000	8.7516606344E-001	-9.6367169358E-001	0.564	0.509	0.538			
40.568	0.215	422.180	0.873	1.7612154270E+000	8.5424309256E-001	-1.0056413626E+000	0.564	0.512	0.538			
40.653	0.210	422.258	0.878	1.6668907967E+000	8.0941008628E-001	-1.0645885586E+000	0.565	0.520	0.540			
40.697	0.204	422.294	0.886	1.6213032023E+000	7.8776076890E-001	-1.0943730765E+000	0.565	0.524	0.541			
40.782	0.197	422.372	0.884	1.5194363660E+000	7.3935016058E-001	-1.1276411261E+000	0.566	0.534	0.542			
40.828	0.190	422.410	0.902	1.4695417114E+000	7.1564518994E-001	-1.1546060466E+000	0.566	0.540	0.543			

40.914	0.183	422.491	0.910	1.3610442513E+000	6.6383370055E-001	-1.1920144931E+000	0.567	0.551	0.545
40.961	0.175	422.531	0.936	1.3060007660E+000	6.3749730815E-001	-1.2114295542E+000	0.568	0.557	0.546
41.047	0.170	422.615	0.944	1.1928777032E+000	5.8300219026E-001	-1.2298531504E+000	0.568	0.570	0.548
41.101	0.161	422.663	0.956	1.1298129398E+000	5.5253833828E-001	-1.2236235410E+000	0.569	0.578	0.549
41.186	0.156	422.749	0.956	1.0180691787E+000	4.9837089008E-001	-1.1865131648E+000	0.569	0.594	0.551
41.237	0.147	422.793	0.955	9.6159823366E-001	4.7106776940E-001	-1.1595923155E+000	0.570	0.603	0.552
41.322	0.142	422.879	0.953	8.5604700056E-001	4.2018558708E-001	-1.1073539973E+000	0.571	0.627	0.554
41.371	0.132	422.921	0.934	8.0580249981E-001	3.9618111232E-001	-1.0643565381E+000	0.572	0.642	0.555
41.457	0.123	423.004	0.925	7.1041069984E-001	3.5082519686E-001	-9.9978573598E-001	0.574	0.680	0.558
41.504	0.112	423.044	0.912	6.6594351294E-001	3.2989072623E-001	-9.6177770477E-001	0.576	0.703	0.560
41.590	0.101	423.125	0.939	5.7965229077E-001	2.8908663217E-001	-9.5121983123E-001	0.580	0.758	0.564
41.637	0.093	423.169	0.950	5.3620050264E-001	2.6807224207E-001	-9.2230192942E-001	0.581	0.793	0.566
41.722	0.081	423.251	0.957	4.5685824633E-001	2.2854395809E-001	-8.7558665729E-001	0.582	0.872	0.574
41.786	0.071	423.311	1.026	4.0382556622E-001	2.0059797503E-001	-8.6235950627E-001	0.578	0.937	0.581
41.871	0.070	423.404	1.070	3.2714173166E-001	1.5765896286E-001	-8.3638722346E-001	0.560	1.061	0.599
41.952	0.065	423.489	1.036	2.6443149578E-001	1.2006136864E-001	-7.3123542014E-001	0.528	1.207	0.625
42.037	0.056	423.576	1.022	2.0630594947E-001	8.4773993863E-002	-6.3757324203E-001	0.478	1.421	0.663
42.123	0.048	423.663	0.997	1.5536993229E-001	5.5139843222E-002	-5.3207973391E-001	0.413	1.742	0.720
42.186	0.038	423.724	0.985	1.2487364243E-001	3.9109077629E-002	-4.6081023225E-001	0.364	2.048	0.770
42.271	0.027	423.810	1.016	8.8332485450E-002	2.2656605502E-002	-4.1745210010E-001	0.298	2.722	0.868
42.357	0.019	423.898	1.064	5.3465409274E-002	9.1898061285E-003	-3.6740753464E-001	0.200	4.426	1.063
42.442	0.016	423.992	1.070	2.5484741025E-002	2.2477587926E-003	-2.6367065421E-001	0.103	4.741	1.535
42.528	0.009	424.081	1.045	8.3626165277E-003	3.1649255242E-004	-1.4677530955E-001	0.044	2.258	2.118
42.613	0.002	424.170	1.045	3.7775144960E-004	5.4954074231E-006	-3.2868085622E-002	0.019	1.633	1.599

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_qFEM(x)(-) : fattore di sicurezza locale stimato (locale in X) by qFEM
FS_srmFEM(x)(-) : fattore di sicurezza locale stimato (locale in X) by SRM Procedure

TABELLA SFORZI DI TAGLIO DISTRIBUITI LUNGO SUPERFICIE INDIVIDUATA CON MINOR FS

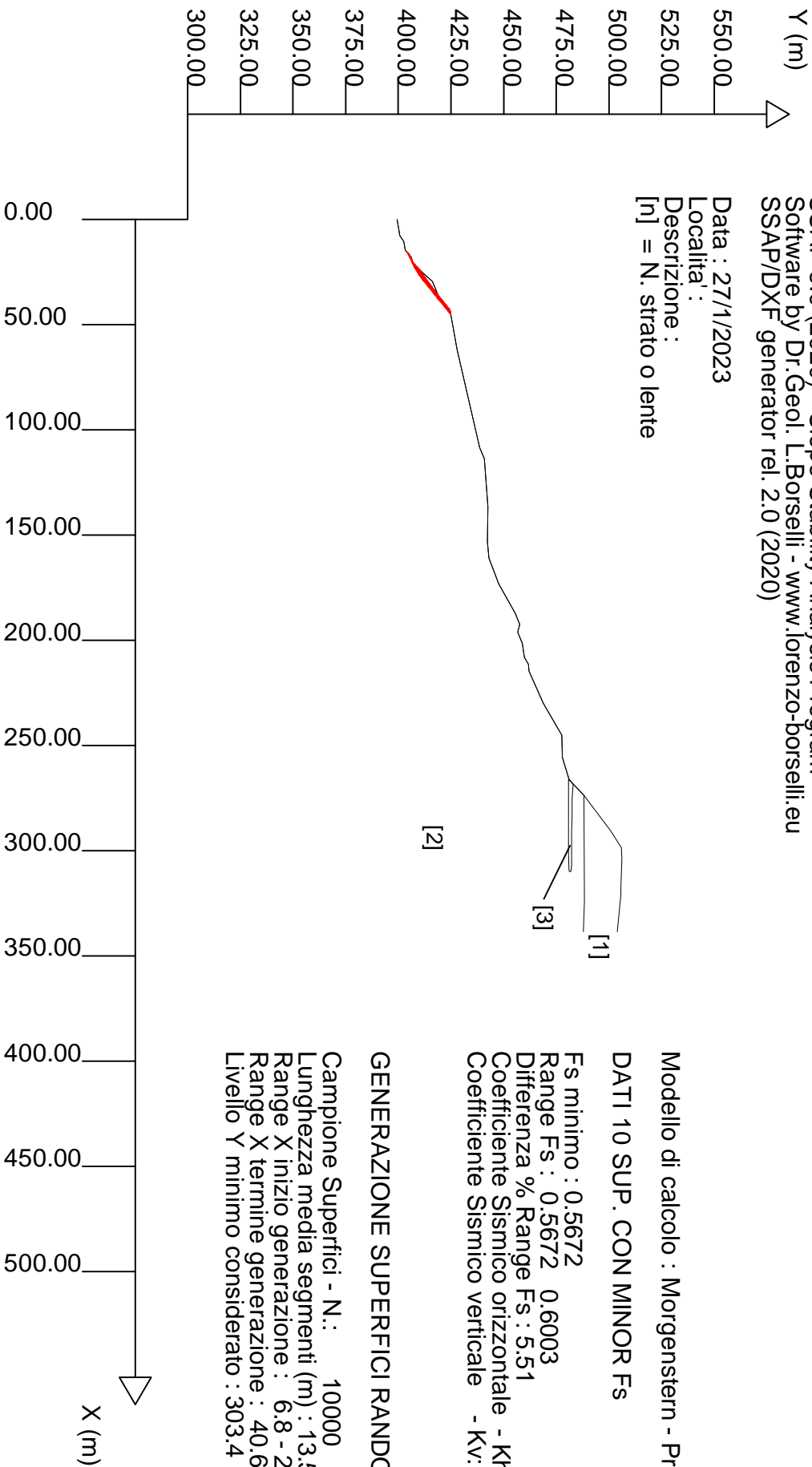
X (m)	dx (m)	dl (m)	alpha (°)	TauStress (kPa)	TauF (kN/m)	TauStrength (kPa)	TauS (kN/m)
37.297	0.086	0.097	27.771	0.107	0.010	0.089	0.009
37.382	0.086	0.097	27.771	0.322	0.031	0.267	0.026
37.468	0.086	0.097	27.771	0.537	0.052	0.450	0.044
37.553	0.086	0.097	27.771	0.752	0.073	0.633	0.061
37.639	0.086	0.097	27.771	0.967	0.093	0.817	0.079
37.725	0.022	0.025	27.771	1.102	0.027	0.932	0.023
37.747	0.086	0.097	27.771	1.237	0.120	1.050	0.102
37.832	0.086	0.097	27.771	1.451	0.140	1.240	0.120
37.918	0.063	0.071	27.771	1.638	0.117	1.409	0.101
37.981	0.086	0.097	27.771	1.825	0.176	1.576	0.152
38.066	0.081	0.092	27.771	2.035	0.187	1.760	0.162
38.148	0.086	0.097	27.771	2.244	0.217	1.936	0.187
38.233	0.065	0.074	27.771	2.434	0.180	2.090	0.154
38.299	0.086	0.097	27.771	2.623	0.254	2.247	0.217
38.384	0.048	0.054	27.771	2.791	0.150	2.382	0.128
38.432	0.086	0.097	27.771	2.958	0.286	2.528	0.244
38.517	0.050	0.056	27.771	3.128	0.176	2.662	0.150

38.567	0.086	0.097	27.771	3.298	0.319	2.821	0.273
38.653	0.051	0.057	27.771	3.469	0.199	2.955	0.169
38.703	0.086	0.097	27.771	3.640	0.352	3.119	0.301
38.789	0.054	0.061	27.771	3.815	0.231	3.250	0.197
38.843	0.086	0.097	27.771	3.989	0.386	3.411	0.330
38.928	0.057	0.064	27.771	4.168	0.267	3.542	0.227
38.985	0.086	0.098	29.251	4.458	0.437	3.567	0.350
39.070	0.045	0.052	29.251	4.608	0.240	3.663	0.191
39.116	0.086	0.100	30.864	4.873	0.486	3.632	0.362
39.201	0.043	0.050	30.864	5.001	0.248	3.711	0.184
39.244	0.086	0.101	32.533	5.238	0.531	3.642	0.369
39.329	0.039	0.046	32.533	5.341	0.246	3.705	0.170
39.368	0.086	0.103	34.115	5.535	0.572	3.613	0.373
39.454	0.045	0.054	34.115	5.619	0.304	3.662	0.198
39.498	0.086	0.105	35.668	5.780	0.608	3.554	0.374
39.584	0.040	0.049	35.668	5.838	0.288	3.585	0.177
39.624	0.086	0.107	37.163	5.953	0.639	3.462	0.372
39.709	0.044	0.056	37.163	5.988	0.333	3.479	0.194
39.754	0.086	0.109	38.499	6.061	0.662	3.357	0.367
39.839	0.049	0.063	38.499	6.071	0.381	3.362	0.211
39.889	0.086	0.111	39.633	6.104	0.678	3.248	0.361
39.974	0.062	0.080	39.633	6.091	0.487	3.240	0.259
40.036	0.086	0.112	40.456	6.087	0.684	3.148	0.354
40.121	0.052	0.068	40.456	6.058	0.413	3.133	0.214
40.173	0.086	0.114	41.340	6.033	0.687	3.028	0.345
40.259	0.048	0.063	41.340	5.986	0.379	3.004	0.190
40.306	0.086	0.116	42.242	5.937	0.686	2.891	0.334
40.392	0.044	0.060	42.242	5.872	0.352	2.860	0.172
40.436	0.086	0.117	43.129	5.800	0.680	2.744	0.322
40.522	0.046	0.063	43.129	5.715	0.361	2.703	0.171
40.568	0.086	0.119	43.972	5.617	0.668	2.586	0.307
40.653	0.044	0.061	43.972	5.515	0.334	2.538	0.154
40.697	0.086	0.121	44.794	5.396	0.650	2.420	0.292
40.782	0.046	0.064	44.794	5.273	0.339	2.364	0.152
40.828	0.086	0.122	45.563	5.131	0.627	2.247	0.274
40.914	0.048	0.068	45.563	4.988	0.341	2.182	0.149
40.961	0.086	0.124	46.266	4.824	0.597	2.068	0.256
41.047	0.054	0.078	46.266	4.657	0.363	1.994	0.155
41.101	0.086	0.124	46.535	4.481	0.557	1.907	0.237
41.186	0.051	0.074	46.535	4.311	0.317	1.831	0.135
41.237	0.086	0.125	46.811	4.132	0.516	1.743	0.218
41.322	0.049	0.071	46.811	3.958	0.281	1.666	0.118
41.371	0.086	0.126	47.089	3.775	0.474	1.578	0.198
41.457	0.048	0.070	47.089	3.595	0.251	1.499	0.105
41.504	0.086	0.126	47.366	3.406	0.430	1.411	0.178
41.590	0.047	0.070	47.366	3.219	0.225	1.333	0.093
41.637	0.086	0.127	47.725	3.022	0.384	1.240	0.158
41.722	0.063	0.094	47.725	2.802	0.264	1.150	0.108
41.786	0.086	0.128	48.009	2.574	0.329	1.053	0.135
41.871	0.080	0.120	48.009	2.321	0.279	0.951	0.114
41.952	0.086	0.129	48.276	2.060	0.265	0.837	0.108
42.037	0.086	0.129	48.276	1.790	0.230	0.726	0.093
42.123	0.063	0.094	48.276	1.556	0.147	0.628	0.059
42.186	0.086	0.129	48.422	1.319	0.170	0.528	0.068
42.271	0.086	0.129	48.422	1.044	0.135	0.419	0.054
42.357	0.086	0.129	48.422	0.769	0.099	0.306	0.039
42.442	0.086	0.129	48.422	0.494	0.064	0.195	0.025
42.528	0.086	0.129	48.422	0.220	0.028	0.086	0.011
42.613	0.026	0.039	48.422	0.041	0.002	0.016	0.001

 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

Data : 27/1/2023
Localita' :
Descrizione :
[n] = N. strato o lente



Modello di calcolo : Morgenstern - Price (1965)
DATI 10 SUP. CON MINOR Fs

Fs minimo : 0.5672
Range Fs : 0.5672 0.6003
Differenza % Range Fs : 5.51
Coefficiente Sismico orizzontale - Kn: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

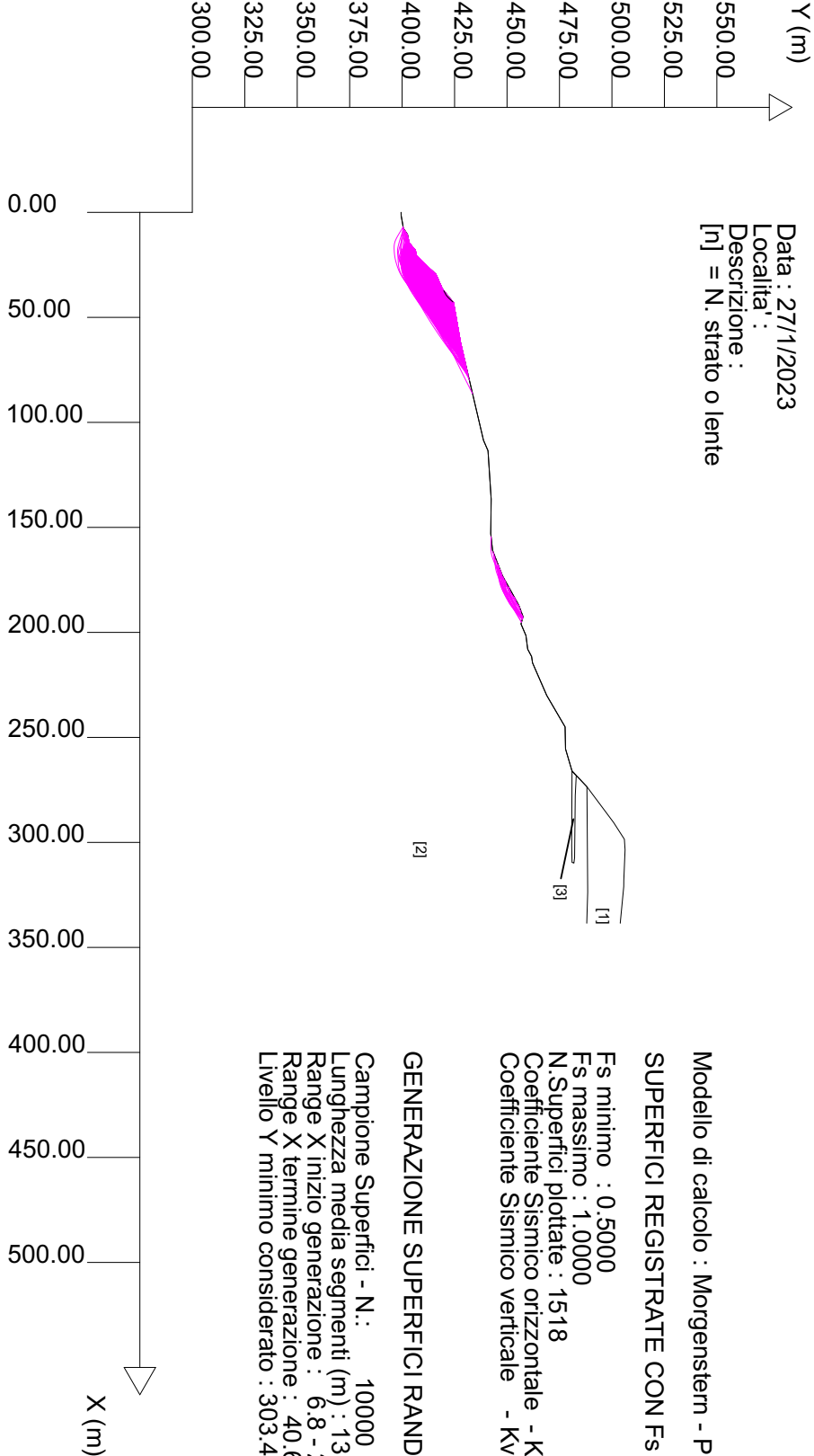
GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 13.5
Range X inizio generazione : 6.8 - 220.0
Range X termine generazione : 40.6 - 230.0
Livello Y minimo considerato : 303.4

# Parametri Geotecnici degli strati # -----									
N.	phi`	C`	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	34.00	0	0	18.80	19.20	0	0	0	0
2	26.00	0	0	19.10	19.30	0	0	0	0
3	34.00	0	0	18.80	19.20	0	0	0	0

SSAP 5.0 (2020) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

Data : 27/1/2023
Localita' :
Descrizione :
[n] = N. strato o lente



Modello di calcolo : Morgenstern - Price (1965)

SUPERFICI REGISTRATE CON Fs ENTRO INTERVALLO PREDEFINITO

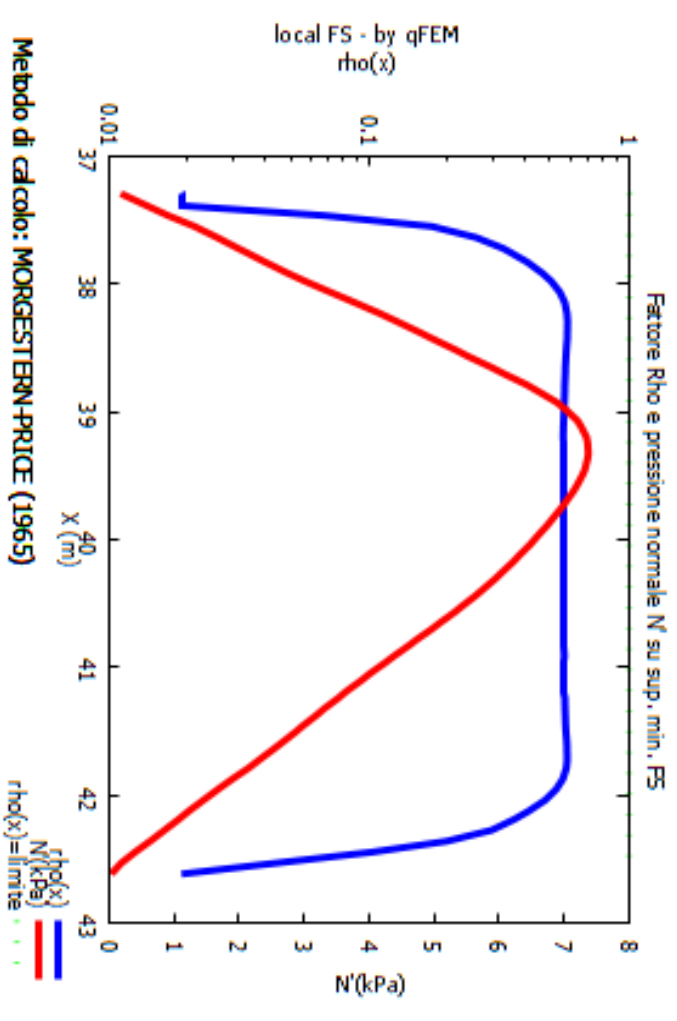
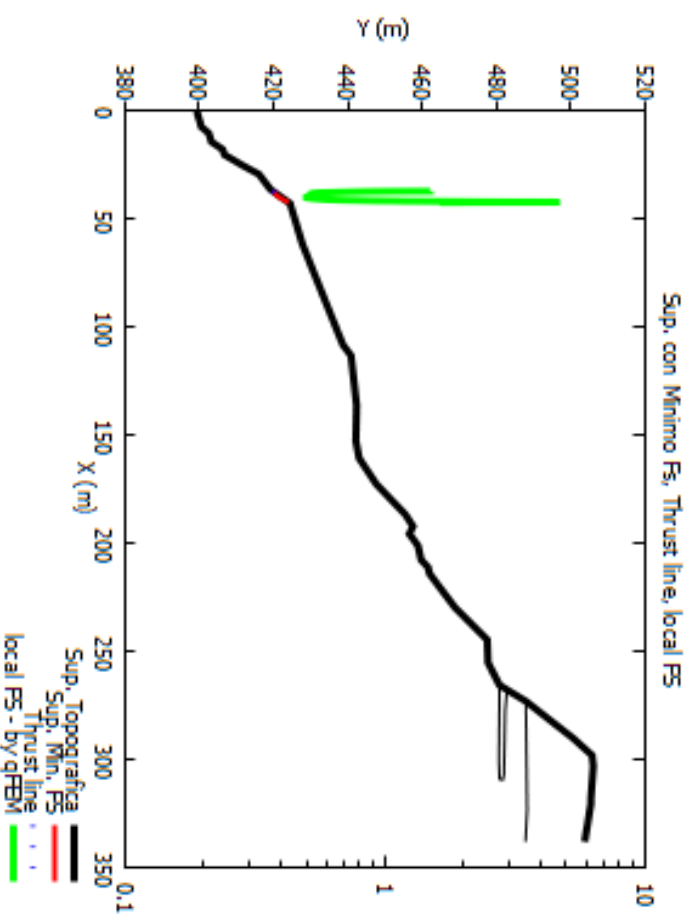
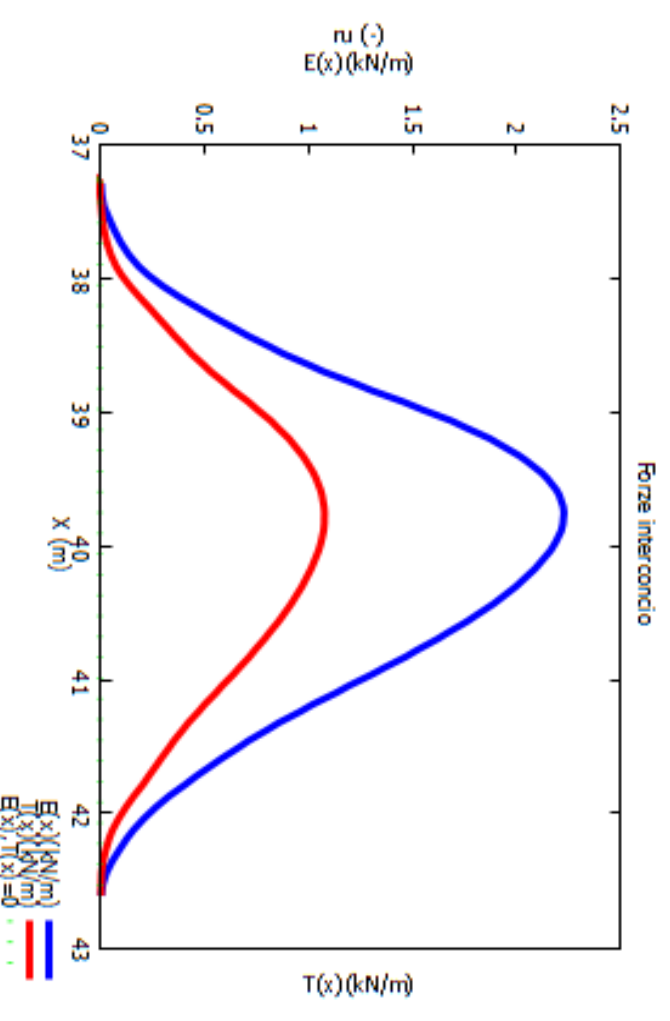
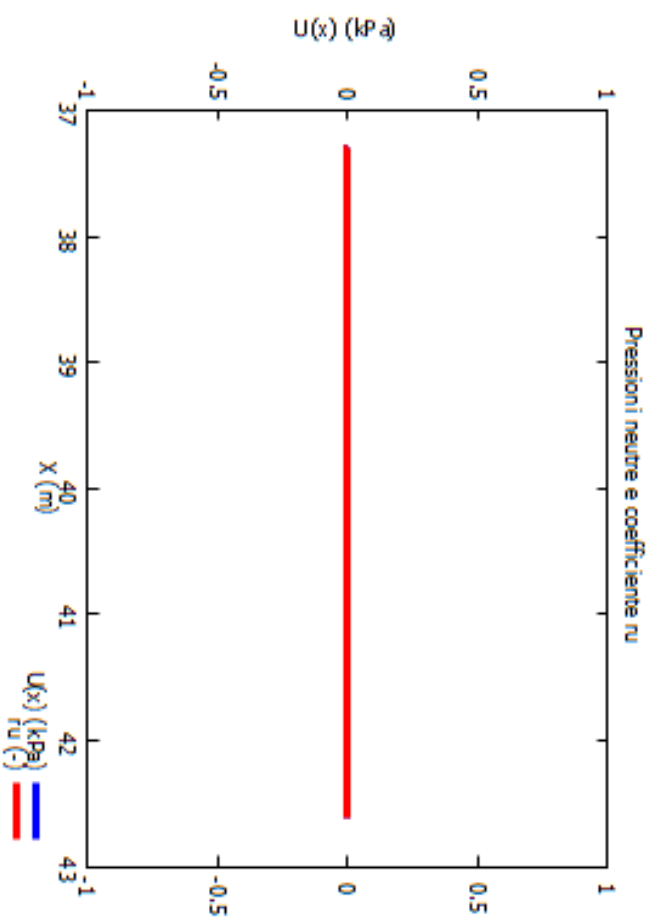
Fs minimo : 0.5000
Fs massimo : 1.0000
N.Superfici plottate : 1518
Coefficiente Sismico orizzontale - Kn: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

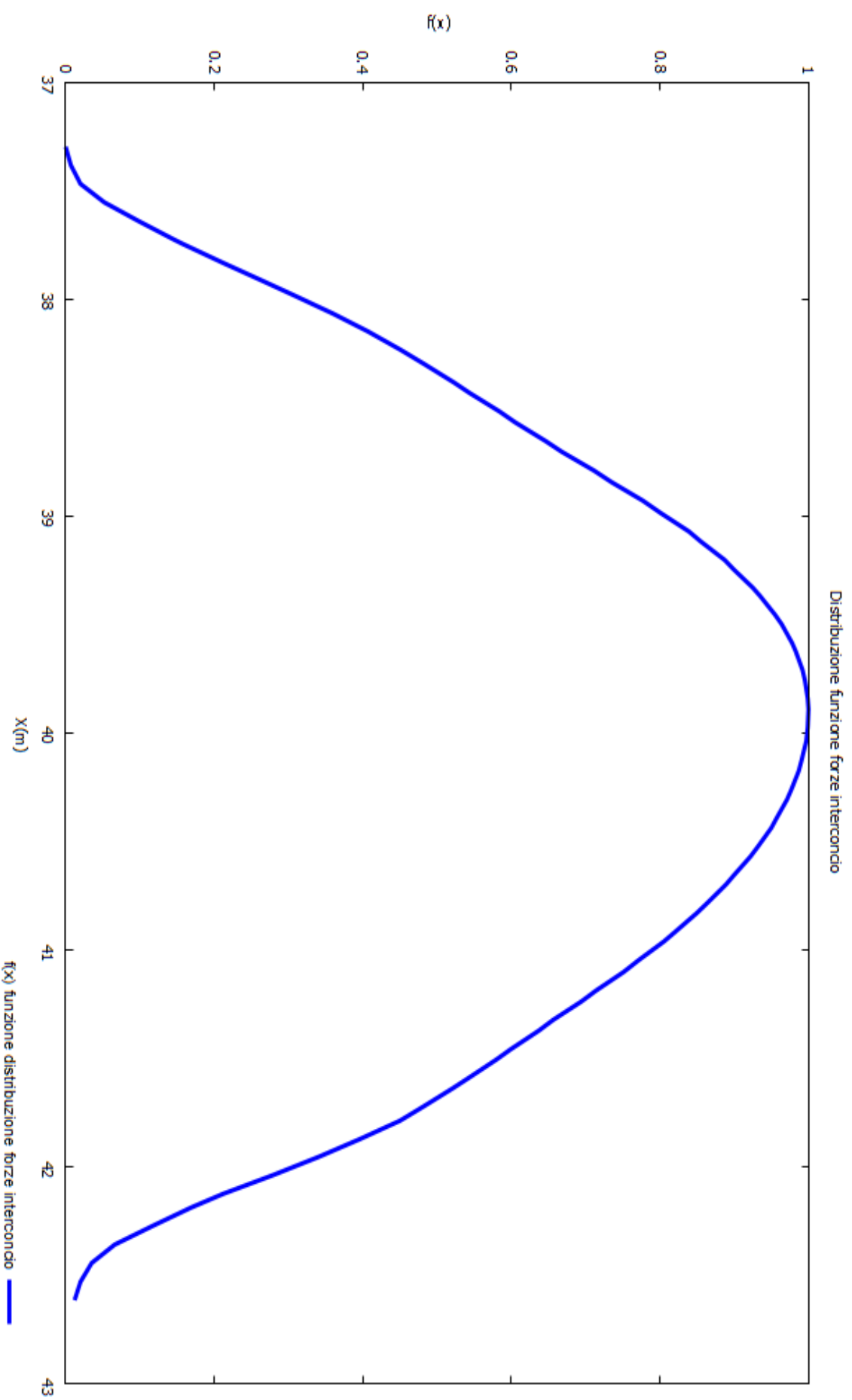
GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 13.5
Range X inizio generazione : 6.8 - 220.0
Range X termine generazione : 40.6 - 230.0
Livello Y minimo considerato : 303.4

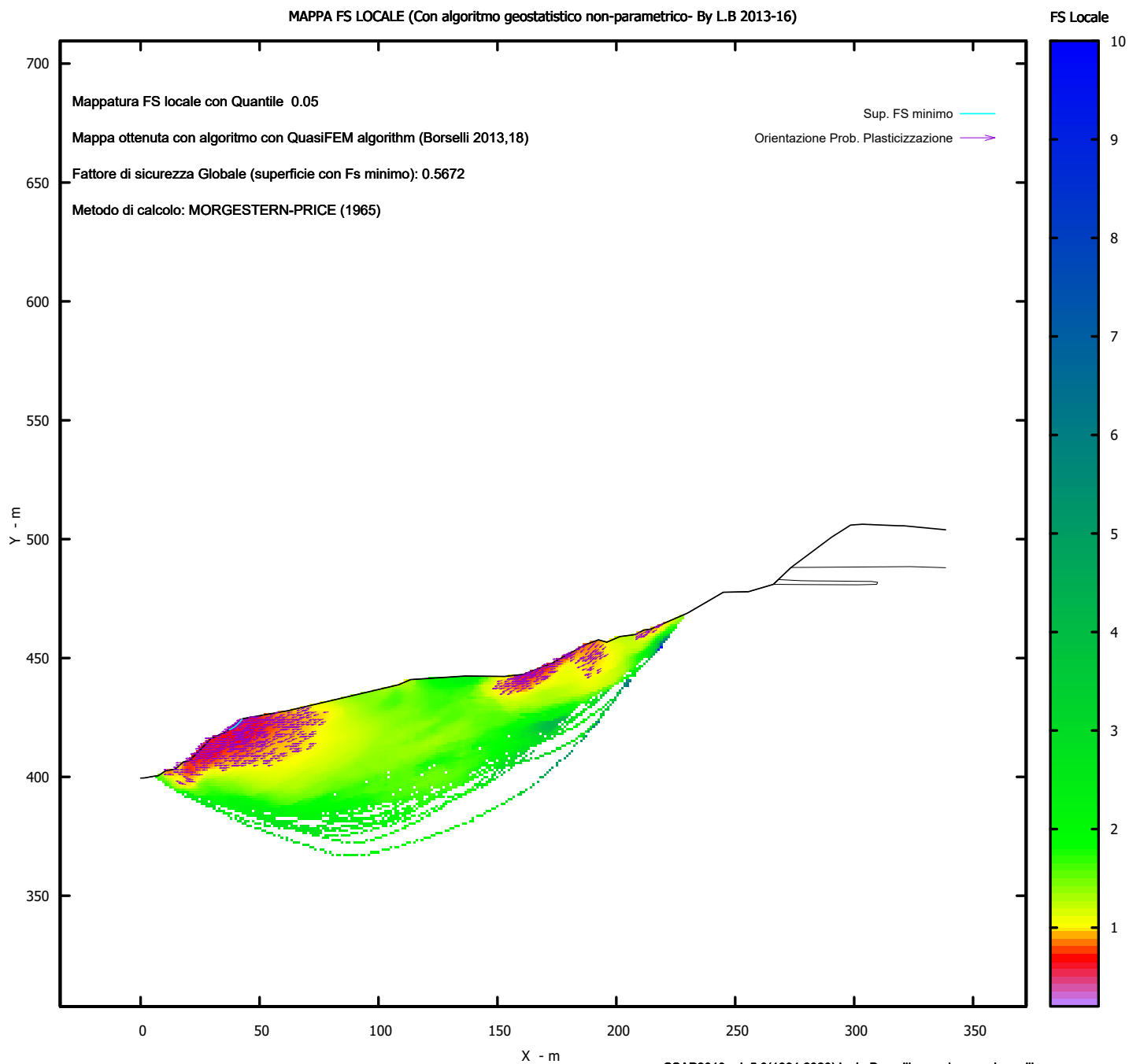
Parametri Geotecnici degli strati # -----

N.	phi'	C'	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	34.00	0	0	18.80	19.20	0	0	0	0
2	26.00	0	0	19.10	19.30	0	0	0	0
3	34.00	0	0	18.80	19.20	0	0	0	0





MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



Credits to: GNUPLOT 5.4.1 www.gnuplot.info

SSAP2010 rel. 5.0(1991,2020) by L. Borselli, www.lorenzo-borselli.eu
<https://WWW.SSAP.EU>

SEZIONE G H

**METODOLOGIA DI CALCOLO
SARMA**

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

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: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\GH\IRISULTATI\SARMA\SARMA.txt

Data: 27/1/2023

Localita' :

Descrizione:

Modello pendio: GH.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	399.50	0.00	399.50	268.13	482.99	-	-		
1.50	399.53	1.50	399.53	274.98	482.65	-	-		
5.50	400.25	5.50	400.25	277.55	482.52	-	-		
7.50	400.53	7.50	400.53	283.83	482.45	-	-		
10.50	402.57	10.50	402.57	290.63	482.38	-	-		
14.50	403.28	14.50	403.28	301.40	482.26	-	-		
18.00	406.31	18.00	406.31	307.32	482.20	-	-		
20.50	406.82	20.50	406.82	309.13	481.96	-	-		
25.50	411.82	25.50	411.82	309.84	481.87	-	-		
29.50	416.11	29.50	416.11	309.68	481.42	-	-		
36.50	419.22	36.50	419.22	309.52	480.98	-	-		
43.00	424.49	43.00	424.49	301.58	480.82	-	-		
62.00	427.86	62.00	427.86	289.75	480.86	-	-		
108.50	438.77	108.50	438.77	281.07	480.90	-	-		
113.50	440.93	113.50	440.93	273.14	480.94	-	-		
136.50	442.44	136.50	442.44	268.06	480.96	-	-		
153.00	442.24	153.00	442.24	266.00	480.97	-	-		
161.00	443.12	161.00	443.12	268.13	482.99	-	-		
173.00	447.80	173.00	447.80	-	-	-	-		
187.00	455.57	187.00	455.57	-	-	-	-		
192.50	457.64	192.50	457.64	-	-	-	-		
196.00	456.66	196.00	456.66	-	-	-	-		
201.50	459.01	201.50	459.01	-	-	-	-		
208.00	459.85	208.00	459.85	-	-	-	-		
211.50	461.71	211.50	461.71	-	-	-	-		
214.50	462.15	214.50	462.15	-	-	-	-		
230.00	468.91	230.00	468.91	-	-	-	-		
245.00	477.67	245.00	477.67	-	-	-	-		
255.50	477.88	255.50	477.88	-	-	-	-		
266.00	480.97	266.00	480.97	-	-	-	-		
268.13	482.99	268.13	482.99	-	-	-	-		

273.50	488.08	273.50	488.08	-	-	-	-
290.50	500.78	323.72	488.45	-	-	-	-
298.50	505.93	338.50	488.00	-	-	-	-
303.50	506.26	-	-	-	-	-	-
318.00	505.66	-	-	-	-	-	-
321.00	505.63	-	-	-	-	-	-
338.50	503.95	-	-	-	-	-	-

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	34.00	0.00	0.00	18.80	19.20	2.287	0.00	0.00	0.00	0.00
STRATO 2	26.00	0.00	0.00	19.10	19.30	1.484	0.00	0.00	0.00	0.00
STRATO 3	34.00	0.00	0.00	18.80	19.20	2.287	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)-

sgci _____ 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)

----- 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): 13.5 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 6.77 220.00

LIVELLO MINIMO CONSIDERATO (Ymin): 303.42

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 40.62 230.00

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : SARMA II (Sarma, 1979)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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) 0.5733 - Min. - X Y Lambda= 1.2500

20.56	406.88
22.57	408.13
23.59	408.78
24.31	409.24
24.94	409.67
25.52	410.08
26.08	410.49
26.65	410.92
27.23	411.37
27.83	411.85
28.43	412.33
29.02	412.80
29.61	413.26
30.19	413.73
30.78	414.19
31.36	414.66
31.94	415.12
32.52	415.58
33.11	416.05
33.69	416.51
34.28	416.98
34.86	417.44
35.45	417.91
36.03	418.38
36.61	418.84
37.19	419.30
37.78	419.77
38.36	420.23
38.95	420.70
39.53	421.16
40.19	421.69
40.92	422.27
41.94	423.09
43.91	424.65

Fattore di sicurezza (FS) 0.5780 - N.2 -- X Y Lambda= 1.2500

21.21	407.53
23.02	408.60
23.93	409.15
24.58	409.55
25.15	409.92
25.67	410.26
26.18	410.61
26.69	410.98
27.22	411.36
27.77	411.77
28.30	412.17
28.83	412.57
29.34	412.97
29.87	413.38
30.38	413.80
30.90	414.22
31.42	414.65
31.95	415.09
32.48	415.53
33.01	415.97
33.54	416.41
34.06	416.85
34.59	417.29
35.12	417.72

35.64	418.16
36.17	418.60
36.69	419.04
37.22	419.48
37.74	419.93
38.26	420.38
38.85	420.89
39.50	421.46
40.42	422.27
42.20	423.84

Fattore di sicurezza (FS)	0.5811	- N.3 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

21.35	407.67
23.21	409.07
24.18	409.81
24.87	410.33
25.50	410.80
26.05	411.22
26.60	411.64
27.16	412.05
27.71	412.47
28.26	412.89
28.81	413.30
29.37	413.72
29.92	414.14
30.47	414.56
31.03	414.97
31.58	415.39
32.13	415.81
32.68	416.22
33.24	416.64
33.79	417.06
34.34	417.48
34.89	417.89
35.45	418.31
36.01	418.73
36.56	419.15
37.12	419.57
37.67	419.99
38.22	420.41
38.77	420.84
39.32	421.27
39.94	421.75
40.62	422.30
41.59	423.07
43.47	424.57

Fattore di sicurezza (FS)	0.5826	- N.4 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

21.51	407.83
23.36	409.20
24.33	409.92
25.02	410.43
25.64	410.89
26.19	411.30
26.74	411.72
27.29	412.13
27.84	412.54
28.39	412.95
28.94	413.37

29.49	413.78
30.04	414.20
30.59	414.62
31.15	415.03
31.70	415.45
32.25	415.87
32.79	416.28
33.35	416.70
33.90	417.12
34.45	417.54
35.00	417.96
35.55	418.38
36.10	418.80
36.66	419.22
37.21	419.64
37.76	420.06
38.31	420.48
38.86	420.90
39.41	421.33
40.02	421.81
40.71	422.35
41.67	423.11
43.54	424.59

Fattore di sicurezza (FS)	0.5835	- N.5 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

20.54	406.86
22.56	408.28
23.59	409.02
24.33	409.54
24.99	410.02
25.58	410.45
26.17	410.89
26.76	411.32
27.36	411.77
27.95	412.22
28.55	412.67
29.15	413.12
29.74	413.57
30.33	414.02
30.92	414.47
31.52	414.92
32.11	415.38
32.70	415.83
33.30	416.29
33.89	416.74
34.48	417.20
35.08	417.65
35.67	418.11
36.26	418.57
36.86	419.02
37.45	419.48
38.04	419.93
38.63	420.39
39.23	420.84
39.82	421.30
40.49	421.81
41.23	422.38
42.27	423.18
44.27	424.72

Fattore di sicurezza (FS)	0.5840	- N.6 --	X	Y	Lambda= 1.2500
	21.03	407.35			
	23.03	408.52			
	24.03	409.12			
	24.73	409.55			
	25.35	409.96			
	25.92	410.34			
	26.47	410.73			
	27.03	411.14			
	27.60	411.57			
	28.19	412.03			
	28.78	412.49			
	29.37	412.94			
	29.95	413.40			
	30.52	413.84			
	31.10	414.29			
	31.67	414.74			
	32.25	415.19			
	32.82	415.63			
	33.40	416.08			
	33.97	416.53			
	34.55	416.98			
	35.12	417.43			
	35.69	417.89			
	36.27	418.34			
	36.85	418.80			
	37.42	419.27			
	38.00	419.73			
	38.57	420.19			
	39.15	420.66			
	39.72	421.12			
	40.37	421.65			
	41.08	422.24			
	42.09	423.07			
	44.03	424.67			

Fattore di sicurezza (FS)	0.5842	- N.7 --	X	Y	Lambda= 1.2500
	17.29	405.69			
	19.71	406.42			
	20.85	406.80			
	21.62	407.10			
	22.27	407.40			
	22.90	407.74			
	23.49	408.10			
	24.10	408.51			
	24.75	408.99			
	25.49	409.57			
	26.20	410.13			
	26.89	410.67			
	27.57	411.20			
	28.23	411.72			
	28.89	412.24			
	29.56	412.76			
	30.22	413.28			
	30.88	413.80			
	31.54	414.32			
	32.21	414.84			
	32.87	415.36			
	33.53	415.88			

34.20	416.41
34.87	416.93
35.54	417.46
36.22	417.99
36.88	418.52
37.53	419.05
38.18	419.59
38.83	420.15
39.56	420.78
40.38	421.51
41.54	422.56
43.81	424.63

Fattore di sicurezza (FS) 0.5842 - N.8 -- X Y Lambda= 1.2500

21.40	407.72
23.39	408.73
24.37	409.25
25.05	409.63
25.64	409.99
26.19	410.35
26.72	410.72
27.27	411.12
27.82	411.55
28.42	412.03
29.01	412.51
29.59	412.97
30.16	413.44
30.72	413.89
31.29	414.35
31.86	414.80
32.42	415.26
32.98	415.71
33.55	416.17
34.12	416.63
34.68	417.09
35.25	417.54
35.82	418.00
36.38	418.46
36.95	418.91
37.51	419.37
38.08	419.82
38.64	420.28
39.21	420.74
39.77	421.20
40.41	421.72
41.11	422.30
42.10	423.11
44.01	424.67

Fattore di sicurezza (FS) 0.5860 - N.9 -- X Y Lambda= 1.2500

20.53	406.85
22.45	408.24
23.45	408.96
24.16	409.47
24.80	409.94
25.37	410.35
25.94	410.77
26.51	411.19
27.08	411.60

27.65	412.02
28.22	412.44
28.79	412.86
29.36	413.28
29.93	413.70
30.50	414.12
31.07	414.54
31.64	414.96
32.20	415.38
32.77	415.80
33.34	416.22
33.91	416.64
34.48	417.06
35.06	417.49
35.63	417.91
36.22	418.34
36.81	418.78
37.37	419.21
37.93	419.65
38.47	420.09
39.04	420.57
39.65	421.11
40.35	421.74
41.34	422.68
43.31	424.55

Fattore di sicurezza (FS)	0.5866	- N.10 --	X	Y	Lambda= 1.2500
---------------------------	--------	-----------	---	---	----------------

16.97	405.42
19.30	406.27
20.44	406.71
21.22	407.04
21.89	407.36
22.53	407.69
23.14	408.04
23.76	408.42
24.42	408.85
25.14	409.34
25.82	409.82
26.49	410.29
27.14	410.77
27.79	411.25
28.43	411.73
29.08	412.23
29.74	412.75
30.42	413.28
31.08	413.82
31.74	414.35
32.38	414.89
33.03	415.44
33.68	415.99
34.33	416.56
34.98	417.13
35.64	417.73
36.31	418.33
36.97	418.92
37.63	419.52
38.28	420.10
39.02	420.77
39.84	421.51
41.00	422.54

43.20 424.53

----- 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	0.573	214.8	374.7	-197.4	Deficit
2	0.578	191.4	331.1	-172.8	Deficit
3	0.581	137.0	235.7	-122.3	Deficit
4	0.583	139.5	239.4	-123.9	Deficit
5	0.583	202.6	347.2	-179.3	Deficit
6	0.584	234.6	401.6	-207.2	Deficit
7	0.584	296.7	507.9	-262.0	Deficit
8	0.584	240.9	412.3	-212.7	Deficit
9	0.586	200.9	342.8	-176.2	Deficit
10	0.587	275.5	469.8	-241.2	Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -262.0

Note: FTR --> Forza totale Resistente lungo la superficie
di scivolamento

FTA --> Forza totale Agente lungo la superficie
di scivolamento

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	dx	alpha	W	ru	U	phi'	(c',Cu)
(m)	(m)	(°)	(kN/m)	(-)	(kPa)	(°)	(kPa)
20.559	0.259	31.85	0.25	0.00	0.00	26.00	0.00
20.818	0.259	31.85	0.75	0.00	0.00	26.00	0.00
21.076	0.259	31.85	1.24	0.00	0.00	26.00	0.00
21.335	0.259	31.85	1.74	0.00	0.00	26.00	0.00
21.594	0.259	31.85	2.24	0.00	0.00	26.00	0.00
21.853	0.259	31.85	2.73	0.00	0.00	26.00	0.00
22.112	0.259	31.85	3.23	0.00	0.00	26.00	0.00
22.371	0.204	31.85	2.89	0.00	0.00	26.00	0.00
22.575	0.259	32.33	4.11	0.00	0.00	26.00	0.00
22.834	0.259	32.33	4.59	0.00	0.00	26.00	0.00
23.093	0.259	32.33	5.07	0.00	0.00	26.00	0.00
23.352	0.241	32.33	5.16	0.00	0.00	26.00	0.00
23.593	0.259	33.22	5.99	0.00	0.00	26.00	0.00
23.852	0.259	33.22	6.44	0.00	0.00	26.00	0.00
24.110	0.197	33.22	5.21	0.00	0.00	26.00	0.00
24.308	0.259	34.17	7.23	0.00	0.00	26.00	0.00
24.567	0.259	34.17	7.65	0.00	0.00	26.00	0.00
24.826	0.114	34.17	3.51	0.00	0.00	26.00	0.00
24.940	0.259	35.32	8.23	0.00	0.00	26.00	0.00
25.199	0.259	35.32	8.62	0.00	0.00	26.00	0.00
25.458	0.042	35.32	1.45	0.00	0.00	26.00	0.00
25.500	0.016	35.32	0.54	0.00	0.00	26.00	0.00
25.516	0.259	36.16	9.12	0.00	0.00	26.00	0.00
25.775	0.259	36.16	9.57	0.00	0.00	26.00	0.00

26.034	0.045	36.16	1.73	0.00	0.00	26.00	0.00
26.079	0.259	36.99	10.09	0.00	0.00	26.00	0.00
26.338	0.259	36.99	10.50	0.00	0.00	26.00	0.00
26.597	0.053	36.99	2.21	0.00	0.00	26.00	0.00
26.650	0.259	37.78	11.00	0.00	0.00	26.00	0.00
26.909	0.259	37.78	11.39	0.00	0.00	26.00	0.00
27.168	0.061	37.78	2.74	0.00	0.00	26.00	0.00
27.229	0.259	38.50	11.85	0.00	0.00	26.00	0.00
27.488	0.259	38.50	12.22	0.00	0.00	26.00	0.00
27.747	0.084	38.50	4.04	0.00	0.00	26.00	0.00
27.831	0.259	38.50	12.70	0.00	0.00	26.00	0.00
28.090	0.259	38.50	13.06	0.00	0.00	26.00	0.00
28.349	0.080	38.50	4.08	0.00	0.00	26.00	0.00
28.428	0.259	38.51	13.54	0.00	0.00	26.00	0.00
28.687	0.259	38.51	13.90	0.00	0.00	26.00	0.00
28.946	0.072	38.51	3.95	0.00	0.00	26.00	0.00
29.018	0.259	38.51	14.37	0.00	0.00	26.00	0.00
29.277	0.223	38.51	12.64	0.00	0.00	26.00	0.00
29.500	0.108	38.51	6.13	0.00	0.00	26.00	0.00
29.608	0.259	38.51	14.44	0.00	0.00	26.00	0.00
29.866	0.259	38.51	13.98	0.00	0.00	26.00	0.00
30.125	0.064	38.51	3.41	0.00	0.00	26.00	0.00
30.190	0.259	38.51	13.40	0.00	0.00	26.00	0.00
30.449	0.259	38.51	12.94	0.00	0.00	26.00	0.00
30.708	0.068	38.51	3.32	0.00	0.00	26.00	0.00
30.776	0.259	38.51	12.36	0.00	0.00	26.00	0.00
31.035	0.259	38.51	11.90	0.00	0.00	26.00	0.00
31.294	0.066	38.51	2.95	0.00	0.00	26.00	0.00
31.359	0.259	38.51	11.32	0.00	0.00	26.00	0.00
31.618	0.259	38.51	10.86	0.00	0.00	26.00	0.00
31.877	0.067	38.51	2.72	0.00	0.00	26.00	0.00
31.944	0.259	38.52	10.28	0.00	0.00	26.00	0.00
32.203	0.259	38.52	9.81	0.00	0.00	26.00	0.00
32.462	0.062	38.52	2.27	0.00	0.00	26.00	0.00
32.524	0.259	38.52	9.24	0.00	0.00	26.00	0.00
32.783	0.259	38.52	8.78	0.00	0.00	26.00	0.00
33.041	0.067	38.52	2.18	0.00	0.00	26.00	0.00
33.108	0.259	38.52	8.20	0.00	0.00	26.00	0.00
33.367	0.259	38.52	7.74	0.00	0.00	26.00	0.00
33.626	0.066	38.52	1.90	0.00	0.00	26.00	0.00
33.692	0.259	38.52	7.16	0.00	0.00	26.00	0.00
33.951	0.259	38.52	6.70	0.00	0.00	26.00	0.00
34.210	0.068	38.52	1.68	0.00	0.00	26.00	0.00
34.278	0.259	38.52	6.12	0.00	0.00	26.00	0.00
34.537	0.259	38.52	5.65	0.00	0.00	26.00	0.00
34.795	0.064	38.52	1.34	0.00	0.00	26.00	0.00
34.860	0.259	38.52	5.08	0.00	0.00	26.00	0.00
35.119	0.259	38.52	4.62	0.00	0.00	26.00	0.00
35.378	0.068	38.52	1.14	0.00	0.00	26.00	0.00
35.446	0.259	38.52	4.03	0.00	0.00	26.00	0.00
35.705	0.259	38.52	3.57	0.00	0.00	26.00	0.00
35.964	0.066	38.52	0.84	0.00	0.00	26.00	0.00
36.030	0.259	38.53	2.99	0.00	0.00	26.00	0.00
36.288	0.212	38.53	2.10	0.00	0.00	26.00	0.00
36.500	0.114	38.53	1.05	0.00	0.00	26.00	0.00
36.614	0.259	38.53	2.40	0.00	0.00	26.00	0.00
36.873	0.259	38.53	2.42	0.00	0.00	26.00	0.00
37.132	0.062	38.53	0.58	0.00	0.00	26.00	0.00
37.194	0.259	38.53	2.44	0.00	0.00	26.00	0.00
37.453	0.259	38.53	2.46	0.00	0.00	26.00	0.00
37.712	0.067	38.53	0.64	0.00	0.00	26.00	0.00

37.778	0.259	38.53	2.49	0.00	0.00	26.00	0.00
38.037	0.259	38.53	2.51	0.00	0.00	26.00	0.00
38.296	0.066	38.53	0.64	0.00	0.00	26.00	0.00
38.362	0.259	38.53	2.53	0.00	0.00	26.00	0.00
38.621	0.259	38.53	2.55	0.00	0.00	26.00	0.00
38.880	0.068	38.53	0.67	0.00	0.00	26.00	0.00
38.948	0.259	38.54	2.57	0.00	0.00	26.00	0.00
39.207	0.259	38.54	2.59	0.00	0.00	26.00	0.00
39.466	0.064	38.54	0.65	0.00	0.00	26.00	0.00
39.530	0.259	38.54	2.61	0.00	0.00	26.00	0.00
39.789	0.259	38.54	2.63	0.00	0.00	26.00	0.00
40.048	0.141	38.54	1.45	0.00	0.00	26.00	0.00
40.189	0.259	38.54	2.66	0.00	0.00	26.00	0.00
40.448	0.259	38.54	2.68	0.00	0.00	26.00	0.00
40.707	0.212	38.54	2.21	0.00	0.00	26.00	0.00
40.919	0.259	38.54	2.71	0.00	0.00	26.00	0.00
41.178	0.259	38.54	2.73	0.00	0.00	26.00	0.00
41.437	0.259	38.54	2.75	0.00	0.00	26.00	0.00
41.696	0.247	38.54	2.64	0.00	0.00	26.00	0.00
41.943	0.259	38.54	2.79	0.00	0.00	26.00	0.00
42.202	0.259	38.54	2.81	0.00	0.00	26.00	0.00
42.461	0.259	38.54	2.82	0.00	0.00	26.00	0.00
42.720	0.259	38.54	2.84	0.00	0.00	26.00	0.00
42.979	0.021	38.54	0.23	0.00	0.00	26.00	0.00
43.000	0.259	38.54	2.45	0.00	0.00	26.00	0.00
43.259	0.259	38.54	1.63	0.00	0.00	26.00	0.00
43.518	0.259	38.54	0.82	0.00	0.00	26.00	0.00
43.777	0.132	38.54	0.11	0.00	0.00	26.00	0.00

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_qFEM	FS_srmFEM			
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)	(kN)	(--)	(--)	(--)			
20.559	0.000	406.879	0.717	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	4.9594732405E-002	0.019	0.722	0.567		
20.818	0.025	407.064	0.717	2.9218926075E-002	1.8213599976E-004	1.7609820237E-001	0.019	0.722	0.567			
21.076	0.050	407.250	0.721	9.1192936317E-002	2.8994860788E-003	3.7505727565E-001	0.037	0.698	0.566			
21.335	0.076	407.437	0.745	2.2344336331E-001	2.0794700550E-002	6.8387396703E-001	0.109	0.661	0.563			
21.594	0.114	407.636	0.760	4.4533894282E-001	7.3902729614E-002	9.6584421876E-001	0.195	0.630	0.559			
21.853	0.148	407.831	0.734	7.2360843680E-001	1.6310237118E-001	1.1292831390E+000	0.265	0.607	0.555			
22.112	0.172	408.016	0.725	1.0301413087E+000	2.8250784034E-001	1.2163179840E+000	0.322	0.592	0.551			
22.371	0.201	408.206	0.738	1.3534820355E+000	4.1660845526E-001	1.3440397046E+000	0.362	0.580	0.549			
22.575	0.227	408.358	0.748	1.6424021358E+000	5.5023347460E-001	1.4806755747E+000	0.394	0.572	0.547			
22.834	0.256	408.552	0.760	2.0461106557E+000	7.5536610474E-001	1.6456726122E+000	0.434	0.564	0.545			
23.093	0.292	408.751	0.773	2.4946182044E+000	1.0003050289E+000	1.7777624543E+000	0.471	0.558	0.544			
23.352	0.329	408.952	0.806	2.9667298108E+000	1.2698481266E+000	1.9322762531E+000	0.503	0.553	0.543			
23.593	0.379	409.154	0.832	3.4570752264E+000	1.5549007442E+000	2.0180924735E+000	0.529	0.550	0.543			
23.852	0.423	409.368	0.849	3.9752690633E+000	1.8570323069E+000	2.0312347292E+000	0.549	0.547	0.543			
24.110	0.479	409.594	0.886	4.5089556932E+000	2.1563938091E+000	2.0583166849E+000	0.562	0.546	0.544			

24.308	0.528	409.772	0.866	4.9144498112E+000	2.3732995320E+000	1.9524894273E+000	0.568	0.545	0.544
24.567	0.569	409.989	0.837	5.3847582307E+000	2.6153832984E+000	1.7377372583E+000	0.571	0.544	0.546
24.826	0.610	410.205	0.817	5.8143418090E+000	2.8241703453E+000	1.4840499216E+000	0.571	0.543	0.547
24.940	0.620	410.293	0.755	5.9749923313E+000	2.8989529456E+000	1.3615016865E+000	0.570	0.542	0.547
25.199	0.631	410.487	0.747	6.3008957816E+000	3.0466469419E+000	1.1682226754E+000	0.568	0.542	0.548
25.458	0.640	410.680	0.743	6.5799596427E+000	3.1679740212E+000	9.5788852177E-001	0.566	0.541	0.549
25.500	0.641	410.711	0.730	6.6197669596E+000	3.1850497367E+000	9.2198028027E-001	0.566	0.541	0.549
25.516	0.642	410.723	0.748	6.6342699577E+000	3.1912736966E+000	9.1095302061E-001	0.565	0.541	0.549
25.775	0.646	410.917	0.777	6.8491507329E+000	3.2830889470E+000	7.5486266394E-001	0.563	0.541	0.551
26.034	0.666	411.125	0.810	7.0251776553E+000	3.3574278229E+000	6.0049947776E-001	0.562	0.542	0.552
26.079	0.671	411.163	0.844	7.0518571105E+000	3.3688293401E+000	5.7084152336E-001	0.561	0.542	0.552
26.338	0.694	411.382	0.875	7.1764896945E+000	3.4230492363E+000	3.7437079679E-001	0.561	0.543	0.554
26.597	0.734	411.617	0.920	7.2457260528E+000	3.4550433623E+000	1.7055912722E-001	0.560	0.545	0.555
26.650	0.746	411.669	0.971	7.2537406928E+000	3.4591601467E+000	1.3158892187E-001	0.560	0.545	0.555
26.909	0.796	411.920	0.964	7.2637720350E+000	3.4678999491E+000	-9.4789293935E-002	0.561	0.548	0.557
27.168	0.844	412.169	0.955	7.2046537974E+000	3.4470808437E+000	-3.3113036638E-001	0.562	0.551	0.559
27.229	0.854	412.225	0.926	7.1829848690E+000	3.4388360649E+000	-3.7643679568E-001	0.563	0.552	0.559
27.488	0.887	412.465	0.940	7.0623248521E+000	3.3918875975E+000	-5.5847121132E-001	0.564	0.555	0.560
27.747	0.928	412.712	0.959	6.8937790229E+000	3.3217986026E+000	-7.0392134346E-001	0.566	0.559	0.561
27.831	0.943	412.794	0.965	6.8332002070E+000	3.2959419649E+000	-7.3774797416E-001	0.567	0.561	0.562
28.090	0.986	413.043	0.949	6.6289002087E+000	3.2067168844E+000	-8.1955214186E-001	0.569	0.565	0.562
28.349	1.022	413.285	0.936	6.4087928862E+000	3.1071913393E+000	-8.7960845712E-001	0.570	0.569	0.563
28.428	1.034	413.360	0.924	6.3381347234E+000	3.0748731785E+000	-8.9101271171E-001	0.570	0.570	0.563
28.687	1.066	413.598	0.899	6.1054583943E+000	2.9674306791E+000	-9.0820441421E-001	0.571	0.573	0.564
28.946	1.088	413.826	0.877	5.8678185806E+000	2.8553730595E+000	-9.3349955388E-001	0.572	0.576	0.564
29.018	1.093	413.888	0.843	5.7999528690E+000	2.8232456398E+000	-9.3555008882E-001	0.572	0.576	0.564
29.277	1.103	414.105	0.814	5.5598822593E+000	2.7094086282E+000	-9.3381362153E-001	0.573	0.578	0.565
29.500	1.102	414.280	0.783	5.3507590072E+000	2.6099635927E+000	-9.4675558155E-001	0.573	0.579	0.565
29.608	1.099	414.363	0.743	5.2485471266E+000	2.5612947745E+000	-9.4609691480E-001	0.574	0.580	0.565
29.866	1.082	414.552	0.707	5.0061679918E+000	2.4457178911E+000	-9.2834135069E-001	0.574	0.581	0.565
30.125	1.053	414.729	0.689	4.7678030160E+000	2.3315948949E+000	-9.5521960010E-001	0.575	0.581	0.565
30.190	1.048	414.775	0.662	4.7056461786E+000	2.3017459839E+000	-9.5015842019E-001	0.575	0.581	0.565
30.449	1.010	414.943	0.639	4.4738533313E+000	2.1901925808E+000	-8.8018254035E-001	0.575	0.581	0.565
30.708	0.966	415.106	0.635	4.2498412398E+000	2.0818169538E+000	-8.9709449500E-001	0.576	0.580	0.565
30.776	0.958	415.151	0.620	4.1882946137E+000	2.0519898842E+000	-8.8724853250E-001	0.576	0.580	0.565
31.035	0.909	415.309	0.613	3.9765433624E+000	1.9492007422E+000	-8.0592127973E-001	0.576	0.579	0.565
31.294	0.863	415.468	0.627	3.7709460721E+000	1.8491612020E+000	-8.2592778086E-001	0.576	0.578	0.565
31.359	0.854	415.512	0.629	3.7159914612E+000	1.8223980400E+000	-8.1943244641E-001	0.576	0.577	0.565
31.618	0.809	415.673	0.621	3.5186850237E+000	1.7263006444E+000	-7.4272717471E-001	0.577	0.576	0.564
31.877	0.763	415.834	0.631	3.3313681600E+000	1.6350896190E+000	-7.5000464482E-001	0.577	0.574	0.564
31.944	0.755	415.878	0.634	3.2809504092E+000	1.6105291366E+000	-7.4335691344E-001	0.577	0.573	0.564
32.203	0.711	416.040	0.626	3.1020451342E+000	1.5234073920E+000	-6.7223306691E-001	0.577	0.571	0.564
32.462	0.667	416.202	0.637	2.9328326747E+000	1.4409985965E+000	-6.7773712789E-001	0.577	0.569	0.563
32.524	0.660	416.244	0.640	2.8905974792E+000	1.4204155830E+000	-6.7148320965E-001	0.578	0.568	0.563
32.783	0.617	416.408	0.634	2.7297897922E+000	1.3420685534E+000	-6.0434945817E-001	0.578	0.565	0.563
33.041	0.576	416.573	0.647	2.5776334574E+000	1.2675709939E+000	-6.0591846267E-001	0.578	0.562	0.562
33.108	0.568	416.618	0.649	2.5369565646E+000	1.2472002272E+000	-5.9903861596E-001	0.578	0.562	0.562
33.367	0.528	416.784	0.644	2.3935055667E+000	1.1742938731E+000	-5.3756238356E-001	0.577	0.558	0.562
33.626	0.489	416.951	0.657	2.2585784122E+000	1.1000711729E+000	-5.3632613962E-001	0.572	0.555	0.561
33.692	0.483	416.997	0.659	2.2229851668E+000	1.0794173042E+000	-5.2954232441E-001	0.571	0.554	0.561
33.951	0.445	417.165	0.652	2.0967171362E+000	1.0029941766E+000	-4.7011708148E-001	0.562	0.550	0.561
34.210	0.408	417.335	0.664	1.9795337488E+000	9.2242583089E-001	-4.6305294958E-001	0.548	0.547	0.561
34.278	0.402	417.382	0.666	1.9478726871E+000	8.9905066344E-001	-4.5596575427E-001	0.542	0.547	0.561
34.537	0.366	417.552	0.658	1.8395148007E+000	8.1321323616E-001	-4.0051912035E-001	0.520	0.545	0.563
34.795	0.330	417.723	0.671	1.7404627639E+000	7.2627843908E-001	-3.9147328432E-001	0.490	0.545	0.568
34.860	0.325	417.769	0.685	1.7150740029E+000	7.0348679169E-001	-3.8600388367E-001	0.482	0.546	0.570
35.119	0.295	417.945	0.671	1.6231242023E+000	6.1776390597E-001	-3.3318232401E-001	0.447	0.550	0.580
35.378	0.261	418.117	0.675	1.5425346241E+000	5.3969566864E-001	-3.1499216223E-001	0.411	0.559	0.596
35.446	0.255	418.166	0.684	1.5210565327E+000	5.1899713959E-001	-3.0831407408E-001	0.401	0.563	0.601
35.705	0.224	418.341	0.682	1.4487827119E+000	4.4937748359E-001	-2.6278784987E-001	0.365	0.579	0.626
35.964	0.196	418.519	0.701	1.3849711250E+000	3.9156871251E-001	-2.4983547287E-001	0.332	0.604	0.659

36.030	0.193	418.568	0.714	1.3684513869E+000	3.7718525640E-001	-2.4445514281E-001	0.324	0.612	0.669
36.288	0.170	418.751	0.717	1.3115069617E+000	3.2982617404E-001	-2.0820582150E-001	0.296	0.645	0.712
36.500	0.156	418.905	0.741	1.2694881866E+000	2.9937065912E-001	-1.9779633723E-001	0.277	0.675	0.748
36.614	0.152	418.992	0.759	1.2469882491E+000	2.8415995439E-001	-1.9338631520E-001	0.268	0.692	0.769
36.873	0.142	419.189	0.766	1.1992440853E+000	2.5550693098E-001	-1.7914360823E-001	0.250	0.730	0.812
37.132	0.136	419.389	0.786	1.1542182411E+000	2.3449255128E-001	-1.8249037274E-001	0.239	0.756	0.841
37.194	0.138	419.441	0.795	1.1428113211E+000	2.2974032548E-001	-1.8166435840E-001	0.236	0.761	0.847
37.453	0.136	419.644	0.791	1.0988952712E+000	2.1398182327E-001	-1.6918402004E-001	0.229	0.773	0.858
37.712	0.136	419.850	0.808	1.0551989130E+000	2.0222035308E-001	-1.7827017939E-001	0.225	0.767	0.849
37.778	0.139	419.907	0.796	1.0431613544E+000	1.9928136043E-001	-1.7760039933E-001	0.225	0.765	0.845
38.037	0.135	420.109	0.788	1.0003125518E+000	1.9015869689E-001	-1.6755323276E-001	0.223	0.748	0.823
38.296	0.135	420.315	0.806	9.5639345405E-001	1.8220981314E-001	-1.8012529523E-001	0.224	0.725	0.794
38.362	0.139	420.371	0.807	9.4435118175E-001	1.8009967128E-001	-1.8044049621E-001	0.224	0.719	0.786
38.621	0.138	420.577	0.785	9.0002969305E-001	1.7264036103E-001	-1.6971512843E-001	0.225	0.695	0.755
38.880	0.133	420.778	0.772	8.5646373775E-001	1.6551050813E-001	-1.6650914144E-001	0.227	0.672	0.725
38.948	0.131	420.830	0.780	8.4518053522E-001	1.6366850107E-001	-1.6726808058E-001	0.228	0.666	0.718
39.207	0.128	421.033	0.767	8.0066926725E-001	1.5635910922E-001	-1.6877339686E-001	0.230	0.646	0.691
39.466	0.115	421.227	0.762	7.5778076950E-001	1.4919936662E-001	-1.7779275252E-001	0.231	0.629	0.668
39.530	0.117	421.279	0.793	7.4612077172E-001	1.4722840382E-001	-1.7981656443E-001	0.232	0.624	0.662
39.789	0.114	421.483	0.773	7.0060414177E-001	1.3943111173E-001	-1.7304932386E-001	0.234	0.609	0.641
40.048	0.104	421.679	0.773	6.5650670549E-001	1.3165979591E-001	-1.7098934736E-001	0.236	0.598	0.624
40.189	0.105	421.793	0.803	6.3227105626E-001	1.2729421151E-001	-1.7759937528E-001	0.237	0.593	0.615
40.448	0.107	422.001	0.805	5.8332872711E-001	1.1808360547E-001	-1.8706625445E-001	0.238	0.584	0.600
40.707	0.109	422.209	0.824	5.3539828414E-001	1.0843605835E-001	-1.9130112528E-001	0.238	0.580	0.589
40.919	0.120	422.389	0.830	4.9373794263E-001	9.9521050104E-002	-1.9375011515E-001	0.237	0.578	0.582
41.178	0.124	422.600	0.819	4.4439947140E-001	8.8299069361E-002	-1.9225760044E-001	0.234	0.578	0.575
41.437	0.131	422.813	0.875	3.9417681778E-001	7.6231936460E-002	-2.0750350105E-001	0.227	0.581	0.571
41.696	0.165	423.053	0.897	3.3694321517E-001	6.2167509318E-002	-2.1446514290E-001	0.217	0.585	0.568
41.943	0.182	423.267	0.842	2.8547314057E-001	4.9559534734E-002	-2.0327052090E-001	0.204	0.590	0.567
42.202	0.188	423.480	0.788	2.3417381009E-001	3.7456457972E-002	-1.8966270812E-001	0.188	0.594	0.567
42.461	0.177	423.675	0.748	1.8725578781E-001	2.6970986393E-002	-1.8042851627E-001	0.169	0.599	0.567
42.720	0.163	423.867	0.706	1.4073840886E-001	1.6662721104E-002	-1.7149198267E-001	0.139	0.604	0.567
42.979	0.130	424.041	0.664	9.8448194983E-002	8.8740312335E-003	-1.4029413154E-001	0.106	0.608	0.567
43.000	0.126	424.053	0.619	9.5542975896E-002	8.4222521649E-003	-1.3848655467E-001	0.104	0.608	0.567
43.259	0.081	424.214	0.673	5.9494984774E-002	3.9336073729E-003	-1.4703475727E-001	0.078	0.610	0.567
43.518	0.062	424.401	0.681	1.9400624213E-002	7.5927944821E-004	-1.1125984060E-001	0.046	0.611	0.567
43.777	0.021	424.567	0.681	1.8787716496E-003	2.6289198319E-005	-3.2279198114E-002	0.019	0.615	0.567

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

FS_srmFEM(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)
20.559	0.259	0.305	31.854	0.465	0.142	0.327	0.100
20.818	0.259	0.305	31.854	1.395	0.425	0.983	0.300
21.076	0.259	0.305	31.854	2.324	0.709	1.643	0.501
21.335	0.259	0.305	31.854	3.254	0.992	2.310	0.704

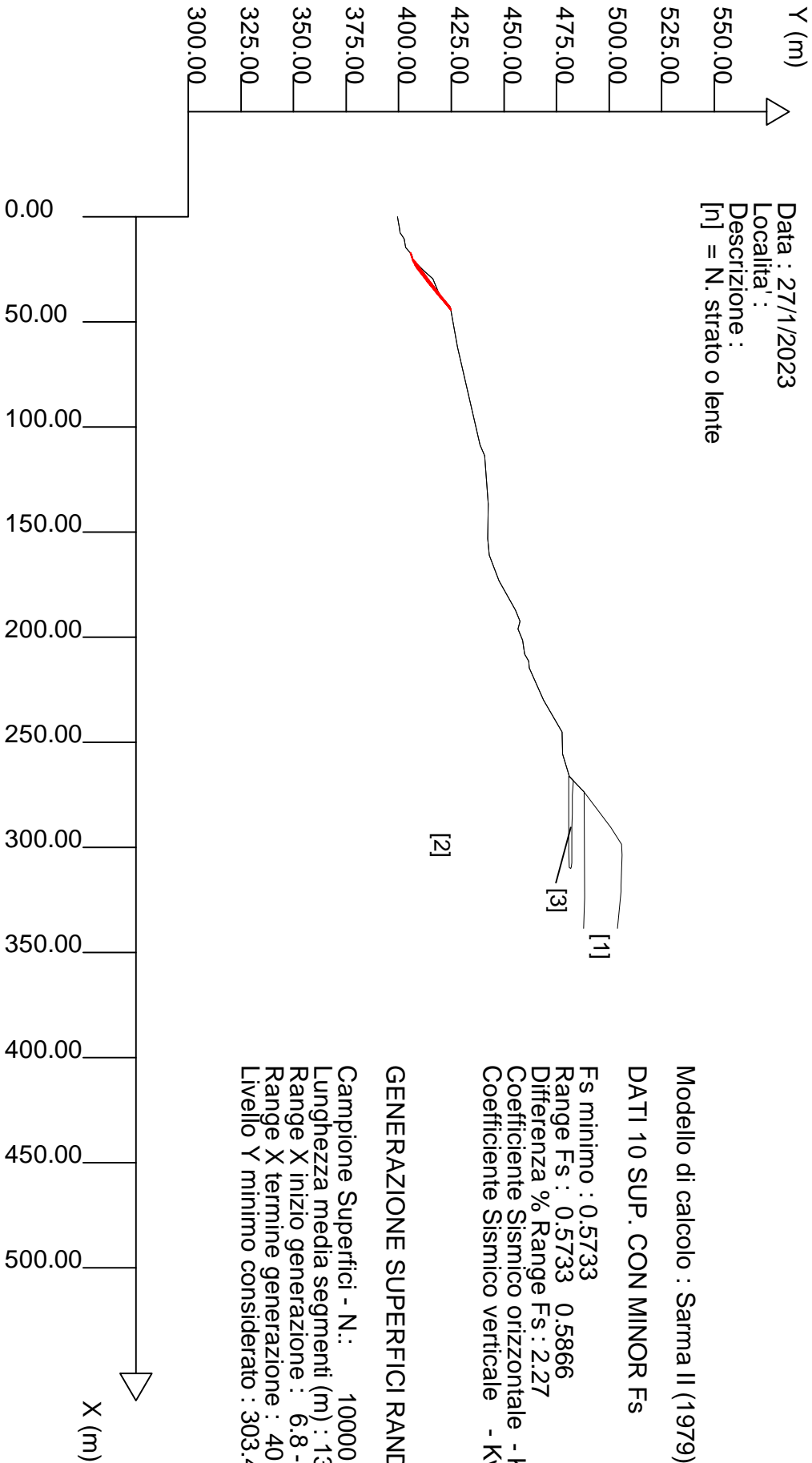
21.594	0.259	0.305	31.854	4.184	1.275	2.978	0.908
21.853	0.259	0.305	31.854	5.113	1.559	3.643	1.111
22.112	0.259	0.305	31.854	6.043	1.842	4.303	1.312
22.371	0.204	0.240	31.854	6.874	1.648	4.901	1.175
22.575	0.259	0.306	32.333	7.741	2.372	5.424	1.662
22.834	0.259	0.306	32.333	8.649	2.650	6.065	1.859
23.093	0.259	0.306	32.333	9.556	2.928	6.701	2.053
23.352	0.241	0.285	32.333	10.432	2.977	7.319	2.089
23.593	0.259	0.310	33.224	11.413	3.533	7.729	2.392
23.852	0.259	0.310	33.224	12.276	3.800	8.306	2.571
24.110	0.197	0.236	33.224	13.036	3.073	8.810	2.077
24.308	0.259	0.313	34.170	13.922	4.357	9.063	2.836
24.567	0.259	0.313	34.170	14.734	4.611	9.580	2.998
24.826	0.114	0.138	34.170	15.319	2.114	9.948	1.373
24.940	0.259	0.317	35.315	16.060	5.096	9.993	3.171
25.199	0.259	0.317	35.315	16.807	5.333	10.451	3.316
25.458	0.042	0.052	35.315	17.241	0.896	10.716	0.557
25.500	0.016	0.019	35.315	17.331	0.336	10.772	0.209
25.516	0.259	0.321	36.160	17.937	5.752	10.811	3.467
25.775	0.259	0.321	36.160	18.818	6.035	11.338	3.636
26.034	0.045	0.056	36.160	19.337	1.089	11.649	0.656
26.079	0.259	0.324	36.992	19.963	6.472	11.671	3.783
26.338	0.259	0.324	36.992	20.792	6.740	12.152	3.940
26.597	0.053	0.067	36.992	21.292	1.418	12.443	0.829
26.650	0.259	0.328	37.778	21.888	7.170	12.439	4.075
26.909	0.259	0.328	37.778	22.665	7.425	12.877	4.218
27.168	0.061	0.077	37.778	23.145	1.786	13.149	1.014
27.229	0.259	0.331	38.503	23.708	7.844	13.128	4.344
27.488	0.259	0.331	38.503	24.435	8.085	13.529	4.476
27.747	0.084	0.107	38.503	24.916	2.675	13.795	1.481
27.831	0.259	0.331	38.505	25.398	8.404	14.060	4.652
28.090	0.259	0.331	38.505	26.125	8.644	14.462	4.785
28.349	0.080	0.102	38.505	26.600	2.703	14.725	1.496
28.428	0.259	0.331	38.506	27.075	8.959	14.987	4.959
28.687	0.259	0.331	38.506	27.802	9.199	15.389	5.092
28.946	0.072	0.092	38.506	28.267	2.614	15.647	1.447
29.018	0.259	0.331	38.508	28.732	9.507	15.904	5.262
29.277	0.223	0.284	38.508	29.408	8.365	16.278	4.630
29.500	0.108	0.137	38.508	29.529	4.059	16.344	2.247
29.608	0.259	0.331	38.509	28.876	9.555	15.982	5.288
29.866	0.259	0.331	38.509	27.954	9.250	15.472	5.119
30.125	0.064	0.082	38.509	27.378	2.256	15.152	1.249
30.190	0.259	0.331	38.511	26.802	8.869	14.833	4.908
30.449	0.259	0.331	38.511	25.879	8.563	14.322	4.739
30.708	0.068	0.087	38.511	25.297	2.197	14.000	1.216
30.776	0.259	0.331	38.512	24.714	8.178	13.677	4.526
31.035	0.259	0.331	38.512	23.792	7.873	13.167	4.357
31.294	0.066	0.084	38.512	23.213	1.955	12.846	1.082
31.359	0.259	0.331	38.514	22.634	7.490	12.525	4.145
31.618	0.259	0.331	38.514	21.712	7.185	12.015	3.976
31.877	0.067	0.085	38.514	21.132	1.799	11.693	0.996
31.944	0.259	0.331	38.515	20.552	6.801	11.372	3.763
32.203	0.259	0.331	38.515	19.629	6.495	10.861	3.594
32.462	0.062	0.079	38.515	19.057	1.505	10.545	0.833
32.524	0.259	0.331	38.517	18.486	6.117	10.228	3.385
32.783	0.259	0.331	38.517	17.562	5.812	9.718	3.216
33.041	0.067	0.085	38.517	16.982	1.446	9.396	0.800
33.108	0.259	0.331	38.518	16.402	5.428	9.075	3.003
33.367	0.259	0.331	38.518	15.479	5.122	8.564	2.834
33.626	0.066	0.084	38.518	14.900	1.255	8.243	0.694
33.692	0.259	0.331	38.520	14.321	4.739	7.922	2.622

33.951	0.259	0.331	38.520	13.398	4.434	7.411	2.452
34.210	0.068	0.087	38.520	12.815	1.113	7.087	0.616
34.278	0.259	0.331	38.521	12.232	4.048	6.765	2.239
34.537	0.259	0.331	38.521	11.309	3.743	6.253	2.070
34.795	0.064	0.082	38.521	10.732	0.885	5.934	0.489
34.860	0.259	0.331	38.522	10.155	3.361	5.615	1.858
35.119	0.259	0.331	38.522	9.232	3.055	5.104	1.689
35.378	0.068	0.087	38.522	8.649	0.751	4.781	0.415
35.446	0.259	0.331	38.524	8.066	2.669	4.459	1.476
35.705	0.259	0.331	38.524	7.142	2.364	3.949	1.307
35.964	0.066	0.084	38.524	6.563	0.553	3.628	0.306
36.030	0.259	0.331	38.525	5.983	1.980	3.308	1.095
36.288	0.212	0.270	38.525	5.144	1.391	2.844	0.769
36.500	0.114	0.146	38.525	4.775	0.696	2.640	0.385
36.614	0.259	0.331	38.527	4.803	1.590	2.656	0.879
36.873	0.259	0.331	38.527	4.841	1.602	2.678	0.886
37.132	0.062	0.079	38.527	4.865	0.384	2.691	0.213
37.194	0.259	0.331	38.529	4.888	1.618	2.704	0.895
37.453	0.259	0.331	38.529	4.927	1.631	2.725	0.902
37.712	0.067	0.085	38.529	4.950	0.422	2.739	0.233
37.778	0.259	0.331	38.531	4.974	1.647	2.752	0.911
38.037	0.259	0.331	38.531	5.012	1.659	2.773	0.918
38.296	0.066	0.084	38.531	5.036	0.424	2.786	0.235
38.362	0.259	0.331	38.534	5.060	1.675	2.799	0.927
38.621	0.259	0.331	38.534	5.098	1.687	2.820	0.933
38.880	0.068	0.087	38.534	5.121	0.445	2.833	0.246
38.948	0.259	0.331	38.536	5.145	1.703	2.846	0.942
39.207	0.259	0.331	38.536	5.183	1.716	2.867	0.949
39.466	0.064	0.082	38.536	5.206	0.429	2.880	0.237
39.530	0.259	0.331	38.539	5.230	1.731	2.892	0.957
39.789	0.259	0.331	38.539	5.267	1.744	2.913	0.964
40.048	0.141	0.181	38.539	5.296	0.958	2.929	0.530
40.189	0.259	0.331	38.541	5.325	1.763	2.945	0.975
40.448	0.259	0.331	38.541	5.362	1.775	2.965	0.982
40.707	0.212	0.271	38.541	5.396	1.464	2.984	0.809
40.919	0.259	0.331	38.544	5.430	1.797	3.002	0.994
41.178	0.259	0.331	38.544	5.467	1.810	3.023	1.001
41.437	0.259	0.331	38.544	5.504	1.822	3.043	1.007
41.696	0.247	0.316	38.544	5.540	1.751	3.063	0.968
41.943	0.259	0.331	38.545	5.576	1.846	3.083	1.021
42.202	0.259	0.331	38.545	5.613	1.858	3.104	1.027
42.461	0.259	0.331	38.545	5.650	1.870	3.124	1.034
42.720	0.259	0.331	38.545	5.687	1.883	3.145	1.041
42.979	0.021	0.027	38.545	5.707	0.153	3.156	0.085
43.000	0.259	0.331	38.545	4.895	1.621	2.707	0.896
43.259	0.259	0.331	38.545	3.269	1.082	1.808	0.598
43.518	0.259	0.331	38.545	1.643	0.544	0.909	0.301
43.777	0.132	0.169	38.545	0.415	0.070	0.229	0.039

LEGENDA SIMBOLI

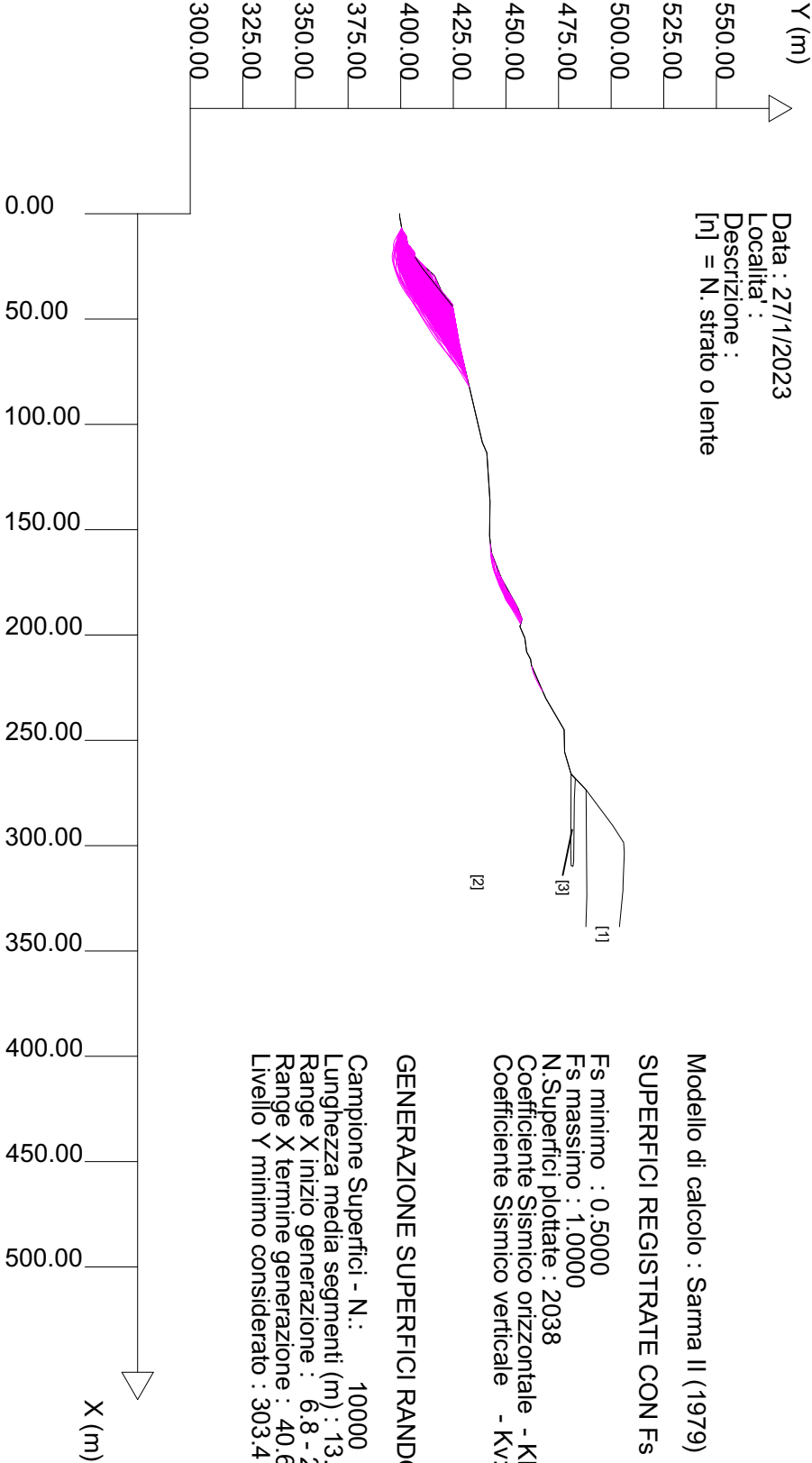
X(m) : Ascissa sinistra concio
dx(m) : Larghezza concio
dl(m) : lunghezza base concio
alpha(°) : Angolo pendenza base concio
TauStress(kPa) : Sforzo di taglio su base concio
TauF (kN/m) : Forza di taglio su base concio
TauStrength(kPa) : Resistenza al taglio su base concio
TauS (kN/m) : Forza resistente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

Data : 27/1/2023
Localita' :
Descrizione :
[n] = N. strato o lente



# Parametri Geotecnici degli strati #									
N.	phi`	C`	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	34.00	0	0	18.80	19.20	0	0	0	0
2	26.00	0	0	19.10	19.30	0	0	0	0
3	34.00	0	0	18.80	19.20	0	0	0	0

Data : 27/1/2023
Localita' :
Descrizione :
[n] = N. strato o lente



Modello di calcolo : Sarma II (1979)

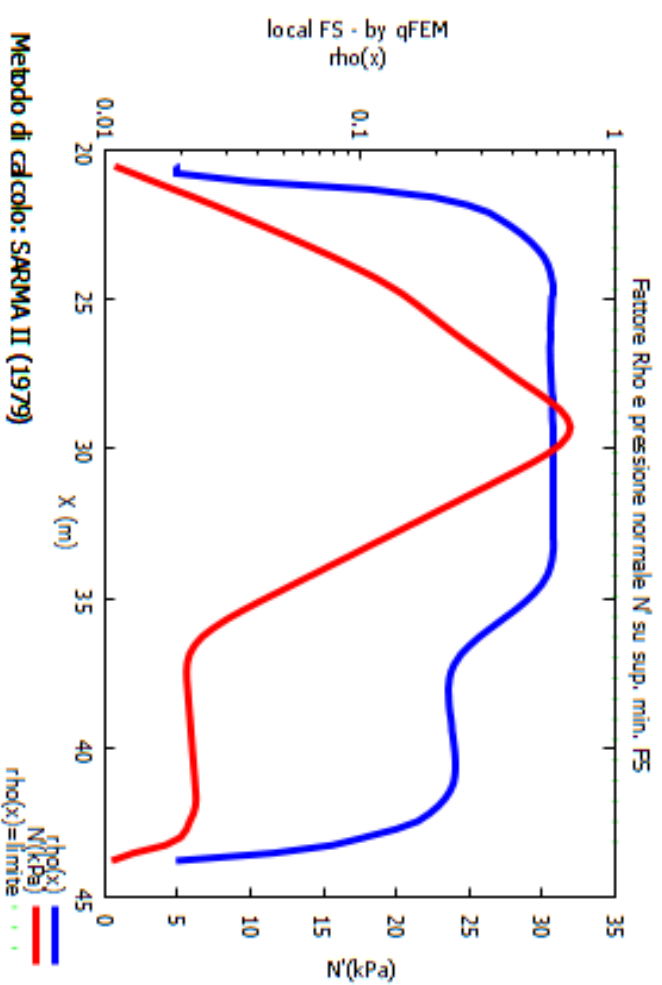
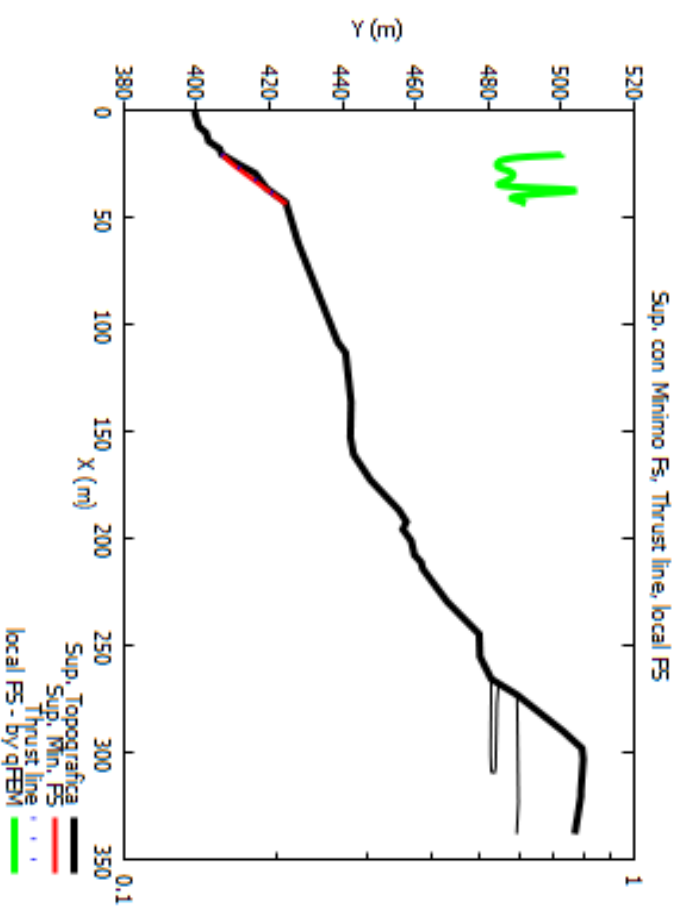
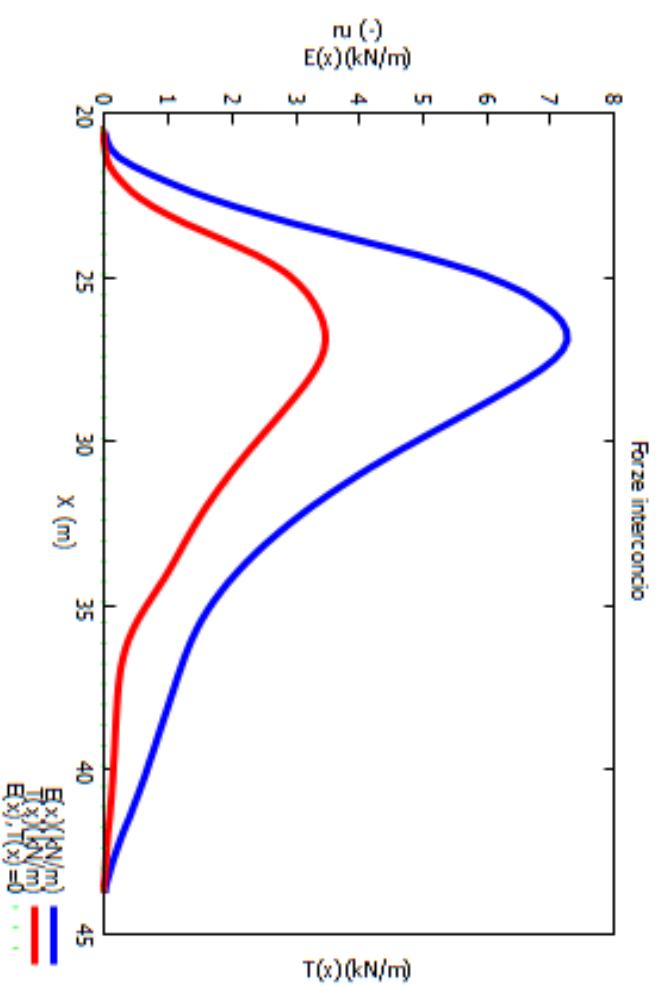
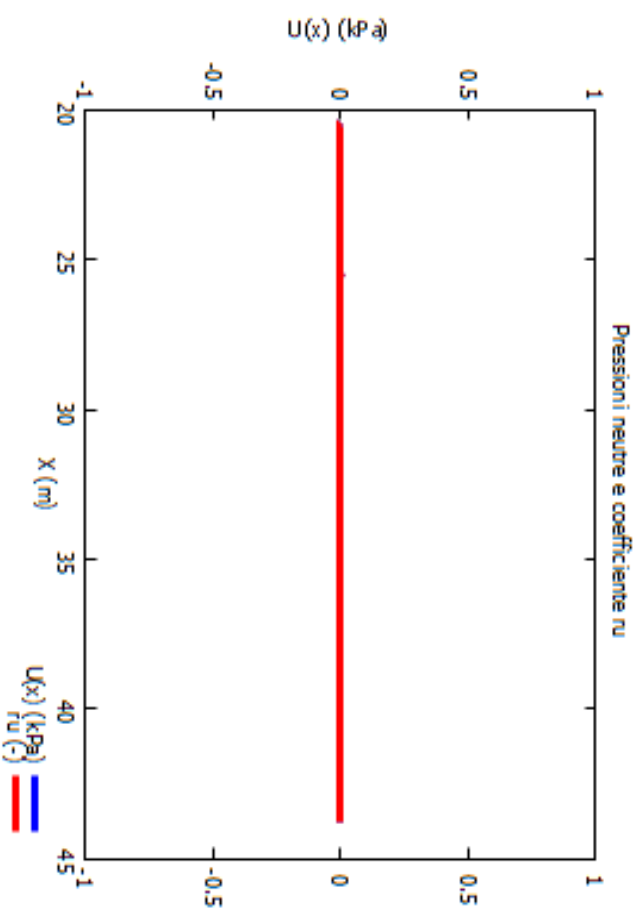
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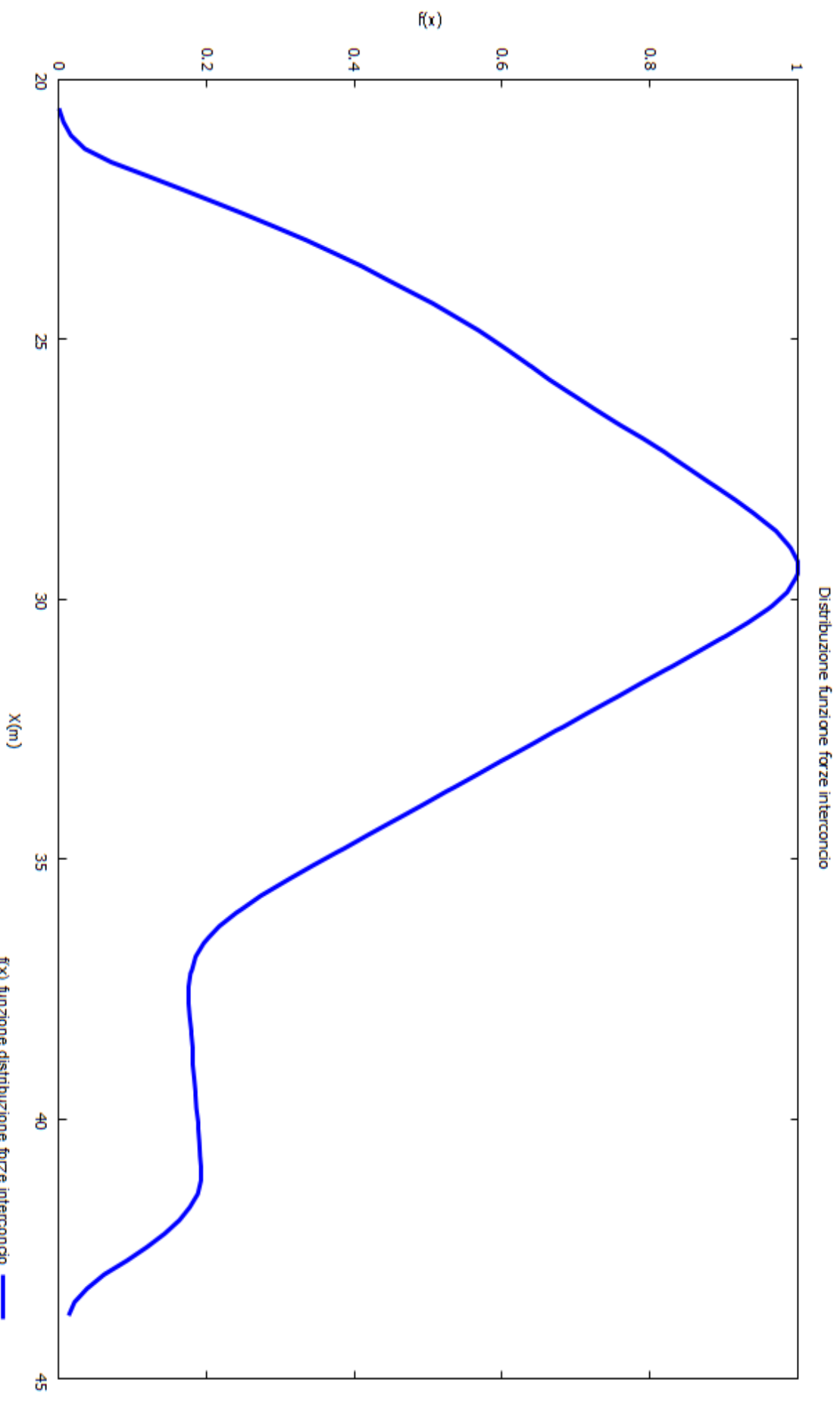
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Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM

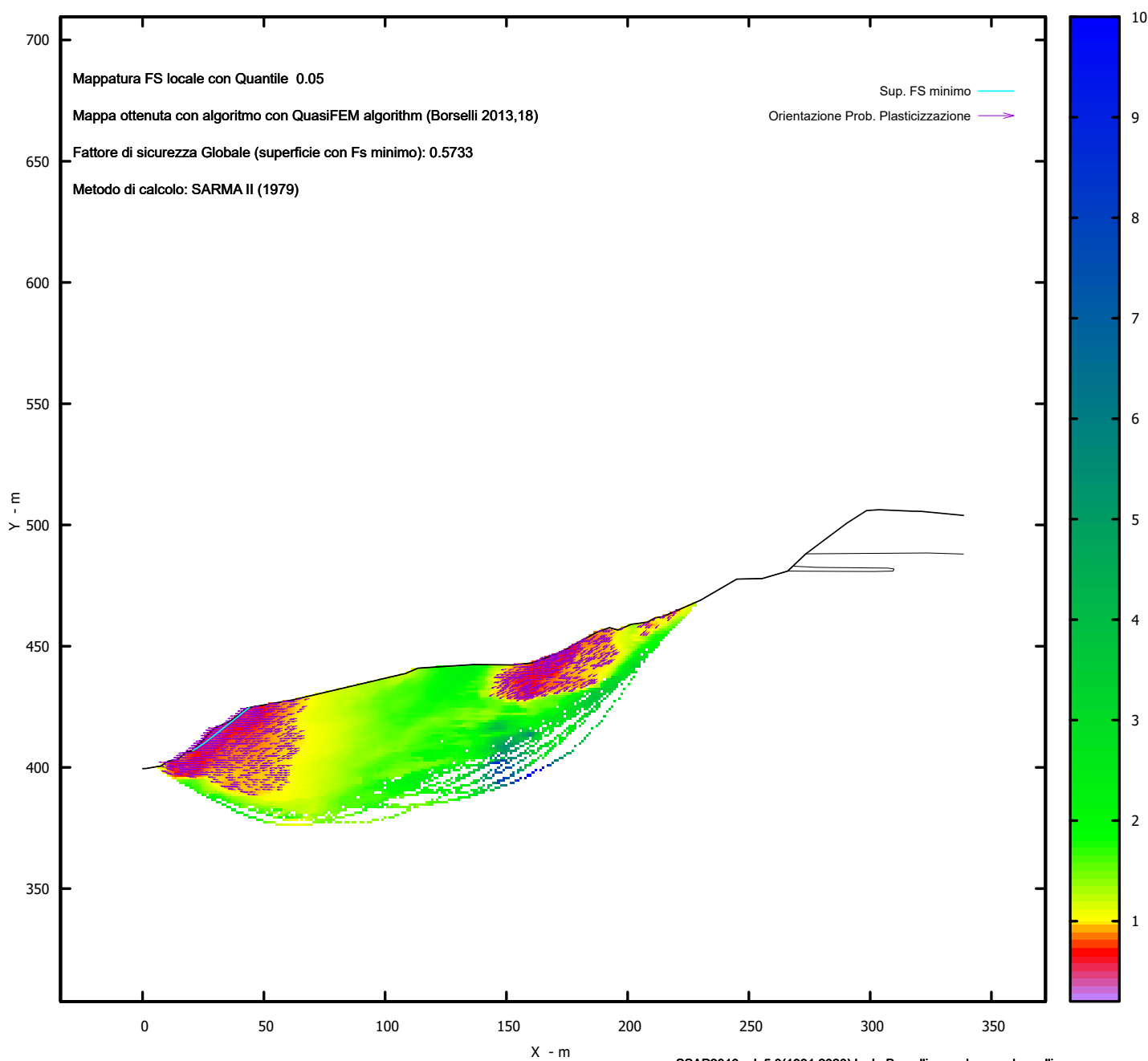
Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 13.5
Range X inizio generazione : 6.8 - 220.0
Range X termine generazione : 40.6 - 230.0
Livello Y minimo considerato : 303.4

# Parametri Geotecnici degli strati #											
N.	phi'	C'	Cu	Gamm	GammSat	sgci	GSI	mi	D		
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	34.00	0	0	18.80	19.20	0	0	0	0		
2	26.00	0	0	19.10	19.30	0	0	0	0		
3	34.00	0	0	18.80	19.20	0	0	0	0		





MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



Credits to: GNUPLOT 5.4.1 www.gnuplot.info

SSAP2010 rel. 5.0(1991,2020) by L. Borselli, www.lorenzo-borselli.eu
<https://WWW.SSAP.EU>

SEZIONE G H

**METODOLOGIA DI CALCOLO
BERSELLI**

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

Ultima Revisione struttura tabelle del report: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\GH\IRISULTATI\BERSELLI\BERSELLI.txt

Data: 27/1/2023

Localita' :

Descrizione:

Modello pendio: GH.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	399.50	0.00	399.50	268.13	482.99	-	-		
1.50	399.53	1.50	399.53	274.98	482.65	-	-		
5.50	400.25	5.50	400.25	277.55	482.52	-	-		
7.50	400.53	7.50	400.53	283.83	482.45	-	-		
10.50	402.57	10.50	402.57	290.63	482.38	-	-		
14.50	403.28	14.50	403.28	301.40	482.26	-	-		
18.00	406.31	18.00	406.31	307.32	482.20	-	-		
20.50	406.82	20.50	406.82	309.13	481.96	-	-		
25.50	411.82	25.50	411.82	309.84	481.87	-	-		
29.50	416.11	29.50	416.11	309.68	481.42	-	-		
36.50	419.22	36.50	419.22	309.52	480.98	-	-		
43.00	424.49	43.00	424.49	301.58	480.82	-	-		
62.00	427.86	62.00	427.86	289.75	480.86	-	-		
108.50	438.77	108.50	438.77	281.07	480.90	-	-		
113.50	440.93	113.50	440.93	273.14	480.94	-	-		
136.50	442.44	136.50	442.44	268.06	480.96	-	-		
153.00	442.24	153.00	442.24	266.00	480.97	-	-		
161.00	443.12	161.00	443.12	268.13	482.99	-	-		
173.00	447.80	173.00	447.80	-	-	-	-		
187.00	455.57	187.00	455.57	-	-	-	-		
192.50	457.64	192.50	457.64	-	-	-	-		
196.00	456.66	196.00	456.66	-	-	-	-		
201.50	459.01	201.50	459.01	-	-	-	-		
208.00	459.85	208.00	459.85	-	-	-	-		
211.50	461.71	211.50	461.71	-	-	-	-		
214.50	462.15	214.50	462.15	-	-	-	-		
230.00	468.91	230.00	468.91	-	-	-	-		
245.00	477.67	245.00	477.67	-	-	-	-		
255.50	477.88	255.50	477.88	-	-	-	-		
266.00	480.97	266.00	480.97	-	-	-	-		
268.13	482.99	268.13	482.99	-	-	-	-		

273.50	488.08	273.50	488.08	-	-	-	-
290.50	500.78	323.72	488.45	-	-	-	-
298.50	505.93	338.50	488.00	-	-	-	-
303.50	506.26	-	-	-	-	-	-
318.00	505.66	-	-	-	-	-	-
321.00	505.63	-	-	-	-	-	-
338.50	503.95	-	-	-	-	-	-

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	34.00	0.00	0.00	18.80	19.20	2.287	0.00	0.00	0.00	0.00
STRATO 2	26.00	0.00	0.00	19.10	19.30	1.484	0.00	0.00	0.00	0.00
STRATO 3	34.00	0.00	0.00	18.80	19.20	2.287	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)-

sgci _____ 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)

----- 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): 13.5 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 6.77 220.00

LIVELLO MINIMO CONSIDERATO (Ymin): 303.42

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 40.62 230.00

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : BORSELLI (Borselli, 2016)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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) 0.5670 - Min. - X Y Lambda= 1.2500

20.70	407.02
22.65	408.24
23.64	408.87
24.33	409.33
24.95	409.75
25.50	410.15
26.05	410.55
26.60	410.97
27.16	411.41
27.75	411.89
28.33	412.35
28.90	412.81
29.47	413.27
30.03	413.73
30.60	414.19
31.17	414.64
31.73	415.10
32.30	415.55
32.86	416.01
33.43	416.47
34.00	416.93
34.56	417.38
35.13	417.84
35.70	418.30
36.26	418.75
36.83	419.21
37.39	419.67
37.96	420.13
38.52	420.59
39.09	421.05
39.73	421.57
40.43	422.15
41.42	422.97
43.33	424.55

Fattore di sicurezza (FS) 0.5783 - N.2 -- X Y Lambda= 1.2500

20.57	406.89
22.54	408.39
23.56	409.16
24.29	409.72
24.95	410.22
25.53	410.66
26.11	411.11
26.70	411.55
27.28	412.00
27.86	412.44
28.44	412.88
29.02	413.33
29.61	413.77
30.19	414.21
30.78	414.66
31.36	415.10
31.94	415.55
32.52	415.99
33.11	416.43
33.69	416.88
34.27	417.32
34.86	417.76
35.44	418.21
36.02	418.65

36.61	419.10
37.19	419.54
37.77	419.98
38.35	420.43
38.94	420.87
39.52	421.32
40.18	421.82
40.91	422.37
41.93	423.15
43.89	424.65

Fattore di sicurezza (FS)	0.5892	- N.3 --	X	Y	Lambda= 1.2500
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20.72	407.04
22.51	407.92
23.42	408.38
24.06	408.71
24.63	409.01
25.14	409.29
25.65	409.58
26.18	409.89
26.71	410.21
27.28	410.56
27.80	410.89
28.31	411.24
28.80	411.59
29.30	411.98
29.79	412.38
30.30	412.80
30.81	413.26
31.36	413.77
31.90	414.27
32.43	414.76
32.96	415.24
33.48	415.73
34.00	416.21
34.52	416.70
35.04	417.19
35.56	417.68
36.08	418.17
36.60	418.66
37.12	419.15
37.64	419.64
38.23	420.19
38.88	420.80
39.79	421.66
41.55	423.31

Fattore di sicurezza (FS)	0.5896	- N.4 --	X	Y	Lambda= 1.2500
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20.51	406.83
22.51	408.30
23.55	409.07
24.29	409.61
24.96	410.10
25.55	410.54
26.14	410.98
26.73	411.41
27.33	411.85
27.91	412.28
28.51	412.72

29.10	413.15
29.69	413.59
30.28	414.03
30.88	414.47
31.47	414.90
32.06	415.34
32.65	415.77
33.24	416.21
33.84	416.64
34.43	417.08
35.02	417.52
35.62	417.96
36.21	418.39
36.81	418.84
37.41	419.28
38.00	419.72
38.59	420.16
39.17	420.61
39.76	421.07
40.41	421.59
41.15	422.19
42.18	423.04
44.20	424.70

Fattore di sicurezza (FS)	0.5898	- N.5 --	X	Y	Lambda= 1.2500
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20.70	407.02
22.65	408.31
23.67	408.98
24.39	409.47
25.04	409.90
25.62	410.29
26.20	410.68
26.78	411.08
27.37	411.48
27.96	411.89
28.54	412.30
29.12	412.70
29.68	413.12
30.26	413.54
30.83	413.97
31.40	414.42
31.98	414.87
32.57	415.34
33.16	415.81
33.74	416.28
34.32	416.75
34.90	417.22
35.48	417.69
36.06	418.16
36.63	418.64
37.21	419.12
37.80	419.60
38.38	420.08
38.96	420.57
39.54	421.05
40.19	421.59
40.92	422.19
41.94	423.03
43.89	424.65

Fattore di sicurezza (FS)	0.5906	- N.6 --	X	Y	Lambda= 1.2500
	21.35	407.67			
	23.27	409.10			
	24.28	409.85			
	24.99	410.38			
	25.64	410.86			
	26.21	411.29			
	26.78	411.71			
	27.35	412.14			
	27.92	412.57			
	28.49	412.99			
	29.06	413.42			
	29.64	413.84			
	30.21	414.27			
	30.78	414.69			
	31.35	415.12			
	31.93	415.55			
	32.50	415.97			
	33.07	416.40			
	33.64	416.82			
	34.21	417.25			
	34.78	417.68			
	35.35	418.10			
	35.93	418.53			
	36.50	418.95			
	37.07	419.38			
	37.64	419.80			
	38.21	420.23			
	38.78	420.66			
	39.36	421.08			
	39.93	421.51			
	40.57	421.99			
	41.29	422.52			
	42.29	423.27			
	44.21	424.71			

Fattore di sicurezza (FS)	0.5940	- N.7 --	X	Y	Lambda= 1.2500
	21.41	407.73			
	23.27	408.90			
	24.24	409.50			
	24.92	409.94			
	25.54	410.33			
	26.09	410.68			
	26.64	411.04			
	27.19	411.40			
	27.75	411.78			
	28.32	412.16			
	28.87	412.54			
	29.41	412.92			
	29.94	413.31			
	30.49	413.72			
	31.02	414.13			
	31.56	414.55			
	32.11	415.00			
	32.67	415.47			
	33.23	415.94			
	33.79	416.40			
	34.34	416.86			
	34.89	417.32			

35.45	417.78
36.00	418.24
36.55	418.70
37.10	419.16
37.65	419.62
38.20	420.08
38.75	420.55
39.30	421.01
39.91	421.54
40.60	422.13
41.57	422.96
43.43	424.57

Fattore di sicurezza (FS) 0.5940 - N.8 -- X Y Lambda= 1.2500

15.75	404.36
18.17	405.56
19.42	406.18
20.30	406.63
21.08	407.03
21.79	407.41
22.49	407.79
23.21	408.18
23.94	408.59
24.71	409.03
25.41	409.45
26.10	409.89
26.77	410.34
27.47	410.83
28.14	411.32
28.83	411.85
29.53	412.42
30.28	413.05
31.01	413.66
31.74	414.27
32.46	414.87
33.16	415.47
33.88	416.06
34.59	416.66
35.30	417.26
36.01	417.85
36.72	418.44
37.43	419.04
38.14	419.64
38.85	420.23
39.65	420.90
40.54	421.65
41.79	422.69
44.18	424.70

Fattore di sicurezza (FS) 0.5950 - N.9 -- X Y Lambda= 1.2500

21.86	408.18
23.50	409.13
24.34	409.62
24.93	409.98
25.45	410.31
25.93	410.61
26.40	410.92
26.87	411.24
27.35	411.57

27.85	411.92
28.33	412.26
28.81	412.61
29.29	412.96
29.76	413.31
30.23	413.67
30.71	414.03
31.19	414.41
31.68	414.79
32.16	415.17
32.64	415.56
33.12	415.94
33.60	416.32
34.07	416.71
34.55	417.10
35.04	417.50
35.53	417.91
36.01	418.31
36.48	418.72
36.95	419.13
37.43	419.55
37.96	420.02
38.55	420.57
39.39	421.35
41.02	422.89

Fattore di sicurezza (FS)	0.5961	- N.10 --	X	Y	Lambda= 1.2500
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21.20	407.52
23.12	408.80
24.12	409.47
24.82	409.94
25.46	410.38
26.02	410.77
26.59	411.16
27.15	411.56
27.72	411.97
28.29	412.38
28.86	412.80
29.43	413.21
30.00	413.62
30.57	414.03
31.14	414.45
31.71	414.86
32.28	415.27
32.84	415.68
33.41	416.09
33.98	416.50
34.55	416.92
35.11	417.33
35.69	417.74
36.26	418.16
36.84	418.58
37.43	419.01
37.99	419.43
38.55	419.86
39.09	420.30
39.65	420.76
40.27	421.29
40.97	421.91
41.96	422.82

43.92 424.65

----- 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	0.567	187.0	329.8	-175.8	Deficit
2	0.578	160.0	276.7	-144.3	Deficit
3	0.589	271.4	460.6	-235.3	Deficit
4	0.590	206.7	350.6	-179.0	Deficit
5	0.590	232.4	394.0	-201.0	Deficit
6	0.591	160.6	272.0	-138.5	Deficit
7	0.594	212.5	357.8	-181.0	Deficit
8	0.594	318.7	536.5	-271.5	Deficit
9	0.595	189.9	319.1	-161.2	Deficit
10	0.596	230.2	386.1	-194.6	Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -271.5

Note: FTR --> Forza totale Resistente lungo la superficie
di scivolamento

FTA --> Forza totale Agente lungo la superficie
di scivolamento

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)
20.698	0.254	32.05	0.24	0.00	0.00	26.00	0.00
20.952	0.254	32.05	0.71	0.00	0.00	26.00	0.00
21.207	0.254	32.05	1.18	0.00	0.00	26.00	0.00
21.461	0.254	32.05	1.66	0.00	0.00	26.00	0.00
21.715	0.254	32.05	2.13	0.00	0.00	26.00	0.00
21.969	0.254	32.05	2.60	0.00	0.00	26.00	0.00
22.224	0.254	32.05	3.08	0.00	0.00	26.00	0.00
22.478	0.176	32.05	2.40	0.00	0.00	26.00	0.00
22.654	0.254	32.54	3.87	0.00	0.00	26.00	0.00
22.908	0.254	32.54	4.33	0.00	0.00	26.00	0.00
23.162	0.254	32.54	4.79	0.00	0.00	26.00	0.00
23.417	0.224	32.54	4.59	0.00	0.00	26.00	0.00
23.640	0.254	33.46	5.63	0.00	0.00	26.00	0.00
23.895	0.254	33.46	6.06	0.00	0.00	26.00	0.00
24.149	0.184	33.46	4.66	0.00	0.00	26.00	0.00
24.333	0.254	34.43	6.79	0.00	0.00	26.00	0.00
24.587	0.254	34.43	7.18	0.00	0.00	26.00	0.00
24.842	0.103	34.43	3.04	0.00	0.00	26.00	0.00
24.945	0.254	35.61	7.72	0.00	0.00	26.00	0.00
25.199	0.254	35.61	8.08	0.00	0.00	26.00	0.00
25.454	0.046	35.61	1.51	0.00	0.00	26.00	0.00
25.500	0.003	35.61	0.11	0.00	0.00	26.00	0.00
25.503	0.254	36.48	8.55	0.00	0.00	26.00	0.00
25.758	0.254	36.48	8.97	0.00	0.00	26.00	0.00

26.012	0.037	36.48	1.34	0.00	0.00	26.00	0.00
26.049	0.254	37.33	9.44	0.00	0.00	26.00	0.00
26.303	0.254	37.33	9.83	0.00	0.00	26.00	0.00
26.557	0.045	37.33	1.77	0.00	0.00	26.00	0.00
26.602	0.254	38.13	10.27	0.00	0.00	26.00	0.00
26.856	0.254	38.13	10.64	0.00	0.00	26.00	0.00
27.111	0.052	38.13	2.24	0.00	0.00	26.00	0.00
27.163	0.254	38.88	11.06	0.00	0.00	26.00	0.00
27.417	0.254	38.88	11.40	0.00	0.00	26.00	0.00
27.672	0.075	38.88	3.45	0.00	0.00	26.00	0.00
27.747	0.254	38.88	11.84	0.00	0.00	26.00	0.00
28.001	0.254	38.88	12.18	0.00	0.00	26.00	0.00
28.256	0.071	38.88	3.45	0.00	0.00	26.00	0.00
28.327	0.254	38.88	12.61	0.00	0.00	26.00	0.00
28.581	0.254	38.88	12.94	0.00	0.00	26.00	0.00
28.835	0.064	38.88	3.30	0.00	0.00	26.00	0.00
28.899	0.254	38.88	13.36	0.00	0.00	26.00	0.00
29.153	0.254	38.88	13.70	0.00	0.00	26.00	0.00
29.407	0.063	38.88	3.43	0.00	0.00	26.00	0.00
29.470	0.030	38.88	1.65	0.00	0.00	26.00	0.00
29.500	0.254	38.88	13.76	0.00	0.00	26.00	0.00
29.754	0.254	38.88	13.31	0.00	0.00	26.00	0.00
30.009	0.026	38.88	1.34	0.00	0.00	26.00	0.00
30.035	0.254	38.88	12.80	0.00	0.00	26.00	0.00
30.289	0.254	38.88	12.34	0.00	0.00	26.00	0.00
30.543	0.059	38.88	2.82	0.00	0.00	26.00	0.00
30.603	0.254	38.88	11.78	0.00	0.00	26.00	0.00
30.857	0.254	38.88	11.32	0.00	0.00	26.00	0.00
31.111	0.057	38.88	2.49	0.00	0.00	26.00	0.00
31.168	0.254	38.88	10.76	0.00	0.00	26.00	0.00
31.423	0.254	38.88	10.30	0.00	0.00	26.00	0.00
31.677	0.058	38.88	2.29	0.00	0.00	26.00	0.00
31.735	0.254	38.88	9.74	0.00	0.00	26.00	0.00
31.989	0.254	38.88	9.28	0.00	0.00	26.00	0.00
32.244	0.053	38.88	1.89	0.00	0.00	26.00	0.00
32.297	0.254	38.88	8.72	0.00	0.00	26.00	0.00
32.551	0.254	38.88	8.26	0.00	0.00	26.00	0.00
32.805	0.058	38.88	1.82	0.00	0.00	26.00	0.00
32.863	0.254	38.88	7.70	0.00	0.00	26.00	0.00
33.118	0.254	38.88	7.24	0.00	0.00	26.00	0.00
33.372	0.057	38.88	1.57	0.00	0.00	26.00	0.00
33.429	0.254	38.88	6.68	0.00	0.00	26.00	0.00
33.684	0.254	38.88	6.22	0.00	0.00	26.00	0.00
33.938	0.059	38.88	1.39	0.00	0.00	26.00	0.00
33.997	0.254	38.88	5.66	0.00	0.00	26.00	0.00
34.251	0.254	38.88	5.20	0.00	0.00	26.00	0.00
34.506	0.056	38.88	1.08	0.00	0.00	26.00	0.00
34.562	0.254	38.88	4.64	0.00	0.00	26.00	0.00
34.816	0.254	38.88	4.18	0.00	0.00	26.00	0.00
35.070	0.060	38.88	0.92	0.00	0.00	26.00	0.00
35.130	0.254	38.89	3.62	0.00	0.00	26.00	0.00
35.384	0.254	38.89	3.16	0.00	0.00	26.00	0.00
35.639	0.058	38.89	0.66	0.00	0.00	26.00	0.00
35.697	0.254	38.89	2.59	0.00	0.00	26.00	0.00
35.951	0.254	38.89	2.14	0.00	0.00	26.00	0.00
36.205	0.059	38.89	0.43	0.00	0.00	26.00	0.00
36.264	0.236	38.89	1.47	0.00	0.00	26.00	0.00
36.500	0.254	38.89	1.38	0.00	0.00	26.00	0.00
36.754	0.074	38.89	0.40	0.00	0.00	26.00	0.00
36.829	0.254	38.98	1.38	0.00	0.00	26.00	0.00
37.083	0.254	38.98	1.38	0.00	0.00	26.00	0.00

37.337	0.057	38.98	0.31	0.00	0.00	26.00	0.00
37.395	0.254	39.07	1.39	0.00	0.00	26.00	0.00
37.649	0.254	39.07	1.38	0.00	0.00	26.00	0.00
37.903	0.056	39.07	0.30	0.00	0.00	26.00	0.00
37.959	0.254	39.16	1.38	0.00	0.00	26.00	0.00
38.213	0.254	39.16	1.38	0.00	0.00	26.00	0.00
38.468	0.057	39.16	0.31	0.00	0.00	26.00	0.00
38.525	0.254	39.24	1.37	0.00	0.00	26.00	0.00
38.779	0.254	39.24	1.36	0.00	0.00	26.00	0.00
39.033	0.055	39.24	0.30	0.00	0.00	26.00	0.00
39.089	0.254	39.36	1.35	0.00	0.00	26.00	0.00
39.343	0.254	39.36	1.34	0.00	0.00	26.00	0.00
39.597	0.128	39.36	0.67	0.00	0.00	26.00	0.00
39.725	0.254	39.46	1.32	0.00	0.00	26.00	0.00
39.979	0.254	39.46	1.30	0.00	0.00	26.00	0.00
40.234	0.198	39.46	1.00	0.00	0.00	26.00	0.00
40.431	0.254	39.55	1.27	0.00	0.00	26.00	0.00
40.686	0.254	39.55	1.25	0.00	0.00	26.00	0.00
40.940	0.254	39.55	1.24	0.00	0.00	26.00	0.00
41.194	0.229	39.55	1.10	0.00	0.00	26.00	0.00
41.423	0.254	39.60	1.20	0.00	0.00	26.00	0.00
41.678	0.254	39.60	1.18	0.00	0.00	26.00	0.00
41.932	0.254	39.60	1.16	0.00	0.00	26.00	0.00
42.186	0.254	39.60	1.14	0.00	0.00	26.00	0.00
42.440	0.254	39.60	1.12	0.00	0.00	26.00	0.00
42.695	0.254	39.60	1.09	0.00	0.00	26.00	0.00
42.949	0.051	39.60	0.22	0.00	0.00	26.00	0.00
43.000	0.254	39.60	0.67	0.00	0.00	26.00	0.00
43.254	0.080	39.60	0.04	0.00	0.00	26.00	0.00

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_qFEM	FS_srmFEM			
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)		(kN)	(--)	(--)	(--)		
20.698	0.000	407.018	0.721	0.0000000000E+000	0.0000000000E+000		5.2268560518E-002	0.567	0.481	0.514		
20.952	0.024	407.201	0.721	3.0298908439E-002	1.4777765044E-002		1.8605044566E-001	0.567	0.481	0.514		
21.207	0.048	407.385	0.724	9.4614785595E-002	5.5201007191E-002		3.9895873783E-001	0.678	0.481	0.519		
21.461	0.074	407.569	0.756	2.3318686878E-001	1.4045690211E-001		7.2751762870E-001	0.700	0.486	0.524		
21.715	0.114	407.769	0.773	4.6458930627E-001	2.6733941328E-001		1.0035702874E+000	0.669	0.491	0.528		
21.969	0.149	407.963	0.738	7.4354623519E-001	4.0934601528E-001		1.1329728242E+000	0.640	0.496	0.530		
22.224	0.171	408.145	0.724	1.0407555200E+000	5.5593024779E-001		1.2044772542E+000	0.621	0.499	0.531		
22.478	0.198	408.330	0.736	1.3560755777E+000	7.1019171125E-001		1.3265121443E+000	0.609	0.502	0.532		
22.654	0.219	408.461	0.744	1.5998567416E+000	8.2811425460E-001		1.4367665951E+000	0.602	0.505	0.533		
22.908	0.246	408.650	0.758	1.9837476774E+000	1.0124214973E+000		1.5947143490E+000	0.593	0.508	0.534		
23.162	0.280	408.847	0.773	2.4108387077E+000	1.2167390948E+000		1.7209778706E+000	0.587	0.513	0.535		
23.417	0.314	409.043	0.806	2.8589401644E+000	1.4311873460E+000		1.8687631753E+000	0.582	0.517	0.536		
23.640	0.360	409.232	0.837	3.2980549257E+000	1.6417716128E+000		1.9533138732E+000	0.579	0.520	0.538		
23.895	0.403	409.443	0.855	3.7920859393E+000	1.8793725200E+000		1.9678636751E+000	0.576	0.524	0.540		

24.149	0.459	409.667	0.890	4.2987996379E+000	2.1208584429E+000	1.9857623481E+000	0.574	0.528	0.542
24.333	0.504	409.834	0.869	4.6637198938E+000	2.2924462948E+000	1.8852324981E+000	0.571	0.529	0.544
24.587	0.544	410.048	0.843	5.1095936945E+000	2.5000721466E+000	1.6781109032E+000	0.569	0.531	0.546
24.842	0.584	410.262	0.826	5.5171126538E+000	2.6854200811E+000	1.4324071902E+000	0.566	0.532	0.548
24.945	0.594	410.343	0.760	5.6581138253E+000	2.7484774137E+000	1.3182664796E+000	0.565	0.532	0.548
25.199	0.603	410.534	0.750	5.9652666701E+000	2.8842544038E+000	1.1193890198E+000	0.562	0.532	0.550
25.454	0.611	410.725	0.747	6.2273720806E+000	2.9974409224E+000	9.1497260632E-001	0.560	0.533	0.551
25.500	0.612	410.759	0.733	6.2688372415E+000	3.0152128068E+000	8.7221264924E-001	0.559	0.533	0.551
25.503	0.612	410.761	0.753	6.2717810151E+000	3.0164756219E+000	8.6956497909E-001	0.559	0.533	0.551
25.758	0.615	410.953	0.780	6.4724000706E+000	3.1021320658E+000	7.1153089747E-001	0.557	0.533	0.552
26.012	0.633	411.158	0.812	6.6336255840E+000	3.1700129215E+000	5.5307627392E-001	0.556	0.534	0.554
26.049	0.637	411.189	0.846	6.6536462767E+000	3.1785427121E+000	5.2866158683E-001	0.555	0.534	0.554
26.303	0.658	411.405	0.878	6.7659859413E+000	3.2272271115E+000	3.3409298389E-001	0.555	0.535	0.556
26.557	0.695	411.636	0.922	6.8235471653E+000	3.2538041549E+000	1.2844556753E-001	0.554	0.537	0.557
26.602	0.706	411.680	0.973	6.8285200526E+000	3.2564371888E+000	9.5286027577E-002	0.554	0.538	0.558
26.856	0.753	411.927	0.969	6.8296982238E+000	3.2608037890E+000	-1.2656502379E-001	0.555	0.540	0.559
27.111	0.799	412.173	0.962	6.7641562047E+000	3.2361834186E+000	-3.5566527716E-001	0.556	0.544	0.561
27.163	0.807	412.222	0.930	6.7444420548E+000	3.2283848959E+000	-3.9465500289E-001	0.556	0.545	0.561
27.417	0.838	412.458	0.946	6.6209247866E+000	3.1786550070E+000	-5.7790730984E-001	0.558	0.549	0.563
27.672	0.878	412.703	0.965	6.4505509221E+000	3.1054471629E+000	-7.1970103929E-001	0.560	0.553	0.564
27.747	0.890	412.776	0.958	6.3951474446E+000	3.0810385925E+000	-7.4634801190E-001	0.560	0.555	0.565
28.001	0.928	413.019	0.994	6.1951599344E+000	2.9910129970E+000	-8.6875924674E-001	0.561	0.559	0.566
28.256	0.986	413.282	1.024	5.9533453862E+000	2.8783997462E+000	-9.3782435271E-001	0.562	0.564	0.566
28.327	0.999	413.352	0.931	5.8871364342E+000	2.8473788326E+000	-9.3996808294E-001	0.562	0.565	0.567
28.581	1.026	413.584	0.914	5.6428212569E+000	2.7324714397E+000	-9.5604957930E-001	0.563	0.569	0.567
28.835	1.054	413.817	0.913	5.4009434254E+000	2.6183474297E+000	-9.4427039786E-001	0.564	0.572	0.568
28.899	1.060	413.875	0.913	5.3408201918E+000	2.5901729757E+000	-9.3709082036E-001	0.564	0.572	0.568
29.153	1.087	414.107	0.837	5.1080447622E+000	2.4817447441E+000	-8.9892624486E-001	0.565	0.574	0.568
29.407	1.076	414.300	0.756	4.8836768960E+000	2.3785329816E+000	-8.8813843886E-001	0.566	0.576	0.568
29.470	1.071	414.346	0.713	4.8279787607E+000	2.3529448598E+000	-8.4294894053E-001	0.567	0.576	0.568
29.500	1.067	414.366	0.690	4.8034011604E+000	2.3417074451E+000	-8.2701439209E-001	0.567	0.576	0.568
29.754	1.038	414.542	0.673	4.5793917551E+000	2.2390750292E+000	-8.7984299899E-001	0.568	0.577	0.568
30.009	1.000	414.709	0.656	4.3559625294E+000	2.1359210693E+000	-9.1487322134E-001	0.570	0.577	0.568
30.035	0.996	414.726	0.649	4.3320444589E+000	2.1247702743E+000	-9.1597993241E-001	0.570	0.577	0.568
30.289	0.955	414.891	0.648	4.1055858046E+000	2.0184202112E+000	-8.9830009786E-001	0.572	0.577	0.568
30.543	0.916	415.056	0.660	3.8752195862E+000	1.9078953538E+000	-9.5938936519E-001	0.572	0.576	0.568
30.603	0.910	415.098	0.678	3.8175148773E+000	1.8799833175E+000	-9.6261511038E-001	0.573	0.576	0.568
30.857	0.875	415.268	0.657	3.5828159196E+000	1.7653618610E+000	-8.8363559757E-001	0.573	0.575	0.568
31.111	0.834	415.432	0.646	3.3681475441E+000	1.6590521644E+000	-8.4695399621E-001	0.573	0.574	0.568
31.168	0.825	415.470	0.637	3.3195442689E+000	1.6349308883E+000	-8.3692276292E-001	0.573	0.574	0.568
31.423	0.781	415.630	0.633	3.1187364363E+000	1.5351767242E+000	-7.7120586909E-001	0.572	0.573	0.568
31.677	0.738	415.792	0.643	2.9273523680E+000	1.4403639026E+000	-7.7180583012E-001	0.572	0.571	0.568
31.735	0.730	415.831	0.639	2.8823061356E+000	1.4180905590E+000	-7.6308459772E-001	0.572	0.571	0.568
31.989	0.685	415.991	0.632	2.7028553326E+000	1.3296933593E+000	-6.8528979435E-001	0.572	0.569	0.567
32.244	0.641	416.152	0.642	2.5338063148E+000	1.2470037213E+000	-6.9076392121E-001	0.572	0.567	0.567
32.297	0.635	416.189	0.645	2.4966840190E+000	1.2288583320E+000	-6.8485627584E-001	0.572	0.566	0.567
32.551	0.592	416.351	0.640	2.3363004122E+000	1.1505906141E+000	-6.1265519787E-001	0.573	0.564	0.567
32.805	0.550	416.514	0.653	2.1851220661E+000	1.0768988701E+000	-6.1423340307E-001	0.573	0.561	0.566
32.863	0.544	416.555	0.655	2.1492130126E+000	1.0593859434E+000	-6.0761725172E-001	0.573	0.560	0.566
33.118	0.503	416.719	0.651	2.0070874494E+000	9.9009582607E-001	-5.4083924763E-001	0.573	0.556	0.565
33.372	0.464	416.886	0.663	1.8741726101E+000	9.2527583279E-001	-5.3812859592E-001	0.574	0.552	0.564
33.429	0.458	416.926	0.665	1.8431142152E+000	9.1011926166E-001	-5.3154812651E-001	0.574	0.551	0.564
33.684	0.420	417.093	0.659	1.7192917642E+000	8.4968417995E-001	-4.6778350383E-001	0.575	0.546	0.563
33.938	0.384	417.261	0.671	1.6052258524E+000	7.9400968896E-001	-4.5978693455E-001	0.575	0.540	0.563
33.997	0.378	417.303	0.673	1.5777701476E+000	7.8060072673E-001	-4.5291616165E-001	0.575	0.539	0.563
34.251	0.342	417.472	0.666	1.4729327530E+000	7.2940761966E-001	-3.9273667003E-001	0.576	0.532	0.563
34.506	0.307	417.642	0.678	1.3780463808E+000	6.8308824792E-001	-3.8193629121E-001	0.576	0.527	0.566
34.562	0.302	417.683	0.681	1.3565548108E+000	6.7258653099E-001	-3.7571091712E-001	0.576	0.526	0.567
34.816	0.268	417.854	0.677	1.2704404737E+000	6.3049662800E-001	-3.2021197320E-001	0.577	0.523	0.573
35.070	0.236	418.027	0.692	1.1937130230E+000	5.9290049585E-001	-3.0326889818E-001	0.577	0.524	0.584
35.130	0.232	418.071	0.694	1.1755829022E+000	5.8398451415E-001	-2.9649698093E-001	0.577	0.525	0.587

35.384	0.201	418.245	0.687	1.1079097351E+000	5.5060218604E-001	-2.4623359263E-001	0.578	0.533	0.602
35.639	0.171	418.420	0.698	1.0503623552E+000	5.2183763793E-001	-2.2723015269E-001	0.578	0.553	0.619
35.697	0.167	418.463	0.708	1.0371678942E+000	5.1518168378E-001	-2.2144123123E-001	0.577	0.560	0.623
35.951	0.140	418.641	0.707	9.8754402735E-001	4.8991590203E-001	-1.7976214147E-001	0.577	0.600	0.638
36.205	0.117	418.823	0.726	9.4575098624E-001	4.6813661010E-001	-1.6486483107E-001	0.575	0.669	0.645
36.264	0.115	418.869	0.736	9.3595474249E-001	4.6298137239E-001	-1.6018024615E-001	0.575	0.691	0.646
36.500	0.096	419.040	0.747	9.0271595952E-001	4.4524106644E-001	-1.3501466674E-001	0.573	0.806	0.643
36.754	0.086	419.235	0.776	8.7006588794E-001	4.2761805416E-001	-1.2983764882E-001	0.571	1.001	0.632
36.829	0.086	419.295	0.788	8.6037227315E-001	4.2241162028E-001	-1.2773213500E-001	0.571	1.082	0.628
37.083	0.079	419.494	0.788	8.3008680619E-001	4.0620874690E-001	-1.1721943797E-001	0.569	1.451	0.614
37.337	0.076	419.696	0.807	8.0076106420E-001	3.9085566472E-001	-1.2293929273E-001	0.567	1.942	0.601
37.395	0.078	419.745	0.815	7.9361066645E-001	3.8716075504E-001	-1.2315646289E-001	0.567	2.092	0.598
37.649	0.077	419.950	0.807	7.6398492330E-001	3.7207478253E-001	-1.1809947587E-001	0.566	2.748	0.590
37.903	0.076	420.156	0.816	7.3355191975E-001	3.5704374163E-001	-1.2542756189E-001	0.566	3.169	0.586
37.959	0.078	420.203	0.808	7.2645604627E-001	3.5357817706E-001	-1.2581766573E-001	0.566	3.229	0.586
38.213	0.074	420.406	0.793	6.9547353117E-001	3.3860938268E-001	-1.2249348111E-001	0.566	3.293	0.586
38.468	0.067	420.606	0.783	6.6416275581E-001	3.2369652372E-001	-1.2252746112E-001	0.567	3.061	0.589
38.525	0.065	420.650	0.793	6.5718287819E-001	3.2038157194E-001	-1.2350634601E-001	0.567	3.005	0.590
38.779	0.060	420.853	0.797	6.2451344411E-001	3.0494413309E-001	-1.2743243700E-001	0.568	2.683	0.594
39.033	0.055	421.056	0.800	5.9237791273E-001	2.8979944542E-001	-1.3597824206E-001	0.569	2.354	0.600
39.089	0.055	421.101	0.818	5.8473014390E-001	2.8618702900E-001	-1.3769269101E-001	0.569	2.279	0.602
39.343	0.054	421.309	0.818	5.5015751891E-001	2.6985703880E-001	-1.3452842244E-001	0.570	1.960	0.609
39.597	0.054	421.517	0.818	5.1631655962E-001	2.5379310078E-001	-1.3400322684E-001	0.571	1.682	0.618
39.725	0.053	421.622	0.820	4.9912118318E-001	2.4558489506E-001	-1.3919675684E-001	0.572	1.557	0.623
39.979	0.053	421.830	0.821	4.6133392981E-001	2.2738989108E-001	-1.4756120127E-001	0.573	1.316	0.635
40.234	0.052	422.039	0.821	4.2407986108E-001	2.0924540557E-001	-1.5128853000E-001	0.574	1.118	0.647
40.431	0.052	422.201	0.822	3.9344284664E-001	1.9418177161E-001	-1.5287289515E-001	0.574	0.987	0.656
40.686	0.051	422.410	0.823	3.5526766782E-001	1.7527010322E-001	-1.5071803325E-001	0.574	0.856	0.666
40.940	0.050	422.620	0.838	3.1679613747E-001	1.5605177286E-001	-1.5267934447E-001	0.573	0.753	0.672
41.194	0.057	422.836	0.841	2.7762354614E-001	1.3636376144E-001	-1.5018009516E-001	0.571	0.675	0.672
41.423	0.057	423.026	0.864	2.4399107565E-001	1.1940548036E-001	-1.5157087764E-001	0.569	0.625	0.665
41.678	0.075	423.254	0.883	2.0407267439E-001	9.9355584559E-002	-1.5385514644E-001	0.566	0.585	0.650
41.932	0.086	423.475	0.854	1.6574900726E-001	8.0215910015E-002	-1.4797838342E-001	0.563	0.555	0.631
42.186	0.089	423.689	0.837	1.2881919692E-001	6.1687488775E-002	-1.4441818501E-001	0.557	0.533	0.605
42.440	0.090	423.901	0.827	9.2306046334E-002	4.3585230526E-002	-1.3925141093E-001	0.549	0.526	0.577
42.695	0.088	424.109	0.765	5.8003766506E-002	2.7117032110E-002	-1.2500731206E-001	0.543	0.535	0.564
42.949	0.059	424.290	0.692	2.8734362932E-002	1.4036794953E-002	-9.7147224452E-002	0.568	0.548	0.565
43.000	0.047	424.320	0.677	2.3965090853E-002	1.2034784437E-002	-9.2842170395E-002	0.584	0.549	0.566
43.254	0.013	424.496	0.677	1.2497500944E-003	6.0954384861E-004	-3.3255320776E-002	0.567	0.567	0.568

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

FS_srmFEM(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)
20.698	0.254	0.300	32.051	0.452	0.136	0.321	0.096
20.952	0.254	0.300	32.051	1.356	0.407	0.963	0.289

21.207	0.254	0.300	32.051	2.260	0.678	1.611	0.483
21.461	0.254	0.300	32.051	3.164	0.949	2.259	0.678
21.715	0.254	0.300	32.051	4.068	1.220	2.896	0.869
21.969	0.254	0.300	32.051	4.972	1.492	3.529	1.059
22.224	0.254	0.300	32.051	5.876	1.763	4.164	1.249
22.478	0.176	0.207	32.051	6.641	1.378	4.704	0.976
22.654	0.254	0.302	32.543	7.441	2.244	5.171	1.560
22.908	0.254	0.302	32.543	8.322	2.510	5.782	1.744
23.162	0.254	0.302	32.543	9.203	2.776	6.390	1.927
23.417	0.224	0.265	32.543	10.031	2.662	6.967	1.849
23.640	0.254	0.305	33.460	10.959	3.340	7.344	2.238
23.895	0.254	0.305	33.460	11.794	3.595	7.899	2.408
24.149	0.184	0.221	33.460	12.514	2.764	8.376	1.850
24.333	0.254	0.308	34.432	13.354	4.117	8.606	2.653
24.587	0.254	0.308	34.432	14.137	4.358	9.102	2.806
24.842	0.103	0.125	34.432	14.688	1.842	9.447	1.185
24.945	0.254	0.313	35.609	15.384	4.812	9.472	2.962
25.199	0.254	0.313	35.609	16.100	5.035	9.906	3.098
25.454	0.046	0.057	35.609	16.523	0.943	10.162	0.580
25.500	0.003	0.004	35.609	16.594	0.069	10.206	0.042
25.503	0.254	0.316	36.476	17.153	5.424	10.222	3.232
25.758	0.254	0.316	36.476	17.999	5.692	10.722	3.391
26.012	0.037	0.046	36.476	18.484	0.850	11.009	0.506
26.049	0.254	0.320	37.331	19.067	6.097	11.014	3.522
26.303	0.254	0.320	37.331	19.859	6.351	11.468	3.667
26.557	0.045	0.056	37.331	20.325	1.143	11.736	0.660
26.602	0.254	0.323	38.135	20.877	6.749	11.715	3.787
26.856	0.254	0.323	38.135	21.616	6.988	12.127	3.920
27.111	0.052	0.067	38.135	22.062	1.471	12.376	0.825
27.163	0.254	0.327	38.876	22.580	7.375	12.340	4.031
27.417	0.254	0.327	38.876	23.268	7.600	12.715	4.153
27.672	0.075	0.097	38.876	23.714	2.298	12.958	1.256
27.747	0.254	0.327	38.877	24.160	7.891	13.201	4.312
28.001	0.254	0.327	38.877	24.848	8.116	13.575	4.434
28.256	0.071	0.091	38.877	25.288	2.302	13.816	1.258
28.327	0.254	0.327	38.878	25.727	8.403	14.055	4.591
28.581	0.254	0.327	38.878	26.415	8.628	14.431	4.714
28.835	0.064	0.082	38.878	26.845	2.200	14.667	1.202
28.899	0.254	0.327	38.878	27.275	8.909	14.902	4.867
29.153	0.254	0.327	38.878	27.963	9.134	15.278	4.990
29.407	0.063	0.080	38.878	28.392	2.284	15.512	1.248
29.470	0.030	0.038	38.879	28.517	1.097	15.581	0.599
29.500	0.254	0.327	38.879	28.090	9.175	15.347	5.013
29.754	0.254	0.327	38.879	27.155	8.870	14.836	4.846
30.009	0.026	0.033	38.879	26.639	0.891	14.554	0.487
30.035	0.254	0.327	38.880	26.124	8.533	14.272	4.662
30.289	0.254	0.327	38.880	25.189	8.227	13.760	4.495
30.543	0.059	0.076	38.880	24.612	1.877	13.444	1.025
30.603	0.254	0.327	38.880	24.035	7.851	13.129	4.288
30.857	0.254	0.327	38.880	23.100	7.545	12.619	4.122
31.111	0.057	0.074	38.880	22.527	1.659	12.305	0.906
31.168	0.254	0.327	38.881	21.954	7.171	11.992	3.917
31.423	0.254	0.327	38.881	21.018	6.865	11.481	3.750
31.677	0.058	0.075	38.881	20.444	1.524	11.167	0.833
31.735	0.254	0.327	38.882	19.870	6.490	10.854	3.545
31.989	0.254	0.327	38.882	18.934	6.185	10.343	3.378
32.244	0.053	0.068	38.882	18.369	1.258	10.034	0.687
32.297	0.254	0.327	38.882	17.803	5.815	9.725	3.177
32.551	0.254	0.327	38.882	16.867	5.510	9.214	3.010
32.805	0.058	0.075	38.882	16.293	1.215	8.900	0.664
32.863	0.254	0.327	38.883	15.719	5.134	8.586	2.805

33.118	0.254	0.327	38.883	14.783	4.829	8.075	2.638
33.372	0.057	0.074	38.883	14.210	1.047	7.762	0.572
33.429	0.254	0.327	38.883	13.637	4.454	7.449	2.433
33.684	0.254	0.327	38.883	12.701	4.149	6.938	2.266
33.938	0.059	0.076	38.883	12.124	0.925	6.622	0.505
33.997	0.254	0.327	38.884	11.547	3.772	6.307	2.060
34.251	0.254	0.327	38.884	10.612	3.466	5.796	1.893
34.506	0.056	0.072	38.884	10.041	0.722	5.484	0.394
34.562	0.254	0.327	38.885	9.470	3.093	5.173	1.690
34.816	0.254	0.327	38.885	8.535	2.788	4.662	1.523
35.070	0.060	0.077	38.885	7.957	0.610	4.346	0.333
35.130	0.254	0.327	38.885	7.379	2.410	4.030	1.317
35.384	0.254	0.327	38.885	6.444	2.105	3.519	1.150
35.639	0.058	0.075	38.885	5.869	0.437	3.205	0.239
35.697	0.254	0.327	38.886	5.294	1.729	2.892	0.945
35.951	0.254	0.327	38.886	4.359	1.424	2.380	0.778
36.205	0.059	0.076	38.886	3.782	0.288	2.065	0.158
36.264	0.236	0.303	38.886	3.239	0.980	1.769	0.535
36.500	0.254	0.327	38.886	2.811	0.918	1.535	0.501
36.754	0.074	0.096	38.886	2.818	0.269	1.539	0.147
36.829	0.254	0.327	38.976	2.824	0.924	1.537	0.503
37.083	0.254	0.327	38.976	2.828	0.925	1.539	0.504
37.337	0.057	0.074	38.976	2.830	0.209	1.541	0.114
37.395	0.254	0.327	39.066	2.831	0.927	1.536	0.503
37.649	0.254	0.327	39.066	2.829	0.926	1.535	0.503
37.903	0.056	0.072	39.066	2.827	0.204	1.534	0.111
37.959	0.254	0.328	39.155	2.824	0.926	1.528	0.501
38.213	0.254	0.328	39.155	2.815	0.923	1.523	0.499
38.468	0.057	0.074	39.155	2.809	0.207	1.520	0.112
38.525	0.254	0.328	39.244	2.802	0.920	1.511	0.496
38.779	0.254	0.328	39.244	2.786	0.915	1.502	0.493
39.033	0.055	0.072	39.244	2.776	0.199	1.497	0.107
39.089	0.254	0.329	39.363	2.764	0.909	1.484	0.488
39.343	0.254	0.329	39.363	2.739	0.901	1.471	0.484
39.597	0.128	0.165	39.363	2.720	0.450	1.461	0.242
39.725	0.254	0.329	39.458	2.699	0.889	1.445	0.476
39.979	0.254	0.329	39.458	2.667	0.878	1.428	0.470
40.234	0.198	0.256	39.458	2.639	0.676	1.413	0.362
40.431	0.254	0.330	39.548	2.608	0.860	1.392	0.459
40.686	0.254	0.330	39.548	2.570	0.847	1.371	0.452
40.940	0.254	0.330	39.548	2.531	0.835	1.350	0.445
41.194	0.229	0.297	39.548	2.494	0.742	1.331	0.396
41.423	0.254	0.330	39.599	2.455	0.810	1.308	0.432
41.678	0.254	0.330	39.599	2.413	0.796	1.285	0.424
41.932	0.254	0.330	39.599	2.370	0.782	1.262	0.417
42.186	0.254	0.330	39.599	2.327	0.768	1.240	0.409
42.440	0.254	0.330	39.599	2.285	0.754	1.217	0.402
42.695	0.254	0.330	39.599	2.242	0.740	1.194	0.394
42.949	0.051	0.066	39.599	2.216	0.147	1.181	0.078
43.000	0.254	0.330	39.599	1.370	0.452	0.730	0.241
43.254	0.080	0.103	39.599	0.264	0.027	0.140	0.014

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

$$Y(m)$$

Localita':

$[\eta] = N. \text{ strato o lente}$

DATI 10 SUP. CON MINOR FS

Range Fs : 0.5670 0.5961

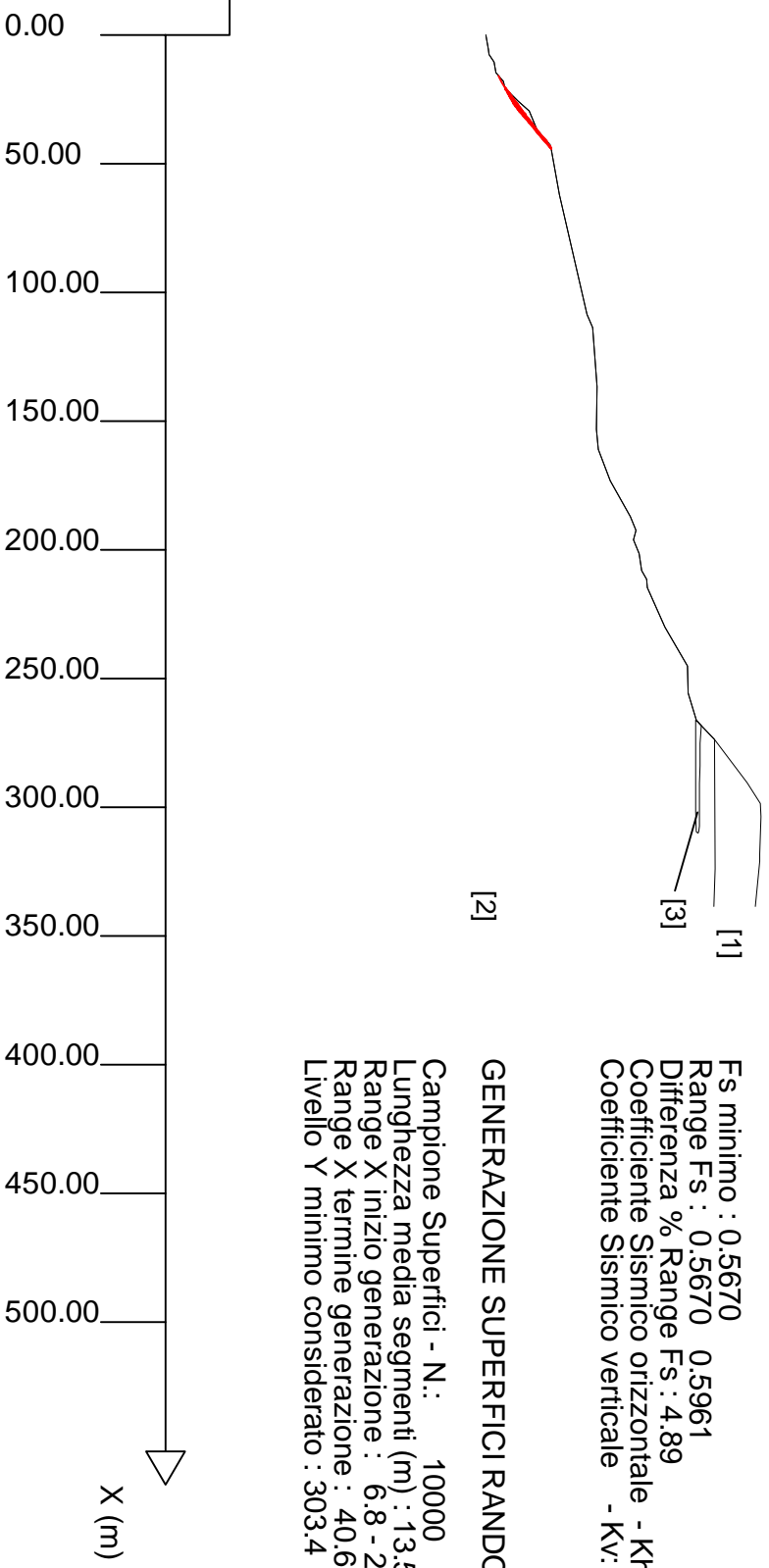
Coefficiente Sismico orizzontale - Kh: 0.0500

[2] GENERAZIONE SUPERFICI RANDOM

Lunghezza media segmenti (m) : 13.5

Range X termine generazione : 40.6 - 230.0

○ ○ ○ ○ ○



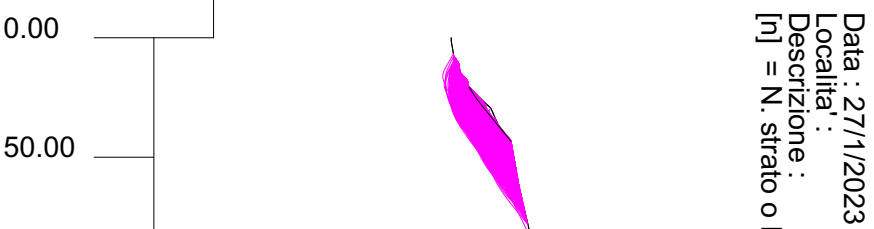
Parametri Geotecnici degli strati # -----

N.	phi` deg	C` kPa	Cu kPa	Gamm kN/m3	GammSat kN/m3	sgci MPa	GSI	mi	D
1	34.00	0	0	18.80	19.20	0	0	0	0
2	26.00	0	0	19.10	19.30	0	0	0	0
3	34.00	0	0	18.80	19.20	0	0	0	0

$$\gamma(m)$$

Localita':

$[\eta] = N$. strato o lente



SUPERFICI REGISTRATE CON FS ENTRO INTERVALLO PREDEFINITO

1
.
.

0
1
0
0
0

Fs massimo : 1.0000

N.Superfici plottate : 2283

Coefficiente Sismico orizzontale - Kh: 0.0500

Coefficiente Sismico verticale - Kv: 0.0250

[2]

Campione Superfici - N.: 10000

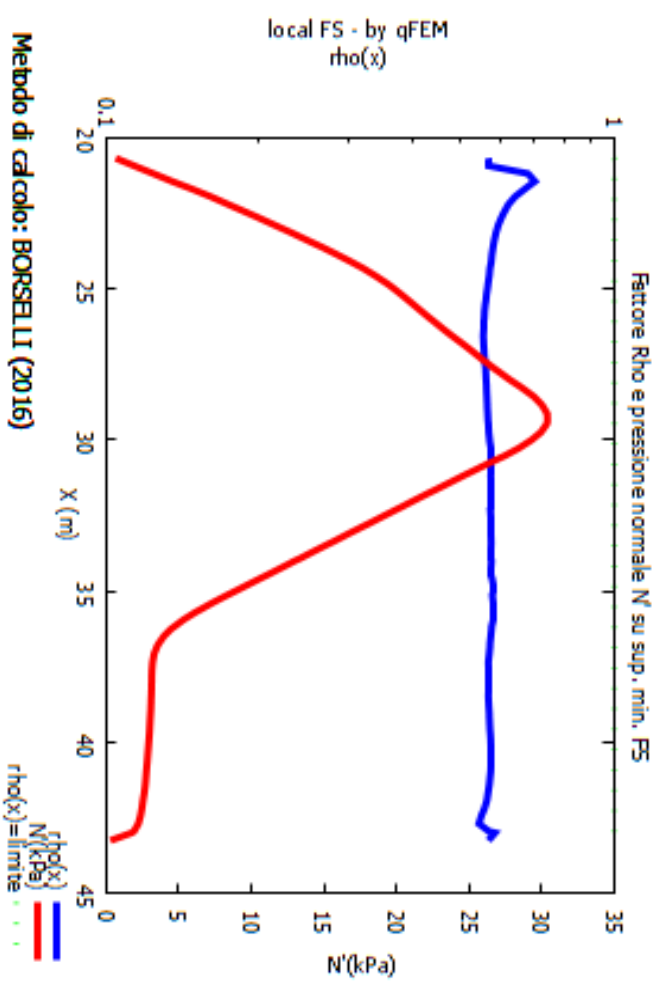
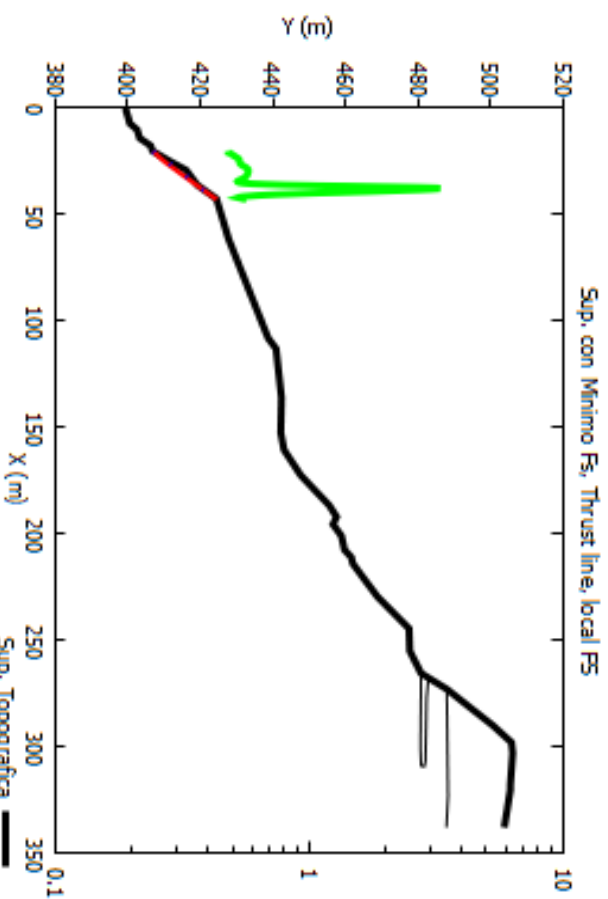
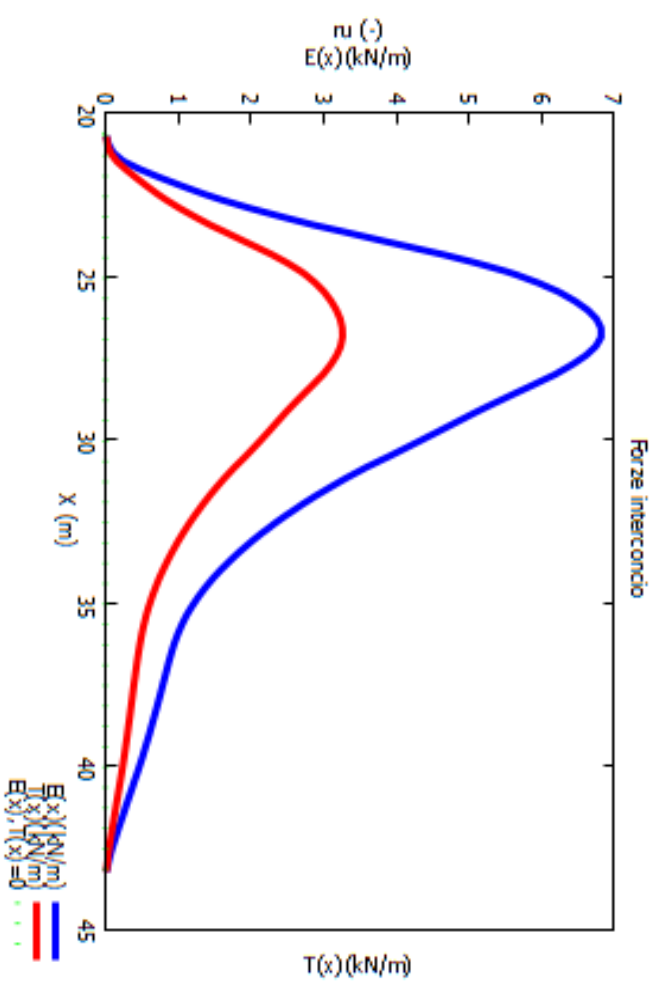
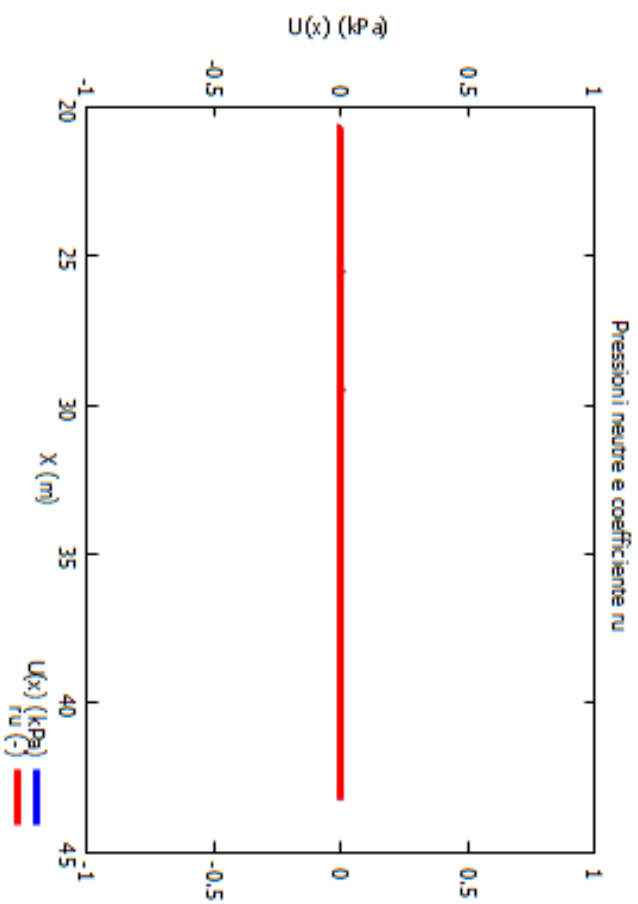
Lunghezza media segmenti (m) : 13.5

Range X inizio generazione : 6.8 - 220.0

Range X termine generazione : 40.6 - 230.0

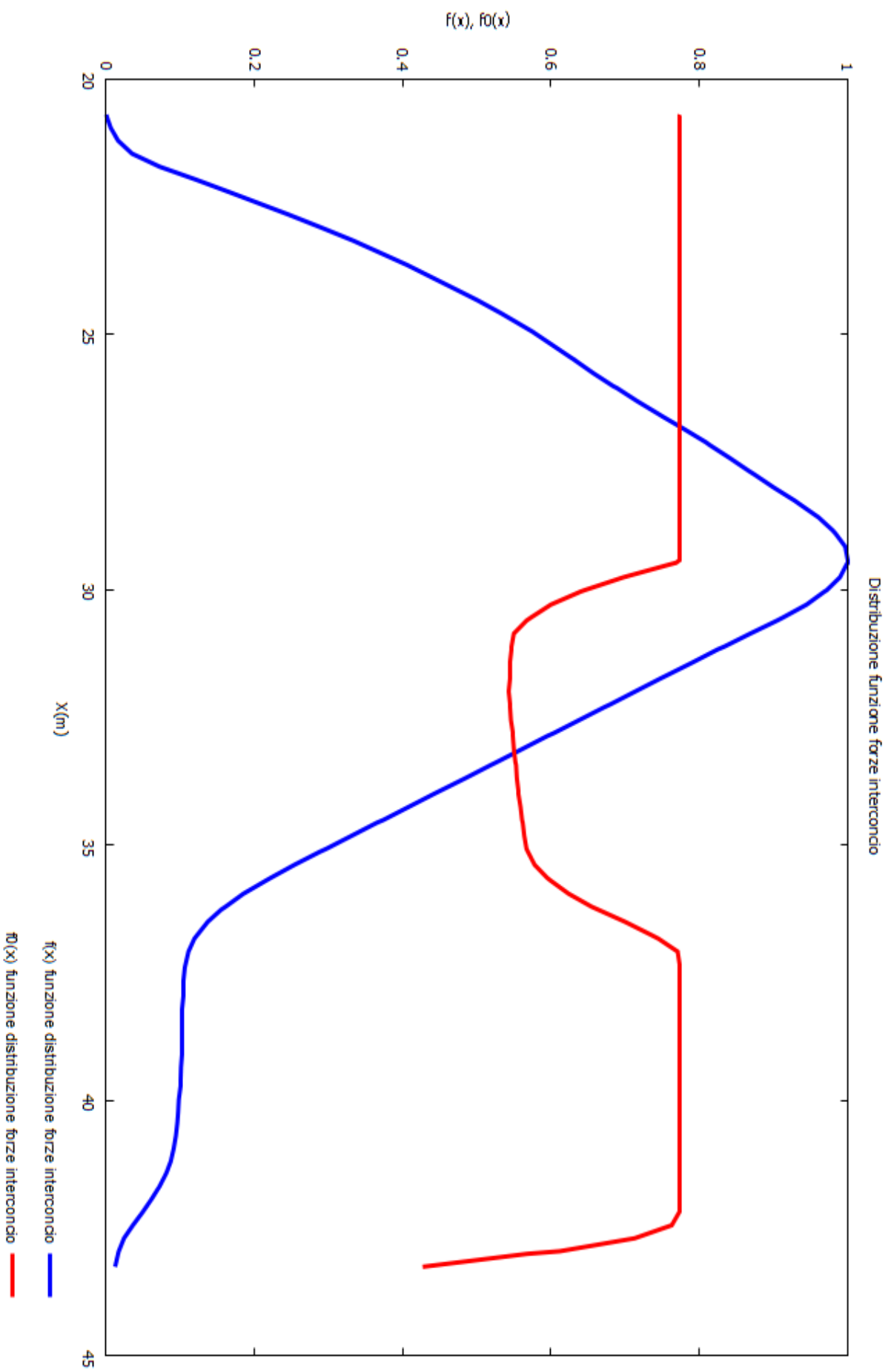
Livello Y minimo considerato : 303.4

N.	phi` deg	C` kPa	Cu kPa
1	34.00	0	0
2	26.00	0	0
3	34.00	0	0

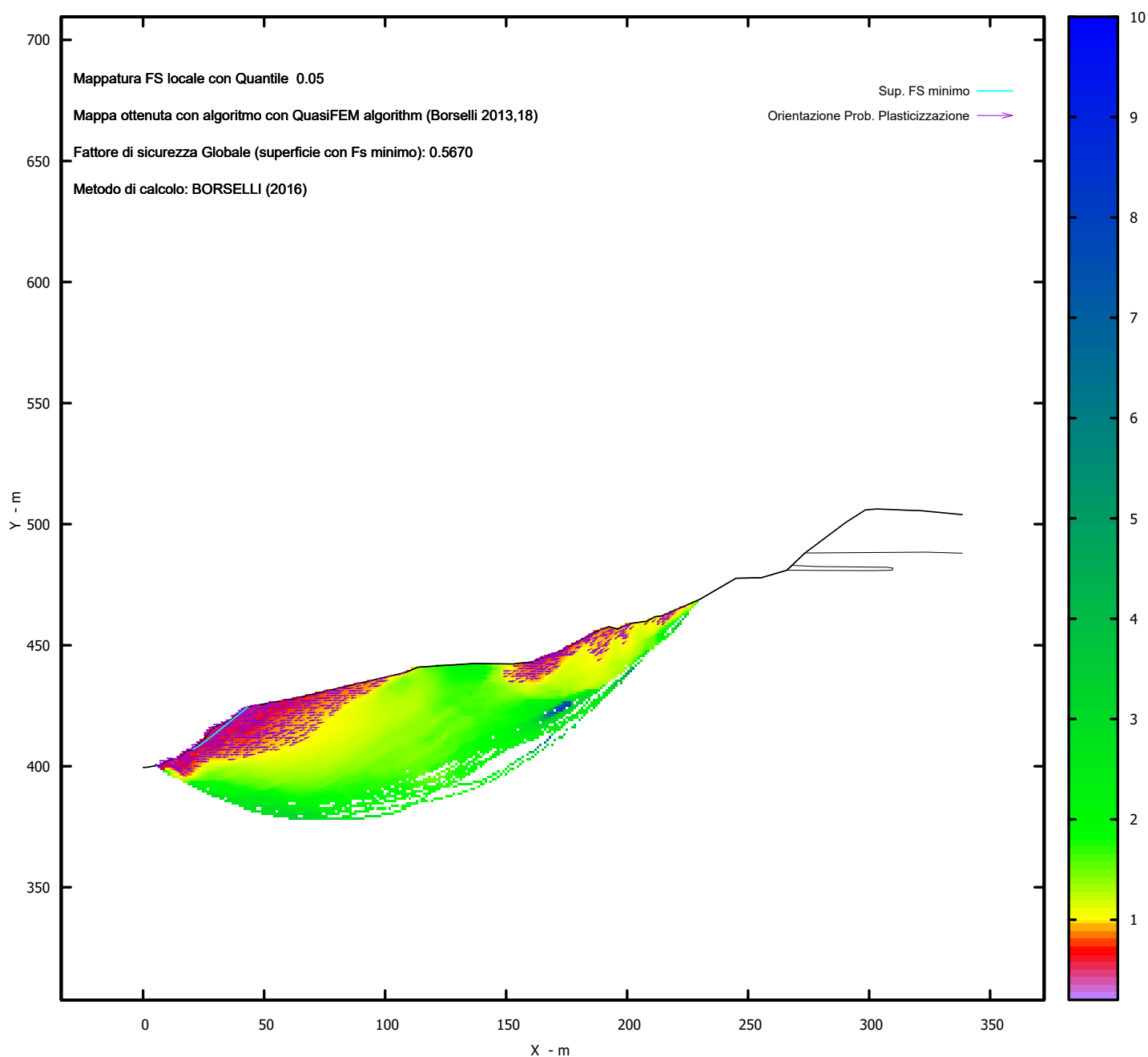


Metodo di calcolo: BORSELLI (2016)

SSAP2010 (versione 5.0 - 2020) - DISTRIBUZIONE FORZE e PRESSIONI



MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



Credits to: GNUPLOT 5.4.1 www.gnuplot.info

SSAP2010 rel. 5.0(1991,2020) by L. Borselli, www.lorenzo-borselli.eu
<https://WWW.SSAP.EU>

SEZIONE AREA D'ONOFRIO



SEZIONE DI STABILITA'

METODOLOGIA
MORGESTERN PRICE

Report elaborazioni

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

Ultima Revisione struttura tabelle del report: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\STABILITA\RESULTATI\MORG.txt

Data: 5/2/2023

Localita' :

Descrizione:

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	455.78	25.00	454.17	41.60	448.08	-	-		
5.19	455.47	25.00	460.17	41.60	468.08	-	-		
12.00	455.27	23.58	460.17	40.60	468.08	-	-		
21.00	455.17	21.00	460.17	40.60	464.33	-	-		
21.00	460.17	21.00	455.17	40.60	448.08	-	-		
23.58	460.17	21.00	454.17	41.60	448.08	-	-		
25.18	460.75	25.00	454.17	-	-	-	-		
27.50	461.79	-	-	-	-	-	-		
30.90	462.99	-	-	-	-	-	-		
31.65	463.26	-	-	-	-	-	-		
33.88	463.86	-	-	-	-	-	-		
35.30	464.14	-	-	-	-	-	-		
37.06	464.10	-	-	-	-	-	-		
38.39	464.30	-	-	-	-	-	-		
40.60	464.33	-	-	-	-	-	-		
40.60	468.08	-	-	-	-	-	-		
41.60	468.08	-	-	-	-	-	-		
47.50	468.10	-	-	-	-	-	-		
56.50	469.14	-	-	-	-	-	-		
75.95	469.51	-	-	-	-	-	-		
97.64	470.04	-	-	-	-	-	-		

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.00	0.00	0.00	19.10	19.30	1.484	0.00	0.00	0.00	0.00
STRATO 2	9.00	300.00	0.00	24.00	24.00	1000.000	0.00	0.00	0.00	0.00
STRATO 3	9.00	300.00	0.00	24.00	24.00	1000.000	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)

----- 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): 3.9 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 1.95 89.83

LIVELLO MINIMO CONSIDERATO (Ymin): 428.32

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 11.72 95.69

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : MORGENSTERN - PRICE (Morgenstern & Price, 1965)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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)	0.9853	- Min. -	X	Y	Lambda=	1.2500
	25.88		461.06			
	26.04		461.11			
	26.13		461.14			
	26.19		461.16			
	26.25		461.18			
	26.29		461.19			
	26.34		461.21			
	26.39		461.22			
	26.44		461.24			
	26.50		461.25			
	26.54		461.27			
	26.59		461.29			
	26.64		461.30			
	26.69		461.32			
	26.73		461.34			
	26.78		461.36			
	26.83		461.38			

26.88	461.41
26.93	461.43
26.98	461.46
27.03	461.48
27.08	461.50
27.13	461.53
27.18	461.55
27.23	461.58
27.28	461.61
27.33	461.63
27.37	461.66
27.42	461.69
27.47	461.71
27.53	461.74
27.59	461.78
27.68	461.82
27.84	461.91

Fattore di sicurezza (FS)	0.9855	- N.2 --	X	Y	Lambda= 1.2500
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24.95	460.67
25.12	460.70
25.21	460.72
25.26	460.73
25.32	460.74
25.36	460.76
25.41	460.77
25.46	460.79
25.51	460.80
25.56	460.82
25.61	460.84
25.66	460.86
25.71	460.87
25.75	460.90
25.80	460.92
25.85	460.94
25.89	460.97
25.94	460.99
25.99	461.02
26.04	461.05
26.09	461.08
26.14	461.10
26.19	461.13
26.24	461.16
26.29	461.18
26.34	461.21
26.38	461.24
26.43	461.26
26.48	461.29
26.53	461.32
26.58	461.35
26.65	461.38
26.73	461.43
26.89	461.52

Fattore di sicurezza (FS)	0.9925	- N.3 --	X	Y	Lambda= 1.2500
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25.72	460.99
25.86	461.03
25.94	461.06
25.99	461.07

26.04	461.09
26.09	461.10
26.13	461.11
26.17	461.13
26.22	461.14
26.26	461.15
26.30	461.16
26.35	461.18
26.39	461.19
26.43	461.20
26.48	461.22
26.52	461.23
26.57	461.25
26.61	461.26
26.65	461.28
26.70	461.29
26.74	461.31
26.78	461.33
26.82	461.35
26.86	461.38
26.90	461.40
26.95	461.43
26.99	461.46
27.04	461.49
27.08	461.52
27.12	461.55
27.17	461.58
27.23	461.62
27.30	461.67
27.45	461.77

Fattore di sicurezza (FS)	0.9958	- N.4 --	X	Y	Lambda= 1.2500
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25.79	461.02
25.96	461.07
26.04	461.10
26.11	461.12
26.16	461.14
26.21	461.15
26.26	461.17
26.31	461.18
26.36	461.20
26.41	461.21
26.46	461.23
26.51	461.24
26.55	461.26
26.60	461.28
26.65	461.29
26.70	461.31
26.75	461.33
26.80	461.35
26.85	461.37
26.90	461.39
26.95	461.41
27.00	461.43
27.05	461.45
27.10	461.47
27.15	461.49
27.20	461.52
27.25	461.54
27.30	461.57

27.34	461.59
27.39	461.62
27.44	461.65
27.50	461.69
27.59	461.75
27.76	461.88

Fattore di sicurezza (FS)	0.9967	- N.5 --	X	Y	Lambda= 1.2500
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24.83	460.62
25.12	460.70
25.28	460.73
25.38	460.76
25.48	460.79
25.56	460.81
25.65	460.84
25.73	460.87
25.82	460.90
25.91	460.93
26.00	460.96
26.08	460.99
26.17	461.02
26.25	461.06
26.34	461.09
26.42	461.13
26.51	461.17
26.60	461.21
26.69	461.25
26.77	461.29
26.86	461.33
26.95	461.38
27.03	461.42
27.12	461.46
27.20	461.51
27.29	461.55
27.38	461.60
27.46	461.64
27.55	461.69
27.64	461.73
27.73	461.78
27.84	461.84
27.99	461.92
28.29	462.07

Fattore di sicurezza (FS)	0.9991	- N.6 --	X	Y	Lambda= 1.2500
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25.46	460.88
25.67	460.94
25.78	460.97
25.86	460.99
25.93	461.02
25.99	461.04
26.05	461.06
26.12	461.08
26.18	461.10
26.24	461.12
26.30	461.14
26.37	461.16
26.43	461.18
26.49	461.20
26.55	461.23

26.62	461.25
26.68	461.27
26.75	461.29
26.81	461.31
26.87	461.34
26.93	461.36
26.99	461.39
27.05	461.42
27.11	461.45
27.17	461.48
27.24	461.51
27.30	461.55
27.37	461.58
27.43	461.61
27.49	461.65
27.56	461.69
27.63	461.74
27.74	461.81
27.96	461.95

Fattore di sicurezza (FS)	1.0008	- N.7 --	X	Y	Lambda= 1.2500
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25.10	460.72
25.25	460.74
25.32	460.76
25.37	460.76
25.42	460.77
25.46	460.78
25.50	460.79
25.54	460.80
25.58	460.81
25.63	460.83
25.67	460.84
25.71	460.85
25.75	460.87
25.79	460.89
25.83	460.90
25.87	460.92
25.91	460.95
25.96	460.97
26.00	461.00
26.04	461.03
26.09	461.05
26.13	461.08
26.17	461.10
26.21	461.13
26.25	461.15
26.30	461.18
26.34	461.20
26.38	461.23
26.42	461.25
26.46	461.28
26.51	461.31
26.56	461.34
26.64	461.38
26.78	461.47

Fattore di sicurezza (FS)	1.0023	- N.8 --	X	Y	Lambda= 1.1672
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24.44	460.48
24.73	460.55

24.88	460.59
24.99	460.62
25.09	460.64
25.18	460.66
25.27	460.69
25.36	460.71
25.45	460.73
25.54	460.75
25.63	460.78
25.71	460.80
25.79	460.83
25.88	460.86
25.96	460.89
26.05	460.92
26.13	460.96
26.23	461.00
26.32	461.05
26.41	461.09
26.49	461.13
26.58	461.17
26.66	461.22
26.75	461.26
26.83	461.31
26.92	461.36
27.01	461.42
27.10	461.47
27.19	461.52
27.28	461.57
27.37	461.62
27.48	461.69
27.64	461.77
27.93	461.94

Fattore di sicurezza (FS)	1.0063	- N.9 --	X	Y	Lambda= 1.2500
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25.76	461.01
25.95	461.07
26.05	461.10
26.12	461.13
26.18	461.15
26.24	461.17
26.30	461.19
26.35	461.21
26.41	461.22
26.47	461.24
26.52	461.26
26.58	461.28
26.64	461.30
26.69	461.32
26.75	461.34
26.81	461.35
26.87	461.37
26.93	461.39
26.98	461.41
27.04	461.43
27.09	461.46
27.15	461.48
27.20	461.51
27.25	461.53
27.31	461.56
27.37	461.60

27.43 461.63
 27.49 461.66
 27.54 461.70
 27.60 461.73
 27.66 461.76
 27.73 461.81
 27.83 461.86
 28.02 461.97

Fattore di sicurezza (FS) 1.0081 - N.10 -- X Y Lambda= 1.2500

25.48 460.88
 25.71 460.95
 25.83 460.99
 25.91 461.02
 25.99 461.04
 26.06 461.07
 26.13 461.09
 26.20 461.11
 26.27 461.13
 26.34 461.15
 26.41 461.17
 26.48 461.20
 26.54 461.22
 26.61 461.25
 26.68 461.27
 26.75 461.30
 26.82 461.33
 26.89 461.36
 26.96 461.39
 27.03 461.42
 27.09 461.45
 27.16 461.48
 27.23 461.51
 27.30 461.54
 27.37 461.58
 27.44 461.61
 27.51 461.65
 27.58 461.68
 27.65 461.72
 27.71 461.75
 27.79 461.80
 27.87 461.84
 27.99 461.91
 28.23 462.05

----- 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	0.985	1.1	1.1	-0.1	Deficit
2	0.985	1.0	1.1	-0.1	Deficit
3	0.992	1.1	1.1	-0.1	Deficit
4	0.996	1.5	1.5	-0.2	Deficit
5	0.997	3.4	3.4	-0.3	Deficit
6	0.999	2.3	2.3	-0.2	Deficit
7	1.001	1.1	1.1	-0.1	Deficit
8	1.002	3.9	3.8	-0.4	Deficit
9	1.006	1.7	1.7	-0.2	Deficit

10 1.008 2.4 2.4 -0.2 Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -0.4

Note: FTR --> Forza totale Resistente lungo la superficie
di scivolamento

FTA --> Forza totale Agente lungo la superficie
di scivolamento

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)	
25.877	0.033	17.11	0.00	0.00	0.00	0.00	26.00	0.00
25.910	0.033	17.11	0.00	0.00	0.00	0.00	26.00	0.00
25.942	0.033	17.11	0.01	0.00	0.00	0.00	26.00	0.00
25.975	0.033	17.11	0.01	0.00	0.00	0.00	26.00	0.00
26.007	0.033	17.11	0.01	0.00	0.00	0.00	26.00	0.00
26.040	0.003	17.11	0.00	0.00	0.00	0.00	26.00	0.00
26.043	0.033	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.075	0.033	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.108	0.021	17.11	0.01	0.00	0.00	0.00	26.00	0.00
26.129	0.033	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.161	0.029	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.190	0.033	17.11	0.03	0.00	0.00	0.00	26.00	0.00
26.223	0.023	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.246	0.033	17.11	0.03	0.00	0.00	0.00	26.00	0.00
26.278	0.016	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.295	0.033	17.11	0.04	0.00	0.00	0.00	26.00	0.00
26.327	0.017	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.344	0.033	17.11	0.04	0.00	0.00	0.00	26.00	0.00
26.377	0.017	17.11	0.02	0.00	0.00	0.00	26.00	0.00
26.394	0.033	17.11	0.05	0.00	0.00	0.00	26.00	0.00
26.426	0.018	17.11	0.03	0.00	0.00	0.00	26.00	0.00
26.444	0.033	17.11	0.05	0.00	0.00	0.00	26.00	0.00
26.477	0.019	17.11	0.03	0.00	0.00	0.00	26.00	0.00
26.496	0.033	18.08	0.06	0.00	0.00	0.00	26.00	0.00
26.528	0.016	18.08	0.03	0.00	0.00	0.00	26.00	0.00
26.544	0.033	19.12	0.06	0.00	0.00	0.00	26.00	0.00
26.577	0.015	19.12	0.03	0.00	0.00	0.00	26.00	0.00
26.592	0.033	20.20	0.06	0.00	0.00	0.00	26.00	0.00
26.624	0.014	20.20	0.03	0.00	0.00	0.00	26.00	0.00
26.639	0.033	21.25	0.07	0.00	0.00	0.00	26.00	0.00
26.671	0.016	21.25	0.03	0.00	0.00	0.00	26.00	0.00
26.687	0.033	22.29	0.07	0.00	0.00	0.00	26.00	0.00
26.720	0.015	22.29	0.03	0.00	0.00	0.00	26.00	0.00
26.734	0.033	23.32	0.07	0.00	0.00	0.00	26.00	0.00
26.767	0.015	23.32	0.03	0.00	0.00	0.00	26.00	0.00
26.782	0.033	24.29	0.07	0.00	0.00	0.00	26.00	0.00
26.815	0.017	24.29	0.03	0.00	0.00	0.00	26.00	0.00
26.831	0.033	25.17	0.07	0.00	0.00	0.00	26.00	0.00
26.864	0.019	25.17	0.04	0.00	0.00	0.00	26.00	0.00
26.883	0.033	25.54	0.07	0.00	0.00	0.00	26.00	0.00
26.916	0.018	25.54	0.04	0.00	0.00	0.00	26.00	0.00

26.933	0.033	25.92	0.07	0.00	0.00	26.00	0.00
26.966	0.017	25.92	0.03	0.00	0.00	26.00	0.00
26.983	0.033	26.32	0.06	0.00	0.00	26.00	0.00
27.015	0.016	26.32	0.03	0.00	0.00	26.00	0.00
27.031	0.033	26.71	0.06	0.00	0.00	26.00	0.00
27.064	0.016	26.71	0.03	0.00	0.00	26.00	0.00
27.080	0.033	27.09	0.06	0.00	0.00	26.00	0.00
27.113	0.016	27.09	0.03	0.00	0.00	26.00	0.00
27.129	0.033	27.48	0.06	0.00	0.00	26.00	0.00
27.161	0.016	27.48	0.03	0.00	0.00	26.00	0.00
27.177	0.033	27.85	0.06	0.00	0.00	26.00	0.00
27.210	0.016	27.85	0.03	0.00	0.00	26.00	0.00
27.226	0.033	28.21	0.05	0.00	0.00	26.00	0.00
27.259	0.017	28.21	0.03	0.00	0.00	26.00	0.00
27.276	0.033	28.21	0.05	0.00	0.00	26.00	0.00
27.308	0.017	28.21	0.03	0.00	0.00	26.00	0.00
27.325	0.033	28.21	0.05	0.00	0.00	26.00	0.00
27.358	0.017	28.21	0.02	0.00	0.00	26.00	0.00
27.375	0.033	28.22	0.05	0.00	0.00	26.00	0.00
27.407	0.017	28.22	0.02	0.00	0.00	26.00	0.00
27.424	0.033	28.22	0.04	0.00	0.00	26.00	0.00
27.457	0.016	28.22	0.02	0.00	0.00	26.00	0.00
27.473	0.027	28.22	0.03	0.00	0.00	26.00	0.00
27.500	0.029	28.22	0.03	0.00	0.00	26.00	0.00
27.529	0.033	28.22	0.03	0.00	0.00	26.00	0.00
27.561	0.029	28.22	0.03	0.00	0.00	26.00	0.00
27.590	0.033	28.22	0.03	0.00	0.00	26.00	0.00
27.623	0.033	28.22	0.02	0.00	0.00	26.00	0.00
27.655	0.021	28.22	0.01	0.00	0.00	26.00	0.00
27.676	0.033	28.22	0.02	0.00	0.00	26.00	0.00
27.709	0.033	28.22	0.01	0.00	0.00	26.00	0.00
27.741	0.033	28.22	0.01	0.00	0.00	26.00	0.00
27.774	0.033	28.22	0.01	0.00	0.00	26.00	0.00
27.806	0.033	28.22	0.00	0.00	0.00	26.00	0.00
27.839	0.003	28.22	0.00	0.00	0.00	26.00	0.00

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
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TABELLA DIAGRAMMA DELLE FORZE DELLA SUPERFICIE INDIVIDUATA CON MINOR FS

X	ht	yt	yt'	E(x)	T(x)	E'	rho(x)	FS_qFEM	FS_srmFEM			
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)		(kN)	(--)	(--)	(--)		
25.877	0.000	461.063	0.344	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	5.6504040172E-004	0.033	7.301	6.455		
25.910	0.001	461.074	0.344	1.7455933851E-004	1.5321559278E-006	1.0159605105E-002	0.033	7.301	6.455			
25.942	0.002	461.085	0.374	6.6144990825E-004	4.2689651589E-005	2.6126852408E-002	0.130	3.272	2.896			
25.975	0.005	461.098	0.384	1.8755707409E-003	3.0537912001E-004	3.8359389398E-002	0.329	1.973	1.808			
26.007	0.007	461.110	0.337	3.1588712484E-003	7.5133438355E-004	3.9154906758E-002	0.480	1.586	1.488			
26.040	0.007	461.120	0.310	4.4247849293E-003	1.2790392530E-003	4.2385702205E-002	0.584	1.400	1.334			
26.043	0.007	461.121	0.311	4.5346454833E-003	1.3283994434E-003	4.3121221312E-002	0.592	1.388	1.324			
26.075	0.007	461.131	0.318	6.1271783004E-003	2.1355342728E-003	5.5394755396E-002	0.704	1.246	1.208			

26.108	0.008	461.141	0.337	8.1411691124E-003	3.2506152578E-003	7.2299038285E-002	0.807	1.138	1.120
26.129	0.009	461.149	0.373	9.8040406681E-003	4.2181312538E-003	8.5030942555E-002	0.869	1.080	1.072
26.161	0.012	461.161	0.393	1.2873795539E-002	6.0228552206E-003	1.0329689775E-001	0.945	1.010	1.014
26.190	0.014	461.173	0.394	1.6085168618E-002	7.8611954069E-003	1.1563660960E-001	0.987	0.969	0.978
26.223	0.017	461.186	0.380	2.0009706692E-002	9.9902058105E-003	1.2148450838E-001	1.009	0.943	0.956
26.246	0.018	461.194	0.364	2.2808323593E-002	1.1455001261E-002	1.2521034643E-001	1.015	0.933	0.946
26.278	0.020	461.206	0.354	2.7026456547E-002	1.3549987332E-002	1.2823645088E-001	1.013	0.927	0.941
26.295	0.021	461.211	0.354	2.9123053163E-002	1.4568132551E-002	1.3306905140E-001	1.011	0.927	0.939
26.327	0.022	461.223	0.346	3.3810073350E-002	1.6810065836E-002	1.3706108139E-001	1.004	0.930	0.941
26.344	0.022	461.229	0.358	3.6086893680E-002	1.7891846900E-002	1.4458875811E-001	1.002	0.933	0.942
26.377	0.025	461.241	0.362	4.1486457579E-002	2.0462122848E-002	1.5622929536E-001	0.996	0.941	0.947
26.394	0.025	461.247	0.375	4.4088206099E-002	2.1696212320E-002	1.6384037453E-001	0.994	0.946	0.950
26.426	0.028	461.260	0.379	5.0204037860E-002	2.4598967070E-002	1.7342326491E-001	0.990	0.957	0.957
26.444	0.029	461.266	0.384	5.3174794915E-002	2.5999929968E-002	1.7608535871E-001	0.988	0.962	0.960
26.477	0.032	461.279	0.387	5.9534398232E-002	2.8991869416E-002	1.7730844206E-001	0.984	0.973	0.966
26.496	0.033	461.286	0.390	6.2633325778E-002	3.0438369873E-002	1.7310120396E-001	0.982	0.977	0.969
26.528	0.035	461.299	0.392	6.8615684175E-002	3.3238491140E-002	1.5962488440E-001	0.979	0.984	0.973
26.544	0.036	461.305	0.391	7.0974150631E-002	3.4335747342E-002	1.5047053445E-001	0.977	0.986	0.974
26.577	0.038	461.318	0.394	7.6050635097E-002	3.6710472189E-002	1.3285016035E-001	0.975	0.988	0.977
26.592	0.038	461.323	0.399	7.7907076673E-002	3.7578089465E-002	1.2237712177E-001	0.974	0.988	0.977
26.624	0.040	461.337	0.406	8.1912934216E-002	3.9464592386E-002	1.0444288715E-001	0.973	0.988	0.978
26.639	0.040	461.342	0.415	8.3294844770E-002	4.0116365706E-002	9.3965128571E-002	0.973	0.987	0.979
26.671	0.041	461.356	0.418	8.6186429640E-002	4.1492325469E-002	7.2095495239E-002	0.973	0.985	0.979
26.687	0.041	461.363	0.422	8.7193028895E-002	4.1973795933E-002	5.9856596317E-002	0.972	0.984	0.979
26.720	0.042	461.377	0.428	8.8861426987E-002	4.2787787134E-002	3.6436315760E-002	0.973	0.981	0.978
26.734	0.042	461.383	0.434	8.9294801930E-002	4.3004717809E-002	2.4964569638E-002	0.973	0.979	0.978
26.767	0.043	461.397	0.430	8.9753211762E-002	4.3264506609E-002	3.1535092806E-003	0.974	0.976	0.977
26.782	0.042	461.403	0.444	8.9721486567E-002	4.3269239536E-002	-8.2663507484E-003	0.974	0.974	0.977
26.815	0.043	461.419	0.446	8.9027048998E-002	4.2993938991E-002	-2.7780142311E-002	0.976	0.971	0.975
26.831	0.042	461.425	0.459	8.8513668514E-002	4.2774903127E-002	-3.8231405926E-002	0.976	0.970	0.975
26.864	0.042	461.441	0.466	8.6809074905E-002	4.2014027898E-002	-5.4843541557E-002	0.978	0.967	0.973
26.883	0.042	461.450	0.464	8.5717102764E-002	4.1513711853E-002	-6.3386152255E-002	0.978	0.966	0.973
26.916	0.042	461.465	0.472	8.3267519944E-002	4.0365376307E-002	-7.2567825061E-002	0.979	0.964	0.971
26.933	0.041	461.473	0.469	8.2009907065E-002	3.9767065531E-002	-7.7567593800E-002	0.980	0.963	0.970
26.966	0.041	461.489	0.467	7.9097981759E-002	3.8371064796E-002	-8.3461148020E-002	0.980	0.961	0.969
26.983	0.040	461.496	0.472	7.7754780363E-002	3.7723469052E-002	-8.6948070954E-002	0.980	0.960	0.968
27.015	0.040	461.512	0.466	7.4508208106E-002	3.6156705747E-002	-9.4210687100E-002	0.980	0.959	0.967
27.031	0.039	461.519	0.470	7.3029037605E-002	3.5444045661E-002	-9.7814190206E-002	0.980	0.958	0.967
27.064	0.039	461.535	0.472	6.9429028600E-002	3.3708780136E-002	-1.0432211902E-001	0.981	0.956	0.966
27.080	0.038	461.542	0.475	6.7791165177E-002	3.2920882425E-002	-1.0747590098E-001	0.981	0.956	0.966
27.113	0.037	461.558	0.477	6.3881980764E-002	3.1039532675E-002	-1.1246987844E-001	0.982	0.954	0.965
27.129	0.036	461.565	0.480	6.2157271166E-002	3.0211160590E-002	-1.1503699224E-001	0.982	0.953	0.964
27.161	0.035	461.581	0.480	5.7992975680E-002	2.8212521966E-002	-1.1878792679E-001	0.983	0.951	0.963
27.177	0.034	461.588	0.485	5.6157742590E-002	2.7334401988E-002	-1.2076737644E-001	0.983	0.950	0.962
27.210	0.033	461.605	0.486	5.1798390822E-002	2.5246754161E-002	-1.2330233010E-001	0.985	0.948	0.960
27.226	0.032	461.612	0.492	4.9866622312E-002	2.4323938781E-002	-1.2436118435E-001	0.985	0.947	0.959
27.259	0.031	461.629	0.493	4.5404283256E-002	2.2183472686E-002	-1.2481263141E-001	0.987	0.944	0.956
27.276	0.030	461.637	0.496	4.3383480199E-002	2.1213504518E-002	-1.2409076205E-001	0.988	0.943	0.954
27.308	0.029	461.654	0.497	3.8989451998E-002	1.9092480877E-002	-1.2119794460E-001	0.989	0.940	0.950
27.325	0.028	461.661	0.497	3.7039434010E-002	1.8151558853E-002	-1.1918554470E-001	0.990	0.938	0.948
27.358	0.027	461.678	0.506	3.2835532939E-002	1.6123239448E-002	-1.1880746003E-001	0.992	0.935	0.943
27.375	0.026	461.686	0.491	3.0928846334E-002	1.5209504610E-002	-1.1460238724E-001	0.993	0.933	0.940
27.407	0.025	461.703	0.474	2.7127030770E-002	1.3398394709E-002	-1.0335598421E-001	0.998	0.930	0.936
27.424	0.023	461.710	0.458	2.5502205643E-002	1.2634648241E-002	-9.9380347847E-002	1.001	0.929	0.935
27.457	0.021	461.725	0.466	2.2079763565E-002	1.1024671170E-002	-9.8553918309E-002	1.009	0.927	0.933
27.473	0.020	461.733	0.462	2.0514560263E-002	1.0287154407E-002	-9.6137061433E-002	1.013	0.928	0.933
27.500	0.018	461.745	0.463	1.7890361558E-002	9.0316943026E-003	-9.3789560772E-002	1.020	0.930	0.935
27.529	0.016	461.758	0.494	1.5325980857E-002	7.7564437639E-003	-9.3008858689E-002	1.022	0.937	0.942
27.561	0.015	461.775	0.517	1.2176279061E-002	6.0848297073E-003	-9.0141277885E-002	1.010	0.957	0.959
27.590	0.014	461.790	0.492	9.7441180282E-003	4.7145811870E-003	-7.8271818164E-002	0.977	0.986	0.984
27.623	0.013	461.806	0.469	7.4166420599E-003	3.3311398983E-003	-6.4913464810E-002	0.907	1.037	1.029

27.655	0.010	461.821	0.447	5.5178705612E-003	2.2022465108E-003	-5.1566289004E-002	0.806	1.114	1.097
27.676	0.008	461.830	0.447	4.5249707965E-003	1.6456422882E-003	-4.5459556074E-002	0.735	1.179	1.152
27.709	0.005	461.845	0.472	3.1325929768E-003	9.3942300997E-004	-4.1383892535E-002	0.606	1.327	1.276
27.741	0.004	461.860	0.504	1.8306365545E-003	3.6355632925E-004	-3.6156399276E-002	0.401	1.668	1.545
27.774	0.003	461.877	0.505	7.7859922061E-004	6.5786478676E-005	-2.4986433750E-002	0.171	2.966	2.397
27.806	0.002	461.893	0.489	2.0387309868E-004	6.1844000466E-006	-1.1943750380E-002	0.315	50.000	3.996
27.839	0.000	461.909	0.489	9.9098571090E-007	1.2998260530E-008	-8.1355755929E-004	2.039	2.238	1.515

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 mobilitazione resistenza al taglio verticale interconcio ZhU et al.(2003)
 FS_qFEM(x)(-) : fattore di sicurezza locale stimato (locale in X) by qFEM
 FS_srmFEM(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)
25.877	0.033	0.034	17.106	0.015	0.000	0.020	0.001
25.910	0.033	0.034	17.106	0.044	0.001	0.059	0.002
25.942	0.033	0.034	17.106	0.073	0.002	0.100	0.003
25.975	0.033	0.034	17.106	0.102	0.003	0.140	0.005
26.007	0.033	0.034	17.106	0.132	0.004	0.180	0.006
26.040	0.003	0.003	17.106	0.147	0.000	0.201	0.001
26.043	0.033	0.034	17.106	0.163	0.006	0.223	0.008
26.075	0.033	0.034	17.106	0.193	0.007	0.264	0.009
26.108	0.021	0.022	17.106	0.217	0.005	0.299	0.007
26.129	0.033	0.034	17.106	0.241	0.008	0.332	0.011
26.161	0.029	0.030	17.106	0.268	0.008	0.371	0.011
26.190	0.033	0.034	17.106	0.296	0.010	0.408	0.014
26.223	0.023	0.024	17.106	0.321	0.008	0.441	0.011
26.246	0.033	0.034	17.106	0.346	0.012	0.475	0.016
26.278	0.016	0.017	17.106	0.368	0.006	0.504	0.009
26.295	0.033	0.034	17.106	0.390	0.013	0.535	0.018
26.327	0.017	0.018	17.106	0.412	0.007	0.564	0.010
26.344	0.033	0.034	17.106	0.434	0.015	0.596	0.020
26.377	0.017	0.018	17.106	0.457	0.008	0.625	0.011
26.394	0.033	0.034	17.106	0.479	0.016	0.658	0.022
26.426	0.018	0.019	17.106	0.502	0.009	0.687	0.013
26.444	0.033	0.034	17.106	0.525	0.018	0.720	0.025
26.477	0.019	0.019	17.106	0.548	0.011	0.748	0.015
26.496	0.033	0.034	18.083	0.592	0.020	0.767	0.026
26.528	0.016	0.017	18.083	0.612	0.010	0.790	0.013
26.544	0.033	0.034	19.123	0.655	0.023	0.801	0.028
26.577	0.015	0.016	19.123	0.672	0.011	0.819	0.013
26.592	0.033	0.035	20.198	0.713	0.025	0.823	0.029
26.624	0.014	0.015	20.198	0.727	0.011	0.838	0.013
26.639	0.033	0.035	21.247	0.764	0.027	0.837	0.029
26.671	0.016	0.017	21.247	0.775	0.013	0.847	0.014
26.687	0.033	0.035	22.290	0.809	0.028	0.842	0.030
26.720	0.015	0.016	22.290	0.816	0.013	0.848	0.013
26.734	0.033	0.035	23.321	0.845	0.030	0.839	0.030

26.767	0.015	0.017	23.321	0.848	0.014	0.841	0.014
26.782	0.033	0.036	24.289	0.871	0.031	0.828	0.030
26.815	0.017	0.018	24.289	0.871	0.016	0.828	0.015
26.831	0.033	0.036	25.167	0.887	0.032	0.812	0.029
26.864	0.019	0.021	25.167	0.883	0.019	0.808	0.017
26.883	0.033	0.036	25.538	0.885	0.032	0.798	0.029
26.916	0.018	0.020	25.538	0.879	0.017	0.792	0.016
26.933	0.033	0.036	25.924	0.879	0.032	0.780	0.028
26.966	0.017	0.019	25.924	0.871	0.016	0.773	0.014
26.983	0.033	0.036	26.317	0.870	0.032	0.760	0.028
27.015	0.016	0.018	26.317	0.860	0.016	0.751	0.014
27.031	0.033	0.036	26.711	0.857	0.031	0.737	0.027
27.064	0.016	0.018	26.711	0.845	0.015	0.727	0.013
27.080	0.033	0.037	27.095	0.840	0.031	0.711	0.026
27.113	0.016	0.018	27.095	0.826	0.015	0.700	0.012
27.129	0.033	0.037	27.477	0.818	0.030	0.683	0.025
27.161	0.016	0.018	27.477	0.803	0.015	0.670	0.012
27.177	0.033	0.037	27.851	0.792	0.029	0.652	0.024
27.210	0.016	0.019	27.851	0.775	0.014	0.638	0.012
27.226	0.033	0.037	28.213	0.762	0.028	0.619	0.023
27.259	0.017	0.019	28.213	0.742	0.014	0.603	0.012
27.276	0.033	0.037	28.214	0.723	0.027	0.587	0.022
27.308	0.017	0.019	28.214	0.703	0.014	0.571	0.011
27.325	0.033	0.037	28.215	0.684	0.025	0.555	0.021
27.358	0.017	0.019	28.215	0.664	0.013	0.539	0.010
27.375	0.033	0.037	28.216	0.645	0.024	0.524	0.019
27.407	0.017	0.019	28.216	0.626	0.012	0.508	0.010
27.424	0.033	0.037	28.216	0.606	0.022	0.492	0.018
27.457	0.016	0.019	28.216	0.587	0.011	0.476	0.009
27.473	0.027	0.031	28.217	0.570	0.017	0.463	0.014
27.500	0.029	0.032	28.217	0.536	0.017	0.435	0.014
27.529	0.033	0.037	28.218	0.486	0.018	0.395	0.015
27.561	0.029	0.033	28.218	0.436	0.014	0.354	0.012
27.590	0.033	0.037	28.219	0.385	0.014	0.313	0.012
27.623	0.033	0.037	28.219	0.332	0.012	0.270	0.010
27.655	0.021	0.024	28.219	0.288	0.007	0.234	0.006
27.676	0.033	0.037	28.220	0.244	0.009	0.198	0.007
27.709	0.033	0.037	28.220	0.191	0.007	0.155	0.006
27.741	0.033	0.037	28.220	0.138	0.005	0.112	0.004
27.774	0.033	0.037	28.220	0.084	0.003	0.068	0.003
27.806	0.033	0.037	28.220	0.031	0.001	0.025	0.001
27.839	0.003	0.003	28.220	0.002	0.000	0.002	0.000

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

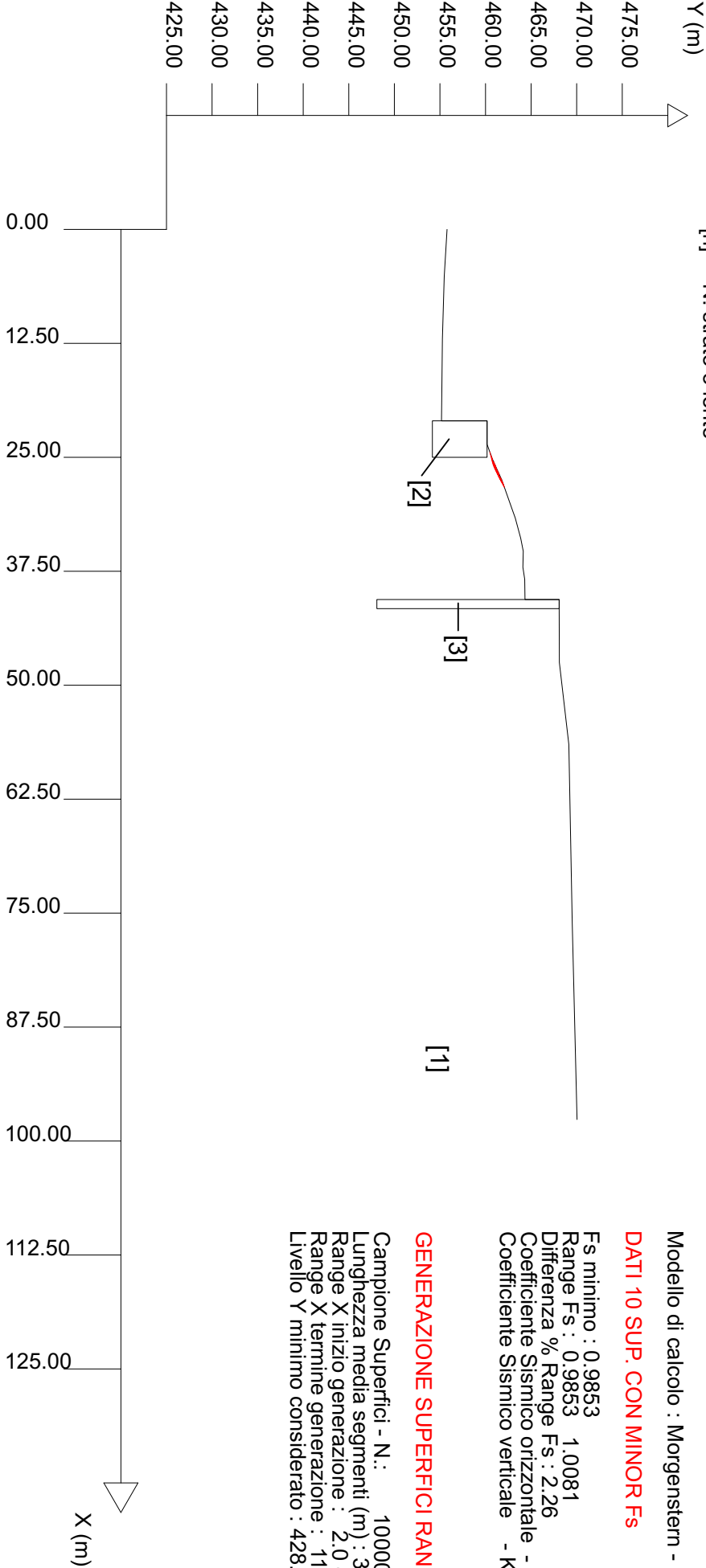
TauS (kN/m) : Forza resistente al taglio su base concio

Data : 5/2/2023

Localita' :

Descrizione :

[n] = N. strato o lente



Modello di calcolo : Morgenstern - Price (1965)

DATI 10 SUP. CON MINOR Fs

Fs minimo : 0.9853
Range Fs : 0.9853 - 1.0081
Differenza % Range Fs : 2.26
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM

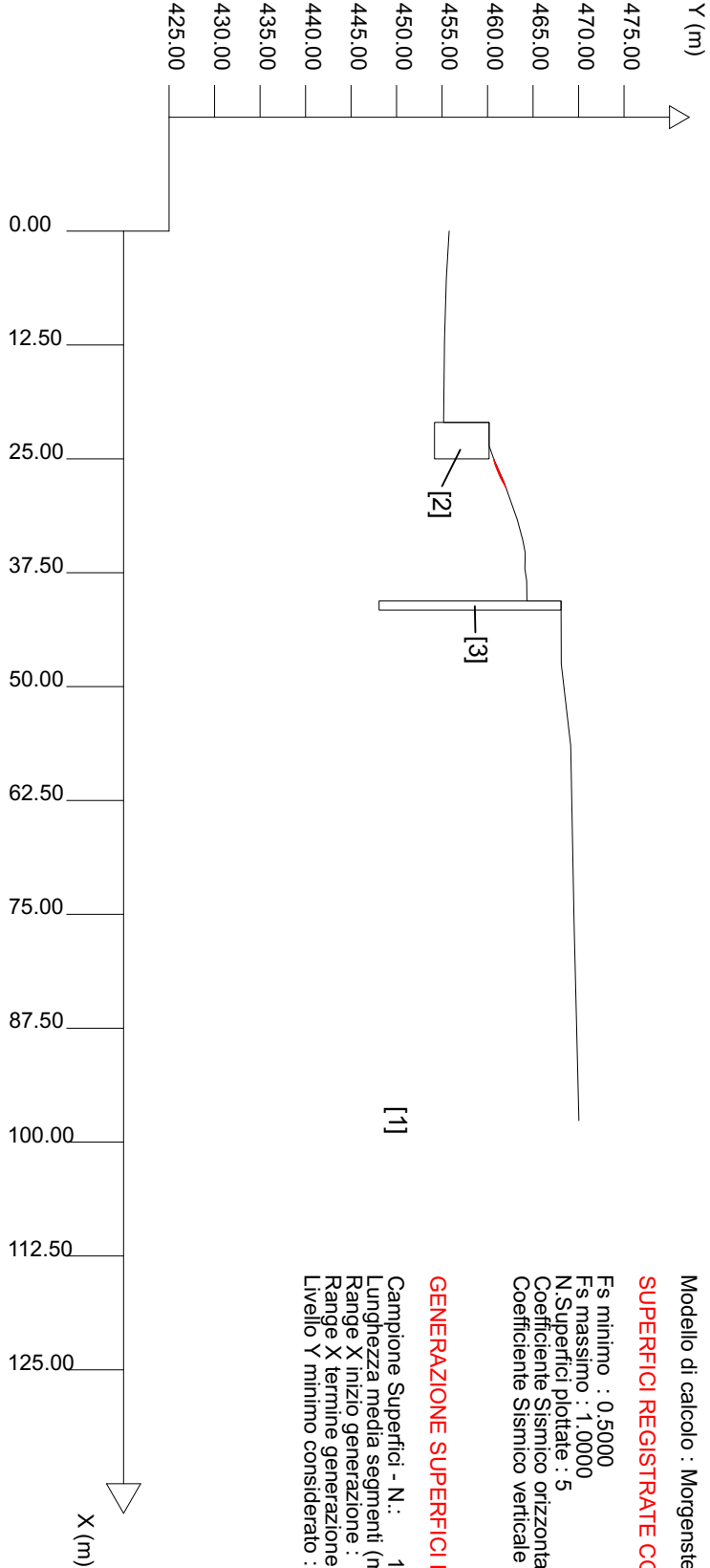
Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 3.9
Range X inizio generazione : 2.0 - 89.8
Range X termine generazione : 11.7 - 95.7
Livello Y minimo considerato : 428.3

Parametri Geotecnici degli strati # -----

N.	phi'	C'	Cu	Gamm	GammSat	sgci	GSI	mi	D
	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0
2	9.00	300.00	0	24.00	24.00	0	0	0	0
3	9.00	300.00	0	24.00	24.00	0	0	0	0

SSAP 5.0 (2020) - Slope Stability Analysis Program
Software by Dr. Geol. L. Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

Data : 5/2/2023
Localita' :
Descrizione :
[n] = N. strato o lente



Modello di calcolo : Morgenstern - Price (1965)

SUPERFICI REGISTRATE CON Fs ENTRO INTERVALLO PREDEFINITO

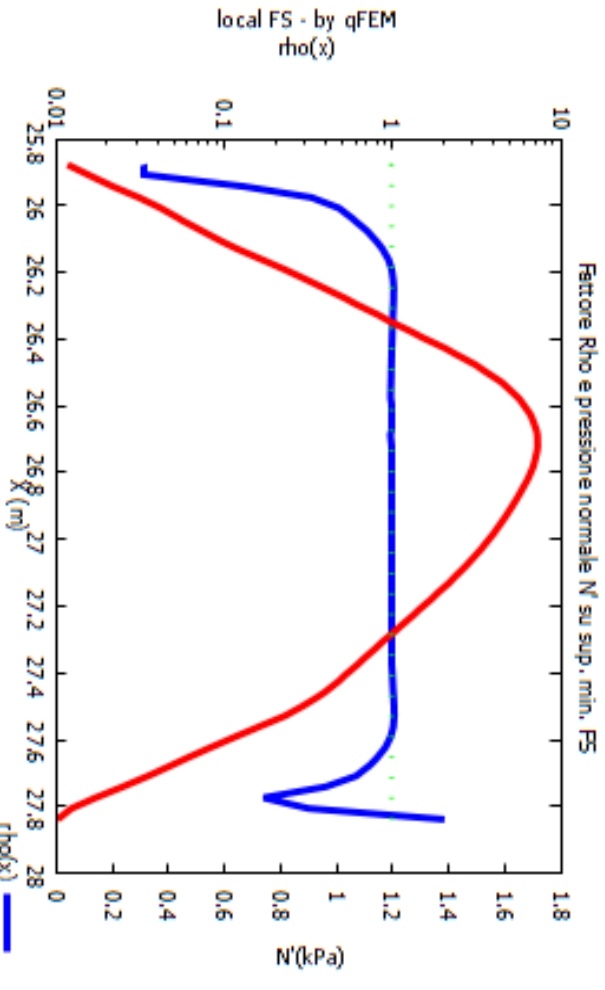
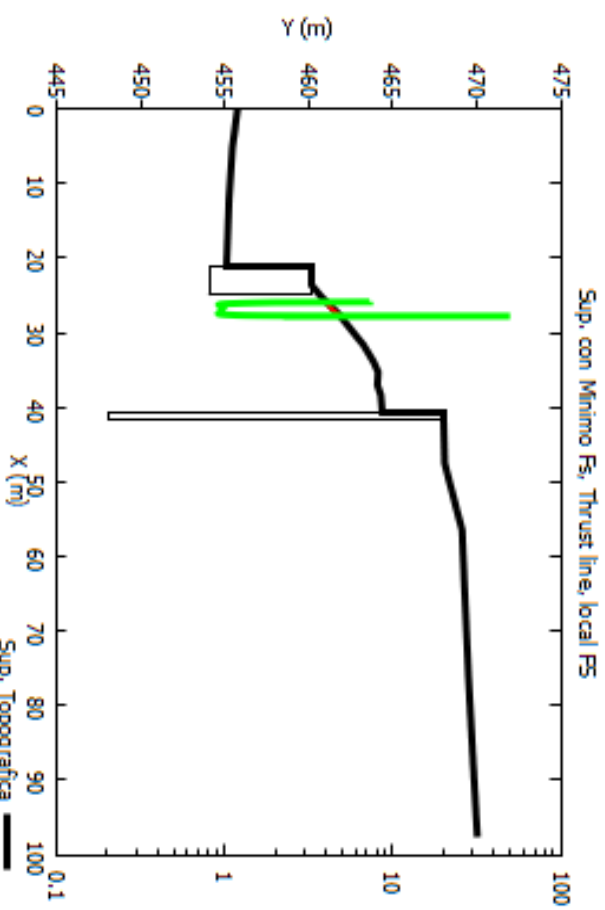
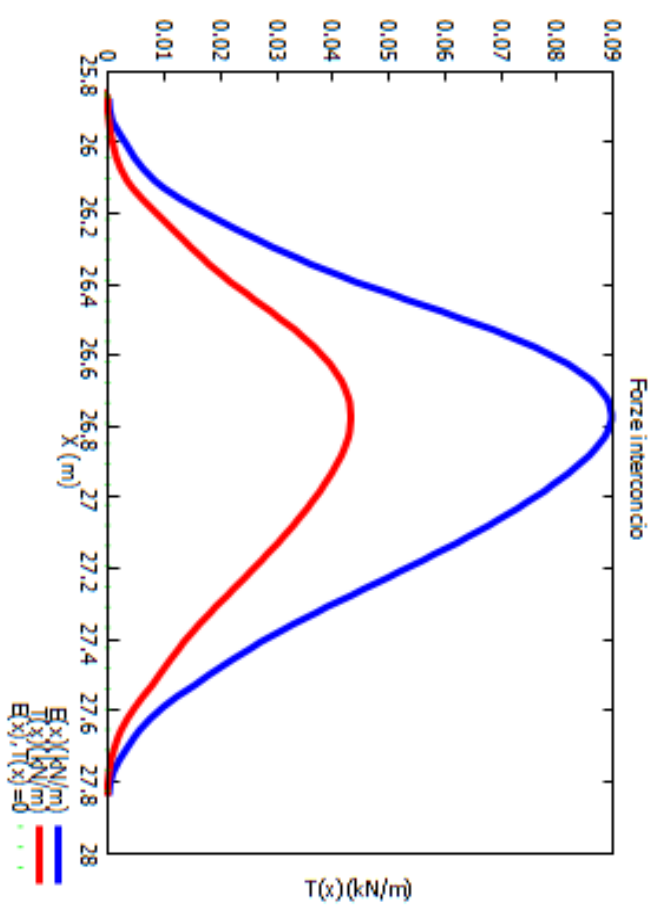
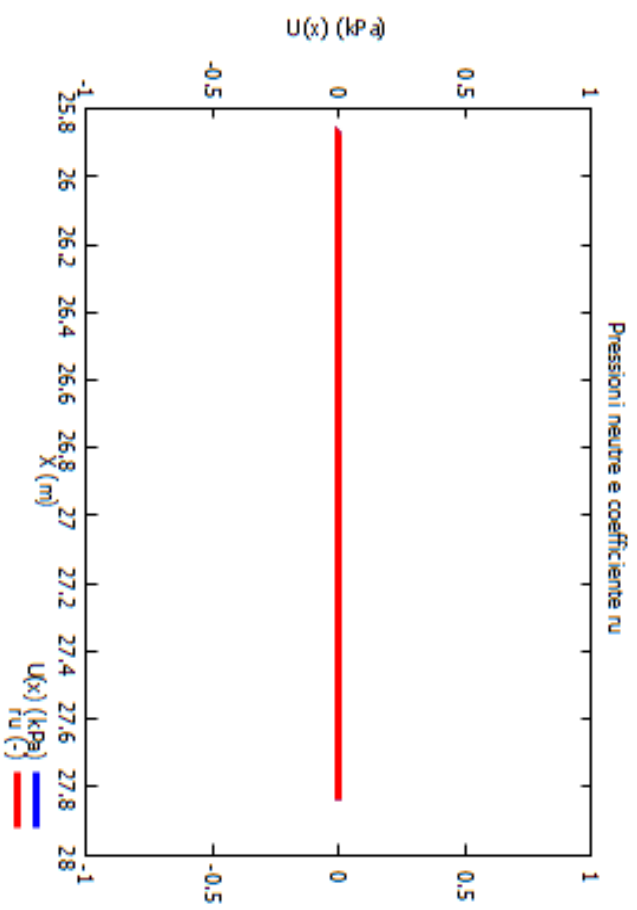
Fs minimo : 0.5000
Fs massimo : 1.0000
N.Superfici plottate : 5
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

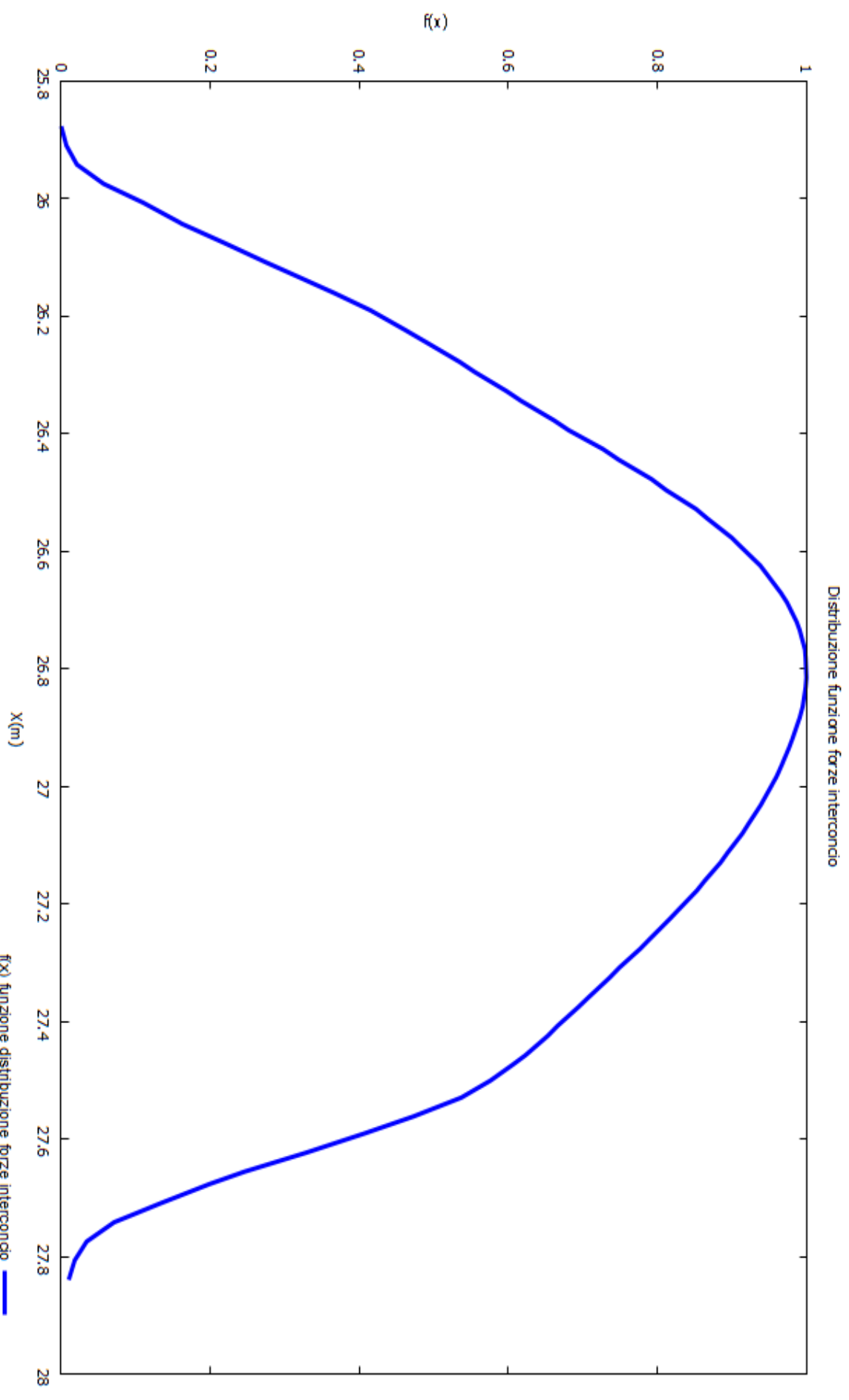
GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 3.9
Range X inizio generazione : 2.0 - 89.8
Range X termine generazione : 11.7 - 95.7
Livello Y minimo considerato : 428.3

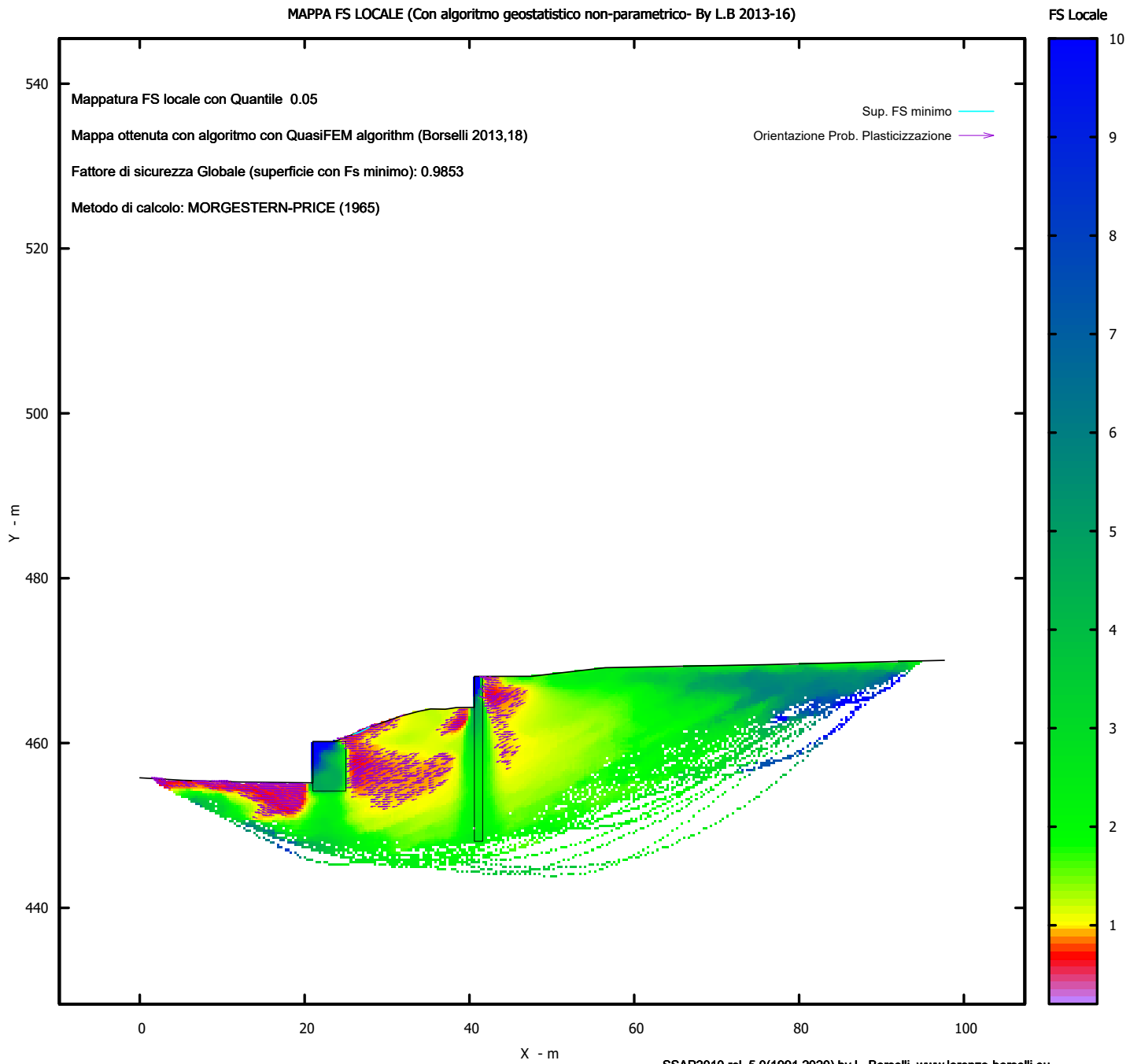
Parametri Geotecnici degli strati # -----

N.	phi°	C' kPa	Cu kPa	Gamm kN/m3	GammSat kN/m3	sgci MPa	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0
2	9.00	300.00	0	24.00	24.00	0	0	0	0
3	9.00	300.00	0	24.00	24.00	0	0	0	0





MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



Credits to: GNUPLOT 5.4.1 www.gnuplot.info

SSAP2010 rel. 5.0(1991,2020) by L. Borselli, www.lorenzo-borselli.eu
<https://WWW.SSAP.EU>

SEZIONE DI STABILITA'

METODOLOGIA

SARMA

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

Dr. Geol. LORENZO BORSELLI *,**

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

Ultima Revisione struttura tabelle del report: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\STABILITA\RESULTATI\SARMA\SARMA.txt

Data: 5/2/2023

Localita' :

Descrizione:

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	455.78	25.00	454.17	41.60	448.08	-	-
5.19	455.47	25.00	460.17	41.60	468.08	-	-
12.00	455.27	23.58	460.17	40.60	468.08	-	-
21.00	455.17	21.00	460.17	40.60	464.33	-	-
21.00	460.17	21.00	455.17	40.60	448.08	-	-
23.58	460.17	21.00	454.17	41.60	448.08	-	-
25.18	460.75	25.00	454.17	-	-	-	-
27.50	461.79	-	-	-	-	-	-
30.90	462.99	-	-	-	-	-	-
31.65	463.26	-	-	-	-	-	-
33.88	463.86	-	-	-	-	-	-
35.30	464.14	-	-	-	-	-	-
37.06	464.10	-	-	-	-	-	-
38.39	464.30	-	-	-	-	-	-
40.60	464.33	-	-	-	-	-	-
40.60	468.08	-	-	-	-	-	-
41.60	468.08	-	-	-	-	-	-
47.50	468.10	-	-	-	-	-	-
56.50	469.14	-	-	-	-	-	-
75.95	469.51	-	-	-	-	-	-
97.64	470.04	-	-	-	-	-	-

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.00	0.00	0.00	19.10	19.30	1.484	0.00	0.00	0.00	0.00
STRATO 2	9.00	300.00	0.00	24.00	24.00	1000.000	0.00	0.00	0.00	0.00
STRATO 3	9.00	300.00	0.00	24.00	24.00	1000.000	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)

----- 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): 3.9 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 1.95 89.83

LIVELLO MINIMO CONSIDERATO (Ymin): 428.32

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 11.72 95.69

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : SARMA II (Sarma, 1979)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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)	0.9796	- Min.	X	Y	Lambda=	1.2500
	25.34	460.82				
	25.53	460.88				
	25.63	460.92				
	25.70	460.94				
	25.77	460.96				
	25.83	460.98				
	25.88	461.00				
	25.94	461.02				
	26.00	461.04				
	26.06	461.06				
	26.11	461.08				
	26.17	461.10				
	26.23	461.11				
	26.29	461.13				
	26.34	461.15				
	26.40	461.17				
	26.46	461.19				

26.52	461.22
26.58	461.24
26.64	461.26
26.69	461.28
26.75	461.31
26.80	461.34
26.85	461.37
26.91	461.40
26.97	461.44
27.03	461.47
27.09	461.51
27.15	461.54
27.21	461.58
27.27	461.62
27.34	461.66
27.44	461.72
27.64	461.84

Fattore di sicurezza (FS)	0.9809	- N.2 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

25.24	460.78
25.47	460.84
25.58	460.87
25.67	460.89
25.74	460.91
25.80	460.93
25.87	460.95
25.93	460.97
26.00	461.00
26.07	461.02
26.14	461.04
26.20	461.07
26.26	461.09
26.33	461.12
26.39	461.15
26.46	461.18
26.52	461.21
26.59	461.24
26.66	461.27
26.73	461.30
26.79	461.34
26.86	461.37
26.92	461.40
26.99	461.44
27.05	461.47
27.12	461.51
27.19	461.54
27.25	461.58
27.32	461.61
27.38	461.65
27.46	461.69
27.54	461.73
27.65	461.80
27.88	461.92

Fattore di sicurezza (FS)	0.9840	- N.3 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

24.64	460.56
24.93	460.63
25.07	460.67
25.17	460.70

25.25	460.72
25.33	460.75
25.41	460.78
25.49	460.81
25.57	460.84
25.66	460.87
25.74	460.91
25.82	460.94
25.90	460.98
25.98	461.01
26.06	461.05
26.14	461.08
26.22	461.12
26.30	461.16
26.39	461.20
26.47	461.24
26.55	461.28
26.63	461.32
26.71	461.36
26.79	461.40
26.87	461.44
26.95	461.48
27.04	461.52
27.12	461.55
27.20	461.59
27.28	461.63
27.37	461.68
27.47	461.73
27.61	461.79
27.89	461.93

Fattore di sicurezza (FS)	0.9874	- N.4 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

25.37	460.83
25.48	460.86
25.54	460.88
25.59	460.89
25.63	460.90
25.66	460.91
25.70	460.92
25.73	460.93
25.77	460.94
25.80	460.94
25.84	460.95
25.87	460.96
25.90	460.98
25.94	460.99
25.97	461.00
26.00	461.02
26.04	461.04
26.07	461.06
26.11	461.08
26.14	461.10
26.18	461.11
26.21	461.13
26.25	461.15
26.28	461.17
26.32	461.19
26.35	461.21
26.39	461.24
26.42	461.26

26.46	461.28
26.49	461.30
26.53	461.32
26.57	461.35
26.63	461.38
26.75	461.45

Fattore di sicurezza (FS)	0.9902	- N.5 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

24.80	460.61
24.98	460.66
25.07	460.68
25.14	460.70
25.20	460.71
25.25	460.73
25.31	460.74
25.36	460.76
25.42	460.77
25.47	460.78
25.53	460.80
25.58	460.81
25.63	460.83
25.68	460.85
25.73	460.87
25.78	460.89
25.84	460.91
25.90	460.94
25.95	460.96
26.00	460.99
26.06	461.01
26.11	461.04
26.16	461.06
26.22	461.09
26.27	461.12
26.33	461.15
26.38	461.17
26.43	461.20
26.49	461.23
26.54	461.27
26.60	461.30
26.66	461.35
26.75	461.41
26.94	461.54

Fattore di sicurezza (FS)	0.9932	- N.6 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

24.75	460.60
25.05	460.65
25.19	460.69
25.29	460.71
25.38	460.73
25.46	460.76
25.54	460.78
25.62	460.81
25.70	460.84
25.79	460.88
25.87	460.91
25.96	460.95
26.04	460.98
26.12	461.01
26.21	461.05

26.29	461.08
26.38	461.11
26.46	461.15
26.54	461.18
26.63	461.22
26.71	461.25
26.79	461.29
26.87	461.33
26.95	461.37
27.03	461.42
27.12	461.46
27.20	461.51
27.29	461.55
27.37	461.60
27.45	461.64
27.54	461.70
27.65	461.75
27.79	461.83
28.07	461.99

Fattore di sicurezza (FS)	0.9980	- N.7 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

24.73	460.59
24.99	460.65
25.12	460.68
25.21	460.70
25.30	460.72
25.37	460.74
25.44	460.76
25.52	460.78
25.59	460.80
25.67	460.82
25.75	460.84
25.82	460.87
25.89	460.89
25.97	460.91
26.04	460.94
26.11	460.96
26.19	460.99
26.27	461.02
26.34	461.05
26.42	461.08
26.49	461.11
26.56	461.15
26.64	461.18
26.71	461.22
26.79	461.25
26.87	461.30
26.94	461.34
27.02	461.38
27.09	461.42
27.16	461.47
27.24	461.52
27.33	461.59
27.46	461.68
27.72	461.87

Fattore di sicurezza (FS)	0.9994	- N.8 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

24.44	460.48
24.69	460.55

24.82	460.58
24.91	460.60
24.99	460.62
25.07	460.64
25.14	460.66
25.21	460.68
25.29	460.70
25.36	460.72
25.44	460.74
25.51	460.77
25.58	460.79
25.65	460.81
25.72	460.84
25.80	460.87
25.87	460.90
25.95	460.93
26.02	460.96
26.10	460.99
26.17	461.03
26.24	461.06
26.31	461.10
26.38	461.14
26.45	461.18
26.53	461.23
26.60	461.27
26.68	461.32
26.75	461.36
26.83	461.41
26.91	461.46
27.00	461.51
27.13	461.59
27.38	461.73

Fattore di sicurezza (FS)	1.0038	- N.9 --	X	Y	Lambda= 1.2500
---------------------------	--------	----------	---	---	----------------

25.16	460.74
25.28	460.76
25.34	460.77
25.39	460.78
25.42	460.79
25.46	460.79
25.50	460.80
25.53	460.81
25.57	460.82
25.61	460.83
25.64	460.84
25.68	460.85
25.71	460.86
25.74	460.87
25.78	460.89
25.81	460.90
25.85	460.92
25.89	460.94
25.92	460.96
25.96	460.98
25.99	460.99
26.03	461.02
26.06	461.04
26.10	461.06
26.13	461.08
26.17	461.10

26.21	461.13
26.24	461.15
26.28	461.18
26.31	461.20
26.35	461.23
26.40	461.26
26.46	461.30
26.58	461.38

Fattore di sicurezza (FS) 1.0051 - N.10 -- X Y Lambda= 1.2500

24.74	460.59
24.98	460.64
25.10	460.67
25.19	460.68
25.27	460.70
25.34	460.71
25.41	460.73
25.48	460.74
25.55	460.76
25.63	460.77
25.70	460.79
25.76	460.81
25.83	460.83
25.89	460.85
25.96	460.88
26.02	460.91
26.09	460.94
26.17	460.98
26.24	461.01
26.31	461.05
26.38	461.09
26.45	461.12
26.52	461.16
26.59	461.20
26.66	461.24
26.73	461.29
26.80	461.33
26.87	461.37
26.94	461.42
27.01	461.46
27.09	461.51
27.18	461.57
27.30	461.65
27.53	461.80

----- 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	0.980	1.6	1.6	-0.2	Deficit
2	0.981	2.2	2.2	-0.3	Deficit
3	0.984	1.8	1.8	-0.2	Deficit
4	0.987	0.7	0.7	-0.1	Deficit
5	0.990	1.5	1.5	-0.2	Deficit
6	0.993	3.4	3.4	-0.4	Deficit
7	0.998	3.6	3.6	-0.4	Deficit
8	0.999	2.4	2.4	-0.2	Deficit
9	1.004	1.0	1.0	-0.1	Deficit

10 1.005 3.1 3.1 -0.3 Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -0.4

Note: FTR --> Forza totale Resistente lungo la superficie
di scivolamento

FTA --> Forza totale Agente lungo la superficie
di scivolamento

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)
25.338	0.038	18.19	0.00	0.00	0.00	0.00	0.00
25.376	0.038	18.19	0.01	0.00	0.00	0.00	0.00
25.414	0.038	18.19	0.01	0.00	0.00	0.00	0.00
25.452	0.038	18.19	0.01	0.00	0.00	0.00	0.00
25.490	0.038	18.19	0.02	0.00	0.00	0.00	0.00
25.528	0.003	18.19	0.00	0.00	0.00	0.00	0.00
25.531	0.038	18.19	0.02	0.00	0.00	0.00	0.00
25.569	0.038	18.19	0.02	0.00	0.00	0.00	0.00
25.607	0.025	18.19	0.02	0.00	0.00	0.00	0.00
25.632	0.038	18.19	0.03	0.00	0.00	0.00	0.00
25.670	0.034	18.19	0.03	0.00	0.00	0.00	0.00
25.704	0.038	18.19	0.03	0.00	0.00	0.00	0.00
25.742	0.027	18.19	0.03	0.00	0.00	0.00	0.00
25.769	0.038	18.19	0.04	0.00	0.00	0.00	0.00
25.807	0.019	18.19	0.02	0.00	0.00	0.00	0.00
25.826	0.038	18.19	0.05	0.00	0.00	0.00	0.00
25.864	0.020	18.19	0.02	0.00	0.00	0.00	0.00
25.884	0.038	18.19	0.05	0.00	0.00	0.00	0.00
25.922	0.020	18.19	0.03	0.00	0.00	0.00	0.00
25.941	0.038	18.19	0.06	0.00	0.00	0.00	0.00
25.979	0.020	18.19	0.03	0.00	0.00	0.00	0.00
25.999	0.038	18.19	0.06	0.00	0.00	0.00	0.00
26.037	0.019	18.19	0.03	0.00	0.00	0.00	0.00
26.057	0.038	18.34	0.07	0.00	0.00	0.00	0.00
26.095	0.019	18.34	0.03	0.00	0.00	0.00	0.00
26.114	0.038	18.49	0.07	0.00	0.00	0.00	0.00
26.152	0.019	18.49	0.04	0.00	0.00	0.00	0.00
26.171	0.038	18.64	0.08	0.00	0.00	0.00	0.00
26.209	0.019	18.64	0.04	0.00	0.00	0.00	0.00
26.229	0.038	18.80	0.08	0.00	0.00	0.00	0.00
26.267	0.019	18.80	0.04	0.00	0.00	0.00	0.00
26.286	0.038	18.95	0.08	0.00	0.00	0.00	0.00
26.324	0.020	18.95	0.05	0.00	0.00	0.00	0.00
26.344	0.038	19.11	0.09	0.00	0.00	0.00	0.00
26.382	0.020	19.11	0.05	0.00	0.00	0.00	0.00
26.402	0.038	19.26	0.09	0.00	0.00	0.00	0.00
26.440	0.022	19.26	0.05	0.00	0.00	0.00	0.00
26.462	0.038	19.40	0.10	0.00	0.00	0.00	0.00
26.500	0.023	19.40	0.06	0.00	0.00	0.00	0.00
26.523	0.038	20.80	0.10	0.00	0.00	0.00	0.00
26.561	0.019	20.80	0.05	0.00	0.00	0.00	0.00

26.580	0.038	22.34	0.10	0.00	0.00	26.00	0.00
26.618	0.017	22.34	0.05	0.00	0.00	26.00	0.00
26.635	0.038	23.95	0.11	0.00	0.00	26.00	0.00
26.673	0.016	23.95	0.04	0.00	0.00	26.00	0.00
26.689	0.038	25.50	0.11	0.00	0.00	26.00	0.00
26.727	0.018	25.50	0.05	0.00	0.00	26.00	0.00
26.745	0.038	27.01	0.10	0.00	0.00	26.00	0.00
26.783	0.016	27.01	0.04	0.00	0.00	26.00	0.00
26.799	0.038	28.50	0.10	0.00	0.00	26.00	0.00
26.837	0.017	28.50	0.04	0.00	0.00	26.00	0.00
26.854	0.038	29.86	0.10	0.00	0.00	26.00	0.00
26.892	0.019	29.86	0.05	0.00	0.00	26.00	0.00
26.911	0.038	31.04	0.09	0.00	0.00	26.00	0.00
26.949	0.023	31.04	0.05	0.00	0.00	26.00	0.00
26.972	0.038	31.04	0.08	0.00	0.00	26.00	0.00
27.010	0.022	31.04	0.05	0.00	0.00	26.00	0.00
27.032	0.038	31.04	0.08	0.00	0.00	26.00	0.00
27.070	0.021	31.04	0.04	0.00	0.00	26.00	0.00
27.090	0.038	31.04	0.07	0.00	0.00	26.00	0.00
27.128	0.020	31.04	0.04	0.00	0.00	26.00	0.00
27.149	0.038	31.04	0.06	0.00	0.00	26.00	0.00
27.187	0.019	31.04	0.03	0.00	0.00	26.00	0.00
27.206	0.038	31.04	0.06	0.00	0.00	26.00	0.00
27.244	0.027	31.04	0.04	0.00	0.00	26.00	0.00
27.271	0.038	31.04	0.05	0.00	0.00	26.00	0.00
27.309	0.034	31.04	0.04	0.00	0.00	26.00	0.00
27.343	0.038	31.04	0.04	0.00	0.00	26.00	0.00
27.381	0.038	31.04	0.04	0.00	0.00	26.00	0.00
27.419	0.025	31.04	0.02	0.00	0.00	26.00	0.00
27.444	0.038	31.05	0.03	0.00	0.00	26.00	0.00
27.482	0.018	31.05	0.01	0.00	0.00	26.00	0.00
27.500	0.038	31.05	0.02	0.00	0.00	26.00	0.00
27.538	0.038	31.05	0.01	0.00	0.00	26.00	0.00
27.576	0.038	31.05	0.01	0.00	0.00	26.00	0.00
27.614	0.023	31.05	0.00	0.00	0.00	26.00	0.00

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'	rho(x) (kN)	FS_qFEM (--)	FS_srmFEM (--)			
25.338	0.000	460.821	0.352	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	1.4009137193E-003	0.033	8.039	3.870		
25.376	0.001	460.834	0.352	2.1850299628E-004	8.4446844337E-007	1.0089970364E-002	0.033	8.039	3.870			
25.414	0.002	460.847	0.386	7.6745661722E-004	1.8970203819E-005	2.4098739596E-002	0.050	9.427	6.711			
25.452	0.005	460.863	0.389	2.0514853047E-003	1.2126503234E-004	3.3714179824E-002	0.119	4.983	4.780			
25.490	0.006	460.877	0.334	3.3318021472E-003	2.8427226106E-004	3.2588624463E-002	0.171	4.004	3.834			
25.528	0.006	460.889	0.310	4.5302195910E-003	4.7408025108E-004	3.3834153127E-002	0.210	3.496	3.346			
25.531	0.006	460.890	0.324	4.6463440040E-003	4.9404795424E-004	3.4364429780E-002	0.214	3.456	3.308			
25.569	0.006	460.902	0.339	6.0897651744E-003	7.8390867149E-004	4.2317651191E-002	0.259	3.007	2.881			

25.607	0.006	460.916	0.352	7.8650810527E-003	1.2014650401E-003	5.5118563717E-002	0.307	2.630	2.531
25.632	0.007	460.924	0.352	9.3676960824E-003	1.5958602561E-003	6.5645778815E-002	0.342	2.393	2.322
25.670	0.008	460.938	0.360	1.2157605283E-002	2.3781465226E-003	8.1146784476E-002	0.393	2.086	2.057
25.704	0.009	460.950	0.373	1.5140596453E-002	3.2836742926E-003	9.2572788436E-002	0.436	1.863	1.863
25.742	0.011	460.965	0.369	1.8853015748E-002	4.5024687663E-003	9.8983489951E-002	0.480	1.671	1.693
25.769	0.012	460.974	0.353	2.1542162749E-002	5.4216482208E-003	1.0284380291E-001	0.505	1.567	1.600
25.807	0.013	460.988	0.343	2.5608912934E-002	6.9119003674E-003	1.0649907467E-001	0.542	1.442	1.486
25.826	0.013	460.994	0.341	2.7662353637E-002	7.6919169504E-003	1.1089672058E-001	0.558	1.389	1.438
25.864	0.013	461.007	0.333	3.2225542526E-002	9.5375743075E-003	1.1516050777E-001	0.594	1.287	1.348
25.884	0.013	461.013	0.343	3.4447730803E-002	1.0476129344E-002	1.2170030521E-001	0.611	1.244	1.310
25.922	0.014	461.027	0.352	3.9739156174E-002	1.2838347925E-002	1.3292003637E-001	0.649	1.152	1.231
25.941	0.014	461.033	0.353	4.2278566121E-002	1.4023074645E-002	1.3919185403E-001	0.666	1.113	1.199
25.979	0.016	461.047	0.352	4.8271892888E-002	1.6966374669E-002	1.4770541148E-001	0.706	1.030	1.132
25.999	0.016	461.054	0.353	5.1089424934E-002	1.8409527928E-002	1.5241440171E-001	0.724	0.997	1.105
26.037	0.017	461.068	0.352	5.7606464041E-002	2.1900776343E-002	1.5978424943E-001	0.764	0.926	1.049
26.057	0.017	461.074	0.355	6.0599761406E-002	2.3565324976E-002	1.6363948567E-001	0.781	0.898	1.026
26.095	0.019	461.088	0.355	6.7550032396E-002	2.7591582349E-002	1.6953662506E-001	0.820	0.840	0.980
26.114	0.019	461.094	0.356	7.0710045378E-002	2.9485697787E-002	1.7251735534E-001	0.837	0.817	0.961
26.152	0.020	461.108	0.357	7.7995765787E-002	3.4001535843E-002	1.7718148957E-001	0.876	0.771	0.924
26.171	0.020	461.115	0.358	8.1262378699E-002	3.6067314642E-002	1.7933676301E-001	0.891	0.754	0.910
26.209	0.021	461.129	0.360	8.8792201360E-002	4.0823909049E-002	1.8228002190E-001	0.923	0.720	0.883
26.229	0.021	461.136	0.360	9.2149125782E-002	4.2926594162E-002	1.8382832556E-001	0.936	0.707	0.873
26.267	0.022	461.150	0.362	9.9854120417E-002	4.7598545509E-002	1.8552274100E-001	0.957	0.684	0.854
26.286	0.022	461.156	0.362	1.0325164612E-001	4.9556726003E-002	1.8659606248E-001	0.964	0.677	0.848
26.324	0.023	461.170	0.364	1.1107828748E-001	5.3836062685E-002	1.8741756734E-001	0.973	0.664	0.838
26.344	0.024	461.177	0.363	1.1460204058E-001	5.5663291384E-002	1.8826255559E-001	0.975	0.661	0.835
26.382	0.024	461.191	0.367	1.2252249758E-001	5.9623311916E-002	1.8900641997E-001	0.977	0.657	0.831
26.402	0.025	461.199	0.372	1.2615778706E-001	6.1363982915E-002	1.8978940654E-001	0.977	0.657	0.831
26.440	0.026	461.213	0.369	1.3416369143E-001	6.5133906220E-002	1.8925722602E-001	0.975	0.660	0.833
26.462	0.026	461.221	0.387	1.3800759795E-001	6.6909274676E-002	1.8369396783E-001	0.974	0.664	0.835
26.500	0.028	461.236	0.388	1.4543115016E-001	7.0298397194E-002	1.6850786209E-001	0.971	0.674	0.839
26.523	0.028	461.245	0.398	1.4900340804E-001	7.1894730120E-002	1.4867635155E-001	0.969	0.682	0.842
26.561	0.030	461.261	0.404	1.5445216997E-001	7.4327703562E-002	1.0895496292E-001	0.966	0.699	0.847
26.580	0.030	461.268	0.408	1.5617002290E-001	7.5077510557E-002	8.5447554647E-002	0.966	0.707	0.848
26.618	0.030	461.284	0.412	1.5890137435E-001	7.6271156223E-002	3.9996463326E-002	0.964	0.728	0.852
26.635	0.030	461.290	0.425	1.5934252533E-001	7.6451875080E-002	1.6021995931E-002	0.964	0.737	0.852
26.673	0.030	461.307	0.439	1.5915412184E-001	7.6333968973E-002	-2.9265261693E-002	0.963	0.762	0.854
26.689	0.029	461.314	0.461	1.5853934805E-001	7.6040983854E-002	-5.0583313814E-002	0.963	0.773	0.854
26.727	0.029	461.332	0.468	1.5557056941E-001	7.4662904890E-002	-9.6791784730E-002	0.964	0.802	0.854
26.745	0.029	461.340	0.487	1.5366094232E-001	7.3780774238E-002	-1.1918373538E-001	0.964	0.817	0.853
26.783	0.029	461.359	0.494	1.4804814287E-001	7.1205650943E-002	-1.5921687928E-001	0.966	0.853	0.852
26.799	0.028	461.367	0.509	1.4546247199E-001	7.0022271105E-002	-1.7586573966E-001	0.967	0.869	0.852
26.837	0.027	461.387	0.513	1.3768886069E-001	6.6476567609E-002	-2.0206721147E-001	0.970	0.912	0.850
26.854	0.026	461.395	0.530	1.3421795827E-001	6.4894615809E-002	-2.1693620859E-001	0.971	0.931	0.850
26.892	0.025	461.416	0.549	1.2463344611E-001	6.0448617815E-002	-2.4145334524E-001	0.974	0.979	0.851
26.911	0.025	461.426	0.564	1.2023464355E-001	5.8384416910E-002	-2.5274633180E-001	0.975	1.002	0.852
26.949	0.024	461.448	0.571	1.0934330742E-001	5.2982011337E-002	-2.6645381534E-001	0.973	1.054	0.858
26.972	0.023	461.461	0.582	1.0351969399E-001	4.9966796086E-002	-2.6807921482E-001	0.969	1.082	0.863
27.010	0.023	461.483	0.571	9.2463822492E-002	4.3875715415E-002	-2.5808880720E-001	0.953	1.143	0.879
27.032	0.021	461.495	0.581	8.7253896914E-002	4.0833631120E-002	-2.5040021468E-001	0.940	1.175	0.890
27.070	0.021	461.518	0.571	7.7001463236E-002	3.4689950702E-002	-2.3296523326E-001	0.905	1.255	0.917
27.090	0.019	461.529	0.557	7.2615528423E-002	3.2015853429E-002	-2.2070948070E-001	0.885	1.298	0.932
27.128	0.019	461.551	0.571	6.3690653448E-002	2.6678152752E-002	-2.0493367392E-001	0.841	1.409	0.970
27.149	0.018	461.562	0.563	5.9865392272E-002	2.4456773611E-002	-1.9473191082E-001	0.820	1.469	0.990
27.187	0.016	461.584	0.571	5.2057967796E-002	2.0077410897E-002	-1.9027380565E-001	0.775	1.615	1.038
27.206	0.016	461.595	0.571	4.8529094075E-002	1.8209337862E-002	-1.8388012927E-001	0.754	1.692	1.065
27.244	0.015	461.616	0.571	4.1443440829E-002	1.4554774338E-002	-1.7326526308E-001	0.705	1.879	1.132
27.271	0.014	461.632	0.571	3.7030322830E-002	1.2376928287E-002	-1.7068307324E-001	0.671	2.012	1.187
27.309	0.013	461.653	0.571	3.0181689706E-002	9.1071994169E-003	-1.6945702070E-001	0.606	2.256	1.304
27.343	0.012	461.673	0.594	2.4763321900E-002	6.6782269791E-003	-1.5370407575E-001	0.542	2.490	1.445
27.381	0.012	461.696	0.597	1.9186558558E-002	4.4112164872E-003	-1.3615941773E-001	0.462	2.780	1.660

27.419	0.011	461.718	0.561	1.4406854798E-002	2.6969857530E-003	-1.1152447944E-001	0.376	3.139	1.959
27.444	0.010	461.731	0.540	1.1871094017E-002	1.9411427194E-003	-9.7070229437E-002	0.328	3.388	2.173
27.482	0.007	461.752	0.554	8.4844722445E-003	1.0929977748E-003	-8.5292513404E-002	0.259	3.945	2.686
27.500	0.007	461.763	0.558	6.9467791563E-003	7.4387477202E-004	-8.2991526203E-002	0.215	4.346	3.008
27.538	0.005	461.784	0.552	3.8283230238E-003	2.5137559474E-004	-7.3289206937E-002	0.132	6.202	3.979
27.576	0.003	461.805	0.552	1.3723042267E-003	3.8333468387E-005	-4.8125106529E-002	0.056	8.673	5.298
27.614	0.001	461.826	0.552	1.6786316841E-004	1.4576505528E-006	-1.6484317807E-002	0.033	2.875	2.784

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 mobilitazione resistenza al taglio verticale interconcio ZhU et al.(2003)
FS_qFEM(x)(-) : fattore di sicurezza locale stimato (locale in X) by qFEM
FS_srmFEM(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)
25.338	0.038	0.040	18.185	0.015	0.001	0.019	0.001
25.376	0.038	0.040	18.185	0.046	0.002	0.058	0.002
25.414	0.038	0.040	18.185	0.076	0.003	0.097	0.004
25.452	0.038	0.040	18.185	0.107	0.004	0.136	0.005
25.490	0.038	0.040	18.185	0.137	0.005	0.175	0.007
25.528	0.003	0.004	18.185	0.154	0.001	0.196	0.001
25.531	0.038	0.040	18.185	0.170	0.007	0.217	0.009
25.569	0.038	0.040	18.185	0.201	0.008	0.256	0.010
25.607	0.025	0.026	18.185	0.226	0.006	0.289	0.008
25.632	0.038	0.040	18.185	0.251	0.010	0.321	0.013
25.670	0.034	0.036	18.185	0.280	0.010	0.359	0.013
25.704	0.038	0.040	18.185	0.309	0.012	0.396	0.016
25.742	0.027	0.028	18.185	0.335	0.009	0.429	0.012
25.769	0.038	0.040	18.185	0.361	0.014	0.463	0.019
25.807	0.019	0.020	18.185	0.384	0.008	0.492	0.010
25.826	0.038	0.040	18.185	0.407	0.016	0.523	0.021
25.864	0.020	0.021	18.185	0.430	0.009	0.552	0.011
25.884	0.038	0.040	18.185	0.453	0.018	0.583	0.023
25.922	0.020	0.021	18.185	0.476	0.010	0.612	0.013
25.941	0.038	0.040	18.185	0.499	0.020	0.644	0.026
25.979	0.020	0.021	18.185	0.522	0.011	0.673	0.014
25.999	0.038	0.040	18.185	0.545	0.022	0.705	0.028
26.037	0.019	0.020	18.185	0.568	0.012	0.733	0.015
26.057	0.038	0.040	18.337	0.595	0.024	0.763	0.031
26.095	0.019	0.020	18.337	0.617	0.013	0.790	0.016
26.114	0.038	0.040	18.490	0.643	0.026	0.820	0.033
26.152	0.019	0.020	18.490	0.665	0.013	0.845	0.017
26.171	0.038	0.040	18.642	0.691	0.028	0.873	0.035
26.209	0.019	0.020	18.642	0.713	0.014	0.898	0.018
26.229	0.038	0.040	18.795	0.738	0.030	0.924	0.037
26.267	0.019	0.020	18.795	0.759	0.015	0.947	0.019
26.286	0.038	0.040	18.952	0.785	0.032	0.971	0.039
26.324	0.020	0.021	18.952	0.806	0.017	0.994	0.021
26.344	0.038	0.040	19.105	0.831	0.033	1.018	0.041

26.382	0.020	0.022	19.105	0.852	0.018	1.041	0.022
26.402	0.038	0.040	19.256	0.877	0.035	1.065	0.043
26.440	0.022	0.023	19.256	0.897	0.021	1.087	0.025
26.462	0.038	0.040	19.401	0.922	0.037	1.110	0.045
26.500	0.023	0.025	19.401	0.943	0.023	1.132	0.028
26.523	0.038	0.041	20.798	1.008	0.041	1.128	0.046
26.561	0.019	0.020	20.798	1.022	0.020	1.142	0.023
26.580	0.038	0.041	22.338	1.083	0.045	1.125	0.046
26.618	0.017	0.019	22.338	1.091	0.020	1.132	0.021
26.635	0.038	0.042	23.951	1.146	0.048	1.105	0.046
26.673	0.016	0.017	23.951	1.147	0.020	1.106	0.019
26.689	0.038	0.042	25.502	1.188	0.050	1.073	0.045
26.727	0.018	0.020	25.502	1.181	0.024	1.067	0.021
26.745	0.038	0.043	27.013	1.210	0.052	1.028	0.044
26.783	0.016	0.018	27.013	1.196	0.021	1.016	0.018
26.799	0.038	0.043	28.502	1.212	0.052	0.973	0.042
26.837	0.017	0.020	28.502	1.189	0.023	0.954	0.019
26.854	0.038	0.044	29.856	1.189	0.052	0.909	0.040
26.892	0.019	0.021	29.856	1.156	0.025	0.884	0.019
26.911	0.038	0.044	31.042	1.140	0.051	0.838	0.037
26.949	0.023	0.027	31.042	1.096	0.029	0.806	0.022
26.972	0.038	0.044	31.043	1.053	0.047	0.776	0.034
27.010	0.022	0.025	31.043	1.010	0.026	0.743	0.019
27.032	0.038	0.044	31.043	0.967	0.043	0.713	0.032
27.070	0.021	0.024	31.043	0.924	0.022	0.681	0.016
27.090	0.038	0.044	31.043	0.882	0.039	0.651	0.029
27.128	0.020	0.024	31.043	0.840	0.020	0.618	0.015
27.149	0.038	0.044	31.044	0.798	0.035	0.588	0.026
27.187	0.019	0.023	31.044	0.757	0.017	0.557	0.013
27.206	0.038	0.044	31.044	0.716	0.032	0.527	0.023
27.244	0.027	0.031	31.044	0.669	0.021	0.492	0.015
27.271	0.038	0.044	31.045	0.622	0.028	0.458	0.020
27.309	0.034	0.040	31.045	0.571	0.023	0.419	0.017
27.343	0.038	0.044	31.045	0.519	0.023	0.381	0.017
27.381	0.038	0.044	31.045	0.464	0.021	0.340	0.015
27.419	0.025	0.029	31.045	0.419	0.012	0.306	0.009
27.444	0.038	0.044	31.045	0.374	0.017	0.273	0.012
27.482	0.018	0.022	31.045	0.333	0.007	0.243	0.005
27.500	0.038	0.044	31.045	0.275	0.012	0.201	0.009
27.538	0.038	0.044	31.045	0.187	0.008	0.136	0.006
27.576	0.038	0.044	31.045	0.098	0.004	0.071	0.003
27.614	0.023	0.027	31.045	0.027	0.001	0.019	0.001

LEGENDA SIMBOLI

X(m) : Ascissa sinistra concio

dx(m) : Larghezza concio

dl(m) : lunghezza base concio

alpha(°) : Angolo pendenza base concio

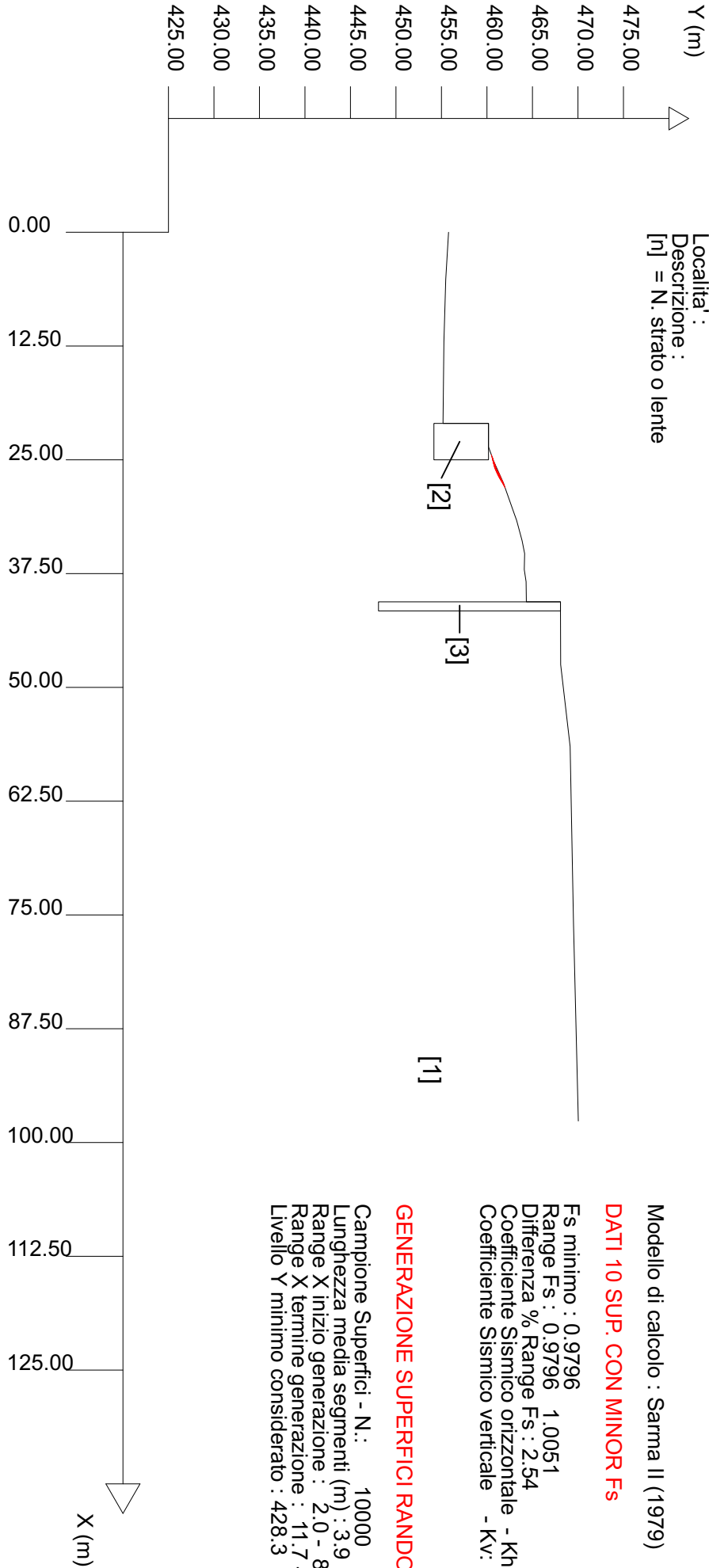
TauStress(kPa) : Sforzo di taglio su base concio

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

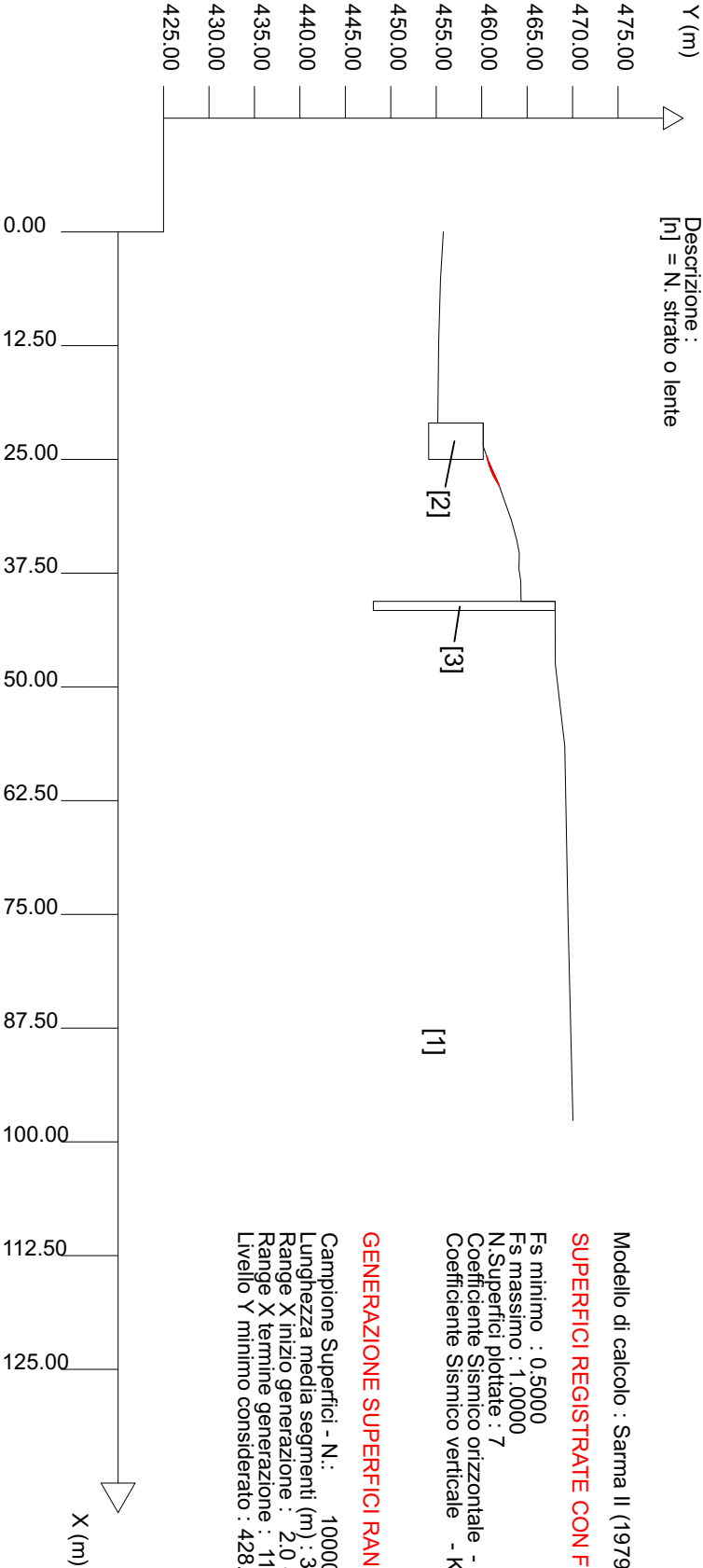
Data : 5/2/2023
Localita' :
Descrizione :
[n] = N. strato o lente



Parametri Geotecnici degli strati # -----

N.	phi'	C'	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0
2	9.00	300.00	0	24.00	24.00	0	0	0	0
3	9.00	300.00	0	24.00	24.00	0	0	0	0

Data : 5/2/2023
Localita' :
Descrizione :
[n] = N, strato o lente



Modello di calcolo : Sarma II (1979)

SUPERFICI REGISTRATE CON F_s ENTRO INTERVALLO PREDEFINITO

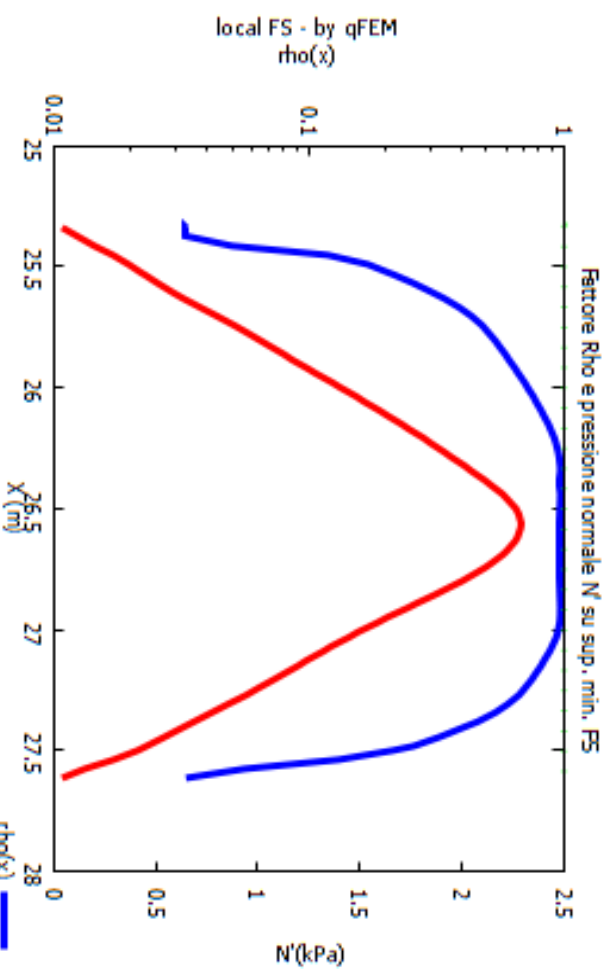
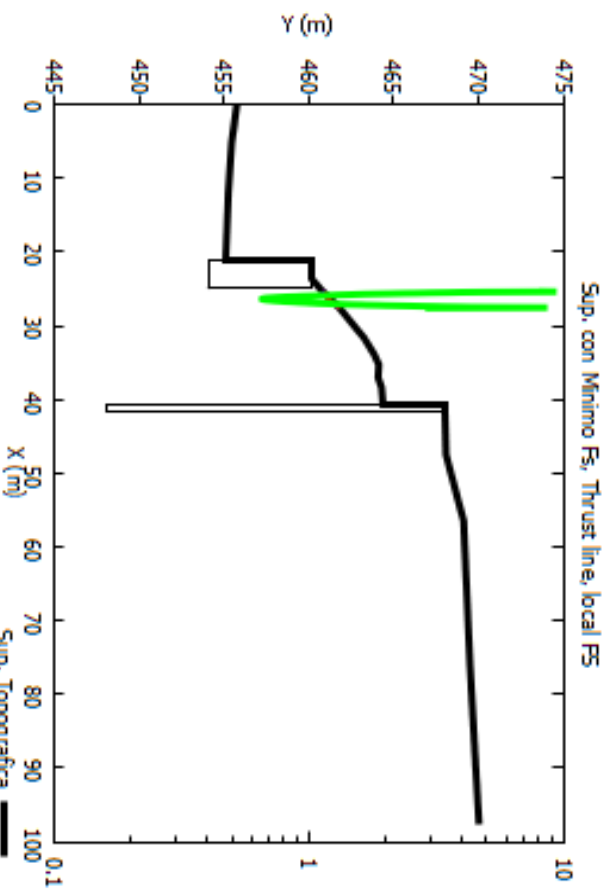
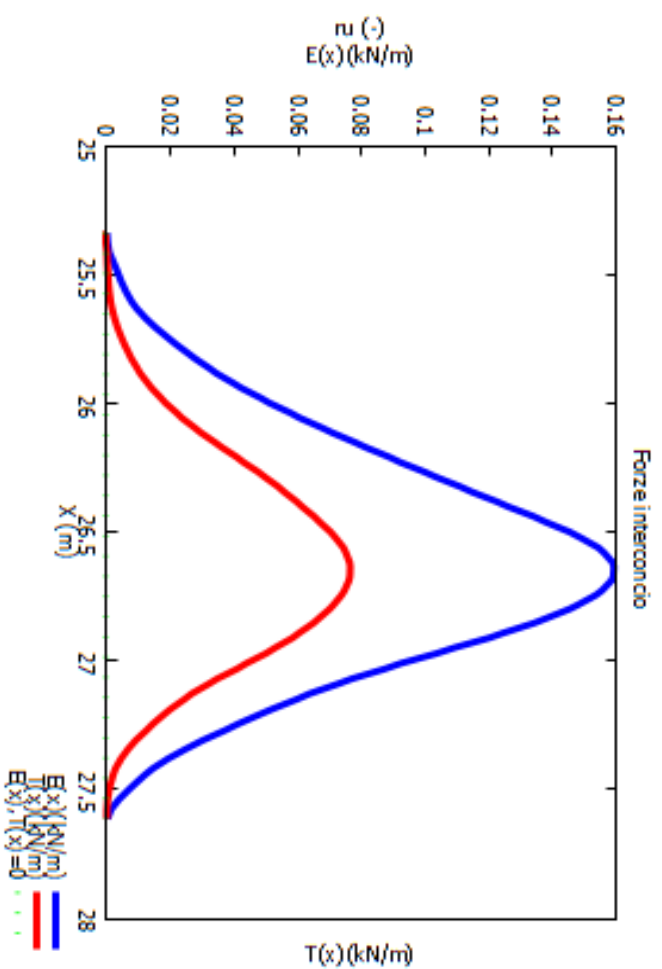
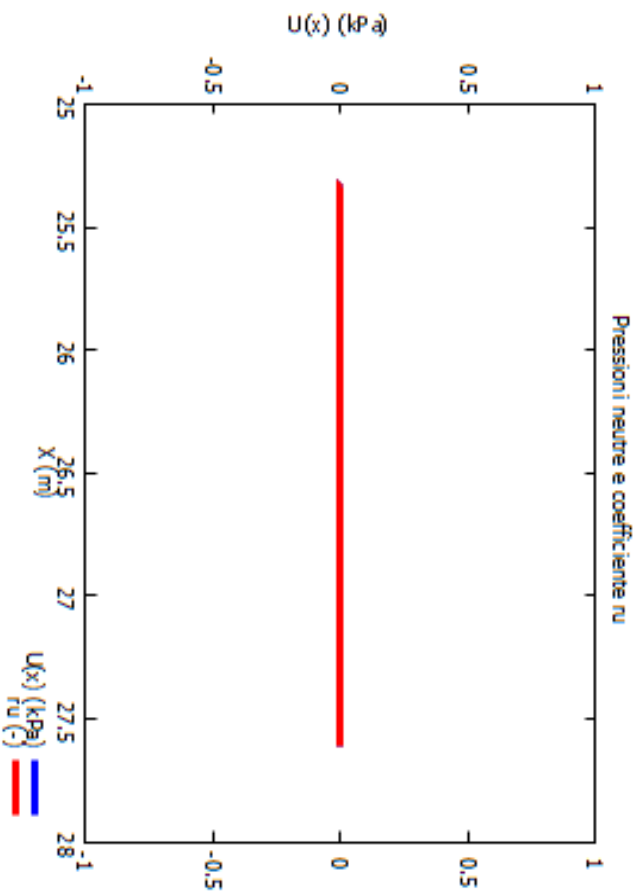
Fs minimo : 0.5000
Fs massimo : 1.0000
N.Superfici plotate : 7
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 3.9
Range X inizio generazione : 2.0 - 89.8
Range X termine generazione : 11.7 - 95.7
Livello Y minimo considerato : 428.3

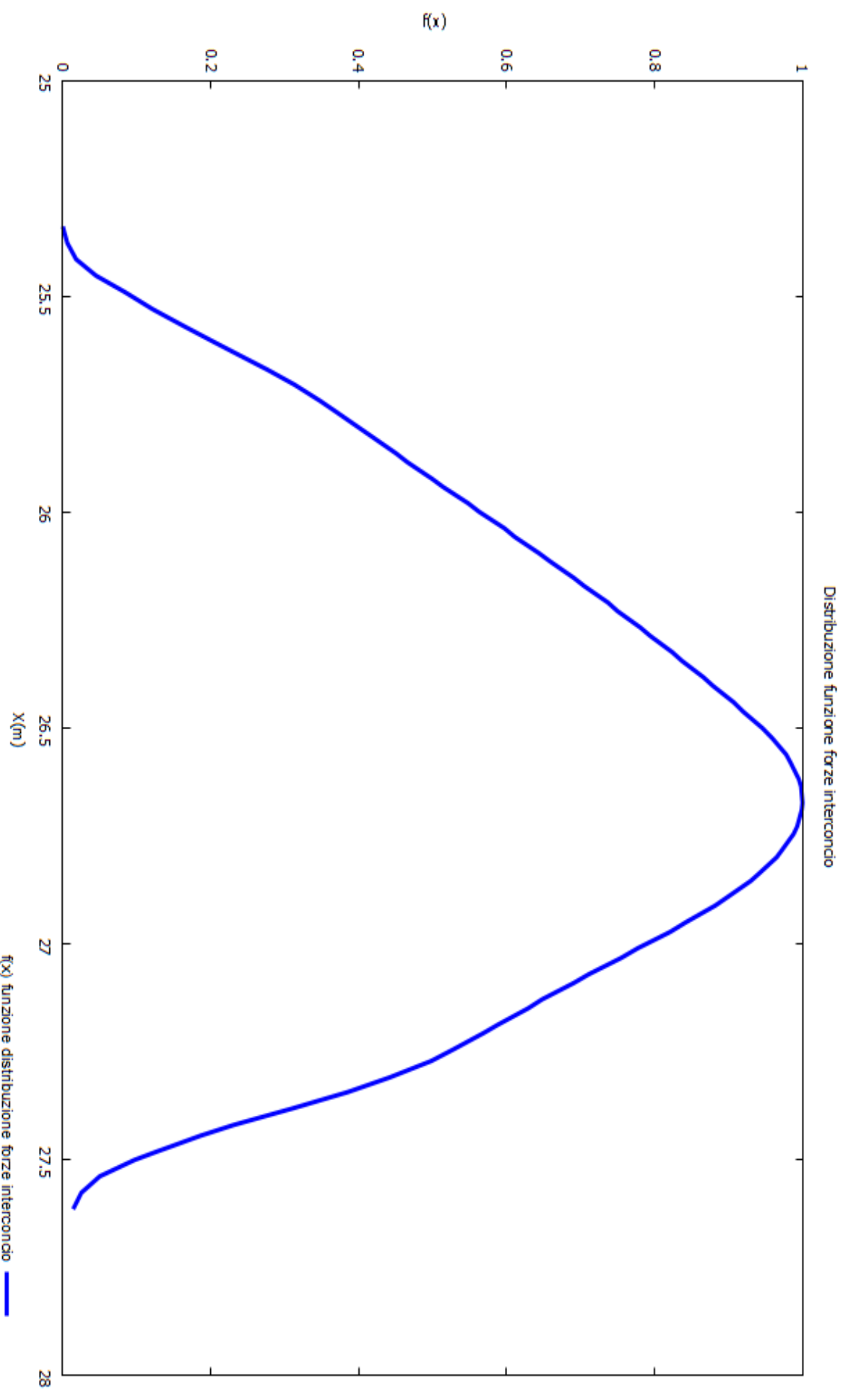
Parametri Geotecnici degli strati # -----

N.	phi°	C' kPa	Cu kPa	Gamm kN/m3	GammSat kN/m3	sgci MPa	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0
2	9.00	300.00	0	24.00	24.00	0	0	0	0
3	9.00	300.00	0	24.00	24.00	0	0	0	0

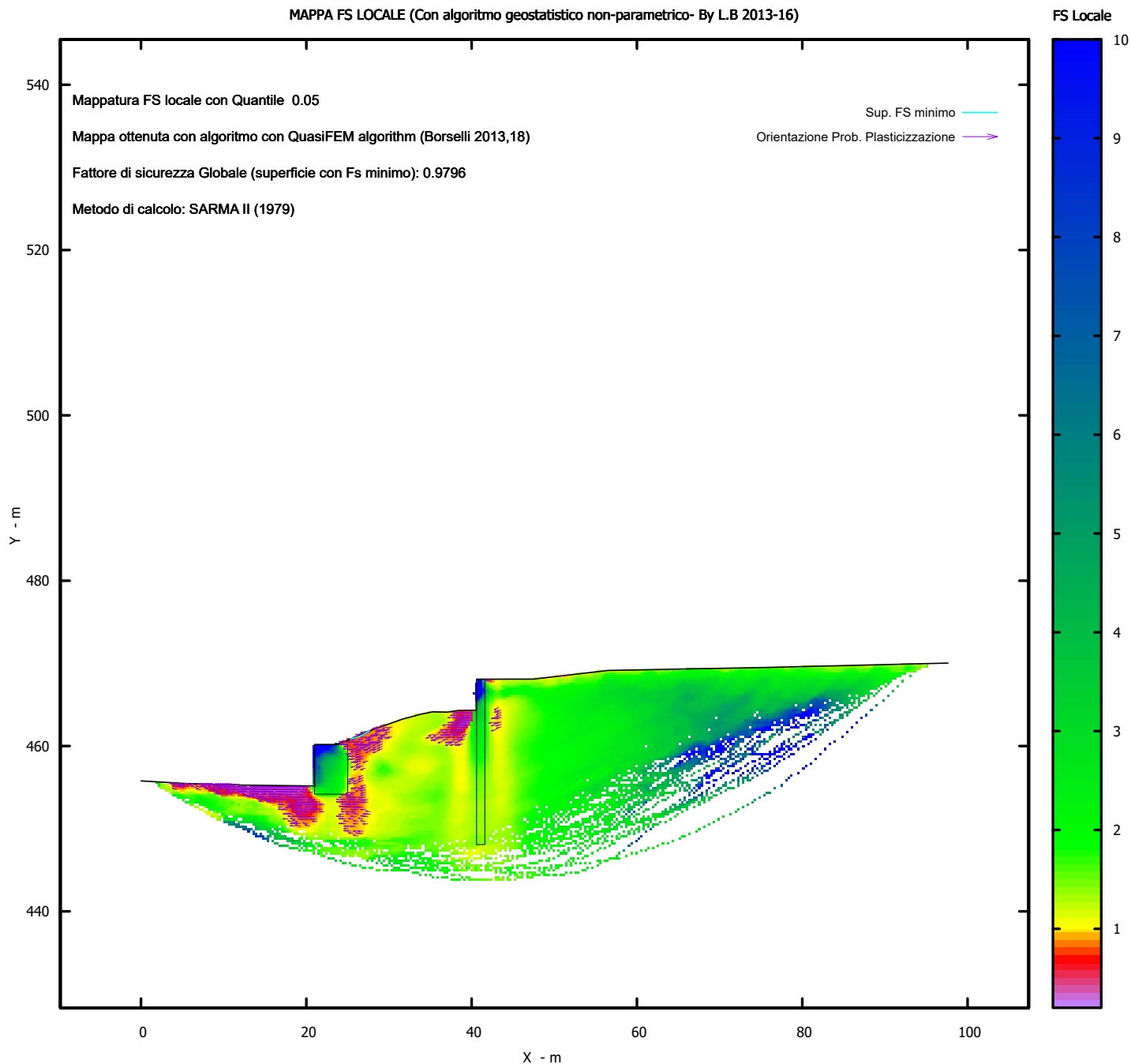


Metodo di calcolo: SARMA II (1979)

SSAP2010 (versione 5.0 - 2020) - DISTRIBUZIONE FORZE e PRESSIONI



MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



SEZIONE DI STABILITA'

METODOLOGIA
BERSELLI

SSAP 5.0 - Slope Stability Analysis Program (1991,2020)

WWW.SSAP.EU

Build No. 11719

BY

Dr. Geol. LORENZO BORSELLI *,**

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** Gia' Ricercatore CNR-IRPI fino a Luglio 2011

Ultima Revisione struttura tabelle del report: 12 settembre 2020

File report: C:\SSAP\FERRANDINA\STABILITA\RESULTATI\BERSELLI\BERSELLI.txt

Data: 5/2/2023

Localita' :

Descrizione:

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	455.78	25.00	454.17	41.60	448.08	-	-		
5.19	455.47	25.00	460.17	41.60	468.08	-	-		
12.00	455.27	23.58	460.17	40.60	468.08	-	-		
21.00	455.17	21.00	460.17	40.60	464.33	-	-		
21.00	460.17	21.00	455.17	40.60	448.08	-	-		
23.58	460.17	21.00	454.17	41.60	448.08	-	-		
25.18	460.75	25.00	454.17	-	-	-	-		
27.50	461.79	-	-	-	-	-	-		
30.90	462.99	-	-	-	-	-	-		
31.65	463.26	-	-	-	-	-	-		
33.88	463.86	-	-	-	-	-	-		
35.30	464.14	-	-	-	-	-	-		
37.06	464.10	-	-	-	-	-	-		
38.39	464.30	-	-	-	-	-	-		
40.60	464.33	-	-	-	-	-	-		
40.60	468.08	-	-	-	-	-	-		
41.60	468.08	-	-	-	-	-	-		
47.50	468.10	-	-	-	-	-	-		
56.50	469.14	-	-	-	-	-	-		
75.95	469.51	-	-	-	-	-	-		
97.64	470.04	-	-	-	-	-	-		

ASSENZA DI FALDA

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

	fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO 1	26.00	0.00	0.00	19.10	19.30	1.484	0.00	0.00	0.00	0.00
STRATO 2	9.00	300.00	0.00	24.00	24.00	1000.000	0.00	0.00	0.00	0.00
STRATO 3	9.00	300.00	0.00	24.00	24.00	1000.000	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)

----- 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): 3.9 (+/-) 50%

INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 1.95 89.83

LIVELLO MINIMO CONSIDERATO (Ymin): 428.32

INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 11.72 95.69

*** TOTALE SUPERFICI GENERATE : 10000

----- INFORMAZIONI PARAMETRI DI CALCOLO -----

METODO DI CALCOLO : BORSELLI (Borselli, 2016)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : A (rapido)

COEFFICIENTE SISMICO UTILIZZATO Kh : 0.0500

COEFFICIENTE SISMICO UTILIZZATO Kv (assunto Positivo): 0.0250

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)	0.9697	- Min.	- X	Y	Lambda= 1.2500
	25.05			460.70	
	25.27			460.76	
	25.39			460.78	
	25.47			460.81	
	25.53			460.83	
	25.60			460.85	
	25.66			460.87	
	25.72			460.89	
	25.79			460.92	
	25.86			460.95	
	25.92			460.98	
	25.99			461.01	
	26.05			461.03	
	26.12			461.06	
	26.18			461.09	
	26.25			461.12	
	26.31			461.15	

26.38	461.18
26.44	461.22
26.51	461.25
26.57	461.28
26.64	461.31
26.70	461.34
26.77	461.38
26.83	461.41
26.90	461.44
26.96	461.47
27.03	461.51
27.09	461.54
27.16	461.58
27.23	461.61
27.31	461.66
27.43	461.72
27.65	461.84

Fattore di sicurezza (FS) 0.9841 - N.2 -- X Y Lambda= 1.2500

25.47	460.88
25.64	460.92
25.73	460.94
25.79	460.95
25.85	460.97
25.90	460.98
25.95	460.99
26.00	461.01
26.05	461.02
26.11	461.04
26.16	461.06
26.21	461.07
26.25	461.09
26.30	461.11
26.35	461.13
26.40	461.16
26.45	461.18
26.50	461.21
26.55	461.24
26.60	461.27
26.65	461.30
26.70	461.33
26.75	461.36
26.81	461.39
26.86	461.41
26.91	461.44
26.96	461.47
27.01	461.50
27.06	461.53
27.11	461.56
27.16	461.59
27.23	461.63
27.31	461.68
27.48	461.78

Fattore di sicurezza (FS) 0.9849 - N.3 -- X Y Lambda= 1.2500

25.44	460.87
25.61	460.91
25.70	460.93
25.76	460.94

25.82	460.96
25.87	460.97
25.92	460.98
25.97	461.00
26.02	461.01
26.07	461.03
26.13	461.05
26.18	461.06
26.22	461.08
26.27	461.10
26.32	461.12
26.37	461.14
26.43	461.16
26.48	461.18
26.53	461.21
26.58	461.23
26.63	461.25
26.68	461.28
26.73	461.30
26.78	461.33
26.83	461.36
26.89	461.39
26.94	461.42
26.99	461.45
27.04	461.48
27.09	461.51
27.14	461.54
27.21	461.59
27.29	461.65
27.47	461.78

Fattore di sicurezza (FS)	0.9878	- N.4 --	X	Y	Lambda= 1.2500
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25.19	460.76
25.38	460.80
25.47	460.83
25.54	460.85
25.60	460.86
25.65	460.88
25.71	460.89
25.76	460.91
25.82	460.92
25.87	460.94
25.93	460.95
25.98	460.97
26.03	460.99
26.09	461.01
26.14	461.03
26.19	461.05
26.25	461.07
26.30	461.09
26.36	461.12
26.41	461.14
26.47	461.17
26.52	461.19
26.57	461.22
26.63	461.24
26.68	461.27
26.74	461.30
26.80	461.33
26.85	461.36

26.90	461.39
26.95	461.43
27.01	461.47
27.08	461.51
27.17	461.58
27.36	461.73

Fattore di sicurezza (FS)	0.9910	- N.5 --	X	Y	Lambda= 1.2500
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24.85	460.63
25.12	460.68
25.25	460.71
25.35	460.73
25.43	460.75
25.50	460.77
25.57	460.80
25.65	460.83
25.72	460.86
25.80	460.89
25.88	460.93
25.96	460.96
26.04	460.99
26.12	461.03
26.19	461.06
26.27	461.09
26.35	461.13
26.42	461.16
26.50	461.19
26.58	461.23
26.65	461.26
26.73	461.29
26.81	461.32
26.89	461.36
26.97	461.39
27.05	461.43
27.12	461.46
27.20	461.50
27.27	461.54
27.34	461.58
27.43	461.62
27.52	461.68
27.65	461.76
27.92	461.94

Fattore di sicurezza (FS)	0.9914	- N.6 --	X	Y	Lambda= 1.2500
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25.14	460.74
25.28	460.77
25.36	460.78
25.41	460.80
25.45	460.81
25.49	460.82
25.54	460.83
25.58	460.84
25.62	460.85
25.67	460.86
25.71	460.87
25.75	460.88
25.78	460.89
25.82	460.91
25.86	460.92

25.90	460.94
25.94	460.96
25.99	460.99
26.03	461.01
26.07	461.03
26.12	461.05
26.16	461.08
26.20	461.10
26.24	461.12
26.28	461.14
26.33	461.16
26.37	461.19
26.41	461.21
26.45	461.23
26.49	461.26
26.53	461.29
26.58	461.32
26.65	461.37
26.80	461.48

Fattore di sicurezza (FS) 0.9934 - N.7 -- X Y Lambda= 1.2500

25.73	461.00
25.91	461.04
26.01	461.06
26.07	461.07
26.13	461.09
26.19	461.10
26.24	461.12
26.29	461.13
26.35	461.15
26.41	461.17
26.46	461.19
26.52	461.21
26.57	461.23
26.62	461.25
26.67	461.27
26.72	461.30
26.78	461.32
26.83	461.35
26.89	461.38
26.94	461.41
27.00	461.44
27.05	461.47
27.11	461.49
27.16	461.52
27.22	461.55
27.27	461.58
27.33	461.61
27.38	461.63
27.43	461.66
27.49	461.69
27.55	461.73
27.61	461.76
27.71	461.82
27.89	461.93

Fattore di sicurezza (FS) 0.9935 - N.8 -- X Y Lambda= 0.4210

24.57	460.53
24.87	460.59

25.02	460.62
25.12	460.65
25.21	460.68
25.29	460.70
25.37	460.73
25.45	460.76
25.54	460.79
25.63	460.83
25.71	460.87
25.80	460.91
25.89	460.95
25.97	460.98
26.06	461.02
26.14	461.06
26.23	461.09
26.31	461.13
26.40	461.17
26.48	461.21
26.56	461.25
26.65	461.29
26.73	461.33
26.81	461.37
26.90	461.41
26.98	461.45
27.07	461.50
27.16	461.54
27.24	461.58
27.33	461.63
27.42	461.68
27.53	461.73
27.68	461.81
27.96	461.95

Fattore di sicurezza (FS)	0.9944	- N.9 --	X	Y	Lambda= 1.2500
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25.67	460.97
25.81	460.99
25.88	461.00
25.93	461.01
25.97	461.01
26.01	461.02
26.05	461.03
26.09	461.05
26.13	461.06
26.17	461.07
26.21	461.09
26.25	461.11
26.29	461.12
26.33	461.14
26.37	461.16
26.40	461.18
26.44	461.20
26.49	461.23
26.53	461.25
26.57	461.27
26.61	461.30
26.65	461.32
26.69	461.35
26.73	461.37
26.77	461.39
26.81	461.42

26.85	461.44
26.89	461.46
26.93	461.49
26.97	461.51
27.01	461.54
27.06	461.57
27.13	461.61
27.27	461.69

Fattore di sicurezza (FS) 0.9953 - N.10 -- X Y Lambda= 1.2500

25.07	460.71
25.23	460.75
25.31	460.76
25.36	460.78
25.42	460.79
25.46	460.80
25.51	460.81
25.56	460.82
25.60	460.83
25.65	460.84
25.70	460.86
25.74	460.87
25.79	460.88
25.83	460.90
25.87	460.92
25.92	460.94
25.96	460.96
26.02	460.98
26.06	461.01
26.11	461.03
26.15	461.06
26.20	461.08
26.25	461.11
26.29	461.13
26.34	461.16
26.38	461.19
26.43	461.22
26.48	461.25
26.52	461.28
26.57	461.31
26.62	461.34
26.68	461.38
26.76	461.43
26.92	461.53

----- 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	0.970	1.6	1.7	-0.2	Deficit
2	0.984	1.4	1.4	-0.2	Deficit
3	0.985	1.7	1.7	-0.2	Deficit
4	0.988	2.0	2.0	-0.2	Deficit
5	0.991	3.1	3.1	-0.3	Deficit
6	0.991	1.2	1.2	-0.1	Deficit
7	0.993	1.8	1.8	-0.2	Deficit
8	0.994	2.6	2.6	-0.3	Deficit
9	0.994	1.0	1.0	-0.1	Deficit

10 0.995 1.3 1.3 -0.1 Deficit

Esito analisi: DEFICIT di RESISTENZA!

Valore massimo di DEFICIT di RESISTENZA(kN/m): -0.3

Note: FTR --> Forza totale Resistente lungo la superficie
di scivolamento

FTA --> Forza totale Agente lungo la superficie
di scivolamento

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)	
25.047	0.043	13.55	0.00	0.00	0.00	0.00	26.00	0.00
25.090	0.043	13.55	0.01	0.00	0.00	0.00	26.00	0.00
25.133	0.043	13.55	0.01	0.00	0.00	0.00	26.00	0.00
25.175	0.005	13.55	0.00	0.00	0.00	0.00	26.00	0.00
25.180	0.043	13.55	0.02	0.00	0.00	0.00	26.00	0.00
25.223	0.043	13.55	0.02	0.00	0.00	0.00	26.00	0.00
25.266	0.008	13.55	0.01	0.00	0.00	0.00	26.00	0.00
25.273	0.043	14.18	0.03	0.00	0.00	0.00	26.00	0.00
25.316	0.043	14.18	0.04	0.00	0.00	0.00	26.00	0.00
25.359	0.027	14.18	0.03	0.00	0.00	0.00	26.00	0.00
25.386	0.043	15.39	0.05	0.00	0.00	0.00	26.00	0.00
25.429	0.036	15.39	0.05	0.00	0.00	0.00	26.00	0.00
25.465	0.043	16.71	0.06	0.00	0.00	0.00	26.00	0.00
25.508	0.026	16.71	0.04	0.00	0.00	0.00	26.00	0.00
25.534	0.043	18.32	0.07	0.00	0.00	0.00	26.00	0.00
25.577	0.021	18.32	0.04	0.00	0.00	0.00	26.00	0.00
25.598	0.043	19.52	0.08	0.00	0.00	0.00	26.00	0.00
25.641	0.019	19.52	0.03	0.00	0.00	0.00	26.00	0.00
25.660	0.043	20.72	0.08	0.00	0.00	0.00	26.00	0.00
25.703	0.020	20.72	0.04	0.00	0.00	0.00	26.00	0.00
25.723	0.043	21.83	0.08	0.00	0.00	0.00	26.00	0.00
25.766	0.022	21.83	0.04	0.00	0.00	0.00	26.00	0.00
25.788	0.043	22.83	0.09	0.00	0.00	0.00	26.00	0.00
25.831	0.026	22.83	0.05	0.00	0.00	0.00	26.00	0.00
25.857	0.043	23.15	0.09	0.00	0.00	0.00	26.00	0.00
25.900	0.024	23.15	0.05	0.00	0.00	0.00	26.00	0.00
25.924	0.043	23.48	0.09	0.00	0.00	0.00	26.00	0.00
25.967	0.023	23.48	0.05	0.00	0.00	0.00	26.00	0.00
25.989	0.043	23.81	0.09	0.00	0.00	0.00	26.00	0.00
26.032	0.022	23.81	0.05	0.00	0.00	0.00	26.00	0.00
26.054	0.043	24.14	0.09	0.00	0.00	0.00	26.00	0.00
26.097	0.022	24.14	0.05	0.00	0.00	0.00	26.00	0.00
26.119	0.043	24.47	0.09	0.00	0.00	0.00	26.00	0.00
26.161	0.021	24.47	0.04	0.00	0.00	0.00	26.00	0.00
26.183	0.043	24.80	0.09	0.00	0.00	0.00	26.00	0.00
26.226	0.022	24.80	0.04	0.00	0.00	0.00	26.00	0.00
26.247	0.043	25.12	0.09	0.00	0.00	0.00	26.00	0.00
26.290	0.022	25.12	0.05	0.00	0.00	0.00	26.00	0.00
26.312	0.043	25.43	0.09	0.00	0.00	0.00	26.00	0.00
26.355	0.023	25.43	0.05	0.00	0.00	0.00	26.00	0.00
26.378	0.043	25.61	0.09	0.00	0.00	0.00	26.00	0.00

26.421	0.023	25.61	0.04	0.00	0.00	26.00	0.00
26.444	0.043	25.79	0.08	0.00	0.00	26.00	0.00
26.487	0.022	25.79	0.04	0.00	0.00	26.00	0.00
26.509	0.043	25.97	0.08	0.00	0.00	26.00	0.00
26.552	0.022	25.97	0.04	0.00	0.00	26.00	0.00
26.574	0.043	26.15	0.08	0.00	0.00	26.00	0.00
26.617	0.022	26.15	0.04	0.00	0.00	26.00	0.00
26.638	0.043	26.33	0.08	0.00	0.00	26.00	0.00
26.681	0.022	26.33	0.04	0.00	0.00	26.00	0.00
26.703	0.043	26.51	0.07	0.00	0.00	26.00	0.00
26.746	0.022	26.51	0.04	0.00	0.00	26.00	0.00
26.768	0.043	26.69	0.07	0.00	0.00	26.00	0.00
26.811	0.022	26.69	0.04	0.00	0.00	26.00	0.00
26.833	0.043	26.86	0.07	0.00	0.00	26.00	0.00
26.876	0.023	26.86	0.04	0.00	0.00	26.00	0.00
26.899	0.043	27.10	0.07	0.00	0.00	26.00	0.00
26.942	0.022	27.10	0.03	0.00	0.00	26.00	0.00
26.964	0.043	27.34	0.06	0.00	0.00	26.00	0.00
27.007	0.022	27.34	0.03	0.00	0.00	26.00	0.00
27.029	0.043	27.58	0.06	0.00	0.00	26.00	0.00
27.072	0.022	27.58	0.03	0.00	0.00	26.00	0.00
27.093	0.043	27.82	0.05	0.00	0.00	26.00	0.00
27.136	0.022	27.82	0.03	0.00	0.00	26.00	0.00
27.158	0.043	28.13	0.05	0.00	0.00	26.00	0.00
27.201	0.030	28.13	0.03	0.00	0.00	26.00	0.00
27.231	0.043	28.38	0.04	0.00	0.00	26.00	0.00
27.274	0.038	28.38	0.04	0.00	0.00	26.00	0.00
27.311	0.043	28.62	0.04	0.00	0.00	26.00	0.00
27.354	0.043	28.62	0.03	0.00	0.00	26.00	0.00
27.397	0.028	28.62	0.02	0.00	0.00	26.00	0.00
27.425	0.043	28.75	0.03	0.00	0.00	26.00	0.00
27.468	0.032	28.75	0.02	0.00	0.00	26.00	0.00
27.500	0.043	28.75	0.02	0.00	0.00	26.00	0.00
27.543	0.043	28.75	0.01	0.00	0.00	26.00	0.00
27.586	0.043	28.75	0.01	0.00	0.00	26.00	0.00
27.629	0.017	28.75	0.00	0.00	0.00	26.00	0.00

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_qFEM	FS_srmFEM			
(m)	(m)	(m)	(--)	(kN/m)	(kN/m)		(kN)	(--)	(--)	(--)		
25.047	0.000	460.702	0.290	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	0.0000000000E+000	0.834	0.645	0.725	
25.090	0.001	460.713	0.290	3.2230258152E-004	1.3518964166E-004	2.2781850948E-002	0.834	0.645	0.725			
25.133	0.004	460.727	0.299	1.9540818045E-003	1.2679582509E-003	4.8329377822E-002	1.290	0.599	0.693			
25.175	0.006	460.739	0.289	4.4676882238E-003	2.7223370171E-003	5.8319471885E-002	1.211	0.629	0.716			
25.180	0.006	460.740	0.282	4.7351350582E-003	2.8640106080E-003	6.1645487598E-002	1.202	0.633	0.719			
25.223	0.008	460.752	0.277	8.7246477345E-003	4.8321956124E-003	9.6539819958E-002	1.101	0.681	0.754			
25.266	0.010	460.764	0.271	1.3015704799E-002	6.8958533420E-003	1.0799114565E-001	1.053	0.719	0.782			

25.273	0.010	460.766	0.298	1.3840872828E-002	7.2872010401E-003	1.1357940545E-001	1.047	0.726	0.787
25.316	0.012	460.779	0.328	1.9734126655E-002	1.0066898493E-002	1.5676988168E-001	1.014	0.774	0.822
25.359	0.016	460.794	0.345	2.7287592938E-002	1.3630598675E-002	1.8148297867E-001	0.993	0.826	0.861
25.386	0.018	460.803	0.361	3.2337186557E-002	1.6014359610E-002	1.9496492657E-001	0.985	0.857	0.885
25.429	0.023	460.819	0.379	4.1376813004E-002	2.0324811448E-002	2.1137931926E-001	0.977	0.904	0.921
25.465	0.027	460.833	0.385	4.9014668036E-002	2.3968061257E-002	2.0891783686E-001	0.972	0.935	0.946
25.508	0.030	460.850	0.384	5.7823134671E-002	2.8154803603E-002	1.9526304607E-001	0.968	0.962	0.968
25.534	0.032	460.860	0.379	6.2789789724E-002	3.0495262600E-002	1.8257558963E-001	0.966	0.974	0.977
25.577	0.035	460.876	0.374	7.0165833023E-002	3.3944440719E-002	1.5618955911E-001	0.962	0.985	0.987
25.598	0.035	460.884	0.381	7.3272743522E-002	3.5383226635E-002	1.4645351761E-001	0.960	0.988	0.990
25.641	0.037	460.900	0.380	7.9375438714E-002	3.8214617242E-002	1.2192614743E-001	0.957	0.992	0.994
25.660	0.037	460.907	0.393	8.1511167520E-002	3.9204443429E-002	1.1316015220E-001	0.956	0.993	0.995
25.703	0.038	460.925	0.397	8.6385277624E-002	4.1507070911E-002	9.6310502127E-002	0.955	0.993	0.997
25.723	0.038	460.932	0.416	8.8178933238E-002	4.2365983504E-002	8.6793620336E-002	0.955	0.993	0.997
25.766	0.039	460.951	0.421	9.1785359456E-002	4.4153322398E-002	6.8946334368E-002	0.956	0.994	0.998
25.788	0.039	460.959	0.438	9.3122961285E-002	4.4836116036E-002	5.9593878251E-002	0.957	0.994	0.998
25.831	0.041	460.979	0.443	9.5540839130E-002	4.6120968240E-002	4.4899686769E-002	0.960	0.994	0.998
25.857	0.041	460.990	0.440	9.6531010150E-002	4.6662395443E-002	3.6295732790E-002	0.961	0.994	0.998
25.900	0.042	461.010	0.449	9.7974026557E-002	4.7459855265E-002	2.5058838975E-002	0.963	0.994	0.998
25.924	0.042	461.020	0.438	9.8458481644E-002	4.7725640774E-002	1.9009617049E-002	0.964	0.994	0.998
25.967	0.042	461.039	0.442	9.9176454054E-002	4.8118925682E-002	1.0920006847E-002	0.965	0.994	0.998
25.989	0.043	461.049	0.443	9.9353534321E-002	4.8209305611E-002	6.2301842450E-003	0.965	0.994	0.998
26.032	0.043	461.068	0.443	9.9487335852E-002	4.8281618798E-002	-8.6745891159E-004	0.965	0.994	0.998
26.054	0.043	461.078	0.447	9.9424152541E-002	4.8250184537E-002	-5.1611597193E-003	0.965	0.994	0.998
26.097	0.043	461.097	0.446	9.9011845772E-002	4.8051700243E-002	-1.2440767448E-002	0.965	0.994	0.998
26.119	0.043	461.106	0.451	9.8711711725E-002	4.7906795162E-002	-1.6655431109E-002	0.965	0.994	0.998
26.161	0.043	461.126	0.449	9.7760480709E-002	4.7450861482E-002	-2.3767610857E-002	0.965	0.994	0.998
26.183	0.042	461.135	0.455	9.7234703301E-002	4.7199106384E-002	-2.7806359600E-002	0.965	0.994	0.998
26.226	0.042	461.155	0.451	9.5763269073E-002	4.6497157411E-002	-3.4498819028E-002	0.965	0.993	0.998
26.247	0.041	461.164	0.459	9.5013353076E-002	4.6139885289E-002	-3.8372724755E-002	0.965	0.993	0.998
26.290	0.042	461.185	0.457	9.3047086930E-002	4.5202493801E-002	-4.4635884126E-002	0.966	0.993	0.998
26.312	0.041	461.194	0.462	9.2070058178E-002	4.4736995602E-002	-4.8104476266E-002	0.966	0.993	0.997
26.355	0.041	461.215	0.463	8.9667672675E-002	4.3588460330E-002	-5.3398088603E-002	0.966	0.993	0.997
26.378	0.040	461.225	0.465	8.8464654585E-002	4.3012408450E-002	-5.6073009426E-002	0.967	0.993	0.997
26.421	0.040	461.246	0.466	8.5734949792E-002	4.1697953642E-002	-5.9461833801E-002	0.967	0.993	0.997
26.444	0.039	461.255	0.465	8.4442785128E-002	4.1074806717E-002	-6.1314391982E-002	0.967	0.993	0.997
26.487	0.039	461.276	0.465	8.1482642362E-002	3.9642195673E-002	-6.3845252379E-002	0.967	0.993	0.996
26.509	0.038	461.285	0.464	8.0133449296E-002	3.8989257547E-002	-6.5252998794E-002	0.967	0.993	0.996
26.552	0.038	461.306	0.466	7.6995515761E-002	3.7467890872E-002	-6.7838707498E-002	0.967	0.993	0.995
26.574	0.036	461.316	0.467	7.5568858601E-002	3.6777567814E-002	-6.9191923467E-002	0.968	0.993	0.995
26.617	0.036	461.337	0.468	7.2259288361E-002	3.5174008376E-002	-7.1413231293E-002	0.968	0.993	0.994
26.638	0.035	461.346	0.470	7.0768163827E-002	3.4453028120E-002	-7.2575053190E-002	0.968	0.994	0.994
26.681	0.035	461.367	0.470	6.7310613187E-002	3.2778036507E-002	-7.4326357186E-002	0.968	0.994	0.993
26.703	0.033	461.376	0.472	6.5754985658E-002	3.2025512674E-002	-7.5285865489E-002	0.968	0.994	0.993
26.746	0.033	461.397	0.472	6.2175606155E-002	3.0288354712E-002	-7.6579034654E-002	0.968	0.995	0.992
26.768	0.032	461.407	0.476	6.0570089781E-002	2.9509629085E-002	-7.7490877408E-002	0.969	0.995	0.992
26.811	0.032	461.428	0.477	5.6875293367E-002	2.7710475953E-002	-7.8908818294E-002	0.969	0.996	0.991
26.833	0.030	461.438	0.480	5.5191025740E-002	2.6890622466E-002	-7.9671891976E-002	0.969	0.996	0.991
26.876	0.030	461.460	0.482	5.1400904094E-002	2.5040584976E-002	-8.0927570517E-002	0.969	0.997	0.990
26.899	0.028	461.470	0.484	4.9640253221E-002	2.4183020589E-002	-8.1421369479E-002	0.969	0.997	0.989
26.942	0.028	461.491	0.484	4.5789257022E-002	2.2310137340E-002	-8.1768336238E-002	0.969	0.998	0.987
26.964	0.027	461.501	0.485	4.4061502934E-002	2.1475125498E-002	-8.1880808222E-002	0.969	0.999	0.985
27.007	0.026	461.523	0.485	4.0196391777E-002	1.9615923931E-002	-8.1914426947E-002	0.970	1.000	0.981
27.029	0.024	461.533	0.479	3.8499777614E-002	1.8807337730E-002	-8.1105317347E-002	0.971	1.000	0.978
27.072	0.023	461.554	0.474	3.4737553093E-002	1.7023548667E-002	-7.9040708914E-002	0.974	1.001	0.971
27.093	0.021	461.563	0.465	3.3119857994E-002	1.6263545655E-002	-7.7754781127E-002	0.976	1.002	0.967
27.136	0.020	461.584	0.478	2.9521930562E-002	1.4567981908E-002	-8.0442754418E-002	0.981	1.003	0.959
27.158	0.018	461.594	0.482	2.7811142419E-002	1.3757770138E-002	-7.9899229531E-002	0.983	1.003	0.955
27.201	0.016	461.615	0.481	2.4282509327E-002	1.2075210376E-002	-7.8474966868E-002	0.989	1.003	0.949
27.231	0.014	461.629	0.517	2.2033270632E-002	1.0987763863E-002	-8.0200381548E-002	0.991	1.002	0.946
27.274	0.015	461.653	0.541	1.8323627538E-002	9.1654356269E-003	-8.2420005308E-002	0.994	0.996	0.943

27.311	0.014	461.673	0.530	1.5336210901E-002	7.6867453496E-003	-7.6604828669E-002	0.996	0.989	0.943
27.354	0.014	461.696	0.523	1.2158141847E-002	6.1195001844E-003	-7.0318304441E-002	1.001	0.979	0.942
27.397	0.012	461.718	0.498	9.3047554436E-003	4.7210434780E-003	-5.9886920617E-002	1.009	0.966	0.939
27.425	0.010	461.731	0.476	7.7484856614E-003	3.9653965859E-003	-5.3567447899E-002	1.017	0.958	0.934
27.468	0.007	461.751	0.486	5.5809689381E-003	2.9137106487E-003	-5.0808867114E-002	1.038	0.944	0.923
27.500	0.006	461.767	0.505	3.9534024342E-003	2.1283969010E-003	-4.8038343549E-002	1.070	0.931	0.910
27.543	0.004	461.789	0.517	2.0644079701E-003	1.1786293604E-003	-3.8173334084E-002	1.135	0.905	0.875
27.586	0.003	461.812	0.512	6.7913741850E-004	3.9738954819E-004	-2.3532890397E-002	1.163	0.860	0.811
27.629	0.001	461.833	0.512	4.5906794021E-005	2.2390239481E-005	-6.1208674097E-003	0.970	0.966	0.959

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 mobilitazione resistenza al taglio verticale interconcio ZhU et al.(2003)
 FS_qFEM(x)(-) : fattore di sicurezza locale stimato (locale in X) by qFEM
 FS_srmFEM(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)
25.047	0.043	0.044	13.552	0.014	0.001	0.024	0.001
25.090	0.043	0.044	13.552	0.042	0.002	0.076	0.003
25.133	0.043	0.044	13.552	0.070	0.003	0.124	0.005
25.175	0.005	0.005	13.552	0.086	0.000	0.149	0.001
25.180	0.043	0.044	13.552	0.111	0.005	0.195	0.009
25.223	0.043	0.044	13.552	0.159	0.007	0.275	0.012
25.266	0.008	0.008	13.552	0.187	0.001	0.322	0.003
25.273	0.043	0.044	14.183	0.221	0.010	0.367	0.016
25.316	0.043	0.044	14.183	0.268	0.012	0.445	0.020
25.359	0.027	0.028	14.183	0.306	0.009	0.507	0.014
25.386	0.043	0.044	15.392	0.363	0.016	0.558	0.025
25.429	0.036	0.037	15.392	0.404	0.015	0.618	0.023
25.465	0.043	0.045	16.710	0.468	0.021	0.660	0.030
25.508	0.026	0.027	16.710	0.501	0.014	0.703	0.019
25.534	0.043	0.045	18.317	0.565	0.026	0.723	0.033
25.577	0.021	0.022	18.317	0.590	0.013	0.753	0.017
25.598	0.043	0.046	19.524	0.640	0.029	0.767	0.035
25.641	0.019	0.020	19.524	0.661	0.013	0.789	0.016
25.660	0.043	0.046	20.720	0.706	0.032	0.795	0.036
25.703	0.020	0.022	20.720	0.723	0.016	0.812	0.018
25.723	0.043	0.046	21.834	0.762	0.035	0.812	0.038
25.766	0.022	0.024	21.834	0.774	0.018	0.823	0.019
25.788	0.043	0.047	22.834	0.806	0.038	0.819	0.038
25.831	0.026	0.028	22.834	0.813	0.023	0.826	0.023
25.857	0.043	0.047	23.148	0.827	0.039	0.828	0.039
25.900	0.024	0.026	23.148	0.833	0.022	0.833	0.022
25.924	0.043	0.047	23.476	0.845	0.039	0.833	0.039
25.967	0.023	0.025	23.476	0.848	0.021	0.836	0.021
25.989	0.043	0.047	23.809	0.858	0.040	0.834	0.039
26.032	0.022	0.024	23.809	0.860	0.021	0.835	0.020
26.054	0.043	0.047	24.144	0.869	0.041	0.831	0.039
26.097	0.022	0.024	24.144	0.869	0.021	0.831	0.020

26.119	0.043	0.047	24.472	0.875	0.041	0.825	0.039
26.161	0.021	0.024	24.472	0.873	0.021	0.823	0.019
26.183	0.043	0.047	24.798	0.877	0.041	0.816	0.039
26.226	0.022	0.024	24.798	0.874	0.021	0.813	0.019
26.247	0.043	0.047	25.118	0.876	0.041	0.803	0.038
26.290	0.022	0.025	25.118	0.870	0.021	0.798	0.020
26.312	0.043	0.047	25.428	0.870	0.041	0.788	0.037
26.355	0.023	0.026	25.428	0.863	0.022	0.781	0.020
26.378	0.043	0.048	25.606	0.858	0.041	0.771	0.037
26.421	0.023	0.025	25.606	0.849	0.021	0.764	0.019
26.444	0.043	0.048	25.786	0.844	0.040	0.753	0.036
26.487	0.022	0.024	25.786	0.834	0.020	0.744	0.018
26.509	0.043	0.048	25.967	0.827	0.039	0.733	0.035
26.552	0.022	0.024	25.967	0.817	0.020	0.723	0.018
26.574	0.043	0.048	26.149	0.809	0.039	0.711	0.034
26.617	0.022	0.024	26.149	0.797	0.019	0.701	0.017
26.638	0.043	0.048	26.329	0.788	0.038	0.687	0.033
26.681	0.022	0.024	26.329	0.775	0.019	0.676	0.017
26.703	0.043	0.048	26.509	0.764	0.037	0.662	0.032
26.746	0.022	0.025	26.509	0.750	0.018	0.650	0.016
26.768	0.043	0.048	26.686	0.738	0.035	0.635	0.030
26.811	0.022	0.025	26.686	0.723	0.018	0.622	0.016
26.833	0.043	0.048	26.861	0.710	0.034	0.606	0.029
26.876	0.023	0.026	26.861	0.693	0.018	0.592	0.015
26.899	0.043	0.048	27.097	0.679	0.033	0.575	0.028
26.942	0.022	0.025	27.097	0.661	0.017	0.559	0.014
26.964	0.043	0.048	27.335	0.645	0.031	0.541	0.026
27.007	0.022	0.025	27.335	0.626	0.015	0.525	0.013
27.029	0.043	0.048	27.576	0.608	0.029	0.505	0.024
27.072	0.022	0.024	27.576	0.587	0.014	0.488	0.012
27.093	0.043	0.048	27.815	0.568	0.028	0.468	0.023
27.136	0.022	0.025	27.815	0.545	0.013	0.449	0.011
27.158	0.043	0.049	28.132	0.525	0.026	0.427	0.021
27.201	0.030	0.034	28.132	0.497	0.017	0.404	0.014
27.231	0.043	0.049	28.383	0.470	0.023	0.379	0.018
27.274	0.038	0.043	28.383	0.437	0.019	0.352	0.015
27.311	0.043	0.049	28.622	0.404	0.020	0.323	0.016
27.354	0.043	0.049	28.622	0.367	0.018	0.293	0.014
27.397	0.028	0.032	28.622	0.336	0.011	0.268	0.009
27.425	0.043	0.049	28.753	0.305	0.015	0.242	0.012
27.468	0.032	0.036	28.753	0.271	0.010	0.216	0.008
27.500	0.043	0.049	28.753	0.219	0.011	0.174	0.009
27.543	0.043	0.049	28.753	0.143	0.007	0.114	0.006
27.586	0.043	0.049	28.753	0.068	0.003	0.054	0.003
27.629	0.017	0.019	28.753	0.015	0.000	0.012	0.000

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

Data : 5/2/2023

Localita' :

Descrizione :

[m] = N. strato o lente

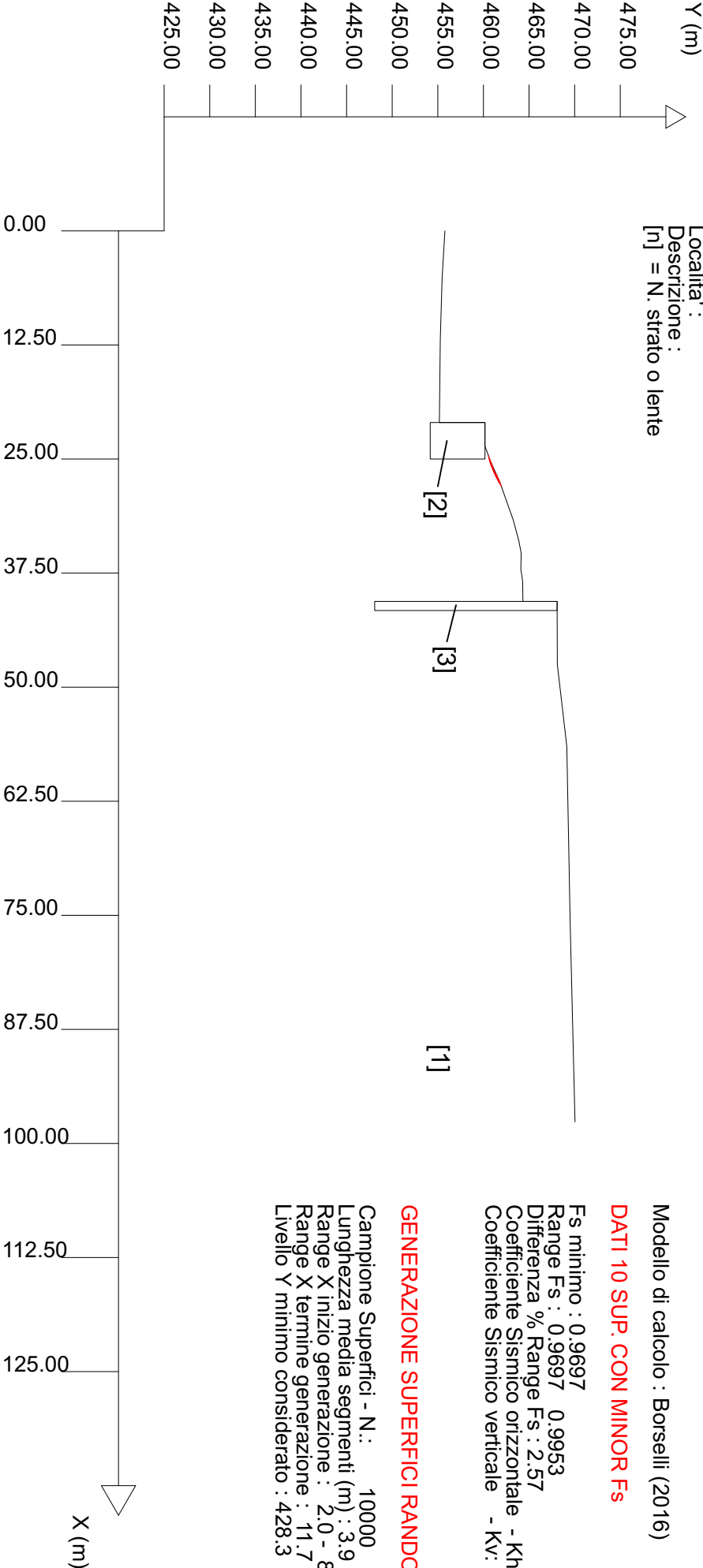
Modello di calcolo : Borselli (2016)

DATI 10 SUP. CON MINOR Fs

Fs minimo : 0.9697
Range Fs : 0.9697 0.9953
Differenza % Range Fs : 2.57
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 3.9
Range X inizio generazione : 2.0 - 89.8
Range X termine generazione : 11.7 - 95.7
Livello Y minimo considerato : 428.3

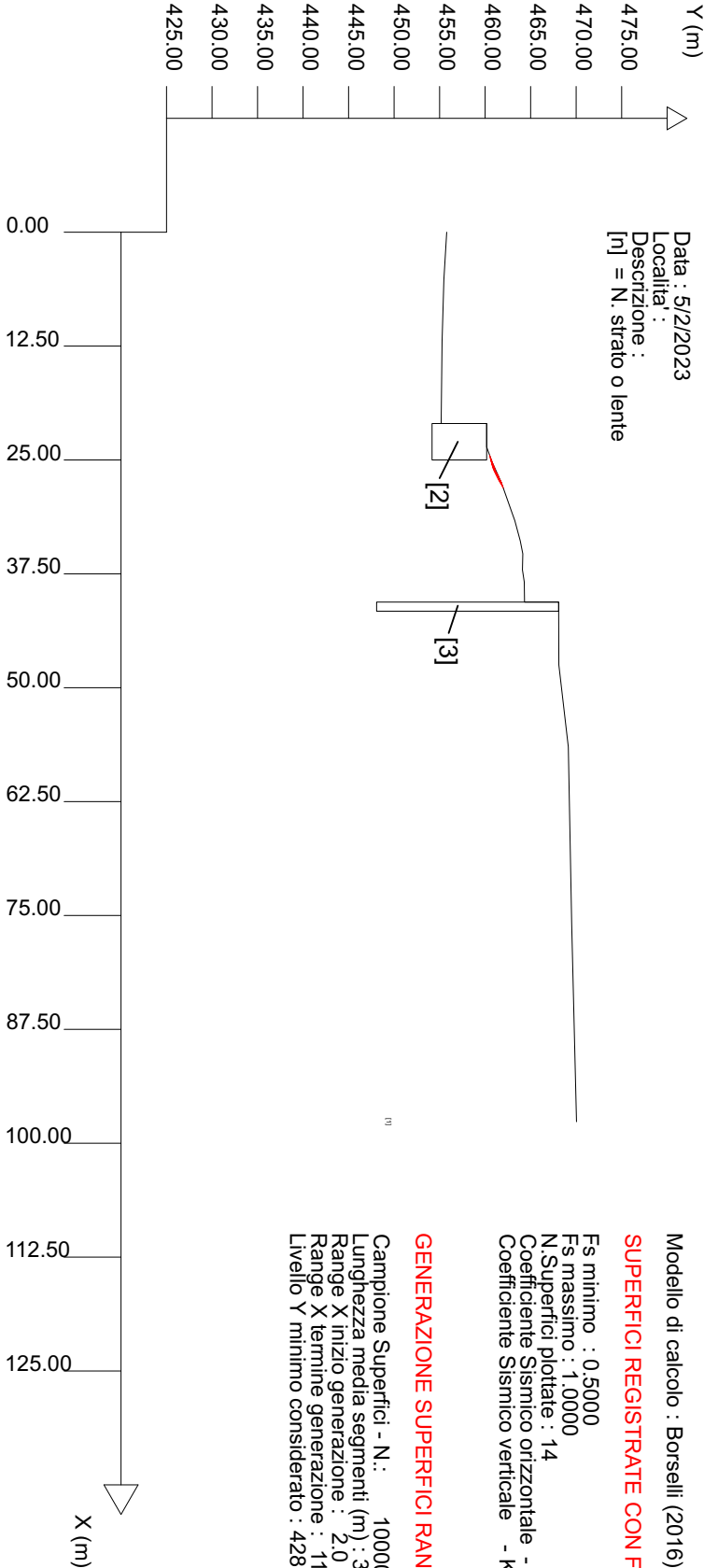


Parametri Geotecnici degli strati # -----

N.	phi` deg	C` kPa	Cu kPa	Gamm kN/m3	GammSat kN/m3	sgci MPa	GSI	mi	D
..	26.00	0	0	19.10	19.30	0	0	0	0
1	9.00	300.00	0	24.00	24.00	0	0	0	0
2	9.00	300.00	0	24.00	24.00	0	0	0	0
3	9.00	300.00	0	24.00	24.00	0	0	0	0

SSAP 5.0 (2020) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

Data : 5/2/2023
Località :
Descrizione :
[n] = N. strato o lente



Modello di calcolo : Borselli (2016)

SUPERFICI REGISTRATE CON Fs ENTRO INTERVALLO PREDEFINITO

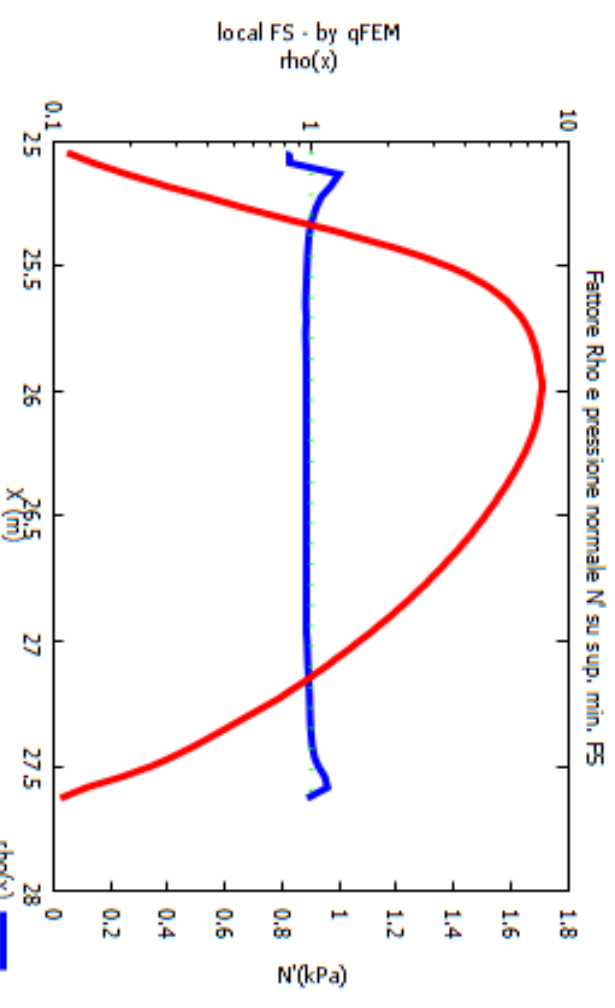
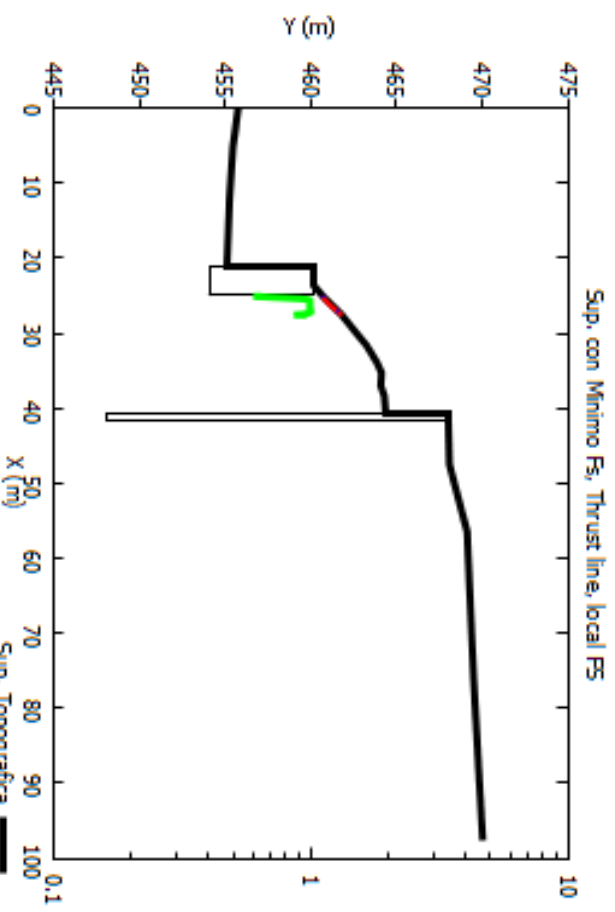
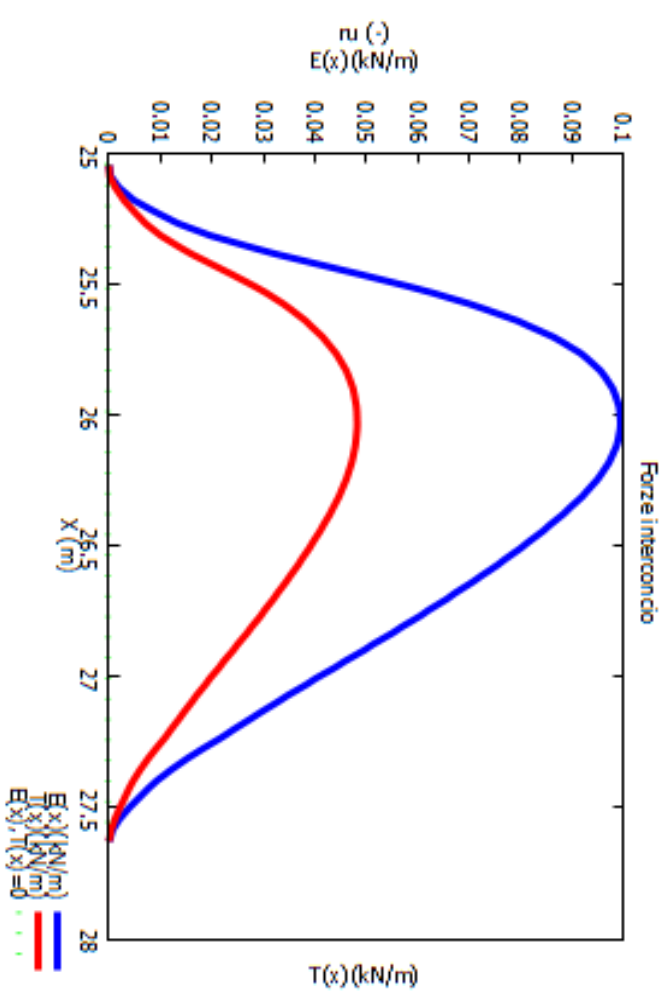
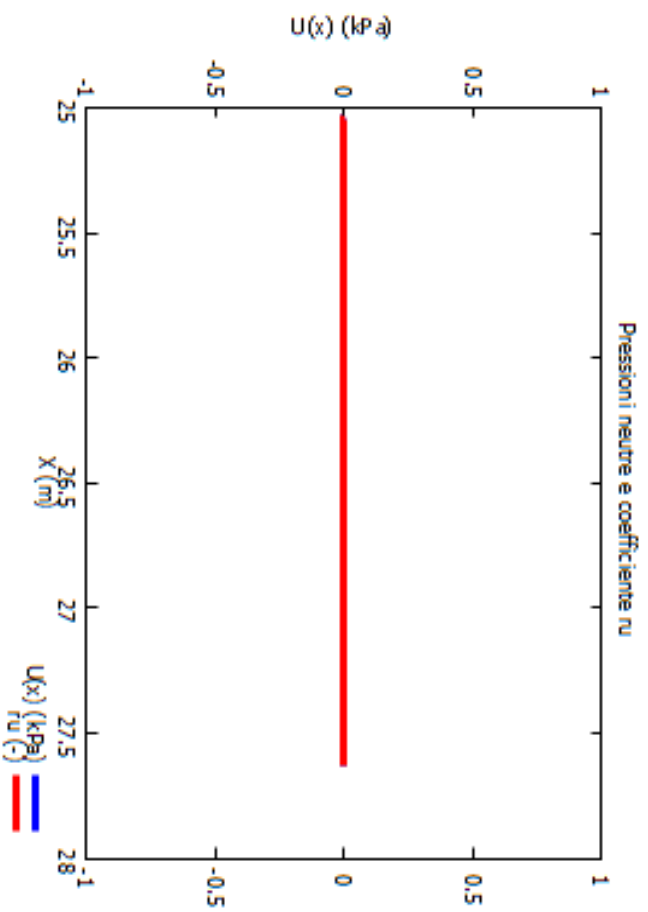
Fs minimo : 0.5000
Fs massimo : 1.0000
N.Superfici plottate : 14
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

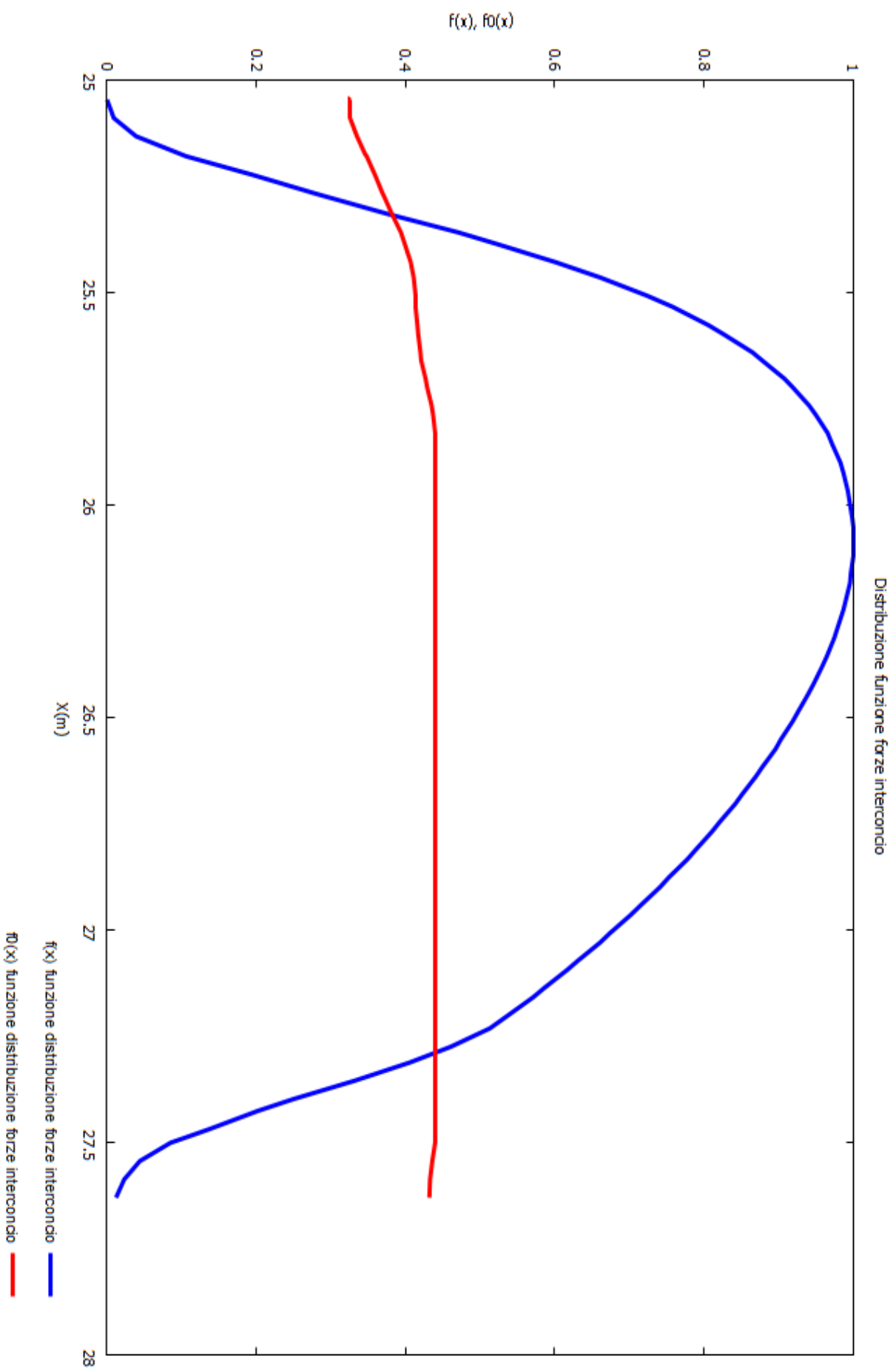
GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 3.9
Range X inizio generazione : 2.0 - 89.8
Range X termine generazione : 11.7 - 95.7
Livello Y minimo considerato : 428.3

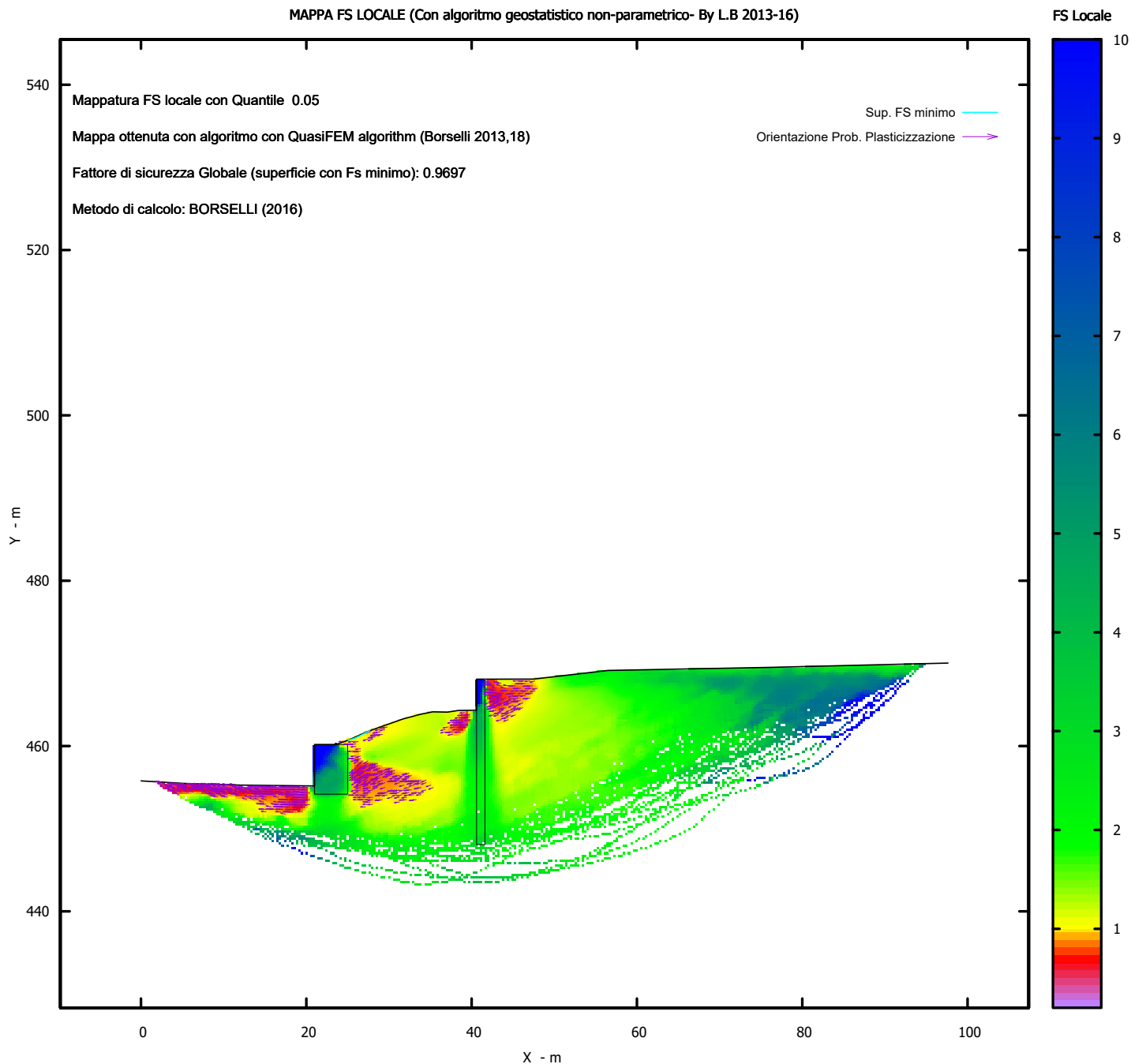
Parametri Geotecnici degli strati # -----

N.	phi°	C' kPa	Cu kPa	Gamm kN/m3	GammSat kN/m3	sgci MPa	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	26.00	0	0	19.10	19.30	0	0	0	0
2	9.00	300.00	0	24.00	24.00	0	0	0	0
3	9.00	300.00	0	24.00	24.00	0	0	0	0





MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)



Credits to: GNUPLOT 5.4.1 www.gnuplot.info