COMUNE DI VENTIMIGLIA

Provincia di Imperia

VERIFICA DI STABILITA'

ADEGUAMENTO TECNICO

(DEL PROGETTO APPROVATO CON D.G.P. N. 260 DEL 30.10.2014)

IMPRESA LIGURIA CAVE

DISCARICA DI RIFIUTI INERTI

Loc. Ciapagni - fraz. Trucco
Comune di Ventimiglia (IM)

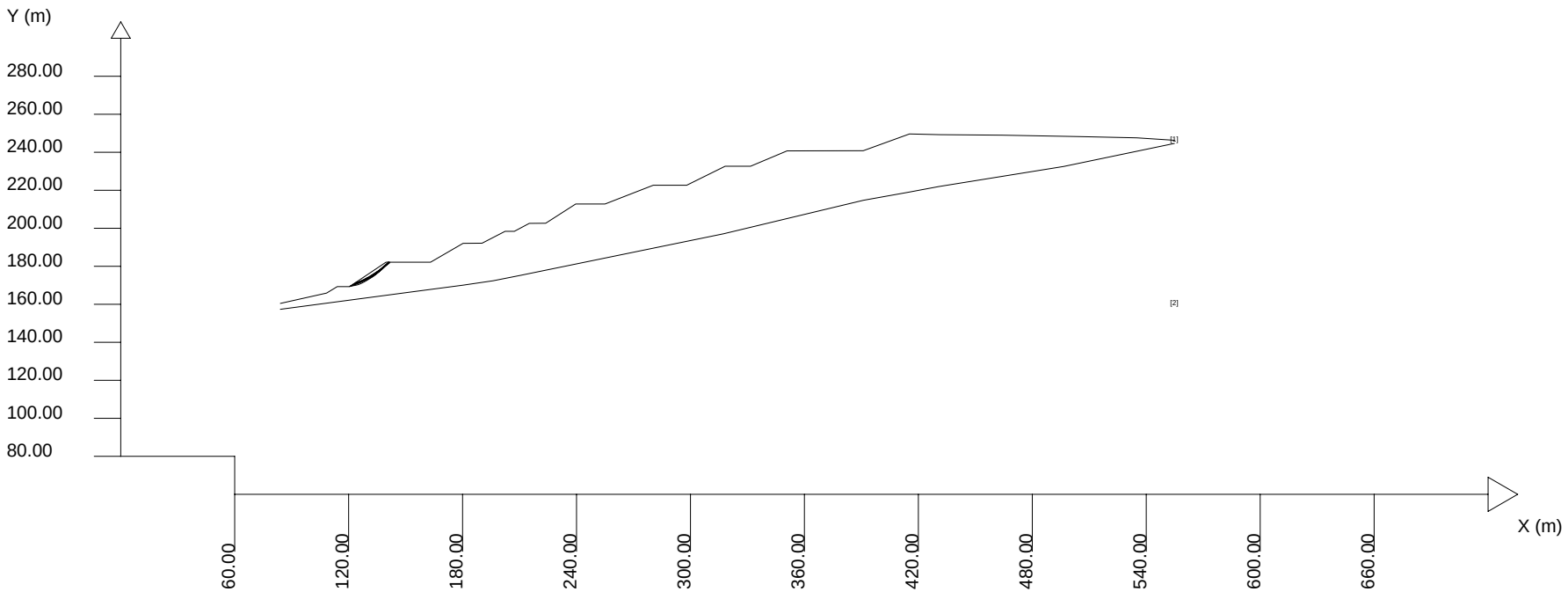
Firmato digitalmente da: AMPELIO VERRANDO
Data: 29/06/2022 17:25:11

Studio di Geologia

Ampelio VERRANDO – GEOLOGO
C.so Italia n.26 – 18012 BORDIGHERA (IM)
335/22.74.09
e_mail:geoverrando@gmail.com

SSAP 5.0.2 (2021) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

Data : 31/5/2022
Localita' : Ventimiglia - Discarica Inerti - Ciapagni
Descrizione : Impresa Liguria Cave
[n] = N. strato o lente



0 ----------

N.	phi`	C`	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	38.00	1.00	0	13.00	13.00	0	0	0	0
2	45.00	9.00	0	21.00	21.00	0	0	0	0

Modello di calcolo : Borselli (2016)

DATI 10 SUP. CON MINOR Fs

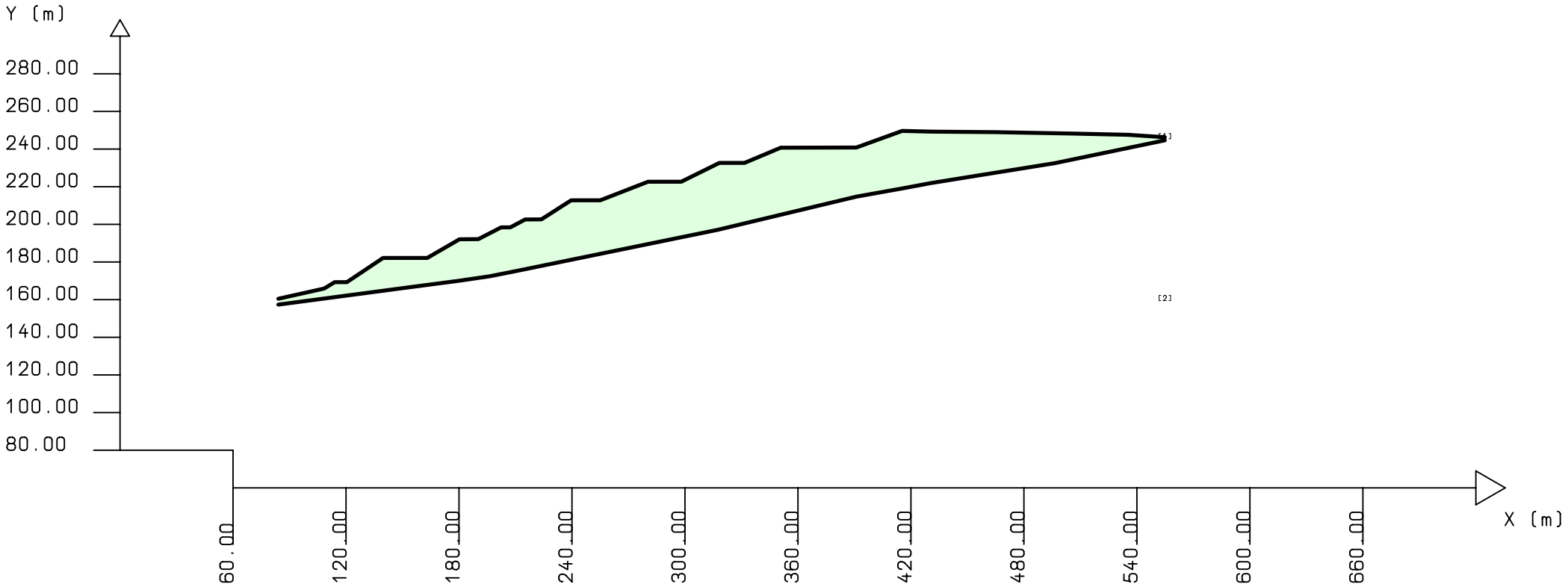
Fs minimo : 1.2207
Range Fs : 1.2207 1.2536
Differenza % Range Fs : 2.62
Coefficiente Sismico orizzontale - Kh: 0.0500
Coefficiente Sismico verticale - Kv: 0.0250

GENERAZIONE SUPERFICI RANDOM

Campione Superfici - N.: 10000
Lunghezza media segmenti (m) : 18.8
Range X inizio generazione : 93.5 - 517.2
Range X termine generazione : 140.5 - 545.4
Livello Y minimo considerato : 74.3

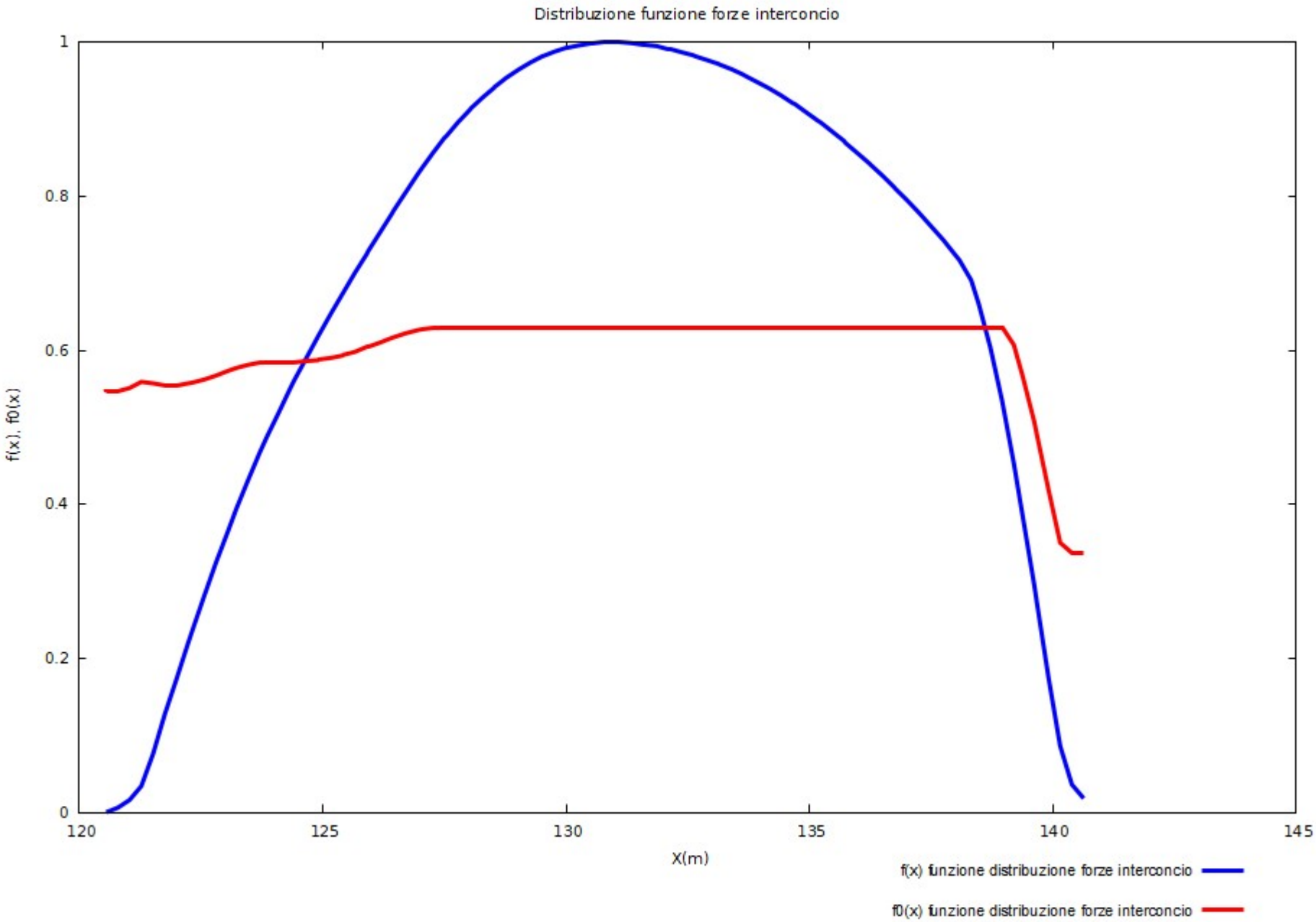
SSAP 5.0.2 (2021) - Slope Stability Analysis Program
Software by Dr.Geol. L.Borselli - www.lorenzo-borselli.eu
SSAP/DXF generator rel. 2.0 (2020)

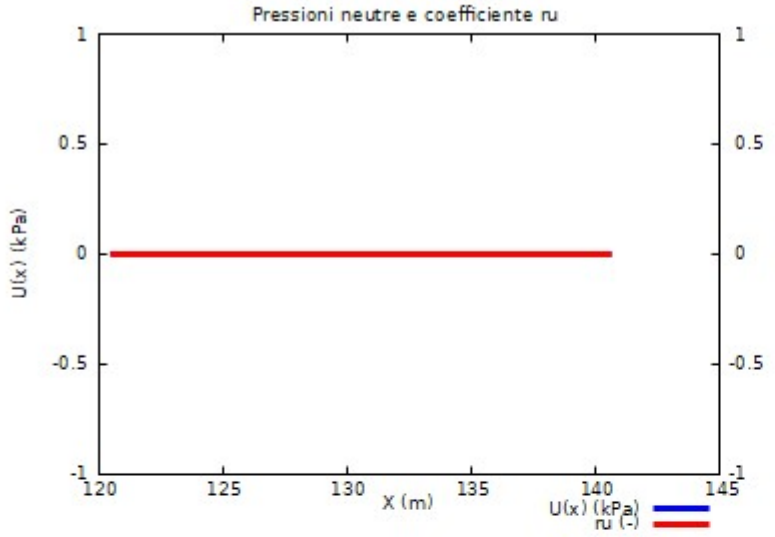
Data : 31/5/2022
Localita' : Ventimiglia - Discarica Inerti - Ciapagni
Descrizione : Impresa Liguria Cave
[n] = N. strato o lente

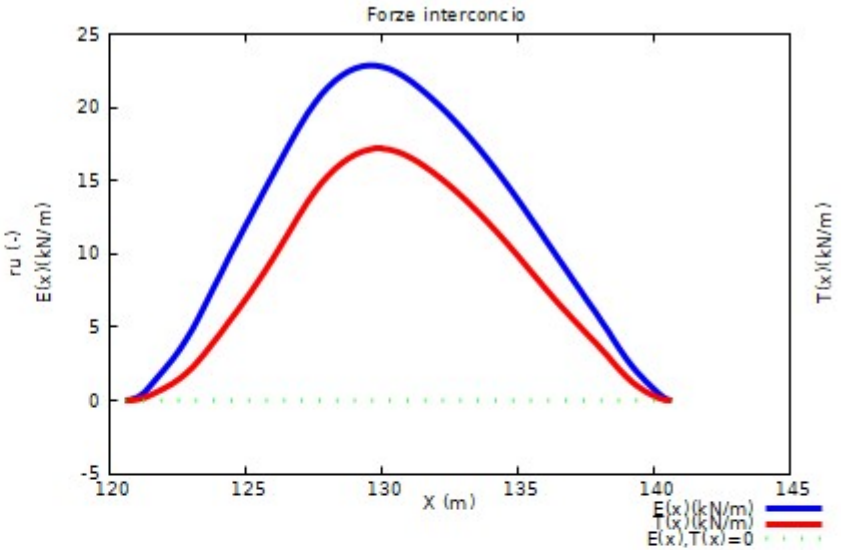


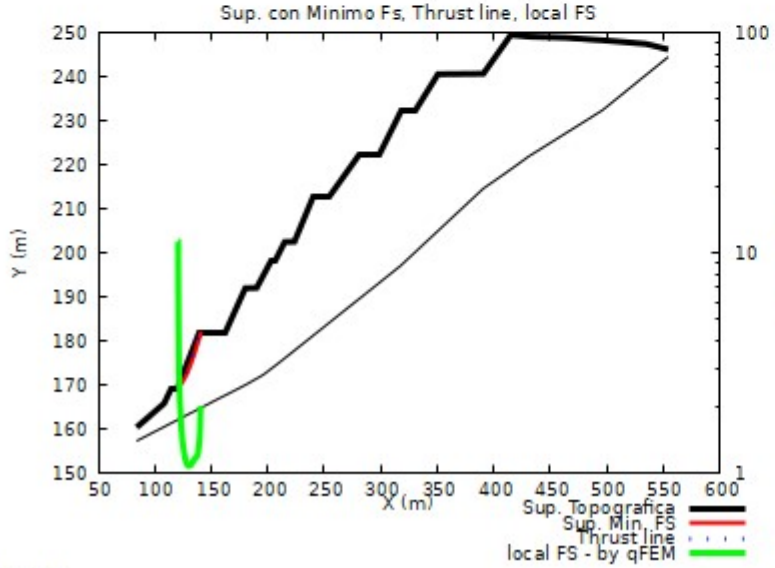
0 ----------

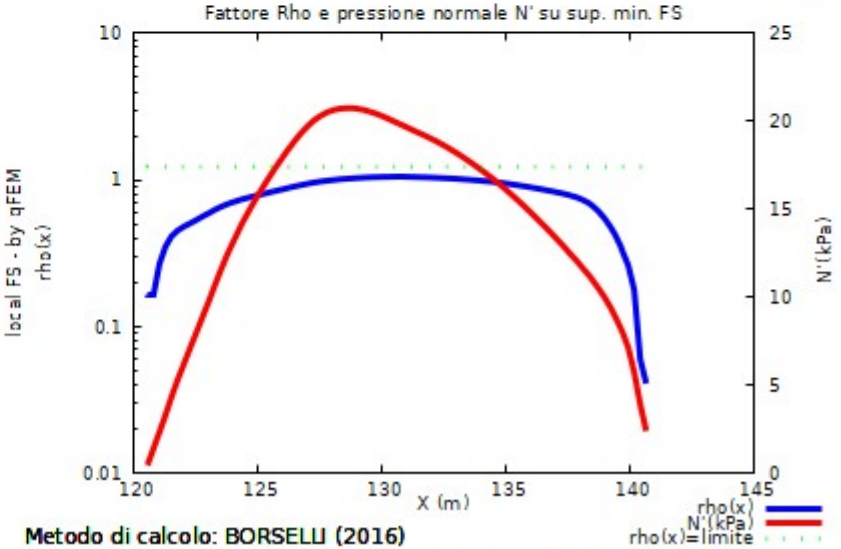
N.	phi`	C`	Cu	Gamm	GammSat	sgci	GSI	mi	D
..	deg	kPa	kPa	kN/m3	kN/m3	MPa	..	..	..
1	38.00	1.00	0	13.00	13.00	0	0	0	0
2	45.00	9.00	0	21.00	21.00	0	0	0	0


Distribuzione funzione forze interconcio
f(x), f0(x)
X(m)
0
0.2
0.4
0.6
0.8
1
120
125
130
135
140
145
f(x) funzione distribuzione forze interconcio
f0(x) funzione distribuzione forze interconcio





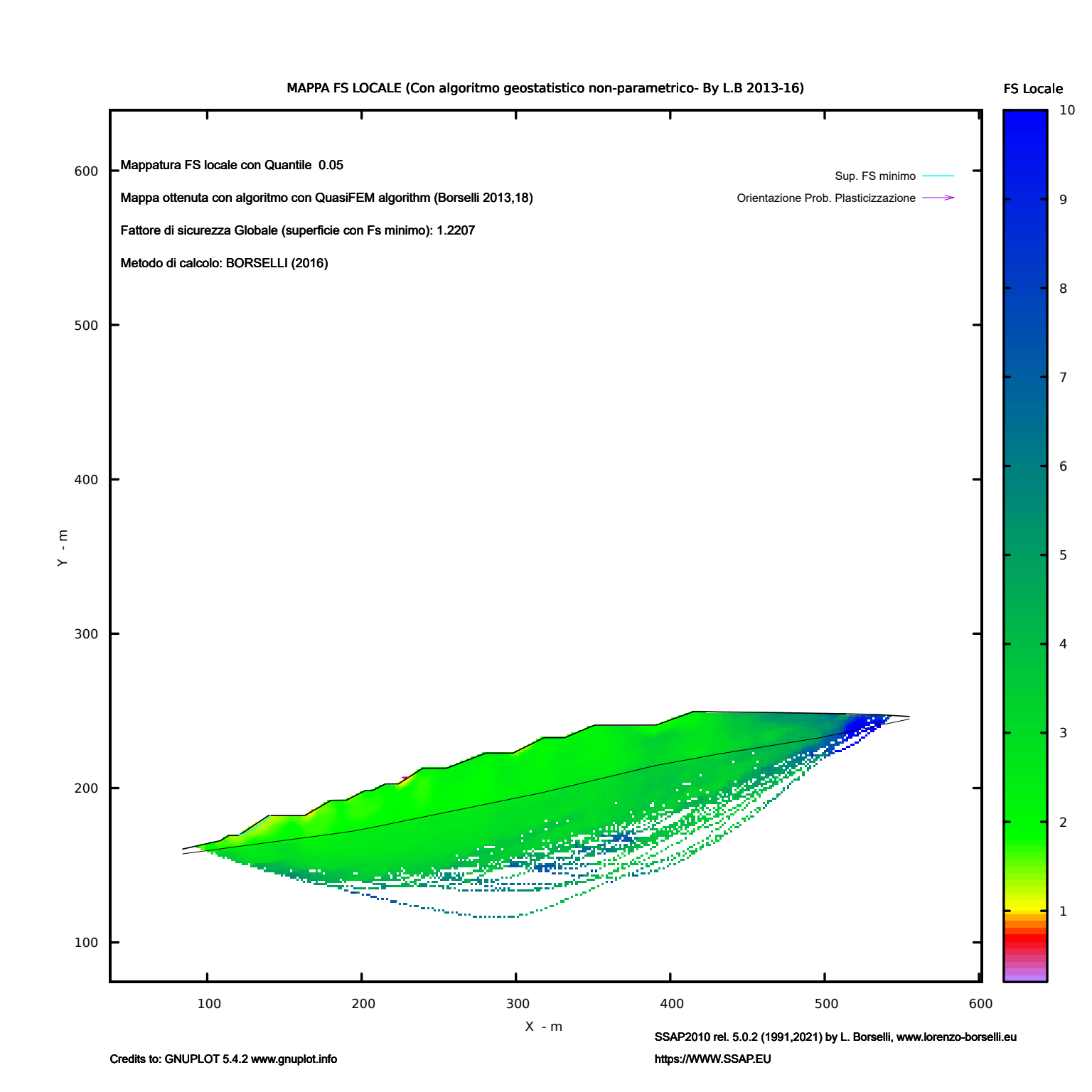




Metodo di calcolo: BORSELLI (2016)

SSAP2010 (versione 5.0.2 - 2021) - DISTRIBUZIONE FORZE e PRESSIONI

31/05/22 10:41


MAPPA FS LOCALE (Con algoritmo geostatistico non-parametrico- By L.B 2013-16)
FS Locale
10
9
8
7
6
5
4
3
2
1
Mappatura FS locale con Quantile 0.05
Mappa ottenuta con algoritmo con QuasiFEM algorithm (Borselli 2013,18)
Fattore di sicurezza Globale (superficie con Fs minimo): 1.2207
Metodo di calcolo: BORSELLI (2016)
Sup. FS minimo
Orientazione Prob. Plasticizzazione
Y - m
600
500
400
300
200
100
X - m
100
200
300
400
500
600
SSAP2010 rel. 5.0.2 (1991,2021) by L. Borselli, www.lorenzo-borselli.eu
https://WWW.SSAP.EU
Credits to: GNUPLOT 5.4.2 www.gnuplot.info

Verifica di Stabilità

Report elaborazioni

SSAP 5.0.2 - Slope Stability Analysis Program (1991,2021)
WWW.SSAP.EU
Build No. 12007
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: 21 Febbraio 2021

File report: C:\Users\ampelio\Desktop\rivara sezioni\p7b.txt
Data: 31/5/2022
Localita' : Ventimiglia - Discarica Inerti - Ciapagni
Descrizione: Impresa Liguria Cave
Modello pendio: p3.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
84.04	160.46	84.04	157.36	-	-	-	-
108.39	165.90	153.58	166.57	-	-	-	-
114.01	169.30	180.13	170.05	-	-	-	-
120.48	169.30	196.19	172.40	-	-	-	-
139.67	182.15	210.51	175.23	-	-	-	-
163.14	182.15	317.39	197.10	-	-	-	-
180.25	192.07	391.00	214.72	-	-	-	-
190.26	192.15	415.26	219.06	-	-	-	-
202.39	198.40	430.83	221.97	-	-	-	-
207.26	198.40	496.46	232.52	-	-	-	-
215.13	202.59	554.84	244.65	-	-	-	-
223.76	202.65	-	-	-	-	-	-
239.57	212.78	-	-	-	-	-	-
255.01	212.78	-	-	-	-	-	-
280.39	222.65	-	-	-	-	-	-
298.01	222.65	-	-	-	-	-	-
318.26	232.65	-	-	-	-	-	-
331.64	232.65	-	-	-	-	-	-
350.85	240.73	-	-	-	-	-	-
390.98	240.82	-	-	-	-	-	-
415.33	249.64	-	-	-	-	-	-
431.46	249.26	-	-	-	-	-	-

464.12	249.00	-	-	-	-	-	-
505.00	248.25	-	-	-	-	-	-
535.04	247.59	-	-	-	-	-	-
554.84	246.31	-	-	-	-	-	-

ASSENZA DI FALDA

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

		fi`	C`	Cu	Gamm	Gamm_sat	STR_IDX	sgci	GSI	mi	D
STRATO	1	38.00	1.00	0.00	13.00	13.00	2.811	0.00	0.00	0.00	0.00
STRATO	2	45.00	9.00	0.00	21.00	21.00	4.141	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
MOTORE DI RICERCA: RANDOM SEARCH - Siegel (1981)
FILTRAGGIO SUPERFICI : ATTIVATO
COORDINATE X1,X2,Y OSTACOLO : 0.00 0.00 0.00
LUNGHEZZA MEDIA SEGMENTI (m)*: 18.8 (+/-) 50%
INTERVALLO ASCISSE RANDOM STARTING POINT (Xmin .. Xmax): 93.46 517.18
LIVELLO MINIMO CONSIDERATO (Ymin): 74.31
INTERVALLO ASCISSE AMMESSO PER LA TERMINAZIONE (Xmin .. Xmax): 140.54 545.42
TOTALE SUPERFICI GENERATE : 10000
*NOTA IMPORTANTE: La lunghezza media dei segmenti non viene cosiderata nel caso
di uso del motore di recerca NEW RANOM SEARCH

---------- INFORMAZIONI PARAMETRI DI CALCOLO ----------
METODO DI CALCOLO : BORSELLI (Borselli, 2016)

METODO DI ESPLORAZIONE CAMPO VALORI (lambda0,Fs0) ADOTTATO : B (piu' accurato)
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) 1.2207 - Min. - X Y Lambda= 0.4689

X	Y
120.56	169.35
122.33	169.95
123.23	170.26
123.86	170.49
124.42	170.70
124.93	170.90
125.43	171.11
125.94	171.33
126.47	171.57
127.02	171.83
127.54	172.08
128.04	172.33
128.53	172.60
129.04	172.88
129.53	173.17
130.03	173.49
130.55	173.82
131.10	174.19
131.62	174.55
132.14	174.91
132.65	175.27
133.16	175.63
133.66	176.00
134.18	176.38
134.69	176.78
135.23	177.19
135.74	177.59
136.26	178.00
136.76	178.40
137.27	178.82
137.84	179.30

138.48	179.84
139.38	180.62
140.87	181.92
140.87	182.15

Fattore di sicurezza (FS) 1.2402 - N.2 -- X Y Lambda= 0.4662

120.63	169.40
122.41	170.15
123.33	170.54
123.99	170.81
124.58	171.06
125.11	171.29
125.64	171.51
126.18	171.74
126.73	171.97
127.29	172.20
127.80	172.44
128.31	172.68
128.80	172.94
129.32	173.22
129.81	173.51
130.32	173.83
130.83	174.17
131.39	174.56
131.94	174.93
132.48	175.30
133.01	175.67
133.54	176.03
134.07	176.39
134.60	176.76
135.13	177.13
135.67	177.50
136.19	177.86
136.71	178.24
137.23	178.61
137.75	179.00
138.33	179.45
138.98	179.96
139.90	180.69
141.36	181.88
141.36	182.15

Fattore di sicurezza (FS) 1.2420 - N.3 -- X Y Lambda= 0.4690

123.80	171.52
125.34	171.83
126.08	171.99
126.58	172.13
127.01	172.26

127.42	172.41
127.81	172.58
128.21	172.77
128.64	172.98
129.11	173.24
129.56	173.49
130.00	173.74
130.42	173.99
130.85	174.23
131.27	174.49
131.70	174.74
132.14	175.01
132.60	175.29
133.02	175.57
133.44	175.85
133.84	176.14
134.26	176.45
134.67	176.76
135.08	177.09
135.51	177.44
135.96	177.83
136.40	178.21
136.83	178.59
137.26	178.96
137.68	179.33
138.16	179.75
138.70	180.22
139.45	180.88
140.74	182.02
140.74	182.15

Fattore di sicurezza (FS) 1.2423 - N.4 -- X Y Lambda= 0.4660

122.74	170.81
124.30	171.36
125.10	171.64
125.67	171.85
126.18	172.03
126.64	172.20
127.10	172.37
127.57	172.55
128.04	172.73
128.53	172.92
128.99	173.11
129.43	173.30
129.86	173.51
130.31	173.74
130.74	173.97
131.18	174.23
131.64	174.51
132.14	174.83

132.62	175.14
133.08	175.45
133.53	175.75
133.98	176.07
134.43	176.39
134.89	176.72
135.36	177.07
135.85	177.44
136.31	177.80
136.76	178.16
137.20	178.53
137.66	178.92
138.15	179.36
138.72	179.88
139.52	180.63
140.79	181.85
140.79	182.15

Fattore di sicurezza (FS) 1.2445 - N.5 -- X Y Lambda= 0.4769

122.60	170.72
124.19	171.37
125.01	171.71
125.59	171.96
126.10	172.18
126.56	172.39
127.02	172.60
127.49	172.82
127.96	173.05
128.45	173.29
128.92	173.53
129.38	173.77
129.83	174.01
130.29	174.27
130.74	174.53
131.20	174.81
131.66	175.09
132.14	175.40
132.62	175.70
133.09	176.00
133.56	176.30
134.03	176.59
134.50	176.89
134.97	177.19
135.45	177.50
135.94	177.81
136.40	178.11
136.85	178.43
137.29	178.75
137.75	179.10
138.25	179.50

138.82	179.98
139.63	180.70
141.03	181.95
141.03	182.15

Fattore di sicurezza (FS) 1.2449 - N.6 -- X Y Lambda= 0.4735

121.81	170.19
123.52	170.85
124.39	171.19
125.00	171.44
125.54	171.67
126.03	171.89
126.51	172.11
127.01	172.34
127.51	172.59
128.04	172.85
128.54	173.12
129.03	173.38
129.52	173.65
130.01	173.93
130.49	174.21
130.98	174.50
131.48	174.81
132.00	175.14
132.50	175.46
133.00	175.78
133.49	176.11
133.99	176.44
134.48	176.77
134.97	177.11
135.47	177.46
135.98	177.82
136.48	178.18
136.98	178.54
137.47	178.90
137.96	179.27
138.52	179.68
139.13	180.16
140.00	180.83
141.42	181.93
141.42	182.15

Fattore di sicurezza (FS) 1.2469 - N.7 -- X Y Lambda= 0.4724

122.14	170.41
123.77	171.01
124.62	171.32
125.22	171.55
125.75	171.75

126.23	171.94
126.72	172.12
127.20	172.31
127.69	172.51
128.20	172.72
128.68	172.92
129.15	173.13
129.61	173.34
130.09	173.57
130.55	173.80
131.03	174.05
131.53	174.32
132.05	174.61
132.54	174.90
133.01	175.18
133.47	175.48
133.94	175.80
134.40	176.12
134.87	176.47
135.36	176.84
135.87	177.25
136.37	177.64
136.85	178.04
137.32	178.44
137.80	178.85
138.33	179.31
138.92	179.85
139.77	180.62
141.15	181.91
141.15	182.15

Fattore di sicurezza (FS) 1.2494 - N.8 -- X Y Lambda= 0.4631

120.78	169.50
122.69	169.81
123.61	169.98
124.24	170.12
124.77	170.27
125.29	170.44
125.77	170.62
126.28	170.83
126.81	171.08
127.42	171.37
127.98	171.66
128.51	171.94
129.02	172.23
129.55	172.54
130.06	172.85
130.58	173.18
131.12	173.54
131.69	173.92

132.23	174.30
132.76	174.68
133.27	175.06
133.80	175.46
134.31	175.87
134.84	176.29
135.37	176.73
135.92	177.20
136.46	177.66
137.00	178.11
137.52	178.54
138.05	178.98
138.65	179.46
139.31	179.99
140.24	180.73
141.71	181.89
141.71	182.15

Fattore di sicurezza (FS) 1.2505 - N.9 -- X Y Lambda= 0.4777

120.96	169.62
122.67	170.37
123.56	170.76
124.19	171.03
124.77	171.28
125.27	171.51
125.79	171.73
126.29	171.95
126.81	172.18
127.32	172.40
127.82	172.62
128.33	172.85
128.83	173.07
129.34	173.31
129.84	173.54
130.36	173.78
130.88	174.02
131.42	174.28
131.92	174.53
132.41	174.79
132.90	175.06
133.39	175.35
133.88	175.64
134.38	175.96
134.91	176.31
135.48	176.70
135.99	177.07
136.48	177.45
136.96	177.84
137.45	178.27
137.99	178.77

138.60	179.37
139.49	180.28
141.10	181.97
141.10	182.15

Fattore di sicurezza (FS) 1.2536 - N.10 -- X Y Lambda= 0.4790

120.86	169.55
122.57	170.19
123.46	170.53
124.09	170.77
124.66	170.98
125.17	171.17
125.68	171.36
126.19	171.56
126.71	171.75
127.23	171.94
127.73	172.14
128.23	172.34
128.72	172.54
129.22	172.76
129.72	172.98
130.23	173.21
130.77	173.46
131.33	173.73
131.83	173.99
132.32	174.26
132.78	174.55
133.27	174.88
133.74	175.22
134.23	175.59
134.73	176.01
135.29	176.49
135.82	176.95
136.33	177.41
136.84	177.87
137.34	178.34
137.89	178.88
138.52	179.49
139.41	180.39
140.86	181.86
140.86	182.15

---------- ANALISI DEFICIT DI RESISTENZA ----------
DATI RELATIVI ALLE 10 SUPERFICI GENERATE CON MINOR Fs *
Analisi Deficit in riferimento a FS(progetto) = 1.200

Sup N.	FS	FTR(kN/m)	FTA(kN/m)	Bilancio(kN/m)	ESITO
1	1.221	302.7	248.0	5.1	Surplus
2	1.240	293.4	236.6	9.5	Surplus

3	1.242	244.5	196.9	8.3	Surplus
4	1.242	274.9	221.2	9.4	Surplus
5	1.244	230.8	185.5	8.3	Surplus
6	1.245	260.5	209.3	9.4	Surplus
7	1.247	304.2	243.9	11.4	Surplus
8	1.249	409.1	327.5	16.2	Surplus
9	1.251	320.5	256.3	12.9	Surplus
10	1.254	358.0	285.6	15.3	Surplus

Esito analisi: SURPLUS di RESISTENZA!

Valore minimo di SURPLUS di RESISTENZA (kN/m): 5.1

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)
120.557	0.240	18.66	0.13	0.00	0.00	38.00	1.00
120.798	0.240	18.66	0.38	0.00	0.00	38.00	1.00
121.038	0.240	18.66	0.64	0.00	0.00	38.00	1.00
121.278	0.240	18.66	0.89	0.00	0.00	38.00	1.00
121.519	0.240	18.66	1.15	0.00	0.00	38.00	1.00
121.759	0.240	18.66	1.41	0.00	0.00	38.00	1.00
122.000	0.240	18.66	1.66	0.00	0.00	38.00	1.00
122.240	0.090	18.66	0.69	0.00	0.00	38.00	1.00
122.330	0.240	19.09	2.01	0.00	0.00	38.00	1.00
122.570	0.240	19.09	2.26	0.00	0.00	38.00	1.00
122.810	0.240	19.09	2.51	0.00	0.00	38.00	1.00

123.051	0.176	19.09	2.00	0.00	0.00	38.00	1.00
123.227	0.240	19.88	2.93	0.00	0.00	38.00	1.00
123.468	0.240	19.88	3.17	0.00	0.00	38.00	1.00
123.708	0.151	19.88	2.11	0.00	0.00	38.00	1.00
123.859	0.240	20.73	3.55	0.00	0.00	38.00	1.00
124.099	0.240	20.73	3.77	0.00	0.00	38.00	1.00
124.339	0.078	20.73	1.28	0.00	0.00	38.00	1.00
124.418	0.240	21.78	4.06	0.00	0.00	38.00	1.00
124.658	0.240	21.78	4.27	0.00	0.00	38.00	1.00
124.898	0.027	21.78	0.50	0.00	0.00	38.00	1.00
124.926	0.240	22.57	4.50	0.00	0.00	38.00	1.00
125.166	0.240	22.57	4.69	0.00	0.00	38.00	1.00
125.407	0.021	22.57	0.42	0.00	0.00	38.00	1.00
125.427	0.240	23.35	4.90	0.00	0.00	38.00	1.00
125.668	0.240	23.35	5.08	0.00	0.00	38.00	1.00
125.908	0.031	23.35	0.67	0.00	0.00	38.00	1.00
125.939	0.240	24.09	5.28	0.00	0.00	38.00	1.00
126.180	0.240	24.09	5.45	0.00	0.00	38.00	1.00
126.420	0.045	24.09	1.05	0.00	0.00	38.00	1.00
126.465	0.240	24.76	5.65	0.00	0.00	38.00	1.00
126.706	0.240	24.76	5.81	0.00	0.00	38.00	1.00
126.946	0.077	24.76	1.89	0.00	0.00	38.00	1.00
127.023	0.240	25.86	6.02	0.00	0.00	38.00	1.00
127.263	0.240	25.86	6.16	0.00	0.00	38.00	1.00
127.504	0.037	25.86	0.95	0.00	0.00	38.00	1.00
127.540	0.240	27.06	6.31	0.00	0.00	38.00	1.00

127.781	0.240	27.06	6.43	0.00	0.00	38.00	1.00
128.021	0.023	27.06	0.61	0.00	0.00	38.00	1.00
128.044	0.240	28.31	6.56	0.00	0.00	38.00	1.00
128.284	0.240	28.31	6.66	0.00	0.00	38.00	1.00
128.525	0.010	28.31	0.27	0.00	0.00	38.00	1.00
128.534	0.240	29.52	6.75	0.00	0.00	38.00	1.00
128.775	0.240	29.52	6.83	0.00	0.00	38.00	1.00
129.015	0.024	29.52	0.68	0.00	0.00	38.00	1.00
129.039	0.240	30.70	6.91	0.00	0.00	38.00	1.00
129.279	0.240	30.70	6.97	0.00	0.00	38.00	1.00
129.520	0.010	30.70	0.28	0.00	0.00	38.00	1.00
129.529	0.240	31.85	7.02	0.00	0.00	38.00	1.00
129.770	0.240	31.85	7.05	0.00	0.00	38.00	1.00
130.010	0.021	31.85	0.63	0.00	0.00	38.00	1.00
130.031	0.240	32.92	7.08	0.00	0.00	38.00	1.00
130.272	0.240	32.92	7.10	0.00	0.00	38.00	1.00
130.512	0.034	32.92	1.00	0.00	0.00	38.00	1.00
130.546	0.240	33.87	7.11	0.00	0.00	38.00	1.00
130.787	0.240	33.87	7.11	0.00	0.00	38.00	1.00
131.027	0.068	33.87	2.02	0.00	0.00	38.00	1.00
131.095	0.240	34.32	7.11	0.00	0.00	38.00	1.00
131.335	0.240	34.32	7.10	0.00	0.00	38.00	1.00
131.576	0.047	34.32	1.38	0.00	0.00	38.00	1.00
131.622	0.240	34.78	7.08	0.00	0.00	38.00	1.00
131.863	0.240	34.78	7.06	0.00	0.00	38.00	1.00
132.103	0.035	34.78	1.03	0.00	0.00	38.00	1.00

132.138	0.240	35.26	7.03	0.00	0.00	38.00	1.00
132.379	0.240	35.26	7.00	0.00	0.00	38.00	1.00
132.619	0.028	35.26	0.82	0.00	0.00	38.00	1.00
132.647	0.240	35.73	6.97	0.00	0.00	38.00	1.00
132.888	0.240	35.73	6.93	0.00	0.00	38.00	1.00
133.128	0.029	35.73	0.84	0.00	0.00	38.00	1.00
133.157	0.240	36.20	6.88	0.00	0.00	38.00	1.00
133.398	0.240	36.20	6.83	0.00	0.00	38.00	1.00
133.638	0.026	36.20	0.74	0.00	0.00	38.00	1.00
133.664	0.240	36.65	6.78	0.00	0.00	38.00	1.00
133.904	0.240	36.65	6.72	0.00	0.00	38.00	1.00
134.145	0.030	36.65	0.85	0.00	0.00	38.00	1.00
134.175	0.240	37.09	6.65	0.00	0.00	38.00	1.00
134.416	0.240	37.09	6.58	0.00	0.00	38.00	1.00
134.656	0.038	37.09	1.02	0.00	0.00	38.00	1.00
134.694	0.240	37.51	6.50	0.00	0.00	38.00	1.00
134.934	0.240	37.51	6.42	0.00	0.00	38.00	1.00
135.174	0.052	37.51	1.37	0.00	0.00	38.00	1.00
135.226	0.240	37.96	6.33	0.00	0.00	38.00	1.00
135.467	0.240	37.96	6.24	0.00	0.00	38.00	1.00
135.707	0.037	37.96	0.96	0.00	0.00	38.00	1.00
135.744	0.240	38.42	6.14	0.00	0.00	38.00	1.00
135.985	0.240	38.42	6.04	0.00	0.00	38.00	1.00
136.225	0.030	38.42	0.76	0.00	0.00	38.00	1.00
136.255	0.240	38.89	5.93	0.00	0.00	38.00	1.00
136.496	0.240	38.89	5.83	0.00	0.00	38.00	1.00

136.736	0.026	38.89	0.62	0.00	0.00	38.00	1.00
136.762	0.240	39.35	5.70	0.00	0.00	38.00	1.00
137.003	0.240	39.35	5.59	0.00	0.00	38.00	1.00
137.243	0.030	39.35	0.68	0.00	0.00	38.00	1.00
137.273	0.240	39.95	5.45	0.00	0.00	38.00	1.00
137.513	0.240	39.95	5.32	0.00	0.00	38.00	1.00
137.753	0.088	39.95	1.91	0.00	0.00	38.00	1.00
137.841	0.240	40.42	5.14	0.00	0.00	38.00	1.00
138.081	0.240	40.42	5.00	0.00	0.00	38.00	1.00
138.322	0.156	40.42	3.16	0.00	0.00	38.00	1.00
138.478	0.240	40.86	4.76	0.00	0.00	38.00	1.00
138.718	0.240	40.86	4.61	0.00	0.00	38.00	1.00
138.958	0.240	40.86	4.46	0.00	0.00	38.00	1.00
139.199	0.179	40.86	3.22	0.00	0.00	38.00	1.00
139.377	0.240	41.10	4.20	0.00	0.00	38.00	1.00
139.618	0.052	41.10	0.89	0.00	0.00	38.00	1.00
139.670	0.240	41.10	3.75	0.00	0.00	38.00	1.00
139.910	0.240	41.10	3.08	0.00	0.00	38.00	1.00
140.151	0.240	41.10	2.41	0.00	0.00	38.00	1.00
140.391	0.240	41.10	1.74	0.00	0.00	38.00	1.00
140.632	0.240	41.10	1.06	0.00	0.00	38.00	1.00

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 (--)
120.557	0.000	169.352	0.422	0.0000000000E+000	0.0000000000E+000	1.2583798526E-001	0.166	11.258	3.300
120.798	0.020	169.453	0.422	7.1155965919E-002	1.8389017288E-002	4.6617275457E-001	0.166	11.258	3.300
121.038	0.040	169.554	0.425	2.2412412752E-001	7.3343239298E-002	1.0175483118E+000	0.268	6.279	2.401
121.278	0.062	169.657	0.459	5.6036758406E-001	1.9442853531E-001	1.7589089637E+000	0.350	4.063	2.056
121.519	0.099	169.775	0.474	1.0697632881E+000	3.8999098264E-001	2.1533869705E+000	0.412	3.095	1.872
121.759	0.127	169.885	0.441	1.5956618419E+000	6.0814965836E-001	2.1719638909E+000	0.451	2.649	1.773
122.000	0.148	169.987	0.424	2.1139888617E+000	8.3657578273E-001	2.2022690588E+000	0.479	2.390	1.710
122.240	0.169	170.089	0.423	2.6544573775E+000	1.0843169492E+000	2.3511690863E+000	0.503	2.205	1.661
122.330	0.177	170.127	0.427	2.8688260860E+000	1.1864904446E+000	2.4323487925E+000	0.512	2.145	1.646
122.570	0.196	170.229	0.441	3.4811000398E+000	1.4945682618E+000	2.7152038904E+000	0.539	2.009	1.609
122.810	0.222	170.339	0.458	4.1742277788E+000	1.8660114407E+000	2.9696247552E+000	0.569	1.888	1.574
123.051	0.250	170.449	0.480	4.9088208810E+000	2.2786019040E+000	3.3269886358E+000	0.597	1.789	1.543
123.227	0.278	170.539	0.511	5.5310191609E+000	2.6462611790E+000	3.5714663505E+000	0.621	1.720	1.518
123.468	0.314	170.662	0.514	6.4044418823E+000	3.1766768636E+000	3.6846942377E+000	0.651	1.641	1.487
123.708	0.351	170.786	0.508	7.3025274120E+000	3.7402574865E+000	3.6831358990E+000	0.678	1.575	1.458
123.859	0.372	170.861	0.490	7.8520067395E+000	4.0931495035E+000	3.6262823799E+000	0.693	1.540	1.440
124.099	0.398	170.978	0.504	8.7146017945E+000	4.6583750061E+000	3.7128790605E+000	0.715	1.493	1.415
124.339	0.432	171.103	0.515	9.6370655441E+000	5.2795769400E+000	3.6583647265E+000	0.737	1.450	1.389
124.418	0.441	171.142	0.482	9.9191771182E+000					

5.4726268403E+000	3.5670113575E+000	0.743	1.438	1.382	
124.658	0.460	171.257	0.492	1.0752316410E+001	
6.0516429863E+000	3.5333544186E+000	0.761	1.405	1.360	
124.898	0.486	171.378	0.506	1.1617924993E+001	
6.6718089940E+000	3.6118207272E+000	0.780	1.373	1.339	
124.926	0.489	171.392	0.497	1.1716905559E+001	
6.7441870358E+000	3.5974596771E+000	0.782	1.369	1.337	
125.166	0.508	171.511	0.504	1.2548769389E+001	
7.3612812835E+000	3.4862334389E+000	0.800	1.341	1.317	
125.407	0.531	171.635	0.512	1.3392998854E+001	
8.0139245841E+000	3.3858986953E+000	0.818	1.313	1.298	
125.427	0.533	171.645	0.515	1.3463354411E+001	
8.0699380543E+000	3.3811367813E+000	0.820	1.311	1.297	
125.668	0.553	171.769	0.522	1.4293239105E+001	
8.7360192489E+000	3.4474449312E+000	0.838	1.285	1.279	
125.908	0.576	171.896	0.527	1.5120799167E+001	
9.4295292905E+000	3.3564960315E+000	0.857	1.261	1.262	
125.939	0.579	171.912	0.539	1.5224406057E+001	
9.5172613161E+000	3.3554238148E+000	0.859	1.258	1.260	
126.180	0.602	172.043	0.553	1.6049707748E+001	
1.0234679213E+001	3.4367232341E+000	0.879	1.235	1.244	
126.420	0.630	172.178	0.563	1.6876696091E+001	
1.0980096233E+001	3.3572253621E+000	0.899	1.213	1.229	
126.465	0.635	172.203	0.573	1.7028457861E+001	
1.1118147607E+001	3.3449858408E+000	0.902	1.210	1.226	
126.706	0.662	172.342	0.584	1.7836930968E+001	
1.1868441271E+001	3.2978994695E+000	0.921	1.190	1.212	
126.946	0.694	172.484	0.588	1.8614004923E+001	
1.2606693818E+001	3.0909734574E+000	0.939	1.172	1.200	
127.023	0.703	172.528	0.596	1.8847555783E+001	
1.2830979494E+001	3.0409147473E+000	0.945	1.167	1.196	
127.263	0.731	172.673	0.597	1.9574871793E+001	
1.3536554648E+001	2.8557992420E+000	0.961	1.152	1.185	
127.504	0.757	172.815	0.589	2.0220552182E+001	
1.4172001033E+001	2.4359069260E+000	0.975	1.139	1.176	
127.540	0.760	172.836	0.596	2.0308703329E+001	
1.4259727993E+001	2.3997972381E+000	0.977	1.137	1.175	
127.781	0.781	172.981	0.591	2.0888948121E+001	
1.4841208277E+001	2.2091401106E+000	0.989	1.126	1.166	
128.021	0.798	173.120	0.578	2.1370802294E+001	
1.5333223239E+001	1.7356628818E+000	1.000	1.117	1.160	
128.044	0.799	173.133	0.594	2.1409602480E+001	
1.5373625427E+001	1.7127575401E+000	1.000	1.116	1.159	
128.284	0.813	173.277	0.596	2.1827606410E+001	
1.5814406426E+001	1.5670269626E+000	1.010	1.108	1.153	
128.525	0.826	173.419	0.594	2.2162989604E+001	
1.6181209906E+001	1.3284837539E+000	1.018	1.102	1.148	
128.534	0.827	173.425	0.613	2.2175693899E+001	
1.6195427939E+001	1.3184825308E+000	1.018	1.102	1.148	
128.775	0.838	173.572	0.615	2.2448359736E+001	
1.6512242261E+001	9.7979011313E-001	1.025	1.096	1.144	
129.015	0.851	173.721	0.619	2.2646752325E+001	

1.6763185286E+001	6.9680945101E-001	1.031	1.091	1.141	
129.039	0.852	173.736	0.626	2.2663092932E+001	
1.6785331648E+001	6.6917589563E-001	1.032	1.091	1.140	
129.279	0.860	173.886	0.629	2.2787997011E+001	
1.6973332765E+001	3.7171544280E-001	1.038	1.087	1.137	
129.520	0.869	174.038	0.633	2.2841804361E+001	
1.7096157035E+001	7.6656922527E-002	1.042	1.084	1.135	
129.529	0.870	174.044	0.625	2.2842487950E+001	
1.7099825027E+001	6.6153563573E-002	1.042	1.084	1.135	
129.770	0.870	174.194	0.634	2.2830960957E+001	
1.7163333537E+001	-1.9044730048E-001	1.046	1.082	1.134	
130.010	0.876	174.349	0.641	2.2750925681E+001	
1.7163289534E+001	-3.9564699990E-001	1.048	1.081	1.133	
130.031	0.876	174.362	0.635	2.2742362734E+001	
1.7161490955E+001	-4.1560460785E-001	1.049	1.081	1.133	
130.272	0.873	174.515	0.656	2.2603493686E+001	
1.7105580585E+001	-7.1711625450E-001	1.051	1.081	1.132	
130.512	0.879	174.677	0.669	2.2397591287E+001	
1.6985628663E+001	-8.7595575412E-001	1.052	1.082	1.132	
130.546	0.879	174.699	0.668	2.2367756104E+001	
1.6967260090E+001	-9.0076855435E-001	1.052	1.082	1.132	
130.787	0.879	174.861	0.685	2.2113660102E+001	
1.6799208206E+001	-1.1701714671E+000	1.052	1.083	1.133	
131.027	0.886	175.028	0.694	2.1805167114E+001	
1.6574944478E+001	-1.3114401418E+000	1.051	1.085	1.135	
131.095	0.886	175.075	0.683	2.1715279412E+001	
1.6507793925E+001	-1.3434624925E+000	1.050	1.085	1.135	
131.335	0.887	175.239	0.680	2.1371926989E+001	
1.6244965063E+001	-1.4913740823E+000	1.048	1.088	1.137	
131.576	0.885	175.402	0.677	2.0998264289E+001	
1.5946534344E+001	-1.5678956905E+000	1.045	1.090	1.139	
131.622	0.885	175.434	0.683	2.0925021576E+001	
1.5887328238E+001	-1.5829627323E+000	1.045	1.091	1.140	
131.863	0.883	175.598	0.685	2.0529067659E+001	
1.5566034133E+001	-1.6852823640E+000	1.041	1.094	1.142	
132.103	0.880	175.763	0.685	2.0114780232E+001	
1.5223739532E+001	-1.7309573389E+000	1.037	1.097	1.145	
132.138	0.880	175.787	0.691	2.0054065849E+001	
1.5173416414E+001	-1.7426154720E+000	1.037	1.098	1.145	
132.379	0.876	175.953	0.691	1.9617757295E+001	
1.4811616835E+001	-1.8590969733E+000	1.032	1.102	1.148	
132.619	0.872	176.119	0.692	1.9160258815E+001	
1.4429936100E+001	-2.0334358240E+000	1.027	1.106	1.151	
132.647	0.872	176.139	0.689	1.9102591784E+001	
1.4381807412E+001	-2.0433300158E+000	1.026	1.106	1.152	
132.888	0.864	176.304	0.685	1.8622402885E+001	
1.3981057940E+001	-2.0347027929E+000	1.021	1.110	1.155	
133.128	0.856	176.468	0.689	1.8124357892E+001	
1.3564152973E+001	-2.2383601194E+000	1.015	1.115	1.158	
133.157	0.856	176.490	0.694	1.8058425760E+001	
1.3508982322E+001	-2.2474920700E+000	1.014	1.116	1.159	
133.398	0.846	176.655	0.691	1.7540108590E+001	

1.3075507296E+001	-2.1954965332E+000	1.007	1.120	1.162	
133.638	0.837	176.822	0.697	1.7002886284E+001	
1.2625461135E+001	-2.4041896406E+000	1.000	1.125	1.166	
133.664	0.837	176.841	0.697	1.6939771400E+001	
1.2572617458E+001	-2.4096045429E+000	0.999	1.126	1.166	
133.904	0.824	177.007	0.696	1.6389237106E+001	
1.2112234336E+001	-2.3331632530E+000	0.992	1.131	1.170	
134.145	0.814	177.176	0.702	1.5818045230E+001	
1.1633795322E+001	-2.4239689572E+000	0.983	1.136	1.174	
134.175	0.813	177.197	0.701	1.5743971290E+001	
1.1571755743E+001	-2.4289767653E+000	0.982	1.137	1.174	
134.416	0.799	177.366	0.709	1.5162082277E+001	
1.1084806936E+001	-2.4738710281E+000	0.973	1.142	1.178	
134.656	0.790	177.538	0.719	1.4554596363E+001	
1.0575931030E+001	-2.5598137245E+000	0.962	1.148	1.182	
134.694	0.789	177.566	0.720	1.4458313524E+001	
1.0495323638E+001	-2.5649018639E+000	0.961	1.148	1.182	
134.934	0.777	177.738	0.725	1.3841771859E+001	
9.9800483986E+000	-2.6043853434E+000	0.949	1.153	1.186	
135.174	0.768	177.914	0.733	1.3206190599E+001	
9.4508488526E+000	-2.6904814739E+000	0.937	1.158	1.188	
135.226	0.767	177.953	0.736	1.3066448759E+001	
9.3349765538E+000	-2.6977988432E+000	0.934	1.159	1.189	
135.467	0.756	178.129	0.732	1.2420937132E+001	
8.8022334941E+000	-2.6874220060E+000	0.921	1.164	1.192	
135.707	0.744	178.304	0.730	1.1774403897E+001	
8.2755535453E+000	-2.7328116709E+000	0.907	1.168	1.194	
135.744	0.742	178.332	0.736	1.1672182784E+001	
8.1930814598E+000	-2.7384531920E+000	0.905	1.169	1.194	
135.985	0.728	178.509	0.730	1.1015556551E+001	
7.6666677126E+000	-2.7188918588E+000	0.891	1.173	1.196	
136.225	0.712	178.683	0.726	1.0365008008E+001	
7.1556313443E+000	-2.7648926076E+000	0.876	1.177	1.198	
136.255	0.710	178.705	0.725	1.0280501846E+001	
7.0899998726E+000	-2.7657455521E+000	0.874	1.178	1.198	
136.496	0.690	178.879	0.719	9.6281313008E+000	
6.5874318032E+000	-2.6993830743E+000	0.859	1.182	1.200	
136.736	0.668	179.051	0.713	8.9827064029E+000	
6.1015038579E+000	-2.6400950849E+000	0.844	1.185	1.201	
136.762	0.665	179.069	0.723	8.9141088613E+000	
6.0500887137E+000	-2.6440516500E+000	0.843	1.186	1.201	
137.003	0.643	179.244	0.716	8.2589496445E+000	
5.5656845164E+000	-2.6843162162E+000	0.827	1.190	1.202	
137.243	0.615	179.414	0.712	7.6235571848E+000	
5.1033249811E+000	-2.7854476667E+000	0.811	1.194	1.203	
137.273	0.613	179.436	0.741	7.5408279250E+000	
5.0432834563E+000	-2.7971510932E+000	0.809	1.194	1.203	
137.513	0.590	179.614	0.725	6.8797088442E+000	
4.5656513356E+000	-2.6831837773E+000	0.790	1.199	1.203	
137.753	0.559	179.784	0.710	6.2508206966E+000	
4.1114181267E+000	-2.6077099941E+000	0.769	1.205	1.204	
137.841	0.548	179.847	0.756	6.0223695387E+000	

```
3.9456326704E+000  -2.6580818760E+000       0.761       1.208       1.205
     138.081       0.529     180.032       0.765   5.3481858729E+000
3.4523877012E+000  -2.7564550184E+000       0.731       1.219       1.207
     138.322       0.506     180.214       0.801   4.6971353418E+000
2.9699125850E+000  -2.9175394293E+000       0.696       1.234       1.212
     138.478       0.509     180.349       0.839   4.2218419126E+000
2.6175837324E+000  -2.9767722633E+000       0.664       1.248       1.217
     138.718       0.498     180.547       0.798   3.5345661552E+000
2.1106832284E+000  -2.7587407530E+000       0.610       1.274       1.227
     138.958       0.476     180.733       0.753   2.8955087920E+000
1.6491941597E+000  -2.5580147682E+000       0.547       1.304       1.239
     139.199       0.444     180.909       0.698   2.3047370361E+000
1.2380736358E+000  -2.2625966363E+000       0.477       1.338       1.255
     139.377       0.406     181.025       0.636   1.9262989547E+000
9.8825766715E-001  -2.0514364848E+000       0.425       1.365       1.268
     139.618       0.347     181.175       0.626   1.4545673799E+000
6.9191003788E-001  -2.0286687991E+000       0.349       1.407       1.289
     139.670       0.334     181.209       0.589   1.3478472530E+000
6.2503418072E-001  -1.9978939427E+000       0.328       1.418       1.294
     139.910       0.264     181.348       0.604   9.1755885597E-001
3.8225960929E-001  -1.7728681467E+000       0.262       1.469       1.321
     140.151       0.205     181.499       0.670   4.9549686855E-001
1.8106480786E-001  -1.6252526851E+000       0.178       1.572       1.380
     140.391       0.166     181.670       0.675   1.3617827018E-001
3.6765042121E-002  -1.0524552411E+000       0.060       1.756       1.491
     140.632       0.110     181.823       0.675  -1.0497122634E-002
-1.7492950600E-003  -2.8324750229E-001       0.041       2.025       1.696

--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
---
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 (kPa)	TauS (kN/m)						
	(m)	(m)	(m)	(°)	(kPa)	(kN/m)	
120.557	0.240	0.254	18.660	0.185	0.047	1.392	0.353
120.798	0.240	0.254	18.660	0.555	0.141	2.175	0.552
121.038	0.240	0.254	18.660	0.925	0.235	2.999	0.761
121.278	0.240	0.254	18.660	1.295	0.329	3.835	0.973
121.519	0.240	0.254	18.660	1.665	0.422	4.599	1.167
121.759	0.240	0.254	18.660	2.035	0.516	5.346	1.356
122.000	0.240	0.254	18.660	2.405	0.610	6.106	1.549
122.240	0.090	0.095	18.660	2.659	0.252	6.645	0.629
122.330	0.240	0.254	19.086	2.956	0.752	7.141	1.816
122.570	0.240	0.254	19.086	3.322	0.845	7.936	2.019
122.810	0.240	0.254	19.086	3.689	0.938	8.702	2.214
123.051	0.176	0.187	19.086	4.007	0.748	9.436	1.762
123.227	0.240	0.256	19.883	4.442	1.136	9.942	2.541
123.468	0.240	0.256	19.883	4.801	1.227	10.652	2.723
123.708	0.151	0.160	19.883	5.093	0.815	11.196	1.792
123.859	0.240	0.257	20.732	5.535	1.423	11.557	2.970
124.099	0.240	0.257	20.732	5.884	1.512	12.247	3.148
124.339	0.078	0.084	20.732	6.116	0.512	12.628	1.058
124.418	0.240	0.259	21.775	6.551	1.696	12.770	3.306
124.658	0.240	0.259	21.775	6.887	1.783	13.385	3.465
124.898	0.027	0.030	21.775	7.074	0.209	13.719	0.405
124.926	0.240	0.260	22.570	7.427	1.933	13.802	3.593
125.166	0.240	0.260	22.570	7.750	2.017	14.367	3.740
125.407	0.021	0.023	22.570	7.925	0.179	14.649	0.331
125.427	0.240	0.262	23.349	8.273	2.166		

14.724	3.855					
125.668		0.240	0.262	23.349	8.583	2.247
15.239	3.990					
125.908		0.031	0.034	23.349	8.758	0.295
15.505	0.523					
125.939		0.240	0.263	24.088	9.104	2.397
15.575	4.101					
126.180		0.240	0.263	24.088	9.399	2.475
16.051	4.227					
126.420		0.045	0.050	24.088	9.574	0.476
16.309	0.811					
126.465		0.240	0.265	24.761	9.912	2.624
16.360	4.331					
126.706		0.240	0.265	24.761	10.193	2.698
16.771	4.440					
126.946		0.077	0.084	24.761	10.379	0.876
17.022	1.437					
127.023		0.240	0.267	25.862	10.835	2.895
16.897	4.514					
127.263		0.240	0.267	25.862	11.091	2.963
17.217	4.600					
127.504		0.037	0.041	25.862	11.239	0.459
17.389	0.710					
127.540		0.240	0.270	27.063	11.679	3.153
17.154	4.631					
127.781		0.240	0.270	27.063	11.905	3.214
17.414	4.701					
128.021		0.023	0.025	27.063	12.028	0.306
17.549	0.447					
128.044		0.240	0.273	28.307	12.445	3.398
17.250	4.710					
128.284		0.240	0.273	28.307	12.636	3.450
17.468	4.769					
128.525		0.010	0.011	28.307	12.736	0.139
17.592	0.191					
128.534		0.240	0.276	29.519	13.106	3.621
17.237	4.762					
128.775		0.240	0.276	29.519	13.261	3.663
17.408	4.809					
129.015		0.024	0.027	29.519	13.346	0.366
17.505	0.481					
129.039		0.240	0.280	30.699	13.678	3.824
17.141	4.792					
129.279		0.240	0.280	30.699	13.794	3.856
17.266	4.827					
129.520		0.010	0.011	30.699	13.854	0.156
17.332	0.195					
129.529		0.240	0.283	31.854	14.139	4.001
16.948	4.796					
129.770		0.240	0.283	31.854	14.214	4.023
17.028	4.819					
130.010		0.021	0.025	31.854	14.254	0.358

17.072 0.429
130.031 0.240 0.286 32.920 14.484 4.148
16.701 4.783
130.272 0.240 0.286 32.920 14.519 4.158
16.741 4.794
130.512 0.034 0.040 32.920 14.539 0.588
16.763 0.678
130.546 0.240 0.290 33.870 14.711 4.259
16.420 4.754
130.787 0.240 0.290 33.870 14.708 4.258
16.423 4.755
131.027 0.068 0.082 33.870 14.706 1.207
16.423 1.347
131.095 0.240 0.291 34.316 14.771 4.299
16.254 4.731
131.335 0.240 0.291 34.316 14.750 4.293
16.238 4.726
131.576 0.047 0.056 34.316 14.738 0.832
16.227 0.916
131.622 0.240 0.293 34.783 14.790 4.329
16.040 4.695
131.863 0.240 0.293 34.783 14.750 4.317
16.003 4.684
132.103 0.035 0.043 34.783 14.727 0.629
15.981 0.682
132.138 0.240 0.294 35.258 14.765 4.347
15.783 4.646
132.379 0.240 0.294 35.258 14.705 4.329
15.728 4.630
132.619 0.028 0.034 35.258 14.671 0.506
15.701 0.541
132.647 0.240 0.296 35.733 14.694 4.352
15.490 4.587
132.888 0.240 0.296 35.733 14.613 4.328
15.415 4.565
133.128 0.029 0.036 35.733 14.568 0.524
15.381 0.553
133.157 0.240 0.298 36.196 14.573 4.341
15.163 4.517
133.398 0.240 0.298 36.196 14.472 4.311
15.070 4.489
133.638 0.026 0.032 36.196 14.416 0.465
15.027 0.485
133.664 0.240 0.300 36.653 14.405 4.316
14.802 4.435
133.904 0.240 0.300 36.653 14.283 4.280
14.693 4.402
134.145 0.030 0.038 36.653 14.214 0.540
14.631 0.556
134.175 0.240 0.301 37.094 14.185 4.275
14.411 4.343
134.416 0.240 0.301 37.094 14.043 4.232

14.287 4.306
134.656 0.038 0.047 37.094 13.961 0.657
14.213 0.669
134.694 0.240 0.303 37.513 13.912 4.216
13.993 4.241
134.934 0.240 0.303 37.513 13.751 4.167
13.850 4.197
135.174 0.052 0.065 37.513 13.653 0.891
13.764 0.898
135.226 0.240 0.305 37.962 13.586 4.142
13.522 4.123
135.467 0.240 0.305 37.962 13.403 4.087
13.354 4.072
135.707 0.037 0.047 37.962 13.297 0.629
13.261 0.628
135.744 0.240 0.307 38.424 13.219 4.056
13.013 3.993
135.985 0.240 0.307 38.424 13.014 3.993
12.824 3.935
136.225 0.030 0.039 38.424 12.899 0.502
12.724 0.495
136.255 0.240 0.309 38.890 12.807 3.955
12.467 3.850
136.496 0.240 0.309 38.890 12.579 3.885
12.259 3.786
136.736 0.026 0.033 38.890 12.453 0.416
12.143 0.406
136.762 0.240 0.311 39.351 12.345 3.838
11.897 3.698
137.003 0.240 0.311 39.351 12.094 3.760
11.669 3.627
137.243 0.030 0.038 39.351 11.954 0.456
11.562 0.441
137.273 0.240 0.314 39.950 11.831 3.710
11.259 3.531
137.513 0.240 0.314 39.950 11.550 3.622
11.009 3.452
137.753 0.088 0.114 39.950 11.359 1.300
10.847 1.241
137.841 0.240 0.316 40.422 11.176 3.529
10.578 3.340
138.081 0.240 0.316 40.422 10.871 3.433
10.319 3.258
138.322 0.156 0.204 40.422 10.620 2.172
10.149 2.075
138.478 0.240 0.318 40.861 10.373 3.297
9.805 3.117
138.718 0.240 0.318 40.861 10.046 3.193
9.508 3.022
138.958 0.240 0.318 40.861 9.718 3.089
9.207 2.927
139.199 0.179 0.236 40.861 9.432 2.229

8.925 2.109

139.377 0.240 0.319 41.097 9.147 2.918

8.609 2.746

139.618 0.052 0.069 41.097 8.940 0.620

8.449 0.586

139.670 0.240 0.319 41.097 8.172 2.607

7.783 2.483

139.910 0.240 0.319 41.097 6.708 2.140

6.570 2.096

140.151 0.240 0.319 41.097 5.245 1.673

5.346 1.705

140.391 0.240 0.319 41.097 3.781 1.206

4.090 1.305

140.632 0.240 0.319 41.097 2.318 0.739

2.877 0.918

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
