

G.M.C Spa

Via Fossone Basso, 8 - 19034 Luni (SP)



CAVA 37 – FOSSAGRANDE – BACINO di TORANO

COMUNE DI CARRARA

**OTTEMPERANZA A 1) PRESCRIZIONI DI CUI ALL'AUTORIZZAZIONE ALLA
COLTIVAZIONE CAVA n.37 FOSSA GRANDE DD. n.20 DEL 19/02/2015 2)
ORDINANZA DIRIGENZIALE n.810 DEL 13/09/2022 E STUDIO DI CUI
ALL'ART. 32 NTA PABE BACINO DI TORANO SCHEDA n.15 CARRARA**



Novembre 2022

ALLEGATO n°2

VERIFICHE di STABILITA' - TABULATI

1 Stato attuale – Sezione D – condizioni statiche

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-39.51 m
Ordinata vertice sinistro inferiore yi	179.49 m
Ascissa vertice destro superiore xs	207.95 m
Ordinata vertice destro superiore ys	271.96 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	
Classe d'uso:	
Vita nominale:	0.0 [anni]
Vita di riferimento:	0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:
Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
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S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Vertici profilo

Nr	X (m)	y (m)
1	0.0	15.69
2	1.64	17.02
3	3.28	18.36
4	4.92	19.69
5	6.56	20.54
6	8.2	20.78
7	9.84	21.01
8	11.48	21.24
9	13.12	21.48
10	14.76	21.91
11	16.4	22.34
12	18.04	22.87
13	19.68	23.52
14	21.32	24.46
15	22.96	25.53
16	24.6	26.56
17	26.24	27.67
18	27.88	28.86
19	29.52	30.06
20	31.16	31.25
21	32.8	32.46
22	34.44	33.74
23	36.08	35.05
24	37.73	36.24
25	39.37	37.6
26	41.01	38.9
27	42.65	40.11
28	44.29	41.25
29	45.93	42.44
30	47.57	44.02
31	49.21	45.66
32	50.85	48.51
33	52.49	49.92
34	54.13	51.3
35	55.77	52.58
36	57.41	53.81
37	59.05	55.11
38	60.69	56.35
39	62.33	57.68
40	63.97	59.01

41	65.61	60.38
42	67.25	61.92
43	68.89	63.34
44	70.53	65.11
45	72.17	66.61
46	73.81	67.82
47	75.45	69.29
48	77.09	70.58
49	78.73	71.8
50	80.37	73.08
51	82.01	74.34
52	83.65	75.62
53	85.29	76.83
54	86.93	78.05
55	88.57	79.2
56	90.21	80.58
57	91.85	81.95
58	93.49	83.2
59	95.13	84.55
60	96.77	85.98
61	98.41	87.15
62	100.05	88.54
63	101.69	89.85
64	103.33	91.17
65	104.97	92.44
66	106.61	93.96
67	108.26	95.25
68	109.9	96.7
69	111.54	98.05
70	113.18	99.53
71	114.82	100.91
72	116.46	102.28
73	118.1	103.65
74	119.74	104.98
75	121.38	106.4
76	123.02	107.88
77	124.66	109.27
78	126.3	110.73
79	127.94	112.19
80	129.58	113.51
81	131.22	114.82
82	132.86	116.15
83	134.5	117.43
84	136.14	118.76
85	137.78	120.12
86	139.42	121.69
87	141.06	123.05
88	142.7	124.69
89	144.34	126.37

90	145.98	127.97
91	147.62	129.59
92	149.26	131.27
93	150.9	132.67
94	152.54	133.77
95	154.18	135.21
96	155.82	136.86
97	157.46	138.06
98	159.1	139.41
99	160.74	140.72
100	162.38	142.17
101	164.02	142.46
102	165.66	142.46
103	167.3	142.46
104	168.94	142.48
105	170.58	142.88
106	172.22	143.34
107	173.86	143.75
108	175.5	143.92
109	177.14	144.01
110	178.78	144.13
111	180.42	144.06
112	182.07	145.19
113	183.71	147.71
114	185.35	148.63
115	186.99	149.46
116	188.63	151.22
117	190.27	152.46
118	191.91	154.12
119	193.55	155.49
120	195.19	156.81
121	196.83	158.21
122	198.47	159.55
123	200.11	160.72
124	201.75	162.09
125	203.39	163.25
126	205.03	164.54
127	206.67	165.74
128	208.31	167.06
129	209.95	168.23
130	211.59	169.43
131	213.23	170.81
132	214.87	172.03
133	216.51	173.16
134	218.15	174.4
135	219.79	175.79
136	221.43	177.23
137	223.07	178.58
138	224.71	178.8

139	226.35	179.38
140	227.99	180.1
141	229.63	180.81
142	231.27	181.59

Falda

Nr.	X (m)	y (m)
1	0.0	2.07
2	5.97	3.64
3	16.99	8.59
4	163.71	125.12
5	231.27	164.65

Vertici strato1

N	X (m)	y (m)
1	0.0	0.0
2	6.64	1.74
3	18.04	6.87
4	164.84	123.46
5	231.27	162.33

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	0.0
Favorevoli: Permanenti, variabili	1.0	0.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	45	1900	2100.00		
2	5	0	45	2700	2700		

Risultati analisi pendio

Fs minimo individuato	1.01
Ascissa centro superficie	40.91 m

Ordinata centro superficie	237.28 m
Raggio superficie	151.67 m

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Numero di superfici esaminate....(636)

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N°	Xo	Yo	Ro	Fs
1	-21.0	181.8	153.5	1.26
2	-14.8	179.5	150.7	1.29
3	-2.4	179.5	136.5	1.28
4	3.8	181.8	138.9	1.30
5	10.0	179.5	136.8	1.34
6	16.2	181.8	125.8	1.26
7	22.4	179.5	123.7	1.30
8	28.5	181.8	126.5	1.34
9	34.7	179.5	124.8	1.33
10	40.9	181.8	112.7	1.24
11	47.1	179.5	110.1	1.30
12	53.3	181.8	112.1	1.35
13	59.5	179.5	153.2	1.42
14	65.7	181.8	94.5	1.20
15	71.8	179.5	89.9	1.22
16	78.0	181.8	87.5	1.19
17	84.2	179.5	82.9	1.21
18	90.4	181.8	80.6	1.19
19	96.6	179.5	75.9	1.23
20	102.8	181.8	73.6	1.25
21	109.0	179.5	68.6	1.31
22	115.2	181.8	63.4	1.27
23	121.3	179.5	57.1	1.31
24	127.5	181.8	62.3	1.77
25	133.7	179.5	52.0	1.76
26	139.9	181.8	51.0	2.11
27	146.1	179.5	55.5	2.34
28	152.3	181.8	52.3	2.47
29	158.5	179.5	47.4	2.54
30	164.6	181.8	44.1	2.33
31	170.8	179.5	38.0	1.79
32	177.0	181.8	33.0	1.33
33	183.2	179.5	29.0	1.47
34	189.4	181.8	25.5	1.46
35	195.6	179.5	17.9	1.33
36	201.8	181.8	17.9	1.53
37	208.0	179.5	11.7	1.56
38	-27.1	184.1	156.6	1.24
39	-21.0	186.4	158.1	1.27
40	-2.4	184.1	141.1	1.28
41	3.8	186.4	143.5	1.31

42	10.0	184.1	141.4	1.35
43	16.2	186.4	130.4	1.26
44	22.4	184.1	128.3	1.30
45	28.5	186.4	131.0	1.35
46	34.7	184.1	157.7	1.71
47	40.9	186.4	117.3	1.26
48	47.1	184.1	114.7	1.30
49	53.3	186.4	116.7	1.35
50	59.5	184.1	157.3	1.40
51	65.7	186.4	110.6	1.34
52	71.8	184.1	92.2	1.22
53	78.0	186.4	89.9	1.18
54	84.2	184.1	85.2	1.17
55	90.4	186.4	82.9	1.15
56	96.6	184.1	78.2	1.19
57	102.8	186.4	75.9	1.22
58	109.0	184.1	69.8	1.24
59	115.2	186.4	64.6	1.20
60	121.3	184.1	68.6	1.68
61	127.5	186.4	63.3	1.75
62	133.7	184.1	60.2	2.00
63	139.9	186.4	66.6	2.09
64	146.1	184.1	57.1	2.36
65	152.3	186.4	60.5	2.23
66	158.5	184.1	55.1	2.32
67	164.6	186.4	45.5	1.92
68	170.8	184.1	39.2	1.33
69	177.0	186.4	39.4	1.46
70	183.2	184.1	29.6	1.34
71	189.4	186.4	29.6	1.47
72	195.6	184.1	21.9	1.38
73	201.8	186.4	21.2	1.46
74	208.0	184.1	14.1	1.42
75	-33.3	191.0	164.4	1.19
76	-27.1	188.7	161.2	1.25
77	-21.0	191.0	162.7	1.28
78	-14.8	188.7	159.9	1.31
79	-8.6	191.0	148.1	1.31
80	-2.4	188.7	145.7	1.28
81	3.8	191.0	148.1	1.31
82	10.0	188.7	146.0	1.34
83	16.2	191.0	135.0	1.27
84	22.4	188.7	132.9	1.31
85	28.5	191.0	135.6	1.35
86	34.7	188.7	119.6	1.20
87	40.9	191.0	121.9	1.27
88	47.1	188.7	119.3	1.31
89	53.3	191.0	120.6	1.34
90	59.5	188.7	115.6	1.34

91	65.7	191.0	112.6	1.36
92	71.8	188.7	107.6	1.38
93	78.0	191.0	104.5	1.40
94	84.2	188.7	87.6	1.09
95	90.4	191.0	85.3	1.10
96	96.6	188.7	80.6	1.15
97	102.8	191.0	77.5	1.18
98	109.0	188.7	71.0	1.20
99	115.2	191.0	76.1	1.58
100	121.3	188.7	69.6	1.65
101	127.5	191.0	64.4	1.74
102	133.7	188.7	59.4	1.94
103	139.9	191.0	66.1	2.20
104	146.1	188.7	63.6	2.23
105	152.3	191.0	60.7	2.26
106	158.5	188.7	56.7	2.27
107	164.6	191.0	47.0	1.22
108	170.8	188.7	40.7	1.25
109	177.0	191.0	40.8	1.38
110	183.2	188.7	34.4	1.40
111	189.4	191.0	34.7	1.52
112	195.6	188.7	26.0	1.38
113	201.8	191.0	25.0	1.42
114	208.0	188.7	19.6	1.51
115	-27.1	193.4	165.7	1.26
116	-21.0	195.7	167.3	1.29
117	-8.6	195.7	152.7	1.29
118	-2.4	193.4	150.3	1.29
119	3.8	195.7	152.7	1.32
120	10.0	193.4	150.7	1.30
121	16.2	195.7	139.6	1.27
122	22.4	193.4	137.5	1.31
123	28.5	195.7	140.2	1.33
124	34.7	193.4	124.2	1.21
125	40.9	195.7	126.5	1.27
126	47.1	193.4	123.9	1.31
127	53.3	195.7	122.6	1.32
128	59.5	193.4	117.6	1.34
129	65.7	195.7	114.6	1.33
130	71.8	193.4	109.6	1.36
131	78.0	195.7	106.6	1.37
132	84.2	193.4	90.0	1.02
133	90.4	195.7	87.8	1.11
134	96.6	193.4	83.1	1.15
135	102.8	195.7	88.9	1.50
136	109.0	193.4	82.5	1.53
137	115.2	195.7	77.3	1.56
138	121.3	193.4	70.8	1.64
139	127.5	195.7	65.6	1.68

140	133.7	193.4	68.9	2.15
141	139.9	195.7	74.7	2.02
142	146.1	193.4	63.3	2.32
143	152.3	195.7	67.1	2.16
144	158.5	193.4	63.2	2.14
145	164.6	195.7	58.4	1.99
146	170.8	193.4	47.2	1.36
147	177.0	195.7	42.4	1.34
148	183.2	193.4	40.5	1.48
149	189.4	195.7	35.7	1.39
150	195.6	193.4	30.2	1.40
151	201.8	195.7	29.6	1.54
152	208.0	193.4	23.6	1.62
153	-33.3	200.3	173.5	1.25
154	-27.1	198.0	170.3	1.27
155	-21.0	200.3	171.9	1.29
156	-8.6	200.3	157.4	1.28
157	-2.4	198.0	155.0	1.29
158	3.8	200.3	157.3	1.33
159	10.0	198.0	155.3	2.22
160	16.2	200.3	144.2	1.28
161	22.4	198.0	142.1	1.32
162	28.5	200.3	144.7	1.29
163	34.7	198.0	128.7	1.22
164	40.9	200.3	131.2	1.27
165	47.1	198.0	127.7	1.31
166	53.3	200.3	124.7	1.29
167	59.5	198.0	119.7	1.31
168	65.7	200.3	116.7	1.31
169	71.8	198.0	111.6	1.34
170	78.0	200.3	108.7	1.35
171	84.2	198.0	103.6	1.39
172	90.4	200.3	100.7	1.43
173	96.6	198.0	85.3	1.18
174	102.8	200.3	90.2	1.46
175	109.0	198.0	83.7	1.50
176	115.2	200.3	78.6	1.53
177	121.3	198.0	72.1	1.60
178	127.5	200.3	76.6	2.03
179	133.7	198.0	79.7	1.96
180	139.9	200.3	74.9	2.10
181	146.1	198.0	71.0	2.13
182	152.3	200.3	67.4	2.11
183	158.5	198.0	63.5	2.07
184	164.6	200.3	55.3	1.30
185	170.8	198.0	48.9	1.32
186	177.0	200.3	48.7	1.41
187	183.2	198.0	42.2	1.41
188	195.6	198.0	35.5	1.49

189	201.8	200.3	31.6	1.42
190	208.0	198.0	25.7	1.54
191	-39.5	202.6	176.7	1.19
192	-33.3	204.9	178.0	1.26
193	-21.0	204.9	176.5	1.30
194	-14.8	202.6	173.7	1.48
195	-8.6	204.9	162.0	1.28
196	-2.4	202.6	159.6	1.29
197	3.8	204.9	162.0	1.33
198	10.0	202.6	146.2	1.23
199	16.2	204.9	148.8	1.28
200	22.4	202.6	146.7	1.32
201	28.5	204.9	135.3	1.19
202	34.7	202.6	133.3	1.24
203	40.9	204.9	134.9	1.27
204	47.1	202.6	129.8	1.28
205	53.3	204.9	126.9	1.26
206	59.5	202.6	121.8	1.28
207	65.7	204.9	118.9	1.28
208	71.8	202.6	113.8	1.32
209	78.0	204.9	110.9	1.33
210	84.2	202.6	105.8	1.38
211	90.4	204.9	102.9	1.41
212	96.6	202.6	96.7	1.44
213	102.8	204.9	91.6	1.43
214	109.0	202.6	85.1	1.48
215	115.2	204.9	80.0	1.48
216	121.3	202.6	83.1	1.90
217	127.5	204.9	87.4	1.94
218	133.7	202.6	80.8	2.02
219	139.9	204.9	75.6	2.20
220	146.1	202.6	71.3	2.16
221	152.3	204.9	75.1	2.03
222	158.5	202.6	63.9	1.87
223	164.6	204.9	60.6	1.36
224	170.8	202.6	55.2	1.39
225	177.0	204.9	50.6	1.37
226	183.2	202.6	44.1	1.34
227	189.4	204.9	43.9	1.41
228	195.6	202.6	37.5	1.38
229	-27.1	207.2	179.5	1.28
230	-21.0	209.5	181.1	1.30
231	-14.8	207.2	164.5	1.33
232	-8.6	209.5	166.6	1.28
233	-2.4	207.2	164.2	1.30
234	3.8	209.5	166.6	1.30
235	10.0	207.2	150.9	1.23
236	16.2	209.5	153.4	1.29
237	22.4	207.2	151.3	1.32

238	28.5	209.5	139.9	1.19
239	34.7	207.2	137.9	1.24
240	40.9	209.5	137.1	1.24
241	47.1	207.2	132.0	1.25
242	53.3	209.5	129.1	1.24
243	59.5	207.2	124.0	1.26
244	65.7	209.5	121.2	1.26
245	71.8	207.2	116.0	1.30
246	78.0	209.5	113.2	1.32
247	84.2	207.2	108.1	1.36
248	90.4	209.5	104.6	1.38
249	96.6	207.2	98.1	1.40
250	102.8	209.5	93.0	1.41
251	109.0	207.2	86.5	1.44
252	115.2	209.5	91.0	1.80
253	121.3	207.2	93.9	1.83
254	127.5	209.5	88.7	1.97
255	133.7	207.2	82.2	2.07
256	139.9	209.5	86.3	1.95
257	146.1	207.2	80.4	2.01
258	152.3	209.5	76.2	1.96
259	158.5	207.2	64.6	1.29
260	164.6	209.5	61.5	1.32
261	170.8	207.2	57.1	1.37
262	189.4	209.5	46.4	1.34
263	195.6	207.2	40.0	1.26
264	-39.5	211.9	185.9	1.24
265	-33.3	214.2	187.2	1.27
266	-27.1	211.9	184.1	1.29
267	-21.0	214.2	185.7	1.27
268	-14.8	211.9	169.1	1.29
269	-8.6	214.2	171.2	1.28
270	-2.4	211.9	168.8	1.30
271	3.8	214.2	171.2	1.40
272	10.0	211.9	155.5	1.24
273	16.2	214.2	158.0	1.29
274	22.4	211.9	155.9	1.32
275	28.5	214.2	144.4	1.21
276	34.7	211.9	142.2	1.24
277	40.9	214.2	139.4	1.22
278	47.1	211.9	134.2	1.23
279	53.3	214.2	131.4	1.22
280	59.5	211.9	126.3	1.24
281	65.7	214.2	123.5	1.24
282	71.8	211.9	118.3	1.28
283	78.0	214.2	115.6	1.30
284	84.2	211.9	110.4	1.35
285	90.4	214.2	106.1	1.34
286	96.6	211.9	99.6	1.37

287	102.8	214.2	94.6	1.35
288	109.0	211.9	97.5	1.72
289	115.2	214.2	92.5	1.81
290	121.3	211.9	95.3	1.89
291	127.5	214.2	90.2	2.05
292	133.7	211.9	83.7	2.20
293	139.9	214.2	78.7	3.01
294	146.1	211.9	72.5	4.00
295	152.3	214.2	77.4	1.84
296	170.8	211.9	58.6	1.32
297	177.0	214.2	59.3	1.40
298	183.2	211.9	52.8	1.38
299	189.4	214.2	49.2	1.22
300	-21.0	218.8	190.3	1.66
301	-14.8	216.5	173.8	1.28
302	-8.6	218.8	175.8	1.28
303	-2.4	216.5	173.4	1.31
304	3.8	218.8	162.2	1.20
305	10.0	216.5	160.1	1.25
306	16.2	218.8	162.6	1.29
307	22.4	216.5	160.4	1.29
308	28.5	218.8	149.0	1.21
309	34.7	216.5	144.5	1.22
310	40.9	218.8	141.7	1.20
311	47.1	216.5	136.6	1.21
312	53.3	218.8	133.8	1.20
313	59.5	216.5	128.6	1.22
314	65.7	218.8	125.9	1.23
315	71.8	216.5	120.7	1.26
316	78.0	218.8	118.0	1.29
317	84.2	216.5	112.6	1.33
318	90.4	218.8	107.7	1.32
319	96.6	216.5	101.1	1.34
320	102.8	218.8	105.6	1.65
321	109.0	216.5	99.1	1.72
322	115.2	218.8	94.1	1.82
323	121.3	216.5	96.8	1.93
324	127.5	218.8	91.9	2.23
325	133.7	216.5	94.4	1.92
326	139.9	218.8	80.5	3.31
327	164.6	218.8	70.0	1.36
328	170.8	216.5	64.8	1.37
329	183.2	216.5	55.5	1.32
330	-33.3	223.4	196.3	1.28
331	-27.1	221.1	193.2	1.29
332	-14.8	221.1	178.4	1.27
333	-8.6	223.4	180.5	1.29
334	-2.4	221.1	178.1	1.30
335	3.8	223.4	166.8	1.21

336	10.0	221.1	164.7	1.26
337	16.2	223.4	167.2	1.29
338	22.4	221.1	165.0	1.26
339	28.5	223.4	152.0	1.20
340	34.7	221.1	146.8	1.20
341	40.9	223.4	144.1	1.18
342	47.1	221.1	138.9	1.19
343	53.3	223.4	136.2	1.18
344	59.5	221.1	131.1	1.20
345	65.7	223.4	128.4	1.21
346	71.8	221.1	123.2	1.25
347	78.0	223.4	120.6	1.28
348	84.2	221.1	114.2	1.30
349	90.4	223.4	109.4	1.28
350	96.6	221.1	112.2	1.60
351	102.8	223.4	107.3	1.65
352	109.0	221.1	100.7	1.73
353	115.2	223.4	95.9	1.81
354	121.3	221.1	98.5	2.03
355	127.5	223.4	93.6	2.39
356	133.7	221.1	96.2	1.93
357	139.9	223.4	91.4	1.93
358	146.1	221.1	84.9	1.85
359	152.3	223.4	80.5	1.31
360	158.5	221.1	75.3	1.33
361	164.6	223.4	71.9	1.33
362	170.8	221.1	66.8	1.35
363	183.2	221.1	58.3	1.18
364	-21.0	228.0	185.6	1.27
365	-14.8	225.7	183.0	1.27
366	-8.6	228.0	185.1	1.29
367	-2.4	225.7	182.7	1.28
368	3.8	228.0	171.4	1.22
369	10.0	225.7	169.3	1.26
370	16.2	228.0	171.8	1.29
371	22.4	225.7	155.8	1.18
372	28.5	228.0	154.4	1.19
373	34.7	225.7	149.3	1.18
374	40.9	228.0	146.6	1.16
375	47.1	225.7	141.4	1.17
376	53.3	228.0	138.7	1.16
377	59.5	225.7	133.5	1.18
378	65.7	228.0	130.9	1.19
379	71.8	225.7	125.7	1.23
380	78.0	228.0	122.5	1.26
381	84.2	225.7	115.9	1.27
382	90.4	228.0	120.4	1.55
383	96.6	225.7	113.8	1.59
384	102.8	228.0	109.0	1.66

385	109.0	225.7	102.4	1.73
386	115.2	228.0	106.8	2.01
387	121.3	225.7	109.3	1.81
388	127.5	228.0	95.6	2.50
389	133.7	225.7	98.0	1.93
390	139.9	228.0	93.5	1.90
391	146.1	225.7	86.9	4.29
392	152.3	228.0	82.6	1.32
393	158.5	225.7	77.1	1.32
394	-39.5	230.3	204.1	1.27
395	-21.0	232.7	190.2	1.26
396	-14.8	230.3	187.6	1.27
397	-8.6	232.7	189.7	1.28
398	-2.4	230.3	187.3	1.24
399	3.8	232.7	176.0	1.23
400	10.0	230.3	174.0	1.26
401	16.2	232.7	176.4	1.29
402	22.4	230.3	159.6	1.20
403	28.5	232.7	156.9	1.20
404	34.7	230.3	151.7	1.17
405	40.9	232.7	149.1	1.13
406	47.1	230.3	143.9	1.14
407	53.3	232.7	141.3	1.12
408	59.5	230.3	136.1	1.15
409	65.7	232.7	133.5	1.17
410	71.8	230.3	128.3	1.22
411	78.0	232.7	124.2	1.23
412	84.2	230.3	127.0	1.53
413	90.4	232.7	122.2	1.55
414	96.6	230.3	115.6	1.60
415	102.8	232.7	110.8	1.65
416	109.0	230.3	104.3	1.71
417	115.2	232.7	117.8	1.79
418	121.3	230.3	111.2	1.84
419	127.5	232.7	106.6	1.90
420	139.9	232.7	95.7	3.60
421	146.1	230.3	89.2	1.30
422	-33.3	237.3	210.0	1.28
423	-27.1	235.0	207.0	1.87
424	-21.0	237.3	194.9	1.26
425	-14.8	235.0	192.2	1.27
426	-8.6	237.3	194.3	1.27
427	-2.4	235.0	178.2	1.18
428	3.8	237.3	180.7	1.23
429	10.0	235.0	178.6	1.27
430	16.2	237.3	181.0	1.27
431	22.4	235.0	162.1	1.17
432	28.5	237.3	172.1	1.33
433	34.7	235.0	154.3	1.24

434	40.9	237.3	151.7	1.01
435	47.1	235.0	146.5	1.08
436	53.3	237.3	143.9	1.11
437	59.5	235.0	138.7	1.14
438	65.7	237.3	136.2	1.18
439	71.8	235.0	130.8	1.22
440	78.0	237.3	135.3	1.49
441	84.2	235.0	128.7	1.51
442	90.4	237.3	124.0	1.55
443	96.6	235.0	117.4	1.60
444	102.8	237.3	121.9	1.85
445	109.0	235.0	124.4	1.71
446	115.2	237.3	110.7	2.13
447	121.3	235.0	113.2	1.86
448	127.5	237.3	108.7	1.93
449	-27.1	239.6	197.6	1.24
450	-21.0	241.9	199.5	1.26
451	-14.8	239.6	196.8	1.27
452	-8.6	241.9	198.9	1.27
453	-2.4	239.6	182.9	1.19
454	3.8	241.9	185.3	1.23
455	10.0	239.6	183.2	1.27
456	16.2	241.9	183.2	1.30
457	22.4	239.6	177.7	1.32
458	28.5	241.9	174.4	1.33
459	34.7	239.6	168.9	1.34
460	40.9	241.9	165.7	1.35
461	47.1	239.6	149.1	1.07
462	53.3	241.9	156.9	1.39
463	59.5	239.6	141.4	1.16
464	65.7	241.9	139.0	1.20
465	71.8	239.6	141.9	1.47
466	78.0	241.9	137.2	1.47
467	84.2	239.6	130.6	1.50
468	90.4	241.9	125.9	1.55
469	96.6	239.6	119.4	1.58
470	102.8	241.9	123.9	1.89
471	109.0	239.6	117.3	2.00
472	115.2	241.9	121.8	1.83
473	133.7	239.6	104.5	3.18
474	-33.3	246.5	219.2	1.23
475	-27.1	244.2	202.2	1.24
476	-21.0	246.5	204.1	1.26
477	-14.8	244.2	201.4	1.27
478	-8.6	246.5	203.5	1.24
479	-2.4	244.2	187.5	1.21
480	3.8	246.5	189.9	1.24
481	10.0	244.2	187.8	1.28
482	16.2	246.5	185.5	1.30

483	22.4	244.2	179.9	1.31
484	28.5	246.5	176.7	1.31
485	34.7	244.2	171.2	1.33
486	40.9	246.5	168.0	1.34
487	47.1	244.2	162.5	1.36
488	53.3	246.5	159.4	1.38
489	59.5	244.2	153.8	1.41
490	65.7	246.5	150.3	1.44
491	71.8	244.2	143.7	1.45
492	78.0	246.5	139.1	1.47
493	84.2	244.2	132.5	1.51
494	90.4	246.5	127.9	1.52
495	96.6	244.2	130.4	1.81
496	102.8	246.5	135.0	1.74
497	109.0	244.2	128.4	1.78
498	133.7	244.2	106.9	3.46
499	-33.3	251.2	223.8	2.08
500	-27.1	248.8	206.8	1.24
501	-21.0	251.2	208.7	1.26
502	-14.8	248.8	206.0	1.27
503	-8.6	251.2	194.4	1.20
504	-2.4	248.8	192.1	1.21
505	3.8	251.2	194.5	1.25
506	10.0	248.8	191.0	1.28
507	16.2	251.2	187.8	1.29
508	22.4	248.8	182.3	1.30
509	28.5	251.2	179.1	1.30
510	34.7	248.8	173.6	1.32
511	40.9	251.2	170.5	1.33
512	47.1	248.8	164.9	1.36
513	53.3	251.2	161.9	1.38
514	59.5	248.8	156.4	1.41
515	65.7	251.2	152.2	1.42
516	71.8	248.8	145.6	1.44
517	78.0	251.2	141.1	1.47
518	84.2	248.8	134.5	1.50
519	90.4	251.2	139.0	1.76
520	96.6	248.8	141.5	1.69
521	102.8	251.2	137.1	1.76
522	109.0	248.8	130.6	1.81
523	115.2	251.2	126.4	1.93
524	-33.3	255.8	214.3	1.22
525	-27.1	253.5	211.4	1.25
526	-21.0	255.8	213.3	1.26
527	-14.8	253.5	210.7	1.26
528	-8.6	255.8	199.1	1.19
529	-2.4	253.5	196.7	1.21
530	3.8	255.8	198.5	1.26
531	10.0	253.5	193.3	1.27

532	16.2	255.8	190.2	1.27
533	22.4	253.5	184.7	1.29
534	28.5	255.8	181.6	1.29
535	34.7	253.5	176.0	1.31
536	40.9	255.8	173.0	1.33
537	47.1	253.5	167.5	1.35
538	53.3	255.8	164.5	1.38
539	59.5	253.5	158.8	1.41
540	65.7	255.8	154.2	1.41
541	71.8	253.5	147.6	1.43
542	78.0	255.8	143.1	1.45
543	84.2	253.5	136.6	1.46
544	90.4	255.8	141.2	1.77
545	96.6	253.5	134.6	1.85
546	102.8	255.8	139.4	1.79
547	109.0	253.5	132.9	1.85
548	115.2	255.8	128.8	2.44
549	-39.5	258.1	231.4	1.24
550	-33.3	260.4	218.9	1.22
551	-27.1	258.1	216.0	1.25
552	-21.0	260.4	217.9	1.26
553	-14.8	258.1	215.3	1.27
554	-8.6	260.4	203.7	1.20
555	-2.4	258.1	201.4	1.22
556	3.8	260.4	201.0	1.24
557	10.0	258.1	195.7	1.26
558	16.2	260.4	192.7	1.26
559	22.4	258.1	187.1	1.27
560	28.5	260.4	184.1	1.28
561	34.7	258.1	178.6	1.30
562	40.9	260.4	175.6	1.32
563	47.1	258.1	170.0	1.35
564	53.3	260.4	167.2	1.38
565	59.5	258.1	160.8	1.39
566	65.7	260.4	156.2	1.40
567	71.8	258.1	149.7	1.43
568	78.0	260.4	154.3	1.66
569	84.2	258.1	147.7	1.71
570	90.4	260.4	152.4	1.70
571	96.6	258.1	145.9	1.74
572	109.0	258.1	135.3	1.92
573	115.2	260.4	131.3	2.51
574	121.3	258.1	124.9	2.81
575	-39.5	262.7	236.0	1.20
576	-33.3	265.0	223.5	1.23
577	-27.1	262.7	220.6	1.25
578	-21.0	265.0	222.5	1.26
579	-14.8	262.7	219.9	1.25
580	-8.6	265.0	208.3	1.19

581	-2.4	262.7	206.0	1.23
582	3.8	265.0	203.4	1.23
583	10.0	262.7	198.2	1.25
584	16.2	265.0	195.2	1.25
585	22.4	262.7	189.7	1.26
586	28.5	265.0	186.7	1.27
587	34.7	262.7	181.1	1.30
588	40.9	265.0	178.2	1.32
589	47.1	262.7	172.7	1.35
590	53.3	265.0	169.4	1.37
591	59.5	262.7	162.8	1.38
592	65.7	265.0	158.4	1.40
593	71.8	262.7	151.8	1.41
594	78.0	265.0	165.5	1.61
595	84.2	262.7	158.9	1.67
596	90.4	265.0	154.7	1.72
597	96.6	262.7	148.2	1.77
598	109.0	262.7	137.7	2.32
599	115.2	265.0	133.9	2.61
600	-33.3	269.6	228.0	1.24
601	-27.1	267.3	225.2	1.25
602	-21.0	269.6	227.1	1.26
603	-14.8	267.3	224.5	1.70
604	-8.6	269.6	212.9	1.20
605	-2.4	267.3	208.7	1.22
606	3.8	269.6	206.0	1.22
607	10.0	267.3	200.7	1.23
608	16.2	269.6	197.8	1.24
609	22.4	267.3	192.2	1.25
610	28.5	269.6	189.3	1.27
611	34.7	267.3	183.8	1.29
612	40.9	269.6	180.9	1.32
613	47.1	267.3	175.4	1.35
614	53.3	269.6	171.5	1.35
615	59.5	267.3	164.9	1.38
616	65.7	269.6	160.5	1.36
617	71.8	267.3	163.0	1.63
618	78.0	269.6	158.7	1.69
619	84.2	267.3	161.2	1.68
620	90.4	269.6	157.1	1.75
621	102.8	269.6	146.7	2.22
622	109.0	267.3	140.3	2.38
623	115.2	269.6	136.6	2.68
624	-39.5	272.0	231.0	1.20
625	-27.1	272.0	229.8	1.24
626	-14.8	272.0	215.3	1.19
627	-2.4	272.0	211.2	1.20
628	10.0	272.0	203.3	1.22
629	22.4	272.0	194.9	1.25

630	34.7	272.0	186.5	1.29
631	47.1	272.0	178.0	1.34
632	59.5	272.0	167.1	1.37
633	71.8	272.0	174.3	1.61
634	84.2	272.0	154.6	1.76
635	96.6	272.0	153.2	1.90
636	109.0	272.0	143.0	2.46

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2 Stato attuale – Sezione D – condizioni sismiche

Analisi di stabilità dei pendii con : BISHOP (1955)

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Lat./Long.                               44.105751/10.143667 °
Calcolo eseguito secondo                  NTC 2018
Numero di strati                          2.0
Numero dei conci                         50.0
Grado di sicurezza ritenuto accettabile  1.3
Coefficiente parziale resistenza        1.0
Analisi                                  Condizione drenata
Superficie di forma circolare
=====
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Maglia dei Centri

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=====
Ascissa vertice sinistro inferiore xi    -19.47 m
Ordinata vertice sinistro inferiore yi    185.44 m
Ascissa vertice destro superiore xs      232.02 m
Ordinata vertice destro superiore ys     253.74 m
Passo di ricerca                         10.0
Numero di celle lungo x                  20.0
Numero di celle lungo y                  20.0
=====
```

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera: 2 - Opere ordinarie
Classe d'uso: Classe II
Vita nominale: 50.0 [anni]
Vita di riferimento: 50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo: B
Categoria topografica: T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.5	2.451	0.238
S.L.D.	50.0	0.637	2.46	0.255
S.L.V.	475.0	1.598	2.395	0.288
S.L.C.	975.0	2.05	2.385	0.293

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L.	amax	beta	kh	kv
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Stato limite	[m/s ²]	[-]	[-]	[sec]
S.L.O.	0.72	0.2	0.0147	0.0073
S.L.D.	0.9173	0.2	0.0187	0.0094
S.L.V.	2.3011	0.24	0.0563	0.0282
S.L.C.	2.952	0.28	0.0843	0.0421

Coefficiente azione sismica orizzontale 0.056

Coefficiente azione sismica verticale 0.028

Vertici profilo

Nr	X (m)	y (m)
1	0.0	15.69
2	1.64	17.02
3	3.28	18.36
4	4.92	19.69
5	6.56	20.54
6	8.2	20.78
7	9.84	21.01
8	11.48	21.24
9	13.12	21.48
10	14.76	21.91
11	16.4	22.34
12	18.04	22.87
13	19.68	23.52
14	21.32	24.46
15	22.96	25.53
16	24.6	26.56
17	26.24	27.67
18	27.88	28.86
19	29.52	30.06
20	31.16	31.25
21	32.8	32.46
22	34.44	33.74
23	36.08	35.05
24	37.73	36.24
25	39.37	37.6
26	41.01	38.9
27	42.65	40.11
28	44.29	41.25
29	45.93	42.44
30	47.57	44.02
31	49.21	45.66
32	50.85	48.51
33	52.49	49.92
34	54.13	51.3
35	55.77	52.58
36	57.41	53.81
37	59.05	55.11

38	60.69	56.35
39	62.33	57.68
40	63.97	59.01
41	65.61	60.38
42	67.25	61.92
43	68.89	63.34
44	70.53	65.11
45	72.17	66.61
46	73.81	67.82
47	75.45	69.29
48	77.09	70.58
49	78.73	71.8
50	80.37	73.08
51	82.01	74.34
52	83.65	75.62
53	85.29	76.83
54	86.93	78.05
55	88.57	79.2
56	90.21	80.58
57	91.85	81.95
58	93.49	83.2
59	95.13	84.55
60	96.77	85.98
61	98.41	87.15
62	100.05	88.54
63	101.69	89.85
64	103.33	91.17
65	104.97	92.44
66	106.61	93.96
67	108.26	95.25
68	109.9	96.7
69	111.54	98.05
70	113.18	99.53
71	114.82	100.91
72	116.46	102.28
73	118.1	103.65
74	119.74	104.98
75	121.38	106.4
76	123.02	107.88
77	124.66	109.27
78	126.3	110.73
79	127.94	112.19
80	129.58	113.51
81	131.22	114.82
82	132.86	116.15
83	134.5	117.43
84	136.14	118.76
85	137.78	120.12
86	139.42	121.69

87	141.06	123.05
88	142.7	124.69
89	144.34	126.37
90	145.98	127.97
91	147.62	129.59
92	149.26	131.27
93	150.9	132.67
94	152.54	133.77
95	154.18	135.21
96	155.82	136.86
97	157.46	138.06
98	159.1	139.41
99	160.74	140.72
100	162.38	142.17
101	164.02	142.46
102	165.66	142.46
103	167.3	142.46
104	168.94	142.48
105	170.58	142.88
106	172.22	143.34
107	173.86	143.75
108	175.5	143.92
109	177.14	144.01
110	178.78	144.13
111	180.42	144.06
112	182.07	145.19
113	183.71	147.71
114	185.35	148.63
115	186.99	149.46
116	188.63	151.22
117	190.27	152.46
118	191.91	154.12
119	193.55	155.49
120	195.19	156.81
121	196.83	158.21
122	198.47	159.55
123	200.11	160.72
124	201.75	162.09
125	203.39	163.25
126	205.03	164.54
127	206.67	165.74
128	208.31	167.06
129	209.95	168.23
130	211.59	169.43
131	213.23	170.81
132	214.87	172.03
133	216.51	173.16
134	218.15	174.4
135	219.79	175.79

136	221.43	177.23
137	223.07	178.58
138	224.71	178.8
139	226.35	179.38
140	227.99	180.1
141	229.63	180.81
142	231.27	181.59

Falda

Nr.	X (m)	y (m)
1	0.0	2.07
2	5.97	3.64
3	16.99	8.59
4	163.71	125.12
5	231.27	164.65

Vertici strato1

N	X (m)	y (m)
1	0.0	0.0
2	6.64	1.74
3	18.04	6.87
4	164.84	123.46
5	231.27	162.33

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0		45	1900	2100		
2	5	0	45	2700	2700		

Risultati analisi pendio

Fs minimo individuato	0.88
Ascissa centro superficie	43.4 m
Ordinata centro superficie	236.66 m
Raggio superficie	149.76 m

Numero di superfici esaminate....(620)

N°	Xo	Yo	Ro	Fs
1	-19.5	185.4	157.0	1.09
2	-6.9	185.4	142.5	1.11
3	-0.6	187.1	144.1	1.10
4	5.7	185.4	142.5	1.13
5	12.0	187.1	144.6	1.12
6	18.3	185.4	129.5	1.09
7	24.5	187.1	131.5	1.13
8	30.8	185.4	130.2	1.16
9	37.1	187.1	118.2	1.04
10	43.4	185.4	116.2	1.09
11	49.7	187.1	117.6	1.13
12	56.0	185.4	115.6	1.15
13	62.3	187.1	113.1	1.15
14	68.6	185.4	94.7	1.03
15	74.8	187.1	92.1	1.05
16	81.1	185.4	87.6	0.99
17	87.4	187.1	85.0	0.97
18	93.7	185.4	80.5	1.00
19	100.0	187.1	77.9	1.01
20	106.3	185.4	72.7	1.05
21	112.6	187.1	67.3	1.04
22	118.8	185.4	71.2	1.41
23	125.1	187.1	65.7	1.46
24	131.4	185.4	60.6	1.59
25	137.7	187.1	67.4	1.78
26	144.0	185.4	57.4	2.02
27	150.3	187.1	61.9	1.88
28	156.6	185.4	57.0	1.95
29	162.9	187.1	47.3	1.82
30	169.1	185.4	41.1	1.12
31	175.4	187.1	41.1	1.25
32	181.7	185.4	34.9	1.26
33	188.0	187.1	31.0	1.25
34	194.3	185.4	26.1	1.30
35	200.6	187.1	21.8	1.21
36	206.9	185.4	17.4	1.27
37	213.2	187.1	13.3	1.06
38	219.4	185.4	8.7	1.83

39	-19.5	188.9	160.4	1.10
40	-6.9	188.9	145.9	1.11
41	-0.6	190.6	147.5	1.10
42	5.7	188.9	146.0	1.13
43	12.0	190.6	148.0	1.82
44	18.3	188.9	132.9	1.09
45	24.5	190.6	134.8	1.13
46	30.8	188.9	133.6	1.14
47	37.1	190.6	121.6	1.05
48	43.4	188.9	119.6	1.10
49	49.7	190.6	121.0	1.14
50	56.0	188.9	117.9	1.15
51	62.3	190.6	114.6	1.16
52	68.6	188.9	109.8	1.17
53	74.8	190.6	106.4	1.19
54	81.1	188.9	89.4	0.93
55	87.4	190.6	86.7	0.92
56	93.7	188.9	82.3	0.97
57	100.0	190.6	79.7	1.00
58	106.3	188.9	73.6	1.02
59	112.6	190.6	78.4	1.34
60	118.8	188.9	72.0	1.39
61	125.1	190.6	66.5	1.45
62	131.4	188.9	60.1	1.55
63	137.7	190.6	58.2	1.83
64	144.0	188.9	64.5	1.88
65	150.3	190.6	61.6	1.92
66	156.6	188.9	58.2	1.93
67	162.9	190.6	53.6	1.81
68	169.1	188.9	42.2	1.06
69	175.4	190.6	42.1	1.19
70	181.7	188.9	35.8	1.20
71	188.0	190.6	31.2	1.13
72	194.3	188.9	26.9	1.18
73	200.6	190.6	25.7	1.24
74	206.9	188.9	20.4	1.28
75	213.2	190.6	16.3	1.29
76	219.4	188.9	12.5	2.04
77	-19.5	192.3	163.8	1.10
78	-6.9	192.3	149.3	1.10
79	-0.6	194.0	151.0	1.11
80	5.7	192.3	149.4	1.14
81	12.0	194.0	137.7	1.06
82	18.3	192.3	136.2	1.09
83	24.5	194.0	138.2	1.14
84	30.8	192.3	137.0	1.12
85	37.1	194.0	124.9	1.06
86	43.4	192.3	123.0	1.10
87	49.7	194.0	124.2	1.14

88	56.0	192.3	119.4	1.15
89	62.3	194.0	116.1	1.14
90	68.6	192.3	111.2	1.16
91	74.8	194.0	107.9	1.17
92	81.1	192.3	103.1	1.21
93	87.4	194.0	88.6	0.91
94	93.7	192.3	84.1	0.96
95	100.0	194.0	80.9	1.00
96	106.3	192.3	84.7	1.32
97	112.6	194.0	79.2	1.32
98	118.8	192.3	72.9	1.37
99	125.1	194.0	67.4	1.43
100	131.4	192.3	61.0	1.52
101	137.7	194.0	66.9	1.93
102	144.0	192.3	64.3	1.92
103	150.3	194.0	61.4	1.95
104	156.6	192.3	58.8	1.88
105	162.9	194.0	49.7	1.02
106	169.1	192.3	48.4	1.19
107	175.4	194.0	43.2	1.16
108	181.7	192.3	36.9	1.15
109	188.0	194.0	36.3	1.23
110	194.3	192.3	31.0	1.24
111	200.6	194.0	26.9	1.15
112	206.9	192.3	21.4	1.06
113	213.2	194.0	19.8	1.54
114	-19.5	195.7	167.2	1.11
115	-13.2	197.4	168.4	1.07
116	-6.9	195.7	152.7	1.10
117	-0.6	197.4	154.4	1.11
118	5.7	195.7	152.8	1.14
119	12.0	197.4	141.1	1.06
120	18.3	195.7	139.6	1.10
121	24.5	197.4	141.6	1.14
122	30.8	195.7	140.3	1.79
123	37.1	197.4	128.3	1.07
124	43.4	195.7	126.4	1.10
125	49.7	197.4	125.7	1.12
126	56.0	195.7	120.9	1.13
127	62.3	197.4	117.6	1.13
128	68.6	195.7	112.7	1.15
129	74.8	197.4	109.4	1.16
130	81.1	195.7	104.6	1.19
131	87.4	197.4	101.3	1.21
132	93.7	195.7	86.0	0.97
133	100.0	197.4	92.0	1.27
134	106.3	195.7	85.6	1.29
135	112.6	197.4	80.2	1.30
136	118.8	195.7	73.8	1.36

137	125.1	197.4	68.3	1.40
138	131.4	195.7	71.7	1.79
139	137.7	197.4	76.1	1.74
140	144.0	195.7	72.2	1.77
141	150.3	197.4	68.4	1.83
142	156.6	195.7	64.5	1.83
143	162.9	197.4	60.6	1.71
144	169.1	195.7	49.5	1.14
145	175.4	197.4	44.5	1.14
146	181.7	195.7	42.7	1.24
147	188.0	197.4	37.6	1.17
148	194.3	195.7	32.1	1.17
149	200.6	197.4	31.1	1.26
150	206.9	195.7	25.5	1.34
151	-19.5	199.1	170.6	1.11
152	-13.2	200.8	171.8	1.92
153	-6.9	199.1	156.1	1.10
154	-0.6	200.8	157.8	1.11
155	5.7	199.1	156.2	1.14
156	12.0	200.8	144.6	1.06
157	18.3	199.1	143.0	1.10
158	24.5	200.8	145.0	1.14
159	30.8	199.1	129.6	1.01
160	37.1	200.8	131.7	1.07
161	43.4	199.1	129.8	1.10
162	49.7	200.8	127.3	1.10
163	56.0	199.1	122.4	1.11
164	62.3	200.8	119.2	1.11
165	68.6	199.1	114.3	1.13
166	74.8	200.8	111.0	1.14
167	81.1	199.1	106.1	1.18
168	87.4	200.8	102.9	1.20
169	93.7	199.1	98.0	1.25
170	100.0	200.8	93.0	1.25
171	106.3	199.1	86.6	1.27
172	112.6	200.8	81.1	1.29
173	118.8	199.1	74.7	1.34
174	125.1	200.8	79.0	1.68
175	131.4	199.1	82.2	1.63
176	137.7	200.8	76.5	1.77
177	144.0	199.1	72.3	1.81
178	150.3	200.8	68.6	1.81
179	156.6	199.1	64.7	1.77
180	162.9	200.8	56.1	1.09
181	169.1	199.1	50.8	1.13
182	175.4	200.8	50.3	1.21
183	181.7	199.1	43.9	1.20
184	188.0	200.8	43.2	1.27
185	194.3	199.1	36.9	1.25

186	200.6	200.8	32.8	1.22
187	206.9	199.1	27.2	1.29
188	-13.2	204.2	161.4	1.12
189	-6.9	202.5	159.5	1.09
190	-0.6	204.2	161.2	1.12
191	5.7	202.5	159.6	1.13
192	12.0	204.2	148.0	1.07
193	18.3	202.5	146.4	1.11
194	24.5	204.2	148.4	1.14
195	30.8	202.5	133.0	1.01
196	37.1	204.2	135.0	1.07
197	43.4	202.5	132.2	1.10
198	49.7	204.2	128.9	1.08
199	56.0	202.5	124.0	1.09
200	62.3	204.2	120.8	1.09
201	68.6	202.5	115.9	1.12
202	74.8	204.2	112.6	1.13
203	81.1	202.5	107.8	1.16
204	87.4	204.2	104.5	1.19
205	93.7	202.5	99.4	1.23
206	100.0	204.2	94.0	1.22
207	106.3	202.5	87.6	1.25
208	112.6	204.2	82.2	1.27
209	118.8	202.5	75.8	1.30
210	125.1	204.2	89.5	1.58
211	131.4	202.5	83.0	1.69
212	137.7	204.2	77.5	1.80
213	144.0	202.5	72.6	1.83
214	150.3	204.2	69.0	1.81
215	156.6	202.5	65.0	1.67
216	162.9	204.2	66.8	1.61
217	169.1	202.5	52.2	1.12
218	175.4	204.2	51.7	1.18
219	181.7	202.5	45.4	1.16
220	188.0	204.2	44.8	1.23
221	194.3	202.5	38.5	1.20
222	200.6	204.2	34.4	1.10
223	-13.2	207.6	164.9	1.10
224	-6.9	205.9	162.9	1.09
225	-0.6	207.6	164.6	1.12
226	5.7	205.9	163.0	1.10
227	12.0	207.6	151.4	1.07
228	18.3	205.9	149.8	1.11
229	24.5	207.6	151.8	1.13
230	30.8	205.9	136.4	1.03
231	37.1	207.6	138.4	1.07
232	43.4	205.9	133.8	1.08
233	49.7	207.6	130.5	1.07
234	56.0	205.9	125.6	1.08

235	62.3	207.6	122.4	1.08
236	68.6	205.9	117.5	1.10
237	74.8	207.6	114.3	1.12
238	81.1	205.9	109.4	1.15
239	87.4	207.6	106.2	1.19
240	93.7	205.9	100.4	1.21
241	100.0	207.6	95.0	1.20
242	106.3	205.9	88.6	1.23
243	112.6	207.6	83.3	1.23
244	118.8	205.9	86.4	1.58
245	125.1	207.6	90.4	1.64
246	131.4	205.9	84.0	1.71
247	137.7	207.6	78.5	1.86
248	144.0	205.9	72.9	1.93
249	150.3	207.6	69.4	3.18
250	156.6	205.9	72.0	1.69
251	162.9	207.6	62.1	1.13
252	169.1	205.9	58.1	1.18
253	175.4	207.6	53.3	1.15
254	181.7	205.9	51.1	1.24
255	188.0	207.6	46.5	1.19
256	194.3	205.9	40.3	1.14
257	-13.2	211.1	168.3	1.10
258	-6.9	209.3	166.4	1.09
259	-0.6	211.1	168.0	1.12
260	5.7	209.3	166.4	1.53
261	12.0	211.1	154.8	1.08
262	18.3	209.3	153.2	1.11
263	24.5	211.1	155.2	1.10
264	30.8	209.3	139.8	1.04
265	37.1	211.1	140.3	1.06
266	43.4	209.3	135.4	1.06
267	49.7	211.1	132.2	1.05
268	56.0	209.3	127.3	1.06
269	62.3	211.1	124.1	1.07
270	68.6	209.3	119.2	1.09
271	74.8	211.1	116.0	1.11
272	81.1	209.3	111.1	1.14
273	87.4	211.1	107.9	1.18
274	93.7	209.3	101.4	1.18
275	100.0	211.1	96.1	1.19
276	106.3	209.3	89.7	1.21
277	112.6	211.1	93.9	1.50
278	118.8	209.3	96.9	1.54
279	125.1	211.1	91.5	1.65
280	131.4	209.3	85.0	1.74
281	137.7	211.1	88.9	1.64
282	144.0	209.3	73.4	2.62
283	150.3	211.1	78.1	1.67

284	156.6	209.3	66.0	1.08
285	162.9	211.1	62.8	1.12
286	169.1	209.3	58.9	1.15
287	175.4	211.1	59.0	1.22
288	181.7	209.3	52.8	1.21
289	188.0	211.1	48.4	1.14
290	-13.2	214.5	171.7	1.09
291	-6.9	212.8	169.8	1.10
292	-0.6	214.5	171.4	1.12
293	5.7	212.8	156.2	1.03
294	12.0	214.5	158.2	1.08
295	18.3	212.8	156.6	1.11
296	24.5	214.5	158.5	1.21
297	30.8	212.8	143.1	1.04
298	37.1	214.5	142.0	1.05
299	43.4	212.8	137.1	1.05
300	49.7	214.5	133.9	1.04
301	56.0	212.8	129.0	1.05
302	62.3	214.5	125.8	1.05
303	68.6	212.8	120.9	1.08
304	74.8	214.5	117.8	1.10
305	81.1	212.8	112.9	1.14
306	87.4	214.5	109.0	1.15
307	93.7	212.8	102.6	1.16
308	100.0	214.5	97.3	1.17
309	106.3	212.8	90.9	1.17
310	112.6	214.5	95.0	1.51
311	118.8	212.8	97.9	1.59
312	125.1	214.5	92.6	1.69
313	131.4	212.8	86.1	1.81
314	137.7	214.5	90.0	1.67
315	144.0	212.8	74.4	2.90
316	150.3	214.5	79.0	1.62
317	156.6	212.8	73.8	1.48
318	175.4	214.5	60.8	1.20
319	181.7	212.8	54.6	1.18
320	188.0	214.5	50.4	1.09
321	-13.2	217.9	175.1	1.09
322	-6.9	216.2	173.2	1.10
323	-0.6	217.9	174.9	1.12
324	5.7	216.2	159.6	1.04
325	12.0	217.9	161.6	1.08
326	18.3	216.2	160.0	1.11
327	24.5	217.9	148.0	1.00
328	30.8	216.2	146.5	1.04
329	37.1	217.9	143.7	1.03
330	43.4	216.2	138.8	1.03
331	49.7	217.9	135.6	1.03
332	56.0	216.2	130.7	1.04

333	62.3	217.9	127.6	1.04
334	68.6	216.2	122.7	1.07
335	74.8	217.9	119.6	1.09
336	81.1	216.2	114.7	1.13
337	87.4	217.9	110.1	1.13
338	93.7	216.2	103.7	1.14
339	100.0	217.9	98.5	1.11
340	106.3	216.2	101.5	1.44
341	112.6	217.9	96.2	1.51
342	118.8	216.2	89.7	1.60
343	125.1	217.9	93.8	1.75
344	131.4	216.2	96.5	1.59
345	137.7	217.9	82.1	2.44
346	144.0	216.2	84.8	1.67
347	150.3	217.9	80.0	1.51
348	156.6	216.2	74.9	4.73
349	162.9	217.9	71.0	1.16
350	169.1	216.2	65.9	1.18
351	175.4	217.9	62.3	1.16
352	-19.5	219.6	177.1	1.16
353	-13.2	221.3	178.5	1.09
354	-6.9	219.6	176.6	1.10
355	-0.6	221.3	178.3	1.10
356	5.7	219.6	163.0	1.04
357	12.0	221.3	165.0	1.08
358	18.3	219.6	163.4	1.11
359	24.5	221.3	151.4	1.02
360	30.8	219.6	148.6	1.03
361	37.1	221.3	145.4	1.02
362	43.4	219.6	140.5	1.02
363	49.7	221.3	137.4	1.01
364	56.0	219.6	132.5	1.02
365	62.3	221.3	129.4	1.03
366	68.6	219.6	124.5	1.06
367	74.8	221.3	121.4	1.08
368	81.1	219.6	116.5	1.12
369	87.4	221.3	111.3	1.11
370	93.7	219.6	104.9	1.13
371	100.0	221.3	109.1	1.39
372	106.3	219.6	102.6	1.44
373	112.6	221.3	97.4	1.52
374	118.8	219.6	91.0	1.60
375	125.1	221.3	104.2	1.54
376	131.4	219.6	97.7	1.63
377	137.7	221.3	92.6	1.66
378	150.3	221.3	81.2	3.94
379	162.9	221.3	72.3	1.15
380	169.1	219.6	67.3	1.16
381	175.4	221.3	63.8	1.13

382	181.7	219.6	58.5	1.11
383	-19.5	223.0	180.5	1.09
384	-13.2	224.7	181.9	1.09
385	-6.9	223.0	180.0	1.11
386	-0.6	224.7	181.7	1.07
387	5.7	223.0	166.4	1.05
388	12.0	224.7	168.4	1.09
389	18.3	223.0	166.8	1.11
390	24.5	224.7	154.8	1.03
391	30.8	223.0	150.3	1.02
392	37.1	224.7	147.2	1.01
393	43.4	223.0	142.3	1.01
394	49.7	224.7	139.2	1.00
395	56.0	223.0	134.3	1.01
396	62.3	224.7	131.2	1.01
397	68.6	223.0	126.3	1.04
398	74.8	224.7	123.3	1.07
399	81.1	223.0	117.8	1.10
400	87.4	224.7	112.6	1.09
401	93.7	223.0	106.2	1.04
402	100.0	224.7	110.3	1.39
403	106.3	223.0	103.9	1.45
404	112.6	224.7	98.7	1.51
405	118.8	223.0	101.5	1.69
406	125.1	224.7	96.4	1.94
407	131.4	223.0	89.9	2.17
408	150.3	224.7	82.7	1.11
409	162.9	224.7	73.7	1.14
410	169.1	223.0	68.7	1.14
411	181.7	223.0	60.7	1.00
412	-19.5	226.4	183.9	1.08
413	-13.2	228.1	185.3	1.09
414	-6.9	226.4	183.4	1.10
415	-0.6	228.1	185.1	1.58
416	5.7	226.4	169.9	1.06
417	12.0	228.1	171.8	1.09
418	18.3	226.4	170.2	1.11
419	24.5	228.1	157.0	1.02
420	30.8	226.4	152.1	1.01
421	37.1	228.1	149.0	0.99
422	43.4	226.4	144.1	0.99
423	49.7	228.1	141.1	0.98
424	56.0	226.4	136.1	0.99
425	62.3	228.1	133.1	1.00
426	68.6	226.4	128.2	1.03
427	74.8	228.1	125.2	1.07
428	81.1	226.4	119.0	1.08
429	87.4	228.1	123.2	1.32
430	93.7	226.4	116.8	1.35

431	100.0	228.1	111.6	1.39
432	106.3	226.4	105.2	1.45
433	112.6	228.1	100.1	1.49
434	118.8	226.4	111.9	1.50
435	125.1	228.1	106.8	1.59
436	131.4	226.4	91.3	2.24
437	156.6	226.4	78.7	1.14
438	-19.5	229.8	187.3	1.08
439	-13.2	231.5	188.7	1.09
440	-6.9	229.8	186.8	1.10
441	-0.6	231.5	174.8	1.01
442	5.7	229.8	173.3	1.06
443	12.0	231.5	175.2	1.09
444	18.3	229.8	173.6	1.10
445	24.5	231.5	158.8	1.02
446	30.8	229.8	153.9	1.01
447	37.1	231.5	150.9	0.98
448	43.4	229.8	146.0	0.98
449	49.7	231.5	142.9	0.96
450	56.0	229.8	138.0	0.98
451	62.3	231.5	135.0	0.98
452	68.6	229.8	130.1	1.02
453	74.8	231.5	126.7	1.06
454	81.1	229.8	120.3	1.07
455	87.4	231.5	124.5	1.31
456	93.7	229.8	118.0	1.34
457	100.0	231.5	112.9	1.40
458	106.3	229.8	106.5	1.44
459	112.6	231.5	119.7	1.56
460	118.8	229.8	104.2	1.82
461	125.1	231.5	99.2	2.04
462	-19.5	233.2	190.7	1.08
463	-13.2	235.0	192.1	1.09
464	-6.9	233.2	190.2	1.10
465	-0.6	235.0	178.3	1.02
466	5.7	233.2	176.7	1.06
467	12.0	235.0	178.6	1.09
468	18.3	233.2	177.0	1.08
469	24.5	235.0	160.7	1.01
470	30.8	233.2	155.8	1.03
471	37.1	235.0	152.8	0.97
472	43.4	233.2	147.8	0.95
473	49.7	235.0	144.8	0.93
474	56.0	233.2	139.9	0.96
475	62.3	235.0	137.0	0.98
476	68.6	233.2	132.1	1.02
477	74.8	235.0	128.1	1.04
478	81.1	233.2	130.9	1.29
479	87.4	235.0	125.8	1.30

480	93.7	233.2	119.4	1.35
481	100.0	235.0	114.3	1.38
482	106.3	233.2	107.9	1.42
483	112.6	235.0	121.1	1.52
484	118.8	233.2	105.6	1.85
485	125.1	235.0	109.8	1.61
486	131.4	233.2	103.4	1.64
487	137.7	235.0	98.7	2.75
488	144.0	233.2	92.4	1.10
489	-19.5	236.7	194.1	1.08
490	-13.2	238.4	195.5	1.09
491	-6.9	236.7	193.7	1.09
492	-0.6	238.4	181.7	1.03
493	5.7	236.7	180.1	1.06
494	12.0	238.4	182.0	1.10
495	18.3	236.7	179.2	1.09
496	24.5	238.4	175.5	1.13
497	30.8	236.7	170.2	1.15
498	37.1	238.4	166.6	1.15
499	43.4	236.7	149.8	0.88
500	49.7	238.4	146.8	0.93
501	56.0	236.7	141.9	0.95
502	62.3	238.4	139.0	0.99
503	68.6	236.7	134.1	1.03
504	74.8	238.4	138.7	1.26
505	81.1	236.7	132.2	1.28
506	87.4	238.4	127.2	1.30
507	93.7	236.7	120.7	1.35
508	100.0	238.4	115.8	1.37
509	106.3	236.7	118.4	1.64
510	112.6	238.4	122.6	1.53
511	118.8	236.7	107.1	1.89
512	137.7	238.4	100.4	2.97
513	-19.5	240.1	197.5	1.08
514	-13.2	241.8	198.9	1.09
515	-6.9	240.1	197.1	1.07
516	-0.6	241.8	185.1	1.04
517	5.7	240.1	183.5	1.06
518	12.0	241.8	185.4	1.11
519	18.3	240.1	180.8	1.11
520	24.5	241.8	177.2	1.13
521	30.8	240.1	171.9	1.14
522	37.1	241.8	168.3	1.15
523	43.4	240.1	163.0	1.16
524	49.7	241.8	159.4	1.18
525	56.0	240.1	143.9	0.97
526	62.3	241.8	141.0	1.01
527	68.6	240.1	135.8	1.03
528	74.8	241.8	140.0	1.25

529	81.1	240.1	133.6	1.27
530	87.4	241.8	128.6	1.31
531	93.7	240.1	122.2	1.34
532	100.0	241.8	126.3	1.57
533	106.3	240.1	119.9	1.65
534	112.6	241.8	115.1	1.77
535	118.8	240.1	117.7	1.59
536	125.1	241.8	113.0	1.66
537	131.4	240.1	106.7	2.44
538	-19.5	243.5	201.0	1.08
539	-13.2	245.2	202.4	1.08
540	-6.9	243.5	200.5	1.05
541	-0.6	245.2	188.5	1.04
542	5.7	243.5	186.9	1.07
543	12.0	245.2	187.8	1.10
544	18.3	243.5	182.5	1.11
545	24.5	245.2	178.9	1.12
546	30.8	243.5	173.6	1.13
547	37.1	245.2	170.0	1.14
548	43.4	243.5	164.7	1.16
549	49.7	245.2	161.2	1.17
550	56.0	243.5	155.9	1.20
551	62.3	245.2	152.4	1.22
552	68.6	243.5	146.4	1.24
553	74.8	245.2	141.4	1.24
554	81.1	243.5	135.0	1.27
555	87.4	245.2	130.0	1.30
556	93.7	243.5	123.6	1.32
557	100.0	245.2	136.8	1.45
558	106.3	243.5	121.4	1.67
559	112.6	245.2	116.7	1.80
560	125.1	245.2	114.7	2.23
561	-19.5	246.9	204.4	1.08
562	-13.2	248.6	205.8	1.08
563	-6.9	246.9	190.2	1.02
564	-0.6	248.6	191.9	1.04
565	5.7	246.9	190.3	1.07
566	12.0	248.6	189.5	1.10
567	18.3	246.9	184.2	1.11
568	24.5	248.6	180.6	1.11
569	30.8	246.9	175.3	1.13
570	37.1	248.6	171.8	1.13
571	43.4	246.9	166.5	1.15
572	49.7	248.6	163.0	1.17
573	56.0	246.9	157.7	1.19
574	62.3	248.6	154.2	1.22
575	68.6	246.9	147.8	1.23
576	74.8	248.6	142.8	1.24
577	81.1	246.9	136.4	1.27

578	87.4	248.6	131.5	1.28
579	93.7	246.9	134.2	1.52
580	100.0	248.6	129.4	1.60
581	106.3	246.9	132.0	1.51
582	112.6	248.6	127.3	1.58
583	118.8	246.9	121.0	1.64
584	125.1	248.6	116.5	2.29
585	-19.5	250.3	207.8	1.08
586	-13.2	252.0	209.2	1.09
587	-6.9	250.3	193.6	1.01
588	-0.6	252.0	195.3	1.04
589	5.7	250.3	193.7	1.08
590	12.0	252.0	191.2	1.09
591	18.3	250.3	185.9	1.10
592	24.5	252.0	182.4	1.10
593	30.8	250.3	177.1	1.12
594	37.1	252.0	173.6	1.13
595	43.4	250.3	168.3	1.15
596	49.7	252.0	164.9	1.17
597	56.0	250.3	159.6	1.19
598	62.3	252.0	155.7	1.21
599	68.6	250.3	149.2	1.22
600	74.8	252.0	144.3	1.24
601	81.1	250.3	137.9	1.27
602	87.4	252.0	142.1	1.47
603	93.7	250.3	144.8	1.42
604	100.0	252.0	140.0	1.49
605	106.3	250.3	133.6	1.53
606	112.6	252.0	129.0	1.61
607	118.8	250.3	122.8	2.08
608	125.1	252.0	118.4	2.39
609	-19.5	253.7	211.2	1.08
610	-6.9	253.7	197.0	1.02
611	5.7	253.7	196.3	1.08
612	18.3	253.7	187.7	1.09
613	30.8	253.7	178.9	1.11
614	43.4	253.7	170.2	1.14
615	56.0	253.7	161.5	1.19
616	68.6	253.7	150.7	1.21
617	81.1	253.7	139.4	1.25
618	93.7	253.7	146.3	1.46
619	106.3	253.7	135.3	1.55
620	118.8	253.7	124.6	2.12

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3 Stato attuale – Sezione D – condizioni post sismiche

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-39.51 m
Ordinata vertice sinistro inferiore yi	179.49 m
Ascissa vertice destro superiore xs	207.95 m
Ordinata vertice destro superiore ys	271.96 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	
Classe d'uso:	
Vita nominale:	0.0 [anni]
Vita di riferimento:	0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:
Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
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S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Vertici profilo

Nr	X (m)	y (m)
1	0.0	15.69
2	1.64	17.02
3	3.28	18.36
4	4.92	19.69
5	6.56	20.54
6	8.2	20.78
7	9.84	21.01
8	11.48	21.24
9	13.12	21.48
10	14.76	21.91
11	16.4	22.34
12	18.04	22.87
13	19.68	23.52
14	21.32	24.46
15	22.96	25.53
16	24.6	26.56
17	26.24	27.67
18	27.88	28.86
19	29.52	30.06
20	31.16	31.25
21	32.8	32.46
22	34.44	33.74
23	36.08	35.05
24	37.73	36.24
25	39.37	37.6
26	41.01	38.9
27	42.65	40.11
28	44.29	41.25
29	45.93	42.44
30	47.57	44.02
31	49.21	45.66
32	50.85	48.51
33	52.49	49.92
34	54.13	51.3
35	55.77	52.58
36	57.41	53.81
37	59.05	55.11
38	60.69	56.35
39	62.33	57.68
40	63.97	59.01

41	65.61	60.38
42	67.25	61.92
43	68.89	63.34
44	70.53	65.11
45	72.17	66.61
46	73.81	67.82
47	75.45	69.29
48	77.09	70.58
49	78.73	71.8
50	80.37	73.08
51	82.01	74.34
52	83.65	75.62
53	85.29	76.83
54	86.93	78.05
55	88.57	79.2
56	90.21	80.58
57	91.85	81.95
58	93.49	83.2
59	95.13	84.55
60	96.77	85.98
61	98.41	87.15
62	100.05	88.54
63	101.69	89.85
64	103.33	91.17
65	104.97	92.44
66	106.61	93.96
67	108.26	95.25
68	109.9	96.7
69	111.54	98.05
70	113.18	99.53
71	114.82	100.91
72	116.46	102.28
73	118.1	103.65
74	119.74	104.98
75	121.38	106.4
76	123.02	107.88
77	124.66	109.27
78	126.3	110.73
79	127.94	112.19
80	129.58	113.51
81	131.22	114.82
82	132.86	116.15
83	134.5	117.43
84	136.14	118.76
85	137.78	120.12
86	139.42	121.69
87	141.06	123.05
88	142.7	124.69
89	144.34	126.37

90	145.98	127.97
91	147.62	129.59
92	149.26	131.27
93	150.9	132.67
94	152.54	133.77
95	154.18	135.21
96	155.82	136.86
97	157.46	138.06
98	159.1	139.41
99	160.74	140.72
100	162.38	142.17
101	164.02	142.46
102	165.66	142.46
103	167.3	142.46
104	168.94	142.48
105	170.58	142.88
106	172.22	143.34
107	173.86	143.75
108	175.5	143.92
109	177.14	144.01
110	178.78	144.13
111	180.42	144.06
112	182.07	145.19
113	183.71	147.71
114	185.35	148.63
115	186.99	149.46
116	188.63	151.22
117	190.27	152.46
118	191.91	154.12
119	193.55	155.49
120	195.19	156.81
121	196.83	158.21
122	198.47	159.55
123	200.11	160.72
124	201.75	162.09
125	203.39	163.25
126	205.03	164.54
127	206.67	165.74
128	208.31	167.06
129	209.95	168.23
130	211.59	169.43
131	213.23	170.81
132	214.87	172.03
133	216.51	173.16
134	218.15	174.4
135	219.79	175.79
136	221.43	177.23
137	223.07	178.58
138	224.71	178.8

139	226.35	179.38
140	227.99	180.1
141	229.63	180.81
142	231.27	181.59

Falda

Nr.	X (m)	y (m)
1	0.0	2.07
2	5.97	3.64
3	16.99	8.59
4	163.71	125.12
5	231.27	164.65

Vertici strato1

N	X (m)	y (m)
1	0.0	0.0
2	6.64	1.74
3	18.04	6.87
4	164.84	123.46
5	231.27	162.33

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	0.0
Favorevoli: Permanenti, variabili	1.0	0.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	42.27	1900	2100.00		
2	4.54	0	42.27	2700	2700		

Risultati analisi pendio

Fs minimo individuato	0.92
Ascissa centro superficie	40.91 m

Ordinata centro superficie 237.28 m
Raggio superficie 151.67 m

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Numero di superfici esaminate....(636)

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N°	Xo	Yo	Ro	Fs
1	-21.0	181.8	153.5	1.15
2	-14.8	179.5	150.7	1.17
3	-2.4	179.5	136.5	1.16
4	3.8	181.8	138.9	1.18
5	10.0	179.5	136.8	1.22
6	16.2	181.8	125.8	1.14
7	22.4	179.5	123.7	1.18
8	28.5	181.8	126.5	1.22
9	34.7	179.5	124.8	1.21
10	40.9	181.8	112.7	1.13
11	47.1	179.5	110.1	1.18
12	53.3	181.8	112.1	1.22
13	59.5	179.5	153.2	1.29
14	65.7	181.8	94.5	1.09
15	71.8	179.5	89.9	1.11
16	78.0	181.8	87.5	1.08
17	84.2	179.5	82.9	1.10
18	90.4	181.8	80.6	1.09
19	96.6	179.5	75.9	1.12
20	102.8	181.8	73.6	1.13
21	109.0	179.5	68.6	1.19
22	115.2	181.8	63.4	1.15
23	121.3	179.5	57.1	1.19
24	127.5	181.8	62.3	1.61
25	133.7	179.5	52.0	1.60
26	139.9	181.8	51.0	1.92
27	146.1	179.5	55.5	2.13
28	152.3	181.8	52.3	2.24
29	158.5	179.5	47.4	2.31
30	164.6	181.8	44.1	2.12
31	170.8	179.5	38.0	1.63
32	177.0	181.8	33.0	1.21
33	183.2	179.5	29.0	1.34
34	189.4	181.8	25.5	1.33
35	195.6	179.5	17.9	1.21
36	201.8	181.8	17.9	1.39
37	208.0	179.5	11.7	1.41
38	-27.1	184.1	156.6	1.12
39	-21.0	186.4	158.1	1.16
40	-2.4	184.1	141.1	1.16
41	3.8	186.4	143.5	1.19

42	10.0	184.1	141.4	1.22
43	16.2	186.4	130.4	1.15
44	22.4	184.1	128.3	1.18
45	28.5	186.4	131.0	1.23
46	34.7	184.1	157.7	1.56
47	40.9	186.4	117.3	1.14
48	47.1	184.1	114.7	1.18
49	53.3	186.4	116.7	1.23
50	59.5	184.1	157.3	1.27
51	65.7	186.4	110.6	1.22
52	71.8	184.1	92.2	1.10
53	78.0	186.4	89.9	1.07
54	84.2	184.1	85.2	1.06
55	90.4	186.4	82.9	1.04
56	96.6	184.1	78.2	1.08
57	102.8	186.4	75.9	1.10
58	109.0	184.1	69.8	1.13
59	115.2	186.4	64.6	1.09
60	121.3	184.1	68.6	1.53
61	127.5	186.4	63.3	1.59
62	133.7	184.1	60.2	1.82
63	139.9	186.4	66.6	1.90
64	146.1	184.1	57.1	2.15
65	152.3	186.4	60.5	2.03
66	158.5	184.1	55.1	2.11
67	164.6	186.4	45.5	1.75
68	170.8	184.1	39.2	1.21
69	177.0	186.4	39.4	1.33
70	183.2	184.1	29.6	1.22
71	189.4	186.4	29.6	1.33
72	195.6	184.1	21.9	1.25
73	201.8	186.4	21.2	1.33
74	208.0	184.1	14.1	1.29
75	-33.3	191.0	164.4	1.08
76	-27.1	188.7	161.2	1.14
77	-21.0	191.0	162.7	1.16
78	-14.8	188.7	159.9	1.19
79	-8.6	191.0	148.1	1.19
80	-2.4	188.7	145.7	1.17
81	3.8	191.0	148.1	1.19
82	10.0	188.7	146.0	1.22
83	16.2	191.0	135.0	1.15
84	22.4	188.7	132.9	1.19
85	28.5	191.0	135.6	1.23
86	34.7	188.7	119.6	1.09
87	40.9	191.0	121.9	1.15
88	47.1	188.7	119.3	1.19
89	53.3	191.0	120.6	1.22
90	59.5	188.7	115.6	1.22

91	65.7	191.0	112.6	1.24
92	71.8	188.7	107.6	1.25
93	78.0	191.0	104.5	1.27
94	84.2	188.7	87.6	1.00
95	90.4	191.0	85.3	1.00
96	96.6	188.7	80.6	1.05
97	102.8	191.0	77.5	1.07
98	109.0	188.7	71.0	1.09
99	115.2	191.0	76.1	1.44
100	121.3	188.7	69.6	1.50
101	127.5	191.0	64.4	1.58
102	133.7	188.7	59.4	1.77
103	139.9	191.0	66.1	2.00
104	146.1	188.7	63.6	2.03
105	152.3	191.0	60.7	2.06
106	158.5	188.7	56.7	2.06
107	164.6	191.0	47.0	1.11
108	170.8	188.7	40.7	1.14
109	177.0	191.0	40.8	1.25
110	183.2	188.7	34.4	1.27
111	189.4	191.0	34.7	1.38
112	195.6	188.7	26.0	1.25
113	201.8	191.0	25.0	1.29
114	208.0	188.7	19.6	1.37
115	-27.1	193.4	165.7	1.15
116	-21.0	195.7	167.3	1.17
117	-8.6	195.7	152.7	1.17
118	-2.4	193.4	150.3	1.17
119	3.8	195.7	152.7	1.20
120	10.0	193.4	150.7	1.18
121	16.2	195.7	139.6	1.15
122	22.4	193.4	137.5	1.19
123	28.5	195.7	140.2	1.21
124	34.7	193.4	124.2	1.10
125	40.9	195.7	126.5	1.15
126	47.1	193.4	123.9	1.19
127	53.3	195.7	122.6	1.20
128	59.5	193.4	117.6	1.21
129	65.7	195.7	114.6	1.21
130	71.8	193.4	109.6	1.24
131	78.0	195.7	106.6	1.25
132	84.2	193.4	90.0	0.92
133	90.4	195.7	87.8	1.01
134	96.6	193.4	83.1	1.04
135	102.8	195.7	88.9	1.37
136	109.0	193.4	82.5	1.39
137	115.2	195.7	77.3	1.41
138	121.3	193.4	70.8	1.49
139	127.5	195.7	65.6	1.53

140	133.7	193.4	68.9	1.96
141	139.9	195.7	74.7	1.83
142	146.1	193.4	63.3	2.11
143	152.3	195.7	67.1	1.96
144	158.5	193.4	63.2	1.95
145	164.6	195.7	58.4	1.81
146	170.8	193.4	47.2	1.23
147	177.0	195.7	42.4	1.21
148	183.2	193.4	40.5	1.35
149	189.4	195.7	35.7	1.26
150	195.6	193.4	30.2	1.28
151	201.8	195.7	29.6	1.40
152	208.0	193.4	23.6	1.47
153	-33.3	200.3	173.5	1.14
154	-27.1	198.0	170.3	1.16
155	-21.0	200.3	171.9	1.18
156	-8.6	200.3	157.4	1.17
157	-2.4	198.0	155.0	1.17
158	3.8	200.3	157.3	1.20
159	10.0	198.0	155.3	2.02
160	16.2	200.3	144.2	1.16
161	22.4	198.0	142.1	1.20
162	28.5	200.3	144.7	1.18
163	34.7	198.0	128.7	1.11
164	40.9	200.3	131.2	1.16
165	47.1	198.0	127.7	1.19
166	53.3	200.3	124.7	1.17
167	59.5	198.0	119.7	1.19
168	65.7	200.3	116.7	1.19
169	71.8	198.0	111.6	1.22
170	78.0	200.3	108.7	1.23
171	84.2	198.0	103.6	1.27
172	90.4	200.3	100.7	1.30
173	96.6	198.0	85.3	1.07
174	102.8	200.3	90.2	1.33
175	109.0	198.0	83.7	1.36
176	115.2	200.3	78.6	1.39
177	121.3	198.0	72.1	1.45
178	127.5	200.3	76.6	1.85
179	133.7	198.0	79.7	1.78
180	139.9	200.3	74.9	1.91
181	146.1	198.0	71.0	1.94
182	152.3	200.3	67.4	1.92
183	158.5	198.0	63.5	1.88
184	164.6	200.3	55.3	1.18
185	170.8	198.0	48.9	1.20
186	177.0	200.3	48.7	1.28
187	183.2	198.0	42.2	1.28
188	195.6	198.0	35.5	1.35

189	201.8	200.3	31.6	1.29
190	208.0	198.0	25.7	1.40
191	-39.5	202.6	176.7	1.08
192	-33.3	204.9	178.0	1.15
193	-21.0	204.9	176.5	1.18
194	-14.8	202.6	173.7	1.34
195	-8.6	204.9	162.0	1.16
196	-2.4	202.6	159.6	1.17
197	3.8	204.9	162.0	1.21
198	10.0	202.6	146.2	1.11
199	16.2	204.9	148.8	1.17
200	22.4	202.6	146.7	1.20
201	28.5	204.9	135.3	1.08
202	34.7	202.6	133.3	1.12
203	40.9	204.9	134.9	1.15
204	47.1	202.6	129.8	1.16
205	53.3	204.9	126.9	1.15
206	59.5	202.6	121.8	1.17
207	65.7	204.9	118.9	1.17
208	71.8	202.6	113.8	1.20
209	78.0	204.9	110.9	1.21
210	84.2	202.6	105.8	1.25
211	90.4	204.9	102.9	1.29
212	96.6	202.6	96.7	1.31
213	102.8	204.9	91.6	1.30
214	109.0	202.6	85.1	1.34
215	115.2	204.9	80.0	1.34
216	121.3	202.6	83.1	1.73
217	127.5	204.9	87.4	1.76
218	133.7	202.6	80.8	1.84
219	139.9	204.9	75.6	2.00
220	146.1	202.6	71.3	1.96
221	152.3	204.9	75.1	1.85
222	158.5	202.6	63.9	1.70
223	164.6	204.9	60.6	1.24
224	170.8	202.6	55.2	1.27
225	177.0	204.9	50.6	1.24
226	183.2	202.6	44.1	1.22
227	189.4	204.9	43.9	1.28
228	195.6	202.6	37.5	1.25
229	-27.1	207.2	179.5	1.16
230	-21.0	209.5	181.1	1.18
231	-14.8	207.2	164.5	1.21
232	-8.6	209.5	166.6	1.16
233	-2.4	207.2	164.2	1.18
234	3.8	209.5	166.6	1.18
235	10.0	207.2	150.9	1.12
236	16.2	209.5	153.4	1.17
237	22.4	207.2	151.3	1.20

238	28.5	209.5	139.9	1.08
239	34.7	207.2	137.9	1.12
240	40.9	209.5	137.1	1.13
241	47.1	207.2	132.0	1.14
242	53.3	209.5	129.1	1.13
243	59.5	207.2	124.0	1.14
244	65.7	209.5	121.2	1.15
245	71.8	207.2	116.0	1.18
246	78.0	209.5	113.2	1.20
247	84.2	207.2	108.1	1.24
248	90.4	209.5	104.6	1.26
249	96.6	207.2	98.1	1.27
250	102.8	209.5	93.0	1.28
251	109.0	207.2	86.5	1.31
252	115.2	209.5	91.0	1.64
253	121.3	207.2	93.9	1.66
254	127.5	209.5	88.7	1.79
255	133.7	207.2	82.2	1.89
256	139.9	209.5	86.3	1.77
257	146.1	207.2	80.4	1.83
258	152.3	209.5	76.2	1.78
259	158.5	207.2	64.6	1.17
260	164.6	209.5	61.5	1.20
261	170.8	207.2	57.1	1.24
262	189.4	209.5	46.4	1.22
263	195.6	207.2	40.0	1.14
264	-39.5	211.9	185.9	1.13
265	-33.3	214.2	187.2	1.16
266	-27.1	211.9	184.1	1.17
267	-21.0	214.2	185.7	1.15
268	-14.8	211.9	169.1	1.17
269	-8.6	214.2	171.2	1.16
270	-2.4	211.9	168.8	1.19
271	3.8	214.2	171.2	1.27
272	10.0	211.9	155.5	1.13
273	16.2	214.2	158.0	1.17
274	22.4	211.9	155.9	1.20
275	28.5	214.2	144.4	1.10
276	34.7	211.9	142.2	1.13
277	40.9	214.2	139.4	1.11
278	47.1	211.9	134.2	1.12
279	53.3	214.2	131.4	1.11
280	59.5	211.9	126.3	1.12
281	65.7	214.2	123.5	1.13
282	71.8	211.9	118.3	1.16
283	78.0	214.2	115.6	1.19
284	84.2	211.9	110.4	1.23
285	90.4	214.2	106.1	1.22
286	96.6	211.9	99.6	1.24

287	102.8	214.2	94.6	1.23
288	109.0	211.9	97.5	1.56
289	115.2	214.2	92.5	1.65
290	121.3	211.9	95.3	1.72
291	127.5	214.2	90.2	1.86
292	133.7	211.9	83.7	2.00
293	139.9	214.2	78.7	2.74
294	146.1	211.9	72.5	3.64
295	152.3	214.2	77.4	1.68
296	170.8	211.9	58.6	1.20
297	177.0	214.2	59.3	1.27
298	183.2	211.9	52.8	1.25
299	189.4	214.2	49.2	1.11
300	-21.0	218.8	190.3	1.51
301	-14.8	216.5	173.8	1.16
302	-8.6	218.8	175.8	1.17
303	-2.4	216.5	173.4	1.19
304	3.8	218.8	162.2	1.09
305	10.0	216.5	160.1	1.14
306	16.2	218.8	162.6	1.17
307	22.4	216.5	160.4	1.17
308	28.5	218.8	149.0	1.10
309	34.7	216.5	144.5	1.11
310	40.9	218.8	141.7	1.09
311	47.1	216.5	136.6	1.10
312	53.3	218.8	133.8	1.09
313	59.5	216.5	128.6	1.11
314	65.7	218.8	125.9	1.11
315	71.8	216.5	120.7	1.15
316	78.0	218.8	118.0	1.17
317	84.2	216.5	112.6	1.21
318	90.4	218.8	107.7	1.20
319	96.6	216.5	101.1	1.22
320	102.8	218.8	105.6	1.50
321	109.0	216.5	99.1	1.56
322	115.2	218.8	94.1	1.66
323	121.3	216.5	96.8	1.76
324	127.5	218.8	91.9	2.02
325	133.7	216.5	94.4	1.75
326	139.9	218.8	80.5	3.01
327	164.6	218.8	70.0	1.24
328	170.8	216.5	64.8	1.25
329	183.2	216.5	55.5	1.20
330	-33.3	223.4	196.3	1.16
331	-27.1	221.1	193.2	1.17
332	-14.8	221.1	178.4	1.16
333	-8.6	223.4	180.5	1.17
334	-2.4	221.1	178.1	1.18
335	3.8	223.4	166.8	1.10

336	10.0	221.1	164.7	1.15
337	16.2	223.4	167.2	1.17
338	22.4	221.1	165.0	1.15
339	28.5	223.4	152.0	1.09
340	34.7	221.1	146.8	1.09
341	40.9	223.4	144.1	1.07
342	47.1	221.1	138.9	1.08
343	53.3	223.4	136.2	1.07
344	59.5	221.1	131.1	1.09
345	65.7	223.4	128.4	1.10
346	71.8	221.1	123.2	1.13
347	78.0	223.4	120.6	1.16
348	84.2	221.1	114.2	1.18
349	90.4	223.4	109.4	1.16
350	96.6	221.1	112.2	1.46
351	102.8	223.4	107.3	1.50
352	109.0	221.1	100.7	1.57
353	115.2	223.4	95.9	1.65
354	121.3	221.1	98.5	1.84
355	127.5	223.4	93.6	2.17
356	133.7	221.1	96.2	1.75
357	139.9	223.4	91.4	1.76
358	146.1	221.1	84.9	1.68
359	152.3	223.4	80.5	1.19
360	158.5	221.1	75.3	1.21
361	164.6	223.4	71.9	1.21
362	170.8	221.1	66.8	1.22
363	183.2	221.1	58.3	1.08
364	-21.0	228.0	185.6	1.15
365	-14.8	225.7	183.0	1.15
366	-8.6	228.0	185.1	1.17
367	-2.4	225.7	182.7	1.16
368	3.8	228.0	171.4	1.11
369	10.0	225.7	169.3	1.14
370	16.2	228.0	171.8	1.18
371	22.4	225.7	155.8	1.08
372	28.5	228.0	154.4	1.08
373	34.7	225.7	149.3	1.07
374	40.9	228.0	146.6	1.06
375	47.1	225.7	141.4	1.06
376	53.3	228.0	138.7	1.05
377	59.5	225.7	133.5	1.07
378	65.7	228.0	130.9	1.08
379	71.8	225.7	125.7	1.12
380	78.0	228.0	122.5	1.14
381	84.2	225.7	115.9	1.16
382	90.4	228.0	120.4	1.41
383	96.6	225.7	113.8	1.45
384	102.8	228.0	109.0	1.51

385	109.0	225.7	102.4	1.57
386	115.2	228.0	106.8	1.83
387	121.3	225.7	109.3	1.64
388	127.5	228.0	95.6	2.28
389	133.7	225.7	98.0	1.75
390	139.9	228.0	93.5	1.73
391	146.1	225.7	86.9	3.90
392	152.3	228.0	82.6	1.20
393	158.5	225.7	77.1	1.20
394	-39.5	230.3	204.1	1.16
395	-21.0	232.7	190.2	1.15
396	-14.8	230.3	187.6	1.16
397	-8.6	232.7	189.7	1.17
398	-2.4	230.3	187.3	1.12
399	3.8	232.7	176.0	1.12
400	10.0	230.3	174.0	1.15
401	16.2	232.7	176.4	1.18
402	22.4	230.3	159.6	1.09
403	28.5	232.7	156.9	1.09
404	34.7	230.3	151.7	1.06
405	40.9	232.7	149.1	1.03
406	47.1	230.3	143.9	1.04
407	53.3	232.7	141.3	1.02
408	59.5	230.3	136.1	1.04
409	65.7	232.7	133.5	1.07
410	71.8	230.3	128.3	1.11
411	78.0	232.7	124.2	1.12
412	84.2	230.3	127.0	1.39
413	90.4	232.7	122.2	1.41
414	96.6	230.3	115.6	1.45
415	102.8	232.7	110.8	1.50
416	109.0	230.3	104.3	1.55
417	115.2	232.7	117.8	1.63
418	121.3	230.3	111.2	1.68
419	127.5	232.7	106.6	1.73
420	139.9	232.7	95.7	3.28
421	146.1	230.3	89.2	1.18
422	-33.3	237.3	210.0	1.17
423	-27.1	235.0	207.0	1.70
424	-21.0	237.3	194.9	1.14
425	-14.8	235.0	192.2	1.16
426	-8.6	237.3	194.3	1.16
427	-2.4	235.0	178.2	1.07
428	3.8	237.3	180.7	1.12
429	10.0	235.0	178.6	1.15
430	16.2	237.3	181.0	1.16
431	22.4	235.0	162.1	1.07
432	28.5	237.3	172.1	1.21
433	34.7	235.0	154.3	1.13

434	40.9	237.3	151.7	0.92
435	47.1	235.0	146.5	0.99
436	53.3	237.3	143.9	1.01
437	59.5	235.0	138.7	1.03
438	65.7	237.3	136.2	1.07
439	71.8	235.0	130.8	1.11
440	78.0	237.3	135.3	1.35
441	84.2	235.0	128.7	1.37
442	90.4	237.3	124.0	1.41
443	96.6	235.0	117.4	1.46
444	102.8	237.3	121.9	1.68
445	109.0	235.0	124.4	1.55
446	115.2	237.3	110.7	1.93
447	121.3	235.0	113.2	1.69
448	127.5	237.3	108.7	1.76
449	-27.1	239.6	197.6	1.13
450	-21.0	241.9	199.5	1.15
451	-14.8	239.6	196.8	1.16
452	-8.6	241.9	198.9	1.15
453	-2.4	239.6	182.9	1.08
454	3.8	241.9	185.3	1.12
455	10.0	239.6	183.2	1.16
456	16.2	241.9	183.2	1.18
457	22.4	239.6	177.7	1.20
458	28.5	241.9	174.4	1.20
459	34.7	239.6	168.9	1.22
460	40.9	241.9	165.7	1.23
461	47.1	239.6	149.1	0.97
462	53.3	241.9	156.9	1.26
463	59.5	239.6	141.4	1.05
464	65.7	241.9	139.0	1.09
465	71.8	239.6	141.9	1.33
466	78.0	241.9	137.2	1.34
467	84.2	239.6	130.6	1.37
468	90.4	241.9	125.9	1.41
469	96.6	239.6	119.4	1.44
470	102.8	241.9	123.9	1.72
471	109.0	239.6	117.3	1.81
472	115.2	241.9	121.8	1.67
473	133.7	239.6	104.5	2.89
474	-33.3	246.5	219.2	1.11
475	-27.1	244.2	202.2	1.13
476	-21.0	246.5	204.1	1.15
477	-14.8	244.2	201.4	1.15
478	-8.6	246.5	203.5	1.13
479	-2.4	244.2	187.5	1.10
480	3.8	246.5	189.9	1.13
481	10.0	244.2	187.8	1.17
482	16.2	246.5	185.5	1.18

483	22.4	244.2	179.9	1.19
484	28.5	246.5	176.7	1.19
485	34.7	244.2	171.2	1.21
486	40.9	246.5	168.0	1.22
487	47.1	244.2	162.5	1.24
488	53.3	246.5	159.4	1.26
489	59.5	244.2	153.8	1.28
490	65.7	246.5	150.3	1.31
491	71.8	244.2	143.7	1.32
492	78.0	246.5	139.1	1.33
493	84.2	244.2	132.5	1.37
494	90.4	246.5	127.9	1.38
495	96.6	244.2	130.4	1.65
496	102.8	246.5	135.0	1.59
497	109.0	244.2	128.4	1.62
498	133.7	244.2	106.9	3.15
499	-33.3	251.2	223.8	1.89
500	-27.1	248.8	206.8	1.13
501	-21.0	251.2	208.7	1.15
502	-14.8	248.8	206.0	1.15
503	-8.6	251.2	194.4	1.09
504	-2.4	248.8	192.1	1.10
505	3.8	251.2	194.5	1.14
506	10.0	248.8	191.0	1.16
507	16.2	251.2	187.8	1.17
508	22.4	248.8	182.3	1.18
509	28.5	251.2	179.1	1.18
510	34.7	248.8	173.6	1.20
511	40.9	251.2	170.5	1.21
512	47.1	248.8	164.9	1.23
513	53.3	251.2	161.9	1.25
514	59.5	248.8	156.4	1.28
515	65.7	251.2	152.2	1.29
516	71.8	248.8	145.6	1.31
517	78.0	251.2	141.1	1.33
518	84.2	248.8	134.5	1.36
519	90.4	251.2	139.0	1.60
520	96.6	248.8	141.5	1.54
521	102.8	251.2	137.1	1.60
522	109.0	248.8	130.6	1.64
523	115.2	251.2	126.4	1.75
524	-33.3	255.8	214.3	1.11
525	-27.1	253.5	211.4	1.13
526	-21.0	255.8	213.3	1.14
527	-14.8	253.5	210.7	1.15
528	-8.6	255.8	199.1	1.08
529	-2.4	253.5	196.7	1.10
530	3.8	255.8	198.5	1.14
531	10.0	253.5	193.3	1.16

532	16.2	255.8	190.2	1.16
533	22.4	253.5	184.7	1.17
534	28.5	255.8	181.6	1.17
535	34.7	253.5	176.0	1.19
536	40.9	255.8	173.0	1.21
537	47.1	253.5	167.5	1.23
538	53.3	255.8	164.5	1.25
539	59.5	253.5	158.8	1.28
540	65.7	255.8	154.2	1.28
541	71.8	253.5	147.6	1.30
542	78.0	255.8	143.1	1.32
543	84.2	253.5	136.6	1.33
544	90.4	255.8	141.2	1.61
545	96.6	253.5	134.6	1.69
546	102.8	255.8	139.4	1.63
547	109.0	253.5	132.9	1.68
548	115.2	255.8	128.8	2.21
549	-39.5	258.1	231.4	1.13
550	-33.3	260.4	218.9	1.11
551	-27.1	258.1	216.0	1.14
552	-21.0	260.4	217.9	1.14
553	-14.8	258.1	215.3	1.15
554	-8.6	260.4	203.7	1.09
555	-2.4	258.1	201.4	1.11
556	3.8	260.4	201.0	1.13
557	10.0	258.1	195.7	1.15
558	16.2	260.4	192.7	1.14
559	22.4	258.1	187.1	1.16
560	28.5	260.4	184.1	1.17
561	34.7	258.1	178.6	1.18
562	40.9	260.4	175.6	1.20
563	47.1	258.1	170.0	1.23
564	53.3	260.4	167.2	1.25
565	59.5	258.1	160.8	1.27
566	65.7	260.4	156.2	1.28
567	71.8	258.1	149.7	1.30
568	78.0	260.4	154.3	1.51
569	84.2	258.1	147.7	1.56
570	90.4	260.4	152.4	1.55
571	96.6	258.1	145.9	1.58
572	109.0	258.1	135.3	1.75
573	115.2	260.4	131.3	2.28
574	121.3	258.1	124.9	2.55
575	-39.5	262.7	236.0	1.09
576	-33.3	265.0	223.5	1.12
577	-27.1	262.7	220.6	1.13
578	-21.0	265.0	222.5	1.14
579	-14.8	262.7	219.9	1.13
580	-8.6	265.0	208.3	1.08

581	-2.4	262.7	206.0	1.12
582	3.8	265.0	203.4	1.12
583	10.0	262.7	198.2	1.13
584	16.2	265.0	195.2	1.13
585	22.4	262.7	189.7	1.15
586	28.5	265.0	186.7	1.16
587	34.7	262.7	181.1	1.18
588	40.9	265.0	178.2	1.20
589	47.1	262.7	172.7	1.22
590	53.3	265.0	169.4	1.24
591	59.5	262.7	162.8	1.25
592	65.7	265.0	158.4	1.27
593	71.8	262.7	151.8	1.28
594	78.0	265.0	165.5	1.47
595	84.2	262.7	158.9	1.52
596	90.4	265.0	154.7	1.56
597	96.6	262.7	148.2	1.61
598	109.0	262.7	137.7	2.11
599	115.2	265.0	133.9	2.37
600	-33.3	269.6	228.0	1.13
601	-27.1	267.3	225.2	1.13
602	-21.0	269.6	227.1	1.15
603	-14.8	267.3	224.5	1.54
604	-8.6	269.6	212.9	1.09
605	-2.4	267.3	208.7	1.11
606	3.8	269.6	206.0	1.11
607	10.0	267.3	200.7	1.12
608	16.2	269.6	197.8	1.12
609	22.4	267.3	192.2	1.14
610	28.5	269.6	189.3	1.15
611	34.7	267.3	183.8	1.17
612	40.9	269.6	180.9	1.20
613	47.1	267.3	175.4	1.22
614	53.3	269.6	171.5	1.23
615	59.5	267.3	164.9	1.25
616	65.7	269.6	160.5	1.24
617	71.8	267.3	163.0	1.48
618	78.0	269.6	158.7	1.53
619	84.2	267.3	161.2	1.53
620	90.4	269.6	157.1	1.59
621	102.8	269.6	146.7	2.02
622	109.0	267.3	140.3	2.16
623	115.2	269.6	136.6	2.44
624	-39.5	272.0	231.0	1.09
625	-27.1	272.0	229.8	1.13
626	-14.8	272.0	215.3	1.08
627	-2.4	272.0	211.2	1.09
628	10.0	272.0	203.3	1.11
629	22.4	272.0	194.9	1.13

630	34.7	272.0	186.5	1.17
631	47.1	272.0	178.0	1.22
632	59.5	272.0	167.1	1.24
633	71.8	272.0	174.3	1.46
634	84.2	272.0	154.6	1.60
635	96.6	272.0	153.2	1.73
636	109.0	272.0	143.0	2.23

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4 Stato attuale – Sezione E – condizioni statiche

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-45.54 m
Ordinata vertice sinistro inferiore yi	97.63 m
Ascissa vertice destro superiore xs	179.93 m
Ordinata vertice destro superiore ys	182.52 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	
Classe d'uso:	
Vita nominale:	0.0 [anni]
Vita di riferimento:	0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:
Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
----------------------	-----------------------------	-------------	-----------	-------------

S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Vertici profilo

Nr	X (m)	y (m)
1	0.0	0.0
2	1.73	1.11
3	3.47	1.9
4	5.2	2.96
5	6.93	4.16
6	8.67	5.65
7	10.4	6.94
8	12.13	7.79
9	13.86	8.12
10	15.6	8.69
11	17.33	9.54
12	19.06	10.11
13	20.8	10.83
14	21.66	11.34
15	27.88	11.34
16	29.54	13.87
17	31.2	16.4
18	31.2	16.4
19	31.2	16.4
20	32.93	17.22
21	34.66	18.28
22	36.4	19.84
23	38.13	20.94
24	39.86	22.23
25	41.59	24.21
26	43.33	24.92
27	44.19	25.18
28	46.79	25.18
29	48.53	25.18
30	50.26	25.18
31	51.99	25.18
32	55.18	25.18
33	55.97	26.05
34	57.34	27.56
35	58.93	29.01
36	60.66	30.53
37	62.39	32.46
38	64.13	33.67
39	65.86	34.86
40	67.59	36.11

41	69.32	37.16
42	71.06	38.33
43	72.79	39.65
44	74.52	40.7
45	76.26	41.73
46	77.99	43.28
47	79.72	43.76
48	81.46	42.79
49	83.19	42.79
50	84.92	42.79
51	86.66	42.79
52	88.39	43.34
53	90.12	44.24
54	91.86	45.4
55	93.59	46.18
56	95.32	46.93
57	97.05	48.69
58	98.79	49.77
59	100.52	51.04
60	102.25	52.75
61	103.99	54.01
62	105.72	55.18
63	107.45	56.93
64	109.19	58.07
65	110.92	59.07
66	112.65	60.76
67	114.39	61.91
68	116.12	63.22
69	117.85	64.85
70	119.59	66.45
71	121.32	68.01
72	123.05	69.34
73	124.78	70.76
74	126.52	72.06
75	127.78	72.59
76	129.98	72.59
77	131.72	72.59
78	133.45	72.59
79	135.18	72.59
80	136.92	72.59
81	138.65	72.59
82	140.38	72.59
83	142.12	72.59
84	147.18	72.59
85	148.84	75.44
86	149.62	76.8
87	150.72	78.68
88	151.8	80.54
89	153.38	83.26

90	154.25	83.95
91	155.98	85.28
92	157.71	86.62
93	159.45	87.93
94	161.18	89.34
95	162.91	90.82
96	164.65	92.14
97	166.38	93.52
98	168.11	94.96
99	169.85	95.79
100	171.58	95.81
101	173.31	95.81
102	175.43	95.81
103	176.78	95.81
104	180.88	95.81
105	181.43	97.03
106	181.98	98.26
107	183.71	99.2
108	185.44	99.97
109	187.18	100.95

Falda

Nr.	X (m)	y (m)
1	187.18	88.32
2	143.3	65.63
3	123.15	56.49
4	80.31	24.53
5	56.62	12.35
6	48.38	7.45
7	28.31	-1.7
8	16.34	-7.67
9	7.17	-12.72
10	0.0	-16.73

Vertici strato1

N	X (m)	y (m)
1	0.0	-19.03
2	8.14	-14.47
3	17.27	-9.45
4	29.17	-3.5
5	49.31	5.67
6	57.59	10.59
7	81.38	22.83
8	124.18	54.76
9	144.18	63.83
10	187.18	86.07

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili 1.0 0.0
 Favorevoli: Permanenti, variabili 1.0 0.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio 1.25
 Coesione efficace 1.25
 Coesione non drenata 1.4
 Riduzione parametri geotecnici terreno No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	45	1900	2100.00		
2	5	0	45	2700	2700		

Risultati analisi pendio

Fs minimo individuato 0.99
 Ascissa centro superficie 134.84 m
 Ordinata centro superficie 101.87 m
 Raggio superficie 27.01 m

Numero di superfici esaminate....(530)

N°	Xo	Yo	Ro	Fs
1	-0.4	97.6	88.0	1.89
2	16.5	99.8	81.7	2.82
3	22.1	97.6	80.4	1.97
4	27.7	99.8	83.6	2.20
5	33.4	97.6	71.7	1.57
6	39.0	99.8	73.8	1.94
7	44.6	97.6	71.7	2.17
8	50.3	99.8	63.8	2.07
9	55.9	97.6	71.7	2.13
10	61.6	99.8	63.8	2.44
11	67.2	97.6	61.7	2.10
12	72.8	99.8	63.8	1.98
13	78.5	97.6	51.7	1.33
14	84.1	99.8	52.3	1.39
15	89.7	97.6	49.7	1.57

16	95.4	99.8	47.9	1.69
17	101.0	97.6	44.0	1.89
18	106.7	99.8	40.6	2.03
19	112.3	97.6	31.1	2.00
20	117.9	99.8	41.7	2.89
21	123.6	97.6	38.5	2.91
22	129.2	99.8	36.0	2.87
23	134.8	97.6	31.8	2.73
24	140.5	99.8	23.6	1.16
25	146.1	97.6	16.9	1.32
26	151.7	99.8	14.3	1.26
27	157.4	97.6	12.1	1.76
28	163.0	99.8	9.7	2.04
29	168.7	97.6	3.8	4.06
30	174.3	99.8	10.4	9.17
31	179.9	97.6	2.5	2.82
32	-0.4	101.9	92.3	1.99
33	16.5	104.0	85.9	2.96
34	22.1	101.9	84.6	1.99
35	27.7	104.0	87.7	2.23
36	33.4	101.9	75.9	1.68
37	39.0	104.0	78.1	2.04
38	44.6	101.9	75.9	2.18
39	50.3	104.0	78.1	2.09
40	55.9	101.9	75.9	2.07
41	61.6	104.0	68.1	2.20
42	67.2	101.9	65.9	1.98
43	72.8	104.0	68.1	1.97
44	78.5	101.9	56.0	1.33
45	84.1	104.0	53.5	1.29
46	89.7	101.9	49.7	1.40
47	95.4	104.0	48.7	1.57
48	101.0	101.9	46.1	1.87
49	106.7	104.0	42.0	2.00
50	112.3	101.9	38.6	2.46
51	117.9	104.0	43.1	2.99
52	123.6	101.9	38.5	3.10
53	129.2	104.0	40.7	2.57
54	134.8	101.9	27.0	0.99
55	140.5	104.0	28.1	1.26
56	146.1	101.9	20.8	1.37
57	151.7	104.0	17.9	1.29
58	157.4	101.9	15.0	1.66
59	163.0	104.0	12.2	2.06
60	168.7	101.9	16.8	4.48
61	174.3	104.0	10.6	10.72
62	179.9	101.9	6.7	2.09
63	10.8	106.1	97.0	2.01
64	16.5	108.2	90.1	3.09

65	22.1	106.1	88.8	2.02
66	27.7	108.2	91.9	2.24
67	33.4	106.1	80.2	1.78
68	39.0	108.2	82.3	2.12
69	44.6	106.1	80.2	2.14
70	50.3	108.2	82.3	2.04
71	55.9	106.1	80.2	2.03
72	61.6	108.2	72.3	2.02
73	67.2	106.1	70.2	1.91
74	72.8	108.2	62.3	1.34
75	78.5	106.1	59.3	1.32
76	84.1	108.2	64.5	1.73
77	89.7	106.1	58.7	1.76
78	95.4	108.2	56.5	1.90
79	101.0	106.1	47.7	1.83
80	106.7	108.2	43.5	2.01
81	112.3	106.1	37.8	2.37
82	117.9	108.2	49.4	2.52
83	123.6	106.1	45.2	2.56
84	129.2	108.2	41.0	2.32
85	134.8	106.1	32.4	1.13
86	140.5	108.2	29.7	1.30
87	146.1	106.1	25.1	1.42
88	151.7	108.2	22.0	1.38
89	157.4	106.1	18.4	1.78
90	163.0	108.2	15.2	2.34
91	168.7	106.1	17.3	4.30
92	174.3	108.2	13.3	20.00
93	-6.1	112.5	103.1	1.92
94	-0.4	110.4	100.8	2.18
95	5.2	112.5	103.0	5.95
96	10.8	110.4	101.3	2.04
97	16.5	112.5	94.3	3.22
98	22.1	110.4	93.0	2.07
99	27.7	112.5	86.1	1.53
100	33.4	110.4	84.4	1.88
101	39.0	112.5	96.5	2.15
102	44.6	110.4	84.4	2.09
103	50.3	112.5	86.5	1.98
104	55.9	110.4	84.4	1.98
105	61.6	112.5	76.6	1.89
106	67.2	110.4	74.4	1.89
107	72.8	112.5	65.8	1.29
108	78.5	110.4	60.6	1.19
109	84.1	112.5	65.6	1.65
110	89.7	110.4	59.8	1.70
111	95.4	112.5	55.9	1.73
112	101.0	110.4	46.7	1.60
113	106.7	112.5	59.6	2.24

114	112.3	110.4	53.8	2.45
115	117.9	112.5	49.3	3.80
116	123.6	110.4	46.5	2.46
117	129.2	112.5	47.9	2.29
118	134.8	110.4	37.5	1.22
119	140.5	112.5	34.0	1.36
120	146.1	110.4	29.8	1.53
121	151.7	112.5	26.1	1.56
122	157.4	110.4	22.0	1.95
123	163.0	112.5	18.8	2.79
124	168.7	110.4	18.7	5.52
125	-6.1	116.7	107.3	2.02
126	5.2	116.7	107.3	6.17
127	10.8	114.6	105.5	2.08
128	16.5	116.7	108.2	2.19
129	22.1	114.6	97.1	2.11
130	27.7	116.7	90.3	1.65
131	33.4	114.6	88.7	1.98
132	39.0	116.7	90.8	2.15
133	44.6	114.6	88.7	2.04
134	50.3	116.7	90.8	1.95
135	55.9	114.6	88.7	1.93
136	61.6	116.7	80.8	1.83
137	67.2	114.6	78.7	1.89
138	72.8	116.7	77.4	1.82
139	78.5	114.6	90.5	3.88
140	84.1	116.7	66.9	1.59
141	89.7	114.6	61.0	1.63
142	95.4	116.7	56.5	1.64
143	101.0	114.6	54.1	1.98
144	106.7	116.7	52.4	2.40
145	112.3	114.6	55.1	2.51
146	117.9	116.7	57.5	2.26
147	123.6	114.6	52.5	2.30
148	129.2	116.7	43.6	1.17
149	134.8	114.6	38.1	1.25
150	140.5	116.7	34.9	1.28
151	146.1	114.6	31.3	1.45
152	151.7	116.7	27.7	1.44
153	157.4	114.6	23.0	1.81
154	163.0	116.7	23.2	3.31
155	168.7	114.6	20.8	6.93
156	-11.7	118.9	109.6	1.76
157	-6.1	121.0	111.5	2.11
158	-0.4	118.9	109.3	1.94
159	5.2	121.0	111.5	6.39
160	10.8	118.9	109.7	2.11
161	16.5	121.0	102.7	3.48
162	22.1	118.9	101.3	2.16

163	27.7	121.0	94.4	1.76
164	33.4	118.9	92.9	2.07
165	39.0	121.0	95.0	2.09
166	44.6	118.9	92.9	1.98
167	50.3	121.0	95.0	1.94
168	55.9	118.9	82.9	1.99
169	61.6	121.0	85.0	1.81
170	67.2	118.9	82.0	1.86
171	72.8	121.0	97.4	3.85
172	78.5	118.9	72.8	1.56
173	84.1	121.0	68.3	1.52
174	89.7	118.9	62.4	1.56
175	95.4	121.0	66.9	2.10
176	101.0	118.9	62.2	2.31
177	106.7	121.0	67.5	2.09
178	112.3	118.9	63.4	2.83
179	117.9	121.0	58.9	2.20
180	123.6	118.9	53.0	2.14
181	129.2	121.0	49.6	18.91
182	134.8	118.9	39.9	1.28
183	140.5	121.0	40.9	1.50
184	146.1	118.9	35.9	1.64
185	151.7	121.0	33.0	1.84
186	157.4	118.9	27.9	2.23
187	163.0	121.0	28.3	3.73
188	-11.7	123.1	113.8	1.85
189	-6.1	125.2	115.8	2.20
190	10.8	123.1	104.3	3.04
191	16.5	125.2	106.9	3.60
192	22.1	123.1	105.5	2.19
193	27.7	125.2	98.6	1.87
194	33.4	123.1	107.1	2.11
195	39.0	125.2	99.3	2.02
196	44.6	123.1	97.2	1.92
197	50.3	125.2	99.3	1.92
198	55.9	123.1	87.2	1.82
199	61.6	125.2	88.5	1.78
200	67.2	123.1	84.1	1.74
201	72.8	125.2	80.1	1.49
202	78.5	123.1	74.2	1.51
203	84.1	125.2	69.8	1.45
204	89.7	123.1	63.8	1.51
205	95.4	125.2	68.3	2.07
206	101.0	123.1	71.2	2.10
207	106.7	125.2	67.9	2.21
208	112.3	123.1	64.3	2.18
209	117.9	125.2	60.5	2.13
210	123.6	123.1	54.5	6.55
211	129.2	125.2	50.4	1.27

212	134.8	123.1	46.5	1.40
213	140.5	125.2	42.9	1.46
214	146.1	123.1	37.4	1.54
215	151.7	125.2	38.7	2.17
216	157.4	123.1	33.7	2.65
217	163.0	125.2	30.9	4.32
218	-11.7	127.3	117.9	1.94
219	-6.1	129.5	119.9	2.28
220	-0.4	127.3	117.8	1.90
221	10.8	127.3	108.5	3.16
222	16.5	129.5	120.8	2.14
223	22.1	127.3	109.7	2.19
224	27.7	129.5	102.8	1.96
225	33.4	127.3	111.4	2.05
226	39.0	129.5	103.5	1.95
227	44.6	127.3	101.4	1.90
228	50.3	129.5	103.5	1.90
229	55.9	127.3	91.4	1.75
230	61.6	129.5	90.7	1.64
231	67.2	127.3	104.4	3.78
232	72.8	129.5	81.6	1.43
233	78.5	127.3	75.7	1.43
234	84.1	129.5	80.2	1.88
235	89.7	127.3	74.3	1.96
236	95.4	129.5	69.8	2.07
237	101.0	127.3	72.6	2.18
238	106.7	129.5	68.5	2.94
239	112.3	127.3	64.9	3.49
240	117.9	129.5	62.0	4.80
241	123.6	127.3	62.6	2.13
242	129.2	129.5	52.3	1.30
243	134.8	127.3	47.4	1.34
244	140.5	129.5	44.8	1.39
245	146.1	127.3	44.0	1.93
246	-11.7	131.6	122.1	2.03
247	-0.4	131.6	122.0	1.93
248	5.2	133.7	124.2	7.02
249	10.8	131.6	122.4	2.13
250	16.5	133.7	115.4	2.08
251	22.1	131.6	113.9	2.16
252	27.7	133.7	116.8	2.05
253	33.4	131.6	115.6	2.01
254	39.0	133.7	107.8	1.89
255	44.6	131.6	105.6	1.89
256	50.3	133.7	107.8	2.88
257	55.9	131.6	95.2	1.71
258	61.6	133.7	102.2	3.68
259	67.2	131.6	87.6	1.43
260	72.8	133.7	83.2	1.35

261	78.5	131.6	77.3	1.37
262	84.1	133.7	81.8	1.86
263	89.7	131.6	75.8	1.94
264	95.4	133.7	71.5	2.09
265	101.0	131.6	65.5	2.32
266	106.7	133.7	78.4	2.03
267	112.3	131.6	65.6	3.70
268	117.9	133.7	69.8	2.06
269	123.6	131.6	58.3	1.25
270	146.1	131.6	46.5	1.96
271	-11.7	135.8	126.3	2.11
272	-6.1	138.0	128.3	2.44
273	5.2	138.0	128.5	7.22
274	10.8	135.8	117.0	3.39
275	16.5	138.0	129.3	2.06
276	22.1	135.8	118.1	2.13
277	27.7	138.0	121.0	2.01
278	33.4	135.8	109.9	2.05
279	39.0	138.0	112.0	1.86
280	44.6	135.8	109.9	1.89
281	50.3	138.0	131.8	3.24
282	55.9	135.8	126.2	3.39
283	61.6	138.0	95.1	1.38
284	67.2	135.8	89.2	1.37
285	72.8	138.0	93.7	1.75
286	78.5	135.8	87.7	1.79
287	84.1	138.0	83.4	1.83
288	89.7	135.8	77.4	1.93
289	95.4	138.0	81.8	2.42
290	101.0	135.8	75.8	2.65
291	106.7	138.0	80.1	2.05
292	112.3	135.8	66.5	4.05
293	117.9	138.0	71.2	5.10
294	123.6	135.8	60.4	1.28
295	129.2	138.0	62.8	1.54
296	134.8	135.8	56.9	1.65
297	146.1	135.8	49.0	2.01
298	151.7	138.0	46.5	2.47
299	-11.7	140.1	130.5	2.19
300	-6.1	142.2	132.5	1.91
301	5.2	142.2	123.1	1.49
302	10.8	140.1	130.9	2.09
303	16.5	142.2	133.5	2.01
304	22.1	140.1	112.5	1.78
305	27.7	142.2	125.2	2.00
306	33.4	140.1	114.1	1.96
307	39.0	142.2	116.3	1.85
308	44.6	140.1	114.1	1.90
309	50.3	142.2	114.0	1.91

310	55.9	140.1	109.2	1.93
311	61.6	142.2	96.8	1.30
312	67.2	140.1	90.9	1.29
313	72.8	142.2	95.4	1.72
314	78.5	140.1	89.4	1.77
315	84.1	142.2	85.2	1.82
316	89.7	140.1	79.2	1.94
317	95.4	142.2	83.6	2.45
318	101.0	140.1	77.6	2.72
319	106.7	142.2	73.6	3.36
320	117.9	142.2	72.9	5.81
321	123.6	140.1	68.1	12.12
322	129.2	142.2	65.2	1.59
323	134.8	140.1	59.4	1.67
324	140.5	142.2	56.4	1.81
325	-17.4	146.4	136.9	2.05
326	-0.4	144.3	134.7	2.03
327	5.2	146.4	127.4	1.58
328	10.8	144.3	135.1	2.06
329	16.5	146.4	137.7	1.95
330	22.1	144.3	116.8	1.89
331	27.7	146.4	129.4	1.99
332	33.4	144.3	118.2	1.88
333	39.0	146.4	120.5	1.86
334	44.6	144.3	118.4	1.89
335	50.3	146.4	106.8	1.25
336	55.9	144.3	102.3	1.30
337	61.6	146.4	107.3	1.79
338	67.2	144.3	118.8	3.57
339	72.8	146.4	97.1	1.70
340	78.5	144.3	91.2	1.74
341	84.1	146.4	87.0	1.83
342	89.7	144.3	89.6	2.27
343	95.4	146.4	85.5	2.50
344	101.0	144.3	79.5	2.82
345	106.7	146.4	84.1	3.45
346	112.3	144.3	78.1	4.22
347	129.2	146.4	67.4	1.59
348	134.8	144.3	62.0	1.69
349	-17.4	150.7	141.1	2.12
350	-11.7	148.6	138.8	2.34
351	-6.1	150.7	140.9	1.96
352	-0.4	148.6	138.9	2.06
353	5.2	150.7	141.2	2.06
354	10.8	148.6	139.3	2.02
355	16.5	150.7	132.2	2.08
356	22.1	148.6	130.7	1.98
357	27.7	150.7	133.5	1.97
358	33.4	148.6	122.4	1.84

359	39.0	150.7	124.7	1.87
360	44.6	148.6	121.0	1.91
361	50.3	150.7	109.3	1.18
362	55.9	148.6	104.5	1.23
363	61.6	150.7	117.8	3.77
364	67.2	148.6	103.1	1.66
365	72.8	150.7	99.0	1.67
366	78.5	148.6	93.0	1.74
367	84.1	150.7	97.5	2.16
368	89.7	148.6	91.5	2.29
369	95.4	150.7	87.5	2.56
370	101.0	148.6	90.0	1.98
371	123.6	148.6	72.0	1.48
372	129.2	150.7	69.6	1.57
373	-17.4	154.9	145.3	2.20
374	-6.1	154.9	145.1	1.99
375	-0.4	152.8	143.1	2.08
376	10.8	152.8	143.6	1.99
377	16.5	154.9	136.5	2.02
378	22.1	152.8	134.9	1.95
379	27.7	154.9	137.7	1.94
380	33.4	152.8	126.6	1.82
381	39.0	154.9	128.1	1.87
382	44.6	152.8	123.3	1.89
383	50.3	154.9	120.7	1.85
384	55.9	152.8	115.1	1.77
385	61.6	154.9	110.9	1.61
386	67.2	152.8	104.9	1.64
387	72.8	154.9	100.9	1.67
388	78.5	152.8	94.9	1.73
389	84.1	154.9	99.5	2.17
390	89.7	152.8	93.5	2.32
391	95.4	154.9	98.1	1.95
392	101.0	152.8	92.2	3.10
393	112.3	152.8	82.7	5.04
394	117.9	154.9	79.4	1.38
395	123.6	152.8	74.1	1.43
396	129.2	154.9	71.9	1.55
397	134.8	152.8	67.5	1.75
398	-17.4	159.2	149.4	2.27
399	-11.7	157.1	147.2	2.50
400	-6.1	159.2	149.3	2.03
401	5.2	159.2	149.7	1.99
402	10.8	157.1	147.8	1.97
403	16.5	159.2	140.7	1.96
404	22.1	157.1	139.1	1.94
405	27.7	159.2	132.1	1.88
406	33.4	157.1	130.8	1.82
407	39.0	159.2	130.4	1.85

408	44.6	157.1	125.6	1.86
409	50.3	159.2	122.9	1.76
410	55.9	157.1	134.1	3.63
411	61.6	159.2	112.8	1.59
412	67.2	157.1	106.9	1.61
413	72.8	159.2	102.9	1.65
414	78.5	157.1	105.4	2.06
415	84.1	159.2	101.5	2.19
416	89.7	157.1	104.0	1.93
417	95.4	159.2	100.3	2.85
418	106.7	159.2	91.0	4.04
419	117.9	159.2	82.0	1.37
420	-11.7	161.3	151.3	2.57
421	-0.4	161.3	151.5	2.05
422	5.2	163.4	153.9	1.96
423	10.8	161.3	142.4	4.04
424	16.5	163.4	144.9	1.91
425	22.1	161.3	143.3	1.94
426	27.7	163.4	136.3	1.81
427	33.4	161.3	134.9	1.83
428	39.0	163.4	132.8	1.81
429	44.6	161.3	128.0	1.80
430	50.3	163.4	141.9	3.59
431	55.9	161.3	118.8	1.57
432	61.6	163.4	114.8	1.56
433	67.2	161.3	108.9	1.61
434	72.8	163.4	113.4	1.98
435	78.5	161.3	115.9	2.06
436	84.1	163.4	112.1	1.90
437	89.7	161.3	97.8	2.43
438	-23.0	165.5	156.0	2.15
439	-17.4	167.7	157.8	2.41
440	-6.1	167.7	157.6	2.09
441	-0.4	165.5	145.9	1.62
442	5.2	167.7	158.1	1.93
443	10.8	165.5	156.3	1.92
444	16.5	167.7	149.1	1.90
445	22.1	165.5	147.6	1.95
446	27.7	167.7	140.5	1.78
447	33.4	165.5	137.7	1.82
448	39.0	167.7	135.3	1.76
449	44.6	165.5	130.5	1.72
450	50.3	167.7	126.7	1.53
451	55.9	165.5	120.8	1.54
452	61.6	167.7	116.9	1.56
453	67.2	165.5	119.4	1.91
454	72.8	167.7	115.6	1.99
455	78.5	165.5	109.6	2.09
456	84.1	167.7	114.4	1.90

457	89.7	165.5	108.5	2.66
458	101.0	165.5	99.3	3.48
459	112.3	165.5	90.4	1.34
460	-23.0	169.8	160.2	2.22
461	-17.4	171.9	162.0	2.48
462	-6.1	171.9	161.8	2.08
463	-0.4	169.8	150.0	1.70
464	5.2	171.9	162.3	1.92
465	10.8	169.8	150.9	4.25
466	16.5	171.9	153.4	1.89
467	22.1	169.8	151.8	1.94
468	27.7	171.9	144.7	1.78
469	33.4	169.8	140.1	1.78
470	39.0	171.9	137.8	1.67
471	44.6	169.8	141.2	3.31
472	50.3	171.9	128.8	1.51
473	55.9	169.8	122.8	1.52
474	61.6	171.9	127.4	1.86
475	67.2	169.8	121.5	1.92
476	72.8	171.9	126.2	1.84
477	78.5	169.8	111.9	2.12
478	84.1	171.9	116.7	2.51
479	89.7	169.8	110.9	2.71
480	95.4	171.9	107.6	3.13
481	-23.0	174.0	164.3	2.28
482	-11.7	174.0	163.9	2.02
483	-6.1	176.2	166.0	2.05
484	-0.4	174.0	154.1	1.78
485	5.2	176.2	156.8	3.93
486	10.8	174.0	155.1	4.35
487	16.5	176.2	157.6	1.89
488	22.1	174.0	156.0	1.92
489	27.7	176.2	147.5	1.75
490	33.4	174.0	142.7	1.72
491	39.0	176.2	149.0	2.81
492	44.6	174.0	134.7	1.50
493	50.3	176.2	130.9	1.48
494	55.9	174.0	124.9	1.51
495	61.6	176.2	129.6	1.86
496	67.2	174.0	123.7	1.92
497	72.8	176.2	128.5	1.85
498	78.5	174.0	114.2	2.15
499	84.1	176.2	119.2	2.56
500	-23.0	178.3	168.5	2.34
501	-17.4	180.4	170.3	2.61
502	-11.7	178.3	168.1	2.05
503	-6.1	180.4	170.2	2.01
504	-0.4	178.3	158.3	1.86
505	5.2	180.4	161.0	4.03

506	10.8	178.3	169.0	3.48
507	16.5	180.4	161.8	1.90
508	22.1	178.3	150.5	1.76
509	27.7	180.4	150.1	1.68
510	33.4	178.3	145.2	3.10
511	39.0	180.4	151.2	1.95
512	44.6	178.3	136.8	1.47
513	50.3	180.4	133.0	1.47
514	55.9	178.3	135.5	1.81
515	61.6	180.4	140.2	1.77
516	67.2	178.3	134.3	1.81
517	72.8	180.4	122.4	2.06
518	84.1	180.4	121.7	2.61
519	89.7	178.3	115.9	2.87
520	-23.0	182.5	172.7	2.41
521	-11.7	182.5	172.3	2.08
522	-0.4	182.5	162.4	1.92
523	10.8	182.5	163.6	1.84
524	22.1	182.5	154.7	1.73
525	33.4	182.5	156.6	1.92
526	44.6	182.5	138.9	1.44
527	55.9	182.5	137.7	1.81
528	67.2	182.5	128.3	1.95
529	78.5	182.5	127.5	2.43
530	89.7	182.5	118.6	2.96

=====

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5 Stato attuale – Sezione E – condizioni sismiche

Analisi di stabilità dei pendii con : BISHOP (1955)

```
=====
Lat./Long.                               44.105751/10.143667 °
Calcolo eseguito secondo                  NTC 2018
Numero di strati                          2.0
Numero dei conci                         50.0
Grado di sicurezza ritenuto accettabile  1.3
Coefficiente parziale resistenza         1.0
Analisi                                  Condizione drenata
Superficie di forma circolare
=====
```

Maglia dei Centri

```
=====
Ascissa vertice sinistro inferiore xi     -45.54 m
Ordinata vertice sinistro inferiore yi    97.63 m
Ascissa vertice destro superiore xs      179.93 m
Ordinata vertice destro superiore ys     182.52 m
Passo di ricerca                          10.0
Numero di celle lungo x                   20.0
Numero di celle lungo y                   20.0
=====
```

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera: 2 - Opere ordinarie
Classe d'uso: Classe II
Vita nominale: 50.0 [anni]
Vita di riferimento: 50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo: B
Categoria topografica: T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.5	2.451	0.238
S.L.D.	50.0	0.637	2.46	0.255
S.L.V.	475.0	1.598	2.395	0.288
S.L.C.	975.0	2.05	2.385	0.293

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L.	amax	beta	kh	kv
------	------	------	----	----

Stato limite	[m/s ²]	[-]	[-]	[sec]
S.L.O.	0.72	0.2	0.0147	0.0073
S.L.D.	0.9173	0.2	0.0187	0.0094
S.L.V.	2.3011	0.24	0.0563	0.0282
S.L.C.	2.952	0.28	0.0843	0.0421

Coefficiente azione sismica orizzontale 0.0563

Coefficiente azione sismica verticale 0.0282

Vertici profilo

Nr	X (m)	y (m)
1	0.0	0.0
2	1.73	1.11
3	3.47	1.9
4	5.2	2.96
5	6.93	4.16
6	8.67	5.65
7	10.4	6.94
8	12.13	7.79
9	13.86	8.12
10	15.6	8.69
11	17.33	9.54
12	19.06	10.11
13	20.8	10.83
14	21.66	11.34
15	27.88	11.34
16	29.54	13.87
17	31.2	16.4
18	31.2	16.4
19	31.2	16.4
20	32.93	17.22
21	34.66	18.28
22	36.4	19.84
23	38.13	20.94
24	39.86	22.23
25	41.59	24.21
26	43.33	24.92
27	44.19	25.18
28	46.79	25.18
29	48.53	25.18
30	50.26	25.18
31	51.99	25.18
32	55.18	25.18
33	55.97	26.05
34	57.34	27.56
35	58.93	29.01
36	60.66	30.53
37	62.39	32.46

38	64.13	33.67
39	65.86	34.86
40	67.59	36.11
41	69.32	37.16
42	71.06	38.33
43	72.79	39.65
44	74.52	40.7
45	76.26	41.73
46	77.99	43.28
47	79.72	43.76
48	81.46	42.79
49	83.19	42.79
50	84.92	42.79
51	86.66	42.79
52	88.39	43.34
53	90.12	44.24
54	91.86	45.4
55	93.59	46.18
56	95.32	46.93
57	97.05	48.69
58	98.79	49.77
59	100.52	51.04
60	102.25	52.75
61	103.99	54.01
62	105.72	55.18
63	107.45	56.93
64	109.19	58.07
65	110.92	59.07
66	112.65	60.76
67	114.39	61.91
68	116.12	63.22
69	117.85	64.85
70	119.59	66.45
71	121.32	68.01
72	123.05	69.34
73	124.78	70.76
74	126.52	72.06
75	127.78	72.59
76	129.98	72.59
77	131.72	72.59
78	133.45	72.59
79	135.18	72.59
80	136.92	72.59
81	138.65	72.59
82	140.38	72.59
83	142.12	72.59
84	147.18	72.59
85	148.84	75.44
86	149.62	76.8

87	150.72	78.68
88	151.8	80.54
89	153.38	83.26
90	154.25	83.95
91	155.98	85.28
92	157.71	86.62
93	159.45	87.93
94	161.18	89.34
95	162.91	90.82
96	164.65	92.14
97	166.38	93.52
98	168.11	94.96
99	169.85	95.79
100	171.58	95.81
101	173.31	95.81
102	175.43	95.81
103	176.78	95.81
104	180.88	95.81
105	181.43	97.03
106	181.98	98.26
107	183.71	99.2
108	185.44	99.97
109	187.18	100.95

Falda

Nr.	X (m)	y (m)
1	187.18	88.32
2	143.3	65.63
3	123.15	56.49
4	80.31	24.53
5	56.62	12.35
6	48.38	7.45
7	28.31	-1.7
8	16.34	-7.67
9	7.17	-12.72
10	0.0	-16.73

Vertici strato1

N	X (m)	y (m)
1	0.0	-19.03
2	8.14	-14.47
3	17.27	-9.45
4	29.17	-3.5
5	49.31	5.67
6	57.59	10.59
7	81.38	22.83
8	124.18	54.76
9	144.18	63.83

10	187.18	86.07
----	--------	-------

Coefficienti parziali azioni

=====		
Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0
=====		

Coefficienti parziali per i parametri geotecnici del terreno

=====	
Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No
=====	

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	45	1900	2100.00		
2	5	0	45	2700	2700		

Risultati analisi pendio

=====	
Fs minimo individuato	0.83
Ascissa centro superficie	134.83 m
Ordinata centro superficie	101.87 m
Raggio superficie	27.01 m
=====	

Numero di superfici esaminate....(533)

=====				
N°	Xo	Yo	Ro	Fs
=====				
1	-6.1	99.8	90.3	1.36
2	10.8	97.6	88.6	1.68
3	16.5	99.8	91.4	1.81
4	22.1	97.6	80.4	1.67
5	27.7	99.8	83.6	1.86
6	33.4	97.6	71.7	1.34
7	39.0	99.8	73.8	1.65
8	44.6	97.6	71.7	1.83
9	50.3	99.8	63.8	1.75
10	55.9	97.6	71.7	1.81
11	61.6	99.8	63.8	2.04
12	67.2	97.6	61.7	1.79

13	72.8	99.8	63.8	1.69
14	78.5	97.6	51.7	1.14
15	84.1	99.8	52.3	1.19
16	89.7	97.6	49.7	1.34
17	95.4	99.8	47.9	1.44
18	101.0	97.6	44.0	1.61
19	106.6	99.8	40.6	1.72
20	112.3	97.6	31.1	1.70
21	117.9	99.8	41.7	2.40
22	123.6	97.6	38.5	2.42
23	129.2	99.8	36.0	2.41
24	134.8	97.6	31.8	2.31
25	140.5	99.8	23.6	0.99
26	146.1	97.6	16.9	1.13
27	151.7	99.8	14.3	1.07
28	157.4	97.6	12.1	1.51
29	163.0	99.8	9.7	1.74
30	168.7	97.6	3.8	3.23
31	174.3	99.8	11.7	5.76
32	179.9	97.6	2.5	2.42
33	-6.1	104.0	94.6	1.46
34	-0.4	101.9	92.3	1.69
35	16.5	104.0	85.9	2.42
36	22.1	101.9	84.6	1.69
37	27.7	104.0	87.7	1.88
38	33.4	101.9	75.9	1.43
39	39.0	104.0	78.1	1.73
40	44.6	101.9	75.9	1.84
41	50.3	104.0	78.1	1.77
42	55.9	101.9	75.9	1.76
43	61.6	104.0	68.1	1.86
44	67.2	101.9	65.9	1.69
45	72.8	104.0	68.1	1.68
46	78.5	101.9	56.0	1.13
47	84.1	104.0	53.5	1.11
48	89.7	101.9	49.7	1.20
49	95.4	104.0	48.7	1.35
50	101.0	101.9	46.1	1.59
51	106.6	104.0	42.0	1.70
52	112.3	101.9	38.6	2.06
53	117.9	104.0	43.1	2.47
54	123.6	101.9	38.5	2.56
55	129.2	104.0	40.7	2.18
56	134.8	101.9	27.0	0.83
57	140.5	104.0	28.1	1.08
58	146.1	101.9	20.8	1.18
59	151.7	104.0	17.9	1.10
60	157.4	101.9	15.0	1.42
61	163.0	104.0	12.2	1.75

62	168.7	101.9	16.8	3.56
63	174.3	104.0	10.6	6.88
64	10.8	106.1	97.0	1.71
65	16.5	108.2	90.1	2.52
66	22.1	106.1	88.8	1.71
67	27.7	108.2	91.9	1.89
68	33.4	106.1	80.2	1.52
69	39.0	108.2	82.3	1.79
70	44.6	106.1	80.2	1.81
71	50.3	108.2	82.3	1.73
72	55.9	106.1	80.2	1.72
73	61.6	108.2	72.3	1.72
74	67.2	106.1	70.2	1.63
75	72.8	108.2	62.3	1.14
76	78.5	106.1	59.3	1.13
77	84.1	108.2	64.5	1.48
78	89.7	106.1	58.7	1.51
79	95.4	108.2	56.5	1.62
80	101.0	106.1	47.7	1.55
81	106.6	108.2	43.5	1.70
82	112.3	106.1	37.8	1.98
83	117.9	108.2	49.4	2.12
84	123.6	106.1	45.2	2.16
85	129.2	108.2	41.0	1.98
86	134.8	106.1	32.4	0.96
87	140.5	108.2	29.7	1.11
88	146.1	106.1	25.1	1.22
89	151.7	108.2	22.0	1.18
90	157.4	106.1	18.4	1.52
91	163.0	108.2	15.2	1.96
92	168.7	106.1	17.3	3.41
93	174.3	108.2	13.3	17.58
94	-6.1	112.5	103.1	1.63
95	-0.4	110.4	100.8	1.83
96	5.2	112.5	103.0	4.32
97	10.8	110.4	101.3	1.73
98	16.5	112.5	94.3	2.61
99	22.1	110.4	93.0	1.75
100	27.7	112.5	86.1	1.31
101	33.4	110.4	84.4	1.60
102	39.0	112.5	96.5	1.82
103	44.6	110.4	84.4	1.77
104	50.3	112.5	86.5	1.69
105	55.9	110.4	84.4	1.68
106	61.6	112.5	76.6	1.61
107	67.2	110.4	74.4	1.61
108	72.8	112.5	65.8	1.10
109	78.5	110.4	60.6	1.02
110	84.1	112.5	65.7	1.41

111	89.7	110.4	59.8	1.45
112	95.4	112.5	55.9	1.47
113	101.0	110.4	46.7	1.36
114	106.6	112.5	59.6	1.89
115	112.3	110.4	53.8	2.06
116	117.9	112.5	49.3	3.02
117	123.6	110.4	46.5	2.08
118	129.2	112.5	47.9	1.95
119	134.8	110.4	37.5	1.04
120	140.5	112.5	34.0	1.16
121	146.1	110.4	29.8	1.31
122	151.7	112.5	26.1	1.34
123	157.4	110.4	22.0	1.66
124	163.0	112.5	18.8	2.30
125	168.7	110.4	16.7	4.49
126	-6.1	116.7	107.3	1.71
127	5.2	116.7	107.3	4.44
128	10.8	114.6	105.5	1.76
129	16.5	116.7	98.5	2.70
130	22.1	114.6	97.1	1.79
131	27.7	116.7	90.3	1.41
132	33.4	114.6	88.7	1.68
133	39.0	116.7	90.8	1.81
134	44.6	114.6	88.7	1.73
135	50.3	116.7	90.8	1.66
136	55.9	114.6	88.7	1.64
137	61.6	116.7	80.8	1.56
138	67.2	114.6	78.7	1.61
139	72.8	116.7	77.4	1.56
140	78.5	114.6	100.1	3.15
141	84.1	116.7	66.9	1.36
142	89.7	114.6	61.0	1.39
143	95.4	116.7	56.5	1.40
144	101.0	114.6	54.1	1.68
145	106.6	116.7	52.4	2.01
146	112.3	114.6	55.1	2.10
147	117.9	116.7	57.5	1.92
148	123.6	114.6	52.5	1.95
149	129.2	116.7	43.6	1.00
150	134.8	114.6	38.1	1.07
151	140.5	116.7	34.9	1.09
152	146.1	114.6	31.3	1.24
153	151.7	116.7	27.7	1.23
154	157.4	114.6	23.0	1.54
155	163.0	116.7	23.2	2.67
156	-11.7	118.9	109.6	1.50
157	-6.1	121.0	111.5	1.78
158	-0.4	118.9	109.3	1.64
159	5.2	121.0	111.5	4.56

160	10.8	118.9	100.1	2.39
161	16.5	121.0	112.4	1.84
162	22.1	118.9	101.3	1.82
163	27.7	121.0	94.4	1.50
164	33.4	118.9	92.9	1.75
165	39.0	121.0	95.0	1.77
166	44.6	118.9	92.9	1.68
167	50.3	121.0	95.0	1.65
168	55.9	118.9	82.9	1.70
169	61.6	121.0	85.0	1.55
170	67.2	118.9	82.0	1.59
171	72.8	121.0	106.7	2.94
172	78.5	118.9	72.8	1.34
173	84.1	121.0	68.3	1.30
174	89.7	118.9	62.4	1.33
175	95.4	121.0	66.9	1.77
176	101.0	118.9	62.2	1.94
177	106.6	121.0	67.5	1.77
178	112.3	118.9	63.4	2.42
179	117.9	121.0	58.9	1.87
180	123.6	118.9	53.0	1.83
181	129.2	121.0	49.6	9.02
182	134.8	118.9	39.9	1.09
183	140.5	121.0	40.9	1.29
184	146.1	118.9	35.9	1.40
185	151.7	121.0	33.0	1.56
186	157.4	118.9	27.9	1.88
187	163.0	121.0	28.3	2.96
188	5.2	125.2	115.7	4.67
189	10.8	123.1	113.9	1.80
190	16.5	125.2	116.6	1.83
191	22.1	123.1	115.3	1.78
192	27.7	125.2	98.6	1.58
193	33.4	123.1	107.1	1.79
194	39.0	125.2	99.3	1.72
195	44.6	123.1	97.2	1.64
196	50.3	125.2	99.3	1.64
197	55.9	123.1	87.2	1.56
198	61.6	125.2	88.5	1.52
199	67.2	123.1	84.1	1.49
200	72.8	125.2	80.1	1.27
201	78.5	123.1	74.2	1.29
202	84.1	125.2	69.8	1.24
203	89.7	123.1	63.8	1.29
204	95.4	125.2	68.3	1.75
205	101.0	123.1	71.2	1.77
206	106.6	125.2	67.9	1.87
207	112.3	123.1	64.3	1.85
208	117.9	125.2	60.5	1.81

209	123.6	123.1	61.0	1.87
210	129.2	125.2	50.4	1.09
211	134.8	123.1	46.5	1.20
212	140.5	125.2	42.9	1.25
213	146.1	123.1	37.4	1.32
214	151.7	125.2	38.7	1.83
215	163.0	125.2	30.9	3.35
216	-6.1	129.5	119.9	1.91
217	5.2	129.5	120.0	4.78
218	10.8	127.3	118.2	1.81
219	16.5	129.5	120.8	1.81
220	22.1	127.3	109.7	1.85
221	27.7	129.5	102.8	1.66
222	33.4	127.3	111.4	1.74
223	39.0	129.5	103.5	1.66
224	44.6	127.3	101.4	1.61
225	50.3	129.5	103.5	1.62
226	55.9	127.3	91.4	1.50
227	61.6	129.5	90.8	1.40
228	67.2	127.3	104.5	3.25
229	72.8	129.5	81.6	1.22
230	78.5	127.3	75.7	1.22
231	84.1	129.5	80.2	1.60
232	89.7	127.3	74.3	1.66
233	95.4	129.5	69.8	1.75
234	101.0	127.3	72.6	1.85
235	106.6	129.5	68.5	2.42
236	112.3	127.3	64.9	2.81
237	117.9	129.5	62.0	3.65
238	123.6	127.3	62.6	1.81
239	129.2	129.5	52.3	1.11
240	134.8	127.3	47.4	1.14
241	140.5	129.5	44.8	1.19
242	151.7	129.5	41.0	1.88
243	157.4	127.3	36.0	2.30
244	-6.1	133.7	124.1	1.97
245	-0.4	131.6	122.0	1.64
246	10.8	131.6	122.4	1.80
247	16.5	133.7	115.4	1.76
248	22.1	131.6	113.9	1.83
249	27.7	133.7	107.0	1.74
250	33.4	131.6	115.6	1.70
251	39.0	133.7	107.8	1.61
252	44.6	131.6	105.6	1.61
253	50.3	133.7	107.8	2.48
254	55.9	131.6	95.2	1.46
255	61.6	133.7	120.6	2.84
256	67.2	131.6	87.6	1.22
257	72.8	133.7	83.2	1.16

258	78.5	131.6	77.3	1.17
259	84.1	133.7	81.8	1.58
260	89.7	131.6	75.8	1.64
261	95.4	133.7	71.5	1.77
262	101.0	131.6	65.5	1.94
263	106.6	133.7	69.8	2.48
264	112.3	131.6	73.3	1.79
265	117.9	133.7	69.8	1.75
266	123.6	131.6	58.3	1.07
267	140.5	133.7	51.6	1.51
268	151.7	133.7	43.5	1.95
269	-11.7	135.8	126.3	1.78
270	-0.4	135.8	126.2	1.66
271	5.2	138.0	128.5	4.99
272	10.8	135.8	126.6	1.79
273	16.5	138.0	119.6	1.80
274	22.1	135.8	118.1	1.80
275	27.7	138.0	121.0	1.71
276	33.4	135.8	109.9	1.74
277	39.0	138.0	112.0	1.58
278	44.6	135.8	109.9	1.61
279	50.3	138.0	131.8	2.77
280	55.9	135.8	107.1	3.00
281	61.6	138.0	95.1	1.18
282	67.2	135.8	89.2	1.17
283	72.8	138.0	93.7	1.49
284	78.5	135.8	87.7	1.53
285	84.1	138.0	83.4	1.55
286	89.7	135.8	77.4	1.64
287	95.4	138.0	81.8	2.02
288	101.0	135.8	75.8	2.20
289	106.6	138.0	80.1	1.74
290	112.3	135.8	74.6	1.75
291	117.9	138.0	71.2	3.84
292	123.6	135.8	60.4	1.09
293	129.2	138.0	62.8	1.32
294	140.5	138.0	53.7	1.50
295	146.1	135.8	49.0	1.70
296	151.7	138.0	46.5	2.06
297	-17.4	142.2	132.8	1.67
298	-11.7	140.1	130.5	1.84
299	-6.1	142.2	132.5	1.62
300	5.2	142.2	123.1	1.27
301	10.8	140.1	130.9	1.77
302	16.5	142.2	133.5	1.71
303	22.1	140.1	112.5	1.51
304	27.7	142.2	125.2	1.70
305	33.4	140.1	114.1	1.67
306	39.0	142.2	116.3	1.58

307	44.6	140.1	114.1	1.62
308	50.3	142.2	114.0	1.62
309	55.9	140.1	109.2	1.64
310	61.6	142.2	96.8	1.11
311	67.2	140.1	90.9	1.10
312	72.8	142.2	95.4	1.47
313	78.5	140.1	89.4	1.51
314	84.1	142.2	85.2	1.55
315	89.7	140.1	79.2	1.65
316	95.4	142.2	83.6	2.04
317	101.0	140.1	86.1	1.69
318	106.6	142.2	82.0	1.71
319	112.3	140.1	76.1	1.69
320	123.6	140.1	68.1	7.05
321	129.2	142.2	65.2	1.36
322	134.8	140.1	59.4	1.42
323	-11.7	144.3	134.6	1.90
324	-6.1	146.4	136.7	1.64
325	-0.4	144.3	134.7	1.72
326	5.2	146.4	127.4	1.35
327	10.8	144.3	135.1	1.74
328	16.5	146.4	128.0	1.80
329	22.1	144.3	116.8	1.60
330	27.7	146.4	129.4	1.69
331	33.4	144.3	118.2	1.60
332	39.0	146.4	120.5	1.58
333	44.6	144.3	118.4	1.61
334	50.3	146.4	106.8	1.07
335	55.9	144.3	102.3	1.11
336	61.6	146.4	107.3	1.52
337	67.2	144.3	118.8	3.07
338	72.8	146.4	97.1	1.45
339	78.5	144.3	91.2	1.48
340	84.1	146.4	87.0	1.55
341	89.7	144.3	89.6	1.91
342	95.4	146.4	94.0	1.67
343	101.0	144.3	88.0	1.70
344	106.6	146.4	84.1	2.77
345	123.6	144.3	70.0	1.25
346	129.2	146.4	67.4	1.36
347	140.5	146.4	59.3	1.58
348	-17.4	150.7	141.1	1.79
349	-6.1	150.7	140.9	1.66
350	-0.4	148.6	138.9	1.74
351	5.2	150.7	141.2	1.74
352	10.8	148.6	139.3	1.71
353	16.5	150.7	132.2	1.76
354	22.1	148.6	130.7	1.68
355	27.7	150.7	133.5	1.67

356	33.4	148.6	122.4	1.56
357	39.0	150.7	124.7	1.59
358	44.6	148.6	121.0	1.63
359	50.3	150.7	109.3	1.00
360	55.9	148.6	104.5	1.05
361	61.6	150.7	126.4	3.12
362	67.2	148.6	103.1	1.42
363	72.8	150.7	99.0	1.43
364	78.5	148.6	93.0	1.48
365	84.1	150.7	97.5	1.82
366	89.7	148.6	91.5	1.92
367	95.4	150.7	96.0	1.67
368	101.0	148.6	90.0	1.68
369	106.6	150.7	86.3	2.88
370	112.3	148.6	80.4	3.50
371	117.9	150.7	76.9	1.19
372	123.6	148.6	72.0	1.26
373	129.2	150.7	69.6	1.34
374	134.8	148.6	64.8	1.47
375	-17.4	154.9	145.3	1.85
376	-6.1	154.9	145.1	1.69
377	-0.4	152.8	143.1	1.76
378	5.2	154.9	145.4	1.72
379	10.8	152.8	143.6	1.69
380	16.5	154.9	136.5	1.71
381	22.1	152.8	134.9	1.66
382	27.7	154.9	137.7	1.64
383	33.4	152.8	126.6	1.55
384	39.0	154.9	128.1	1.59
385	44.6	152.8	123.3	1.61
386	50.3	154.9	120.7	1.58
387	55.9	152.8	115.1	1.51
388	61.6	154.9	110.9	1.38
389	67.2	152.8	104.9	1.40
390	72.8	154.9	100.9	1.42
391	78.5	152.8	94.9	1.48
392	84.1	154.9	99.5	1.82
393	89.7	152.8	93.5	1.95
394	95.4	154.9	89.7	2.18
395	101.0	152.8	92.2	2.52
396	106.6	154.9	88.6	3.01
397	117.9	154.9	79.4	1.18
398	123.6	152.8	74.1	1.22
399	129.2	154.9	71.9	1.33
400	-17.4	159.2	149.4	1.91
401	-0.4	157.1	147.3	1.75
402	5.2	159.2	149.7	1.69
403	10.8	157.1	147.8	1.67
404	16.5	159.2	140.7	1.66

405	22.1	157.1	139.1	1.65
406	27.7	159.2	132.1	1.60
407	33.4	157.1	130.8	1.55
408	39.0	159.2	130.4	1.58
409	44.6	157.1	125.6	1.58
410	50.3	159.2	122.9	1.50
411	55.9	157.1	134.1	3.13
412	61.6	159.2	112.8	1.36
413	67.2	157.1	106.9	1.38
414	72.8	159.2	102.9	1.41
415	78.5	157.1	105.4	1.74
416	84.1	159.2	101.5	1.84
417	89.7	157.1	95.6	1.99
418	95.4	159.2	100.3	2.34
419	101.0	157.1	94.4	2.60
420	117.9	159.2	82.0	1.17
421	-11.7	161.3	151.3	2.13
422	-0.4	161.3	151.5	1.74
423	5.2	163.4	153.9	1.66
424	10.8	161.3	152.0	1.64
425	16.5	163.4	144.9	1.63
426	22.1	161.3	143.3	1.65
427	27.7	163.4	136.3	1.54
428	33.4	161.3	134.9	1.56
429	39.0	163.4	132.8	1.55
430	44.6	161.3	128.0	1.54
431	50.3	163.4	133.3	3.18
432	55.9	161.3	118.8	1.34
433	61.6	163.4	114.8	1.33
434	67.2	161.3	108.9	1.37
435	72.8	163.4	113.4	1.68
436	78.5	161.3	107.5	1.75
437	84.1	163.4	103.7	1.88
438	89.7	161.3	106.2	1.64
439	101.0	161.3	96.8	2.69
440	112.3	161.3	87.7	1.16
441	-6.1	167.7	157.6	1.76
442	-0.4	165.5	145.9	1.38
443	5.2	167.7	158.1	1.65
444	10.8	165.5	156.3	1.64
445	16.5	167.7	149.1	1.61
446	22.1	165.5	147.6	1.65
447	27.7	167.7	140.5	1.52
448	33.4	165.5	137.7	1.55
449	39.0	167.7	135.3	1.50
450	44.6	165.5	130.5	1.47
451	50.3	167.7	126.7	1.31
452	55.9	165.5	120.8	1.32
453	61.6	167.7	116.9	1.33

454	67.2	165.5	119.4	1.62
455	72.8	167.7	115.6	1.68
456	78.5	165.5	118.0	1.59
457	84.1	167.7	106.0	1.91
458	95.4	167.7	105.1	2.47
459	101.0	165.5	99.3	2.79
460	112.3	165.5	90.4	1.15
461	-23.0	169.8	160.2	1.86
462	-17.4	171.9	162.0	2.07
463	-0.4	169.8	150.0	1.45
464	5.2	171.9	152.7	3.02
465	10.8	169.8	150.9	3.30
466	16.5	171.9	153.4	1.61
467	22.1	169.8	151.8	1.65
468	27.7	171.9	144.7	1.52
469	33.4	169.8	140.1	1.52
470	39.0	171.9	137.8	1.43
471	44.6	169.8	141.2	2.84
472	50.3	171.9	128.8	1.28
473	55.9	169.8	122.8	1.29
474	61.6	171.9	127.4	1.58
475	67.2	169.8	121.5	1.62
476	72.8	171.9	117.8	1.69
477	78.5	169.8	111.9	1.79
478	84.1	171.9	116.7	2.09
479	89.7	169.8	110.9	2.24
480	95.4	171.9	107.6	2.54
481	101.0	169.8	101.8	2.91
482	106.6	171.9	98.8	1.13
483	-23.0	174.0	164.3	1.91
484	-17.4	176.2	166.1	2.12
485	-11.7	174.0	163.9	1.71
486	-6.1	176.2	166.0	1.73
487	-0.4	174.0	154.1	1.52
488	5.2	176.2	166.5	1.62
489	10.8	174.0	164.7	2.99
490	16.5	176.2	157.6	1.61
491	22.1	174.0	156.0	1.64
492	27.7	176.2	147.5	1.50
493	33.4	174.0	142.7	1.47
494	39.0	176.2	149.0	2.40
495	44.6	174.0	134.7	1.28
496	50.3	176.2	130.9	1.26
497	55.9	174.0	124.9	1.29
498	61.6	176.2	129.6	1.58
499	67.2	174.0	123.7	1.63
500	72.8	176.2	128.5	1.57
501	78.5	174.0	122.6	1.60
502	84.1	176.2	119.2	2.12

503	95.4	176.2	110.2	2.62
504	101.0	174.0	104.5	1.13
505	-23.0	178.3	168.5	1.96
506	-17.4	180.4	170.3	2.17
507	-11.7	178.3	168.1	1.74
508	-0.4	178.3	158.3	1.58
509	5.2	180.4	170.7	1.61
510	10.8	178.3	169.0	3.00
511	16.5	180.4	161.8	1.62
512	22.1	178.3	150.5	1.50
513	27.7	180.4	150.1	1.44
514	33.4	178.3	145.2	2.52
515	39.0	180.4	151.2	1.66
516	44.6	178.3	136.8	1.25
517	50.3	180.4	133.0	1.25
518	55.9	178.3	135.5	1.54
519	61.6	180.4	140.2	1.51
520	67.2	178.3	126.0	1.64
521	72.8	180.4	122.4	1.74
522	84.1	180.4	121.7	2.16
523	101.0	178.3	107.3	1.12
524	-23.0	182.5	172.7	2.01
525	-11.7	182.5	172.3	1.76
526	-0.4	182.5	162.4	1.63
527	10.8	182.5	163.6	1.57
528	22.1	182.5	154.7	1.48
529	33.4	182.5	156.6	1.63
530	44.6	182.5	139.0	1.23
531	55.9	182.5	137.7	1.54
532	67.2	182.5	136.7	1.55
533	78.5	182.5	127.5	2.03

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6 Stato attuale – Sezione E – condizioni post sisma

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-45.54 m
Ordinata vertice sinistro inferiore yi	97.63 m
Ascissa vertice destro superiore xs	179.93 m
Ordinata vertice destro superiore ys	182.52 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	
Classe d'uso:	
Vita nominale:	0.0 [anni]
Vita di riferimento:	0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:
Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
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S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Vertici profilo

Nr	X (m)	y (m)
1	0.0	0.0
2	1.73	1.11
3	3.47	1.9
4	5.2	2.96
5	6.93	4.16
6	8.67	5.65
7	10.4	6.94
8	12.13	7.79
9	13.86	8.12
10	15.6	8.69
11	17.33	9.54
12	19.06	10.11
13	20.8	10.83
14	21.66	11.34
15	27.88	11.34
16	29.54	13.87
17	31.2	16.4
18	31.2	16.4
19	31.2	16.4
20	32.93	17.22
21	34.66	18.28
22	36.4	19.84
23	38.13	20.94
24	39.86	22.23
25	41.59	24.21
26	43.33	24.92
27	44.19	25.18
28	46.79	25.18
29	48.53	25.18
30	50.26	25.18
31	51.99	25.18
32	55.18	25.18
33	55.97	26.05
34	57.34	27.56
35	58.93	29.01
36	60.66	30.53
37	62.39	32.46
38	64.13	33.67
39	65.86	34.86
40	67.59	36.11

41	69.32	37.16
42	71.06	38.33
43	72.79	39.65
44	74.52	40.7
45	76.26	41.73
46	77.99	43.28
47	79.72	43.76
48	81.46	42.79
49	83.19	42.79
50	84.92	42.79
51	86.66	42.79
52	88.39	43.34
53	90.12	44.24
54	91.86	45.4
55	93.59	46.18
56	95.32	46.93
57	97.05	48.69
58	98.79	49.77
59	100.52	51.04
60	102.25	52.75
61	103.99	54.01
62	105.72	55.18
63	107.45	56.93
64	109.19	58.07
65	110.92	59.07
66	112.65	60.76
67	114.39	61.91
68	116.12	63.22
69	117.85	64.85
70	119.59	66.45
71	121.32	68.01
72	123.05	69.34
73	124.78	70.76
74	126.52	72.06
75	127.78	72.59
76	129.98	72.59
77	131.72	72.59
78	133.45	72.59
79	135.18	72.59
80	136.92	72.59
81	138.65	72.59
82	140.38	72.59
83	142.12	72.59
84	147.18	72.59
85	148.84	75.44
86	149.62	76.8
87	150.72	78.68
88	151.8	80.54
89	153.38	83.26

90	154.25	83.95
91	155.98	85.28
92	157.71	86.62
93	159.45	87.93
94	161.18	89.34
95	162.91	90.82
96	164.65	92.14
97	166.38	93.52
98	168.11	94.96
99	169.85	95.79
100	171.58	95.81
101	173.31	95.81
102	175.43	95.81
103	176.78	95.81
104	180.88	95.81
105	181.43	97.03
106	181.98	98.26
107	183.71	99.2
108	185.44	99.97
109	187.18	100.95

Falda

Nr.	X (m)	y (m)
1	187.18	88.32
2	143.3	65.63
3	123.15	56.49
4	80.31	24.53
5	56.62	12.35
6	48.38	7.45
7	28.31	-1.7
8	16.34	-7.67
9	7.17	-12.72
10	0.0	-16.73

Vertici strato1

N	X (m)	y (m)
1	0.0	-19.03
2	8.14	-14.47
3	17.27	-9.45
4	29.17	-3.5
5	49.31	5.67
6	57.59	10.59
7	81.38	22.83
8	124.18	54.76
9	144.18	63.83
10	187.18	86.07

Coefficienti parziali azioni

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Sfavorevoli: Permanenti, variabili	1.0	0.0
Favorevoli: Permanenti, variabili	1.0	0.0

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Coefficienti parziali per i parametri geotecnici del terreno

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Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

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Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	42.27	1900	2100.00		
2	4.55	0	42.27	2700	2700		

Risultati analisi pendio

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Fs minimo individuato	0.9
Ascissa centro superficie	134.84 m
Ordinata centro superficie	101.87 m
Raggio superficie	27.01 m

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Numero di superfici esaminate....(530)

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N°	Xo	Yo	Ro	Fs
1	-0.4	97.6	88.0	1.72
2	16.5	99.8	81.7	2.56
3	22.1	97.6	80.4	1.79
4	27.7	99.8	83.6	2.00
5	33.4	97.6	71.7	1.43
6	39.0	99.8	73.8	1.77
7	44.6	97.6	71.7	1.97
8	50.3	99.8	63.8	1.88
9	55.9	97.6	71.7	1.94
10	61.6	99.8	63.8	2.22
11	67.2	97.6	61.7	1.91
12	72.8	99.8	63.8	1.80
13	78.5	97.6	51.7	1.21
14	84.1	99.8	52.3	1.27
15	89.7	97.6	49.7	1.43

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16	95.4	99.8	47.9	1.54
17	101.0	97.6	44.0	1.72
18	106.7	99.8	40.6	1.84
19	112.3	97.6	31.1	1.82
20	117.9	99.8	41.7	2.62
21	123.6	97.6	38.5	2.64
22	129.2	99.8	36.0	2.61
23	134.8	97.6	31.8	2.49
24	140.5	99.8	23.6	1.05
25	146.1	97.6	16.9	1.20
26	151.7	99.8	14.3	1.14
27	157.4	97.6	12.1	1.60
28	163.0	99.8	9.7	1.85
29	168.7	97.6	3.8	3.69
30	174.3	99.8	10.4	8.34
31	179.9	97.6	2.5	2.56
32	-0.4	101.9	92.3	1.81
33	16.5	104.0	85.9	2.69
34	22.1	101.9	84.6	1.81
35	27.7	104.0	87.7	2.02
36	33.4	101.9	75.9	1.52
37	39.0	104.0	78.1	1.86
38	44.6	101.9	75.9	1.98
39	50.3	104.0	78.1	1.90
40	55.9	101.9	75.9	1.89
41	61.6	104.0	68.1	2.00
42	67.2	101.9	65.9	1.80
43	72.8	104.0	68.1	1.79
44	78.5	101.9	56.0	1.21
45	84.1	104.0	53.5	1.18
46	89.7	101.9	49.7	1.28
47	95.4	104.0	48.7	1.43
48	101.0	101.9	46.1	1.70
49	106.7	104.0	42.0	1.82
50	112.3	101.9	38.6	2.24
51	117.9	104.0	43.1	2.72
52	123.6	101.9	38.5	2.82
53	129.2	104.0	40.7	2.34
54	134.8	101.9	27.0	0.90
55	140.5	104.0	28.1	1.15
56	146.1	101.9	20.8	1.25
57	151.7	104.0	17.9	1.17
58	157.4	101.9	15.0	1.51
59	163.0	104.0	12.2	1.87
60	168.7	101.9	16.8	4.08
61	174.3	104.0	10.6	9.75
62	179.9	101.9	6.7	1.90
63	10.8	106.1	97.0	1.83
64	16.5	108.2	90.1	2.81

65	22.1	106.1	88.8	1.84
66	27.7	108.2	91.9	2.04
67	33.4	106.1	80.2	1.62
68	39.0	108.2	82.3	1.93
69	44.6	106.1	80.2	1.95
70	50.3	108.2	82.3	1.85
71	55.9	106.1	80.2	1.84
72	61.6	108.2	72.3	1.83
73	67.2	106.1	70.2	1.74
74	72.8	108.2	62.3	1.22
75	78.5	106.1	59.3	1.20
76	84.1	108.2	64.5	1.57
77	89.7	106.1	58.7	1.60
78	95.4	108.2	56.5	1.73
79	101.0	106.1	47.7	1.66
80	106.7	108.2	43.5	1.83
81	112.3	106.1	37.8	2.16
82	117.9	108.2	49.4	2.29
83	123.6	106.1	45.2	2.33
84	129.2	108.2	41.0	2.11
85	134.8	106.1	32.4	1.02
86	140.5	108.2	29.7	1.18
87	146.1	106.1	25.1	1.29
88	151.7	108.2	22.0	1.25
89	157.4	106.1	18.4	1.62
90	163.0	108.2	15.2	2.13
91	168.7	106.1	17.3	3.91
92	174.3	108.2	13.3	20.00
93	-6.1	112.5	103.1	1.75
94	-0.4	110.4	100.8	1.98
95	5.2	112.5	103.0	5.41
96	10.8	110.4	101.3	1.86
97	16.5	112.5	94.3	2.93
98	22.1	110.4	93.0	1.88
99	27.7	112.5	86.1	1.39
100	33.4	110.4	84.4	1.71
101	39.0	112.5	96.5	1.95
102	44.6	110.4	84.4	1.90
103	50.3	112.5	86.5	1.80
104	55.9	110.4	84.4	1.80
105	61.6	112.5	76.6	1.72
106	67.2	110.4	74.4	1.72
107	72.8	112.5	65.8	1.17
108	78.5	110.4	60.6	1.08
109	84.1	112.5	65.6	1.50
110	89.7	110.4	59.8	1.54
111	95.4	112.5	55.9	1.57
112	101.0	110.4	46.7	1.45
113	106.7	112.5	59.6	2.03

114	112.3	110.4	53.8	2.23
115	117.9	112.5	49.3	3.45
116	123.6	110.4	46.5	2.24
117	129.2	112.5	47.9	2.08
118	134.8	110.4	37.5	1.11
119	140.5	112.5	34.0	1.23
120	146.1	110.4	29.8	1.39
121	151.7	112.5	26.1	1.42
122	157.4	110.4	22.0	1.77
123	163.0	112.5	18.8	2.54
124	168.7	110.4	18.7	5.02
125	-6.1	116.7	107.3	1.84
126	5.2	116.7	107.3	5.61
127	10.8	114.6	105.5	1.89
128	16.5	116.7	108.2	1.99
129	22.1	114.6	97.1	1.92
130	27.7	116.7	90.3	1.50
131	33.4	114.6	88.7	1.80
132	39.0	116.7	90.8	1.96
133	44.6	114.6	88.7	1.85
134	50.3	116.7	90.8	1.77
135	55.9	114.6	88.7	1.75
136	61.6	116.7	80.8	1.66
137	67.2	114.6	78.7	1.72
138	72.8	116.7	77.4	1.65
139	78.5	114.6	90.5	3.53
140	84.1	116.7	66.9	1.45
141	89.7	114.6	61.0	1.48
142	95.4	116.7	56.5	1.49
143	101.0	114.6	54.1	1.80
144	106.7	116.7	52.4	2.18
145	112.3	114.6	55.1	2.28
146	117.9	116.7	57.5	2.05
147	123.6	114.6	52.5	2.09
148	129.2	116.7	43.6	1.06
149	134.8	114.6	38.1	1.14
150	140.5	116.7	34.9	1.16
151	146.1	114.6	31.3	1.32
152	151.7	116.7	27.7	1.31
153	157.4	114.6	23.0	1.65
154	163.0	116.7	23.2	3.00
155	168.7	114.6	20.8	6.30
156	-11.7	118.9	109.6	1.60
157	-6.1	121.0	111.5	1.92
158	-0.4	118.9	109.3	1.76
159	5.2	121.0	111.5	5.81
160	10.8	118.9	109.7	1.91
161	16.5	121.0	102.7	3.16
162	22.1	118.9	101.3	1.96

163	27.7	121.0	94.4	1.60
164	33.4	118.9	92.9	1.88
165	39.0	121.0	95.0	1.90
166	44.6	118.9	92.9	1.80
167	50.3	121.0	95.0	1.76
168	55.9	118.9	82.9	1.81
169	61.6	121.0	85.0	1.65
170	67.2	118.9	82.0	1.69
171	72.8	121.0	97.4	3.50
172	78.5	118.9	72.8	1.42
173	84.1	121.0	68.3	1.39
174	89.7	118.9	62.4	1.42
175	95.4	121.0	66.9	1.91
176	101.0	118.9	62.2	2.10
177	106.7	121.0	67.5	1.90
178	112.3	118.9	63.4	2.57
179	117.9	121.0	58.9	2.00
180	123.6	118.9	53.0	1.95
181	129.2	121.0	49.6	17.19
182	134.8	118.9	39.9	1.16
183	140.5	121.0	40.9	1.37
184	146.1	118.9	35.9	1.49
185	151.7	121.0	33.0	1.67
186	157.4	118.9	27.9	2.03
187	163.0	121.0	28.3	3.39
188	-11.7	123.1	113.8	1.68
189	-6.1	125.2	115.8	2.00
190	10.8	123.1	104.3	2.76
191	16.5	125.2	106.9	3.28
192	22.1	123.1	105.5	1.99
193	27.7	125.2	98.6	1.70
194	33.4	123.1	107.1	1.92
195	39.0	125.2	99.3	1.84
196	44.6	123.1	97.2	1.75
197	50.3	125.2	99.3	1.75
198	55.9	123.1	87.2	1.66
199	61.6	125.2	88.5	1.61
200	67.2	123.1	84.1	1.58
201	72.8	125.2	80.1	1.36
202	78.5	123.1	74.2	1.37
203	84.1	125.2	69.8	1.32
204	89.7	123.1	63.8	1.37
205	95.4	125.2	68.3	1.88
206	101.0	123.1	71.2	1.91
207	106.7	125.2	67.9	2.00
208	112.3	123.1	64.3	1.99
209	117.9	125.2	60.5	1.94
210	123.6	123.1	54.5	5.95
211	129.2	125.2	50.4	1.16

212	134.8	123.1	46.5	1.27
213	140.5	125.2	42.9	1.33
214	146.1	123.1	37.4	1.40
215	151.7	125.2	38.7	1.97
216	157.4	123.1	33.7	2.41
217	163.0	125.2	30.9	3.93
218	-11.7	127.3	117.9	1.77
219	-6.1	129.5	119.9	2.07
220	-0.4	127.3	117.8	1.73
221	10.8	127.3	108.5	2.87
222	16.5	129.5	120.8	1.94
223	22.1	127.3	109.7	1.99
224	27.7	129.5	102.8	1.78
225	33.4	127.3	111.4	1.86
226	39.0	129.5	103.5	1.77
227	44.6	127.3	101.4	1.72
228	50.3	129.5	103.5	1.73
229	55.9	127.3	91.4	1.59
230	61.6	129.5	90.7	1.49
231	67.2	127.3	104.4	3.44
232	72.8	129.5	81.6	1.30
233	78.5	127.3	75.7	1.30
234	84.1	129.5	80.2	1.71
235	89.7	127.3	74.3	1.78
236	95.4	129.5	69.8	1.88
237	101.0	127.3	72.6	1.98
238	106.7	129.5	68.5	2.68
239	112.3	127.3	64.9	3.18
240	117.9	129.5	62.0	4.36
241	123.6	127.3	62.6	1.93
242	129.2	129.5	52.3	1.18
243	134.8	127.3	47.4	1.21
244	140.5	129.5	44.8	1.27
245	146.1	127.3	44.0	1.75
246	-11.7	131.6	122.1	1.85
247	-0.4	131.6	122.0	1.75
248	5.2	133.7	124.2	6.38
249	10.8	131.6	122.4	1.94
250	16.5	133.7	115.4	1.89
251	22.1	131.6	113.9	1.97
252	27.7	133.7	116.8	1.87
253	33.4	131.6	115.6	1.82
254	39.0	133.7	107.8	1.72
255	44.6	131.6	105.6	1.72
256	50.3	133.7	107.8	2.62
257	55.9	131.6	95.2	1.55
258	61.6	133.7	102.2	3.35
259	67.2	131.6	87.6	1.30
260	72.8	133.7	83.2	1.23

261	78.5	131.6	77.3	1.25
262	84.1	133.7	81.8	1.69
263	89.7	131.6	75.8	1.76
264	95.4	133.7	71.5	1.90
265	101.0	131.6	65.5	2.11
266	106.7	133.7	78.4	1.85
267	112.3	131.6	65.6	3.37
268	117.9	133.7	69.8	1.87
269	123.6	131.6	58.3	1.14
270	146.1	131.6	46.5	1.78
271	-11.7	135.8	126.3	1.92
272	-6.1	138.0	128.3	2.22
273	5.2	138.0	128.5	6.56
274	10.8	135.8	117.0	3.08
275	16.5	138.0	129.3	1.87
276	22.1	135.8	118.1	1.93
277	27.7	138.0	121.0	1.83
278	33.4	135.8	109.9	1.87
279	39.0	138.0	112.0	1.69
280	44.6	135.8	109.9	1.72
281	50.3	138.0	131.8	2.95
282	55.9	135.8	126.2	3.08
283	61.6	138.0	95.1	1.25
284	67.2	135.8	89.2	1.24
285	72.8	138.0	93.7	1.59
286	78.5	135.8	87.7	1.63
287	84.1	138.0	83.4	1.66
288	89.7	135.8	77.4	1.75
289	95.4	138.0	81.8	2.20
290	101.0	135.8	75.8	2.41
291	106.7	138.0	80.1	1.86
292	112.3	135.8	66.5	3.68
293	117.9	138.0	71.2	4.64
294	123.6	135.8	60.4	1.16
295	129.2	138.0	62.8	1.40
296	134.8	135.8	56.9	1.50
297	146.1	135.8	49.0	1.83
298	151.7	138.0	46.5	2.25
299	-11.7	140.1	130.5	1.99
300	-6.1	142.2	132.5	1.73
301	5.2	142.2	123.1	1.35
302	10.8	140.1	130.9	1.90
303	16.5	142.2	133.5	1.82
304	22.1	140.1	112.5	1.62
305	27.7	142.2	125.2	1.82
306	33.4	140.1	114.1	1.78
307	39.0	142.2	116.3	1.68
308	44.6	140.1	114.1	1.73
309	50.3	142.2	114.0	1.73

310	55.9	140.1	109.2	1.75
311	61.6	142.2	96.8	1.18
312	67.2	140.1	90.9	1.17
313	72.8	142.2	95.4	1.57
314	78.5	140.1	89.4	1.61
315	84.1	142.2	85.2	1.66
316	89.7	140.1	79.2	1.77
317	95.4	142.2	83.6	2.23
318	101.0	140.1	77.6	2.48
319	106.7	142.2	73.6	3.06
320	117.9	142.2	72.9	5.28
321	123.6	140.1	68.1	11.02
322	129.2	142.2	65.2	1.44
323	134.8	140.1	59.4	1.52
324	140.5	142.2	56.4	1.64
325	-17.4	146.4	136.9	1.86
326	-0.4	144.3	134.7	1.84
327	5.2	146.4	127.4	1.44
328	10.8	144.3	135.1	1.87
329	16.5	146.4	137.7	1.78
330	22.1	144.3	116.8	1.72
331	27.7	146.4	129.4	1.81
332	33.4	144.3	118.2	1.71
333	39.0	146.4	120.5	1.69
334	44.6	144.3	118.4	1.72
335	50.3	146.4	106.8	1.14
336	55.9	144.3	102.3	1.19
337	61.6	146.4	107.3	1.63
338	67.2	144.3	118.8	3.24
339	72.8	146.4	97.1	1.54
340	78.5	144.3	91.2	1.58
341	84.1	146.4	87.0	1.66
342	89.7	144.3	89.6	2.07
343	95.4	146.4	85.5	2.27
344	101.0	144.3	79.5	2.56
345	106.7	146.4	84.1	3.13
346	112.3	144.3	78.1	3.84
347	129.2	146.4	67.4	1.45
348	134.8	144.3	62.0	1.53
349	-17.4	150.7	141.1	1.93
350	-11.7	148.6	138.8	2.13
351	-6.1	150.7	140.9	1.78
352	-0.4	148.6	138.9	1.87
353	5.2	150.7	141.2	1.87
354	10.8	148.6	139.3	1.83
355	16.5	150.7	132.2	1.89
356	22.1	148.6	130.7	1.80
357	27.7	150.7	133.5	1.79
358	33.4	148.6	122.4	1.67

359	39.0	150.7	124.7	1.70
360	44.6	148.6	121.0	1.74
361	50.3	150.7	109.3	1.07
362	55.9	148.6	104.5	1.12
363	61.6	150.7	117.8	3.42
364	67.2	148.6	103.1	1.51
365	72.8	150.7	99.0	1.52
366	78.5	148.6	93.0	1.58
367	84.1	150.7	97.5	1.96
368	89.7	148.6	91.5	2.08
369	95.4	150.7	87.5	2.33
370	101.0	148.6	90.0	1.80
371	123.6	148.6	72.0	1.34
372	129.2	150.7	69.6	1.43
373	-17.4	154.9	145.3	2.00
374	-6.1	154.9	145.1	1.81
375	-0.4	152.8	143.1	1.89
376	10.8	152.8	143.6	1.81
377	16.5	154.9	136.5	1.84
378	22.1	152.8	134.9	1.77
379	27.7	154.9	137.7	1.76
380	33.4	152.8	126.6	1.65
381	39.0	154.9	128.1	1.70
382	44.6	152.8	123.3	1.72
383	50.3	154.9	120.7	1.68
384	55.9	152.8	115.1	1.61
385	61.6	154.9	110.9	1.47
386	67.2	152.8	104.9	1.49
387	72.8	154.9	100.9	1.51
388	78.5	152.8	94.9	1.58
389	84.1	154.9	99.5	1.97
390	89.7	152.8	93.5	2.11
391	95.4	154.9	98.1	1.77
392	101.0	152.8	92.2	2.82
393	112.3	152.8	82.7	4.58
394	117.9	154.9	79.4	1.25
395	123.6	152.8	74.1	1.30
396	129.2	154.9	71.9	1.41
397	134.8	152.8	67.5	1.59
398	-17.4	159.2	149.4	2.06
399	-11.7	157.1	147.2	2.27
400	-6.1	159.2	149.3	1.84
401	5.2	159.2	149.7	1.81
402	10.8	157.1	147.8	1.79
403	16.5	159.2	140.7	1.78
404	22.1	157.1	139.1	1.76
405	27.7	159.2	132.1	1.71
406	33.4	157.1	130.8	1.65
407	39.0	159.2	130.4	1.68

408	44.6	157.1	125.6	1.69
409	50.3	159.2	122.9	1.60
410	55.9	157.1	134.1	3.30
411	61.6	159.2	112.8	1.44
412	67.2	157.1	106.9	1.47
413	72.8	159.2	102.9	1.50
414	78.5	157.1	105.4	1.87
415	84.1	159.2	101.5	1.99
416	89.7	157.1	104.0	1.75
417	95.4	159.2	100.3	2.59
418	106.7	159.2	91.0	3.67
419	117.9	159.2	82.0	1.24
420	-11.7	161.3	151.3	2.33
421	-0.4	161.3	151.5	1.87
422	5.2	163.4	153.9	1.78
423	10.8	161.3	142.4	3.67
424	16.5	163.4	144.9	1.74
425	22.1	161.3	143.3	1.76
426	27.7	163.4	136.3	1.64
427	33.4	161.3	134.9	1.66
428	39.0	163.4	132.8	1.65
429	44.6	161.3	128.0	1.64
430	50.3	163.4	141.9	3.27
431	55.9	161.3	118.8	1.43
432	61.6	163.4	114.8	1.42
433	67.2	161.3	108.9	1.46
434	72.8	163.4	113.4	1.80
435	78.5	161.3	115.9	1.87
436	84.1	163.4	112.1	1.73
437	89.7	161.3	97.8	2.21
438	-23.0	165.5	156.0	1.96
439	-17.4	167.7	157.8	2.19
440	-6.1	167.7	157.6	1.90
441	-0.4	165.5	145.9	1.47
442	5.2	167.7	158.1	1.76
443	10.8	165.5	156.3	1.75
444	16.5	167.7	149.1	1.72
445	22.1	165.5	147.6	1.77
446	27.7	167.7	140.5	1.62
447	33.4	165.5	137.7	1.65
448	39.0	167.7	135.3	1.60
449	44.6	165.5	130.5	1.57
450	50.3	167.7	126.7	1.39
451	55.9	165.5	120.8	1.40
452	61.6	167.7	116.9	1.41
453	67.2	165.5	119.4	1.74
454	72.8	167.7	115.6	1.81
455	78.5	165.5	109.6	1.90
456	84.1	167.7	114.4	1.73

457	89.7	165.5	108.5	2.42
458	101.0	165.5	99.3	3.17
459	112.3	165.5	90.4	1.22
460	-23.0	169.8	160.2	2.02
461	-17.4	171.9	162.0	2.26
462	-6.1	171.9	161.8	1.89
463	-0.4	169.8	150.0	1.55
464	5.2	171.9	162.3	1.74
465	10.8	169.8	150.9	3.86
466	16.5	171.9	153.4	1.72
467	22.1	169.8	151.8	1.77
468	27.7	171.9	144.7	1.62
469	33.4	169.8	140.1	1.62
470	39.0	171.9	137.8	1.52
471	44.6	169.8	141.2	3.01
472	50.3	171.9	128.8	1.37
473	55.9	169.8	122.8	1.38
474	61.6	171.9	127.4	1.69
475	67.2	169.8	121.5	1.74
476	72.8	171.9	126.2	1.67
477	78.5	169.8	111.9	1.93
478	84.1	171.9	116.7	2.28
479	89.7	169.8	110.9	2.47
480	95.4	171.9	107.6	2.84
481	-23.0	174.0	164.3	2.07
482	-11.7	174.0	163.9	1.83
483	-6.1	176.2	166.0	1.86
484	-0.4	174.0	154.1	1.62
485	5.2	176.2	156.8	3.57
486	10.8	174.0	155.1	3.95
487	16.5	176.2	157.6	1.72
488	22.1	174.0	156.0	1.75
489	27.7	176.2	147.5	1.59
490	33.4	174.0	142.7	1.56
491	39.0	176.2	149.0	2.55
492	44.6	174.0	134.7	1.36
493	50.3	176.2	130.9	1.34
494	55.9	174.0	124.9	1.37
495	61.6	176.2	129.6	1.69
496	67.2	174.0	123.7	1.74
497	72.8	176.2	128.5	1.68
498	78.5	174.0	114.2	1.96
499	84.1	176.2	119.2	2.32
500	-23.0	178.3	168.5	2.13
501	-17.4	180.4	170.3	2.38
502	-11.7	178.3	168.1	1.87
503	-6.1	180.4	170.2	1.82
504	-0.4	178.3	158.3	1.69
505	5.2	180.4	161.0	3.67

506	10.8	178.3	169.0	3.17
507	16.5	180.4	161.8	1.73
508	22.1	178.3	150.5	1.60
509	27.7	180.4	150.1	1.53
510	33.4	178.3	145.2	2.82
511	39.0	180.4	151.2	1.78
512	44.6	178.3	136.8	1.34
513	50.3	180.4	133.0	1.34
514	55.9	178.3	135.5	1.65
515	61.6	180.4	140.2	1.61
516	67.2	178.3	134.3	1.65
517	72.8	180.4	122.4	1.87
518	84.1	180.4	121.7	2.37
519	89.7	178.3	115.9	2.61
520	-23.0	182.5	172.7	2.19
521	-11.7	182.5	172.3	1.89
522	-0.4	182.5	162.4	1.75
523	10.8	182.5	163.6	1.68
524	22.1	182.5	154.7	1.57
525	33.4	182.5	156.6	1.74
526	44.6	182.5	138.9	1.31
527	55.9	182.5	137.7	1.65
528	67.2	182.5	128.3	1.78
529	78.5	182.5	127.5	2.21
530	89.7	182.5	118.6	2.69

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7 Stato di progetto – Sezione D – condizioni statiche

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-39.51 m
Ordinata vertice sinistro inferiore yi	179.49 m
Ascissa vertice destro superiore xs	207.95 m
Ordinata vertice destro superiore ys	271.96 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:

Classe d'uso:

Vita nominale: 0.0 [anni]

Vita di riferimento: 0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:

Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
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S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Vertici profilo

Nr	X (m)	y (m)
1	0.0	15.69
2	4.1	19.02
3	4.92	19.69
4	6.56	20.54
5	12.3	21.36
6	16.4	22.34
7	19.68	23.52
8	23.3	25.75
9	29.3	25.75
10	34.03	33.45
11	37.73	36.24
12	41.01	38.9
13	43.47	40.68
14	44.1	41.13
15	49.4	41.13
16	57.0	53.43
17	63.15	58.35
18	68.89	63.34
19	72.17	66.61
20	72.6	66.96
21	84.0	66.96
22	91.03	81.26
23	100.87	89.19
24	102.6	90.6
25	108.1	90.6
26	110.7	96.87
27	116.6	96.87
28	122.61	105.79
29	136.78	116.4
30	142.2	116.4
31	143.3	121.28
32	148.4	121.28
33	156.23	130.96
34	167.1	139.09
35	172.1	139.09
36	173.86	143.69
37	174.68	143.84
38	176.32	143.97
39	178.78	144.13
40	179.6	144.09

41	180.42	144.06
42	182.07	145.19
43	183.71	147.71
44	186.99	149.46
45	191.91	154.12
46	206.67	165.74
47	215.69	172.6
48	222.25	177.91
49	223.07	178.58
50	224.71	178.8
51	231.27	181.59

Falda

Nr.	X (m)	y (m)
1	-0.51	1.93
2	5.97	3.64
3	16.99	8.59
4	163.71	125.12
5	230.26	164.05

Vertici strato1

N	X (m)	y (m)
1	0.0	0.0
2	6.64	1.74
3	18.04	6.87
4	164.84	123.46
5	231.27	162.33

Coefficienti parziali azioni

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Sfavorevoli: Permanenti, variabili	1.0	0.0
Favorevoli: Permanenti, variabili	1.0	0.0

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Coefficienti parziali per i parametri geotecnici del terreno

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Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

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Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	45	1900	2100.00		

2	5	0	45	2700	2700		
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Risultati analisi pendio

Fs minimo individuato	1.16
Ascissa centro superficie	-14.76 m
Ordinata centro superficie	211.85 m
Raggio superficie	169.14 m

Numero di superfici esaminate....(594)

N°	Xo	Yo	Ro	Fs
1	-21.0	181.8	153.5	1.43
2	-2.4	179.5	136.5	1.54
3	3.8	181.8	138.9	1.82
4	10.0	179.5	136.8	1.37
5	16.2	181.8	125.8	1.22
6	22.4	179.5	151.5	2.53
7	28.5	181.8	154.5	2.40
8	34.7	179.5	124.8	1.33
9	40.9	181.8	112.7	1.64
10	47.1	179.5	110.1	1.36
11	53.3	181.8	112.1	1.44
12	59.5	179.5	109.5	1.83
13	65.7	181.8	151.4	2.15
14	71.8	179.5	89.9	1.30
15	78.0	181.8	140.1	2.29
16	84.2	179.5	82.9	1.43
17	90.4	181.8	80.6	1.49
18	96.6	179.5	75.9	1.70
19	102.8	181.8	84.6	2.51
20	109.0	179.5	78.5	1.53
21	115.2	181.8	73.1	1.53
22	121.3	179.5	66.8	1.49
23	127.5	181.8	93.6	2.99
24	133.7	179.5	59.0	1.59
25	139.9	181.8	55.0	1.75
26	146.1	179.5	51.5	1.86
27	152.3	181.8	56.7	1.79
28	158.5	179.5	44.5	1.81
29	164.6	181.8	48.9	1.88
30	170.8	179.5	36.8	1.47
31	177.0	181.8	33.6	1.36
32	183.2	179.5	29.5	1.49
33	189.4	181.8	25.5	1.42
34	195.6	179.5	17.9	1.31

35	201.8	181.8	18.3	1.55
36	208.0	179.5	10.8	1.41
37	-27.1	184.1	156.6	1.33
38	-21.0	186.4	158.1	1.48
39	-2.4	184.1	141.1	1.63
40	3.8	186.4	143.5	1.89
41	10.0	184.1	141.4	1.37
42	16.2	186.4	130.4	1.26
43	22.4	184.1	156.0	2.56
44	28.5	186.4	159.1	2.34
45	34.7	184.1	157.7	2.25
46	40.9	186.4	117.3	1.37
47	47.1	184.1	114.7	1.38
48	53.3	186.4	116.7	1.45
49	59.5	184.1	157.3	2.18
50	65.7	186.4	110.6	1.43
51	71.8	184.1	105.6	2.40
52	78.0	186.4	102.6	1.44
53	84.2	184.1	97.6	1.42
54	90.4	186.4	94.5	1.46
55	96.6	184.1	89.5	1.45
56	102.8	186.4	85.8	1.54
57	109.0	184.1	79.4	1.55
58	115.2	186.4	105.7	2.86
59	121.3	184.1	99.4	2.93
60	127.5	186.4	62.5	1.45
61	133.7	184.1	59.9	1.60
62	139.9	186.4	64.2	1.72
63	146.1	184.1	59.9	1.79
64	152.3	186.4	56.6	1.80
65	158.5	184.1	51.3	1.80
66	164.6	186.4	42.7	1.18
67	170.8	184.1	37.8	1.26
68	177.0	186.4	38.1	1.40
69	183.2	184.1	30.8	1.38
70	189.4	186.4	29.8	1.45
71	195.6	184.1	22.6	1.40
72	201.8	186.4	21.1	1.43
73	208.0	184.1	14.1	1.30
74	-33.3	191.0	164.4	1.26
75	-27.1	188.7	161.2	1.39
76	-21.0	191.0	162.7	1.29
77	-14.8	188.7	159.9	2.54
78	-8.6	191.0	161.8	2.79
79	-2.4	188.7	145.7	1.70
80	3.8	191.0	148.1	1.34
81	10.0	188.7	146.0	1.35
82	16.2	191.0	135.0	1.32
83	22.4	188.7	132.9	2.44

84	28.5	191.0	135.6	2.81
85	34.7	188.7	162.3	2.30
86	40.9	191.0	121.9	1.36
87	47.1	188.7	119.3	1.41
88	53.3	191.0	120.6	1.45
89	59.5	188.7	115.6	1.44
90	65.7	191.0	112.6	1.47
91	71.8	188.7	107.6	1.46
92	78.0	191.0	141.3	2.38
93	84.2	188.7	99.5	1.46
94	90.4	191.0	130.0	2.50
95	96.6	188.7	91.5	1.51
96	102.8	191.0	86.9	1.49
97	109.0	188.7	80.5	1.45
98	115.2	191.0	85.6	3.34
99	121.3	188.7	68.9	1.39
100	127.5	191.0	73.8	1.62
101	133.7	188.7	69.6	1.67
102	139.9	191.0	64.9	1.75
103	146.1	188.7	60.4	1.77
104	152.3	191.0	56.4	1.69
105	158.5	188.7	58.5	1.80
106	164.6	191.0	54.9	1.71
107	170.8	188.7	44.5	1.40
108	177.0	191.0	39.3	1.32
109	183.2	188.7	35.2	1.41
110	189.4	191.0	30.8	1.32
111	195.6	188.7	25.7	1.36
112	201.8	191.0	25.3	1.43
113	208.0	188.7	19.9	1.55
114	-27.1	193.4	165.7	1.44
115	-21.0	195.7	167.3	1.30
116	-8.6	195.7	166.5	3.09
117	-2.4	193.4	150.3	1.78
118	3.8	195.7	152.7	1.34
119	10.0	193.4	150.7	1.32
120	16.2	195.7	139.6	1.38
121	22.4	193.4	165.2	2.44
122	28.5	195.7	140.2	1.35
123	34.7	193.4	124.2	1.58
124	40.9	195.7	126.5	1.37
125	47.1	193.4	123.9	1.43
126	53.3	195.7	122.6	1.45
127	59.5	193.4	117.6	1.46
128	65.7	195.7	114.6	1.43
129	71.8	193.4	109.6	1.43
130	78.0	195.7	106.6	1.42
131	84.2	193.4	124.5	2.76
132	90.4	195.7	98.5	1.47

133	96.6	193.4	93.3	1.50
134	102.8	195.7	88.1	2.42
135	109.0	193.4	81.7	2.07
136	115.2	195.7	86.6	1.59
137	121.3	193.4	80.2	1.60
138	127.5	195.7	74.9	1.62
139	133.7	193.4	69.1	1.72
140	139.9	195.7	66.0	1.86
141	146.1	193.4	68.8	1.71
142	152.3	195.7	64.3	1.71
143	158.5	193.4	52.0	1.17
144	164.6	195.7	55.4	1.51
145	170.8	193.4	45.8	1.32
146	177.0	195.7	45.9	1.42
147	183.2	193.4	39.9	1.44
148	189.4	195.7	36.2	1.39
149	195.6	193.4	30.6	1.40
150	201.8	195.7	29.4	1.52
151	208.0	193.4	23.6	1.62
152	-33.3	200.3	173.5	1.40
153	-27.1	198.0	170.3	1.49
154	-21.0	200.3	171.9	1.31
155	-8.6	200.3	157.4	1.67
156	-2.4	198.0	155.0	1.85
157	3.8	200.3	157.3	1.35
158	10.0	198.0	155.3	2.61
159	16.2	200.3	144.2	1.30
160	22.4	198.0	169.8	2.40
161	28.5	200.3	144.7	1.32
162	34.7	198.0	128.7	1.68
163	40.9	200.3	131.2	1.41
164	47.1	198.0	127.7	1.44
165	53.3	200.3	124.7	1.44
166	59.5	198.0	119.7	1.44
167	65.7	200.3	154.2	2.29
168	71.8	198.0	111.6	1.40
169	78.0	200.3	143.0	2.44
170	84.2	198.0	103.6	1.43
171	90.4	200.3	100.7	1.45
172	96.6	198.0	94.6	1.43
173	102.8	200.3	99.5	2.77
174	109.0	198.0	83.0	1.27
175	115.2	200.3	97.7	3.67
176	121.3	198.0	81.3	1.56
177	127.5	200.3	76.1	1.66
178	133.7	198.0	79.4	1.61
179	139.9	200.3	75.2	1.68
180	146.1	198.0	69.4	1.71
181	152.3	200.3	65.2	1.58

182	158.5	198.0	60.1	6.25
183	164.6	200.3	56.1	1.33
184	170.8	198.0	52.1	1.40
185	177.0	200.3	47.5	1.36
186	183.2	198.0	40.9	1.34
187	195.6	198.0	35.4	1.47
188	208.0	198.0	25.9	1.59
189	-39.5	202.6	176.7	1.25
190	-33.3	204.9	178.0	1.45
191	-14.8	202.6	173.7	2.77
192	-8.6	204.9	162.0	1.74
193	-2.4	202.6	159.6	1.92
194	3.8	204.9	162.0	1.36
195	10.0	202.6	146.2	1.33
196	16.2	204.9	148.8	1.29
197	22.4	202.6	146.7	2.70
198	28.5	204.9	177.4	2.33
199	34.7	202.6	133.3	1.76
200	40.9	204.9	134.9	1.41
201	47.1	202.6	129.8	1.43
202	53.3	204.9	126.9	1.41
203	59.5	202.6	147.4	2.59
204	65.7	204.9	155.2	2.36
205	71.8	202.6	149.1	2.40
206	78.0	204.9	110.9	1.41
207	84.2	202.6	105.8	1.43
208	90.4	204.9	102.4	2.05
209	96.6	202.6	95.9	2.19
210	102.8	204.9	100.8	1.57
211	109.0	202.6	94.3	1.57
212	115.2	204.9	108.7	3.25
213	121.3	202.6	82.6	1.58
214	127.5	204.9	87.1	1.62
215	133.7	202.6	80.6	1.64
216	139.9	204.9	75.5	1.67
217	146.1	202.6	70.7	1.64
218	152.3	204.9	66.0	2.72
219	170.8	202.6	53.0	1.34
220	177.0	204.9	49.3	1.30
221	195.6	202.6	37.4	1.36
222	201.8	204.9	34.3	1.39
223	-27.1	207.2	179.5	1.30
224	-8.6	209.5	166.6	1.81
225	-2.4	207.2	164.2	1.98
226	3.8	209.5	166.6	1.34
227	10.0	207.2	150.9	1.39
228	16.2	209.5	167.1	3.17
229	22.4	207.2	179.0	2.25
230	28.5	209.5	181.9	2.16

231	34.7	207.2	137.9	1.34
232	40.9	209.5	137.1	1.39
233	47.1	207.2	132.0	1.40
234	53.3	209.5	167.4	2.28
235	59.5	207.2	124.0	2.14
236	65.7	209.5	121.2	1.41
237	71.8	207.2	116.0	1.41
238	78.0	209.5	113.2	1.41
239	84.2	207.2	108.1	1.39
240	90.4	209.5	113.8	2.09
241	96.6	207.2	97.3	1.22
242	102.8	209.5	102.1	1.52
243	109.0	207.2	105.4	3.62
244	115.2	209.5	90.5	1.61
245	121.3	207.2	93.6	1.55
246	127.5	209.5	88.5	1.61
247	133.7	207.2	81.9	1.66
248	139.9	209.5	76.9	2.65
249	146.1	207.2	80.5	1.67
250	164.6	209.5	65.2	1.38
251	170.8	207.2	59.9	1.41
252	183.2	207.2	49.7	1.37
253	195.6	207.2	39.8	1.25
254	-39.5	211.9	185.9	1.41
255	-33.3	214.2	187.2	1.55
256	-27.1	211.9	184.1	1.32
257	-21.0	214.2	185.7	2.68
258	-14.8	211.9	169.1	1.16
259	-8.6	214.2	171.2	1.88
260	-2.4	211.9	168.8	1.32
261	3.8	214.2	171.2	1.52
262	10.0	211.9	155.5	1.45
263	16.2	214.2	185.4	2.32
264	22.4	211.9	169.7	2.84
265	28.5	214.2	172.5	2.66
266	34.7	211.9	142.2	1.37
267	40.9	214.2	139.4	2.05
268	47.1	211.9	134.2	2.21
269	53.3	214.2	156.2	2.74
270	59.5	211.9	162.4	2.39
271	65.7	214.2	123.5	1.58
272	71.8	211.9	118.3	1.68
273	78.0	214.2	115.6	1.77
274	84.2	211.9	110.4	1.91
275	90.4	214.2	115.2	1.54
276	96.6	211.9	108.7	1.54
277	102.8	214.2	122.9	3.15
278	109.0	211.9	106.7	3.37
279	115.2	214.2	92.1	1.56

280	121.3	211.9	95.0	1.58
281	127.5	214.2	90.0	1.65
282	133.7	211.9	83.4	1.69
283	139.9	214.2	87.8	1.63
284	152.3	214.2	77.3	4.87
285	158.5	211.9	71.0	3.97
286	170.8	211.9	61.5	1.37
287	177.0	214.2	58.2	1.34
288	183.2	211.9	52.0	1.32
289	-21.0	218.8	190.3	2.75
290	-14.8	216.5	187.5	3.31
291	-8.6	218.8	175.8	1.94
292	-2.4	216.5	173.4	1.33
293	3.8	218.8	162.2	1.34
294	10.0	216.5	160.1	1.43
295	16.2	218.8	176.3	3.02
296	22.4	216.5	188.2	2.38
297	28.5	218.8	149.0	1.77
298	34.7	216.5	144.5	1.91
299	40.9	218.8	180.9	2.25
300	47.1	216.5	174.7	2.30
301	53.3	218.8	133.8	1.42
302	59.5	216.5	128.6	1.49
303	65.7	218.8	125.9	1.56
304	71.8	216.5	120.7	1.66
305	78.0	218.8	127.9	1.44
306	84.2	216.5	121.7	1.49
307	90.4	218.8	116.7	1.50
308	96.6	216.5	110.2	1.46
309	102.8	218.8	105.2	1.47
310	109.0	216.5	98.6	1.53
311	115.2	218.8	103.1	1.56
312	121.3	216.5	96.6	1.59
313	127.5	218.8	100.9	1.53
314	133.7	216.5	94.3	1.61
315	139.9	218.8	89.5	1.59
316	158.5	216.5	72.7	1.33
317	164.6	218.8	68.7	1.32
318	-33.3	223.4	196.3	1.31
319	-27.1	221.1	193.2	1.31
320	-21.0	223.4	181.0	1.23
321	-14.8	221.1	178.4	1.79
322	-8.6	223.4	180.5	2.00
323	-2.4	221.1	178.1	1.35
324	3.8	223.4	166.8	1.44
325	10.0	221.1	164.7	1.31
326	16.2	223.4	194.6	2.24
327	22.4	221.1	178.9	2.77
328	28.5	223.4	179.5	2.58

329	34.7	221.1	173.7	2.70
330	40.9	223.4	144.1	1.30
331	47.1	221.1	138.9	1.35
332	53.3	223.4	136.2	1.40
333	59.5	221.1	131.1	1.48
334	65.7	223.4	149.6	3.16
335	71.8	221.1	133.5	1.43
336	78.0	223.4	129.8	1.49
337	84.2	221.1	123.2	1.50
338	90.4	223.4	118.3	2.37
339	96.6	221.1	121.3	3.29
340	102.8	223.4	106.9	1.46
341	109.0	221.1	119.1	3.41
342	115.2	223.4	104.8	1.59
343	121.3	221.1	98.2	1.67
344	139.9	223.4	91.4	1.51
345	152.3	223.4	80.6	1.30
346	158.5	221.1	74.7	1.31
347	-21.0	228.0	185.6	1.22
348	-14.8	225.7	183.0	1.85
349	-8.6	228.0	185.1	2.06
350	-2.4	225.7	182.7	1.35
351	3.8	228.0	171.4	1.50
352	10.0	225.7	169.3	1.32
353	16.2	228.0	171.8	2.85
354	22.4	225.7	183.5	2.68
355	28.5	228.0	154.4	1.27
356	34.7	225.7	149.3	1.28
357	40.9	228.0	158.9	1.36
358	47.1	225.7	153.4	1.94
359	53.3	228.0	150.0	1.42
360	59.5	225.7	144.5	1.42
361	65.7	228.0	141.2	1.44
362	71.8	225.7	135.7	3.25
363	78.0	228.0	131.4	1.47
364	84.2	225.7	124.9	1.45
365	90.4	228.0	129.4	2.68
366	96.6	225.7	113.4	1.42
367	102.8	228.0	118.0	3.28
368	109.0	225.7	111.4	2.96
369	115.2	228.0	106.6	1.71
370	121.3	225.7	109.2	1.54
371	-39.5	230.3	204.1	1.60
372	-21.0	232.7	190.2	1.26
373	-14.8	230.3	187.6	1.91
374	-8.6	232.7	189.7	2.12
375	-2.4	230.3	187.3	1.32
376	3.8	232.7	176.0	1.56
377	10.0	230.3	174.0	1.34

378	16.2	232.7	203.8	2.21
379	22.4	230.3	200.8	2.25
380	28.5	232.7	169.9	1.33
381	34.7	230.3	164.4	1.35
382	40.9	232.7	161.1	1.42
383	47.1	230.3	155.6	1.42
384	53.3	232.7	152.3	2.89
385	59.5	230.3	157.3	3.21
386	65.7	232.7	163.4	2.81
387	71.8	230.3	137.9	1.46
388	78.0	232.7	133.1	1.42
389	84.2	230.3	126.6	2.21
390	90.4	232.7	121.8	1.38
391	96.6	230.3	124.6	1.54
392	102.8	232.7	129.0	3.40
393	109.0	230.3	113.2	1.59
394	115.2	232.7	108.5	1.90
395	146.1	230.3	89.1	1.29
396	-33.3	237.3	210.0	1.31
397	-21.0	237.3	208.7	3.32
398	-14.8	235.0	192.2	1.97
399	-8.6	237.3	194.3	1.35
400	-2.4	235.0	191.9	2.49
401	3.8	237.3	180.7	1.32
402	10.0	235.0	178.6	1.35
403	16.2	237.3	208.5	2.18
404	22.4	235.0	202.2	2.25
405	28.5	237.3	172.1	1.40
406	34.7	235.0	166.6	1.41
407	40.9	237.3	163.3	1.42
408	47.1	235.0	157.8	1.42
409	53.3	237.3	154.6	1.40
410	59.5	235.0	149.0	2.66
411	65.7	237.3	145.9	1.43
412	71.8	235.0	139.7	1.44
413	78.0	237.3	153.7	3.19
414	84.2	235.0	137.7	1.61
415	90.4	237.3	132.9	1.53
416	96.6	235.0	126.3	2.96
417	102.8	237.3	121.7	1.60
418	109.0	235.0	124.3	1.49
419	139.9	237.3	98.0	1.28
420	-27.1	239.6	197.6	1.24
421	-21.0	241.9	199.5	1.89
422	-14.8	239.6	196.8	2.03
423	-8.6	241.9	198.9	1.36
424	-2.4	239.6	182.9	1.46
425	3.8	241.9	185.3	1.34
426	10.0	239.6	183.2	1.36

427	16.2	241.9	183.2	1.37
428	22.4	239.6	177.7	1.38
429	28.5	241.9	174.4	1.40
430	34.7	239.6	168.9	1.41
431	40.9	241.9	165.7	1.39
432	47.1	239.6	160.1	2.70
433	53.3	241.9	167.3	3.35
434	59.5	239.6	151.4	1.41
435	65.7	241.9	148.0	1.42
436	71.8	239.6	141.5	2.00
437	78.0	241.9	136.8	1.31
438	84.2	239.6	139.5	1.54
439	90.4	241.9	134.8	2.73
440	96.6	239.6	137.4	3.18
441	102.8	241.9	123.7	1.75
442	109.0	239.6	126.2	1.53
443	115.2	241.9	121.8	1.54
444	121.3	239.6	115.2	1.54
445	127.5	241.9	111.0	2.62
446	-33.3	246.5	219.2	1.27
447	-27.1	244.2	202.2	1.28
448	-21.0	246.5	204.1	1.94
449	-14.8	244.2	201.4	2.08
450	-8.6	246.5	203.5	1.32
451	-2.4	244.2	187.5	1.53
452	3.8	246.5	189.9	1.37
453	10.0	244.2	187.8	1.35
454	16.2	246.5	185.5	1.38
455	22.4	244.2	179.9	1.39
456	28.5	246.5	176.7	1.39
457	34.7	244.2	171.2	1.39
458	40.9	246.5	190.1	2.66
459	47.1	244.2	162.5	2.30
460	53.3	246.5	159.4	1.40
461	59.5	244.2	153.8	1.43
462	65.7	246.5	149.9	1.91
463	71.8	244.2	162.0	3.17
464	78.0	246.5	148.0	1.52
465	84.2	244.2	141.4	1.51
466	90.4	246.5	146.0	3.13
467	96.6	244.2	130.2	1.59
468	102.8	246.5	125.8	1.71
469	115.2	246.5	124.0	1.54
470	-33.3	251.2	223.8	2.44
471	-27.1	248.8	206.8	1.32
472	-21.0	251.2	208.7	2.00
473	-14.8	248.8	206.0	2.14
474	-8.6	251.2	208.2	2.19
475	-2.4	248.8	192.1	1.60

476	3.8	251.2	194.5	1.37
477	10.0	248.8	191.0	1.36
478	16.2	251.2	187.8	1.38
479	22.4	248.8	182.3	1.39
480	28.5	251.2	179.1	2.22
481	34.7	248.8	173.6	2.36
482	40.9	251.2	181.2	3.33
483	47.1	248.8	185.7	2.79
484	53.3	251.2	161.9	1.40
485	59.5	248.8	156.4	1.41
486	65.7	251.2	170.4	3.13
487	71.8	248.8	145.3	1.30
488	78.0	251.2	149.9	1.50
489	84.2	248.8	143.4	2.54
490	90.4	251.2	138.9	1.55
491	96.6	248.8	141.4	1.50
492	109.0	248.8	130.5	1.53
493	115.2	251.2	126.3	1.51
494	121.3	248.8	119.8	2.43
495	-33.3	255.8	214.3	1.29
496	-27.1	253.5	211.4	1.36
497	-21.0	255.8	213.3	2.05
498	-14.8	253.5	210.7	2.19
499	-8.6	255.8	226.5	2.64
500	-2.4	253.5	196.7	1.65
501	3.8	255.8	198.5	1.37
502	10.0	253.5	193.3	1.37
503	16.2	255.8	190.2	1.38
504	22.4	253.5	184.7	1.37
505	28.5	255.8	193.0	3.36
506	34.7	253.5	176.0	2.05
507	40.9	255.8	173.0	1.37
508	47.1	253.5	167.5	1.38
509	53.3	255.8	164.5	1.77
510	59.5	253.5	158.4	1.83
511	65.7	255.8	163.1	1.50
512	71.8	253.5	156.5	1.51
513	78.0	255.8	152.0	2.40
514	84.2	253.5	154.6	2.89
515	90.4	255.8	150.1	1.51
516	102.8	255.8	139.3	1.52
517	109.0	253.5	132.8	1.53
518	-39.5	258.1	231.4	1.30
519	-33.3	260.4	218.9	1.34
520	-21.0	260.4	217.9	2.11
521	-14.8	258.1	215.3	1.35
522	-8.6	260.4	203.7	1.56
523	-2.4	258.1	201.4	1.36
524	3.8	260.4	201.0	1.38

525	10.0	258.1	195.7	1.38
526	16.2	260.4	192.7	2.02
527	22.4	258.1	187.1	2.12
528	28.5	260.4	195.2	3.40
529	34.7	258.1	189.3	3.28
530	40.9	260.4	175.6	1.64
531	47.1	258.1	170.0	1.71
532	53.3	260.4	176.2	1.42
533	59.5	258.1	160.4	1.25
534	65.7	260.4	165.1	1.50
535	71.8	258.1	158.6	1.49
536	78.0	260.4	163.2	2.56
537	84.2	258.1	147.6	1.59
538	96.6	258.1	145.8	2.88
539	102.8	260.4	141.7	1.53
540	109.0	258.1	135.2	1.52
541	-39.5	262.7	236.0	1.26
542	-33.3	265.0	223.5	1.38
543	-27.1	262.7	220.6	1.98
544	-21.0	265.0	222.5	2.16
545	-14.8	262.7	219.9	1.31
546	-8.6	265.0	208.3	1.62
547	-2.4	262.7	206.0	1.37
548	3.8	265.0	203.4	1.39
549	10.0	262.7	198.2	1.37
550	16.2	265.0	218.9	2.64
551	22.4	262.7	189.7	1.88
552	28.5	265.0	186.7	1.52
553	34.7	262.7	181.1	1.58
554	40.9	265.0	178.2	1.63
555	47.1	262.7	172.7	1.69
556	53.3	265.0	187.4	3.24
557	59.5	262.7	171.7	1.49
558	65.7	265.0	167.2	1.48
559	78.0	265.0	156.3	1.55
560	84.2	262.7	149.8	1.58
561	96.6	262.7	148.2	1.51
562	-33.3	269.6	228.0	1.42
563	-27.1	267.3	225.2	2.03
564	-21.0	269.6	227.1	2.21
565	-14.8	267.3	224.5	1.96
566	-8.6	269.6	212.9	1.68
567	-2.4	267.3	208.7	1.39
568	3.8	269.6	206.0	1.85
569	10.0	267.3	200.7	1.94
570	16.2	269.6	209.3	3.32
571	22.4	267.3	214.6	2.72
572	28.5	269.6	189.3	1.54
573	34.7	267.3	183.8	1.58

574	40.9	269.6	190.5	2.91
575	47.1	267.3	184.7	1.44
576	53.3	269.6	180.3	1.48
577	59.5	267.3	173.8	1.49
578	65.7	269.6	178.5	2.84
579	71.8	267.3	171.9	2.19
580	78.0	269.6	158.6	1.53
581	84.2	267.3	161.2	2.89
582	90.4	269.6	157.1	1.50
583	96.6	267.3	150.6	1.53
584	102.8	269.6	146.7	2.08
585	-39.5	272.0	231.0	1.33
586	-27.1	272.0	229.8	2.08
587	-14.8	272.0	242.9	2.54
588	-2.4	272.0	211.2	1.78
589	10.0	272.0	227.1	2.62
590	22.4	272.0	194.9	1.49
591	34.7	272.0	196.4	1.41
592	59.5	272.0	175.9	2.09
593	71.8	272.0	174.2	1.48
594	96.6	272.0	153.1	1.55

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8 Stato di progetto – Sezione D – condizioni sismiche

Analisi di stabilità dei pendii con : BISHOP (1955)

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=====
Lat./Long.                               44.105751/10.143667 °
Calcolo eseguito secondo                  NTC 2018
Numero di strati                          2.0
Numero dei conci                         50.0
Grado di sicurezza ritenuto accettabile  1.3
Coefficiente parziale resistenza        1.0
Analisi                                  Condizione drenata
Superficie di forma circolare
=====
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Maglia dei Centri

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=====
Ascissa vertice sinistro inferiore xi     0.0 m
Ordinata vertice sinistro inferiore yi    179.49 m
Ascissa vertice destro superiore xs      207.95 m
Ordinata vertice destro superiore ys     271.96 m
Passo di ricerca                         10.0
Numero di celle lungo x                  20.0
Numero di celle lungo y                  20.0
=====
```

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera: 2 - Opere ordinarie
Classe d'uso: Classe II
Vita nominale: 50.0 [anni]
Vita di riferimento: 50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo: B
Categoria topografica: T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.5	2.451	0.238
S.L.D.	50.0	0.637	2.46	0.255
S.L.V.	475.0	1.598	2.395	0.288
S.L.C.	975.0	2.05	2.385	0.293

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L.	amax	beta	kh	kv
------	------	------	----	----

Stato limite	[m/s ²]	[-]	[-]	[sec]
S.L.O.	0.72	0.2	0.0147	0.0073
S.L.D.	0.9173	0.2	0.0187	0.0094
S.L.V.	2.3011	0.24	0.0563	0.0282
S.L.C.	2.952	0.28	0.0843	0.0421

Coefficiente azione sismica orizzontale 0.0563

Coefficiente azione sismica verticale 0.0282

Vertici profilo

Nr	X (m)	y (m)
1	0.0	15.69
2	4.1	19.02
3	4.92	19.69
4	6.56	20.54
5	12.3	21.36
6	16.4	22.34
7	19.68	23.52
8	23.3	25.75
9	29.3	25.75
10	34.03	33.45
11	37.73	36.24
12	41.01	38.9
13	43.47	40.68
14	44.1	41.13
15	49.4	41.13
16	57.0	53.43
17	63.15	58.35
18	68.89	63.34
19	72.17	66.61
20	72.6	66.96
21	84.0	66.96
22	89.92	79.0
23	96.69	84.63
24	103.15	90.6
25	108.1	90.6
26	110.7	96.87
27	116.6	96.87
28	122.61	105.79
29	136.78	116.4
30	142.2	116.4
31	143.3	121.28
32	148.4	121.28
33	156.23	130.96
34	167.1	139.09
35	172.1	139.09
36	173.86	143.69
37	174.68	143.84

38	176.32	143.97
39	178.78	144.13
40	179.6	144.09
41	180.42	144.06
42	182.07	145.19
43	183.71	147.71
44	186.99	149.46
45	191.91	154.12
46	206.67	165.74
47	215.69	172.6
48	222.25	177.91
49	223.07	178.58
50	224.71	178.8
51	231.27	181.59

Falda

Nr.	X (m)	y (m)
1	-0.51	1.93
2	5.97	3.64
3	16.99	8.59
4	163.71	125.12
5	230.26	164.05

Vertici strato1

N	X (m)	y (m)
1	0.0	0.0
2	6.64	1.74
3	18.04	6.87
4	164.84	123.46
5	231.27	162.33

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	0.0
Favorevoli: Permanenti, variabili	1.0	0.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata	Angolo resistenza	Peso unità di volume	Peso saturo (Kg/m3)	Litologia	
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		(kg/cm2)	al taglio (°)	(Kg/m3)			
1	0		45	1900	2100.00		
2	5	0	45	2700	2700		

Risultati analisi pendio

Fs minimo individuato	1.01
Ascissa centro superficie	15.6 m
Ordinata centro superficie	186.43 m
Raggio superficie	130.36 m

Numero di superfici esaminate....(601)

N°	Xo	Yo	Ro	Fs
1	0.0	179.5	136.5	1.40
2	5.2	181.8	138.9	1.59
3	10.4	179.5	136.8	1.17
4	15.6	181.8	139.5	2.41
5	20.8	179.5	123.7	1.08
6	26.0	181.8	126.3	2.07
7	31.2	179.5	124.4	1.15
8	36.4	181.8	155.8	2.00
9	41.6	179.5	110.4	1.33
10	46.8	181.8	112.4	1.14
11	52.0	179.5	109.8	1.20
12	57.2	181.8	111.9	1.20
13	62.4	179.5	138.6	2.05
14	67.6	181.8	149.6	1.86
15	72.8	179.5	89.4	1.12
16	78.0	181.8	140.1	1.97
17	83.2	179.5	83.5	1.21
18	88.4	181.8	81.7	1.24
19	93.6	179.5	77.6	1.38
20	98.8	181.8	87.2	2.34
21	104.0	179.5	71.8	1.68
22	109.2	181.8	78.7	1.35
23	114.4	179.5	73.4	1.36
24	119.6	181.8	90.3	2.83
25	124.8	179.5	96.0	2.53
26	130.0	181.8	91.6	2.64
27	135.2	179.5	57.8	1.39
28	140.4	181.8	54.6	1.50
29	145.6	179.5	51.7	1.58
30	150.8	181.8	50.1	1.59
31	156.0	179.5	45.4	1.58

32	161.2	181.8	50.3	1.62
33	166.4	179.5	40.9	1.41
34	171.6	181.8	36.6	1.13
35	176.8	179.5	34.2	1.27
36	182.0	181.8	31.2	1.23
37	187.2	179.5	26.7	1.31
38	192.4	181.8	24.7	1.30
39	197.6	179.5	17.5	1.20
40	202.8	181.8	17.3	1.31
41	208.0	179.5	10.5	1.17
42	0.0	184.1	141.1	1.46
43	5.2	186.4	143.5	1.16
44	10.4	184.1	141.4	1.17
45	15.6	186.4	130.4	1.01
46	20.8	184.1	155.9	2.21
47	26.0	186.4	158.7	2.11
48	31.2	184.1	129.0	1.16
49	36.4	186.4	117.5	1.26
50	41.6	184.1	115.0	1.28
51	46.8	186.4	117.0	1.17
52	52.0	184.1	114.5	1.21
53	57.2	186.4	116.1	1.17
54	62.4	184.1	154.6	1.88
55	67.6	186.4	109.4	1.21
56	72.8	184.1	145.1	1.92
57	78.0	186.4	102.6	1.22
58	83.2	184.1	98.3	1.21
59	88.4	186.4	95.8	1.25
60	93.6	184.1	91.5	1.24
61	98.8	186.4	89.1	1.29
62	104.0	184.1	84.1	1.31
63	109.2	186.4	79.8	1.28
64	114.4	184.1	74.3	1.27
65	119.6	186.4	101.3	2.54
66	124.8	184.1	64.6	1.23
67	130.0	186.4	61.5	1.32
68	135.2	184.1	58.6	1.39
69	140.4	186.4	64.0	1.47
70	145.6	184.1	60.4	1.52
71	150.8	186.4	57.3	1.54
72	156.0	184.1	53.2	1.56
73	161.2	186.4	50.1	1.44
74	166.4	184.1	47.7	1.51
75	171.6	186.4	48.8	1.53
76	176.8	184.1	38.5	1.28
77	182.0	186.4	35.9	1.27
78	187.2	184.1	27.3	1.13
79	192.4	186.4	27.5	1.23
80	197.6	184.1	20.8	1.17

81	202.8	186.4	20.6	1.24
82	208.0	184.1	14.1	1.11
83	0.0	188.7	145.7	1.52
84	5.2	191.0	148.1	1.15
85	10.4	188.7	146.1	1.15
86	15.6	191.0	135.0	1.10
87	20.8	188.7	146.7	2.88
88	26.0	191.0	163.3	2.04
89	31.2	188.7	133.5	1.14
90	36.4	191.0	122.0	1.34
91	41.6	188.7	119.6	1.12
92	46.8	191.0	121.6	1.19
93	52.0	188.7	119.1	1.22
94	57.2	191.0	118.1	1.23
95	62.4	188.7	113.7	1.23
96	67.6	191.0	111.3	1.24
97	72.8	188.7	107.0	1.24
98	78.0	191.0	141.3	2.05
99	83.2	188.7	136.2	2.08
100	88.4	191.0	131.9	2.14
101	93.6	188.7	93.4	1.28
102	98.8	191.0	90.7	1.29
103	104.0	188.7	85.2	1.30
104	109.2	191.0	80.9	2.27
105	114.4	188.7	75.4	1.91
106	119.6	191.0	71.1	1.17
107	124.8	188.7	65.7	1.19
108	130.0	191.0	91.7	2.84
109	135.2	188.7	59.7	1.42
110	140.4	191.0	64.4	1.50
111	145.6	188.7	60.7	1.51
112	150.8	191.0	57.0	1.48
113	156.0	188.7	53.7	1.44
114	161.2	191.0	57.0	1.50
115	166.4	188.7	48.0	1.31
116	171.6	191.0	44.4	1.14
117	176.8	188.7	38.9	1.17
118	182.0	191.0	35.6	1.11
119	187.2	188.7	32.4	1.20
120	192.4	191.0	32.1	1.26
121	197.6	188.7	24.7	1.18
122	202.8	191.0	24.4	1.21
123	208.0	188.7	19.7	1.30
124	0.0	193.4	150.3	1.58
125	5.2	195.7	152.8	1.15
126	10.4	193.4	150.7	1.11
127	15.6	195.7	139.6	1.16
128	20.8	193.4	165.1	2.16
129	26.0	195.7	167.9	1.99

130	31.2	193.4	138.1	1.84
131	36.4	195.7	126.6	1.41
132	41.6	193.4	124.2	1.14
133	46.8	195.7	126.2	1.21
134	52.0	193.4	122.5	1.22
135	57.2	195.7	120.1	1.22
136	62.4	193.4	115.7	1.23
137	67.6	195.7	113.4	1.21
138	72.8	193.4	109.0	1.22
139	78.0	195.7	106.6	1.21
140	83.2	193.4	102.2	1.23
141	88.4	195.7	99.9	1.25
142	93.6	193.4	95.4	1.28
143	98.8	195.7	91.9	1.24
144	104.0	193.4	86.4	1.22
145	109.2	195.7	112.7	2.50
146	114.4	193.4	76.6	1.12
147	119.6	195.7	102.5	2.69
148	124.8	193.4	76.9	1.36
149	130.0	195.7	72.6	1.43
150	135.2	193.4	68.5	1.48
151	140.4	195.7	74.4	1.39
152	145.6	193.4	69.3	1.45
153	150.8	195.7	65.5	1.48
154	156.0	193.4	61.7	1.49
155	161.2	195.7	64.5	2.27
156	166.4	193.4	48.2	1.09
157	171.6	195.7	51.0	1.24
158	176.8	193.4	45.4	1.24
159	182.0	195.7	41.2	1.19
160	187.2	193.4	37.4	1.25
161	192.4	195.7	33.4	1.16
162	197.6	193.4	28.8	1.17
163	202.8	195.7	28.7	1.30
164	0.0	198.0	155.0	1.64
165	5.2	200.3	157.4	1.16
166	10.4	198.0	168.9	2.37
167	15.6	200.3	144.2	1.14
168	20.8	198.0	142.0	2.11
169	26.0	200.3	144.6	2.34
170	31.2	198.0	170.8	2.00
171	36.4	200.3	131.1	1.10
172	41.6	198.0	128.8	1.17
173	46.8	200.3	128.9	1.21
174	52.0	198.0	124.5	1.22
175	57.2	200.3	122.2	1.20
176	62.4	198.0	117.8	1.21
177	67.6	200.3	152.4	2.01
178	72.8	198.0	111.0	1.20

179	78.0	200.3	143.0	2.11
180	83.2	198.0	104.3	1.22
181	88.4	200.3	102.0	1.24
182	93.6	198.0	97.4	1.26
183	98.8	200.3	93.2	1.90
184	104.0	198.0	108.0	2.88
185	109.2	200.3	93.5	1.36
186	114.4	198.0	88.0	1.36
187	119.6	200.3	93.5	3.21
188	124.8	198.0	78.1	1.37
189	130.0	200.3	83.5	1.35
190	135.2	198.0	78.0	1.40
191	140.4	200.3	74.9	1.44
192	145.6	198.0	69.9	1.46
193	150.8	200.3	66.3	1.38
194	156.0	198.0	62.3	1.36
195	161.2	200.3	65.3	1.44
196	166.4	198.0	54.7	1.18
197	171.6	200.3	52.1	1.17
198	176.8	198.0	46.9	1.19
199	182.0	200.3	42.9	1.13
200	187.2	198.0	38.1	1.14
201	197.6	198.0	34.0	1.27
202	208.0	198.0	25.9	1.36
203	0.0	202.6	159.6	1.13
204	5.2	204.9	162.0	1.14
205	10.4	202.6	146.3	1.08
206	15.6	204.9	148.8	1.08
207	20.8	202.6	174.3	2.07
208	26.0	204.9	149.2	2.41
209	31.2	202.6	175.4	1.98
210	36.4	204.9	135.7	1.12
211	41.6	202.6	133.4	1.19
212	46.8	204.9	131.1	1.19
213	52.0	202.6	126.6	1.20
214	57.2	204.9	162.8	1.95
215	62.4	202.6	157.6	1.99
216	67.6	204.9	117.7	2.06
217	72.8	202.6	148.2	2.09
218	78.0	204.9	111.0	1.21
219	83.2	202.6	106.5	1.22
220	88.4	204.9	104.3	1.20
221	93.6	202.6	98.7	1.79
222	98.8	204.9	94.6	1.03
223	104.0	202.6	89.0	1.09
224	109.2	204.9	94.8	1.30
225	114.4	202.6	99.1	3.20
226	119.6	204.9	85.0	1.33
227	124.8	202.6	79.4	1.39

228	130.0	204.9	94.4	3.14
229	135.2	202.6	79.2	1.42
230	140.4	204.9	75.2	1.43
231	145.6	202.6	71.2	1.41
232	150.8	204.9	75.5	1.46
233	156.0	202.6	70.5	1.45
234	161.2	204.9	66.6	5.94
235	166.4	202.6	55.5	1.12
236	171.6	204.9	53.1	1.11
237	176.8	202.6	48.6	1.13
238	182.0	204.9	49.7	1.21
239	192.4	204.9	41.1	1.15
240	197.6	202.6	35.9	1.16
241	0.0	207.2	164.2	1.14
242	5.2	209.5	166.6	1.11
243	10.4	207.2	150.9	1.17
244	15.6	209.5	153.4	1.08
245	20.8	207.2	178.8	2.00
246	26.0	209.5	167.7	2.46
247	31.2	207.2	165.9	2.29
248	36.4	209.5	140.0	1.15
249	41.6	207.2	135.6	1.17
250	46.8	209.5	133.3	1.81
251	52.0	207.2	128.8	1.93
252	57.2	209.5	126.6	1.77
253	62.4	207.2	122.1	1.90
254	67.6	209.5	119.9	1.21
255	72.8	207.2	115.4	1.21
256	78.0	209.5	113.2	1.21
257	83.2	207.2	108.7	1.20
258	88.4	209.5	105.7	1.67
259	93.6	207.2	110.1	2.03
260	98.8	209.5	105.9	1.33
261	104.0	207.2	100.3	1.32
262	109.2	209.5	96.1	2.10
263	114.4	207.2	90.5	1.28
264	119.6	209.5	96.0	1.34
265	124.8	207.2	90.4	1.37
266	130.0	209.5	86.2	1.40
267	135.2	207.2	80.5	1.43
268	140.4	209.5	85.8	1.39
269	145.6	207.2	80.9	1.43
270	150.8	209.5	76.9	1.38
271	156.0	207.2	71.6	1.35
272	161.2	209.5	68.1	3.45
273	166.4	207.2	63.2	1.21
274	176.8	207.2	55.4	1.21
275	182.0	209.5	51.9	1.16
276	0.0	211.9	168.8	1.15

277	5.2	214.2	171.2	2.44
278	10.4	211.9	155.5	1.23
279	15.6	214.2	185.4	2.05
280	20.8	211.9	183.4	2.00
281	26.0	214.2	186.2	2.01
282	31.2	211.9	142.3	1.47
283	36.4	214.2	142.3	1.61
284	41.6	211.9	137.8	1.70
285	46.8	214.2	135.6	1.56
286	52.0	211.9	131.1	1.65
287	57.2	214.2	128.9	1.24
288	62.4	211.9	124.4	1.29
289	67.6	214.2	122.3	1.38
290	72.8	211.9	117.7	1.44
291	78.0	214.2	115.6	1.51
292	83.2	211.9	111.1	1.60
293	88.4	214.2	117.1	1.30
294	93.6	211.9	111.5	1.32
295	98.8	214.2	107.4	1.27
296	104.0	211.9	101.7	2.40
297	109.2	214.2	97.6	1.31
298	114.4	211.9	101.6	1.31
299	119.6	214.2	97.4	1.34
300	124.8	211.9	91.8	1.36
301	130.0	214.2	87.7	1.44
302	135.2	211.9	82.1	1.45
303	140.4	214.2	87.3	1.40
304	150.8	214.2	78.6	1.29
305	156.0	211.9	73.1	1.24
306	161.2	214.2	69.7	1.15
307	166.4	211.9	64.7	1.17
308	171.6	214.2	61.9	1.15
309	182.0	214.2	54.3	1.12
310	187.2	211.9	48.7	1.08
311	0.0	216.5	173.5	1.16
312	5.2	218.8	162.2	1.15
313	10.4	216.5	160.1	1.10
314	15.6	218.8	190.0	2.04
315	20.8	216.5	188.0	1.97
316	26.0	218.8	190.8	1.99
317	31.2	216.5	146.8	1.53
318	36.4	218.8	185.0	1.91
319	41.6	216.5	140.1	1.48
320	46.8	218.8	163.1	2.41
321	52.0	216.5	158.0	2.40
322	57.2	218.8	131.3	1.26
323	62.4	216.5	126.8	1.31
324	67.6	218.8	124.7	1.35
325	72.8	216.5	120.1	1.43

326	78.0	218.8	128.0	1.23
327	83.2	216.5	122.7	1.26
328	88.4	218.8	118.6	1.29
329	93.6	216.5	113.0	1.28
330	98.8	218.8	108.9	1.82
331	104.0	216.5	112.8	2.60
332	109.2	218.8	99.3	1.28
333	114.4	216.5	112.5	3.07
334	119.6	218.8	99.0	1.36
335	124.8	216.5	93.4	1.41
336	130.0	218.8	89.4	1.87
337	135.2	216.5	93.0	1.39
338	145.6	216.5	83.4	1.32
339	156.0	216.5	74.8	1.14
340	161.2	218.8	71.4	1.13
341	166.4	216.5	66.5	1.14
342	171.6	218.8	63.9	1.13
343	0.0	221.1	178.1	1.14
344	5.2	223.4	166.8	1.22
345	10.4	221.1	164.7	1.09
346	15.6	223.4	180.9	2.61
347	20.8	221.1	165.0	2.42
348	26.0	223.4	181.4	2.25
349	31.2	221.1	176.5	2.31
350	36.4	223.4	173.2	2.38
351	41.6	221.1	180.9	1.98
352	46.8	223.4	140.4	1.16
353	52.0	221.1	135.8	1.20
354	57.2	223.4	145.1	1.17
355	62.4	221.1	129.2	1.28
356	67.6	223.4	158.5	2.28
357	72.8	221.1	132.8	1.23
358	78.0	223.4	129.8	1.27
359	83.2	221.1	124.2	1.29
360	88.4	223.4	120.2	1.23
361	93.6	221.1	114.5	2.06
362	98.8	223.4	110.6	1.23
363	104.0	221.1	104.9	1.27
364	109.2	223.4	110.3	1.31
365	119.6	223.4	100.7	1.44
366	124.8	221.1	104.3	1.30
367	135.2	221.1	94.7	1.37
368	140.4	223.4	91.0	1.29
369	150.8	223.4	81.7	1.11
370	156.0	221.1	76.9	1.13
371	0.0	225.7	182.7	1.63
372	5.2	228.0	171.5	1.28
373	10.4	225.7	169.4	1.11
374	15.6	228.0	199.2	1.94

375	20.8	225.7	197.2	1.97
376	26.0	228.0	156.0	1.06
377	31.2	225.7	191.5	1.95
378	36.4	228.0	187.6	2.01
379	41.6	225.7	144.9	1.14
380	46.8	228.0	154.7	1.18
381	52.0	225.7	149.9	1.17
382	57.2	228.0	147.2	1.22
383	62.4	225.7	163.8	2.27
384	67.6	228.0	139.8	2.43
385	72.8	225.7	144.8	2.92
386	78.0	228.0	131.5	1.26
387	83.2	225.7	125.8	1.25
388	88.4	228.0	131.3	2.65
389	93.6	225.7	125.7	2.40
390	98.8	228.0	112.3	1.18
391	104.0	225.7	116.0	1.31
392	114.4	225.7	106.4	1.38
393	119.6	228.0	111.8	1.32
394	130.0	228.0	102.3	1.34
395	150.8	228.0	83.9	1.09
396	156.0	225.7	78.9	1.10
397	0.0	230.3	201.0	2.34
398	5.2	232.7	176.1	1.10
399	10.4	230.3	174.0	1.13
400	15.6	232.7	176.4	2.38
401	20.8	230.3	201.8	1.92
402	26.0	232.7	171.8	1.11
403	31.2	230.3	167.0	1.77
404	36.4	232.7	164.3	1.18
405	41.6	230.3	159.5	1.18
406	46.8	232.7	156.9	1.21
407	52.0	230.3	152.1	1.22
408	57.2	232.7	160.1	2.87
409	62.4	230.3	144.7	1.22
410	67.6	232.7	142.1	1.23
411	72.8	230.3	137.1	1.25
412	78.0	232.7	133.2	1.21
413	83.2	230.3	127.5	1.84
414	88.4	232.7	123.6	1.17
415	93.6	230.3	118.0	1.20
416	98.8	232.7	123.4	2.50
417	104.0	230.3	117.8	2.23
418	109.2	232.7	113.9	1.42
419	114.4	230.3	108.3	1.49
420	119.6	232.7	113.7	1.32
421	145.6	230.3	89.6	1.10
422	0.0	235.0	178.3	1.22
423	5.2	237.3	180.7	1.11

424	10.4	235.0	178.6	1.14
425	15.6	237.3	208.4	1.94
426	20.8	235.0	190.1	2.43
427	26.0	237.3	174.0	1.17
428	31.2	235.0	169.1	1.18
429	36.4	237.3	166.6	1.20
430	41.6	235.0	161.7	1.21
431	46.8	237.3	159.2	1.20
432	52.0	235.0	154.3	2.32
433	57.2	237.3	151.8	2.15
434	62.4	235.0	167.1	2.42
435	67.6	237.3	144.5	1.23
436	72.8	235.0	138.8	1.23
437	78.0	237.3	153.7	2.80
438	83.2	235.0	138.7	1.83
439	88.4	237.3	134.8	1.31
440	93.6	235.0	129.1	1.30
441	98.8	237.3	134.5	3.03
442	104.0	235.0	119.6	1.35
443	109.2	237.3	115.9	1.55
444	114.4	235.0	119.4	1.32
445	119.6	237.3	115.7	1.32
446	135.2	235.0	100.9	1.93
447	0.0	239.6	182.9	1.28
448	5.2	241.9	185.3	1.14
449	10.4	239.6	183.2	1.15
450	15.6	241.9	183.6	1.16
451	20.8	239.6	178.8	1.17
452	26.0	241.9	176.2	1.18
453	31.2	239.6	171.4	1.19
454	36.4	241.9	168.8	1.18
455	41.6	239.6	164.0	1.19
456	46.8	241.9	172.4	2.93
457	52.0	239.6	156.7	2.00
458	57.2	241.9	154.2	1.20
459	62.4	239.6	149.4	1.22
460	67.6	241.9	146.3	1.22
461	72.8	239.6	140.6	1.70
462	78.0	241.9	136.8	1.12
463	83.2	239.6	131.2	1.14
464	88.4	241.9	136.7	1.29
465	93.6	239.6	140.2	2.99
466	98.8	241.9	127.3	1.37
467	104.0	239.6	130.7	1.27
468	109.2	241.9	127.1	1.30
469	114.4	239.6	121.4	1.31
470	119.6	241.9	117.9	1.32
471	0.0	244.2	187.5	1.33
472	5.2	246.5	189.9	1.15

473	10.4	244.2	187.8	1.15
474	15.6	246.5	185.9	1.16
475	20.8	244.2	181.1	1.17
476	26.0	246.5	178.5	1.17
477	31.2	244.2	173.7	1.18
478	36.4	246.5	171.2	1.97
479	41.6	244.2	166.4	2.08
480	46.8	246.5	174.5	2.97
481	52.0	244.2	169.4	2.95
482	57.2	246.5	156.7	1.21
483	62.4	244.2	151.8	1.23
484	67.6	246.5	148.2	1.63
485	72.8	244.2	151.8	1.24
486	78.0	246.5	148.0	1.30
487	83.2	244.2	142.3	1.30
488	88.4	246.5	138.6	1.89
489	98.8	246.5	129.3	1.46
490	104.0	244.2	123.7	1.48
491	109.2	246.5	129.2	1.30
492	114.4	244.2	123.6	1.31
493	119.6	246.5	120.2	1.29
494	130.0	246.5	111.3	1.09
495	0.0	248.8	192.1	1.11
496	5.2	251.2	194.6	1.15
497	10.4	248.8	190.7	1.15
498	15.6	251.2	188.2	1.17
499	20.8	248.8	183.4	1.17
500	26.0	251.2	180.9	1.16
501	31.2	248.8	176.1	1.16
502	36.4	251.2	173.6	1.74
503	41.6	248.8	168.8	1.84
504	46.8	251.2	166.4	1.18
505	52.0	248.8	161.5	1.20
506	57.2	251.2	159.2	1.55
507	62.4	248.8	153.8	1.59
508	67.6	251.2	150.1	1.08
509	72.8	248.8	144.5	1.14
510	78.0	251.2	150.0	1.28
511	83.2	248.8	144.3	2.09
512	88.4	251.2	140.7	1.31
513	93.6	248.8	144.1	1.26
514	109.2	251.2	131.5	1.31
515	119.6	251.2	122.5	2.00
516	0.0	253.5	196.8	1.14
517	5.2	255.8	197.6	1.16
518	10.4	253.5	193.1	1.16
519	15.6	255.8	190.6	1.16
520	20.8	253.5	185.8	1.16
521	26.0	255.8	183.4	1.82

522	31.2	253.5	189.9	2.94
523	36.4	255.8	197.7	2.46
524	41.6	253.5	192.3	2.54
525	46.8	255.8	169.0	1.18
526	52.0	253.5	164.1	1.19
527	57.2	255.8	161.5	1.53
528	62.4	253.5	165.1	2.59
529	67.6	255.8	161.3	1.29
530	72.8	253.5	155.7	1.29
531	78.0	255.8	152.0	2.00
532	83.2	253.5	155.5	2.61
533	88.4	255.8	142.8	1.38
534	93.6	253.5	146.2	1.29
535	109.2	255.8	133.8	1.31
536	114.4	253.5	128.2	1.28
537	0.0	258.1	201.4	1.16
538	5.2	260.4	200.1	1.16
539	10.4	258.1	195.5	1.16
540	15.6	260.4	193.1	1.67
541	20.8	258.1	188.2	1.74
542	26.0	260.4	185.9	1.63
543	31.2	258.1	192.1	2.97
544	36.4	260.4	178.7	1.17
545	41.6	258.1	173.8	1.18
546	46.8	260.4	171.6	1.45
547	52.0	258.1	166.7	1.49
548	57.2	260.4	163.5	1.07
549	62.4	258.1	167.0	1.28
550	67.6	260.4	163.4	1.28
551	72.8	258.1	157.7	1.92
552	78.0	260.4	163.3	2.30
553	83.2	258.1	148.5	1.34
554	88.4	260.4	154.1	1.28
555	98.8	260.4	145.1	1.29
556	109.2	260.4	136.3	1.83
557	0.0	262.7	204.6	1.16
558	5.2	265.0	202.5	1.17
559	10.4	262.7	197.9	1.15
560	15.6	265.0	207.5	2.76
561	20.8	262.7	190.7	1.57
562	26.0	265.0	199.5	2.89
563	31.2	262.7	183.6	1.31
564	36.4	265.0	181.3	1.37
565	41.6	262.7	176.4	1.41
566	46.8	265.0	174.3	1.43
567	52.0	262.7	178.4	1.23
568	57.2	265.0	174.8	1.27
569	62.4	262.7	169.1	1.28
570	67.6	265.0	165.5	1.85

571	78.0	265.0	156.4	1.32
572	83.2	262.7	159.8	1.28
573	98.8	265.0	147.5	1.31
574	104.0	262.7	141.9	1.31
575	0.0	267.3	207.1	1.50
576	5.2	269.6	205.1	1.57
577	10.4	267.3	200.5	1.63
578	15.6	269.6	221.4	2.35
579	20.8	267.3	216.0	2.35
580	26.0	269.6	191.1	1.29
581	31.2	267.3	186.2	1.33
582	36.4	269.6	194.0	1.18
583	41.6	267.3	179.1	1.39
584	46.8	269.6	176.9	1.06
585	52.0	267.3	189.6	2.87
586	57.2	269.6	176.9	1.27
587	62.4	267.3	171.2	1.26
588	67.6	269.6	176.8	2.31
589	72.8	267.3	162.1	1.29
590	78.0	269.6	158.7	1.30
591	93.6	267.3	153.2	1.29
592	98.8	269.6	150.0	1.32
593	104.0	267.3	144.4	1.77
594	0.0	272.0	209.7	1.51
595	20.8	272.0	195.9	1.26
596	31.2	272.0	199.1	1.17
597	41.6	272.0	191.3	1.23
598	52.0	272.0	182.5	1.27
599	62.4	272.0	173.4	1.79
600	72.8	272.0	173.4	1.27
601	93.6	272.0	155.7	1.31

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9 Stato di progetto – Sezione D – condizioni post sisma

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-39.51 m
Ordinata vertice sinistro inferiore yi	179.49 m
Ascissa vertice destro superiore xs	207.95 m
Ordinata vertice destro superiore ys	271.96 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	
Classe d'uso:	
Vita nominale:	0.0 [anni]
Vita di riferimento:	0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:
Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
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S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Vertici profilo

Nr	X (m)	y (m)
1	0.0	15.69
2	4.1	19.02
3	4.92	19.69
4	6.56	20.54
5	12.3	21.36
6	16.4	22.34
7	19.68	23.52
8	23.3	25.75
9	29.3	25.75
10	34.03	33.45
11	37.73	36.24
12	41.01	38.9
13	43.47	40.68
14	44.1	41.13
15	49.4	41.13
16	57.0	53.43
17	63.15	58.35
18	68.89	63.34
19	72.17	66.61
20	72.6	66.96
21	84.0	66.96
22	91.03	81.26
23	100.87	89.19
24	102.6	90.6
25	108.1	90.6
26	110.7	96.87
27	116.6	96.87
28	122.61	105.79
29	136.78	116.4
30	142.2	116.4
31	143.3	121.28
32	148.4	121.28
33	156.23	130.96
34	167.1	139.09
35	172.1	139.09
36	173.86	143.69
37	174.68	143.84
38	176.32	143.97
39	178.78	144.13
40	179.6	144.09

41	180.42	144.06
42	182.07	145.19
43	183.71	147.71
44	186.99	149.46
45	191.91	154.12
46	206.67	165.74
47	215.69	172.6
48	222.25	177.91
49	223.07	178.58
50	224.71	178.8
51	231.27	181.59

Falda

Nr.	X (m)	y (m)
1	-0.51	1.93
2	5.97	3.64
3	16.99	8.59
4	163.71	125.12
5	230.26	164.05

Vertici strato1

N	X (m)	y (m)
1	0.0	0.0
2	6.64	1.74
3	18.04	6.87
4	164.84	123.46
5	231.27	162.33

Coefficienti parziali azioni

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Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

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Coefficienti parziali per i parametri geotecnici del terreno

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Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

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Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	42.27	1900	2100.00		

2	4.54	0	42.27	2700	2700		
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Risultati analisi pendio

Fs minimo individuato	1.05
Ascissa centro superficie	-14.76 m
Ordinata centro superficie	211.85 m
Raggio superficie	169.14 m

Numero di superfici esaminate....(594)

N°	Xo	Yo	Ro	Fs
1	-21.0	181.8	153.5	1.30
2	-2.4	179.5	136.5	1.40
3	3.8	181.8	138.9	1.66
4	10.0	179.5	136.8	1.24
5	16.2	181.8	125.8	1.11
6	22.4	179.5	151.5	2.30
7	28.5	181.8	154.5	2.18
8	34.7	179.5	124.8	1.21
9	40.9	181.8	112.7	1.49
10	47.1	179.5	110.1	1.24
11	53.3	181.8	112.1	1.31
12	59.5	179.5	109.5	1.66
13	65.7	181.8	151.4	1.96
14	71.8	179.5	89.9	1.18
15	78.0	181.8	140.1	2.08
16	84.2	179.5	82.9	1.30
17	90.4	181.8	80.6	1.36
18	96.6	179.5	75.9	1.55
19	102.8	181.8	84.6	2.28
20	109.0	179.5	78.5	1.39
21	115.2	181.8	73.1	1.39
22	121.3	179.5	66.8	1.35
23	127.5	181.8	93.6	2.71
24	133.7	179.5	59.0	1.45
25	139.9	181.8	55.0	1.59
26	146.1	179.5	51.5	1.69
27	152.3	181.8	56.7	1.62
28	158.5	179.5	44.5	1.64
29	164.6	181.8	48.9	1.71
30	170.8	179.5	36.8	1.34
31	177.0	181.8	33.6	1.23
32	183.2	179.5	29.5	1.36
33	189.4	181.8	25.5	1.30
34	195.6	179.5	17.9	1.19

35	201.8	181.8	18.3	1.41
36	208.0	179.5	10.8	1.28
37	-27.1	184.1	156.6	1.21
38	-21.0	186.4	158.1	1.35
39	-2.4	184.1	141.1	1.48
40	3.8	186.4	143.5	1.72
41	10.0	184.1	141.4	1.24
42	16.2	186.4	130.4	1.15
43	22.4	184.1	156.0	2.32
44	28.5	186.4	159.1	2.13
45	34.7	184.1	157.7	2.05
46	40.9	186.4	117.3	1.25
47	47.1	184.1	114.7	1.26
48	53.3	186.4	116.7	1.32
49	59.5	184.1	157.3	1.98
50	65.7	186.4	110.6	1.30
51	71.8	184.1	105.6	2.18
52	78.0	186.4	102.6	1.31
53	84.2	184.1	97.6	1.29
54	90.4	186.4	94.5	1.33
55	96.6	184.1	89.5	1.32
56	102.8	186.4	85.8	1.40
57	109.0	184.1	79.4	1.41
58	115.2	186.4	105.7	2.60
59	121.3	184.1	99.4	2.67
60	127.5	186.4	62.5	1.32
61	133.7	184.1	59.9	1.46
62	139.9	186.4	64.2	1.56
63	146.1	184.1	59.9	1.62
64	152.3	186.4	56.6	1.64
65	158.5	184.1	51.3	1.64
66	164.6	186.4	42.7	1.07
67	170.8	184.1	37.8	1.14
68	177.0	186.4	38.1	1.27
69	183.2	184.1	30.8	1.25
70	189.4	186.4	29.8	1.32
71	195.6	184.1	22.6	1.27
72	201.8	186.4	21.1	1.30
73	208.0	184.1	14.1	1.18
74	-33.3	191.0	164.4	1.15
75	-27.1	188.7	161.2	1.26
76	-21.0	191.0	162.7	1.18
77	-14.8	188.7	159.9	2.30
78	-8.6	191.0	161.8	2.53
79	-2.4	188.7	145.7	1.55
80	3.8	191.0	148.1	1.22
81	10.0	188.7	146.0	1.23
82	16.2	191.0	135.0	1.20
83	22.4	188.7	132.9	2.22

84	28.5	191.0	135.6	2.55
85	34.7	188.7	162.3	2.09
86	40.9	191.0	121.9	1.23
87	47.1	188.7	119.3	1.29
88	53.3	191.0	120.6	1.31
89	59.5	188.7	115.6	1.31
90	65.7	191.0	112.6	1.34
91	71.8	188.7	107.6	1.33
92	78.0	191.0	141.3	2.17
93	84.2	188.7	99.5	1.33
94	90.4	191.0	130.0	2.27
95	96.6	188.7	91.5	1.37
96	102.8	191.0	86.9	1.35
97	109.0	188.7	80.5	1.32
98	115.2	191.0	85.6	3.04
99	121.3	188.7	68.9	1.26
100	127.5	191.0	73.8	1.47
101	133.7	188.7	69.6	1.52
102	139.9	191.0	64.9	1.59
103	146.1	188.7	60.4	1.61
104	152.3	191.0	56.4	1.54
105	158.5	188.7	58.5	1.64
106	164.6	191.0	54.9	1.56
107	170.8	188.7	44.5	1.27
108	177.0	191.0	39.3	1.20
109	183.2	188.7	35.2	1.28
110	189.4	191.0	30.8	1.20
111	195.6	188.7	25.7	1.24
112	201.8	191.0	25.3	1.30
113	208.0	188.7	19.9	1.41
114	-27.1	193.4	165.7	1.31
115	-21.0	195.7	167.3	1.18
116	-8.6	195.7	166.5	2.80
117	-2.4	193.4	150.3	1.62
118	3.8	195.7	152.7	1.22
119	10.0	193.4	150.7	1.20
120	16.2	195.7	139.6	1.26
121	22.4	193.4	165.2	2.21
122	28.5	195.7	140.2	1.23
123	34.7	193.4	124.2	1.44
124	40.9	195.7	126.5	1.25
125	47.1	193.4	123.9	1.30
126	53.3	195.7	122.6	1.32
127	59.5	193.4	117.6	1.33
128	65.7	195.7	114.6	1.30
129	71.8	193.4	109.6	1.30
130	78.0	195.7	106.6	1.29
131	84.2	193.4	124.5	2.51
132	90.4	195.7	98.5	1.33

133	96.6	193.4	93.3	1.36
134	102.8	195.7	88.1	2.20
135	109.0	193.4	81.7	1.88
136	115.2	195.7	86.6	1.45
137	121.3	193.4	80.2	1.45
138	127.5	195.7	74.9	1.48
139	133.7	193.4	69.1	1.56
140	139.9	195.7	66.0	1.70
141	146.1	193.4	68.8	1.56
142	152.3	195.7	64.3	1.55
143	158.5	193.4	52.0	1.07
144	164.6	195.7	55.4	1.38
145	170.8	193.4	45.8	1.20
146	177.0	195.7	45.9	1.29
147	183.2	193.4	39.9	1.31
148	189.4	195.7	36.2	1.26
149	195.6	193.4	30.6	1.27
150	201.8	195.7	29.4	1.38
151	208.0	193.4	23.6	1.47
152	-33.3	200.3	173.5	1.27
153	-27.1	198.0	170.3	1.35
154	-21.0	200.3	171.9	1.19
155	-8.6	200.3	157.4	1.52
156	-2.4	198.0	155.0	1.68
157	3.8	200.3	157.3	1.22
158	10.0	198.0	155.3	2.37
159	16.2	200.3	144.2	1.18
160	22.4	198.0	169.8	2.18
161	28.5	200.3	144.7	1.20
162	34.7	198.0	128.7	1.52
163	40.9	200.3	131.2	1.28
164	47.1	198.0	127.7	1.31
165	53.3	200.3	124.7	1.31
166	59.5	198.0	119.7	1.30
167	65.7	200.3	154.2	2.08
168	71.8	198.0	111.6	1.27
169	78.0	200.3	143.0	2.22
170	84.2	198.0	103.6	1.30
171	90.4	200.3	100.7	1.32
172	96.6	198.0	94.6	1.30
173	102.8	200.3	99.5	2.51
174	109.0	198.0	83.0	1.15
175	115.2	200.3	97.7	3.33
176	121.3	198.0	81.3	1.42
177	127.5	200.3	76.1	1.51
178	133.7	198.0	79.4	1.47
179	139.9	200.3	75.2	1.53
180	146.1	198.0	69.4	1.55
181	152.3	200.3	65.2	1.43

182	158.5	198.0	60.1	5.68
183	164.6	200.3	56.1	1.21
184	170.8	198.0	52.1	1.28
185	177.0	200.3	47.5	1.23
186	183.2	198.0	40.9	1.22
187	195.6	198.0	35.4	1.34
188	208.0	198.0	25.9	1.45
189	-39.5	202.6	176.7	1.13
190	-33.3	204.9	178.0	1.32
191	-14.8	202.6	173.7	2.52
192	-8.6	204.9	162.0	1.59
193	-2.4	202.6	159.6	1.74
194	3.8	204.9	162.0	1.23
195	10.0	202.6	146.2	1.21
196	16.2	204.9	148.8	1.17
197	22.4	202.6	146.7	2.46
198	28.5	204.9	177.4	2.11
199	34.7	202.6	133.3	1.60
200	40.9	204.9	134.9	1.28
201	47.1	202.6	129.8	1.30
202	53.3	204.9	126.9	1.28
203	59.5	202.6	147.4	2.35
204	65.7	204.9	155.2	2.14
205	71.8	202.6	149.1	2.18
206	78.0	204.9	110.9	1.28
207	84.2	202.6	105.8	1.30
208	90.4	204.9	102.4	1.86
209	96.6	202.6	95.9	1.99
210	102.8	204.9	100.8	1.43
211	109.0	202.6	94.3	1.42
212	115.2	204.9	108.7	2.95
213	121.3	202.6	82.6	1.43
214	127.5	204.9	87.1	1.47
215	133.7	202.6	80.6	1.49
216	139.9	204.9	75.5	1.52
217	146.1	202.6	70.7	1.49
218	152.3	204.9	66.0	2.47
219	170.8	202.6	53.0	1.22
220	177.0	204.9	49.3	1.18
221	195.6	202.6	37.4	1.24
222	201.8	204.9	34.3	1.26
223	-27.1	207.2	179.5	1.18
224	-8.6	209.5	166.6	1.65
225	-2.4	207.2	164.2	1.80
226	3.8	209.5	166.6	1.22
227	10.0	207.2	150.9	1.26
228	16.2	209.5	167.1	2.88
229	22.4	207.2	179.0	2.04
230	28.5	209.5	181.9	1.96

231	34.7	207.2	137.9	1.22
232	40.9	209.5	137.1	1.27
233	47.1	207.2	132.0	1.27
234	53.3	209.5	167.4	2.07
235	59.5	207.2	124.0	1.94
236	65.7	209.5	121.2	1.28
237	71.8	207.2	116.0	1.28
238	78.0	209.5	113.2	1.29
239	84.2	207.2	108.1	1.27
240	90.4	209.5	113.8	1.89
241	96.6	207.2	97.3	1.11
242	102.8	209.5	102.1	1.38
243	109.0	207.2	105.4	3.28
244	115.2	209.5	90.5	1.46
245	121.3	207.2	93.6	1.41
246	127.5	209.5	88.5	1.46
247	133.7	207.2	81.9	1.51
248	139.9	209.5	76.9	2.41
249	146.1	207.2	80.5	1.52
250	164.6	209.5	65.2	1.26
251	170.8	207.2	59.9	1.28
252	183.2	207.2	49.7	1.25
253	195.6	207.2	39.8	1.14
254	-39.5	211.9	185.9	1.28
255	-33.3	214.2	187.2	1.41
256	-27.1	211.9	184.1	1.20
257	-21.0	214.2	185.7	2.43
258	-14.8	211.9	169.1	1.05
259	-8.6	214.2	171.2	1.71
260	-2.4	211.9	168.8	1.20
261	3.8	214.2	171.2	1.38
262	10.0	211.9	155.5	1.32
263	16.2	214.2	185.4	2.11
264	22.4	211.9	169.7	2.58
265	28.5	214.2	172.5	2.42
266	34.7	211.9	142.2	1.24
267	40.9	214.2	139.4	1.86
268	47.1	211.9	134.2	2.01
269	53.3	214.2	156.2	2.49
270	59.5	211.9	162.4	2.17
271	65.7	214.2	123.5	1.44
272	71.8	211.9	118.3	1.53
273	78.0	214.2	115.6	1.61
274	84.2	211.9	110.4	1.73
275	90.4	214.2	115.2	1.40
276	96.6	211.9	108.7	1.40
277	102.8	214.2	122.9	2.86
278	109.0	211.9	106.7	3.06
279	115.2	214.2	92.1	1.42

280	121.3	211.9	95.0	1.44
281	127.5	214.2	90.0	1.50
282	133.7	211.9	83.4	1.54
283	139.9	214.2	87.8	1.48
284	152.3	214.2	77.3	4.43
285	158.5	211.9	71.0	3.61
286	170.8	211.9	61.5	1.24
287	177.0	214.2	58.2	1.22
288	183.2	211.9	52.0	1.20
289	-21.0	218.8	190.3	2.50
290	-14.8	216.5	187.5	3.01
291	-8.6	218.8	175.8	1.77
292	-2.4	216.5	173.4	1.21
293	3.8	218.8	162.2	1.22
294	10.0	216.5	160.1	1.30
295	16.2	218.8	176.3	2.74
296	22.4	216.5	188.2	2.16
297	28.5	218.8	149.0	1.61
298	34.7	216.5	144.5	1.74
299	40.9	218.8	180.9	2.04
300	47.1	216.5	174.7	2.09
301	53.3	218.8	133.8	1.29
302	59.5	216.5	128.6	1.36
303	65.7	218.8	125.9	1.42
304	71.8	216.5	120.7	1.51
305	78.0	218.8	127.9	1.31
306	84.2	216.5	121.7	1.36
307	90.4	218.8	116.7	1.36
308	96.6	216.5	110.2	1.33
309	102.8	218.8	105.2	1.33
310	109.0	216.5	98.6	1.39
311	115.2	218.8	103.1	1.41
312	121.3	216.5	96.6	1.45
313	127.5	218.8	100.9	1.39
314	133.7	216.5	94.3	1.46
315	139.9	218.8	89.5	1.44
316	158.5	216.5	72.7	1.21
317	164.6	218.8	68.7	1.20
318	-33.3	223.4	196.3	1.19
319	-27.1	221.1	193.2	1.19
320	-21.0	223.4	181.0	1.12
321	-14.8	221.1	178.4	1.63
322	-8.6	223.4	180.5	1.82
323	-2.4	221.1	178.1	1.23
324	3.8	223.4	166.8	1.31
325	10.0	221.1	164.7	1.19
326	16.2	223.4	194.6	2.04
327	22.4	221.1	178.9	2.51
328	28.5	223.4	179.5	2.35

329	34.7	221.1	173.7	2.46
330	40.9	223.4	144.1	1.18
331	47.1	221.1	138.9	1.23
332	53.3	223.4	136.2	1.27
333	59.5	221.1	131.1	1.34
334	65.7	223.4	149.6	2.87
335	71.8	221.1	133.5	1.30
336	78.0	223.4	129.8	1.35
337	84.2	221.1	123.2	1.37
338	90.4	223.4	118.3	2.16
339	96.6	221.1	121.3	2.99
340	102.8	223.4	106.9	1.33
341	109.0	221.1	119.1	3.10
342	115.2	223.4	104.8	1.45
343	121.3	221.1	98.2	1.52
344	139.9	223.4	91.4	1.38
345	152.3	223.4	80.6	1.18
346	158.5	221.1	74.7	1.19
347	-21.0	228.0	185.6	1.11
348	-14.8	225.7	183.0	1.68
349	-8.6	228.0	185.1	1.88
350	-2.4	225.7	182.7	1.23
351	3.8	228.0	171.4	1.37
352	10.0	225.7	169.3	1.20
353	16.2	228.0	171.8	2.59
354	22.4	225.7	183.5	2.44
355	28.5	228.0	154.4	1.16
356	34.7	225.7	149.3	1.16
357	40.9	228.0	158.9	1.23
358	47.1	225.7	153.4	1.76
359	53.3	228.0	150.0	1.29
360	59.5	225.7	144.5	1.29
361	65.7	228.0	141.2	1.31
362	71.8	225.7	135.7	2.96
363	78.0	228.0	131.4	1.34
364	84.2	225.7	124.9	1.32
365	90.4	228.0	129.4	2.44
366	96.6	225.7	113.4	1.29
367	102.8	228.0	118.0	2.98
368	109.0	225.7	111.4	2.69
369	115.2	228.0	106.6	1.55
370	121.3	225.7	109.2	1.40
371	-39.5	230.3	204.1	1.45
372	-21.0	232.7	190.2	1.15
373	-14.8	230.3	187.6	1.74
374	-8.6	232.7	189.7	1.93
375	-2.4	230.3	187.3	1.20
376	3.8	232.7	176.0	1.42
377	10.0	230.3	174.0	1.22

378	16.2	232.7	203.8	2.01
379	22.4	230.3	200.8	2.04
380	28.5	232.7	169.9	1.21
381	34.7	230.3	164.4	1.22
382	40.9	232.7	161.1	1.29
383	47.1	230.3	155.6	1.29
384	53.3	232.7	152.3	2.63
385	59.5	230.3	157.3	2.91
386	65.7	232.7	163.4	2.55
387	71.8	230.3	137.9	1.33
388	78.0	232.7	133.1	1.29
389	84.2	230.3	126.6	2.01
390	90.4	232.7	121.8	1.25
391	96.6	230.3	124.6	1.40
392	102.8	232.7	129.0	3.08
393	109.0	230.3	113.2	1.45
394	115.2	232.7	108.5	1.73
395	146.1	230.3	89.1	1.17
396	-33.3	237.3	210.0	1.19
397	-21.0	237.3	208.7	3.02
398	-14.8	235.0	192.2	1.79
399	-8.6	237.3	194.3	1.22
400	-2.4	235.0	191.9	2.26
401	3.8	237.3	180.7	1.20
402	10.0	235.0	178.6	1.23
403	16.2	237.3	208.5	1.98
404	22.4	235.0	202.2	2.04
405	28.5	237.3	172.1	1.27
406	34.7	235.0	166.6	1.28
407	40.9	237.3	163.3	1.29
408	47.1	235.0	157.8	1.29
409	53.3	237.3	154.6	1.27
410	59.5	235.0	149.0	2.41
411	65.7	237.3	145.9	1.30
412	71.8	235.0	139.7	1.31
413	78.0	237.3	153.7	2.90
414	84.2	235.0	137.7	1.47
415	90.4	237.3	132.9	1.39
416	96.6	235.0	126.3	2.69
417	102.8	237.3	121.7	1.46
418	109.0	235.0	124.3	1.35
419	139.9	237.3	98.0	1.16
420	-27.1	239.6	197.6	1.13
421	-21.0	241.9	199.5	1.72
422	-14.8	239.6	196.8	1.84
423	-8.6	241.9	198.9	1.23
424	-2.4	239.6	182.9	1.33
425	3.8	241.9	185.3	1.22
426	10.0	239.6	183.2	1.23

427	16.2	241.9	183.2	1.24
428	22.4	239.6	177.7	1.26
429	28.5	241.9	174.4	1.27
430	34.7	239.6	168.9	1.28
431	40.9	241.9	165.7	1.26
432	47.1	239.6	160.1	2.45
433	53.3	241.9	167.3	3.04
434	59.5	239.6	151.4	1.28
435	65.7	241.9	148.0	1.29
436	71.8	239.6	141.5	1.82
437	78.0	241.9	136.8	1.19
438	84.2	239.6	139.5	1.40
439	90.4	241.9	134.8	2.48
440	96.6	239.6	137.4	2.89
441	102.8	241.9	123.7	1.59
442	109.0	239.6	126.2	1.39
443	115.2	241.9	121.8	1.40
444	121.3	239.6	115.2	1.40
445	127.5	241.9	111.0	2.38
446	-33.3	246.5	219.2	1.16
447	-27.1	244.2	202.2	1.17
448	-21.0	246.5	204.1	1.77
449	-14.8	244.2	201.4	1.89
450	-8.6	246.5	203.5	1.20
451	-2.4	244.2	187.5	1.40
452	3.8	246.5	189.9	1.24
453	10.0	244.2	187.8	1.23
454	16.2	246.5	185.5	1.25
455	22.4	244.2	179.9	1.26
456	28.5	246.5	176.7	1.26
457	34.7	244.2	171.2	1.26
458	40.9	246.5	190.1	2.42
459	47.1	244.2	162.5	2.09
460	53.3	246.5	159.4	1.28
461	59.5	244.2	153.8	1.30
462	65.7	246.5	149.9	1.73
463	71.8	244.2	162.0	2.88
464	78.0	246.5	148.0	1.38
465	84.2	244.2	141.4	1.37
466	90.4	246.5	146.0	2.84
467	96.6	244.2	130.2	1.44
468	102.8	246.5	125.8	1.56
469	115.2	246.5	124.0	1.40
470	-33.3	251.2	223.8	2.22
471	-27.1	248.8	206.8	1.20
472	-21.0	251.2	208.7	1.82
473	-14.8	248.8	206.0	1.94
474	-8.6	251.2	208.2	1.99
475	-2.4	248.8	192.1	1.45

476	3.8	251.2	194.5	1.24
477	10.0	248.8	191.0	1.24
478	16.2	251.2	187.8	1.25
479	22.4	248.8	182.3	1.26
480	28.5	251.2	179.1	2.02
481	34.7	248.8	173.6	2.15
482	40.9	251.2	181.2	3.03
483	47.1	248.8	185.7	2.53
484	53.3	251.2	161.9	1.27
485	59.5	248.8	156.4	1.28
486	65.7	251.2	170.4	2.84
487	71.8	248.8	145.3	1.19
488	78.0	251.2	149.9	1.37
489	84.2	248.8	143.4	2.31
490	90.4	251.2	138.9	1.41
491	96.6	248.8	141.4	1.37
492	109.0	248.8	130.5	1.39
493	115.2	251.2	126.3	1.38
494	121.3	248.8	119.8	2.21
495	-33.3	255.8	214.3	1.17
496	-27.1	253.5	211.4	1.24
497	-21.0	255.8	213.3	1.87
498	-14.8	253.5	210.7	1.99
499	-8.6	255.8	226.5	2.40
500	-2.4	253.5	196.7	1.50
501	3.8	255.8	198.5	1.24
502	10.0	253.5	193.3	1.25
503	16.2	255.8	190.2	1.25
504	22.4	253.5	184.7	1.25
505	28.5	255.8	193.0	3.05
506	34.7	253.5	176.0	1.87
507	40.9	255.8	173.0	1.24
508	47.1	253.5	167.5	1.26
509	53.3	255.8	164.5	1.61
510	59.5	253.5	158.4	1.66
511	65.7	255.8	163.1	1.36
512	71.8	253.5	156.5	1.37
513	78.0	255.8	152.0	2.18
514	84.2	253.5	154.6	2.62
515	90.4	255.8	150.1	1.37
516	102.8	255.8	139.3	1.38
517	109.0	253.5	132.8	1.39
518	-39.5	258.1	231.4	1.18
519	-33.3	260.4	218.9	1.22
520	-21.0	260.4	217.9	1.91
521	-14.8	258.1	215.3	1.22
522	-8.6	260.4	203.7	1.42
523	-2.4	258.1	201.4	1.24
524	3.8	260.4	201.0	1.25

525	10.0	258.1	195.7	1.25
526	16.2	260.4	192.7	1.84
527	22.4	258.1	187.1	1.93
528	28.5	260.4	195.2	3.09
529	34.7	258.1	189.3	2.98
530	40.9	260.4	175.6	1.49
531	47.1	258.1	170.0	1.55
532	53.3	260.4	176.2	1.29
533	59.5	258.1	160.4	1.14
534	65.7	260.4	165.1	1.36
535	71.8	258.1	158.6	1.36
536	78.0	260.4	163.2	2.32
537	84.2	258.1	147.6	1.44
538	96.6	258.1	145.8	2.62
539	102.8	260.4	141.7	1.39
540	109.0	258.1	135.2	1.38
541	-39.5	262.7	236.0	1.15
542	-33.3	265.0	223.5	1.25
543	-27.1	262.7	220.6	1.80
544	-21.0	265.0	222.5	1.96
545	-14.8	262.7	219.9	1.19
546	-8.6	265.0	208.3	1.48
547	-2.4	262.7	206.0	1.25
548	3.8	265.0	203.4	1.26
549	10.0	262.7	198.2	1.25
550	16.2	265.0	218.9	2.40
551	22.4	262.7	189.7	1.71
552	28.5	265.0	186.7	1.38
553	34.7	262.7	181.1	1.44
554	40.9	265.0	178.2	1.49
555	47.1	262.7	172.7	1.54
556	53.3	265.0	187.4	2.94
557	59.5	262.7	171.7	1.36
558	65.7	265.0	167.2	1.34
559	78.0	265.0	156.3	1.41
560	84.2	262.7	149.8	1.43
561	96.6	262.7	148.2	1.37
562	-33.3	269.6	228.0	1.29
563	-27.1	267.3	225.2	1.84
564	-21.0	269.6	227.1	2.01
565	-14.8	267.3	224.5	1.78
566	-8.6	269.6	212.9	1.53
567	-2.4	267.3	208.7	1.26
568	3.8	269.6	206.0	1.69
569	10.0	267.3	200.7	1.76
570	16.2	269.6	209.3	3.02
571	22.4	267.3	214.6	2.47
572	28.5	269.6	189.3	1.40
573	34.7	267.3	183.8	1.44

574	40.9	269.6	190.5	2.64
575	47.1	267.3	184.7	1.31
576	53.3	269.6	180.3	1.35
577	59.5	267.3	173.8	1.36
578	65.7	269.6	178.5	2.58
579	71.8	267.3	171.9	1.99
580	78.0	269.6	158.6	1.39
581	84.2	267.3	161.2	2.63
582	90.4	269.6	157.1	1.36
583	96.6	267.3	150.6	1.39
584	102.8	269.6	146.7	1.89
585	-39.5	272.0	231.0	1.21
586	-27.1	272.0	229.8	1.89
587	-14.8	272.0	242.9	2.31
588	-2.4	272.0	211.2	1.62
589	10.0	272.0	227.1	2.38
590	22.4	272.0	194.9	1.35
591	34.7	272.0	196.4	1.28
592	59.5	272.0	175.9	1.90
593	71.8	272.0	174.2	1.35
594	96.6	272.0	153.1	1.41

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10 Stato di progetto – Sezione E – condizioni statiche

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-45.54 m
Ordinata vertice sinistro inferiore yi	97.63 m
Ascissa vertice destro superiore xs	179.93 m
Ordinata vertice destro superiore ys	182.52 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	
Classe d'uso:	
Vita nominale:	0.0 [anni]
Vita di riferimento:	0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:
Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficiente azione sismica verticale

0.028

Vertici profilo

Nr	X (m)	y (m)
1	0.0	0.0
2	2.6	1.5
3	4.33	2.43
4	5.2	2.96
5	6.93	4.16
6	7.8	4.91
7	9.53	6.29
8	11.27	7.36
9	12.13	7.79
10	13.86	8.12
11	15.6	8.69
12	16.46	9.12
13	18.2	9.82
14	19.93	10.47
15	21.66	11.34
16	27.88	11.34
17	31.2	16.4
18	32.93	17.22
19	33.8	17.75
20	34.66	18.28
21	35.53	19.06
22	36.4	19.84
23	38.13	20.94
24	39.0	21.58
25	41.59	24.21
26	44.19	25.18
27	55.18	25.18
28	56.66	26.81
29	58.13	28.29
30	59.79	29.77
31	60.66	30.53
32	62.39	32.46
33	63.26	33.07
34	67.59	36.11
35	71.06	38.33
36	73.66	40.17
37	76.26	41.73
38	77.99	43.28
39	79.72	43.76
40	81.46	42.79
41	87.52	43.06
42	89.26	43.79
43	95.32	46.93
44	97.05	48.69
45	101.39	51.9
46	103.12	53.38
47	105.72	55.18

48	107.45	56.93
49	110.05	58.57
50	111.79	59.92
51	116.12	63.22
52	120.45	67.23
53	125.65	71.41
54	127.78	72.59
55	142.85	72.59
56	169.95	95.79
57	180.88	95.81
58	181.98	98.26
59	183.71	99.2
60	185.44	99.97
61	187.18	100.95

Falda

Nr.	X (m)	y (m)
1	187.18	88.32
2	143.3	65.63
3	123.15	56.49
4	80.31	24.53
5	56.62	12.35
6	48.38	7.45
7	28.31	-1.7
8	16.34	-7.67
9	7.17	-12.72
10	0.0	-16.73

Vertici strato1

N	X (m)	y (m)
1	0.0	-19.03
2	8.14	-14.47
3	17.27	-9.45
4	29.17	-3.5
5	49.31	5.67
6	57.59	10.59
7	81.38	22.83
8	124.18	54.76
9	144.18	63.83
10	187.18	86.07

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili

1.0 1.0

Favorevoli: Permanenti, variabili

1.0 1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio

1.25

Coesione efficace

1.25

Coesione non drenata

1.4

Riduzione parametri geotecnici terreno

No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	45	1900	2100.00		
2	5		45	2700	2700		

Risultati analisi pendio

Fs minimo individuato 1.12
 Ascissa centro superficie 50.28 m
 Ordinata centro superficie 150.69 m
 Raggio superficie 109.43 m

B: Larghezza del concio; Alfa: Angolo di inclinazione della base del concio; Li: Lunghezza della base del concio; Wi: Peso del concio ; Ui: Forze derivanti dalle pressioni neutre; Ni: forze agenti normalmente alla direzione di scivolamento; Ti: forze agenti parallelamente alla superficie di scivolamento; Fi: Angolo di attrito; c: coesione.

xc = 50.285 yc = 150.686 Rc = 109.425 Fs=1.124

Nr.	B m	Alfa (°)	Li m	Wi (Kg)	Kh•Wi (Kg)	Kv•Wi (Kg)	c (kg/cm2)	Fi (°)	Ui (Kg)	N'i (Kg)	Ti (Kg)
1	0.19	37.3	0.2	5.45	0.0	0.15	0.0	45.0	0.0	4.1	3.6
2	0.19	37.4	0.2	16.18	0.0	0.45	0.0	45.0	0.0	12.1	10.8
3	0.19	37.5	0.2	26.68	0.0	0.75	0.0	45.0	0.0	20.0	17.8
4	0.19	37.6	0.2	36.96	0.0	1.03	0.0	45.0	0.0	27.7	24.6
5	0.19	37.8	0.2	47.0	0.0	1.32	0.0	45.0	0.0	35.2	31.3
6	0.19	37.9	0.2	56.83	0.0	1.59	0.0	45.0	0.0	42.5	37.9
7	0.19	38.0	0.2	66.41	0.0	1.86	0.0	45.0	0.0	49.7	44.2
8	0.19	38.1	0.2	75.77	0.0	2.12	0.0	45.0	0.0	56.7	50.5
9	0.19	38.3	0.2	84.9	0.0	2.38	0.0	45.0	0.0	63.5	56.5
10	0.19	38.4	0.2	93.8	0.0	2.63	0.0	45.0	0.0	70.2	62.5
11	0.19	38.5	0.2	102.45	0.0	2.87	0.0	45.0	0.0	76.7	68.2
12	0.19	38.6	0.2	110.88	0.0	3.1	0.0	45.0	0.0	82.9	73.8
13	0.19	38.8	0.2	119.07	0.0	3.33	0.0	45.0	0.0	89.1	79.3
14	0.19	38.9	0.2	127.01	0.0	3.56	0.0	45.0	0.0	95.0	84.5
15	0.19	39.0	0.2	134.72	0.0	3.77	0.0	45.0	0.0	100.7	89.7
16	0.19	39.1	0.2	142.19	0.0	3.98	0.0	45.0	0.0	106.3	94.6
17	0.19	39.3	0.2	149.41	0.0	4.18	0.0	45.0	0.0	111.7	99.4
18	0.19	39.4	0.2	156.4	0.0	4.38	0.0	45.0	0.0	116.9	104.1
19	0.19	39.5	0.2	163.13	0.0	4.57	0.0	45.0	0.0	122.0	108.5
20	0.19	39.6	0.2	169.63	0.0	4.75	0.0	45.0	0.0	126.8	112.8
21	0.26	39.8	0.3	244.65	0.0	6.85	0.0	45.0	0.0	182.9	162.7
22	0.12	39.9	0.2	111.57	0.0	3.12	0.0	45.0	0.0	83.4	74.2

23	0.19	40.0	0.2	178.66	0.0	5.0	0.0	45.0	0.0	133.5	118.8
24	0.19	40.2	0.2	176.15	0.0	4.93	0.0	45.0	0.0	131.6	117.1
25	0.19	40.3	0.2	173.39	0.0	4.85	0.0	45.0	0.0	129.6	115.3
26	0.19	40.4	0.2	170.37	0.0	4.77	0.0	45.0	0.0	127.3	113.3
27	0.19	40.5	0.2	167.09	0.0	4.68	0.0	45.0	0.0	124.8	111.1
28	0.19	40.7	0.2	163.56	0.0	4.58	0.0	45.0	0.0	122.2	108.8
29	0.19	40.8	0.2	159.76	0.0	4.47	0.0	45.0	0.0	119.4	106.2
30	0.19	40.9	0.2	155.71	0.0	4.36	0.0	45.0	0.0	116.3	103.5
31	0.19	41.1	0.2	151.4	0.0	4.24	0.0	45.0	0.0	113.1	100.7
32	0.19	41.2	0.2	146.82	0.0	4.11	0.0	45.0	0.0	109.7	97.6
33	0.19	41.3	0.2	141.98	0.0	3.98	0.0	45.0	0.0	106.1	94.4
34	0.19	41.4	0.2	136.87	0.0	3.83	0.0	45.0	0.0	102.2	91.0
35	0.19	41.6	0.2	131.5	0.0	3.68	0.0	45.0	0.0	98.2	87.4
36	0.19	41.7	0.3	125.85	0.0	3.52	0.0	45.0	0.0	94.0	83.7
37	0.19	41.8	0.3	119.93	0.0	3.36	0.0	45.0	0.0	89.6	79.7
38	0.19	42.0	0.3	113.74	0.0	3.18	0.0	45.0	0.0	85.0	75.6
39	0.19	42.1	0.3	107.27	0.0	3.0	0.0	45.0	0.0	80.1	71.3
40	0.19	42.2	0.3	100.54	0.0	2.81	0.0	45.0	0.0	75.1	66.8
41	0.19	42.4	0.3	93.52	0.0	2.62	0.0	45.0	0.0	69.9	62.2
42	0.19	42.5	0.3	86.21	0.0	2.41	0.0	45.0	0.0	64.4	57.3
43	0.19	42.6	0.3	78.63	0.0	2.2	0.0	45.0	0.0	58.7	52.3
44	0.19	42.8	0.3	70.76	0.0	1.98	0.0	45.0	0.0	52.9	47.1
45	0.19	42.9	0.3	62.61	0.0	1.75	0.0	45.0	0.0	46.8	41.6
46	0.19	43.0	0.3	54.18	0.0	1.52	0.0	45.0	0.0	40.5	36.0
47	0.19	43.2	0.3	45.45	0.0	1.27	0.0	45.0	0.0	34.0	30.2
48	0.19	43.3	0.3	36.43	0.0	1.02	0.0	45.0	0.0	27.2	24.2
49	0.19	43.4	0.3	27.12	0.0	0.76	0.0	45.0	0.0	20.3	18.0
50	0.19	43.6	0.3	13.16	0.0	0.37	0.0	45.0	0.0	9.8	8.8

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11 Stato di progetto – Sezione E – condizioni sismiche

Analisi di stabilità dei pendii con : BISHOP (1955)

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=====
Lat./Long.                               44.105751/10.143667 °
Calcolo eseguito secondo                  NTC 2018
Numero di strati                          2.0
Numero dei conci                         50.0
Grado di sicurezza ritenuto accettabile  1.3
Coefficiente parziale resistenza        1.0
Analisi                                  Condizione drenata
Superficie di forma circolare
=====
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Maglia dei Centri

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=====
Ascissa vertice sinistro inferiore xi    -45.54 m
Ordinata vertice sinistro inferiore yi   97.63 m
Ascissa vertice destro superiore xs     179.93 m
Ordinata vertice destro superiore ys    182.52 m
Passo di ricerca                         10.0
Numero di celle lungo x                 20.0
Numero di celle lungo y                 20.0
=====
```

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera: 2 - Opere ordinarie
Classe d'uso: Classe II
Vita nominale: 50.0 [anni]
Vita di riferimento: 50.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo: B
Categoria topografica: T2

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.5	2.451	0.238
S.L.D.	50.0	0.637	2.46	0.255
S.L.V.	475.0	1.598	2.395	0.288
S.L.C.	975.0	2.05	2.385	0.293

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L.	amax	beta	kh	kv
------	------	------	----	----

Stato limite	[m/s ²]	[-]	[-]	[sec]
S.L.O.	0.72	0.2	0.0147	0.0073
S.L.D.	0.9173	0.2	0.0187	0.0094
S.L.V.	2.3011	0.24	0.0563	0.0282
S.L.C.	2.952	0.28	0.0843	0.0421

Coefficiente azione sismica orizzontale 0.0563

Coefficiente azione sismica verticale 0.0282

Vertici profilo

Nr	X (m)	y (m)
1	0.0	0.0
2	2.6	1.5
3	4.33	2.43
4	5.2	2.96
5	6.93	4.16
6	7.8	4.91
7	9.53	6.29
8	11.27	7.36
9	12.13	7.79
10	13.86	8.12
11	15.6	8.69
12	16.46	9.12
13	18.2	9.82
14	19.93	10.47
15	21.66	11.34
16	27.88	11.34
17	31.2	16.4
18	32.93	17.22
19	33.8	17.75
20	34.66	18.28
21	35.53	19.06
22	36.4	19.84
23	38.13	20.94
24	39.0	21.58
25	41.59	24.21
26	44.19	25.18
27	55.18	25.18
28	56.66	26.81
29	58.13	28.29
30	59.79	29.77
31	60.66	30.53
32	62.39	32.46
33	63.26	33.07
34	67.59	36.11
35	71.06	38.33
36	73.66	40.17
37	76.26	41.73

38	77.99	43.28
39	79.72	43.76
40	81.46	42.79
41	87.52	43.06
42	89.26	43.79
43	95.32	46.93
44	97.05	48.69
45	101.39	51.9
46	103.12	53.38
47	105.72	55.18
48	107.45	56.93
49	110.05	58.57
50	111.79	59.92
51	116.12	63.22
52	120.45	67.23
53	125.65	71.41
54	127.78	72.59
55	142.85	72.59
56	169.95	95.79
57	180.88	95.81
58	181.98	98.26
59	183.71	99.2
60	185.44	99.97
61	187.18	100.95

Falda

Nr.	X (m)	y (m)
1	187.18	88.32
2	143.3	65.63
3	123.15	56.49
4	80.31	24.53
5	56.62	12.35
6	48.38	7.45
7	28.31	-1.7
8	16.34	-7.67
9	7.17	-12.72
10	0.0	-16.73

Vertici strato1

N	X (m)	y (m)
1	0.0	-19.03
2	8.14	-14.47
3	17.27	-9.45
4	29.17	-3.5
5	49.31	5.67
6	57.59	10.59
7	81.38	22.83
8	124.18	54.76

9	144.18	63.83
10	187.18	86.07

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	45	1900	2100.00		
2	5		45	2700	2700		

Risultati analisi pendio

Fs minimo individuato	1.0
Ascissa centro superficie	50.28 m
Ordinata centro superficie	150.69 m
Raggio superficie	109.43 m

Numero di superfici esaminate....(523)

N°	Xo	Yo	Ro	Fs
1	-6.1	99.8	90.4	1.36
2	16.5	99.8	91.4	1.81
3	22.1	97.6	80.5	1.68
4	27.7	99.8	83.7	1.86
5	33.4	97.6	71.8	1.35
6	39.0	99.8	73.9	1.65
7	44.6	97.6	71.8	1.83
8	50.3	99.8	63.9	1.76
9	55.9	97.6	71.7	1.81
10	61.6	99.8	63.9	2.03
11	67.2	97.6	61.8	1.79

12	72.8	99.8	63.9	1.70
13	78.5	97.6	51.8	1.15
14	84.1	99.8	52.3	1.20
15	89.7	97.6	49.7	1.35
16	95.4	99.8	47.9	1.45
17	101.0	97.6	44.1	1.61
18	106.7	99.8	34.7	1.30
19	112.3	97.6	30.8	1.66
20	117.9	99.8	41.7	2.35
21	123.6	97.6	38.2	2.45
22	129.2	99.8	34.9	2.52
23	134.8	97.6	26.5	2.05
24	140.5	99.8	28.2	1.45
25	146.1	97.6	25.0	1.52
26	151.7	99.8	21.8	1.54
27	157.4	97.6	15.0	1.62
28	163.0	99.8	9.7	1.47
29	168.7	97.6	3.9	2.42
30	174.3	99.8	11.7	5.22
31	179.9	97.6	2.5	2.40
32	-6.1	104.0	94.6	1.46
33	-0.4	101.9	92.3	1.69
34	16.5	104.0	85.9	2.43
35	22.1	101.9	84.7	1.69
36	27.7	104.0	87.8	1.88
37	33.4	101.9	76.0	1.43
38	39.0	104.0	78.1	1.73
39	44.6	101.9	76.0	1.83
40	50.3	104.0	78.1	1.77
41	55.9	101.9	76.0	1.76
42	61.6	104.0	68.2	1.86
43	67.2	101.9	66.0	1.70
44	72.8	104.0	68.1	1.69
45	78.5	101.9	56.1	1.14
46	84.1	104.0	53.5	1.11
47	89.7	101.9	49.7	1.20
48	95.4	104.0	48.7	1.35
49	101.0	101.9	46.2	1.59
50	106.7	104.0	44.4	1.82
51	112.3	101.9	39.6	2.10
52	117.9	104.0	42.3	2.46
53	123.6	101.9	38.5	2.54
54	129.2	104.0	40.7	2.24
55	134.8	101.9	32.3	1.98
56	140.5	104.0	33.2	1.57
57	146.1	101.9	24.9	1.29
58	151.7	104.0	21.4	1.26
59	157.4	101.9	15.1	1.26
60	163.0	104.0	12.3	1.52

61	168.7	101.9	7.5	3.07
62	174.3	104.0	11.9	4.61
63	179.9	101.9	5.9	1.35
64	-6.1	108.2	98.8	1.55
65	-0.4	106.1	96.6	1.76
66	5.2	108.2	98.8	4.21
67	16.5	108.2	90.1	2.52
68	22.1	106.1	88.8	1.72
69	27.7	108.2	91.9	1.89
70	33.4	106.1	80.2	1.52
71	39.0	108.2	82.4	1.79
72	44.6	106.1	80.2	1.80
73	50.3	108.2	82.4	1.73
74	55.9	106.1	80.2	1.73
75	61.6	108.2	72.4	1.72
76	67.2	106.1	70.3	1.64
77	72.8	108.2	62.4	1.14
78	78.5	106.1	59.3	1.13
79	84.1	108.2	64.5	1.47
80	89.7	106.1	58.7	1.51
81	95.4	108.2	56.5	1.62
82	101.0	106.1	47.7	1.55
83	106.7	108.2	46.7	1.85
84	112.3	106.1	41.2	2.14
85	117.9	108.2	50.2	2.10
86	123.6	106.1	44.9	2.22
87	129.2	108.2	41.0	2.08
88	134.8	106.1	36.9	1.84
89	140.5	108.2	33.6	1.23
90	146.1	106.1	29.2	1.35
91	151.7	108.2	25.5	1.38
92	157.4	106.1	18.4	1.35
93	163.0	108.2	15.6	1.79
94	168.7	106.1	17.3	3.10
95	-6.1	112.5	103.1	1.63
96	10.8	110.4	101.3	1.73
97	16.5	112.5	94.3	2.62
98	22.1	110.4	93.0	1.75
99	27.7	112.5	86.2	1.32
100	33.4	110.4	84.5	1.60
101	39.0	112.5	96.6	1.82
102	44.6	110.4	84.5	1.77
103	50.3	112.5	86.6	1.69
104	55.9	110.4	84.5	1.68
105	61.6	112.5	76.6	1.62
106	67.2	110.4	74.5	1.62
107	72.8	112.5	65.9	1.10
108	78.5	110.4	60.6	1.02
109	84.1	112.5	65.6	1.41

110	89.7	110.4	59.8	1.45
111	95.4	112.5	55.9	1.47
112	101.0	110.4	46.7	1.36
113	106.7	112.5	45.8	1.73
114	112.3	110.4	42.9	2.21
115	117.9	112.5	51.5	2.11
116	123.6	110.4	45.7	2.19
117	129.2	112.5	47.3	1.98
118	134.8	110.4	42.8	1.90
119	140.5	112.5	34.0	1.09
120	146.1	110.4	30.2	1.23
121	151.7	112.5	26.2	1.21
122	157.4	110.4	22.0	1.50
123	163.0	112.5	21.5	2.27
124	168.7	110.4	18.8	3.73
125	-6.1	116.7	107.3	1.71
126	-0.4	114.6	105.1	1.90
127	10.8	114.6	105.5	1.76
128	16.5	116.7	108.2	1.86
129	22.1	114.6	97.2	1.79
130	27.7	116.7	90.3	1.42
131	33.4	114.6	88.7	1.68
132	39.0	116.7	90.9	1.81
133	44.6	114.6	88.7	1.73
134	50.3	116.7	90.9	1.66
135	55.9	114.6	88.7	1.64
136	61.6	116.7	80.9	1.57
137	67.2	114.6	78.8	1.62
138	72.8	116.7	77.4	1.56
139	78.5	114.6	90.5	3.36
140	84.1	116.7	66.9	1.36
141	89.7	114.6	61.0	1.39
142	95.4	116.7	56.5	1.40
143	101.0	114.6	54.1	1.68
144	106.7	116.7	52.4	2.00
145	112.3	114.6	57.3	2.02
146	117.9	116.7	59.0	1.88
147	123.6	114.6	53.1	1.98
148	129.2	116.7	48.6	1.79
149	134.8	114.6	43.4	1.48
150	140.5	116.7	39.7	1.26
151	146.1	114.6	30.5	1.04
152	151.7	116.7	31.6	1.49
153	157.4	114.6	26.3	1.73
154	163.0	116.7	23.2	2.46
155	168.7	114.6	20.8	4.39
156	-11.7	118.9	109.6	1.50
157	-6.1	121.0	111.6	1.78
158	10.8	118.9	100.1	2.39

159	16.5	121.0	102.8	2.79
160	22.1	118.9	101.4	1.82
161	27.7	121.0	94.5	1.51
162	33.4	118.9	93.0	1.75
163	39.0	121.0	95.1	1.76
164	44.6	118.9	93.0	1.68
165	50.3	121.0	95.1	1.65
166	55.9	118.9	83.0	1.69
167	61.6	121.0	85.1	1.55
168	67.2	118.9	82.1	1.59
169	72.8	121.0	97.4	3.31
170	78.5	118.9	72.8	1.34
171	84.1	121.0	68.3	1.30
172	89.7	118.9	62.4	1.33
173	95.4	121.0	66.9	1.77
174	101.0	118.9	62.2	1.94
175	106.7	121.0	67.5	1.79
176	112.3	118.9	57.4	2.15
177	117.9	121.0	60.4	1.91
178	123.6	118.9	54.5	1.91
179	129.2	121.0	55.8	1.92
180	134.8	118.9	44.3	1.17
181	140.5	121.0	40.9	1.18
182	146.1	118.9	35.9	1.28
183	151.7	121.0	32.7	1.41
184	157.4	118.9	28.1	1.75
185	-11.7	123.1	113.8	1.58
186	-6.1	125.2	115.8	1.85
187	5.2	125.2	115.8	4.68
188	10.8	123.1	114.0	1.80
189	16.5	125.2	107.0	2.88
190	22.1	123.1	115.3	1.79
191	27.7	125.2	98.7	1.59
192	33.4	123.1	107.2	1.79
193	39.0	125.2	99.3	1.71
194	44.6	123.1	97.2	1.64
195	50.3	125.2	99.3	1.64
196	55.9	123.1	87.3	1.56
197	61.6	125.2	88.6	1.52
198	67.2	123.1	84.2	1.49
199	72.8	125.2	80.1	1.28
200	78.5	123.1	74.2	1.29
201	84.1	125.2	69.8	1.24
202	89.7	123.1	63.8	1.29
203	95.4	125.2	68.3	1.75
204	101.0	123.1	71.2	1.79
205	106.7	125.2	67.9	1.90
206	112.3	123.1	64.3	1.89
207	117.9	125.2	61.3	1.86

208	123.6	123.1	56.1	1.79
209	129.2	125.2	52.0	1.12
210	134.8	123.1	46.1	1.12
211	140.5	125.2	42.2	1.07
212	146.1	123.1	37.4	1.20
213	151.7	125.2	38.7	1.72
214	157.4	123.1	33.5	2.05
215	-11.7	127.3	117.9	1.65
216	-6.1	129.5	119.9	1.91
217	-0.4	127.3	117.8	1.62
218	5.2	129.5	120.0	4.79
219	10.8	127.3	118.2	1.81
220	16.5	129.5	111.2	2.96
221	22.1	127.3	109.8	1.85
222	27.7	129.5	102.9	1.67
223	33.4	127.3	111.4	1.75
224	39.0	129.5	103.6	1.66
225	44.6	127.3	101.5	1.62
226	50.3	129.5	103.6	1.62
227	55.9	127.3	91.5	1.50
228	61.6	129.5	90.8	1.41
229	67.2	127.3	104.4	3.32
230	72.8	129.5	81.6	1.22
231	78.5	127.3	75.7	1.22
232	84.1	129.5	80.2	1.60
233	89.7	127.3	74.3	1.66
234	95.4	129.5	69.8	1.75
235	101.0	127.3	72.6	1.86
236	106.7	129.5	68.5	2.05
237	112.3	127.3	64.9	1.94
238	117.9	129.5	62.0	3.64
239	123.6	127.3	57.9	4.98
240	129.2	129.5	54.0	1.08
241	134.8	127.3	48.1	1.08
242	140.5	129.5	49.6	1.42
243	146.1	127.3	44.0	1.53
244	151.7	129.5	41.0	1.77
245	157.4	127.3	35.9	2.17
246	-11.7	131.6	122.1	1.72
247	-0.4	131.6	122.0	1.64
248	5.2	133.7	124.2	4.89
249	10.8	131.6	112.8	2.65
250	16.5	133.7	115.4	1.76
251	22.1	131.6	114.0	1.83
252	27.7	133.7	107.0	1.74
253	33.4	131.6	115.7	1.71
254	39.0	133.7	107.8	1.61
255	44.6	131.6	105.7	1.61
256	50.3	133.7	107.8	2.54

257	55.9	131.6	95.3	1.47
258	61.6	133.7	102.3	3.11
259	67.2	131.6	87.6	1.23
260	72.8	133.7	83.2	1.15
261	78.5	131.6	77.3	1.17
262	84.1	133.7	81.8	1.58
263	89.7	131.6	75.8	1.64
264	95.4	133.7	71.5	1.76
265	101.0	131.6	74.1	1.93
266	106.7	133.7	78.4	1.75
267	117.9	133.7	69.8	1.79
268	123.6	131.6	64.9	1.77
269	129.2	133.7	56.2	1.04
270	134.8	131.6	50.3	1.02
271	-17.4	138.0	128.6	1.62
272	-11.7	135.8	126.3	1.78
273	-6.1	138.0	128.3	2.03
274	5.2	138.0	128.5	5.00
275	10.8	135.8	126.7	1.79
276	16.5	138.0	129.3	1.76
277	22.1	135.8	118.1	1.80
278	27.7	138.0	121.1	1.72
279	33.4	135.8	110.0	1.73
280	39.0	138.0	112.1	1.58
281	44.6	135.8	110.0	1.61
282	50.3	138.0	102.0	1.43
283	55.9	135.8	107.1	2.99
284	61.6	138.0	95.1	1.18
285	67.2	135.8	89.2	1.17
286	72.8	138.0	93.7	1.49
287	78.5	135.8	87.7	1.53
288	84.1	138.0	83.4	1.55
289	89.7	135.8	77.4	1.64
290	95.4	138.0	81.8	1.90
291	101.0	135.8	84.4	3.38
292	106.7	138.0	80.1	1.76
293	112.3	135.8	66.5	3.16
294	117.9	138.0	71.2	1.69
295	134.8	135.8	57.8	1.37
296	-11.7	140.1	130.5	1.84
297	-6.1	142.2	132.5	1.62
298	5.2	142.2	123.2	1.28
299	10.8	140.1	130.9	1.77
300	16.5	142.2	133.5	1.72
301	22.1	140.1	112.6	1.52
302	27.7	142.2	125.2	1.71
303	33.4	140.1	114.1	1.66
304	39.0	142.2	116.3	1.58
305	44.6	140.1	114.2	1.62

306	50.3	142.2	114.1	1.62
307	55.9	140.1	109.2	1.88
308	61.6	142.2	96.8	1.11
309	67.2	140.1	90.9	1.10
310	72.8	142.2	95.4	1.47
311	78.5	140.1	89.4	1.51
312	84.1	142.2	85.2	1.55
313	89.7	140.1	79.2	1.65
314	95.4	142.2	83.6	2.04
315	101.0	140.1	77.6	2.25
316	106.7	142.2	73.6	2.70
317	117.9	142.2	72.9	4.23
318	123.6	140.1	68.1	6.96
319	129.2	142.2	65.3	1.29
320	140.5	142.2	57.3	1.51
321	-17.4	146.4	136.9	1.73
322	10.8	144.3	135.1	1.75
323	16.5	146.4	137.7	1.69
324	22.1	144.3	116.8	1.61
325	27.7	146.4	129.4	1.70
326	33.4	144.3	118.3	1.60
327	39.0	146.4	120.6	1.58
328	44.6	144.3	118.4	1.61
329	50.3	146.4	116.2	1.64
330	55.9	144.3	102.4	1.12
331	61.6	146.4	107.3	1.53
332	67.2	144.3	118.8	3.17
333	72.8	146.4	97.1	1.45
334	78.5	144.3	91.2	1.48
335	84.1	146.4	87.0	1.55
336	89.7	144.3	89.6	1.87
337	95.4	146.4	85.5	2.08
338	101.0	144.3	79.5	2.32
339	106.7	146.4	84.1	1.72
340	112.3	144.3	78.1	1.67
341	129.2	146.4	67.4	1.27
342	140.5	146.4	60.2	1.57
343	-17.4	150.7	141.1	1.79
344	-11.7	148.6	138.8	1.96
345	-6.1	150.7	140.9	1.66
346	-0.4	148.6	138.9	1.74
347	5.2	150.7	141.2	1.74
348	10.8	148.6	139.4	1.72
349	16.5	150.7	132.3	1.76
350	22.1	148.6	130.8	1.68
351	27.7	150.7	133.6	1.68
352	33.4	148.6	122.5	1.57
353	39.0	150.7	124.8	1.59
354	44.6	148.6	121.1	1.63

355	50.3	150.7	109.4	1.00
356	55.9	148.6	104.5	1.05
357	61.6	150.7	117.8	3.31
358	67.2	148.6	103.1	1.42
359	72.8	150.7	99.0	1.42
360	78.5	148.6	93.0	1.48
361	84.1	150.7	97.5	1.82
362	89.7	148.6	91.5	1.92
363	95.4	150.7	87.5	2.13
364	101.0	148.6	90.0	1.71
365	123.6	148.6	72.0	1.17
366	129.2	150.7	69.6	1.26
367	134.8	148.6	65.1	1.41
368	140.5	150.7	63.2	1.63
369	-17.4	154.9	145.3	1.85
370	-6.1	154.9	145.1	1.69
371	-0.4	152.8	143.1	1.76
372	5.2	154.9	145.5	1.72
373	10.8	152.8	134.0	3.03
374	16.5	154.9	136.5	1.71
375	22.1	152.8	135.0	1.66
376	27.7	154.9	137.8	1.65
377	33.4	152.8	126.7	1.55
378	39.0	154.9	128.2	1.60
379	44.6	152.8	123.3	1.61
380	50.3	154.9	120.8	1.58
381	55.9	152.8	115.1	1.51
382	61.6	154.9	110.9	1.38
383	67.2	152.8	104.9	1.40
384	72.8	154.9	100.9	1.42
385	78.5	152.8	94.9	1.47
386	84.1	154.9	99.5	1.82
387	89.7	152.8	93.5	1.95
388	95.4	154.9	98.1	1.69
389	101.0	152.8	92.2	1.71
390	112.3	152.8	82.7	3.78
391	117.9	154.9	79.4	1.08
392	123.6	152.8	74.1	1.14
393	-17.4	159.2	149.4	1.91
394	-11.7	157.1	147.2	2.08
395	-6.1	159.2	149.3	1.71
396	5.2	159.2	149.7	1.69
397	10.8	157.1	147.8	1.70
398	16.5	159.2	140.7	1.66
399	22.1	157.1	139.2	1.65
400	27.7	159.2	132.2	1.60
401	33.4	157.1	130.8	1.55
402	39.0	159.2	130.5	1.58
403	44.6	157.1	125.7	1.58

404	50.3	159.2	122.9	1.50
405	55.9	157.1	134.1	3.15
406	61.6	159.2	112.8	1.36
407	67.2	157.1	106.9	1.37
408	72.8	159.2	102.9	1.41
409	78.5	157.1	105.4	1.74
410	84.1	159.2	101.5	1.84
411	89.7	157.1	104.0	1.66
412	95.4	159.2	100.3	1.69
413	106.7	159.2	91.0	3.16
414	-11.7	161.3	151.3	2.13
415	-0.4	161.3	151.5	1.74
416	5.2	163.4	144.4	2.89
417	10.8	161.3	152.1	1.68
418	16.5	163.4	145.0	1.63
419	22.1	161.3	143.4	1.65
420	27.7	163.4	136.4	1.54
421	33.4	161.3	135.0	1.56
422	39.0	163.4	132.9	1.55
423	44.6	161.3	128.1	1.54
424	50.3	163.4	133.3	3.02
425	55.9	161.3	118.8	1.34
426	61.6	163.4	114.8	1.33
427	67.2	161.3	108.9	1.37
428	72.8	163.4	113.4	1.68
429	78.5	161.3	115.9	1.71
430	84.1	163.4	112.1	1.63
431	89.7	161.3	97.8	2.02
432	-23.0	165.5	156.0	1.82
433	-17.4	167.7	157.8	2.02
434	-6.1	167.7	157.6	1.76
435	-0.4	165.5	145.9	1.38
436	5.2	167.7	158.1	1.66
437	10.8	165.5	156.3	1.65
438	16.5	167.7	149.2	1.62
439	22.1	165.5	147.6	1.66
440	27.7	167.7	140.6	1.52
441	33.4	165.5	137.8	1.55
442	39.0	167.7	135.4	1.51
443	44.6	165.5	130.5	1.48
444	50.3	167.7	126.7	1.31
445	55.9	165.5	120.8	1.32
446	61.6	167.7	116.9	1.33
447	67.2	165.5	119.4	1.62
448	72.8	167.7	115.6	1.68
449	78.5	165.5	109.6	1.76
450	84.1	167.7	114.4	1.64
451	89.7	165.5	108.5	1.67
452	101.0	165.5	99.3	2.79

453	-23.0	169.8	160.2	1.87
454	-17.4	171.9	162.0	2.07
455	-6.1	171.9	161.8	1.76
456	-0.4	169.8	150.0	1.45
457	5.2	171.9	162.3	1.66
458	10.8	169.8	151.0	3.31
459	16.5	171.9	153.4	1.61
460	22.1	169.8	151.8	1.65
461	27.7	171.9	144.8	1.52
462	33.4	169.8	140.2	1.52
463	39.0	171.9	137.9	1.43
464	44.6	169.8	141.2	2.74
465	50.3	171.9	128.8	1.28
466	55.9	169.8	122.8	1.29
467	61.6	171.9	127.4	1.58
468	67.2	169.8	121.5	1.62
469	72.8	171.9	126.2	1.58
470	78.5	169.8	111.9	1.79
471	84.1	171.9	116.7	1.65
472	89.7	169.8	110.9	1.69
473	95.4	171.9	107.6	2.54
474	-23.0	174.0	164.3	1.92
475	-11.7	174.0	163.9	1.71
476	-6.1	176.2	166.0	1.73
477	-0.4	174.0	154.1	1.52
478	5.2	176.2	156.8	3.09
479	10.8	174.0	155.2	3.37
480	16.5	176.2	157.7	1.62
481	22.1	174.0	156.0	1.64
482	27.7	176.2	147.6	1.50
483	33.4	174.0	142.7	1.47
484	39.0	176.2	149.0	2.42
485	44.6	174.0	134.7	1.28
486	50.3	176.2	130.9	1.26
487	55.9	174.0	124.9	1.29
488	61.6	176.2	129.6	1.58
489	67.2	174.0	123.7	1.63
490	72.8	176.2	128.5	1.59
491	78.5	174.0	114.2	1.81
492	84.1	176.2	119.2	1.68
493	-23.0	178.3	168.5	1.97
494	-17.4	180.4	170.3	2.17
495	-11.7	178.3	168.1	1.73
496	-6.1	180.4	170.2	1.70
497	-0.4	178.3	158.3	1.58
498	5.2	180.4	161.0	3.16
499	10.8	178.3	159.4	1.58
500	16.5	180.4	161.9	1.63
501	22.1	178.3	150.6	1.50

502	27.7	180.4	150.1	1.45
503	33.4	178.3	145.3	2.52
504	39.0	180.4	151.2	1.64
505	44.6	178.3	136.8	1.25
506	50.3	180.4	133.0	1.25
507	55.9	178.3	135.5	1.54
508	61.6	180.4	140.2	1.53
509	67.2	178.3	134.3	1.56
510	72.8	180.4	130.8	1.60
511	84.1	180.4	121.7	2.16
512	89.7	178.3	115.9	2.36
513	-23.0	182.5	172.7	2.01
514	-11.7	182.5	172.3	1.76
515	-0.4	182.5	162.4	1.63
516	10.8	182.5	163.7	1.57
517	22.1	182.5	154.8	1.48
518	33.4	182.5	156.7	1.61
519	44.6	182.5	138.9	1.23
520	55.9	182.5	137.7	1.54
521	67.2	182.5	128.3	1.65
522	78.5	182.5	127.5	1.67
523	89.7	182.5	118.6	2.42

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12 Stato di progetto – Sezione E – condizioni post sisma

Analisi di stabilità dei pendii con : BISHOP (1955)

Calcolo eseguito secondo	NTC 2018
Numero di strati	2.0
Numero dei conci	50.0
Grado di sicurezza ritenuto accettabile	1.3
Coefficiente parziale resistenza	1.0
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	-45.54 m
Ordinata vertice sinistro inferiore yi	97.63 m
Ascissa vertice destro superiore xs	179.93 m
Ordinata vertice destro superiore ys	182.52 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	
Classe d'uso:	
Vita nominale:	0.0 [anni]
Vita di riferimento:	0.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:
Categoria topografica:

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s ²]	F0 [-]	TC* [sec]
S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficienti sismici orizzontali e verticali

Opera:

S.L. Stato limite	amax [m/s ²]	beta [-]	kh [-]	kv [sec]
----------------------	-----------------------------	-------------	-----------	-------------

S.L.O.	0.0	0.0	0.0	0.0
S.L.D.	0.0	0.0	0.0	0.0
S.L.V.	0.0	0.0	0.0	0.0
S.L.C.	0.0	0.0	0.0	0.0

Coefficiente azione sismica verticale 0.028

Vertici profilo

Nr	X (m)	y (m)
1	0.0	0.0
2	2.6	1.5
3	4.33	2.43
4	5.2	2.96
5	6.93	4.16
6	7.8	4.91
7	9.53	6.29
8	11.27	7.36
9	12.13	7.79
10	13.86	8.12
11	15.6	8.69
12	16.46	9.12
13	18.2	9.82
14	19.93	10.47
15	21.66	11.34
16	27.88	11.34
17	31.2	16.4
18	32.93	17.22
19	33.8	17.75
20	34.66	18.28
21	35.53	19.06
22	36.4	19.84
23	38.13	20.94
24	39.0	21.58
25	41.59	24.21
26	44.19	25.18
27	55.18	25.18
28	56.66	26.81
29	58.13	28.29
30	59.79	29.77
31	60.66	30.53
32	62.39	32.46
33	63.26	33.07
34	67.59	36.11
35	71.06	38.33
36	73.66	40.17
37	76.26	41.73
38	77.99	43.28
39	79.72	43.76

40	81.46	42.79
41	87.52	43.06
42	89.26	43.79
43	95.32	46.93
44	97.05	48.69
45	101.39	51.9
46	103.12	53.38
47	105.72	55.18
48	107.45	56.93
49	110.05	58.57
50	111.79	59.92
51	116.12	63.22
52	120.45	67.23
53	125.65	71.41
54	127.78	72.59
55	142.85	72.59
56	169.95	95.79
57	180.88	95.81
58	181.98	98.26
59	183.71	99.2
60	185.44	99.97
61	187.18	100.95

Falda

Nr.	X (m)	y (m)
1	187.18	88.32
2	143.3	65.63
3	123.15	56.49
4	80.31	24.53
5	56.62	12.35
6	48.38	7.45
7	28.31	-1.7
8	16.34	-7.67
9	7.17	-12.72
10	0.0	-16.73

Vertici strato1

N	X (m)	y (m)
1	0.0	-19.03
2	8.14	-14.47
3	17.27	-9.45
4	29.17	-3.5
5	49.31	5.67
6	57.59	10.59
7	81.38	22.83
8	124.18	54.76
9	144.18	63.83
10	187.18	86.07

Coefficienti parziali azioni

Sfavorevoli: Permanenti, variabili	1.0	1.0
Favorevoli: Permanenti, variabili	1.0	1.0

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	No

Stratigrafia

Strato	Coesione (kg/cm2)	Coesione non drenata (kg/cm2)	Angolo resistenza al taglio (°)	Peso unità di volume (Kg/m3)	Peso saturo (Kg/m3)	Litologia	
1	0	0	42.27	1900	2100.00		
2	4.54		42.27	2700	2700		

Risultati analisi pendio

Fs minimo individuato	1.02
Ascissa centro superficie	50.28 m
Ordinata centro superficie	150.69 m
Raggio superficie	109.43 m

Numero di superfici esaminate....(523)

N°	Xo	Yo	Ro	Fs
1	-6.1	99.8	90.4	1.40
2	16.5	99.8	91.4	1.88
3	22.1	97.6	80.5	1.73
4	27.7	99.8	83.7	1.93
5	33.4	97.6	71.8	1.38
6	39.0	99.8	73.9	1.70
7	44.6	97.6	71.8	1.90
8	50.3	99.8	63.9	1.83
9	55.9	97.6	71.7	1.87
10	61.6	99.8	63.9	2.13
11	67.2	97.6	61.8	1.85
12	72.8	99.8	63.9	1.74
13	78.5	97.6	51.8	1.17

14	84.1	99.8	52.3	1.22
15	89.7	97.6	49.7	1.38
16	95.4	99.8	47.9	1.48
17	101.0	97.6	44.1	1.66
18	106.7	99.8	34.7	1.33
19	112.3	97.6	30.8	1.72
20	117.9	99.8	41.7	2.49
21	123.6	97.6	38.2	2.60
22	129.2	99.8	34.9	2.67
23	134.8	97.6	26.5	2.13
24	140.5	99.8	28.2	1.48
25	146.1	97.6	25.0	1.55
26	151.7	99.8	21.8	1.57
27	157.4	97.6	15.0	1.66
28	163.0	99.8	9.7	1.50
29	168.7	97.6	3.9	2.57
30	174.3	99.8	11.7	6.17
31	179.9	97.6	2.5	2.47
32	-6.1	104.0	94.6	1.50
33	-0.4	101.9	92.3	1.75
34	16.5	104.0	85.9	2.61
35	22.1	101.9	84.7	1.75
36	27.7	104.0	87.8	1.96
37	33.4	101.9	76.0	1.47
38	39.0	104.0	78.1	1.79
39	44.6	101.9	76.0	1.91
40	50.3	104.0	78.1	1.84
41	55.9	101.9	76.0	1.82
42	61.6	104.0	68.2	1.93
43	67.2	101.9	66.0	1.75
44	72.8	104.0	68.1	1.73
45	78.5	101.9	56.1	1.17
46	84.1	104.0	53.5	1.13
47	89.7	101.9	49.7	1.23
48	95.4	104.0	48.7	1.38
49	101.0	101.9	46.2	1.64
50	106.7	104.0	44.4	1.89
51	112.3	101.9	39.6	2.21
52	117.9	104.0	42.3	2.63
53	123.6	101.9	38.5	2.71
54	129.2	104.0	40.7	2.34
55	134.8	101.9	32.3	2.04
56	140.5	104.0	33.2	1.60
57	146.1	101.9	24.9	1.31
58	151.7	104.0	21.4	1.28
59	157.4	101.9	15.1	1.28
60	163.0	104.0	12.3	1.56
61	168.7	101.9	7.5	3.42
62	174.3	104.0	11.9	5.41

63	179.9	101.9	5.9	1.38
64	-6.1	108.2	98.8	1.60
65	-0.4	106.1	96.6	1.83
66	5.2	108.2	98.8	5.08
67	16.5	108.2	90.1	2.73
68	22.1	106.1	88.8	1.78
69	27.7	108.2	91.9	1.97
70	33.4	106.1	80.2	1.56
71	39.0	108.2	82.4	1.87
72	44.6	106.1	80.2	1.88
73	50.3	108.2	82.4	1.79
74	55.9	106.1	80.2	1.78
75	61.6	108.2	72.4	1.77
76	67.2	106.1	70.3	1.68
77	72.8	108.2	62.4	1.17
78	78.5	106.1	59.3	1.15
79	84.1	108.2	64.5	1.51
80	89.7	106.1	58.7	1.55
81	95.4	108.2	56.5	1.67
82	101.0	106.1	47.7	1.60
83	106.7	108.2	46.7	1.93
84	112.3	106.1	41.2	2.27
85	117.9	108.2	50.2	2.19
86	123.6	106.1	44.9	2.32
87	129.2	108.2	41.0	2.17
88	134.8	106.1	36.9	1.89
89	140.5	108.2	33.6	1.25
90	146.1	106.1	29.2	1.37
91	151.7	108.2	25.5	1.40
92	157.4	106.1	18.4	1.38
93	163.0	108.2	15.6	1.86
94	168.7	106.1	17.3	3.40
95	-6.1	112.5	103.1	1.69
96	10.8	110.4	101.3	1.79
97	16.5	112.5	94.3	2.85
98	22.1	110.4	93.0	1.82
99	27.7	112.5	86.2	1.35
100	33.4	110.4	84.5	1.65
101	39.0	112.5	96.6	1.89
102	44.6	110.4	84.5	1.83
103	50.3	112.5	86.6	1.74
104	55.9	110.4	84.5	1.73
105	61.6	112.5	76.6	1.66
106	67.2	110.4	74.5	1.66
107	72.8	112.5	65.9	1.12
108	78.5	110.4	60.6	1.03
109	84.1	112.5	65.6	1.45
110	89.7	110.4	59.8	1.49
111	95.4	112.5	55.9	1.51

112	101.0	110.4	46.7	1.40
113	106.7	112.5	45.8	1.80
114	112.3	110.4	42.9	2.35
115	117.9	112.5	51.5	2.21
116	123.6	110.4	45.7	2.30
117	129.2	112.5	47.3	2.05
118	134.8	110.4	42.8	1.96
119	140.5	112.5	34.0	1.10
120	146.1	110.4	30.2	1.25
121	151.7	112.5	26.2	1.23
122	157.4	110.4	22.0	1.54
123	163.0	112.5	21.5	2.42
124	168.7	110.4	18.8	4.31
125	-6.1	116.7	107.3	1.78
126	-0.4	114.6	105.1	1.99
127	10.8	114.6	105.5	1.82
128	16.5	116.7	108.2	1.93
129	22.1	114.6	97.2	1.86
130	27.7	116.7	90.3	1.45
131	33.4	114.6	88.7	1.74
132	39.0	116.7	90.9	1.88
133	44.6	114.6	88.7	1.79
134	50.3	116.7	90.9	1.71
135	55.9	114.6	88.7	1.69
136	61.6	116.7	80.9	1.61
137	67.2	114.6	78.8	1.66
138	72.8	116.7	77.4	1.60
139	78.5	114.6	90.5	3.46
140	84.1	116.7	66.9	1.39
141	89.7	114.6	61.0	1.43
142	95.4	116.7	56.5	1.43
143	101.0	114.6	54.1	1.74
144	106.7	116.7	52.4	2.11
145	112.3	114.6	57.3	2.10
146	117.9	116.7	59.0	1.95
147	123.6	114.6	53.1	2.06
148	129.2	116.7	48.6	1.84
149	134.8	114.6	43.4	1.50
150	140.5	116.7	39.7	1.28
151	146.1	114.6	30.5	1.05
152	151.7	116.7	31.6	1.53
153	157.4	114.6	26.3	1.79
154	163.0	116.7	23.2	2.66
155	168.7	114.6	20.8	5.35
156	-11.7	118.9	109.6	1.55
157	-6.1	121.0	111.6	1.86
158	10.8	118.9	100.1	2.58
159	16.5	121.0	102.8	3.07
160	22.1	118.9	101.4	1.90

161	27.7	121.0	94.5	1.55
162	33.4	118.9	93.0	1.82
163	39.0	121.0	95.1	1.83
164	44.6	118.9	93.0	1.73
165	50.3	121.0	95.1	1.70
166	55.9	118.9	83.0	1.75
167	61.6	121.0	85.1	1.59
168	67.2	118.9	82.1	1.63
169	72.8	121.0	97.4	3.40
170	78.5	118.9	72.8	1.37
171	84.1	121.0	68.3	1.33
172	89.7	118.9	62.4	1.36
173	95.4	121.0	66.9	1.84
174	101.0	118.9	62.2	2.03
175	106.7	121.0	67.5	1.86
176	112.3	118.9	57.4	2.27
177	117.9	121.0	60.4	1.97
178	123.6	118.9	54.5	1.97
179	129.2	121.0	55.8	1.99
180	134.8	118.9	44.3	1.19
181	140.5	121.0	40.9	1.20
182	146.1	118.9	35.9	1.31
183	151.7	121.0	32.7	1.45
184	157.4	118.9	28.1	1.82
185	-11.7	123.1	113.8	1.63
186	-6.1	125.2	115.8	1.93
187	5.2	125.2	115.8	5.84
188	10.8	123.1	114.0	1.87
189	16.5	125.2	107.0	3.18
190	22.1	123.1	115.3	1.85
191	27.7	125.2	98.7	1.64
192	33.4	123.1	107.2	1.85
193	39.0	125.2	99.3	1.77
194	44.6	123.1	97.2	1.69
195	50.3	125.2	99.3	1.69
196	55.9	123.1	87.3	1.60
197	61.6	125.2	88.6	1.56
198	67.2	123.1	84.2	1.53
199	72.8	125.2	80.1	1.30
200	78.5	123.1	74.2	1.32
201	84.1	125.2	69.8	1.27
202	89.7	123.1	63.8	1.32
203	95.4	125.2	68.3	1.82
204	101.0	123.1	71.2	1.86
205	106.7	125.2	67.9	1.97
206	112.3	123.1	64.3	1.96
207	117.9	125.2	61.3	1.93
208	123.6	123.1	56.1	1.85
209	129.2	125.2	52.0	1.14

210	134.8	123.1	46.1	1.14
211	140.5	125.2	42.2	1.09
212	146.1	123.1	37.4	1.22
213	151.7	125.2	38.7	1.79
214	157.4	123.1	33.5	2.16
215	-11.7	127.3	117.9	1.71
216	-6.1	129.5	119.9	2.00
217	-0.4	127.3	117.8	1.67
218	5.2	129.5	120.0	6.03
219	10.8	127.3	118.2	1.88
220	16.5	129.5	111.2	3.29
221	22.1	127.3	109.8	1.93
222	27.7	129.5	102.9	1.73
223	33.4	127.3	111.4	1.81
224	39.0	129.5	103.6	1.71
225	44.6	127.3	101.5	1.66
226	50.3	129.5	103.6	1.67
227	55.9	127.3	91.5	1.54
228	61.6	129.5	90.8	1.44
229	67.2	127.3	104.4	3.41
230	72.8	129.5	81.6	1.25
231	78.5	127.3	75.7	1.25
232	84.1	129.5	80.2	1.65
233	89.7	127.3	74.3	1.72
234	95.4	129.5	69.8	1.81
235	101.0	127.3	72.6	1.94
236	106.7	129.5	68.5	2.16
237	112.3	127.3	64.9	2.02
238	117.9	129.5	62.0	4.22
239	123.6	127.3	57.9	6.34
240	129.2	129.5	54.0	1.10
241	134.8	127.3	48.1	1.09
242	140.5	129.5	49.6	1.46
243	146.1	127.3	44.0	1.58
244	151.7	129.5	41.0	1.84
245	157.4	127.3	35.9	2.30
246	-11.7	131.6	122.1	1.78
247	-0.4	131.6	122.0	1.69
248	5.2	133.7	124.2	6.21
249	10.8	131.6	112.8	2.89
250	16.5	133.7	115.4	1.83
251	22.1	131.6	114.0	1.90
252	27.7	133.7	116.9	1.81
253	33.4	131.6	115.7	1.77
254	39.0	133.7	107.8	1.66
255	44.6	131.6	105.7	1.66
256	50.3	133.7	107.8	2.60
257	55.9	131.6	95.3	1.50
258	61.6	133.7	102.3	3.19

259	67.2	131.6	87.6	1.25
260	72.8	133.7	83.2	1.17
261	78.5	131.6	77.3	1.20
262	84.1	133.7	81.8	1.63
263	89.7	131.6	75.8	1.70
264	95.4	133.7	71.5	1.84
265	101.0	131.6	74.1	2.01
266	106.7	133.7	78.4	1.80
267	117.9	133.7	69.8	1.85
268	123.6	131.6	64.9	1.82
269	129.2	133.7	56.2	1.06
270	134.8	131.6	50.3	1.04
271	-17.4	138.0	128.6	1.68
272	-11.7	135.8	126.3	1.86
273	-6.1	138.0	128.3	2.15
274	5.2	138.0	128.5	6.39
275	10.8	135.8	126.7	1.86
276	16.5	138.0	129.3	1.82
277	22.1	135.8	118.1	1.87
278	27.7	138.0	121.1	1.77
279	33.4	135.8	110.0	1.80
280	39.0	138.0	112.1	1.63
281	44.6	135.8	110.0	1.66
282	50.3	138.0	102.0	1.46
283	55.9	135.8	107.1	3.05
284	61.6	138.0	95.1	1.20
285	67.2	135.8	89.2	1.19
286	72.8	138.0	93.7	1.53
287	78.5	135.8	87.7	1.57
288	84.1	138.0	83.4	1.60
289	89.7	135.8	77.4	1.69
290	95.4	138.0	81.8	1.98
291	101.0	135.8	84.4	3.44
292	106.7	138.0	80.1	1.82
293	112.3	135.8	66.5	3.56
294	117.9	138.0	71.2	1.74
295	134.8	135.8	57.8	1.40
296	-11.7	140.1	130.5	1.93
297	-6.1	142.2	132.5	1.67
298	5.2	142.2	123.2	1.31
299	10.8	140.1	130.9	1.84
300	16.5	142.2	133.5	1.78
301	22.1	140.1	112.6	1.56
302	27.7	142.2	125.2	1.76
303	33.4	140.1	114.1	1.72
304	39.0	142.2	116.3	1.62
305	44.6	140.1	114.2	1.67
306	50.3	142.2	114.1	1.67
307	55.9	140.1	109.2	1.93

308	61.6	142.2	96.8	1.13
309	67.2	140.1	90.9	1.12
310	72.8	142.2	95.4	1.51
311	78.5	140.1	89.4	1.55
312	84.1	142.2	85.2	1.60
313	89.7	140.1	79.2	1.70
314	95.4	142.2	83.6	2.15
315	101.0	140.1	77.6	2.40
316	106.7	142.2	73.6	2.95
317	117.9	142.2	72.9	5.11
318	123.6	140.1	68.1	10.49
319	129.2	142.2	65.3	1.32
320	140.5	142.2	57.3	1.56
321	-17.4	146.4	136.9	1.80
322	10.8	144.3	135.1	1.81
323	16.5	146.4	137.7	1.74
324	22.1	144.3	116.8	1.66
325	27.7	146.4	129.4	1.75
326	33.4	144.3	118.3	1.65
327	39.0	146.4	120.6	1.63
328	44.6	144.3	118.4	1.66
329	50.3	146.4	116.2	1.70
330	55.9	144.3	102.4	1.14
331	61.6	146.4	107.3	1.57
332	67.2	144.3	118.8	3.24
333	72.8	146.4	97.1	1.49
334	78.5	144.3	91.2	1.53
335	84.1	146.4	87.0	1.60
336	89.7	144.3	89.6	1.95
337	95.4	146.4	85.5	2.19
338	101.0	144.3	79.5	2.48
339	106.7	146.4	84.1	1.78
340	112.3	144.3	78.1	1.72
341	129.2	146.4	67.4	1.30
342	140.5	146.4	60.2	1.62
343	-17.4	150.7	141.1	1.87
344	-11.7	148.6	138.8	2.06
345	-6.1	150.7	140.9	1.72
346	-0.4	148.6	138.9	1.81
347	5.2	150.7	141.2	1.81
348	10.8	148.6	139.4	1.78
349	16.5	150.7	132.3	1.83
350	22.1	148.6	130.8	1.74
351	27.7	150.7	133.6	1.73
352	33.4	148.6	122.5	1.61
353	39.0	150.7	124.8	1.64
354	44.6	148.6	121.1	1.68
355	50.3	150.7	109.4	1.02
356	55.9	148.6	104.5	1.07

357	61.6	150.7	117.8	3.38
358	67.2	148.6	103.1	1.46
359	72.8	150.7	99.0	1.46
360	78.5	148.6	93.0	1.52
361	84.1	150.7	97.5	1.89
362	89.7	148.6	91.5	2.01
363	95.4	150.7	87.5	2.25
364	101.0	148.6	90.0	1.77
365	123.6	148.6	72.0	1.19
366	129.2	150.7	69.6	1.29
367	134.8	148.6	65.1	1.45
368	140.5	150.7	63.2	1.69
369	-17.4	154.9	145.3	1.93
370	-6.1	154.9	145.1	1.75
371	-0.4	152.8	143.1	1.83
372	5.2	154.9	145.5	1.78
373	10.8	152.8	134.0	3.38
374	16.5	154.9	136.5	1.78
375	22.1	152.8	135.0	1.72
376	27.7	154.9	137.8	1.70
377	33.4	152.8	126.7	1.60
378	39.0	154.9	128.2	1.65
379	44.6	152.8	123.3	1.66
380	50.3	154.9	120.8	1.63
381	55.9	152.8	115.1	1.55
382	61.6	154.9	110.9	1.41
383	67.2	152.8	104.9	1.43
384	72.8	154.9	100.9	1.46
385	78.5	152.8	94.9	1.52
386	84.1	154.9	99.5	1.90
387	89.7	152.8	93.5	2.04
388	95.4	154.9	98.1	1.74
389	101.0	152.8	92.2	1.76
390	112.3	152.8	82.7	4.43
391	117.9	154.9	79.4	1.10
392	123.6	152.8	74.1	1.16
393	-17.4	159.2	149.4	2.00
394	-11.7	157.1	147.2	2.20
395	-6.1	159.2	149.3	1.78
396	5.2	159.2	149.7	1.75
397	10.8	157.1	147.8	1.75
398	16.5	159.2	140.7	1.72
399	22.1	157.1	139.2	1.71
400	27.7	159.2	132.2	1.65
401	33.4	157.1	130.8	1.60
402	39.0	159.2	130.5	1.63
403	44.6	157.1	125.7	1.63
404	50.3	159.2	122.9	1.54
405	55.9	157.1	134.1	3.22

406	61.6	159.2	112.8	1.39
407	67.2	157.1	106.9	1.41
408	72.8	159.2	102.9	1.45
409	78.5	157.1	105.4	1.81
410	84.1	159.2	101.5	1.92
411	89.7	157.1	104.0	1.71
412	95.4	159.2	100.3	1.74
413	106.7	159.2	91.0	3.56
414	-11.7	161.3	151.3	2.26
415	-0.4	161.3	151.5	1.80
416	5.2	163.4	144.4	3.19
417	10.8	161.3	152.1	1.73
418	16.5	163.4	145.0	1.68
419	22.1	161.3	143.4	1.71
420	27.7	163.4	136.4	1.59
421	33.4	161.3	135.0	1.61
422	39.0	163.4	132.9	1.59
423	44.6	161.3	128.1	1.58
424	50.3	163.4	133.3	3.09
425	55.9	161.3	118.8	1.37
426	61.6	163.4	114.8	1.36
427	67.2	161.3	108.9	1.40
428	72.8	163.4	113.4	1.74
429	78.5	161.3	115.9	1.75
430	84.1	163.4	112.1	1.69
431	89.7	161.3	97.8	2.13
432	-23.0	165.5	156.0	1.90
433	-17.4	167.7	157.8	2.13
434	-6.1	167.7	157.6	1.83
435	-0.4	165.5	145.9	1.41
436	5.2	167.7	158.1	1.72
437	10.8	165.5	156.3	1.70
438	16.5	167.7	149.2	1.67
439	22.1	165.5	147.6	1.71
440	27.7	167.7	140.6	1.57
441	33.4	165.5	137.8	1.59
442	39.0	167.7	135.4	1.55
443	44.6	165.5	130.5	1.52
444	50.3	167.7	126.7	1.34
445	55.9	165.5	120.8	1.35
446	61.6	167.7	116.9	1.36
447	67.2	165.5	119.4	1.68
448	72.8	167.7	115.6	1.74
449	78.5	165.5	109.6	1.83
450	84.1	167.7	114.4	1.69
451	89.7	165.5	108.5	1.73
452	101.0	165.5	99.3	3.07
453	-23.0	169.8	160.2	1.95
454	-17.4	171.9	162.0	2.19

455	-6.1	171.9	161.8	1.82
456	-0.4	169.8	150.0	1.49
457	5.2	171.9	162.3	1.71
458	10.8	169.8	151.0	3.75
459	16.5	171.9	153.4	1.66
460	22.1	169.8	151.8	1.71
461	27.7	171.9	144.8	1.57
462	33.4	169.8	140.2	1.56
463	39.0	171.9	137.9	1.47
464	44.6	169.8	141.2	2.81
465	50.3	171.9	128.8	1.31
466	55.9	169.8	122.8	1.32
467	61.6	171.9	127.4	1.63
468	67.2	169.8	121.5	1.68
469	72.8	171.9	126.2	1.63
470	78.5	169.8	111.9	1.86
471	84.1	171.9	116.7	1.71
472	89.7	169.8	110.9	1.75
473	95.4	171.9	107.6	2.75
474	-23.0	174.0	164.3	2.01
475	-11.7	174.0	163.9	1.77
476	-6.1	176.2	166.0	1.80
477	-0.4	174.0	154.1	1.56
478	5.2	176.2	156.8	3.47
479	10.8	174.0	155.2	3.84
480	16.5	176.2	157.7	1.67
481	22.1	174.0	156.0	1.70
482	27.7	176.2	147.6	1.54
483	33.4	174.0	142.7	1.51
484	39.0	176.2	149.0	2.48
485	44.6	174.0	134.7	1.31
486	50.3	176.2	130.9	1.29
487	55.9	174.0	124.9	1.32
488	61.6	176.2	129.6	1.63
489	67.2	174.0	123.7	1.68
490	72.8	176.2	128.5	1.64
491	78.5	174.0	114.2	1.89
492	84.1	176.2	119.2	1.74
493	-23.0	178.3	168.5	2.07
494	-17.4	180.4	170.3	2.30
495	-11.7	178.3	168.1	1.80
496	-6.1	180.4	170.2	1.76
497	-0.4	178.3	158.3	1.63
498	5.2	180.4	161.0	3.56
499	10.8	178.3	159.4	1.63
500	16.5	180.4	161.9	1.68
501	22.1	178.3	150.6	1.55
502	27.7	180.4	150.1	1.48
503	33.4	178.3	145.3	2.72

504	39.0	180.4	151.2	1.70
505	44.6	178.3	136.8	1.28
506	50.3	180.4	133.0	1.28
507	55.9	178.3	135.5	1.59
508	61.6	180.4	140.2	1.58
509	67.2	178.3	134.3	1.60
510	72.8	180.4	130.8	1.65
511	84.1	180.4	121.7	2.30
512	89.7	178.3	115.9	2.53
513	-23.0	182.5	172.7	2.12
514	-11.7	182.5	172.3	1.83
515	-0.4	182.5	162.4	1.69
516	10.8	182.5	163.7	1.62
517	22.1	182.5	154.8	1.52
518	33.4	182.5	156.7	1.67
519	44.6	182.5	138.9	1.26
520	55.9	182.5	137.7	1.59
521	67.2	182.5	128.3	1.71
522	78.5	182.5	127.5	1.73
523	89.7	182.5	118.6	2.60

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