LISTATO DI CALCOLO – FASE 2 – SEZ B – COESIONE INTERCETTA

RICERCA SUPERFICIE CRITICA CIRCOLARE

Analisi di stabilità dei pendii con: JANBU (1956)

Lat./Long.	44.416126/9.128522
Normativa	NTC 2008
Numero di strati	4.0
Numero dei conci	25.0
Grado di sicurezza ritenuto accettabile	1.1
Coefficiente parziale resistenza	1.1
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	0.0 m
Ordinata vertice sinistro inferiore yi	80.0 m
Ascissa vertice destro superiore xs	160.0 m
Ordinata vertice destro superiore ys	350.0 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 I
Vita nominale:	50.0 [anni]
Vita di riferimento:	35.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	C
Categoria topografica:	T3

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.27	2.5	0.2
S.L.D.	35.0	0.29	2.52	0.2
S.L.V.	332.0	0.73	2.53	0.28
S.L.C.	682.0	0.96	2.5	0.29

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L. Stato limite	amax [m/s²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.486	0.2	0.0099	0.005
S.L.D.	0.522	0.2	0.0106	0.0053
S.L.V.	1.314	0.2	0.0268	0.0134
S.L.C.	1.728	0.2	0.0352	0.0176

Coefficiente azione sismica orizzontale	0.0268
Coefficiente azione sismica verticale	0.013 4

Vertici profilo

N	X	y

	m	m
1	0.0	0.0
2	26.2	17.22
3	29.65	17.44
4	33.37	16.92
5	46.1	17.82
6	57.38	17.82
7	59.14	21.76
8	77.88	24.89
9	79.34	28.89
10	87.43	30.89
11	93.0	30.89
12	94.49	34.89
13	102.3	37.98
14	107.65	37.98
15	109.05	41.99
16	116.97	45.81
17	122.21	45.81
18	123.59	49.81
19	131.26	51.82
20	136.53	51.82
21	137.85	56.02
22	146.05	58.02
23	154.97	58.02
24	172.03	70.0
25	176.27	70.0
26	201.62	74.54
27	205.25	74.53
28	219.84	84.0
29	225.33	84.4
30	235.28	90.03
31	271.64	88.91
32	282.7	88.53
33	289.11	88.6 8

Falda

Nr.	X (m)	y (m)
1	-0.3	-0.52
2	39.1	10.3
3	82.12	14.39
4	121.91	24.44
5	159.28	41.98
6	179.86	58.11
7	202.99	68.81
8	231.62	74.84
9	257.74	77.35
10	289.64	80.6 2

Vertici strato 1

N	X (m)	y (m)
1	0.0	0.0
2	26.2	17.22
3	29.65	17.44
4	33.37	16.92
5	36.74	13.96
6	37.68	12.99
7	64.06	13.96
8	76.83	15.78
9	98.11	17.87
10	110.05	22.38
11	132.06	29.02

12	146.92	36.18
13	155.14	41.22
14	161.51	46.52
15	169.47	50.77
16	178.51	60.13
17	197.55	68.85
18	208.25	71.0
19	228.49	80.0
20	272.76	88.87
21	282.7	88.53
22	289.11	88.6 8

Vertici strato 2

N	X (m)	y (m)
1	0.0	0.0
2	26.2	17.27
3	29.65	17.44
4	33.37	16.92
5	36.74	13.96
6	38.56	12.1
7	64.37	12.92
8	76.19	14.76
9	85.97	15.84
10	98.38	17.08
11	110.84	21.59
12	132.6	28.22
13	147.98	36.18
14	153.82	40.16
15	162.57	45.73
16	169.2	49.18
17	174.21	54.9
18	178.51	59.23
19	197.94	67.72
20	212.1	70.67
21	223.0	75.35
22	230.56	77.31
23	262.24	80.63
24	281.0	81.67
25	289.11	83.6 9

Vertici strato 3

N	X (m)	y (m)
1	0.0	0.0
2	26.2	17.22
3	29.65	17.44
4	33.37	16.92
5	36.74	13.96
6	42.18	8.4
7	65.63	9.78
8	79.0	11.82
9	93.34	13.63
10	132.33	25.3
11	147.96	31.81
12	159.17	38.21
13	167.34	43.58
14	176.99	52.15
15	182.36	55.06
16	192.72	59.7
17	209.83	66.16
18	232.16	72.24
19	275.95	77.07
20	289.11	79.45

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	Si

Stratigrafia

c: coesione; cu: coesione non drenata; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

Strato	c (kg/cm²)	cu (kg/cm²)	Fi (°)	G (Kg/m³)	Gs (Kg/m³)	K (Kg/cm³)	Litologia	
1	0.0383		29.60	1837	2063	0.00		
2	0		26.51	1695	1905	0.00		
3	0.3305		30.52	2402	2698	0.00		
4	0.4352		33.31	2402	2698	0.00		

Terra rinforzata

No	X (m)	Y (m)	Stato	Tipologia
1	122.21	45.81	Attivato	terre 8m
2	136.53	51.82	Attivato	terre 8m
3	57.38	17.82	Attivato	terre 4m
4	77.88	24.89	Attivato	terre 4m
5	93	30.89	Attivato	terre 4m
6	107.65	37.98	Attivato	terre 4m

Risultati analisi pendio [NTC 2008: [A2+M2+R2]]

Fs minimo individuato	1.01
Ascissa centro superficie	160.0 m
Ordinata centro superficie	80.0 m
Raggio superficie	17.09 m

Numero di superfici esaminate....(733)

N°	Xo	Yo	Ro	Fs
1	0.0	80.0	72.2	3.17
2	4.0	86.8	78.6	3.08
3	8.0	80.0	72.6	2.92
4	12.0	86.8	79.3	3.14
5	16.0	80.0	73.7	3.28
6	20.0	86.8	80.6	3.20
7	24.0	80.0	67.3	6.09
8	28.0	86.8	82.1	2.86
9	32.0	80.0	75.9	2.91
10	36.0	86.8	82.1	2.72
11	40.0	80.0	67.8	3.38
12	44.0	86.8	73.4	2.55
13	48.0	80.0	67.8	2.36
14	52.0	86.8	73.3	1.62
15	56.0	80.0	67.8	1.76
16	60.0	86.8	73.3	1.25
17	64.0	80.0	59.8	1.32
18	68.0	86.8	64.5	1.20
19	72.0	80.0	59.9	1.19
20	76.0	86.8	64.4	1.23
21	80.0	80.0	59.9	1.17

22	84.0	86.8	55.6	1.16
23	88.0	80.0	59.6	1.22
24	92.0	86.8	55.5	1.11
25	96.0	80.0	59.4	1.17
26	100.0	86.8	54.6	1.23
27	104.0	80.0	52.1	1.18
28	108.0	86.8	55.4	1.26
29	112.0	80.0	42.3	1.21
30	116.0	86.8	46.4	1.29
31	120.0	80.0	50.8	1.36
32	124.0	86.8	54.7	1.30
33	128.0	80.0	51.5	1.41
34	132.0	86.8	45.4	1.34
35	136.0	80.0	42.9	1.39
36	140.0	86.8	37.2	1.33
37	144.0	80.0	34.4	1.41
38	148.0	86.8	36.6	1.39
39	152.0	80.0	25.9	1.25
40	156.0	86.8	28.1	1.03
41	160.0	80.0	17.1	1.01
42	4.0	100.3	90.5	3.83
43	12.0	100.3	91.1	3.63
44	20.0	100.3	92.3	3.42
45	24.0	93.5	77.8	17.18
46	28.0	100.3	83.9	40.34
47	32.0	93.5	88.0	2.82
48	36.0	100.3	94.1	2.51
49	40.0	93.5	88.0	2.57
50	44.0	100.3	84.1	2.16
51	48.0	93.5	78.5	1.77
52	52.0	100.3	84.2	1.42
53	56.0	93.5	78.4	1.31
54	60.0	100.3	84.2	1.31
55	64.0	93.5	78.4	1.27
56	68.0	100.3	84.3	1.22
57	72.0	93.5	68.7	1.11
58	76.0	100.3	84.3	1.15
59	80.0	93.5	68.6	1.12
60	84.0	100.3	74.4	1.21
61	88.0	93.5	68.6	1.17
62	92.0	100.3	73.6	1.15
63	96.0	93.5	68.5	1.20
64	100.0	100.3	74.5	1.22
65	104.0	93.5	58.7	1.16
66	108.0	100.3	73.7	1.21
67	112.0	93.5	58.6	1.28
68	116.0	100.3	63.6	1.24
69	120.0	93.5	58.5	1.26
70	124.0	100.3	64.5	1.27
71	128.0	93.5	58.6	1.29
72	132.0	100.3	53.4	1.31
73	136.0	93.5	48.8	1.36
74	140.0	100.3	52.6	1.36
75	144.0	93.5	39.1	1.45
76	148.0	100.3	43.2	1.15
77	152.0	93.5	39.3	1.33
78	156.0	100.3	42.8	1.26
79	160.0	93.5	29.8	1.35
80	0.0	107.0	97.2	4.11
81	8.0	107.0	97.5	3.72
82	12.0	113.8	104.5	3.79
83	16.0	107.0	98.3	3.95
84	20.0	113.8	105.6	3.34

85	28.0	113.8	97.0	103.95
86	32.0	107.0	90.8	28.54
87	36.0	113.8	107.6	2.20
88	40.0	107.0	100.9	2.23
89	44.0	113.8	97.6	1.71
90	48.0	107.0	90.9	1.42
91	52.0	113.8	97.7	1.25
92	56.0	107.0	90.9	1.34
93	60.0	113.8	97.7	1.17
94	64.0	107.0	91.0	1.17
95	68.0	113.8	97.8	1.16
96	72.0	107.0	91.0	1.15
97	76.0	113.8	97.8	1.14
98	80.0	107.0	91.1	1.17
99	84.0	113.8	86.9	1.11
100	88.0	107.0	80.2	1.13
101	92.0	113.8	84.7	1.16
102	96.0	107.0	78.0	1.18
103	100.0	113.8	82.5	1.20
104	104.0	107.0	78.8	1.19
105	108.0	113.8	83.1	1.20
106	112.0	107.0	78.9	1.21
107	116.0	113.8	72.8	1.26
108	120.0	107.0	67.1	1.26
109	124.0	113.8	70.7	1.26
110	128.0	107.0	68.0	1.32
111	132.0	113.8	71.4	1.31
112	136.0	107.0	57.5	1.28
113	140.0	113.8	61.5	1.30
114	144.0	107.0	55.8	1.32
115	148.0	113.8	60.0	1.41
116	152.0	107.0	45.5	1.24
117	156.0	113.8	58.9	1.44
118	160.0	107.0	45.3	1.50
119	4.0	127.3	117.5	4.00
120	8.0	120.5	110.9	3.87
121	20.0	127.3	118.9	2.93
122	28.0	127.3	110.2	194.34
123	32.0	120.5	114.4	2.25
124	36.0	127.3	111.0	26.16
125	40.0	120.5	114.4	2.11
126	44.0	127.3	111.1	1.49
127	48.0	120.5	104.4	1.28
128	52.0	127.3	111.2	1.26
129	56.0	120.5	104.4	1.21
130	60.0	127.3	111.2	1.20
131	64.0	120.5	104.5	1.17
132	68.0	127.3	111.3	1.17
133	72.0	120.5	104.5	1.18
134	76.0	127.3	110.5	1.16
135	80.0	120.5	93.5	1.14
136	84.0	127.3	98.0	1.13
137	88.0	120.5	91.3	1.14
138	92.0	127.3	95.8	1.18
139	96.0	120.5	89.1	1.19
140	100.0	127.3	93.6	1.18
141	104.0	120.5	87.4	1.19
142	108.0	127.3	92.4	1.20
143	112.0	120.5	87.4	1.22
144	116.0	127.3	92.1	1.24
145	120.0	120.5	77.1	1.25
146	124.0	127.3	80.6	1.32
147	128.0	120.5	75.3	1.27

148	132.0	127.3	79.9	1.38
149	136.0	120.5	74.9	1.40
150	140.0	127.3	79.2	1.49
151	144.0	120.5	64.1	1.30
152	148.0	127.3	66.7	1.36
153	152.0	120.5	64.2	1.42
154	156.0	127.3	67.6	1.52
155	160.0	120.5	63.1	1.46
156	0.0	134.0	124.2	4.18
157	12.0	140.8	131.4	3.81
158	20.0	140.8	132.3	2.70
159	28.0	140.8	133.5	2.05
160	32.0	134.0	127.7	2.11
161	36.0	140.8	134.6	1.95
162	40.0	134.0	117.8	1.74
163	44.0	140.8	124.6	1.49
164	48.0	134.0	117.9	1.32
165	52.0	140.8	124.7	1.24
166	56.0	134.0	117.9	1.22
167	60.0	140.8	124.7	1.16
168	64.0	134.0	118.0	1.16
169	68.0	140.8	123.9	1.16
170	72.0	134.0	117.2	1.17
171	76.0	140.8	122.4	1.16
172	80.0	134.0	104.6	1.12
173	84.0	140.8	121.0	1.16
174	88.0	134.0	114.3	1.12
175	92.0	140.8	106.9	1.21
176	96.0	134.0	100.2	1.18
177	100.0	140.8	104.7	1.18
178	104.0	134.0	98.0	1.19
179	108.0	140.8	102.5	1.20
180	112.0	134.0	97.3	1.22
181	116.0	140.8	102.3	1.26
182	120.0	134.0	97.2	1.30
183	124.0	140.8	102.4	1.42
184	128.0	134.0	84.1	1.30
185	132.0	140.8	87.6	1.43
186	136.0	134.0	84.5	1.38
187	140.0	140.8	88.2	1.42
188	144.0	134.0	83.9	1.56
189	148.0	140.8	102.6	1.65
190	152.0	134.0	96.8	1.68
191	156.0	140.8	100.3	1.73
192	160.0	134.0	96.5	1.78
193	0.0	147.5	137.7	4.14
194	4.0	154.3	144.5	4.16
195	8.0	147.5	137.9	4.08
196	12.0	154.3	144.9	3.46
197	16.0	147.5	138.5	2.91
198	20.0	154.3	145.7	2.38
199	24.0	147.5	139.5	2.12
200	28.0	154.3	136.8	3.46
201	32.0	147.5	140.9	1.90
202	36.0	154.3	138.0	23.95
203	40.0	147.5	131.3	1.67
204	44.0	154.3	138.1	1.41
205	48.0	147.5	141.4	1.79
206	52.0	154.3	138.2	1.16
207	56.0	147.5	131.4	1.16
208	60.0	154.3	137.3	1.16
209	64.0	147.5	130.6	1.16
210	68.0	154.3	135.8	1.15

211	72.0	147.5	129.1	1.15
212	76.0	154.3	134.3	1.16
213	80.0	147.5	127.6	1.16
214	84.0	154.3	132.9	1.16
215	88.0	147.5	126.2	1.16
216	92.0	154.3	118.0	1.18
217	96.0	147.5	111.3	1.18
218	100.0	154.3	115.8	1.20
219	104.0	147.5	109.1	1.19
220	108.0	154.3	113.6	1.24
221	112.0	147.5	107.0	1.25
222	116.0	154.3	111.4	1.29
223	120.0	147.5	106.8	1.34
224	124.0	154.3	111.1	1.40
225	128.0	147.5	107.6	1.51
226	132.0	154.3	112.7	1.56
227	136.0	147.5	106.2	1.60
228	140.0	154.3	95.3	1.40
229	144.0	147.5	91.6	1.48
230	148.0	154.3	93.5	1.60
231	152.0	147.5	91.5	1.54
232	156.0	154.3	104.9	1.68
233	160.0	147.5	100.1	1.75
234	4.0	167.8	158.0	4.23
235	8.0	161.0	151.4	4.28
236	16.0	161.0	151.9	2.54
237	20.0	167.8	159.1	2.04
238	24.0	161.0	152.9	2.00
239	28.0	167.8	160.1	1.80
240	32.0	161.0	154.1	1.80
241	36.0	167.8	161.5	1.75
242	40.0	161.0	144.8	1.41
243	44.0	167.8	151.6	1.29
244	48.0	161.0	144.9	1.22
245	52.0	167.8	150.6	1.15
246	56.0	161.0	143.9	1.16
247	60.0	167.8	149.2	1.15
248	64.0	161.0	142.5	1.15
249	68.0	167.8	147.7	1.14
250	72.0	161.0	141.0	1.15
251	76.0	167.8	146.2	1.15
252	80.0	161.0	139.5	1.16
253	84.0	167.8	144.8	1.17
254	88.0	161.0	124.6	1.22
255	92.0	167.8	129.1	1.23
256	96.0	161.0	122.4	1.20
257	100.0	167.8	126.9	1.23
258	104.0	161.0	120.2	1.24
259	108.0	167.8	124.7	1.27
260	112.0	161.0	118.1	1.28
261	116.0	167.8	122.5	1.35
262	120.0	161.0	115.9	1.33
263	124.0	167.8	120.3	1.39
264	128.0	161.0	115.6	1.54
265	132.0	167.8	137.8	1.59
266	136.0	161.0	101.0	1.48
267	140.0	167.8	119.3	1.53
268	144.0	161.0	114.2	1.65
269	148.0	167.8	114.4	1.66
270	152.0	161.0	108.9	1.58
271	156.0	167.8	109.2	1.61
272	160.0	161.0	104.1	1.58
273	0.0	174.5	164.7	4.32

274	4.0	181.3	171.5	4.40
275	12.0	181.3	171.8	2.49
276	20.0	181.3	172.5	1.93
277	24.0	174.5	156.3	2.81
278	28.0	181.3	173.5	1.67
279	32.0	174.5	157.4	1145.32
280	36.0	181.3	174.7	1.69
281	40.0	174.5	158.3	1.35
282	44.0	181.3	174.6	1.66
283	48.0	174.5	157.3	1.15
284	52.0	181.3	162.5	1.15
285	56.0	174.5	155.8	1.15
286	60.0	181.3	161.1	1.14
287	64.0	174.5	154.4	1.14
288	68.0	181.3	159.6	1.14
289	72.0	174.5	152.9	1.15
290	76.0	181.3	158.1	1.16
291	80.0	174.5	151.5	1.16
292	84.0	181.3	156.7	1.22
293	88.0	174.5	135.7	1.26
294	92.0	181.3	140.2	1.33
295	96.0	174.5	133.5	1.24
296	100.0	181.3	138.0	1.32
297	104.0	174.5	131.4	1.26
298	108.0	181.3	152.3	1.46
299	112.0	174.5	129.2	1.34
300	116.0	181.3	133.6	1.36
301	120.0	174.5	127.0	1.41
302	124.0	181.3	131.4	1.42
303	128.0	174.5	125.1	1.42
304	132.0	181.3	128.1	1.51
305	136.0	174.5	123.9	1.64
306	140.0	181.3	124.3	1.57
307	144.0	174.5	118.7	1.50
308	148.0	181.3	135.2	1.73
309	152.0	174.5	114.2	1.66
310	156.0	181.3	130.0	1.80
311	160.0	174.5	124.9	1.77
312	0.0	188.0	178.2	4.35
313	4.0	194.8	185.0	3.88
314	12.0	194.8	185.3	2.23
315	20.0	194.8	185.9	1.77
316	24.0	188.0	179.6	1.72
317	28.0	194.8	186.8	1.60
318	36.0	194.8	176.8	1.25
319	40.0	188.0	170.7	22.01
320	44.0	194.8	175.9	1.14
321	48.0	188.0	169.2	1.15
322	52.0	194.8	174.4	1.14
323	56.0	188.0	167.7	1.14
324	60.0	194.8	173.0	1.13
325	64.0	188.0	166.3	1.13
326	68.0	194.8	171.5	1.15
327	72.0	188.0	164.8	1.15
328	76.0	194.8	170.0	1.19
329	80.0	188.0	163.4	1.21
330	84.0	194.8	168.6	1.28
331	88.0	188.0	161.9	1.29
332	92.0	194.8	167.1	1.36
333	96.0	188.0	160.4	1.42
334	100.0	194.8	165.6	1.42
335	104.0	188.0	142.5	1.41
336	108.0	194.8	164.2	1.49

337	112.0	188.0	140.3	1.37
338	116.0	194.8	144.7	1.49
339	120.0	188.0	138.1	1.47
340	124.0	194.8	159.3	1.54
341	128.0	188.0	134.0	1.55
342	132.0	194.8	152.5	1.61
343	136.0	188.0	146.3	1.60
344	140.0	194.8	146.4	1.64
345	144.0	188.0	141.9	1.67
346	148.0	194.8	142.4	1.60
347	152.0	188.0	135.5	1.73
348	156.0	194.8	136.5	1.60
349	160.0	188.0	130.3	1.61
350	0.0	201.5	191.7	4.50
351	4.0	208.3	198.5	2.87
352	8.0	201.5	191.8	2.30
353	12.0	208.3	198.8	1.90
354	16.0	201.5	192.3	1.88
355	20.0	208.3	199.4	1.62
356	24.0	201.5	193.0	1.60
357	28.0	208.3	199.6	1.56
358	32.0	201.5	193.4	1.55
359	36.0	208.3	188.5	1.24
360	40.0	201.5	182.5	1.14
361	44.0	208.3	187.8	1.15
362	48.0	201.5	181.1	1.15
363	52.0	208.3	186.3	1.12
364	56.0	201.5	179.6	1.13
365	60.0	208.3	184.9	1.13
366	64.0	201.5	178.2	1.14
367	68.0	208.3	183.4	1.16
368	72.0	201.5	176.7	1.17
369	76.0	208.3	181.9	1.22
370	80.0	201.5	175.3	1.23
371	84.0	208.3	180.5	1.29
372	88.0	201.5	173.8	1.33
373	92.0	208.3	179.0	1.37
374	96.0	201.5	172.3	1.38
375	100.0	208.3	177.6	1.42
376	104.0	201.5	170.9	1.46
377	108.0	208.3	176.1	1.49
378	112.0	201.5	169.4	1.52
379	116.0	208.3	173.1	1.54
380	120.0	201.5	166.2	1.56
381	124.0	208.3	166.5	1.59
382	128.0	201.5	159.4	1.59
383	132.0	208.3	159.9	1.48
384	136.0	201.5	152.8	1.47
385	140.0	208.3	153.4	1.60
386	144.0	201.5	147.4	1.53
387	148.0	208.3	148.6	1.45
388	152.0	201.5	142.9	1.52
389	156.0	208.3	143.7	1.64
390	160.0	201.5	137.8	1.54
391	8.0	215.0	205.3	2.03
392	12.0	221.8	212.3	1.75
393	16.0	215.0	205.8	1.68
394	20.0	221.8	212.1	1.54
395	24.0	215.0	205.8	1.55
396	28.0	221.8	212.2	1.49
397	32.0	215.0	194.6	1.51
398	36.0	221.8	200.3	1.22
399	40.0	215.0	194.2	1.15

400	44.0	221.8	199.7	1.12
401	48.0	215.0	193.0	1.13
402	52.0	221.8	198.2	1.12
403	56.0	215.0	191.5	1.13
404	60.0	221.8	196.8	1.15
405	64.0	215.0	190.1	1.15
406	68.0	221.8	195.3	1.18
407	72.0	215.0	188.6	1.18
408	76.0	221.8	193.8	1.26
409	80.0	215.0	187.2	1.27
410	84.0	221.8	192.4	1.30
411	88.0	215.0	185.7	1.34
412	92.0	221.8	190.9	1.36
413	96.0	215.0	184.2	1.42
414	100.0	221.8	189.5	1.46
415	104.0	215.0	182.8	1.48
416	108.0	221.8	187.2	1.49
417	112.0	215.0	180.1	1.51
418	116.0	221.8	180.6	1.52
419	120.0	215.0	173.5	1.53
420	124.0	221.8	174.1	1.50
421	128.0	215.0	167.0	1.48
422	132.0	221.8	167.7	1.44
423	136.0	215.0	160.5	1.55
424	140.0	221.8	161.4	1.67
425	144.0	215.0	154.2	1.65
426	148.0	221.8	174.6	1.87
427	152.0	215.0	168.2	1.88
428	156.0	221.8	170.0	1.94
429	160.0	215.0	144.8	2.06
430	4.0	235.3	225.5	1.92
431	16.0	228.5	218.5	1.53
432	20.0	235.3	213.4	1.58
433	24.0	228.5	218.4	1.48
434	28.0	235.3	224.8	1.40
435	32.0	228.5	206.4	4.84
436	36.0	235.3	225.0	1.43
437	40.0	228.5	205.9	1.17
438	44.0	235.3	211.6	1.15
439	48.0	228.5	204.9	1.13
440	52.0	235.3	210.1	1.15
441	56.0	228.5	203.4	1.14
442	60.0	235.3	208.7	1.17
443	64.0	228.5	202.0	1.17
444	68.0	235.3	207.2	1.20
445	72.0	228.5	200.5	1.22
446	76.0	235.3	205.7	1.29
447	80.0	228.5	199.1	1.29
448	84.0	235.3	204.3	1.28
449	88.0	228.5	197.6	1.34
450	92.0	235.3	202.8	1.38
451	96.0	228.5	196.1	1.43
452	100.0	235.3	201.4	1.45
453	104.0	228.5	175.4	1.40
454	108.0	235.3	194.9	1.38
455	112.0	228.5	187.7	1.48
456	116.0	235.3	188.5	1.52
457	120.0	228.5	181.3	1.49
458	124.0	235.3	182.2	1.52
459	128.0	228.5	174.9	1.47
460	132.0	235.3	195.4	1.75
461	136.0	228.5	188.0	1.76
462	140.0	235.3	169.9	3.17

463	144.0	228.5	162.6	3.24
464	148.0	235.3	183.7	1.90
465	156.0	235.3	178.3	1.84
466	4.0	248.8	238.2	1.79
467	8.0	242.0	231.6	1.72
468	12.0	248.8	237.7	1.44
469	16.0	242.0	231.2	1.49
470	20.0	248.8	225.3	2.35
471	24.0	242.0	218.9	2.90
472	28.0	248.8	237.4	1.36
473	32.0	242.0	218.2	1.83
474	36.0	248.8	223.8	1.30
475	40.0	242.0	217.7	1.21
476	44.0	248.8	223.4	1.16
477	48.0	242.0	216.8	1.15
478	52.0	248.8	222.0	1.17
479	56.0	242.0	215.3	1.16
480	60.0	248.8	220.6	1.19
481	64.0	242.0	213.9	1.19
482	68.0	248.8	219.1	12.15
483	72.0	242.0	212.4	1.23
484	76.0	248.8	217.6	1.34
485	80.0	242.0	211.0	1.34
486	84.0	248.8	216.2	1.33
487	88.0	242.0	209.5	1.32
488	92.0	248.8	214.7	1.43
489	96.0	242.0	208.0	1.44
490	100.0	248.8	209.3	1.40
491	104.0	242.0	202.1	1.38
492	108.0	248.8	203.0	1.58
493	112.0	242.0	195.7	1.55
494	116.0	248.8	196.8	1.56
495	120.0	242.0	189.5	1.55
496	124.0	248.8	190.6	1.70
497	128.0	242.0	183.3	1.73
498	132.0	248.8	204.5	1.76
499	136.0	242.0	177.3	3.11
500	140.0	248.8	198.7	1.83
501	152.0	242.0	185.6	1.77
502	156.0	248.8	187.7	1.79
503	4.0	262.3	250.9	1.63
504	8.0	255.5	244.3	1.51
505	24.0	255.5	230.8	2.30
506	28.0	262.3	250.0	1.32
507	32.0	255.5	243.8	1.34
508	36.0	262.3	235.6	1.54
509	40.0	255.5	229.5	1.18
510	44.0	262.3	235.1	1.17
511	48.0	255.5	228.7	5.20
512	52.0	262.3	233.9	1.17
513	56.0	255.5	243.4	1.60
514	60.0	262.3	232.5	1.20
515	64.0	255.5	225.8	1.21
516	68.0	262.3	231.0	1.23
517	72.0	255.5	224.3	1.26
518	76.0	262.3	229.5	1.34
519	80.0	255.5	222.9	1.36
520	84.0	262.3	228.1	1.36
521	88.0	255.5	221.4	1.30
522	92.0	262.3	223.7	1.43
523	96.0	255.5	216.5	1.40
524	100.0	262.3	217.5	13.09
525	108.0	262.3	211.3	1.61

526	112.0	255.5	204.0	1.57
527	116.0	262.3	205.2	1.67
528	120.0	255.5	217.7	1.67
529	124.0	262.3	199.3	2.98
530	128.0	255.5	211.9	1.75
531	132.0	262.3	213.8	1.76
532	136.0	255.5	206.2	1.80
533	140.0	262.3	208.2	1.69
534	144.0	255.5	200.7	1.70
535	0.0	269.0	257.6	5.74
536	8.0	269.0	257.0	1.45
537	16.0	269.0	256.6	1.36
538	20.0	275.8	262.8	1.30
539	24.0	269.0	256.4	1.32
540	28.0	275.8	248.1	1.67
541	32.0	269.0	256.4	1.29
542	36.0	275.8	262.8	1.34
543	40.0	269.0	241.2	1.22
544	44.0	275.8	246.9	1.20
545	48.0	269.0	240.6	1.18
546	52.0	275.8	245.8	1.21
547	56.0	269.0	239.1	1.21
548	60.0	275.8	244.4	1.24
549	64.0	269.0	237.7	1.24
550	68.0	275.8	242.9	1.25
551	72.0	269.0	236.2	1.35
552	76.0	275.8	241.4	1.36
553	80.0	269.0	234.7	1.38
554	84.0	275.8	238.1	1.44
555	88.0	269.0	230.9	1.43
556	92.0	275.8	231.9	1.47
557	96.0	269.0	224.7	9.13
558	100.0	275.8	245.9	1.58
559	104.0	269.0	218.6	1.60
560	108.0	275.8	240.1	1.63
561	112.0	269.0	212.5	1.65
562	116.0	275.8	213.9	3.39
563	120.0	269.0	206.6	3.08
564	128.0	269.0	221.3	1.75
565	132.0	275.8	223.4	1.62
566	136.0	269.0	215.8	1.63
567	140.0	275.8	218.1	28.50
568	148.0	275.8	212.9	1.48
569	152.0	269.0	205.3	1.51
570	156.0	275.8	207.9	1.62
571	160.0	269.0	200.3	1.61
572	0.0	282.5	270.3	6.56
573	8.0	282.5	269.7	1.42
574	12.0	289.3	275.8	1.31
575	20.0	289.3	275.4	1.28
576	28.0	289.3	260.0	2.47
577	32.0	282.5	269.0	1.32
578	36.0	289.3	259.2	2.67
579	40.0	282.5	269.2	1.38
580	44.0	289.3	258.6	4.22
581	48.0	282.5	252.5	1.21
582	52.0	289.3	257.6	1.24
583	56.0	282.5	251.0	1.23
584	60.0	289.3	256.1	1.27
585	64.0	282.5	249.5	1.26
586	68.0	289.3	254.6	1.30
587	72.0	282.5	248.0	1.33
588	76.0	289.3	252.6	1.41

589	80.0	282.5	245.4	1.39
590	84.0	289.3	246.5	1.49
591	88.0	282.5	239.2	1.48
592	92.0	289.3	260.8	1.54
593	96.0	282.5	253.4	1.57
594	100.0	289.3	255.1	1.62
595	104.0	282.5	227.2	1.64
596	108.0	289.3	249.5	1.64
597	112.0	282.5	241.9	1.69
598	136.0	282.5	225.7	1.72
599	140.0	289.3	228.2	1.47
600	144.0	282.5	220.5	1.47
601	148.0	289.3	223.2	1.62
602	156.0	289.3	218.4	1.50
603	160.0	282.5	210.7	1.52
604	4.0	302.8	289.0	8.98
605	8.0	296.0	282.4	8.24
606	20.0	302.8	288.0	1.26
607	24.0	296.0	281.6	1.27
608	28.0	302.8	287.9	1.32
609	32.0	296.0	281.6	1.30
610	36.0	302.8	287.9	1.32
611	40.0	296.0	264.7	1.63
612	44.0	302.8	270.2	1.37
613	48.0	296.0	282.0	1.42
614	52.0	302.8	269.3	1.27
615	56.0	296.0	281.4	1.48
616	60.0	302.8	267.8	1.29
617	64.0	296.0	280.6	1.53
618	68.0	302.8	266.3	1.34
619	72.0	296.0	259.7	1.32
620	76.0	302.8	281.6	1.52
621	80.0	296.0	253.8	1.49
622	84.0	302.8	275.8	1.53
623	88.0	296.0	268.3	1.54
624	92.0	302.8	270.1	1.59
625	96.0	296.0	262.6	1.61
626	104.0	296.0	257.0	1.63
627	108.0	302.8	259.1	1.65
628	112.0	296.0	251.5	1.67
629	116.0	302.8	253.7	1.58
630	132.0	302.8	243.4	1.44
631	140.0	302.8	238.5	1.61
632	144.0	296.0	230.8	1.62
633	148.0	302.8	233.7	1.46
634	152.0	296.0	226.0	1.48
635	156.0	302.8	229.1	2.49
636	160.0	296.0	221.4	2.63
637	0.0	309.5	295.6	10.24
638	4.0	316.3	301.6	13.03
639	8.0	309.5	295.0	10.77
640	16.0	309.5	294.5	12.04
641	20.0	316.3	300.6	15.22
642	24.0	309.5	294.2	1.25
643	28.0	316.3	300.4	1.30
644	32.0	309.5	294.1	1.29
645	40.0	309.5	276.3	3.98
646	44.0	316.3	300.5	1.38
647	48.0	309.5	275.7	1.34
648	52.0	316.3	281.0	1.34
649	56.0	309.5	274.4	1.29
650	60.0	316.3	279.5	1.32
651	64.0	309.5	272.9	1.33

652	68.0	316.3	275.7	4.39
653	72.0	309.5	289.0	1.52
654	76.0	316.3	290.8	1.52
655	80.0	309.5	262.4	11.76
656	84.0	316.3	285.1	1.57
657	88.0	309.5	277.6	1.58
658	92.0	316.3	279.6	1.59
659	96.0	309.5	272.1	1.59
660	104.0	309.5	266.6	1.64
661	108.0	316.3	268.9	1.58
662	112.0	309.5	261.3	1.58
663	116.0	316.3	263.7	1.69
664	124.0	316.3	258.7	1.42
665	136.0	309.5	246.1	1.60
666	140.0	316.3	249.0	6.97
667	152.0	309.5	236.7	2.38
668	4.0	329.8	314.2	30.27
669	8.0	323.0	307.6	19.85
670	12.0	329.8	313.6	41.55
671	16.0	323.0	307.1	20.10
672	20.0	329.8	313.2	43.17
673	24.0	323.0	306.8	22.51
674	28.0	329.8	313.0	39.49
675	32.0	323.0	306.7	1.30
676	36.0	329.8	312.9	1.35
677	40.0	323.0	306.7	1.37
678	44.0	329.8	313.0	1.43
679	48.0	323.0	287.3	1.57
680	52.0	329.8	292.8	1.50
681	56.0	323.0	286.2	1.37
682	60.0	329.8	311.5	1.52
683	64.0	323.0	304.0	1.52
684	68.0	329.8	305.8	1.51
685	72.0	323.0	298.3	1.54
686	76.0	329.8	300.2	1.54
687	80.0	323.0	271.3	1.76
688	84.0	329.8	294.7	1.56
689	96.0	323.0	281.8	1.61
690	104.0	323.0	276.5	1.56
691	112.0	323.0	271.4	1.60
692	116.0	329.8	274.0	7.87
693	132.0	329.8	264.3	3.48
694	136.0	323.0	256.7	4.28
695	140.0	329.8	259.7	2.17
696	144.0	323.0	252.1	2.23
697	12.0	343.3	326.2	1.18
698	16.0	336.5	319.7	104.94
699	20.0	343.3	325.8	1.21
700	32.0	336.5	300.4	2.69
701	36.0	343.3	325.5	1.36
702	40.0	336.5	319.2	1.36
703	44.0	343.3	305.0	20.00
704	48.0	336.5	319.4	1.43
705	52.0	343.3	325.8	1.50
706	56.0	336.5	297.7	4.44
707	60.0	343.3	320.8	1.49
708	64.0	336.5	313.3	1.51
709	68.0	343.3	315.3	1.50
710	72.0	336.5	307.8	1.54
711	76.0	343.3	309.9	1.54
712	80.0	336.5	302.3	1.54
713	88.0	336.5	297.0	1.57
714	92.0	343.3	299.4	1.56

715	96.0	336.5	291.7	16.49
716	100.0	343.3	294.3	1.56
717	104.0	336.5	286.6	1.55
718	120.0	336.5	276.7	1.56
719	124.0	343.3	279.7	2.80
720	128.0	336.5	272.0	3.07
721	132.0	343.3	275.1	2.10
722	136.0	336.5	267.4	2.13
723	16.0	350.0	332.3	1.20
724	24.0	350.0	331.9	1.27
725	40.0	350.0	331.8	1.41
726	48.0	350.0	310.5	20.00
727	56.0	350.0	328.4	1.48
728	64.0	350.0	322.9	1.50
729	80.0	350.0	312.2	1.56
730	104.0	350.0	296.9	1.46
731	112.0	350.0	292.1	1.54
732	120.0	350.0	287.3	2.61
733	128.0	350.0	282.7	2.07

==========