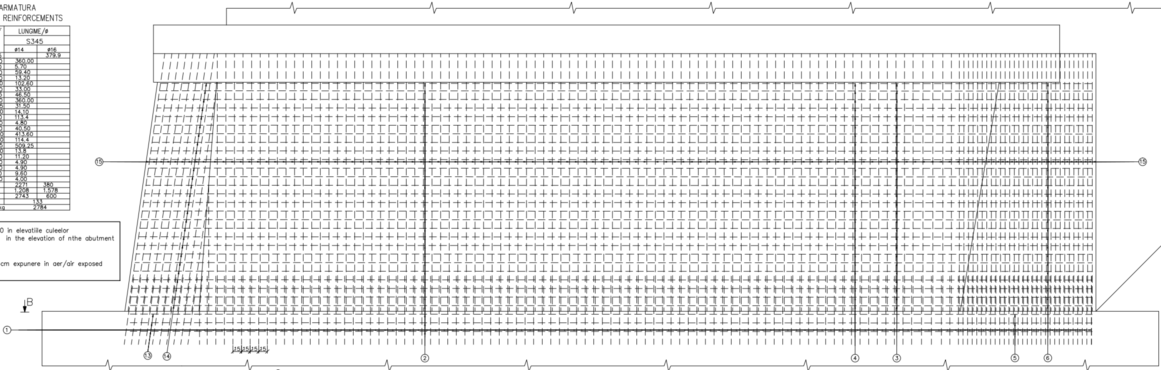
EXTRAS DE ARMATURA
MEASURING OF THE REINFORCEMENTS

Element	Marca	ø	Nr. Buc.	Lung/buc.	LUNGIME/ø S345 ø14	LUNGIME/ø S345 ø16
Elevatie Elevation	1	16	262	1.45		379.9
	2	14	30	12.00	360.00	
	3	14	3	1.90	5.70	
	4	14	27	2.20	59.40	
	5	14	3	4.40	13.20	
	6	14	27	3.80	102.60	
	7	14	30	1.10	33.00	
	8	14	30	1.55	46.50	
	9	14	30	12.00	360.00	
	10	14	30	1.05	31.50	
	11	14	3	4.70	14.10	
	12	14	27	4.20	113.4	
	13	14	3	1.60	4.80	
	14	14	27	1.50	40.50	
	15	14	88	4.70	413.60	
	15a	14	22	5.20	114.4	
	16	14	105	4.85	509.25	
	17	14	6	2.30	13.8	
	18	14	7	1.60	11.20	
	19	14	1	4.90	4.90	
	20	14	1	4.90	4.90	
	21	14	4	2.40	9.60	
	22	14	2	2.00	4.00	
	Lungimi/ø				2271	380
	Greutati/ml				1.208	1.578
	Greutati/ø				2743	600
	Pierderi 5%				133	
	TOTAL GENERAL kg				2784	

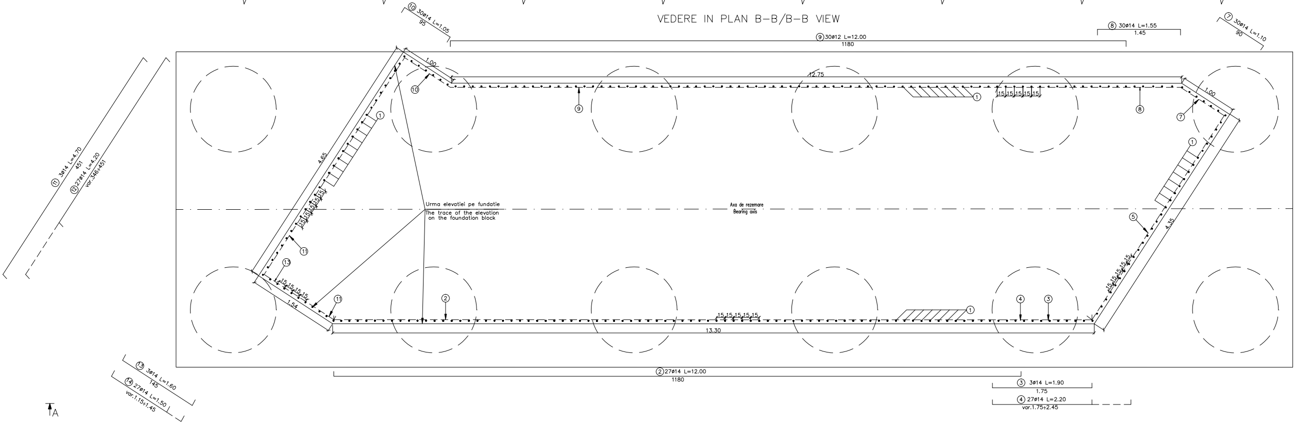
Beton: Concrete:	– C25/30 in elevatiile culeelor in the elevation of nthe abutment
Armatura: Reinforcement:	– S355;
Strat de acoperire: Concrete cover	– min. 4cm expunere in aer/air exposed

ARMAREA ELEVATIEI/REINFORCEMENT ELEVATION
VEDERE DIN FATA A–A CULEEA BRAS□V (SIGHIS□ARA)
BRASOV (SIGHISOARA) ABUTMENT A–A VIEW

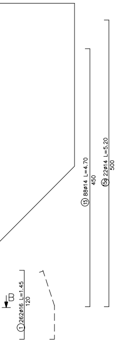


B
15
15
1
13
14
15
15
15
15
2
4
3
5
6
15

VEDERE IN PLAN B–B/B–B VIEW

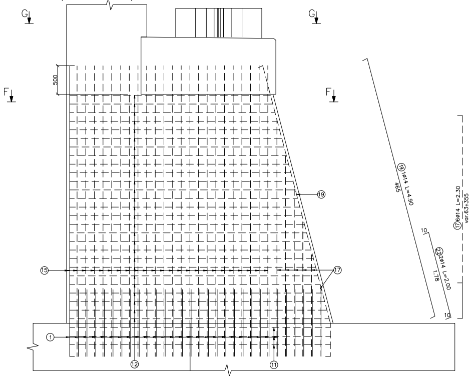


10 30ø14 L=1.05
95
9 30ø12 L=12.00
1180
8 30ø14 L=1.55
1.45
7 30ø14 L=1.10
90
1.00
10
12.75
9
1
15 15 15 15 15
8
1.00
7
1
4.65
1
15 15 15 15
11 3ø14 L=4.70
451
12 27ø14 L=4.20
var.346÷451
Urma elevatiei pe fundatie
The trace of the elevation on the foundation block
Axa de rezemare
Bearing axis
5
4.35
11
13
15 15 15 15
1.54
11
2
15 15 15 15 15
1
4
3
15 15 15 15 15
13.30
2 27ø14 L=12.00
1180
3 3ø14 L=1.90
1.75
4 27ø14 L=2.20
var.1.75÷2.45
13 3ø14 L=1.60
145
14 27ø14 L=1.50
var.1.15÷1.45
A



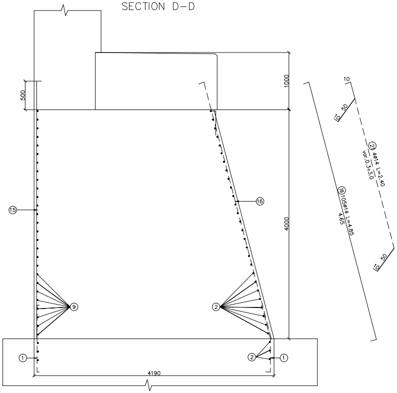
B
① 262ø16 L=1.45
120
⑮ 88ø14 L=4.70
450
15a 22ø14 L=5.20
500

VEDERE C-C CULEEA BRASOV (SIGHISOARA)-ELEVATIE
BRASOV (SIGHISOARAI) ABUTMENT C-C VIEW-ELEVATION



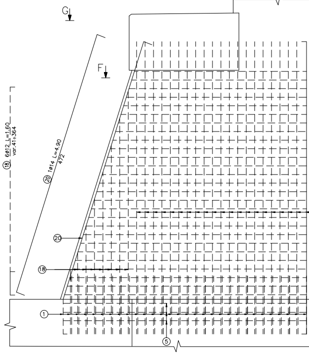
G
G
F
F
500
⑮
⑮
①
⑫
⑪
⑲
⑰
⑲ 1ø14 L=4.90
465
10
㉒ 2ø14 L=2.00
1.78
10
⑰ 6ø14 L=2.30
var.63÷355

SECTIUNE D-D
SECTION D-D

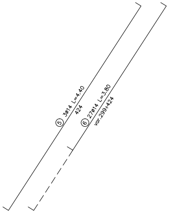


500
1000
4000
⑮
⑨
⑯
②
①
②
①
4190
10
50
10
㉑ 4ø14 L=2.40
var.0.3÷3.0
50
10
⑯ 105ø14 L=4.85
4.65

VEDERE E-E CULEEA BRASOV (SIGHISOARA)-
BRASOV (SIGHISOARA) ABUTMENT E-E VIEW-

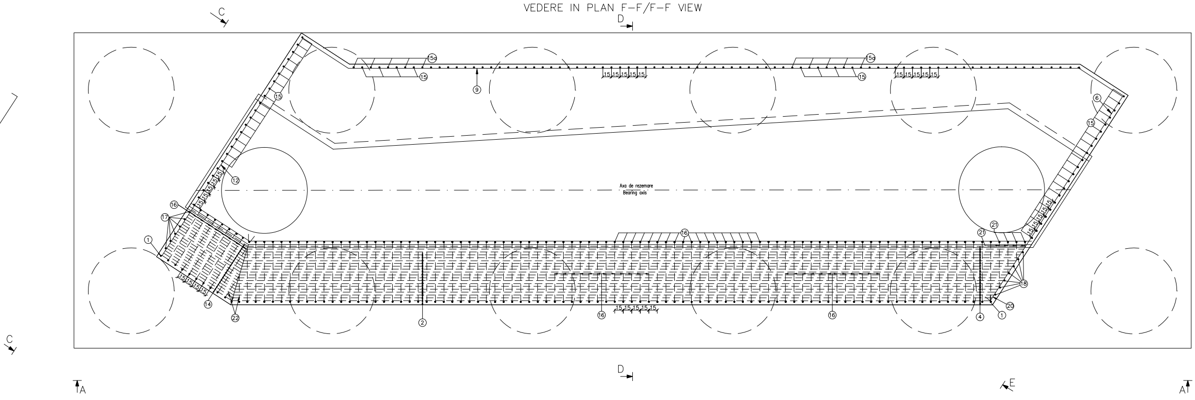


G
F
⑱ 6ø12 L=1.60
var.41÷364
⑳ 1ø14 L=4.90
472
⑳
⑱
①
⑤



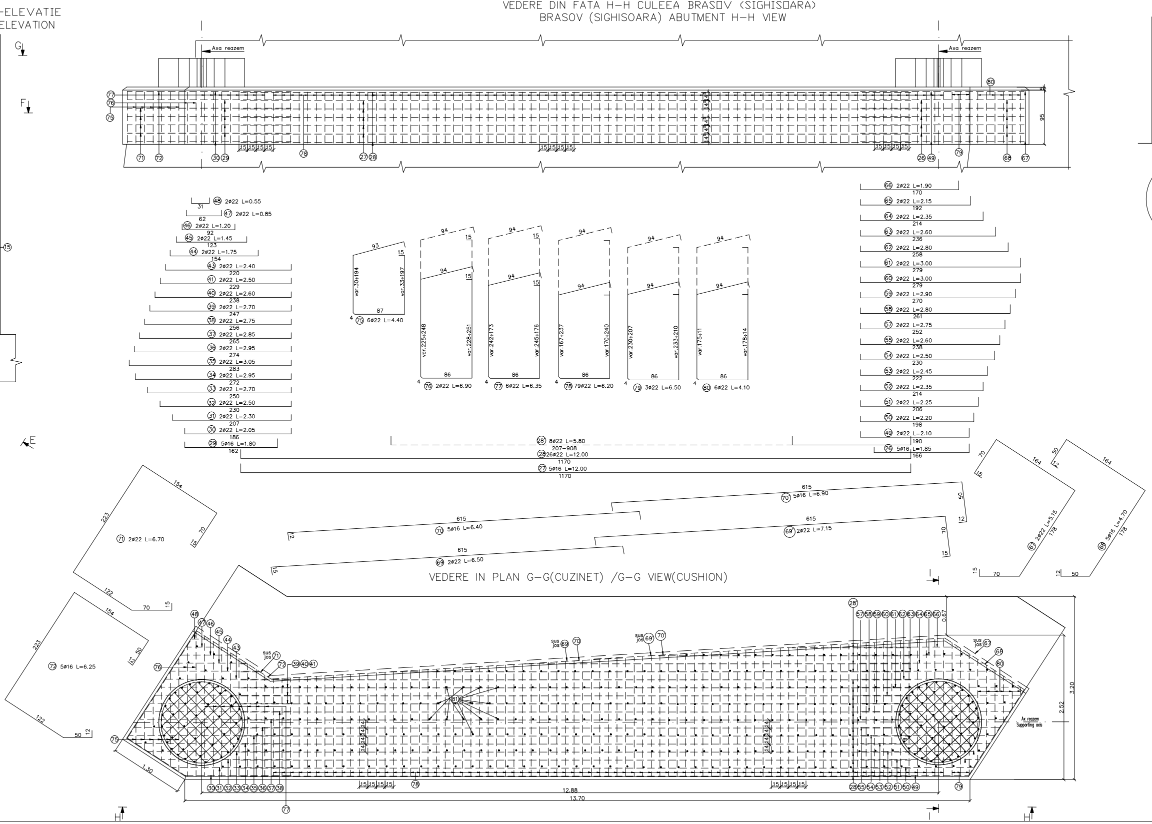
⑤ 3ø14 L=4.40
424
⑥ 27ø14 L=3.80
var.299÷424

VEDERE IN PLAN F-F/F-F VIEW

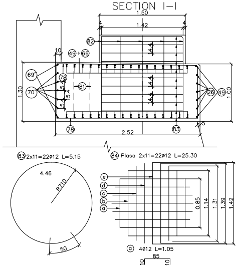


C
D
15a
⑮
15a
⑮
15 15 15 15 15
15 15 15 15 15
⑨
⑥
⑮
⑮
⑫
15 15 15 15
15 15 15 15
⑯
⑰
①
Axa de rezemare
Bearing axis
⑯
㉑
㉑
15 15 15 15
⑱
⑳
①
④
⑯
⑯
15 15 15 15 15
②
⑭
㉒
C
A
D
E
A

ARMAREA CUZINETILOR SI A BANCHETEI CUZINETILOR/ CUSHION REINFORCEMENT
VEDERE DIN FATA H–H CULEEA BRASOV (SIGHISOARA)
BRASOV (SIGHISOARA) ABUTMENT H–H VIEW


-ELEVATIE
ELEVATION
G
F
E
H
I
Axa reazem
15
95
48 2ø22 L=0.55
31
47 2ø22 L=0.85
62
46 2ø22 L=1.20
92
45 2ø22 L=1.45
123
44 2ø22 L=1.75
154
43 2ø22 L=2.40
220
41 2ø22 L=2.50
229
40 2ø22 L=2.60
238
39 2ø22 L=2.70
247
38 2ø22 L=2.75
256
37 2ø22 L=2.85
265
36 2ø22 L=2.95
274
35 2ø22 L=3.05
283
34 2ø22 L=2.95
272
33 2ø22 L=2.70
250
32 2ø22 L=2.50
230
31 2ø22 L=2.30
207
30 2ø22 L=2.05
186
29 5ø16 L=1.80
162
75 6ø22 L=4.40
var.30÷194
var.33÷197
93
87
76 2ø22 L=6.90
var.225÷248
var.228÷251
77 6ø22 L=6.35
var.242÷173
var.245÷176
78 79ø22 L=6.20
var.167÷237
var.170÷240
79 3ø22 L=6.50
var.230÷207
var.233÷210
80 6ø22 L=4.10
var.175÷11
var.178÷14
94
86
66 2ø22 L=1.90
170
65 2ø22 L=2.15
192
64 2ø22 L=2.35
214
63 2ø22 L=2.60
236
62 2ø22 L=2.80
258
61 2ø22 L=3.00
279
60 2ø22 L=3.00
279
59 2ø22 L=2.90
270
58 2ø22 L=2.80
261
57 2ø22 L=2.75
252
55 2ø22 L=2.60
238
54 2ø22 L=2.50
230
53 2ø22 L=2.45
222
52 2ø22 L=2.35
214
51 2ø22 L=2.25
206
50 2ø22 L=2.20
198
49 2ø22 L=2.10
190
26 5ø16 L=1.85
166
28' 8ø22 L=5.80
207–908
28 26ø22 L=12.00
1170
27 5ø16 L=12.00
1170
70 5ø16 L=6.90
615
70 5ø16 L=6.40
615
69' 2ø22 L=7.15
615
69 2ø22 L=6.50
615
67 2ø22 L=5.15
68 5ø16 L=4.70
164
178
71 2ø22 L=6.70
154
223
122
70
72 5ø16 L=6.25
VEDERE IN PLAN G–G(CUZINET) /G–G VIEW(CUSHION)
sus
jos
Ax reazem
Supporting axis
0.67
2.52
3.20
1.30
12.88
13.70

SECTIUNE I–I
SECTION I–I


1.50
1.42
1.30
1.00
2.52
14.4
15.4
69'
70'
78
49
66
82
81
83
26
83 2x11=22ø12 L=5.15
84 Plasa 2x11=22ø12 L=25.30
4.46
R710
50
e
d
c
b
a
0.85
1.14
1.31
1.39
1.42
a 4ø12 L=1.05
85
10

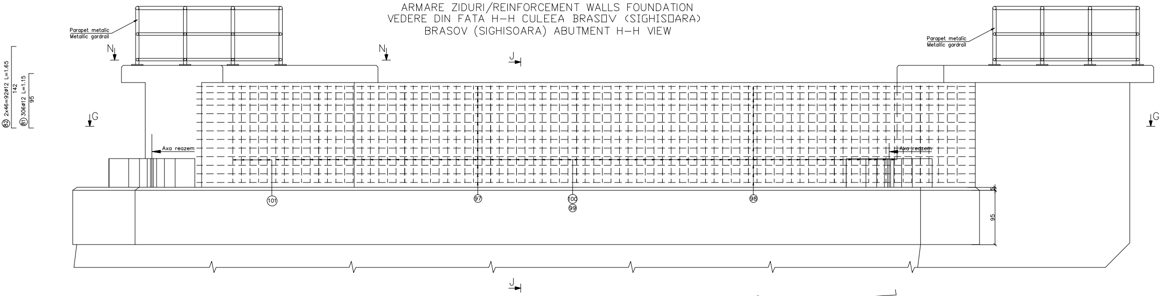
EXTRAS DE ARMATURA PENTRU O PLASA

MARCA	DIAMETRU	BUC. ASEMENEA	LUNGIME PE BUCATA	LUNGIME/ø S355 ø12
a	12	4	1.05	4.20
b	12	4	1.35	5.4
c	12	4	1.50	6.00
d	12	4	1.60	6.40
e	12	2	1.65	3.30
LUNGIMI PE DIAMETRU (m)				25.3

EXTRAS DE ARMATURA
MEASURING OF THE REINFORCEMENTS

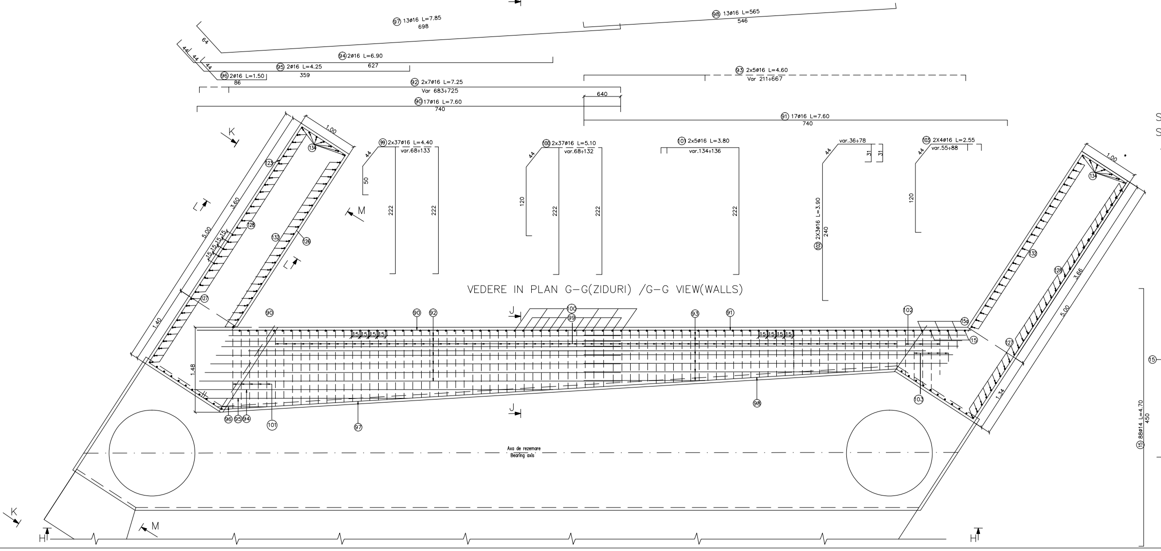
Element	Marca	ø	Nr. Buc.	Lung/buc.	LUNGIME/ø PC 52(S355,S365) ø12	ø16	ø22
Cuzinet/Cushion	26	16	5	1.85		9.25	
	27	16	5	12.00		60.00	
	28	22	26	12.00			312.00
	28'	22	8	5.80			46.40
	29	16	5	1.80		9.00	
	30	22	2	2.05			4.10
	31	22	2	2.30			4.60
	32	22	2	2.50			5.00
	33	22	2	2.70			5.40
	34	22	2	2.95			5.90
	35	22	2	3.05			6.10
	36	22	2	2.95			5.90
	37	22	2	2.85			5.70
	38	22	2	2.75			5.50
	39	22	2	2.70			5.40
	40	22	2	2.60			5.20
	41	22	2	2.50			5.00
	43	22	2	2.40			4.80
	44	22	2	1.75			3.50
	45	22	2	1.45			2.90
	46	22	2	1.20			2.40
	47	22	2	0.85			1.70
	48	22	2	0.55			1.10
	49	22	2	2.10			4.20
	50	22	2	2.20			4.40
	51	22	2	2.25			4.50
	52	22	2	2.35			4.70
	53	22	2	2.45			4.90
	54	22	2	2.50			5.00
	55	22	2	2.60			5.20
	57	22	2	2.75			5.50
	58	22	2	2.80			5.60
	59	22	2	2.90			5.80
	60	22	2	3.00			6.00
	61	22	2	3.00			6.00
	62	22	2	2.80			5.60
	63	22	2	2.60			5.20
	64	22	2	2.35			4.70
	65	22	2	2.15			4.30
	66	16	2	1.90			3.80
	67	22	2	5.15			10.30
	68	16	5	4.70		23.5	
	69	22	2	6.50			13.00
	69'	22	2	7.15			14.30
	70	16	5	6.40		32.00	
	70'	16	5	7.15		35.75	
	71	22	2	6.70			13.40
	72	16	5	6.25		31.25	
	75	22	6	4.40			26.40
	76	22	2	6.90			13.80
	77	22	8	6.35			50.80
	78	22	79	6.20			489.80
	79	22	3	6.50			19.50
	80	22	6	4.10			24.60
	81	12	306	1.15	351.90		
	82	12	92	1.65	151.80		
	83	12	22	5.15	113.3		
	84	12	22	25.30	556.60		
	Lungimi/ø				1173.6	200.75	1199.9
	Greutati/ml				0.888	1.578	2.984
	Greutati/ø				1043	317	3581
	TOTAL kg				4941		
	Pierderi 5%				247		
	TOTAL GENERAL kg				5188		

ARMARE ZIDURI/REINFORCEMENT WALLS FOUNDATION
VEDERE DIN FATA H-H CULEEA BRASOV (SIGHISOARA)
BRASOV (SIGHISOARA) ABUTMENT H-H VIEW



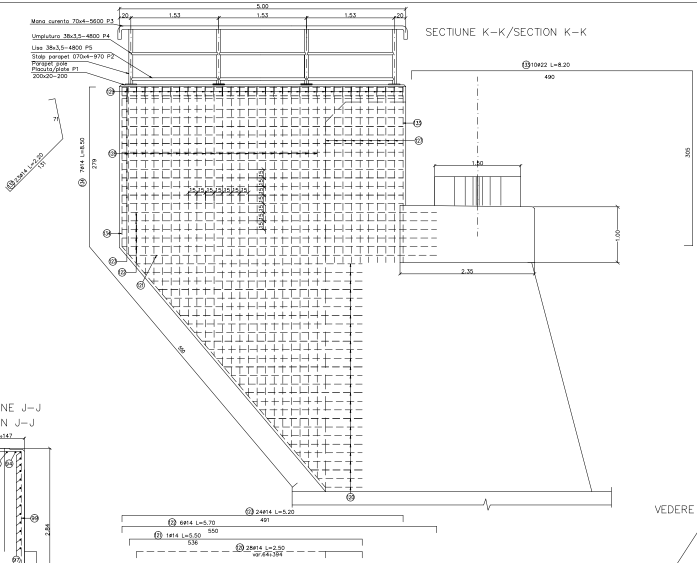
Parapet metalic
Metallic gardrail
N
N
J
G
G
⑧② 2x46=92ø12 L=1.65
142
⑧① 306ø12 L=1.15
95
Axa reazem
Axa reazem
(101)
(97)
(100)
(99)
(98)
5
95
J

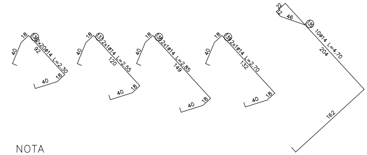
VEDERE IN PLAN G-G(ZIDURI) /G-G VIEW(WALLS)



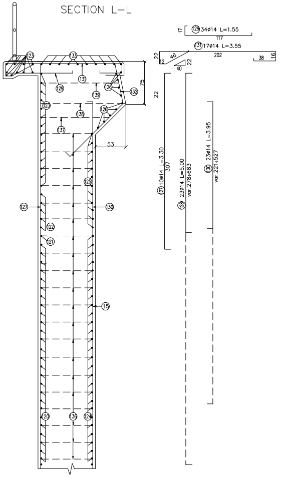
(97) 13ø16 L=7.85
698
64
(98) 13ø16 L=565
546
(94) 2ø16 L=6.90
627
44
44
44
(95) 2ø16 L=4.25
359
(96) 2ø16 L=1.50
86
(93) 2x5ø16 L=4.60
Var 211÷667
(92) 2x7ø16 L=7.25
Var 683÷725
640
(90) 17ø16 L=7.60
740
(91) 17ø16 L=7.60
740
K
1.00
(134)
(123)
(99) 2x37ø16 L=4.40
var.68÷133
44
50
222
222
(100) 2x37ø16 L=5.10
var.68÷132
44
120
222
222
(101) 2x5ø16 L=3.80
var.134÷136
222
var.36÷78
44
31
31
(102) 2x3ø16 L=3.90
240
(103) 2X4ø16 L=2.55
var.55÷88
44
120
1.00
(134)
M
3.60
5.00
(128)
(132)
(126)
15 15 15
(127)
1.40
(90)
(90)
(92)
J
(100)
(99)
(93)
(91)
(102)
15 15 15 15
15 15 15 15
(15a)
(15)
(132)
(128)
3.66
5.00
(127)
1.34
1.48
(96) (95) (94)
(101)
(97)
(98)
(103)
J
Axa de rezemare
Bearing axis
K
M
H
H
⑮ 88ø14 L=4.70
450
⑮

SECTIUNE K-K/SECTION K-K

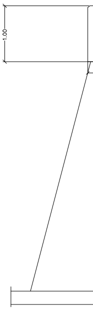

5.00
20
1.53
1.53
1.53
20
Mana curenta 70x4-5600 P3
Umplutura 38x3,5-4800 P4
Lisa 38x3,5-4800 P5
Stalp parapet 070x4-970 P2
Parapet pole
Placuta/plate P1
200x20-200
133 10ø22 L=8.20
490
305
129
133
127
128
134 7ø14 L=8.50
279
132 23ø14 L=2.20
131
71
15 15 15 15 15 15 15
15 15 15 15 15 15
1.50
1.00
2.35
134
123
122
121
550
120
123 24ø14 L=5.20
491
122 6ø14 L=5.70
550
121 1ø14 L=5.50
536
120 28ø14 L=2.50
var.64÷394


136 2x20ø14 L=2.30
40
18
92
40
18
137 2x1ø14 L=2.55
40
18
120
40
18
138 2x1ø14 L=2.85
40
18
149
40
18
139 2x1ø14 L=2.70
40
18
132
40
18
135 10ø14 L=4.70
22
12
46
204
162

SECTIUNE L-L
SECTION L-L

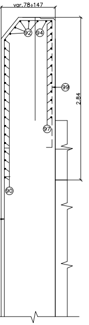

123
133
129
131
126
132
139
123
138
126
137
75
53
125
127
130
122
121
15
120
136
124
17
129 34ø14 L=1.55
117
131 17ø14 L=3.55
22
46
12
40
22
202
38
16
22
127 10ø14 L=3.30
307
128 23ø14 L=5.00
var.278÷683
130 23ø14 L=3.95
var.221÷527

SECTIUNE

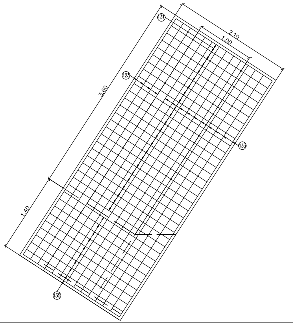


MATER

ECTIUNE J-J
ECTION J-J


var.78÷147
92
94
99
2.84
97
90

VEDERE IN PLAN N-N/N-N VIEW


131
2.10
1.00
3.60
123
133
1.40
139

NOTA

Pentru mentinerea pozitiei corecte in timpul betonarii, se vor monta distantieri minim 4buc./m .
Distantierii trebuie legati cu sarma de carcasa de armatura.

NOTA

In order to maintain the correct position during concreting, minimum 4pcs./m^2 distance pieces shall be mounted.
The distance pieces shall be connected to the reinforcing framework, using wire.

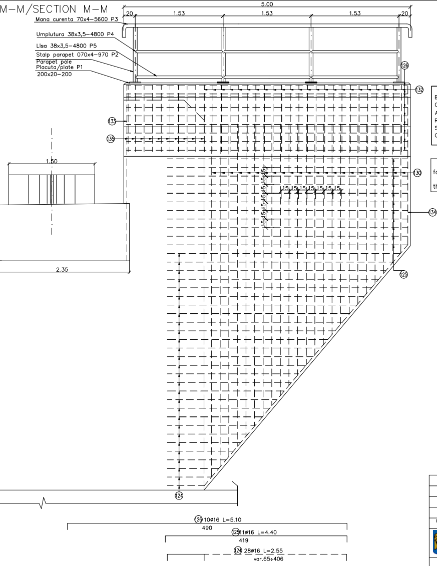
EXTRAS DE ARMATURA
MEASURING OF THE REINFORCEMENTS

Element	Marca	ø	Nr. Buc.	Lung/buc.	LUNGIME/ø			
					PC 52(S355, S345)			
					ø12	ø14	ø16	ø22
Zid de garda	90	16	17	7.60			129.2	
	91	16	17	7.60			129.2	
	92	16	14	7.25			101.5	
	93	16	14	4.60			64.4	
	94	16	2	6.90			13.8	
	95	16	2	4.25			8.5	
	96	16	2	1.50			3.00	
	97	16	13	7.85			102.05	
	98	16	13	5.65			73.45	
	99	16	72	4.40			316.80	
	100	16	72	5.10			367.2	
	101	16	10	3.80			38.00	
	102	16	3	3.90			11.70	
	103	16	4	2.55			10.20	
	Lungimi/ø						1369.00	
	Greutati/ml				0.888	1.208	1.578	2.984
	Greutati/ø						2161	
	TOTAL						2161	
	Pierderi 5%						108	
	TOTAL GENERAL kg						2269	

Element	Marca	ø	Nr. Buc.	Lung/buc.	ø12	ø14	ø16	ø22
Ziduri Intoarse	120	14	27	2.50		67.50		
	121	14	1	5.50		5.50		
	122	14	6	5.70		34.20		
	123	14	24	5.20		148.80		
	124	16	28	2.55			71.4	
	125	16	11	4.40			48.40	
	126	16	10	5.10			51.00	
	127	14	10	3.30		33.00		
	128	14	23	5.00		115.0		
	129	14	34	1.65		56.10		
	130	14	23	3.95		90.85		
	131	14	17	1.55		26.35		
	132	14	23	2.20		50.60		
	133	22	10	8.20				82.00
	134	14	7	8.30		58.10		
	135	14	10	4.70		47.00		
	136	14	40	2.30		92.00		
	137	14	2	2.55		5.10		
	138	14	2	2.85		5.70		
	139	14	2	2.70		5.40		
	Lungimi/ø					841.2	170.8	82.00
	Greutati/ml				0.888	1.208	1.578	2.984
	Greutati/ø					1017	270	245
	TOTAL						1532	
	Pierderi 5%						77	
	TOTAL – un zid kg							1609
	TOTAL GENERAL – DOUA ZIDURI INTOARSE kg							3218

TOTAL ARMATURA – O CULEE/ ONE ABUTMENT REINFORCEMENTS

ELEVATIE / ELEVATION [KG]	2784
CUZINETI,BANCEHTA CUZINETILOR / CUSHION [KG]	5188
ZIDURI INTOARSE+ZID DE GARDA / WALLS [KG]	2269+3218=5487
TOTAL [KG]	13459


M–M/SECTION M–M
5.00
20
1.53
1.53
1.53
20
Mana curenta 70x4–5600 P3
Umplutura 38x3,5–4800 P4
Lisa 38x3,5–4800 P5
Stalp parapet 070x4–970 P2
Parapet pole
Placuta/plate P1
200x20–200
126
132
133
135
130
134
125
124
1.50
2.35
15 15 15 15 15 15 15
15 15 15 15 15 15 15
126 10ø16 L=5.10
490
125 11ø16 L=4.40
419
124 28ø16 L=2.55
var.65÷406

Beton: – C35/45 in cuzineti si in bancheta cuzinetilor
Concrete: in the cushionsh and cushions bench
Armatura: – S355; S345
Reinforcement:
Strat de acoperire: – min. 4cm expunere in aer/air exposed
Concrete cover

Beton: – C25/30 in elevatiile culeelor
Concrete: in the elevation of nthe abutment
Armatura: – S355 (PC 52; ø12–ø14)
Reinforcement: – S345 (PC 52; ø16–ø22)
Strat de acoperire: – min. 4cm expunere in aer/air exposed
Concrete cover

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IAL METALIC PENTRU CONFECTIONAREA PARAPETULUI PENTRU O CULEE
THE METALLIC MATERIAL TO BUILD PARAPET OF ONE ABUTMENT

Poz. Piece	Denumirea materialului The denomination of the material OL EN 10025 – S235 JR	Buc.	Sectiune Section	Lung. Long. (mm)	Sectiune/Section		
					kg/ml	kg/buc	kg
P1	Stalp parapet EN 10297 – E275 Parapet pole	8	70x4	970	6.51	6.32	50.56
P2	Placuta prindere Clamping plate	8	200x20	200	31.40	6.28	50.24
P3	Mana curenta EN 10297 – E275 Handrail	2	70x4	5000	6.51	32.55	65.10
P4	Umplutura EN 10058 Filling	6	38x3,5	1530	2.98	4.56	27.35
P5	Lisa EN 10058 Ledge	6	38x3,5	1530	2.98	4.56	27.35
			Total partial Partially total				230.95
			Sudura 2% Welding 2%				4.62
			TOTAL kg				236

Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR
D					
C					
B					
A					

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EURO
EUROPEAN UNION FINANCED PI

CLIENT / CLIENT

C.N.C.F. "C.F.R." - S.A.

ITALFERR
GRUPPO FERROVIE DELLO STATO
Joint Venture leader

Scott Wilson

OBERMEYER
PLANEN • BERATEN GmbH

TECNIC
Consulting Engineers

CONSULTANT / CONSULTANT

			Data Date	Semnătură Signature
Aprobat Approved	Șef proiect Project manager	R. Liuzza	02.2012	
Aprobat Approved	Coordonator Secțiune 1 Section 1 Coordinator	C. Gamballi	02.2012	
Verificat Checked	Expert Cheie Checking Expert	V.Kallidromitis	02.2012	

SUBCONTRACTANT / SUBCONTRACTOR

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Dinulescu Stanciu	02.2012	
Întocmit Elaborated	Proiectant Designer	Olar Mihai	02.2012	

Reabilitarea liniei de cale ferata Brașov - Simeria, parte componentă a coridorului IV Pan European, pentru circulația trenurilor cu viteza maximă de 160 km/h,
Tronsonul : Brașov - Sighișoara
Rehabilitation of the railway line Brașov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h,
Section : Brașov - Sighișoara

Proiect/Project
2004/RO/16/P/PA/003

Faza / Phase:
P.Th. / T.D.

Denumire desen / Drawing Title : Interval ARCHITA - VANATORI
POD km 266+382.312 -G.Z.C.J.C.B. D=35.00m
ARMARE CULEEA BRASOV(SIGHISOARA)
BRIDGE km 266+382.312 - D=35.00m
REINFORCEMENT BRASOV(SIGHISOARA) ABUTMENT

Codificare / Codification System	Scara / Scale 1:25	LOT / LOT	Nr. / No 01 / 01
EA51 01 E 16 BC PV 03 9 2 005 0			