WORKING DRAWINGS

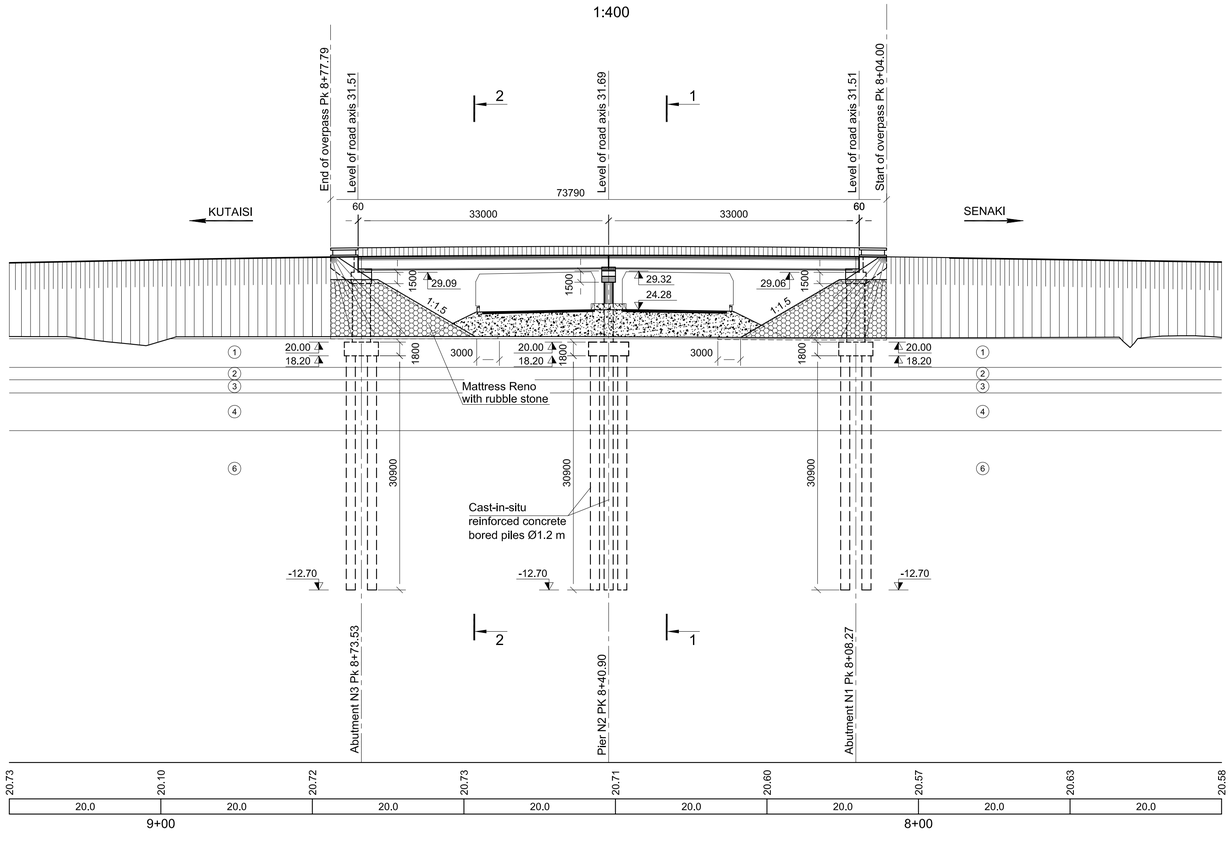
BRIDGES AND

OVERPASSES

CONTENT

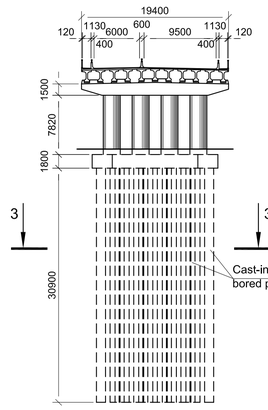
B-1 OVERPASS AT PK 7+00

Scale
1:400

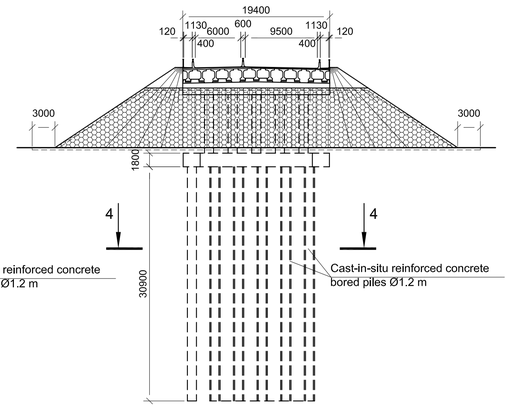


Scale
1:400

1-1

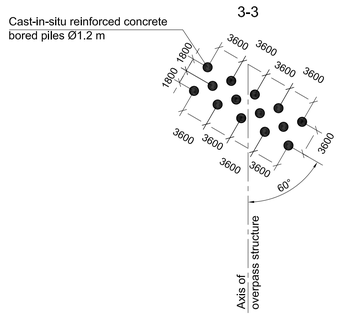


2-2

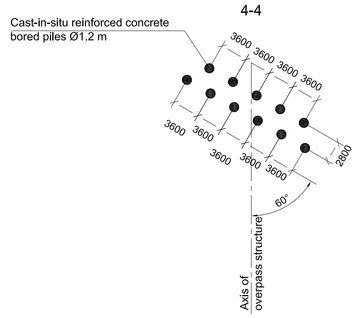


Scale
1:400

3-3

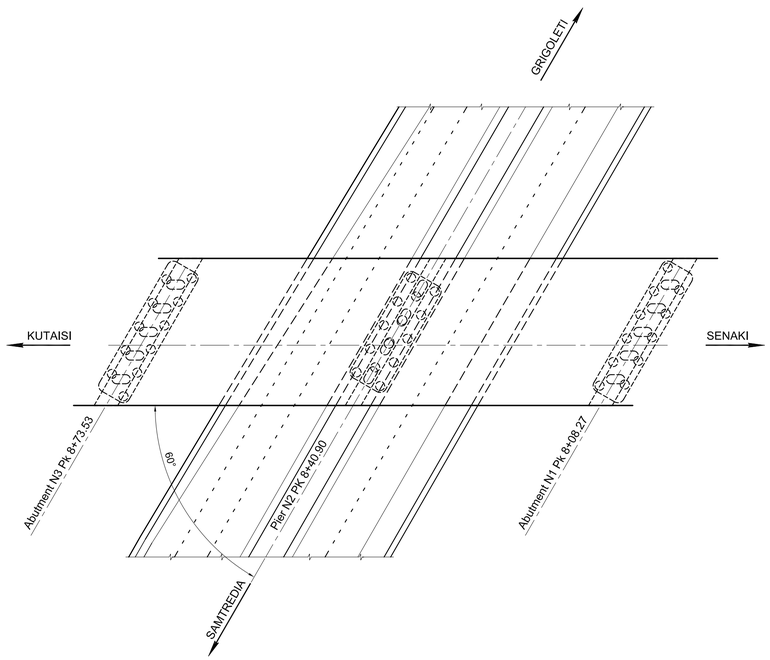


4-4



Plan

Scale
1:400



Soils

(1) Brown, stiff clay, with occasional gravel inclusions - 8[b]
- ρ=1.90 t/m³, e=0.846, I_L=0.37, φ=14.2°, C =39.6 KPa, E_0=15.8 MPa, E_{EL}=60 MPa, R_0=0.15 MPa

(2) Gray-rustish, firm clay, with fine water-containing sand bands and lenses - 8[a]
- ρ=1.79 t/m³, e=1.035, I_L=0.62, φ=7.4°, C =8.5 KPa, E_0=7.0 MPa, E_{EL}=24 MPa, R_0=0.05 MPa

(3) Gray and dark gray, water-saturated, fine silty SAND with thin bands of soft, gray clay
- ρ=1.65 t/m³, φ=26°, e=1.02, C =2 KPa, R_0=0.1 MPa, E_0=11 MPa, E=80 MPa

(4) Soft, gray, intermediate plasticity clay
- ρ=1.85 t/m³, φ=8.2°, I_L=0.61, e=1.015, C =7.7 KPa, R_0=0.05 MPa, E_0=7 MPa, E=24 MPa

(6) Water-saturated fine and medium-grained gravelly soil, with gray sand and sandy clay, with up to 10% cobbles inclusions - 6[a]
- ρ=1.75 t/m³, φ=25°, C =10 KPa, E_0=40 MPa, E_{EL}=300 MPa, R_0=0.5 MPa

Deepening whilst construction of piles shall be determined on site, in accordance with geological changes.
Monitoring is indispensable part of the works.

Abutments shall be filled with coarse rocky soil (layers h=0.5 m shall be wedged) to improve their static and dynamic operation.

Note

1.The overpass is located on vertical curve R=3000 m.

ALT-E60-L1-B-7+00-001-01					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
Engineer	R.Harlander				
Proj.Manag.	A. Valuikin				
Checked by	H.Gorobinskaya				Overpass PK 7+00
Exec. by	R.Garpolyuk				General view of overpass

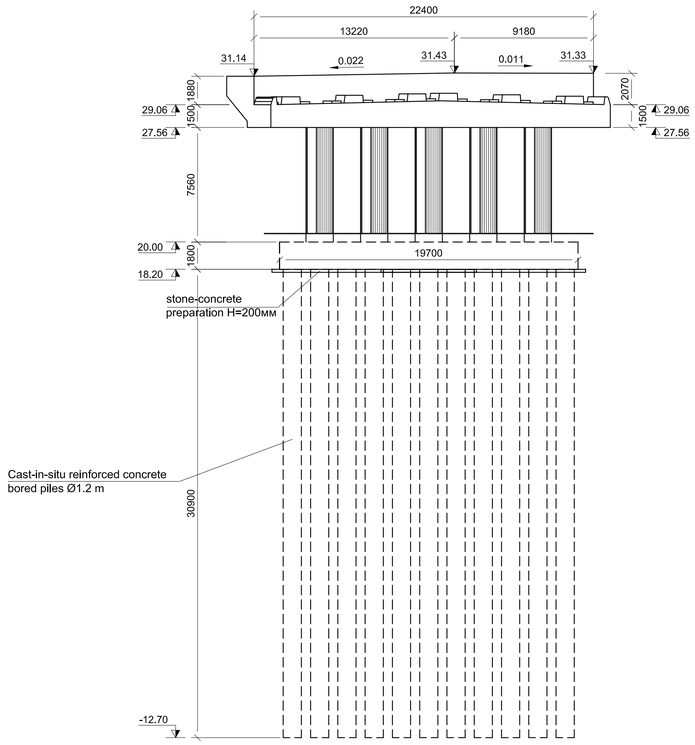
Stage	Sheet	Sheets
WD	1	1

ALTCOM Road Building

"Road Building "Altcom" LLC

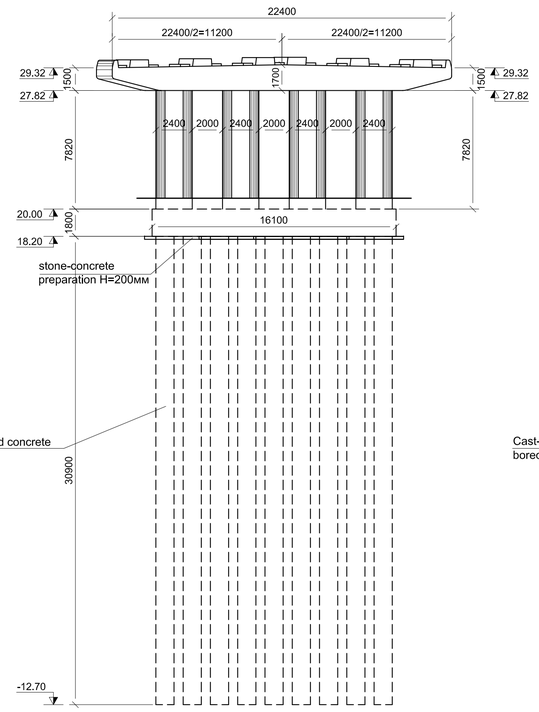
Abutment N1 Pk 8+08.27
/ Embankment is not shown /

Scale
1:200



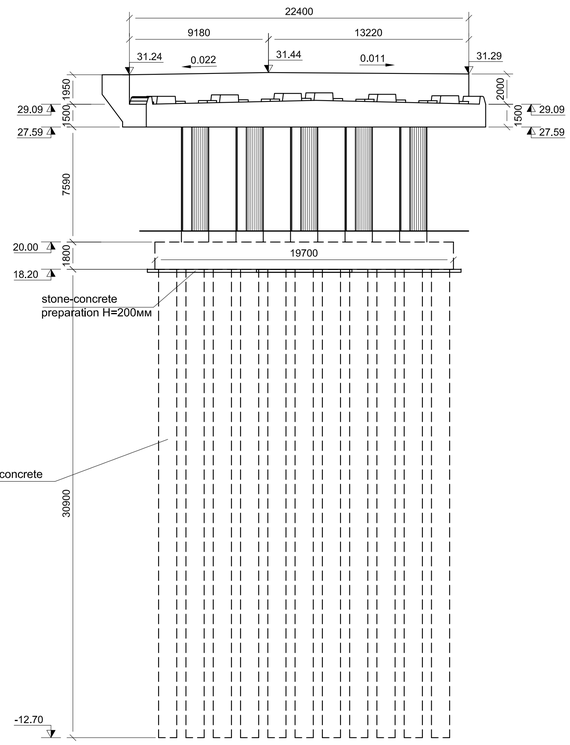
Pier N2 Pk 8+40.90

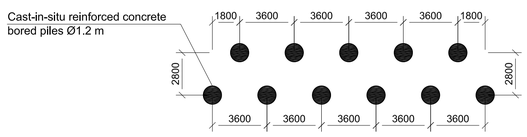
Scale
1:200

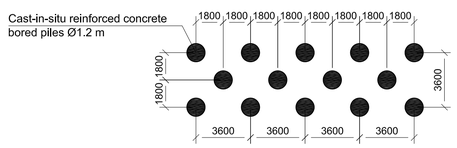


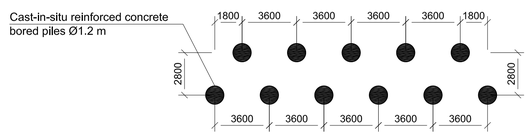
Abutment N3 Pk 8+73.53
/ Embankment is not shown /

Scale
1:200









Bill of materials for crushed stone-concrete preparation

Constructive	Material	Volume m3
1	2	3
Abutment N1 Pk 8+08.27	gravel	22.5
	C 16/20 X0 S3 D22	10.0
Pier N2 Pk 8+40.90	gravel	21.5
	C 16/20 X0 S3 D22	9.5
Abutment N3 Pk 8+73.53	gravel	22.5
	C 16/20 X0 S3 D22	10.0

ALT-E60-L1-B-7+00-002-0

Construction of Samtredia - Grigoleti road section of E-60
km 0 +000 - km 11 +500

Engineer	R.Harlander	
Proj.Manag.	A. Valuikin	
Checked by	H.Gorobinskaya	
Exec. by	R.Garpolyuk	

Overpass PK 7+00

Stage	Sheet	Sheets
WD	1	1

Cross section of piers

"Road Building "Altcom" LLC

Staking of pilescentres of the overpass

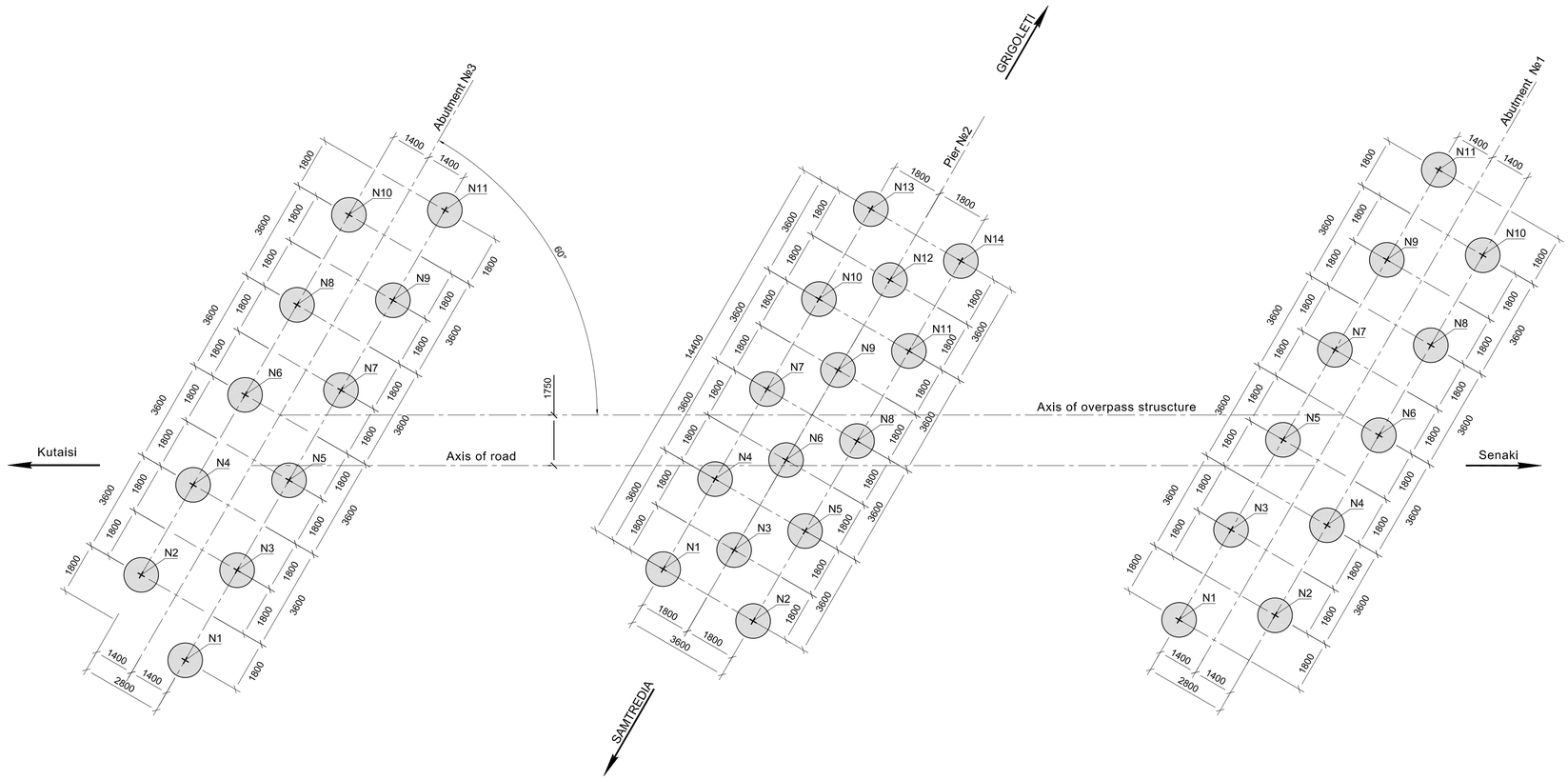


Table of coordinates of piles ctntres

№	PK+	Coordinates of piles centres,m													
		N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	N13	N14
1	2	3	4	5	6	7	8	9	10	11	12	13	13	13	14
1	8+08.27	X=4669636.537 Y=280543.868	X=4669638.276 Y=280541.029	X=4669634.971 Y=280540.626	X=4669636.710 Y=280537.788	X=4669633.406 Y=280537.384	X=4669635.145 Y=280534.546	X=4669631.841 Y=280534.142	X=4669633.579 Y=280531.304	X=4669630.275 Y=280530.901	X=4669632.014 Y=280528.062	X=4669628.710 Y=280527.659	-- --	-- --	-- --
2	8+40.90	X=4669617.042 Y=280569.401	X=4669620.283 Y=280567.835	X=4669617.880 Y=280566.997	X=4669615.476 Y=280566.159	X=4669618.718 Y=280564.593	X=4669616.314 Y=280563.755	X=4669613.911 Y=280562.917	X=4669617.152 Y=280561.352	X=4669614.749 Y=280560.513	X=4669612.345 Y=280559.675	X=4669615.587 Y=280558.110	X=4669613.183 Y=280557.272	X=4669610.780 Y=280556.433	X=4669614.022 Y=280554.868
3	8+73.53	X=4669602.353 Y=280596.610	X=4669599.049 Y=280596.206	X=4669600.788 Y=280593.368	X=4669597.484 Y=280592.965	X=4669599.223 Y=280590.126	X=4669595.918 Y=280589.723	X=4669597.657 Y=280586.884	X=4669594.353 Y=280586.481	X=4669596.092 Y=280583.642	X=4669592.788 Y=280583.239	X=4669594.526 Y=280580.401	-- --	-- --	-- --

ALT-E60-L1-B-7+00-003-01

Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500

Engineer	R.Harlander		
Proj.Manag.	A. Valuikin		
Checked by	M.Gorobinskaya		
Exec. by	M.Voroshylov		

Overpass PK 7+00

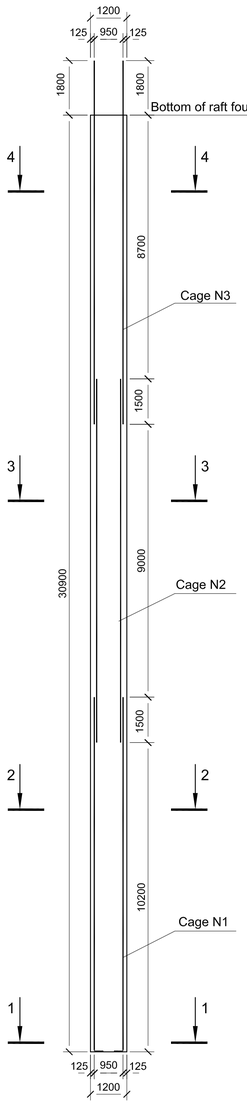
Stage	Sheet	Sheets
WD	1	1

Staking of piles centers of the overpass

"Road Building "Altcom" LLC

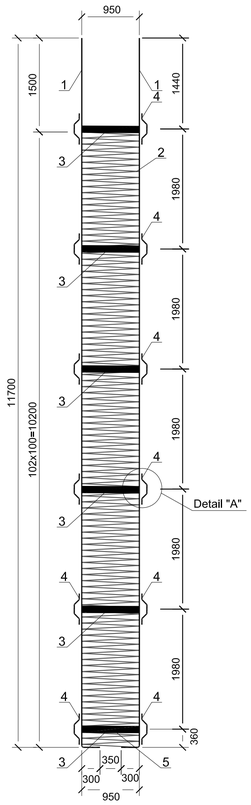
Scale 1:100

Layout of cages

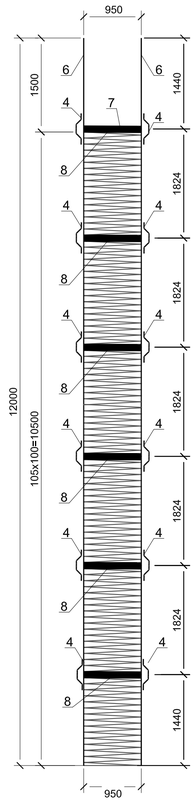


Scale 1:50

Cage N1
24Ø25 A-III



Cage N2
24Ø28 A-III



Cage N3
24Ø32 A-III

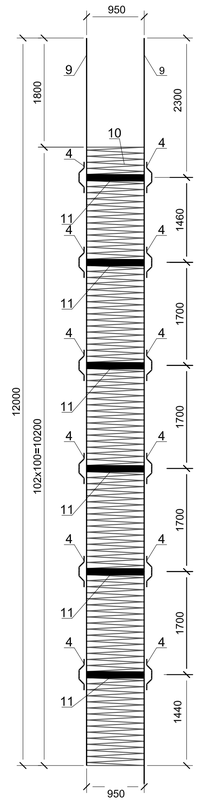
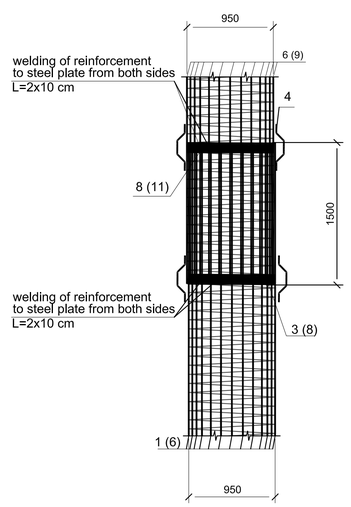


Diagram of mounting cages
between each other



Steel specifications per one pile

	Position	Sketch mm	Diameter or section mm	Length mm	Quantity unit	Total length m
1	2	3	4	5	6	7
Cage N1	1	11700 300	Ø25B500B	12000	24	288.0
	2	Ø 988	Ø10B500B	322970	1	322.97
	3	Ø 912	-10x120	2865	6	17.19
	4	100 100 150 700 100 100 171	Ø12B500B	550	24	13.2
	5	920	Ø25B500B	920	2	1.84
Cage N2	6	12000	Ø28B500B	12000	24	288.0
	7	Ø 991	Ø10B500B	333294	1	333.294
	8	Ø 909	-10x120	2856	6	17.13
	4	100 100 150 700 100 100 171	Ø12B500B	550	20	11.0
Cage N3	9	12000	Ø32B500B	12000	24	288.0
	10	Ø 995	Ø10B500B	325255	1	325.26
	11	Ø 905	-10x120	2843	6	17.05
	4	100 100 150 700 100 100 171	Ø12B500B	550	20	11.0

Selection of steel per one pile, kg

Reinforcement product						Sheet steel
Reinforcement steel						
B500B Ø,mm						
10	12	25	28	32	Sum	–δ=10
1	2	3	4	5	6	7
605.59	31.26	1117.0	1392.19	1818.4	4964.44	484.04

Remark:

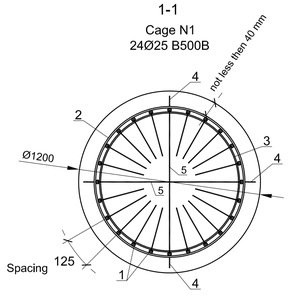
1. Reinforcement must be corresponds to BS 4449 and BS 4483 (in accordance with technical specification)

1. Concrete must be corresponds to BS 8500-1 (in accordance with technical specification)

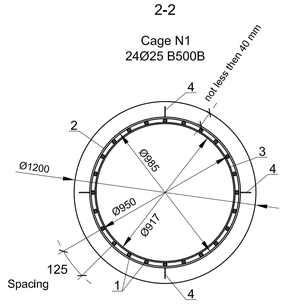
Concrete
C30/37 XC-4 XA-2 S4 D22
V=35.0 m³

Scale 1:20

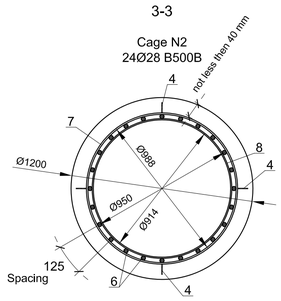
1-1
Cage N1
24Ø25 B500B



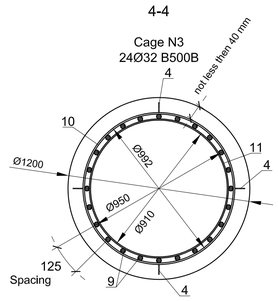
2-2
Cage N1
24Ø25 B500B



3-3
Cage N2
24Ø28 B500B

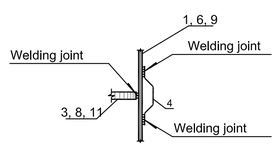


4-4
Cage N3
24Ø32 B500B



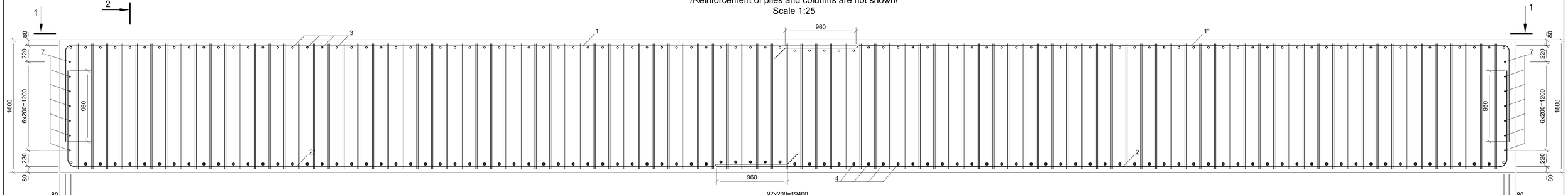
Scale
1:25

Detail "A"
/ Elements N2, N7 and N10 are not shown /

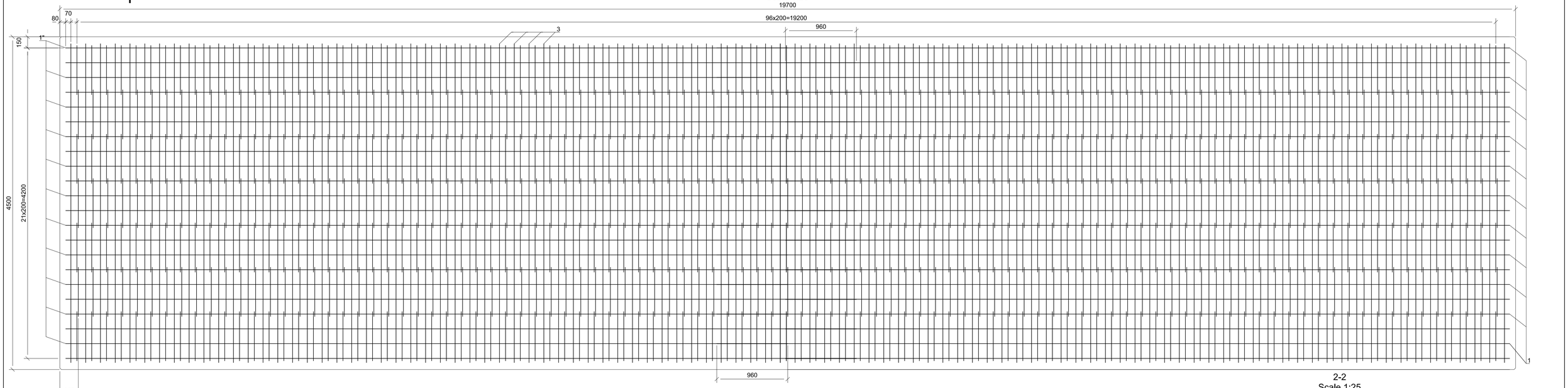


ALT-E60-L1-B-7+00-004-01						Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	Engineer	R.Harlander					
	Proj.Manag.	A. Valuikin				Overpass PK 7+00	Stage: WD; Sheet: 1; Sheets: 1
ALTCOM Road Building	Checked by	H.Gorobinskaya					
	Exec. by	R.Garpolyuk				Cast-in-situ reinforced concrete bored piles L=30.9 m	"Road Building "Altcom" LLC

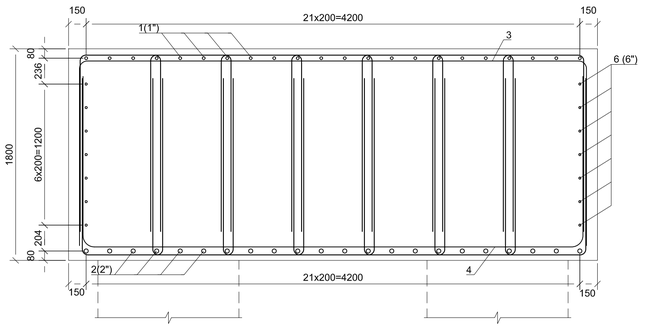
Reinforcing of raft foundation
/Reinforcement of piles and columns are not shown/
Scale 1:25



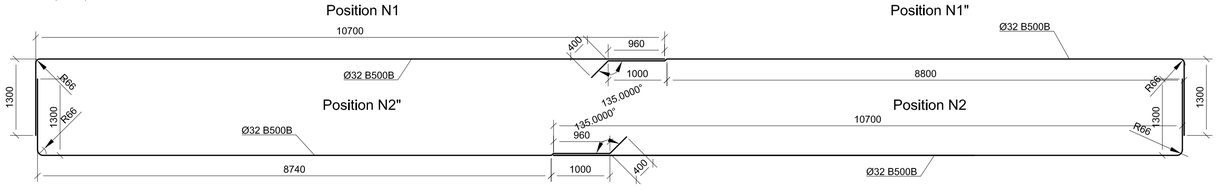
1-1
Scale 1:25



2-2
Scale 1:25



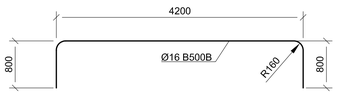
Position N1



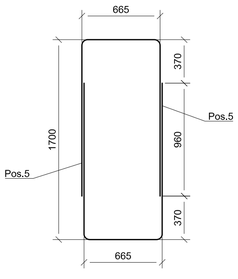
Position N2

Position N1"

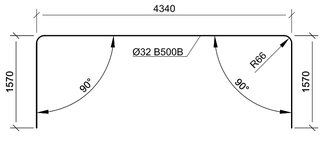
Position N7



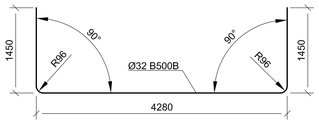
Scheme of fixing of positions N5



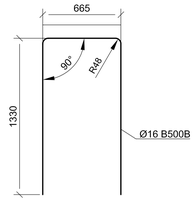
Position N3



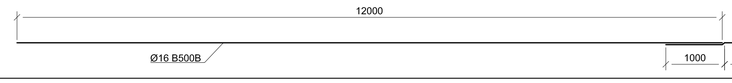
Position N4



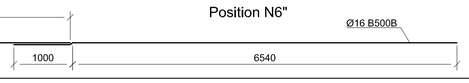
Position N5



Position N6



Position N6"



Steel specifications per raft foundation

	Position	Sketch mm	Diameter or section mm	Length mm	Quantity unit	Total length m
1	2	3	4	5	6	7
Separate bars	1	Is given on drawing	32 B500B	12000	22	264.0
	1"	Is given on drawing	32 B500B	11500	22	253.0
	2	Is given on drawing	32 B500B	12000	22	264.0
	2"	Is given on drawing	32 B500B	11440	22	251.7
	3	Is given on drawing	32 B500B	7480	98	733.0
	4	Is given on drawing	32 B500B	7180	98	703.6
	5	Is given on drawing	16 B500B	3325	1358	4515.3
	6	Is given on drawing	16 B500B	12000	14	168.0
	6"	Is given on drawing	16 B500B	7540	14	105.6
	7	Is given on drawing	16 B500B	5800	14	81.2

Metal consumption
145 кg/ m³ concrete

Volume of concrete
of raft foundation
C30/37 XC-2 XD-2
XA-3 S3 d2
V=159.6 m³

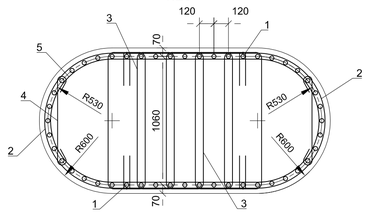
Selection of steel per raft foundation, kg

Reinforcement product		
Reinforcement steel		
B500B Ø,mm		
16	32	Sum
1	3	4
7694.8	15581.3	23276.1

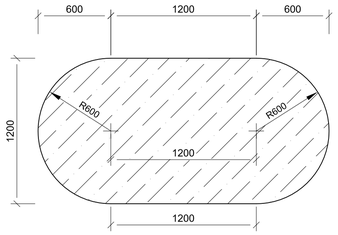
ALT-E60-L1-B-7+00-11-01				Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander			
Proj.Manag.	A. Valuikin			Overpass PK 7+00	Stage: WD; Sheet: 1; Sheets: 1
Checked by	H.Gorobinskaya				
Exec. by	R.Garpolyuk			Structure of raft foundation of abutments proposal-2	"Road Building "Altcom" LLC

ALTCOM Road Building

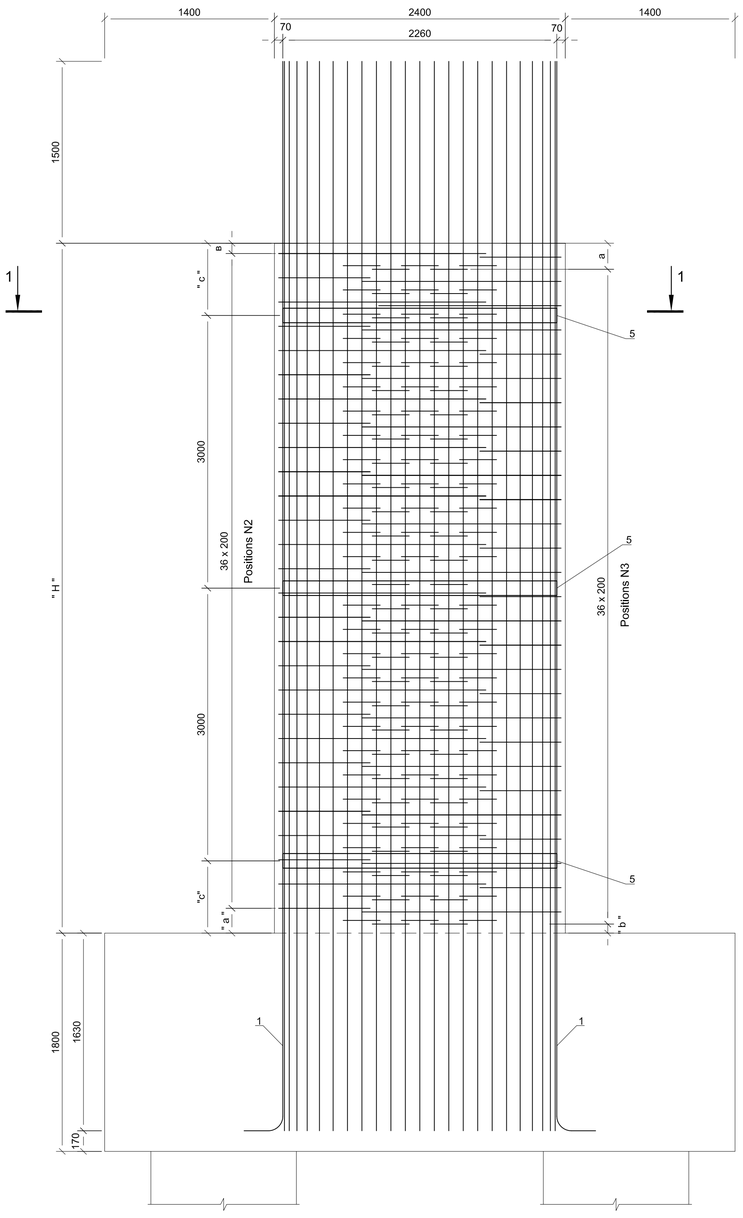
1-1
Scale
1:25



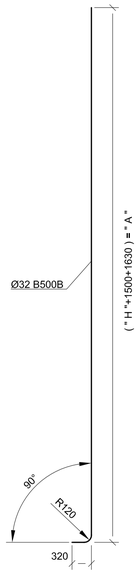
Cross-section of columns
Scale
1:25



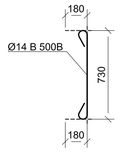
Reinforcing of columns
/Reinforcement of piles and raft foundation are not shown/
Scale
1:25



Position N1



Position N4



Selection of steel per one column, kg

Abutment #	Columns #	Reinforcement product			Sheet steel
		Reinforcement steel B500B Ø,mm			
		14	32	Sum	–δ=10
1	2	3	4	5	6
# 1	H 1	1493.9	3334.8	4828.7	158.4
	H 2	1493.9	3334.8	4828.7	158.4
	H 3	1493.9	3334.8	4828.7	158.4
	H 4	1493.9	3334.8	4828.7	158.4
	H 5	1493.9	3334.8	4828.7	158.4
# 3	H 1	1493.9	3343.7	4837.6	158.4
	H 2	1493.9	3343.7	4837.6	158.4
	H 3	1493.9	3343.7	4837.6	158.4
	H 4	1493.9	3343.7	4837.6	158.4
	H 5	1493.9	3343.7	4837.6	158.4

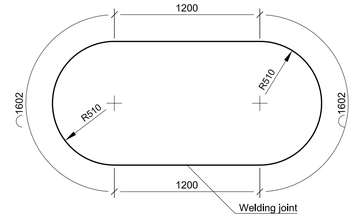
Abutment N1
Volume of concrete of column
C 30/37 XS-2 XD-2 XA-3 S3 D2
V=19.4 m³

Abutment N3
Volume of concrete of column
C 30/37 XS-2 XD-2 XA-3 S3 D2
V=19.4 m³

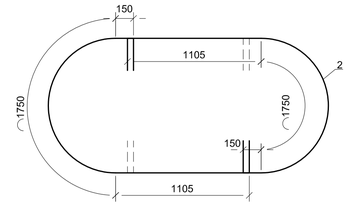
Steel specifications per one column

Abutment #	Columns #	Position	Diameter or section mm	Length mm	Quantity unit	Total length m
1	2	3	4	5	6	7
Abutment N1 Pk 8+08.27	H 1	1	32 B500B	11010	48	528.5
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 2	1	32 B500B	11010	48	528.5
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 3	1	32 B500B	11010	48	528.5
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 4	1	32 B500B	11010	48	528.5
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 5	1	32 B500B	11010	48	528.5
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
Abutment N1 Pk 8+08.27	H 1	1	32 B500B	11040	48	529.9
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 2	1	32 B500B	11040	48	529.9
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 3	1	32 B500B	11040	48	529.9
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 4	1	32 B500B	11040	48	529.9
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8
	H 5	1	32 B500B	11040	48	529.9
		2	14 B500B	3645	74	269.7
		3	14 B500B	2390	370	884.3
		4	14 B500B	1090	74	80.6
		5	⬭120x10	5605	3	16.8

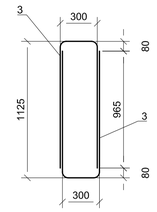
Position N5



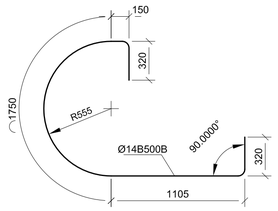
Scheme of fixing of positions N2



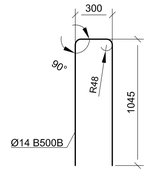
Scheme of fixing of positions N3



Positions N2



Position N3



Abutment #	Height of columns, m				
	" H 1 "	" H 2 "	" H 3 "	" H 4 "	" H 5 "
1	2	3	4	5	6
Abutment N1 Pk 8+08.27	7.56	7.56	7.56	7.56	7.56
Abutment N3 Pk 8+73.53	7.59	7.59	7.59	7.59	7.59

Abutment #	A Size value "a", mm				
	" a 1 "	" a 2 "	" a 3 "	" a 4 "	" a 5 "
1	2	3	4	5	6
Abutment N1 Pk 8+08.27	210	210	210	210	210
Abutment N3 Pk 8+73.53	240	240	240	240	240

Abutment #	A Size value "b", mm				
	" b 1 "	" b 2 "	" b 3 "	" b 4 "	" b 5 "
1	2	3	4	5	6
Abutment N1 Pk 8+08.27	110	110	110	110	110
Abutment N3 Pk 8+73.53	140	140	140	140	140

Abutment #	A Size value "c", mm				
	" c 1 "	" c 2 "	" c 3 "	" c 4 "	" c 5 "
1	2	3	4	5	6
Abutment N1 Pk 8+08.27	780	780	780	780	780
Abutment N3 Pk 8+73.53	795	795	795	795	795

Note

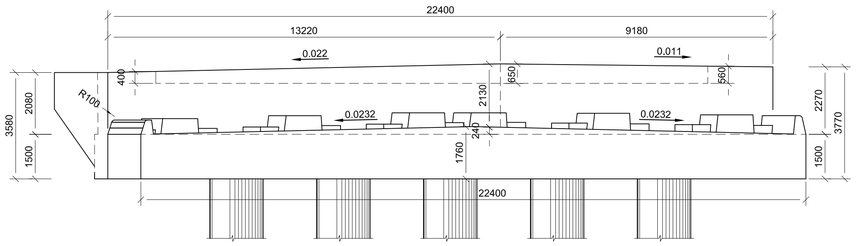
1.Position N2 shall be placed in each row in a reflective way against each other.
2.Position N3 shall be placed in each row in a reflective way against each other.
3. Reinforcement must be corresponds to BS 4449 and BS 4483 (in accordance with technical specification).
4. Concrete must be corresponds to BS 8500-1 (in accordance with technical specification).

ALT-E60-L1-B-7+00-030-01				Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
RE	R.Harlander			
Proj.Manag.	A. Valuikin			Overpass PK 7+00
Checked by	M.Gorobinskaya			Stage: WD; Sheet: 1; Sheets: 1
Exec. by	R.Garpolyuk			Structure of columns of abutments №1 and №3

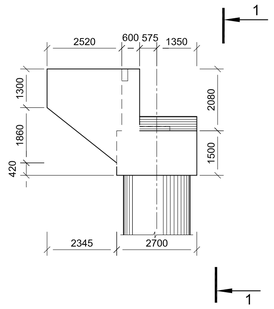
ALTCOM Road Building

"Road Building "Altcom" LLC

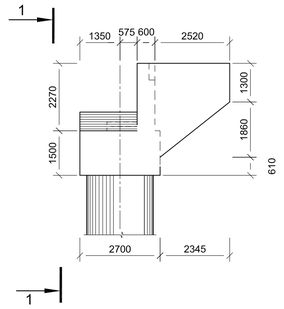
1-1
masStabi
Scale 1:100



3-3
masStabi
Scale 1:100



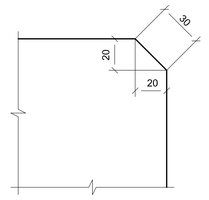
4-4
masStabi
Scale 1:100



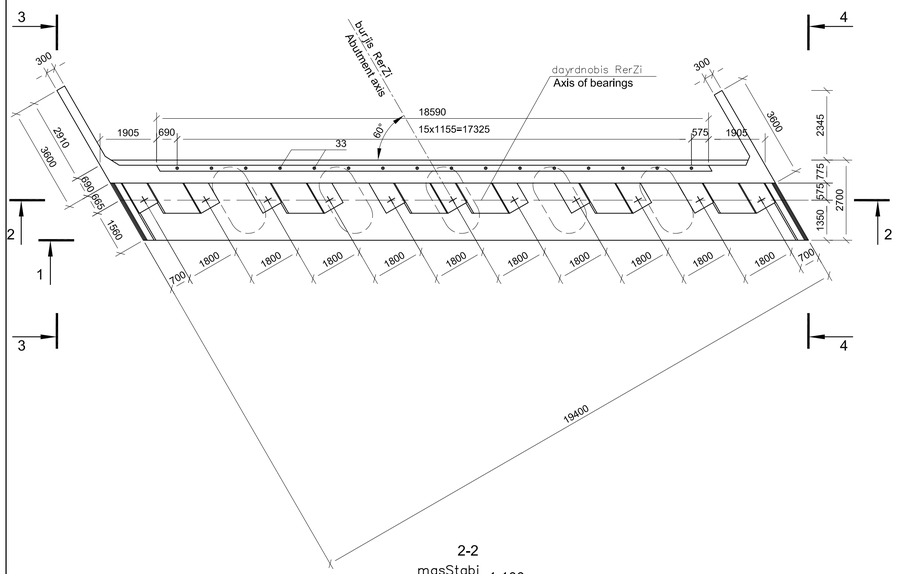
rigelis, sakarade kedlis, frTebis, baliSebis da antiseismuri sabjenebis betonis moculoba
Concrete C30/37,XC-2, XD-3,XF-1,S3,D22
V=141.0 m³

Volume of concrete of crossbeam, backwall, wings, bedding's and stops against seismic
Concrete C30/37,XC-2, XD-3,XF-1,S3,D22
V=141.0 m³

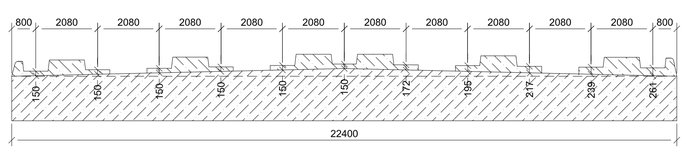
burjis wiboebis mowyobis detali
Detail of construction of pier edges
masStabi
Scale 1:2



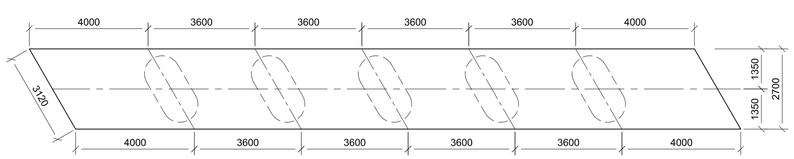
gegma
Plan
masStabi
Scale 1:100



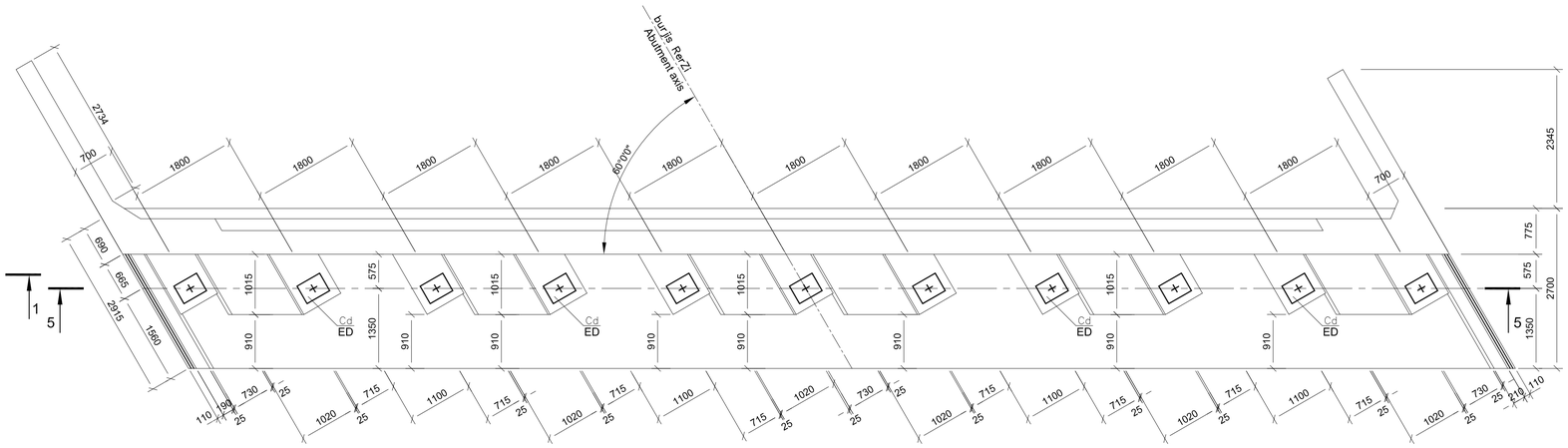
2-2
masStabi
Scale 1:100



dgarebis ganlagebis gegma
Layout of columns
masStabi
Scale 1:100

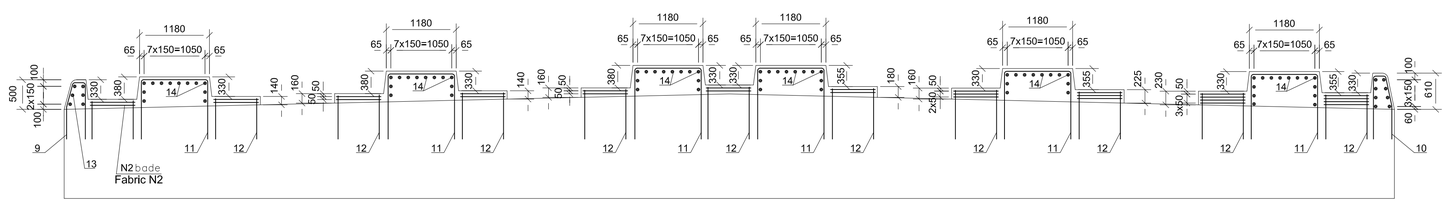


sayrdeni baliSebis da antiseismuri sabjenebis konstruqcia
Structure of supporting bedding's and stops against seismic
masStabi
Scale 1:50



pirobiTi aRniSvna
Legend
+ – sayrdeni nawilebis centrebi
- Centre of bearing parts

5-5
/Cd naCvenebi ar aris/
(Embedded details are not shown)
masStabi
Scale 1:50



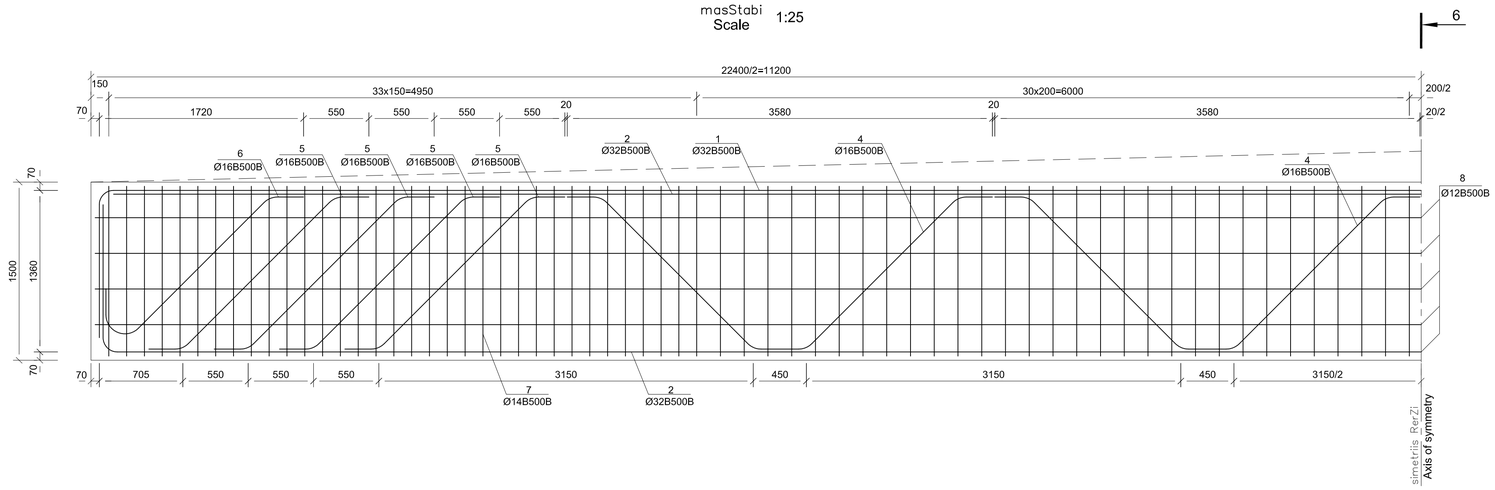
ALT-E60-L1-B-7+00-075-01					Construction of Samtredia – Grigoleti road section of E-60 km 0 +000 – km 11 +500
	RE	R.Harlander			
	Proj.Manag.	A. Valuikin			Overpass PK 7+00
	Checked by	H.Gorobinskaya			Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic abutment №1
	Exec. by	R.Garpolyuk			

Stage	Sheet	Sheets
WD	1	10

"Road Building "Altcom" LLC

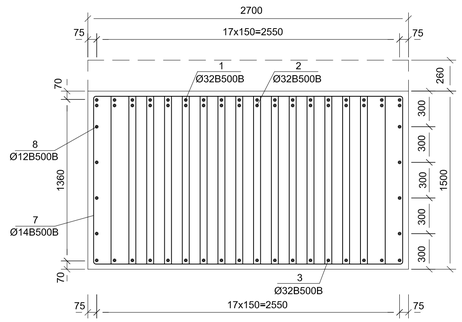
rigelis daarmatureba
/armaturis Sverilebi da samkuTxedis daarmatureba naCvenebi ar aris/
Reinforcing of crossbeam
/Connecting reinforcement bars and reinforcing of triangle are not shown/

masStabi
Scale 1:25



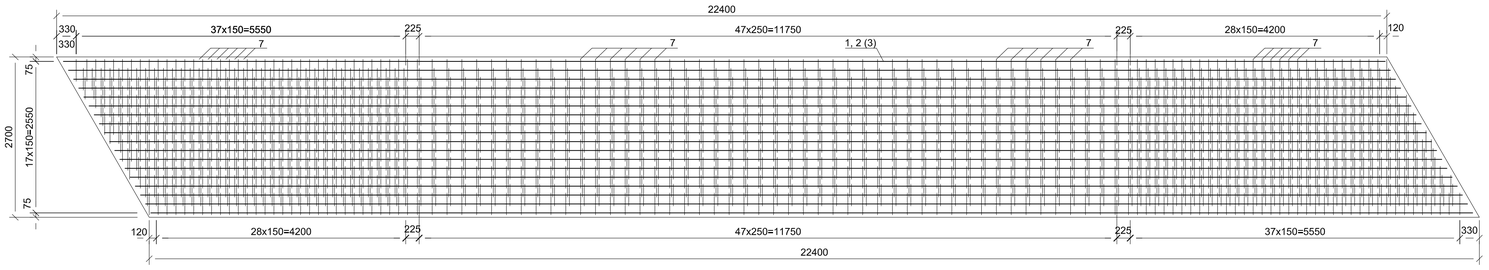
6-6

masStabi
Scale 1:25



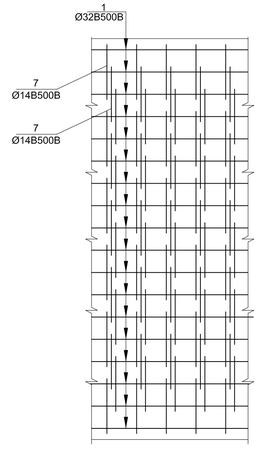
caluRebis ganawileba gegmaSi
Layout of loops

masStabi
Scale 1:50

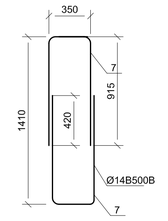


caluRebis ganawilebis kvanZi
Detail of layout of loops

masStabi
Scale 1:20

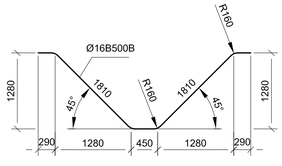


N7 pozicia
Position N7

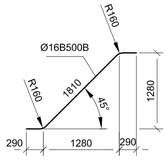


N1 pozicia
Position N1

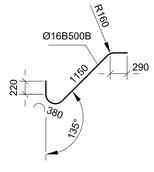
N4 pozicia
Position N4



N5 pozicia
Position N5



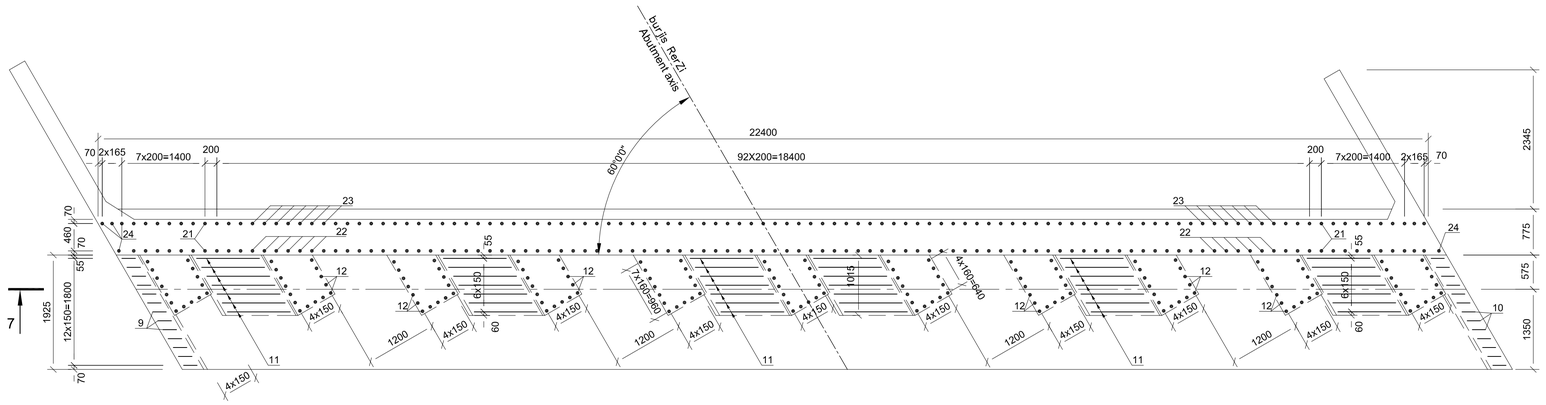
N6 pozicia
Position N6



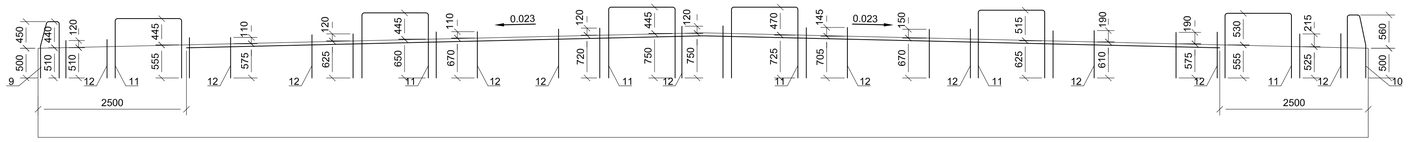
ALT-E60-L1-B-7+00-075-02				Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
RE	R.Harlander				
Proj.Manag.	A. Valuikin			Overpass PK 7+00	Stage: WD; Sheet: 2; Sheets: 10
Checked by	H.Gorobinskaya				
Exec. by	R.Garpolyuk			Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic abutment №1	"Road Building "Altcom" LLC

ALTCOM Road Building

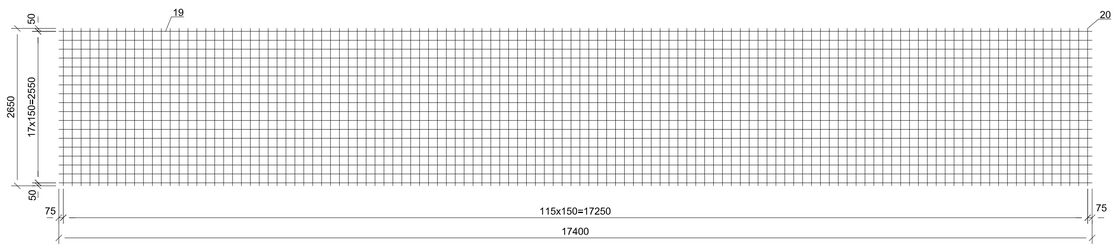
sayrdeni baliSebis da antiseismuri sabjenebis konstruqcia
Structure of supporting bedding's and stops against seismic
masStabi
Scale 1:50



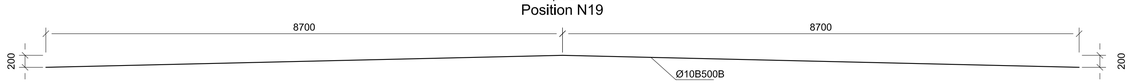
7-7
/Cd naCvenebi ar aris/
(Embedded details are not shown)
masStabi
Scale 1:50



N1 bade
Fabric N1



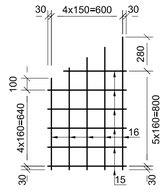
N19 pozicia
Position N19



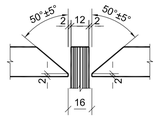
sayrdeni baliSebis zedapirebi horizontaluri

Surfaces of supporting bedding are horizontal

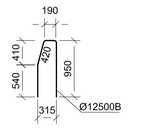
N2 bade
Fabric N2



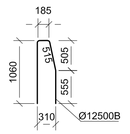
ganRruebis detali
Countersinking detail
masStabi
Scale 1:2



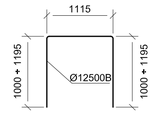
N9 pozicia
Position N9



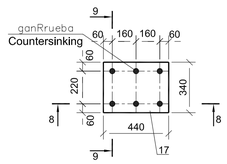
N10 pozicia
Position N10



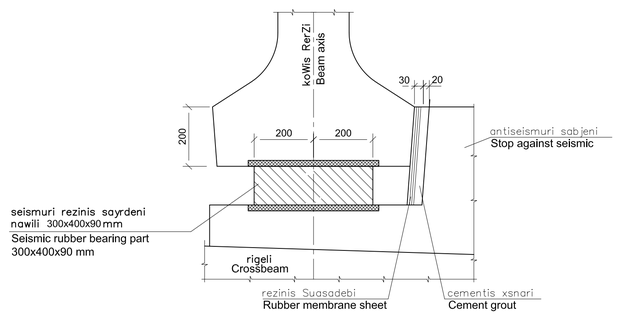
N11 pozicia
Position N11



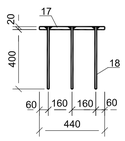
Casatanebeli detali (Cd–1)
Embedded detail (ED-1)
masStabi
Scale 1:20



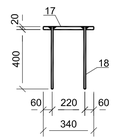
antiseismuri sabjenis da koWis detali
Detail of stop against seismic and beam
masStabi
Scale 1:10



8-8

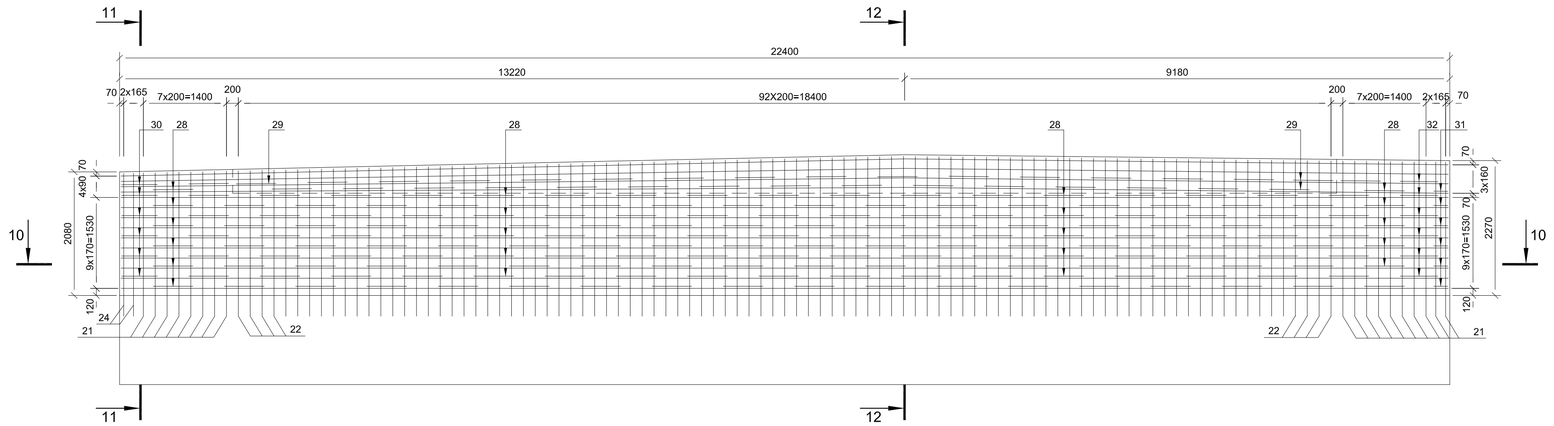


9-9

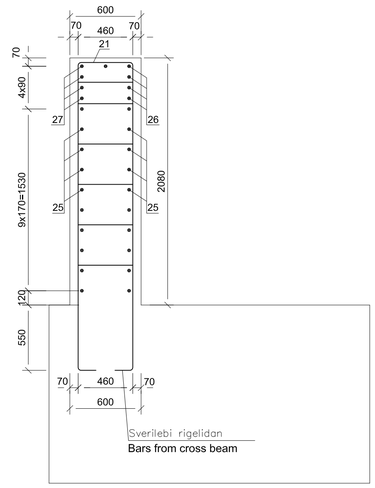


ALT-E60-L1-B-7+00-075-03				Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
RE	R.Harlander				
Proj.Manag.	A. Valuikin			Overpass PK 7+00	Stage: WD; Sheet: 3; Sheets: 10
Checked by	H.Gorobinskaya				
Exec. by	R.Garpolyuk			Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic abutment №1	"Road Building "Altcom" LLC

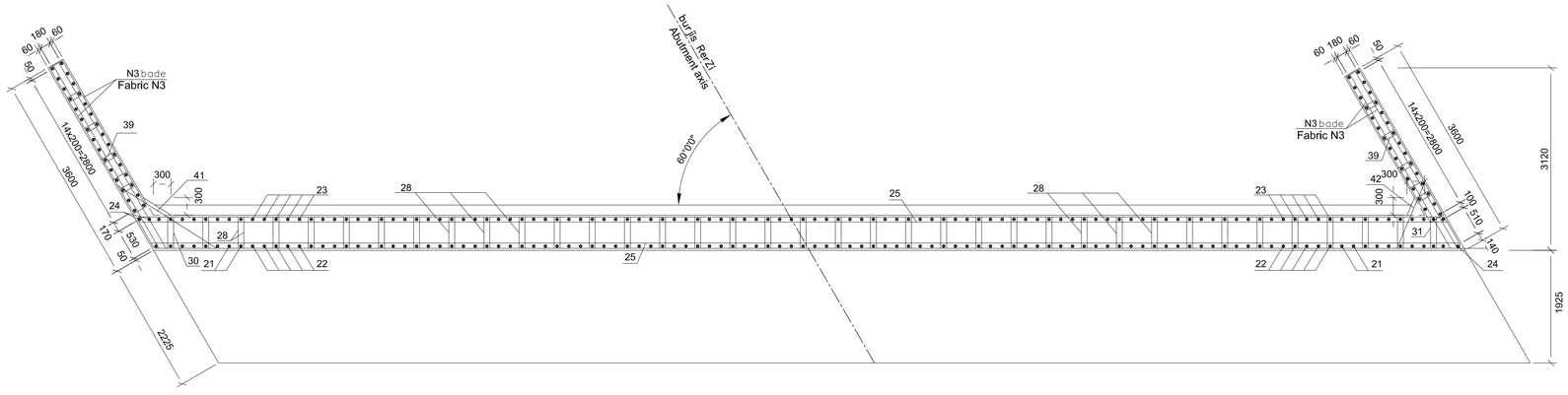
sakarade kedlis daarmatureba
Reinforcing of backwall
masStabi
Scale 1:50



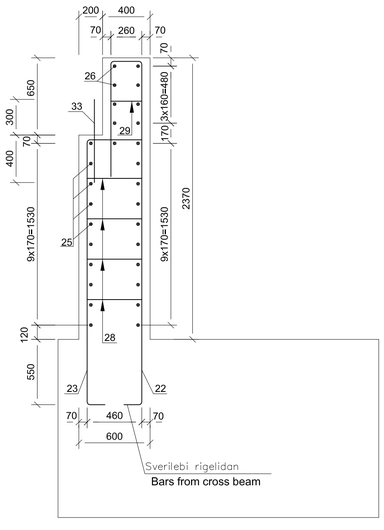
11-11
masStabi
Scale 1:25



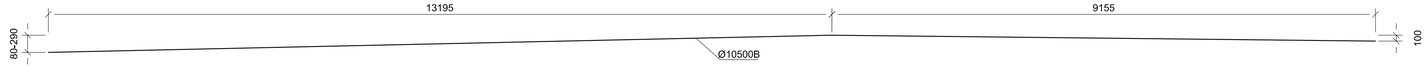
10-10
masStabi
Scale 1:50



12-12
masStabi
Scale 1:25



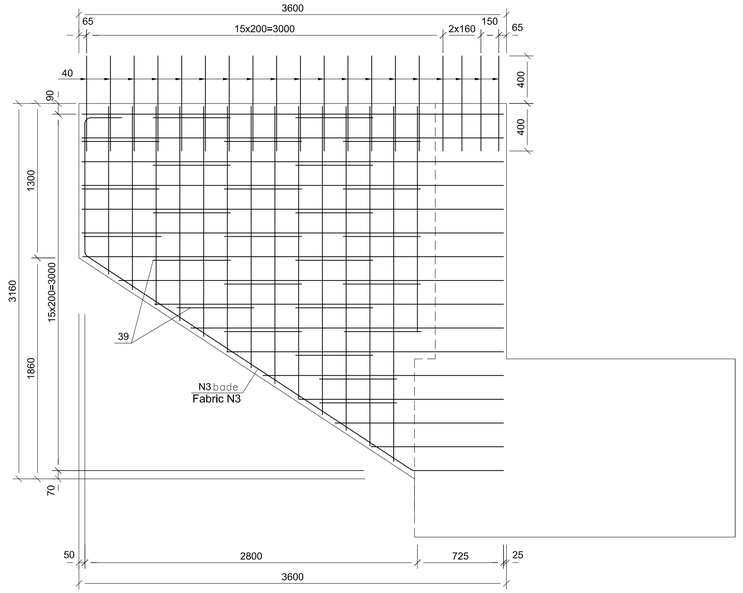
N26 pozicia
Position N26



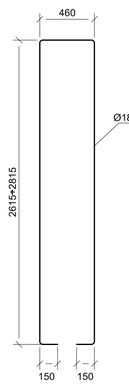
ALT-E60-L1-B-7+00-075-04					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander				
	Proj.Manag.	A. Valuikin			Overpass PK 7+00	Stage: WD; Sheet: 4; Sheets: 10
ALTCOM Road Building	Checked by	H.Gorobinskaya				
	Exec. by	R.Garpolyuk			Reinforcing of backwall and wings abutment №1	"Road Building "Altcom" LLC

frTebis daarmatureba
Reinforcing of wings

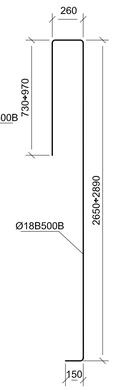
masStabi
Scale 1:25



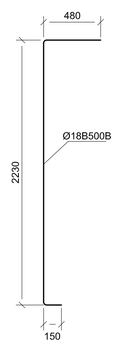
N21 pozicia
Position N21



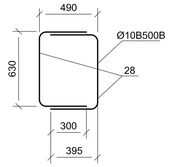
N22 pozicia
Position N22



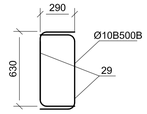
N23 pozicia
Position N23



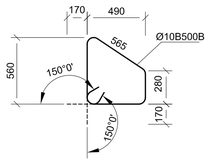
N28 pozicia
Position N28



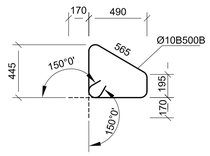
N29 pozicia
Position N29



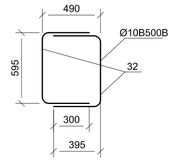
N30 pozicia
Position N30



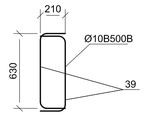
N31 pozicia
Position N31



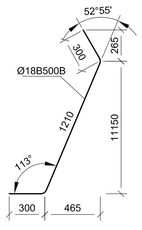
N32 pozicia
Position N32



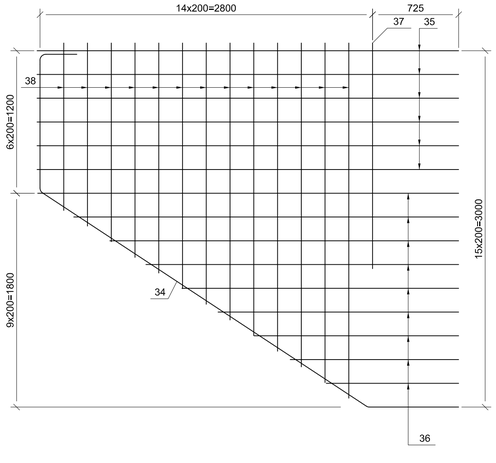
N39 pozicia
Position N39



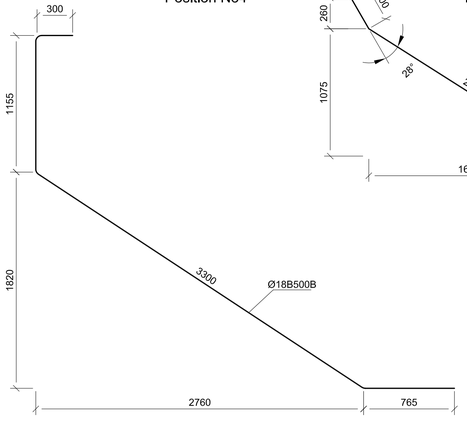
N42 pozicia
Position N42



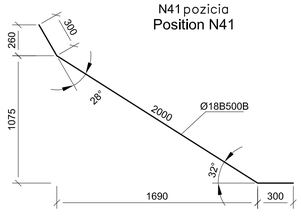
N3 bade
Fabric N3



N34 pozicia
Position N34



N41 pozicia
Position N41



liTonis specifikacia rigelze, sakarade kedelze da frTebze
Steel specifications per crossbeam, per backwall and wings

	pozicia Position	eskizi Sketch mm	diametri an kveTi Diameter or section mm	sigrZe Length mm	raodenoba Quantity cali unit	saerTo sigrZe Total length m
1	2	3	4	5	6	7
karkasi (18 cali) Cage (18 units)	1	mocemulia naxazze Is given on drawing	32B500B	24500	18	441.0
	2	22020	32B500B	22020	18	396.4
	3	mocemulia naxazze Is given on drawing	32B500B	24430	18	439.7
	4	mocemulia naxazze Is given on drawing	16B500B	4650	72	334.8
	5	mocemulia naxazze Is given on drawing	16B500B	2390	144	344.2
	6	mocemulia naxazze Is given on drawing	16B500B	2040	36	73.5
	7	mocemulia naxazze Is given on drawing	14B500B	2180	4066	8863.9
calkeuli Rerotebi Separate bars	8	22350	14B500B	22350	8	178.8
	9	mocemulia naxazze Is given on drawing	12B500B	2100	13	27.3
	10	mocemulia naxazze Is given on drawing	12B500B	2315	13	30.1
	11	mocemulia naxazze Is given on drawing	12B500B	$L_{saS.aver.}$=3310	42	139.0
	12	630 ÷ 890	12B500B	$L_{saS.aver.}$=760	165	125.4
saymeni baliseb da antiseismuri sabJenebi Supporting beddings's and stops against seismic	13	2200	12B500B	2200	14	30.8
	14	1150	12B500B	1150	74	85.1
	15	530 ÷ 660	12B500B	660	168	110.9
	16	770 ÷ 1110	12B500B	$L_{saS.aver.}$=940	140	131.6
	17	340 440	-20x340	440	11	4.9
	18	420	12B500B	420	66	27.7
N1 bade Fabric N1	19	mocemulia naxazze Is given on drawing	10B500B	17400	18	313.2
	20	2650	10B500B	2650	116	307.4
calkeuli Rerotebi Separate bars	21	mocemulia naxazze Is given on drawing	18B500B	$L_{saS.aver.}$=5990	18	107.8
	22	mocemulia naxazze Is given on drawing	18B500B	$L_{saS.aver.}$=4030	93	374.8
	23	mocemulia naxazze Is given on drawing	18B500B	2860	93	247.4
	24	2400 ÷ 2600 150	18B500B	$L_{saS.aver.}$=2650	3	8.6
	25	22350	10B500B	22350	21	469.4
	26	mocemulia naxazze Is given on drawing	10B500B	22350	8	178.8
	27	1850	10B500B	1850	8	14.8
	28	mocemulia naxazze Is given on drawing	10B500B	1230	360	442.8
	29	mocemulia naxazze Is given on drawing	10B500B	1210	60	72.6
	30	mocemulia naxazze Is given on drawing	10B500B	2235	6	13.4
	31	mocemulia naxazze Is given on drawing	10B500B	2035	6	12.2
	32	mocemulia naxazze Is given on drawing	10B500B	1575	12	18.9
	33	700	22B500B	700	16	11.2

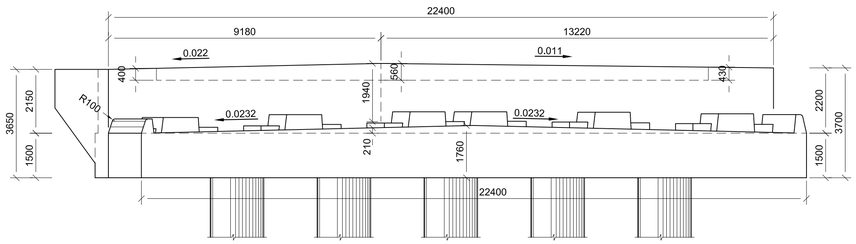
	pozicia Position	eskizi Sketch mm	diametri an kveTi Diameter or section mm	sigrZe Length mm	raodenoba Quantity cali unit	saerTo sigrZe Total length m
1	2	3	4	5	6	7
N3 bade (4 cali) Fabric N3 (4 units)	34	mocemulia naxazze Is given on drawing	18B500B	5520	4	22.1
	35	3550	18B500B	3550	24	85.2
	36	1115 ÷ 3545	18B500B	$L_{saS.aver.}$=2330	36	83.9
	37	1900	12B500B	1900	4	7.6
	38	1410 ÷ 2990	12B500B	$L_{saS.aver.}$=2200	52	114.4
calk. Rerotebi Separate bars	39	mocemulia naxazze Is given on drawing	10B500B	1050	104	109.2
	40	800	12B500B	800	76	60.8
	41	mocemulia naxazze Is given on drawing	18B500B	2600	15	39.0
	42	mocemulia naxazze Is given on drawing	18B500B	1810	15	27.2

liTonis amokreba rigelze, sakarade kedelze da frTebze, kg
Selection of steel per crossbeam, per backwall and wings, kg

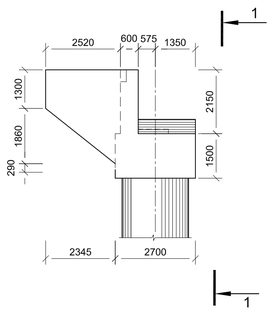
armaturis nakeToba Reinforcement product								Casatanebeli detali Embedded detail
armaturis foladi Reinforcement steel								
B500B Ø,mm								furclovani foladi Sheet steel
10	12	14	16	18	22	32	jami Sum	-20
1	2	3	4	5	6	7	8	9
1204.8	783.8	10941.7	1189.0	1992.0	33.4	8058.5	24203.2	258.4

ALT-E60-L1-B-7+00-075-05					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	D. Djokic			
	Proj.Manag	A. Valuikin	10.12		Overpass PK 7+00
	Checked by	H.Gorobinskaya	10.12		Stage: WD; Sheet: 5; Sheets: 10
ALTCOM Road Building	Exec. by	R.Garpolyuk	10.12		Reinforcing of backwall and wings abutments №1
					"Road Building "Altcom" LLC

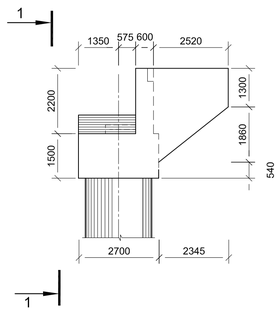
1-1 masStabi Scale 1:100



3-3 masStabi Scale 1:100



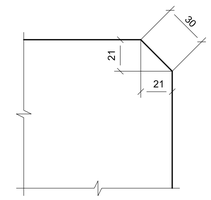
4-4 masStabi Scale 1:100



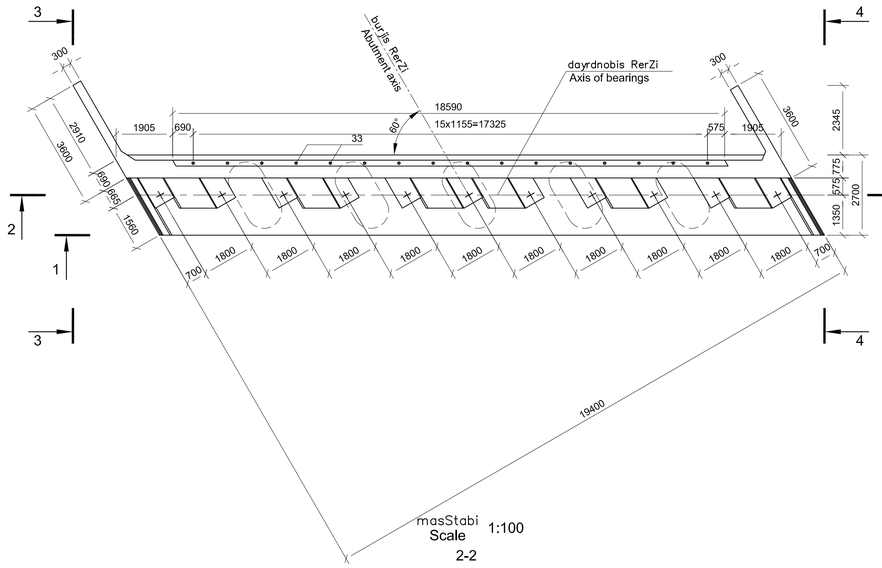
rigelis, sakarade kedlis, frTebis, baliSebis da antiseismuri sabjenebis betonis moculoba
B30 F200 W6
V=141.0 m³

Volume of concrete of crossbeam, backwall, wings, bedding's and stops against seismic
B30 F200 W6
V=141.0 m³

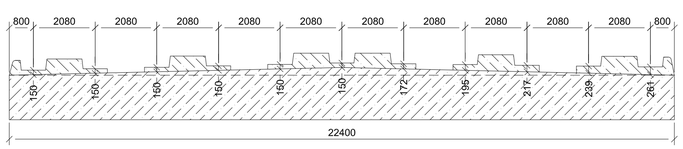
burjis wiboebis mowyobis detali
Detail of construction of pier edges
masStabi Scale 1:2



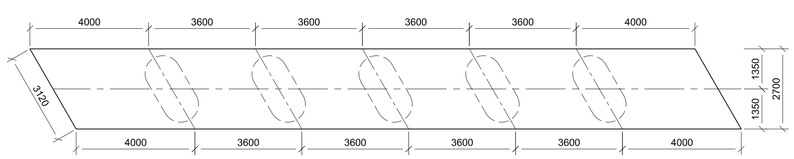
gegma
Plan
masStabi Scale 1:100



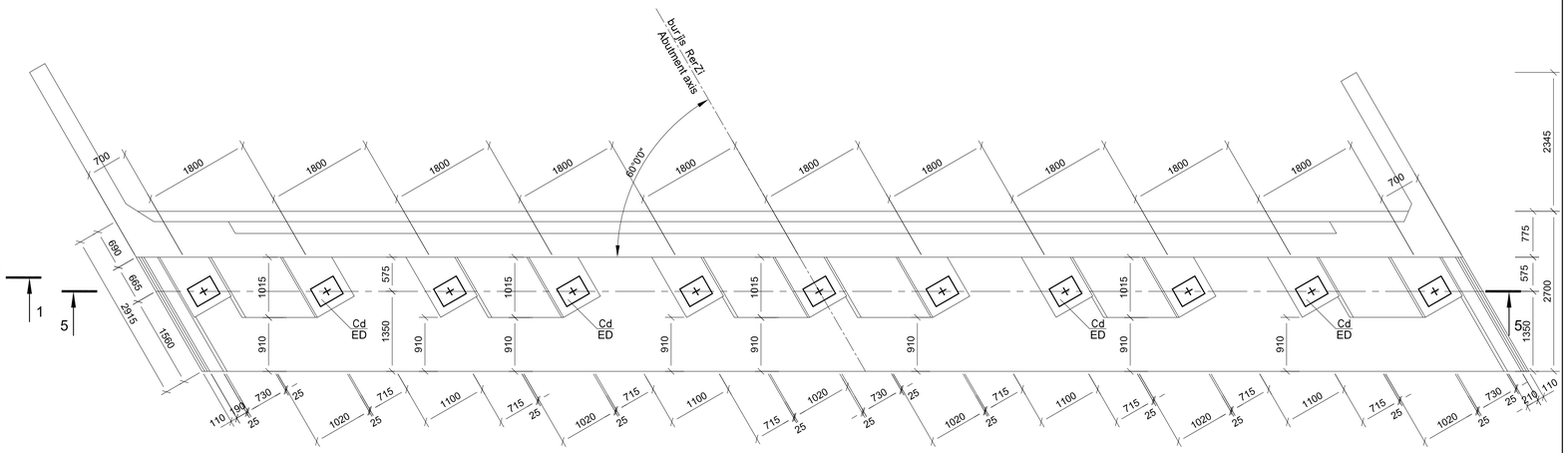
masStabi Scale 1:100
2-2



dgarebis ganlagebis gegma
Layout of columns
masStabi Scale 1:100



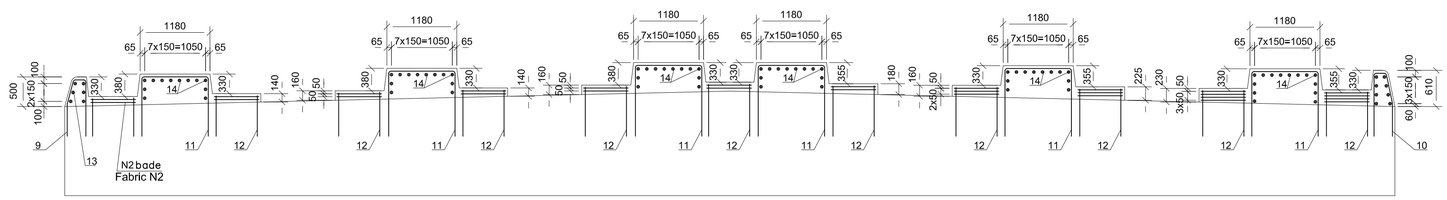
sayrdeni baliSebis da antiseismuri sabjenebis konstruqcia
Structure of supporting bedding's and stops against seismic
masStabi Scale 1:50



pirobiTi aRniSvna
Legend

+ – sayrdeni nawilebis centrebi
- Centre of bearing parts

5-5
/Cd naCvenebi ar aris/
(Embedded details are not shown)
masStabi Scale 1:50



ALT-E60-L1-B-7+00-075-06					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	R.Harlander			
	Proj.Manag	A. Valuikin			Overpass PK 7+00
	Checked by	H.Gorobinskaya			Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic abutment №3
	Exec. by	R.Garpolyuk			

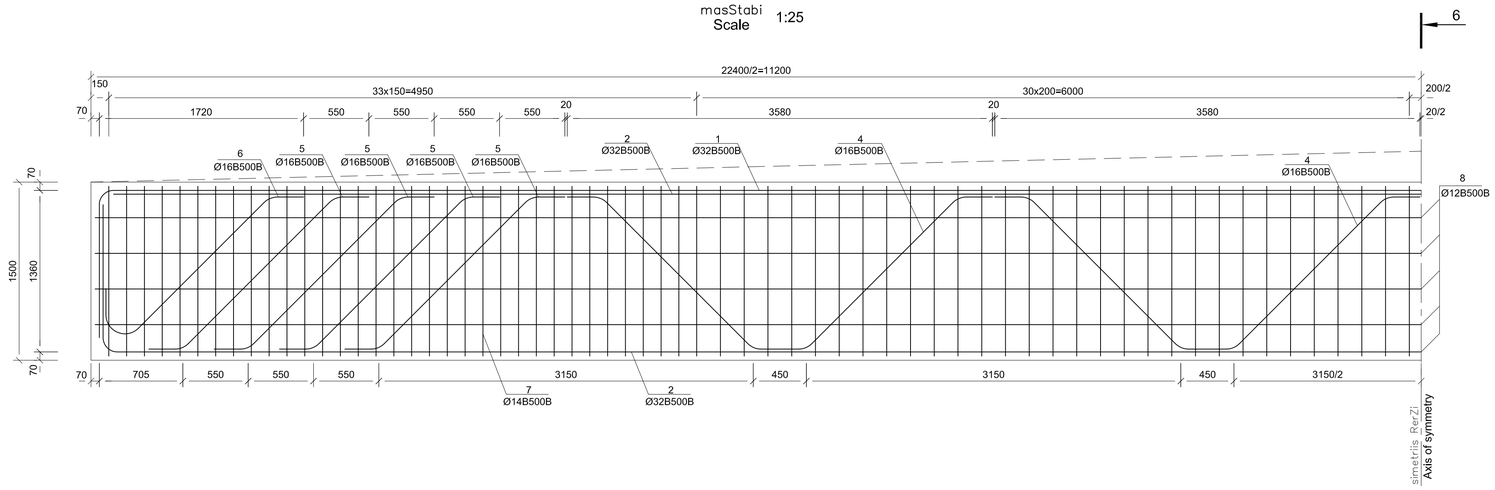
Stage	Sheet	Sheets
WD	6	10

ALTCOM Road Building

"Road Building "Altcom" LLC

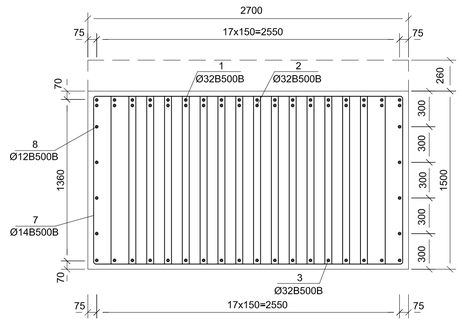
rigelis daarmatureba
/armaturis Sverilebi da samkuTxedis daarmatureba naCvenebi ar aris/
Reinforcing of crossbeam
/Connecting reinforcement bars and reinforcing of triangle are not shown/

masStabi
Scale 1:25



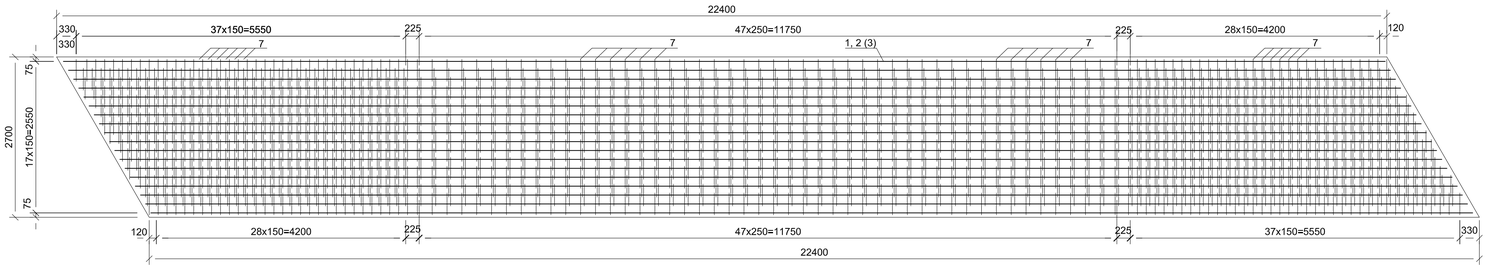
6-6

masStabi
Scale 1:25



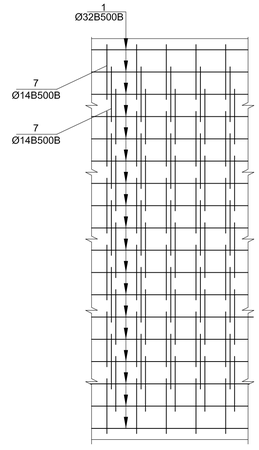
caluRebis ganawileba gegmaSi
Layout of loops

masStabi
Scale 1:50

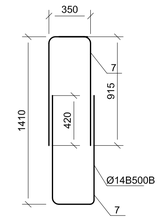


caluRebis ganawilebis kvanZi
Detail of layout of loops

masStabi
Scale 1:20

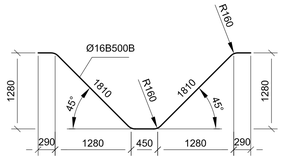


N7 pozicia
Position N7

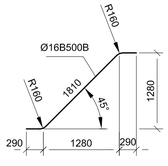


N1 pozicia
Position N1

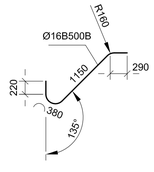
N4 pozicia
Position N4



N5 pozicia
Position N5



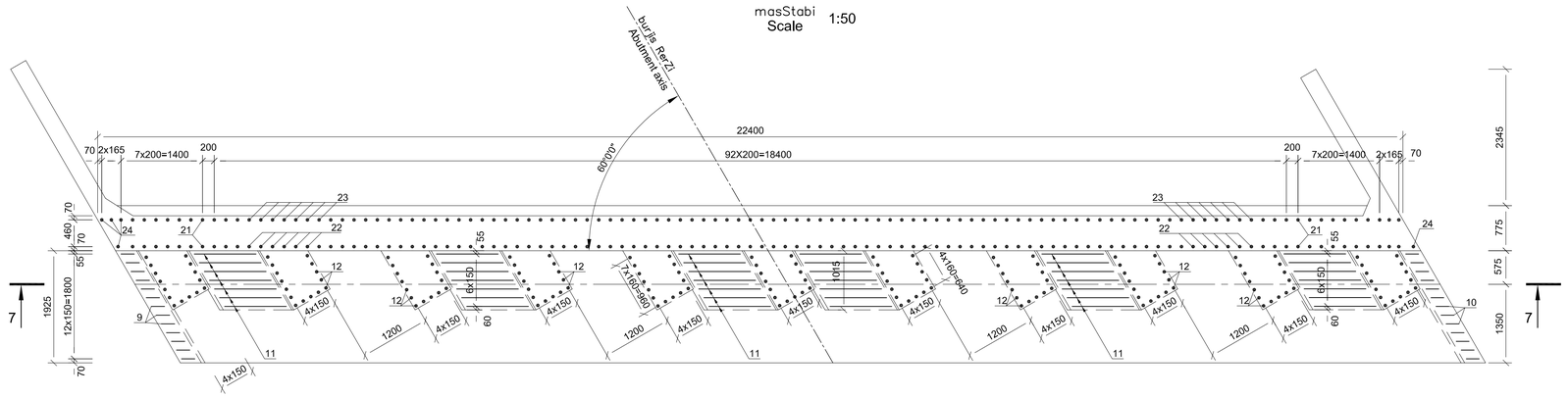
N6 pozicia
Position N6



ALT-E60-L1-B-7+00-075-07						Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500			
	RE	R.Harlander							
	Proj.Manag.	A. Valuikin							
ALTCOM Road Building						Overpass PK 7+00			
	Checked by	H.Gorobinskaya					Stage	Sheet	Sheets
							WD	7	10
	Exec. by	R.Garpolyuk				Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic abutment №3	"Road Building "Altcom" LLC		

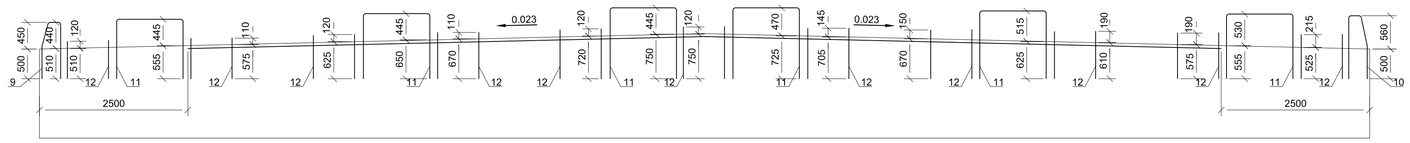
sayrdeni baliSebis da antiseismuri sabjenebis konstruqcia
Structure of supporting bedding's and stops against seismic

masStabi
Scale 1:50

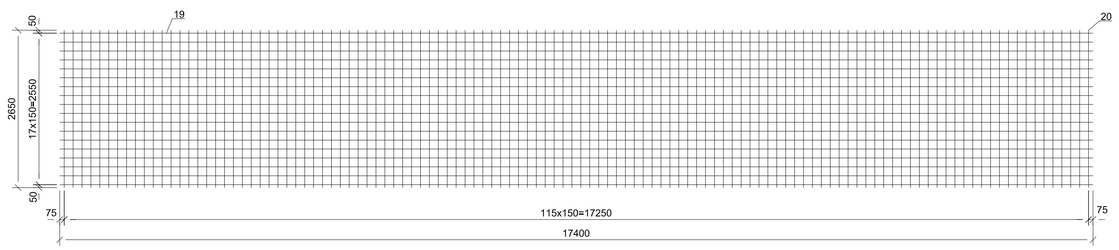


7-7
/Cd naCvenebi ar aris/
(Embedded details are not shown)

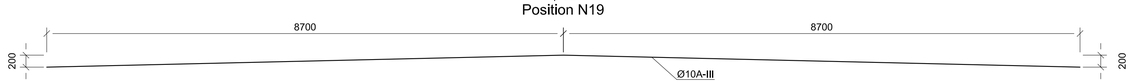
masStabi
Scale 1:50



N1 bade
Fabric N1



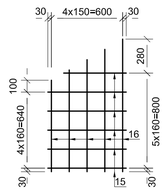
N19 pozicia
Position N19



sayrdeni baliSebis zedapirebi horizontaluria

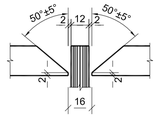
Surfaces of supporting bedding are horizontal

N2 bade
Fabric N2

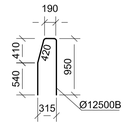


ganRruebis detali
Countersinking detail

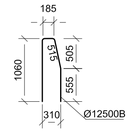
masStabi
Scale 1:2



N9 pozicia
Position N9



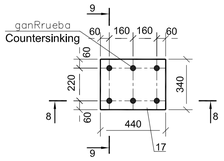
N10 pozicia
Position N10



N11 pozicia
Position N11

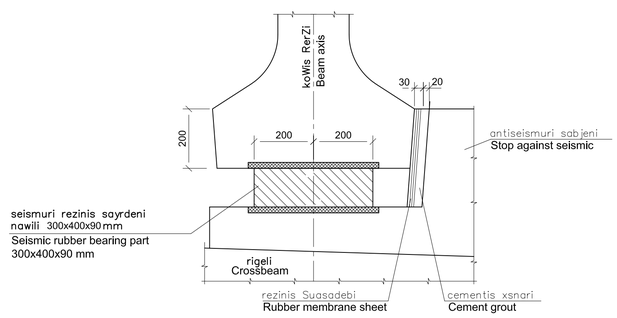
Casatanebeli detali (Cd–1)
Embedded detail (ED-1)

masStabi
Scale 1:20

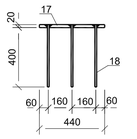


antiseismuri sabjenis da koWis detali
Detail of stop against seismic and beam

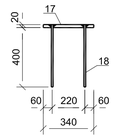
masStabi
Scale 1:10



8-8



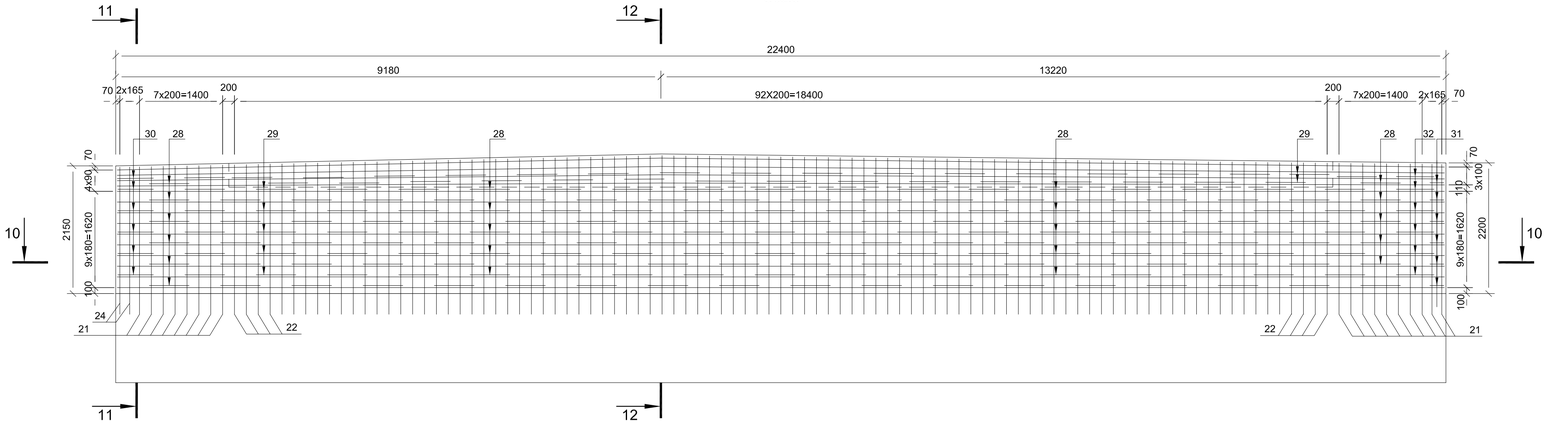
9-9



ALT-E60-L1-B-7+00-075-08				Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander			
	Proj.Manag	A. Valuikin		Overpass PK 7+00	Stage: WD; Sheet: 8; Sheets: 10
	Checked by	H.Gorobinskaya			
	Exec. by	R.Garpolyuk		Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic abutment №3	"Road Building "Altcom" LLC

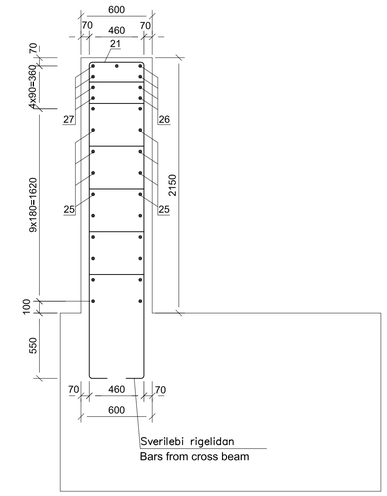
sakarade kedlis daarmatureba
Reinforcing of backwall

masStabi
Scale 1:50



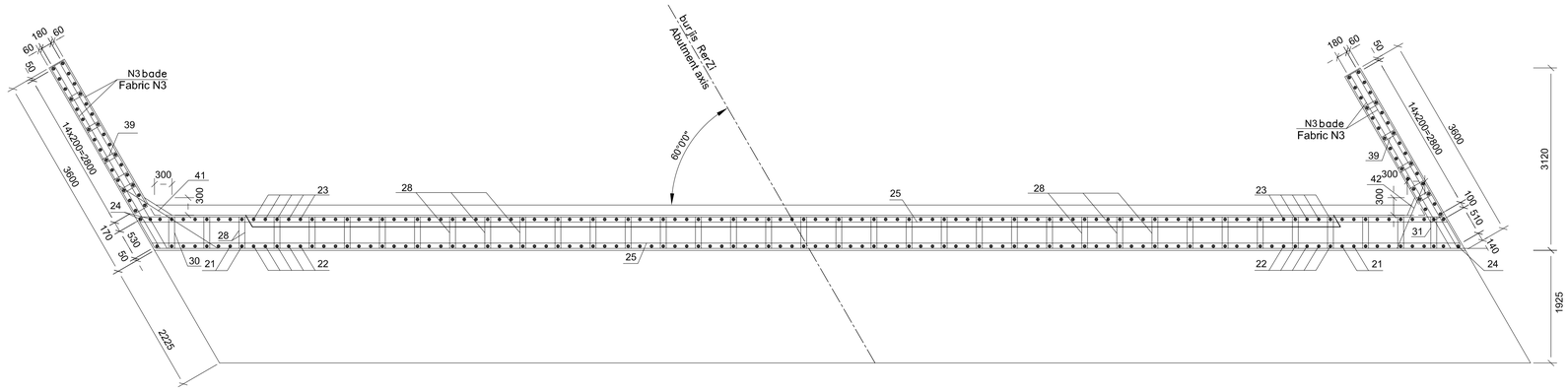
11-11

masStabi
Scale 1:25



10-10

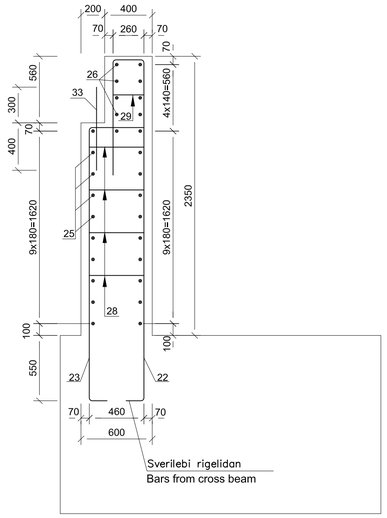
masStabi
Scale 1:50



N26 pozicia
Position N26

12-12

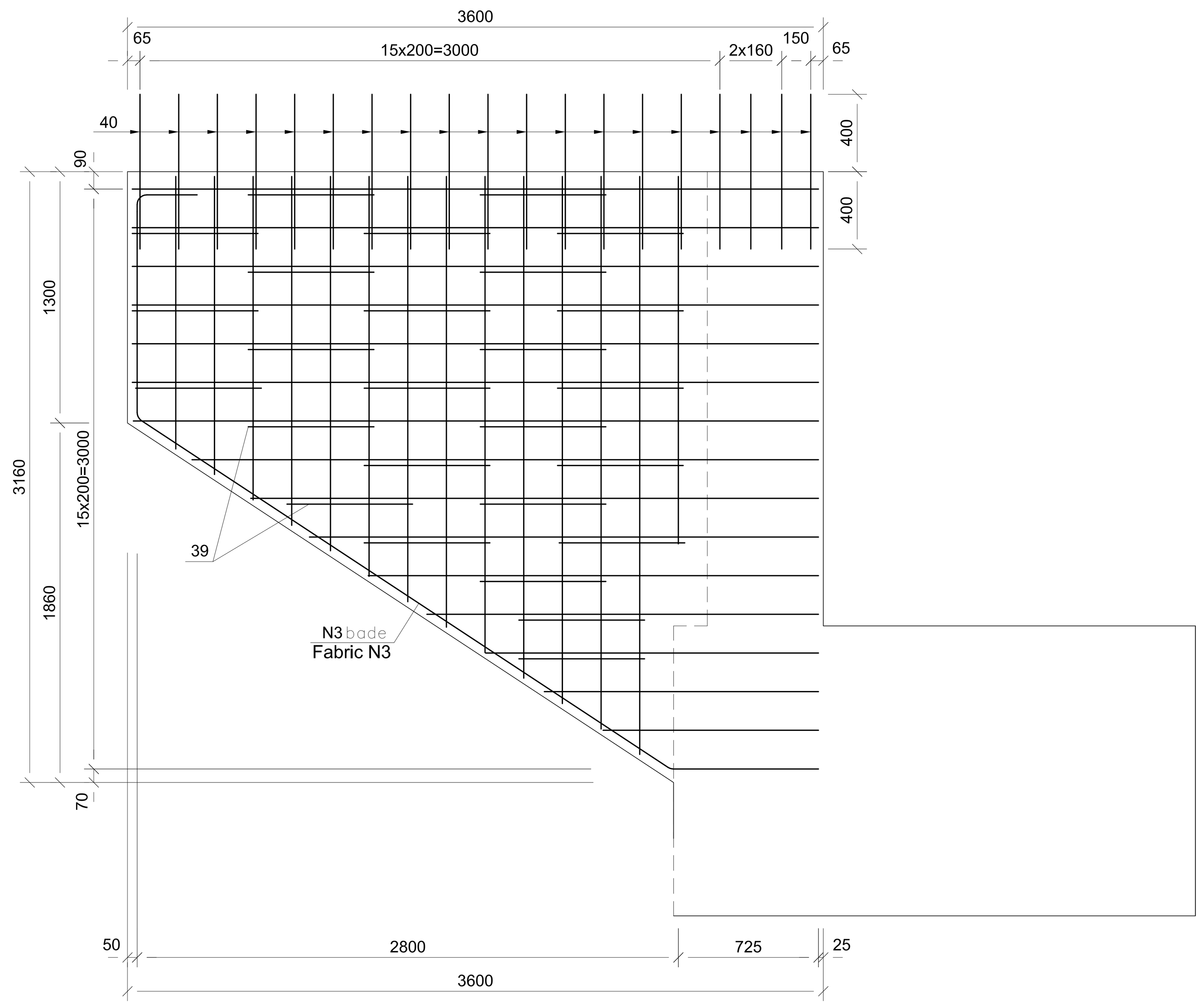
masStabi
Scale 1:25



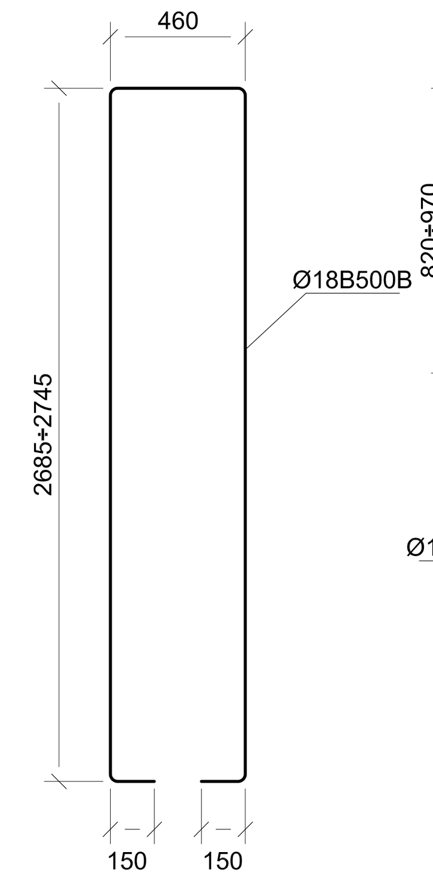
ALT-E60-L1-B-7+00-075-09					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
RE	R.Harlander				
Proj.Manag	A. Valuikin				
Checked by	H.Gorobinskaya			Overpass PK 7+00	Stage: WD; Sheet: 9; Sheets: 10
Exec. by	R.Garpolyuk			Reinforcing of backwall and wings abutment №3	"Road Building "Altcom" LLC

frTebis daarmatureba
Reinforcing of wings

masStabi
Scale 1:25

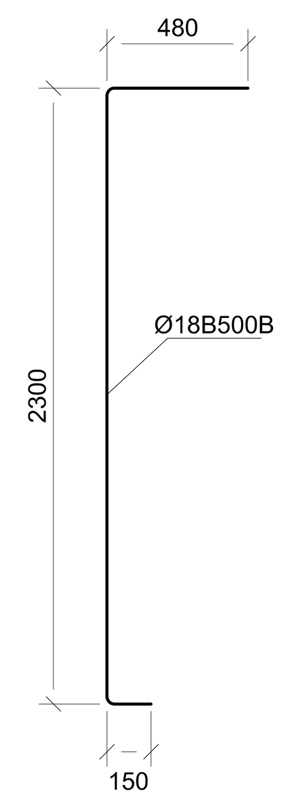


N21 pozicia
Position N21

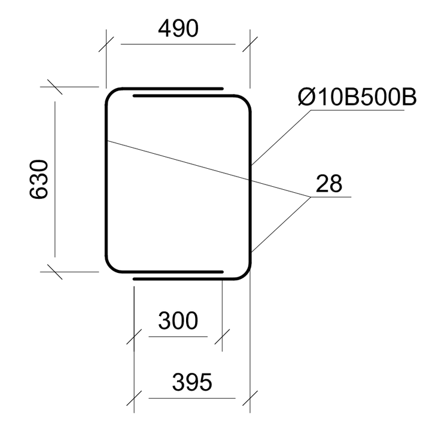


N22 pozicia
Position N22

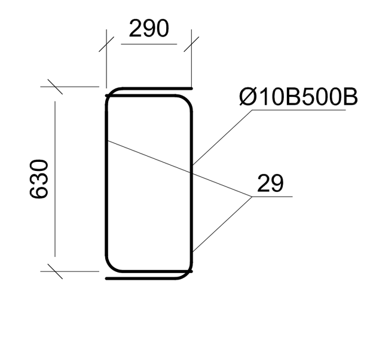
N23 pozicia
Position N23



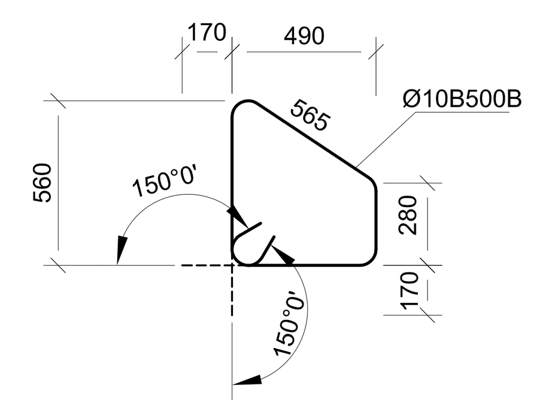
N28 pozicia
Position N28



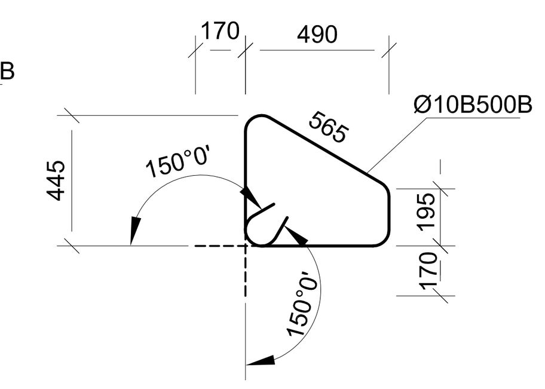
N29 pozicia
Position N29



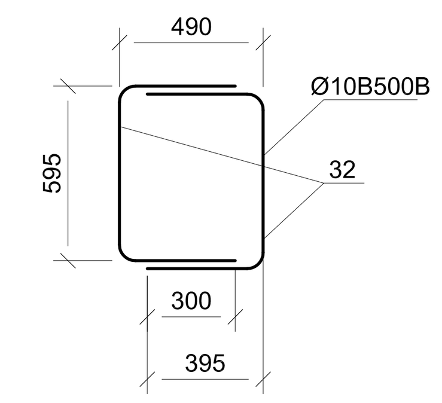
N30 pozicia
Position N30



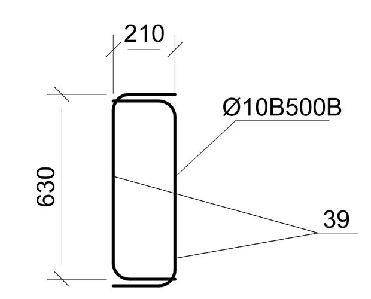
N31 pozicia
Position N31



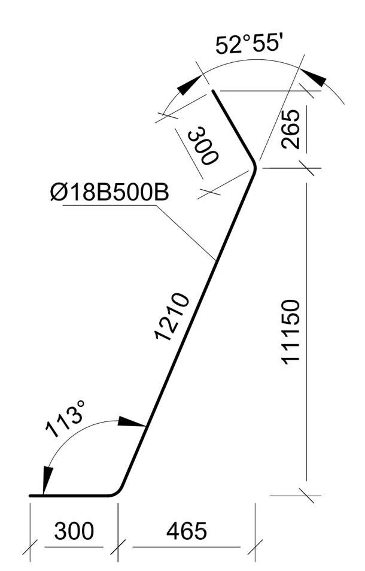
N32 pozicia
Position N32



N39 pozicia
Position N39



N42 pozicia
Position N42



liTonis specifikacia rigelze, sakarade kedelze da frTebze
Steel specifications per crossbeam, per backwall and wings

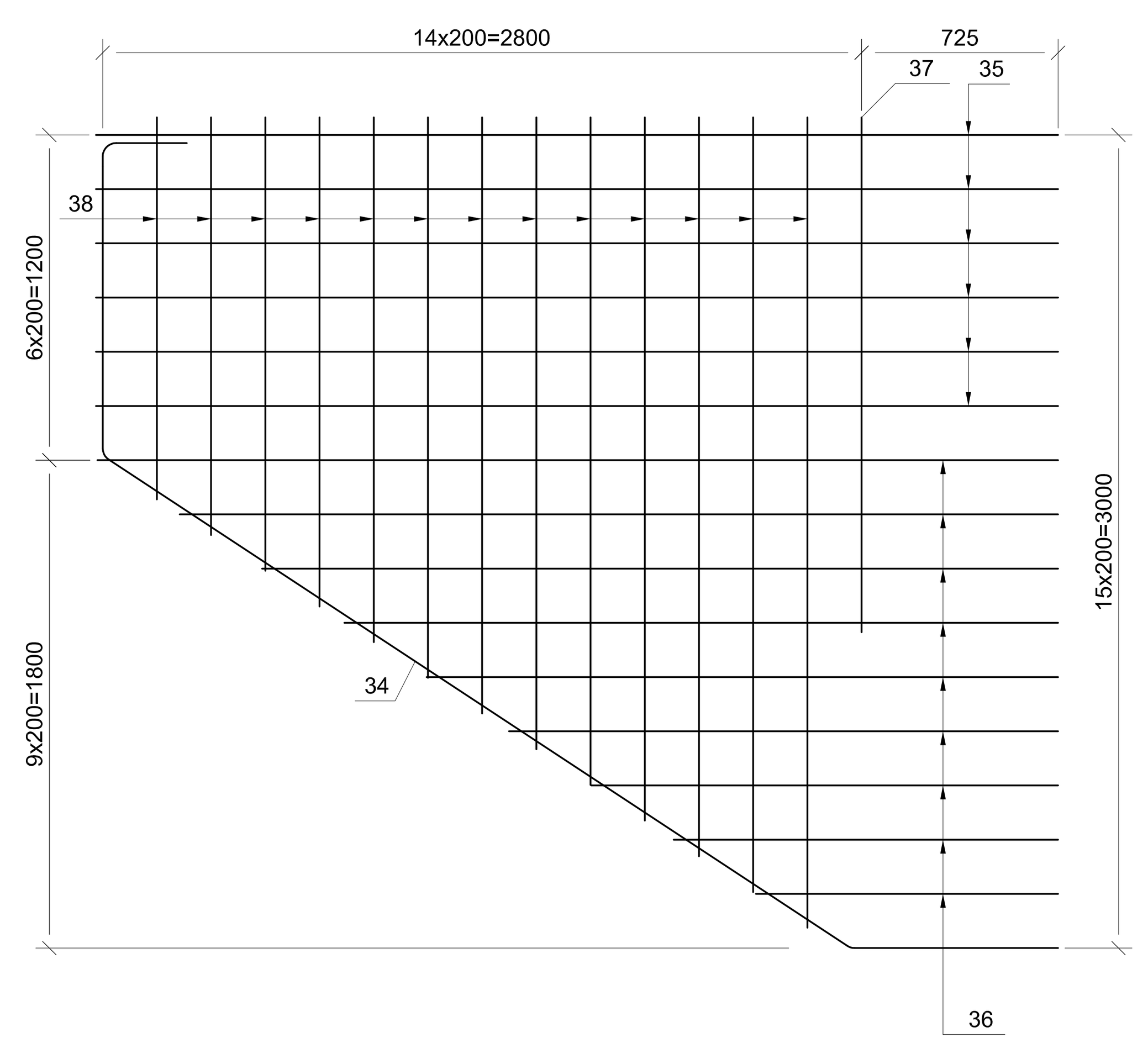
	pozicia Position	eskizi Sketch mmmm	diametri an kveTi Diameter or section mmmm	sigrZe Length mmmm	raodenoba Quantity cali unit	saerTo sigrZe Total length m m
1	2	3	4	5	6	7
karkasi (18 cali) Cage (18 units)	1	mocemulia naxazze Is given on drawing	32B500B	24500	18	441.0
	2	22020	32B500B	22020	18	396.4
	3	mocemulia naxazze Is given on drawing	32B500B	24430	18	439.7
	4	mocemulia naxazze Is given on drawing	16B500B	4650	72	334.8
	5	mocemulia naxazze Is given on drawing	16B500B	2390	144	344.2
	6	mocemulia naxazze Is given on drawing	16B500B	2040	36	73.5
	7	mocemulia naxazze Is given on drawing	14B500B	2180	4066	8863.9
calkeuli Reroebi Separate bars	8	22350	14B500B	22350	8	178.8
	9	mocemulia naxazze Is given on drawing	12B500B	2100	13	27.3
	10	mocemulia naxazze Is given on drawing	12B500B	2315	13	30.1
	11	mocemulia naxazze Is given on drawing	12B500B	$L_{saS.\,aver.}$=3310	42	139.0
	12	630 ÷ 890	12B500B	$L_{saS.\,aver.}$=760	165	125.4
sayrdeni baliSebi da antiseismuri sabjenebi Supporting bedding's and stops against seismic	13	2200	12B500B	2200	14	30.8
	14	1150	12B500B	1150	74	85.1
	15	530 ÷ 660	12B500B	660	168	110.9
	16	770 ÷ 1110	12B500B	$L_{saS.\,aver.}$=940	140	131.6
	17	440 × 340	-20x340	440	11	4.9
	18	420	12B500B	420	66	27.7
N1 bade Fabric N1	19	mocemulia naxazze Is given on drawing	10B500B	17400	18	313.2
	20	2650	10B500B	2650	116	307.4
calkeuli Reroebi Separate bars	21	mocemulia naxazze Is given on drawing	18B500B	$L_{saS.\,aver.}$=5990	18	107.8
	22	mocemulia naxazze Is given on drawing	18B500B	$L_{saS.\,aver.}$=4100	93	381.3
	23	mocemulia naxazze Is given on drawing	18B500B	2930	93	272.5
	24	2475 ÷ 2525, 150	18B500B	$L_{saS.\,aver.}$=2650	3	8.0
	25	22350	10B500B	22350	19	424.7
	26	mocemulia naxazze Is given on drawing	10B500B	22350	8	178.8
	27	1850	10B500B	1850	8	14.8
	28	mocemulia naxazze Is given on drawing	10B500B	1230	358	440.3
	29	mocemulia naxazze Is given on drawing	10B500B	1210	62	75.0
	30	mocemulia naxazze Is given on drawing	10B500B	2235	6	13.4
	31	mocemulia naxazze Is given on drawing	10B500B	2035	6	12.2
	32	mocemulia naxazze Is given on drawing	10B500B	1575	12	18.9
	33	700	22B500B	700	16	11.2

	pozicia Position	eskizi Sketch mmmm	diametri an kveTi Diameter or section mmmm	sigrZe Length mmmm	raodenoba Quantity cali unit	saerTo sigrZe Total length m m
1	2	3	4	5	6	7
N3 bade (4 cali) Fabric N3 (4 units)	34	mocemulia naxazze Is given on drawing	18B500B	5520	4	22.1
	35	3550	18B500B	3550	24	85.2
	36	1115 ÷ 3545	18B500B	$L_{saS.\,aver.}$=2330	36	83.9
	37	1900	12B500B	1900	4	7.6
	38	1410 ÷ 2990	12B500B	$L_{saS.\,aver.}$=2200	52	114.4
calk. Reroebi Separate bars	39	mocemulia naxazze Is given on drawing	10B500B	1050	104	109.2
	40	800	12B500B	800	76	60.8
	41	mocemulia naxazze Is given on drawing	18B500B	2600	15	39.0
	42	mocemulia naxazze Is given on drawing	18B500B	1810	15	27.2

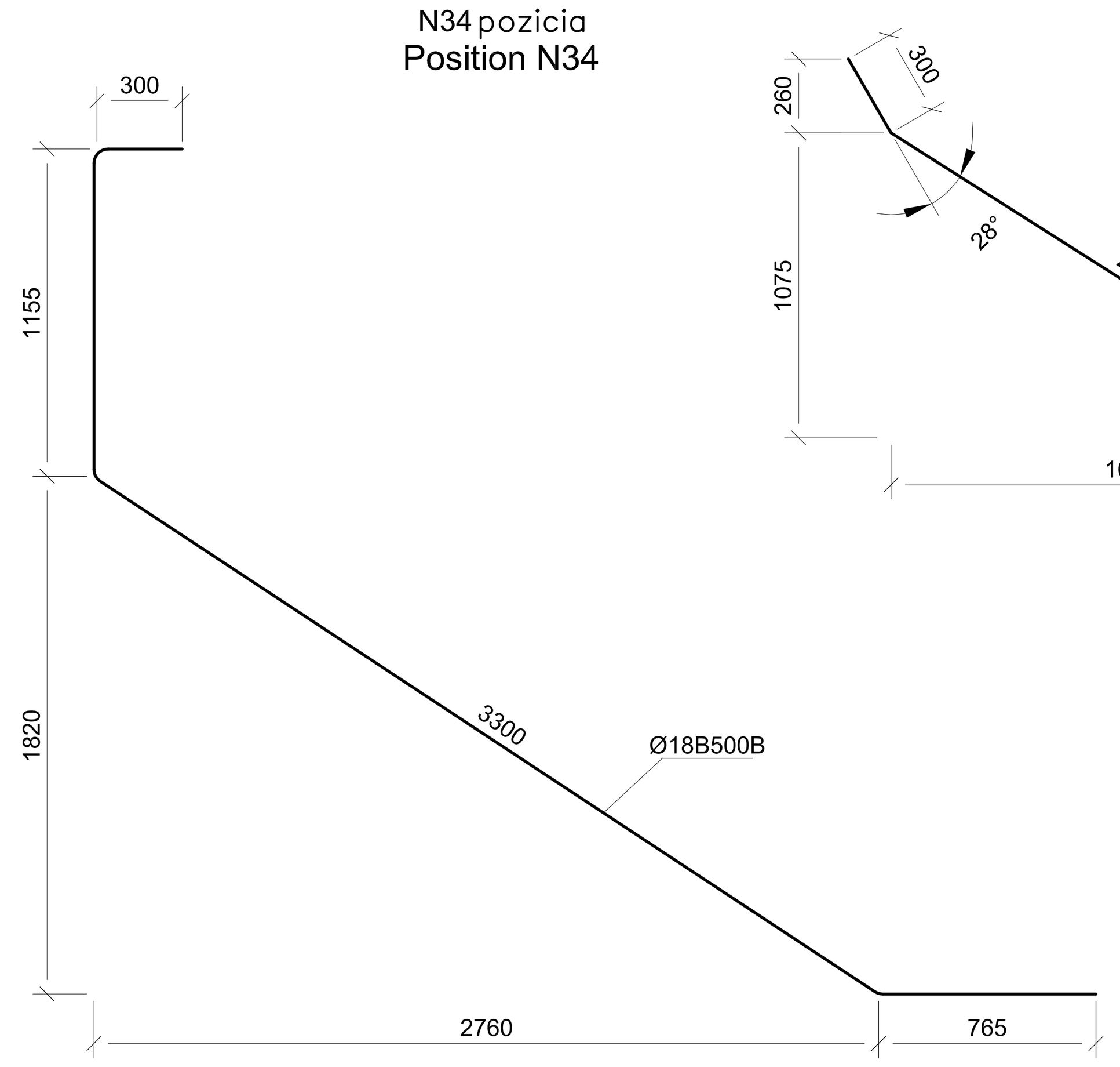
liTonis amokreba rigelze, sakarade kedelze da frTebze, kg
Selection of steel per crossbeam, per backwall and wings, kg

armaturis nakeToba Reinforcement product								Casatanebeli detali Embedded detail
armaturis foladi Reinforcement steel								
B500B Ø,mm Ø,mm								furclovani foladi Sheet steel
10	12	14	16	18	22	32	jami Sum	-20
1	2	3	4	5	6	7	8	9
1177.2	783.8	10941.7	1189.0	2054.0	33.4	8058.5	24237.6	258.4

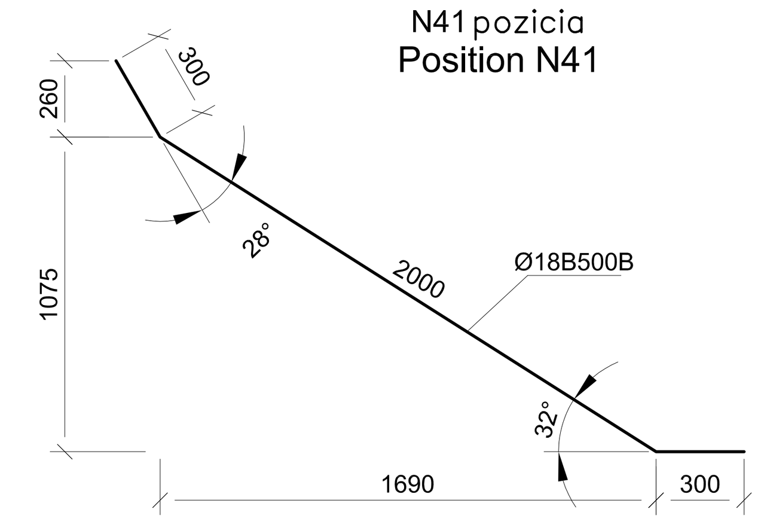
N3 bade
Fabric N3



N34 pozicia
Position N34



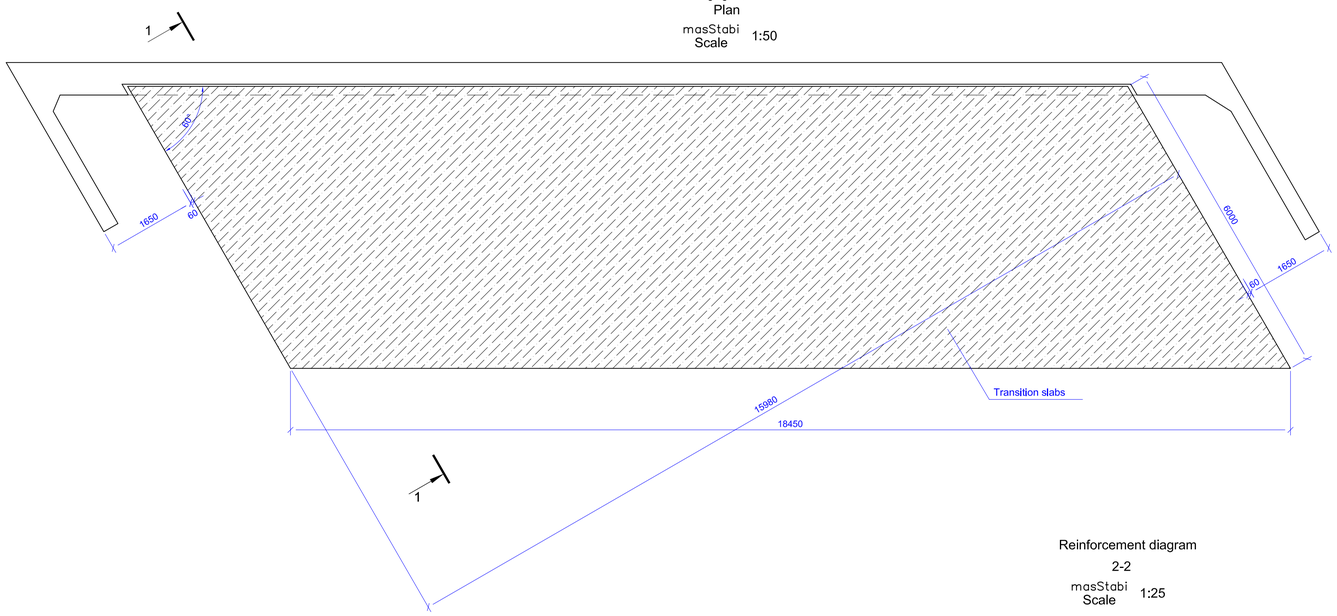
N41 pozicia
Position N41



ALT-E60-L1-B-7+00-075-10		Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500			
RE	R.Harlander				
Proj.Manag.	A. Valuikin	Overpass PK 7+00	Stage	Sheet	Sheets
			WD	10	10
Checked by	H.Gorobinskaya				
Exec. by	R.Garpolyuk	Reinforcing of backwall and wings abutment №3	"Road Building "Altcom" LLC		

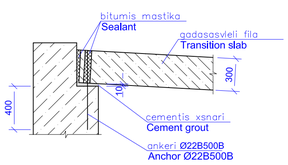
Falsework diagram

gegma
Plan
masStabi Scale 1:50



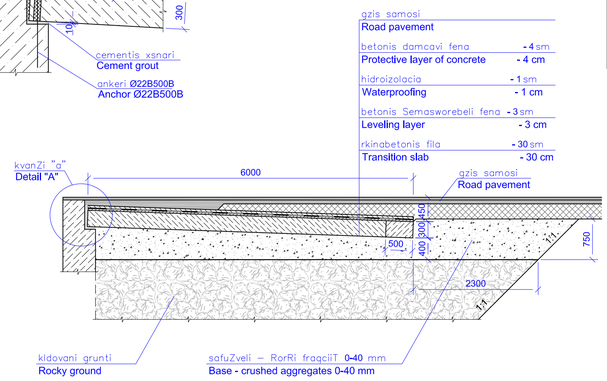
kvanZi "a"
Detail "A"

masStabi Scale 1:25



1-1

masStabi Scale 1:50



liTonis specifikacia filaze
Steel specifacations per slab

	pozicia Position	eskizi Sketch mmmm	diametri an kveTi Diameter or section mmmm	sigrZe Length mmmm	raodenoba Quantity cali unit	saerTo sigrZe Total length mm
1	2	3	4	5	6	7
Calkeuli Rerebi Separate bars	1	5960	20B500B	5960	145	864.2
	2	5960	12B500B	5960	145	864.2
	3	18400	10B500B	18400	60	1104.0
	4	mocemulia naxazze Is given on drawing	8B500B	760	4176	3173.8

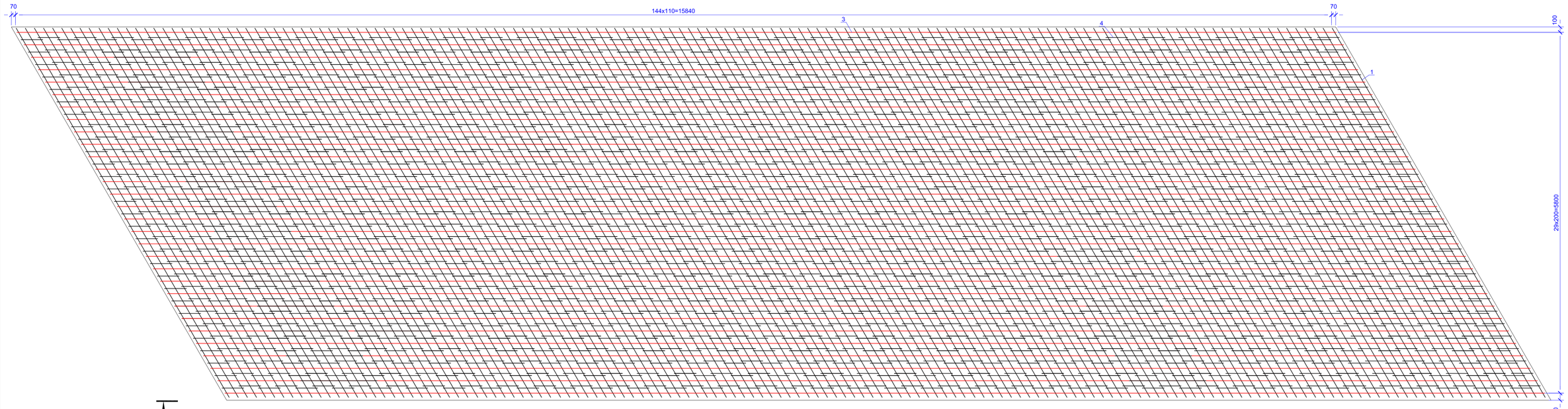
liTonis amokreba filaze, kg
Selection of steel per slab, kg

armaturis nakeToba Reinforcement product				
armaturis foladi Reinforcement steel				
B500B Ø,mm	Ø,mm			
8	10	12	20	jami Sum
1	2	3	4	5
1253.6	681.0	767.4	2134.0	4836

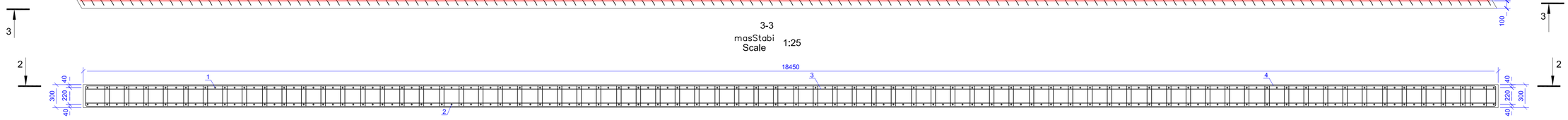
N4 pozicia
Position N4

Reinforcement diagram

2-2
masStabi Scale 1:25



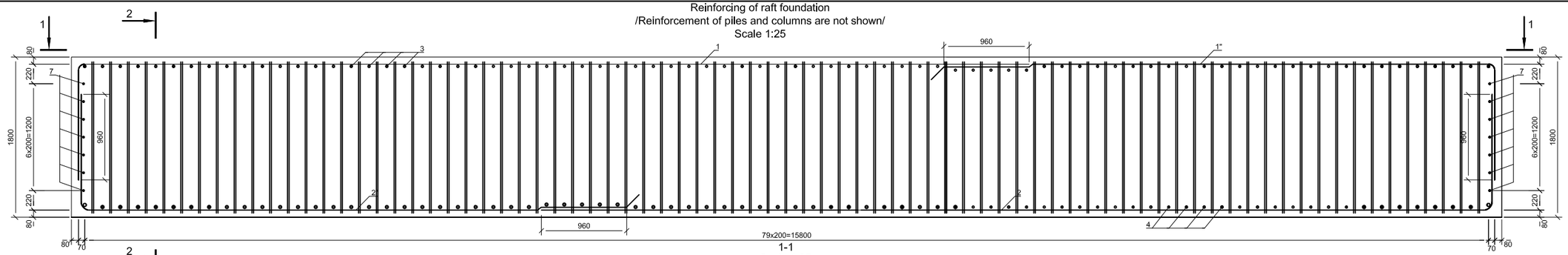
3-3
masStabi Scale 1:25



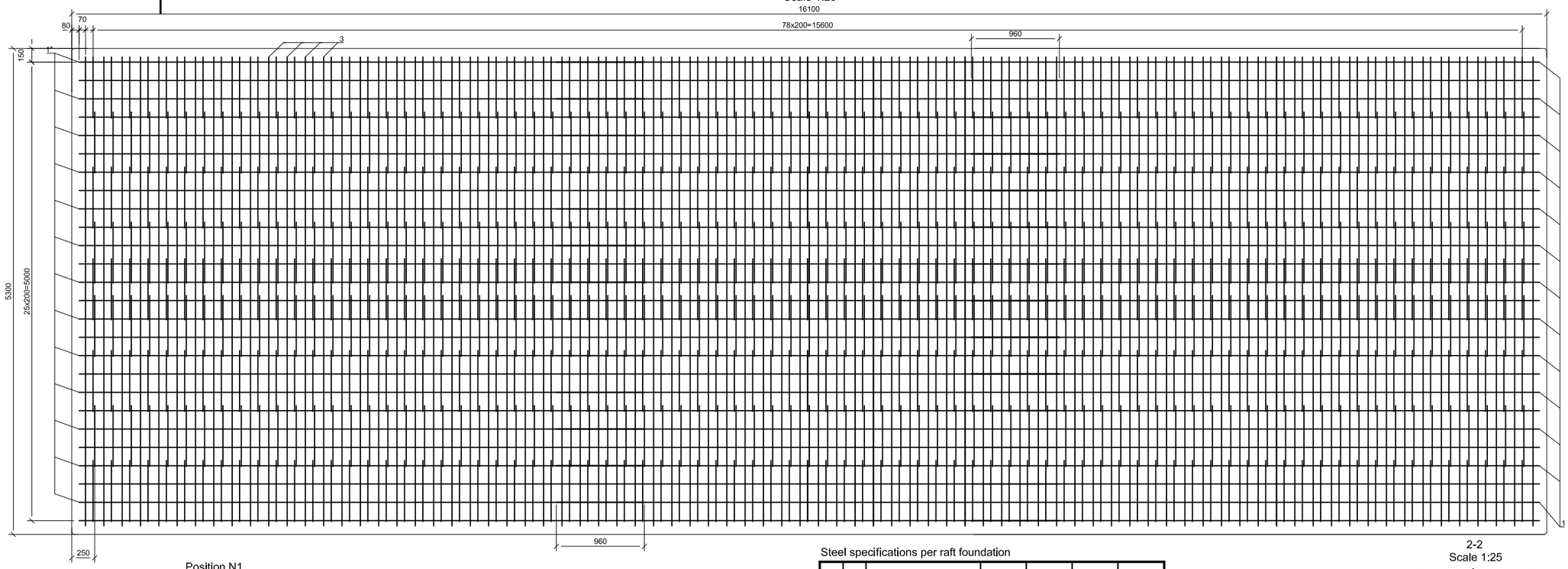
Concrete
C30/37,XC-2,XD-3,XF-1,S4,D22
V=28.8 m³

ALT-PK 7+00-119-01					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander				
	Proj.Manag.	A. Valuikin				
	Checked by	H.Garobinskaya			Overpass PK 7+00	Stage: WD; Sheet: 1; Sheets: 1
	Exec. by	R.Garpolyuk			CONJUNCTION OF OVERPASS WITH EMBANKMENT	"Road Building "Altcom" LLC

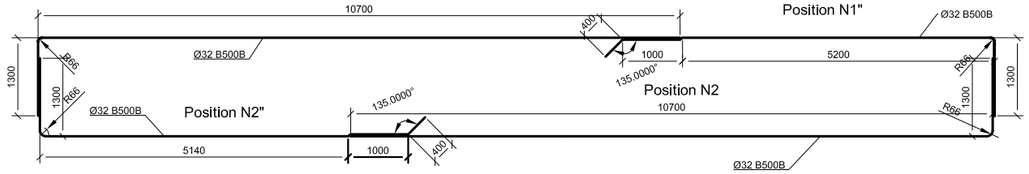
Reinforcing of raft foundation
/Reinforcement of piles and columns are not shown/
Scale 1:25



1-1
Scale 1:25

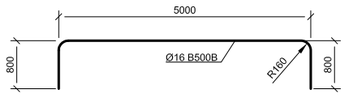


Position N1

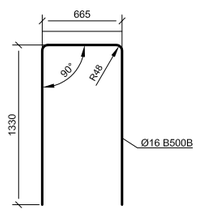


Position N1"

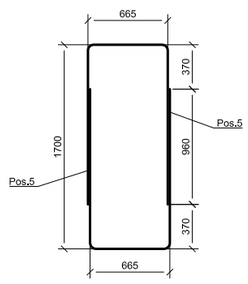
Position N7



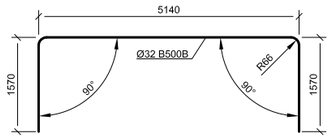
Position N5



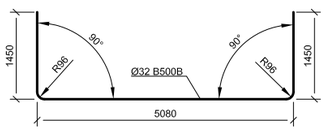
Scheme of fixing of positions N5



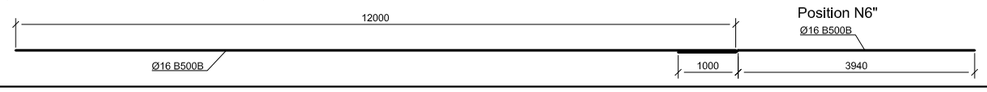
Position N3



Position N4



Position N6



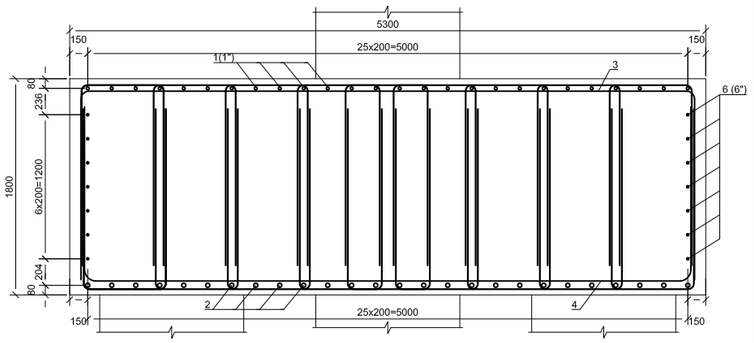
Steel specifications per raft foundation

	Position	Sketch mm	Diameter or section mm	Length mm	Quantity unit	Total length m
1	2	3	4	5	6	7
Separate bars	1	Is given on drawing	32 B500B	12000	26	312.0
	1"	Is given on drawing	32 B500B	7900	26	205.4
	2	Is given on drawing	32 B500B	12000	26	312.0
	2"	Is given on drawing	32 B500B	7840	26	203.9
	3	Is given on drawing	32 B500B	8280	80	662.4
	4	Is given on drawing	32 B500B	7980	80	638.4
	5	Is given on drawing	16 B500B	3325	1422	4728.1
	6	Is given on drawing	16 B500B	12000	14	168.0
	6"	Is given on drawing	16 B500B	4940	14	69.2
	7	Is given on drawing	16 B500B	6600	14	92.4

Selection of steel per raft foundation, kg

Reinforcement product		
Reinforcement steel		
B500B Ø,mm		
16	32	Sum
1	3	4
7991.2	14728.2	22719.4

2-2
Scale 1:25

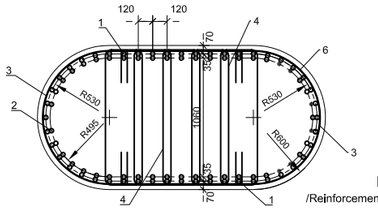


Metal consumption
148 kg/ m³ concrete

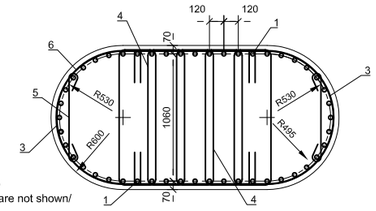
Volume of concrete
of raft foundation
C30/37 XC-2 XD-2
XA-3 S3 d2
V=153.6 m³

ALT-E60-L1-B-7+00-13-01			Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500		
	RE	R.Harlander			
	Proj.Manag	A. Valuikin	Overpass PK 7+00	Stage	Sheet	Sheets
	Checked by	H.Gorobinskaya		WD	1	1
ALTCOM Road Building	Exec. by	R.Garpolyuk	Structure of raft foundation of pier proposal-2	"Road Building "Altcom" LLC		

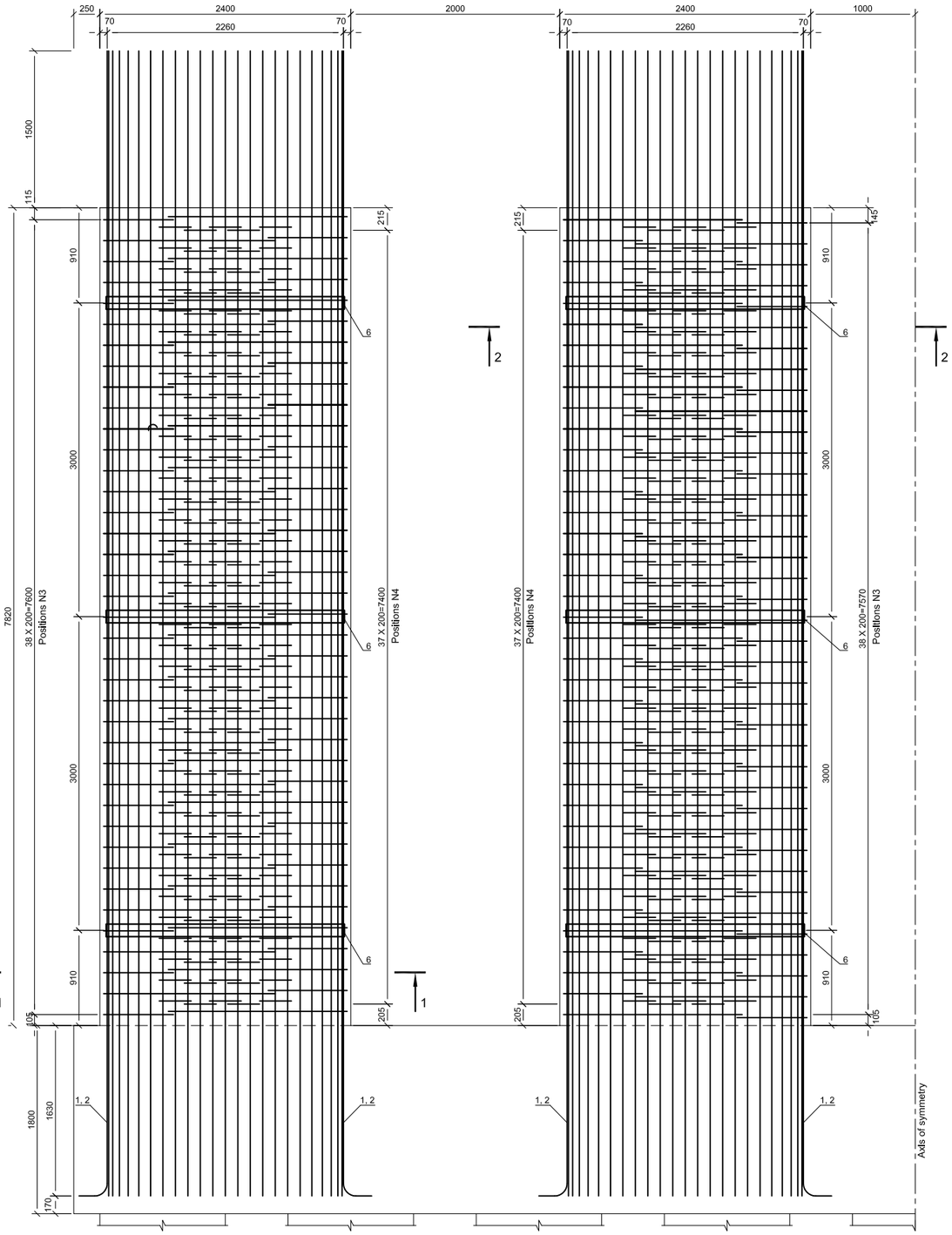
1-1
Scale
1:25



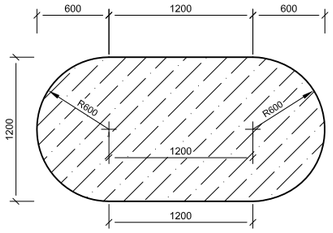
2 - 2
Scale
1:25



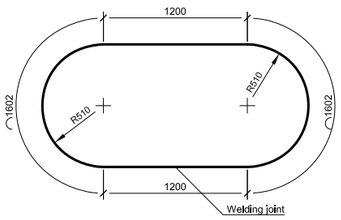
Reinforcing of columns
/Reinforcement of piles and raft foundation are not shown/
Scale
1:25



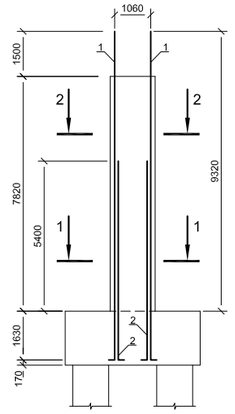
Cross-section of columns
Scale
1:25



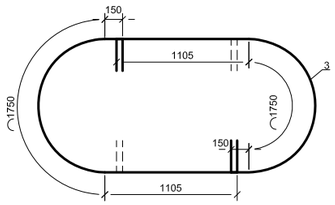
Position N6



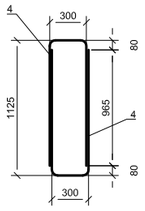
Layout of positions N1, N2



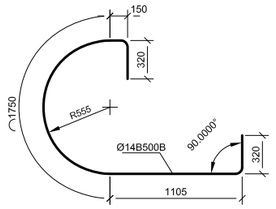
Scheme of fixing of positions N3



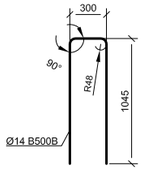
Scheme of fixing of positions N4



Positions N3



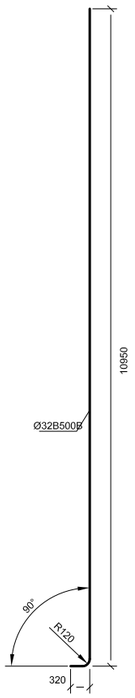
Position N4



Steel specifications per one column

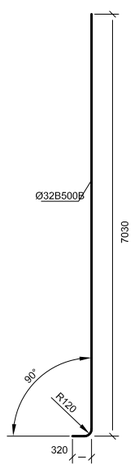
Piers #	Pk	Position	Diameter or section mm	Length mm	Quantity unit	Total length m
1	2	3	4	5	6	7
Pier N2	Pk 8+40.90	1	32 B500B	11270	48	541.00
		2	32 B500B	7350	48	352.8
		3	14 B500B	3645	78	284.3
		4	14 B500B	2390	380	908.2
		5	14 B500B	1090	24	26.2
		6	⬭120x10	5605	3	16.8

Position N1

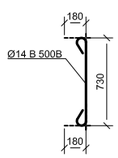


Abutment N2
Volume of concrete
of column
C 30/37 XS-2 XD-2
XA-3 S3 d2
V=20.1 m³

Position N2



Position N5



Piers #	Height of columns, m
	" H "
1	2
Pier N2 Pk 8+40.90	7.82

Selection of steel per one column, kg

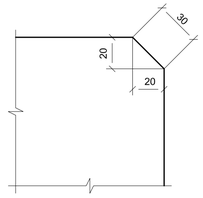
Reinforcement product			Sheet steel
Reinforcement steel			
B500B Ø,mm			
14	32	Sum	δ=10
1	2	3	4
1495.9	5639.90	7135.8	158.2

Note

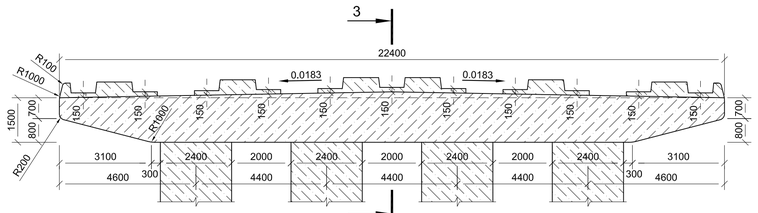
1.Position N3 shall be placed in each row in a reflective way against each other.
2.Position N4 shall be placed in each row in a reflective way against each other.
3. Reinforcement must be corresponds to BS 4449 and BS 4483 (in accordance with technical specification).
4. Concrete must be corresponds to BS 8500-1 (in accordance with technical specification).

ALT-E60-L1-B-7+00-029-01				Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	R.Harlander		
	Proj.Manag	A. Valuikin		Overpass PK 7+00
	Checked by	H.Gorobinskaya		Stage: WD; Sheet: 1; Sheets: 1
ALTCOM Road Building	Exec. by	R.Garpolyuk		Structure of columns of pier №2
				"Road Building "Altcom" LLC

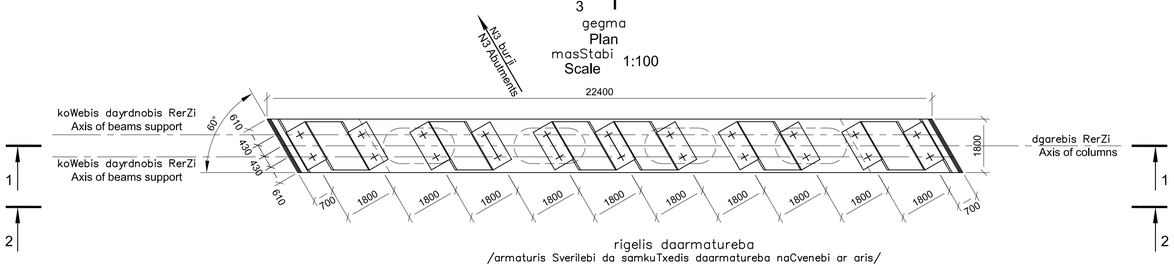
burjis wiboebis mowyobis detali
Detail of construction of pier edges
masStabi
Scale 1:2



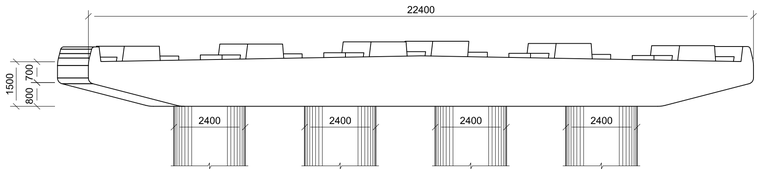
1-1
masStabi
Scale 1:100



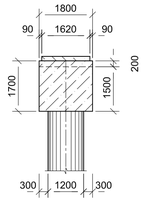
gegma
Plan
masStabi
Scale 1:100



2-2
masStabi
Scale 1:100

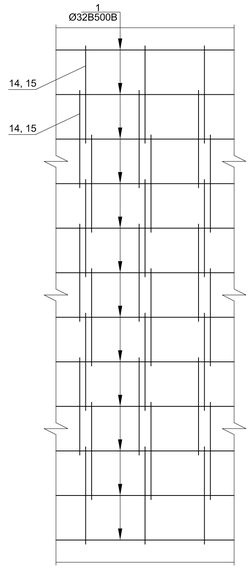


3-3
masStabi
Scale 1:100

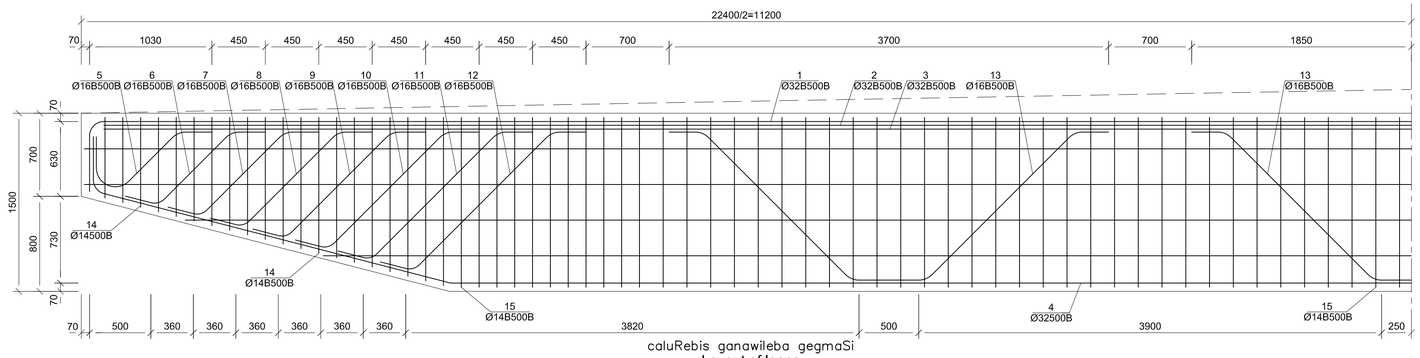


sayrdeni baliSebis zedapirebi horizontaluria	rigelis betonis moculoba	Volume of concrete of crossbeam
Surfaces of supporting bedding are horizontal	Concrete C30/37,XC-2, XD-3,XF-1,S3,D22 V=70.0 m³	Concrete C30/37,XC-2, XD-3,XF-1,S3,D22 V=70.0 m³

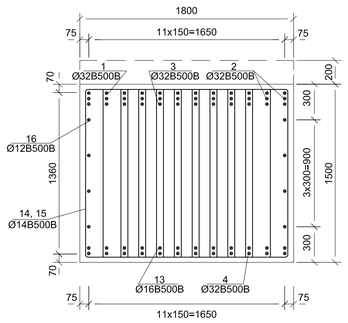
caluRebis ganawilebis kvanZi
Detail of layout of loops
masStabi
Scale 1:10



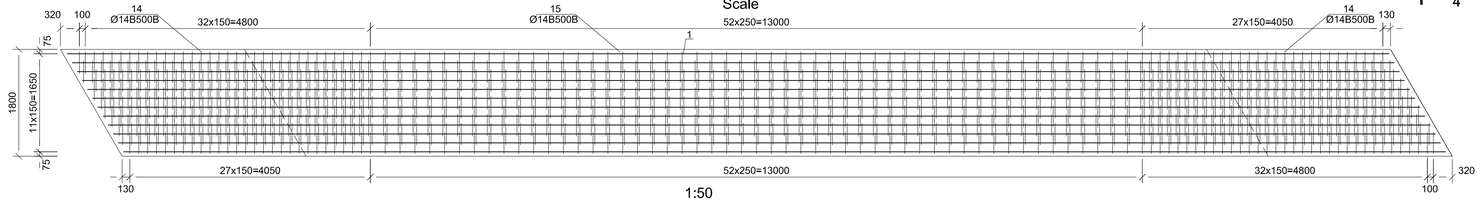
rigelis daarmatureba
/armaturis Sverilebi da samkuTxedis daarmatureba naCvenebi ar aris/
Reinforcing of crossbeam
/Connecting reinforcement bars and reinforcing of triangle are not shown/
masStabi
Scale 1:25



4-4
masStabi
Scale 1:25

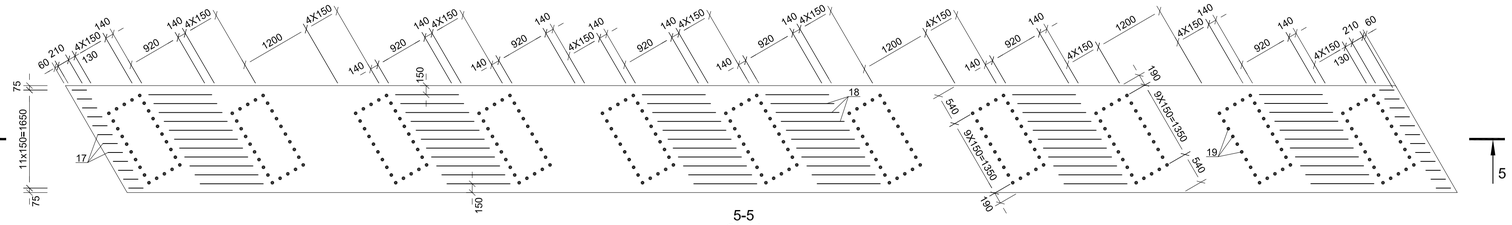


caluRebis ganawileba gegmaSi
Layout of loops
masStabi
Scale

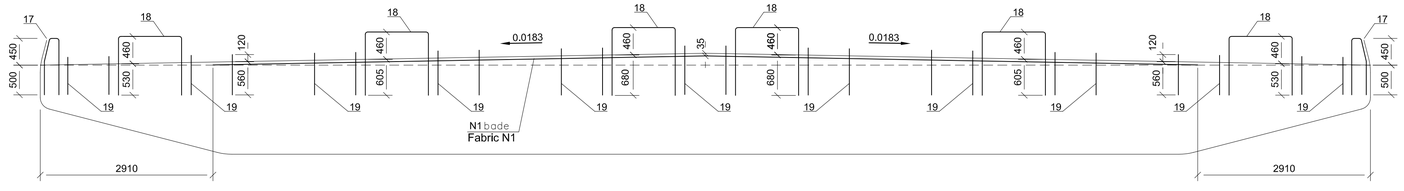


1:50

armaturis Sverilebis ganlageba rigelze
Layout of connecting reinforcement bars from crossbeam

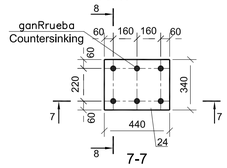


5-5
masStabi
Scale 1:50

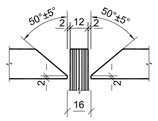


ALT-E60-L1-B-7+00-074-01				Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander			
	Proj.Manag	A. Valuikin		Overpass PK 7+00	Stage: WD; Sheet: 1; Sheets: 2
	Checked by	H.Gorobinskaya			
	Exec. by	R.Garpolyuk		Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic piers N2	"Road Building "Altcom" LLC

Casatanebeli detali (Cd)
Embedded detail (ED)
masStabi
Scale 1:20

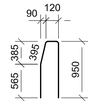


ganRruebis detali
Countersinking detail
masStabi
Scale 1:2

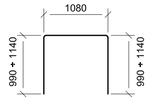


pirobiTi aRniSvna
Legend
+ – sayrdeni nawilebis centrebi
- Centre of bearing parts

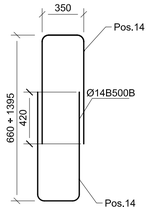
N17 pozicia
Position N17



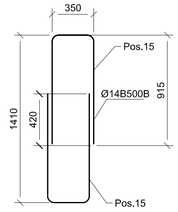
N18 pozicia
Position N18



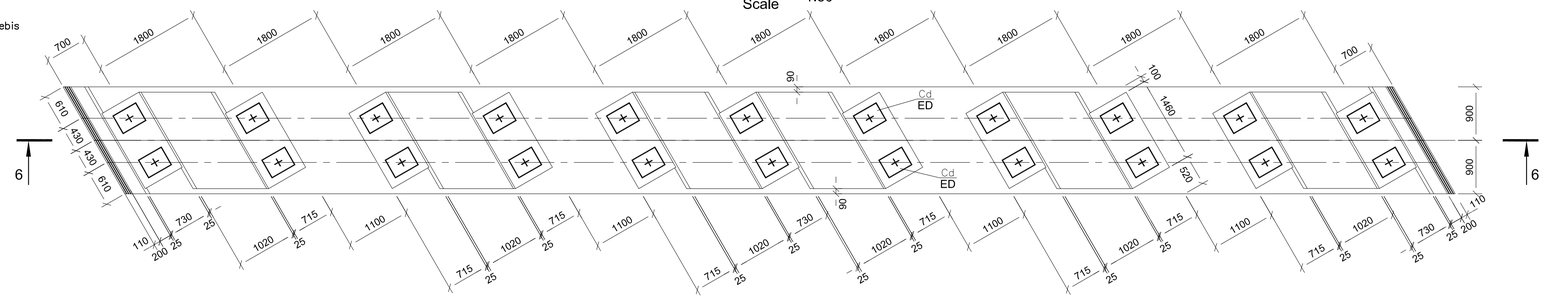
N14 pozicia
Position N14



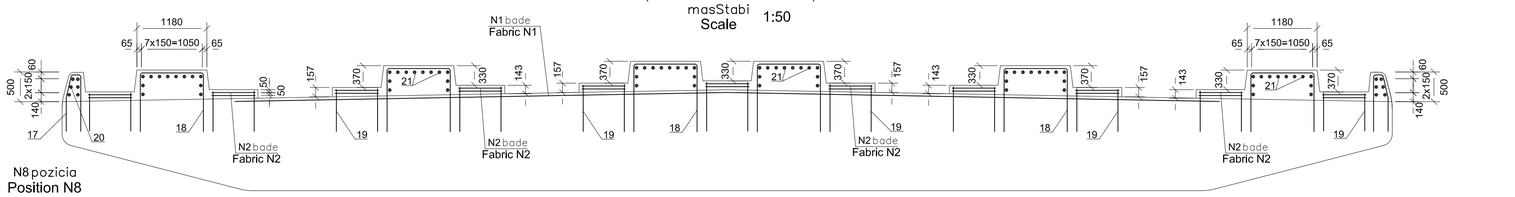
N15 pozicia
Position N15



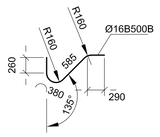
sayrdeni baliSebis da antiseismuri sabjenebis konstruqcia
Structure of supporting bedding's and stops against seismic
masStabi
Scale 1:50



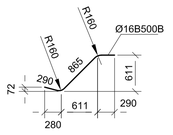
6-6
/Cd naCvenebi ar aris/
(Embedded details are not shown)
masStabi
Scale 1:50



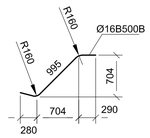
N5 pozicia
Position N5



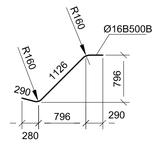
N6 pozicia
Position N6



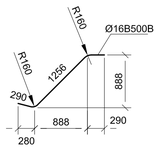
N7 pozicia
Position N7



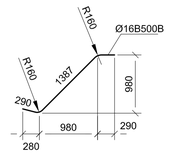
N8 pozicia
Position N8



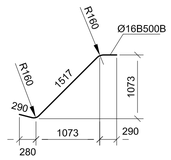
N9 pozicia
Position N9



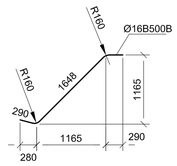
N10 pozicia
Position N10



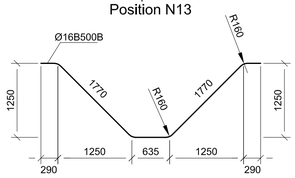
N11 pozicia
Position N11



N12 pozicia
Position N12

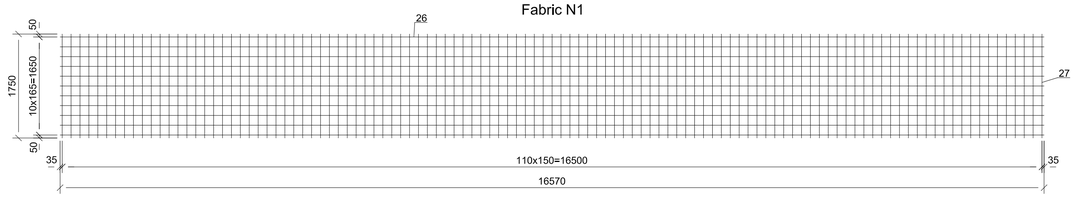


N13 pozicia
Position N13



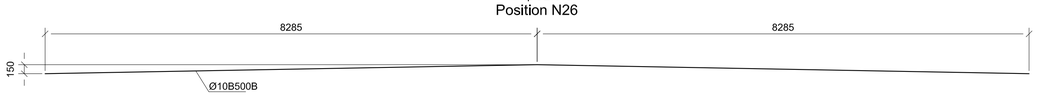
N1 pozicia
Position N1

N1 bade
Fabric N1



Unit "A"

N26 pozicia
Position N26



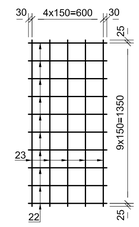
liTonis specifikacia rigelze
Steel specifications per crossbeam

	pozicia Position	eskizi Sketch mm	diametri an kveTi Diameter or section mm	sigrZe Length mm	raodenoba Quantity cali unit	saerTo sigrZe Total length m
1	2	3	4	5	6	7
karkasi (12 cali) Cage (12 units)	1	mocemulia naxazze Is given on drawing	32B500B	23440	12	281.3
	2	22020	32B500B	22020	12	264.2
	3	22020	32B500B	22020	12	264.2
	4	mocemulia naxazze Is given on drawing	32B500B	23300	12	279.6
	5	mocemulia naxazze Is given on drawing	16B500B	1515	24	36.4
	6	mocemulia naxazze Is given on drawing	16B500B	1445	24	34.7
	7	mocemulia naxazze Is given on drawing	16B500B	1575	24	37.8
	8	mocemulia naxazze Is given on drawing	16B500B	1706	24	40.9
	9	mocemulia naxazze Is given on drawing	16B500B	1836	24	44.1
	10	mocemulia naxazze Is given on drawing	16B500B	1967	24	47.2
	11	mocemulia naxazze Is given on drawing	16B500B	2097	24	50.3
	12	mocemulia naxazze Is given on drawing	16B500B	2228	24	53.5
	13	mocemulia naxazze Is given on drawing	16B500B	4755	36	171.2
calkeuli Rerebi Separate bars	14	mocemulia naxazze Is given on drawing	14B500B	$L_{aver.}$=1797	812	1459.16
	15	mocemulia naxazze Is given on drawing	14B500B	2180	1504	3284.73
	16	18330 + 22350	12B500B	$L_{aver.}$=20340	8	162.7
	17	mocemulia naxazze Is given on drawing	14B500B	2030	24	48.7
	18	mocemulia naxazze Is given on drawing	14B500B	$L_{aver.}$=3210	66	211.9
	19	635 + 825	14B500B	$L_{aver.}$=730	286	208.8
sayrdeni baliSebi da antiseismuri sabjenebi Supporting bedding's and stops against seismic	20	2040	12B500B	2040	12	24.5
	21	1825	12B500B	1825	72	131.4
	22	660	12B500B	660	220	145.2
	23	1400	12B500B	1400	110	154.0
	24	440 / 340	-20x340	440	22	9.7
	25	420	12B500B	420	132	55.4
N1 bade Fabric N1	26	mocemulia naxazze Is given on drawing	10B500B	16570	11	182.3
	27	1750	10B500B	1750	111	194.3

liTonis amokreba rigelze, kg
Selection of steel per crossbeam, kg

armaturis nakeToba Reinforcement product						Casatanebeli detali Embedded detail	
armaturi foladi Reinforcement steel							
B500B Ø,mm						furclovani foladi Sheet steel	B500B Ø,mm
10	12	14	16	32	jami Sum	-20	12
1	2	3	4	5	6	7	8
232.4	548.6	6308.8	815.4	6873.5	14778.7	516.7	49.2

N2 bade
Fabric N2



ALT-E60-L1-B-7+00-074-02-K					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	R.Harlander			
	Proj.Manag.	A. Valuikin			Overpass PK 7+00
	Checked by	H.Gorobinskaya			Reinforcing of crossbeam, structure of supporting bedding's and stops against seismic piers N2
ALTCOM Road Building	Exec. by	R.Garpolyuk			"Road Building "Altcom" LLC

Stage	Sheet	Sheets
WD	2	2

asfaltbetoni	- h=30 mm
Asphalt concrete	- h=30 mm
bitumis emulsia	
Bitumen emulsion	
trotuaris betoni	- h=60 ÷ 140 mm
Concrete of sidewalk	- h=60 ÷ 140 mm

monoliTuri rkinabetonis (C40/50) fila - h =200-250 mm

Cast-in-situ reinforced concrete (C40/50) slab - h =200-250 mm

asfaltbetoni	- h=70 mm
Asphalt concrete	- h=70 mm
bitumis emulsia	
Bitumen emulsion	

monoliTuri rkinabetonis (C40/50) fila - h =200-250 mm

Cast-in-situ reinforced concrete (C40/50) slab - h =200-250 mm

asfaltbetoni	- h=70 mm
Asphalt concrete	- h=70 mm
bitumis emulsia	
Bitumen emulsion	

monoliTuri rkinabetonis (C40/50) fila - h =200 mm

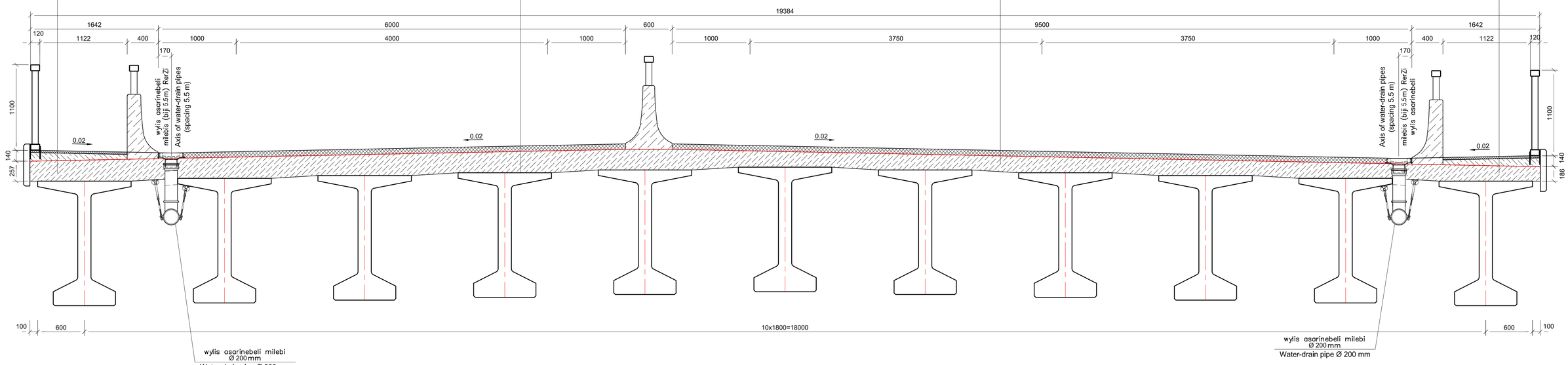
Cast-in-situ reinforced concrete (C40/50) slab - h =200 mm

asfaltbetoni	- h=30 mm
Asphalt concrete	- h=30 mm
bitumis emulsia	
Bitumen emulsion	
trotuaris betoni	- h=60 ÷ 140 mm
Concrete of sidewalk	- h=60 ÷ 140 mm

monoliTuri rkinabetonis (C40/50) fila - h =200 mm

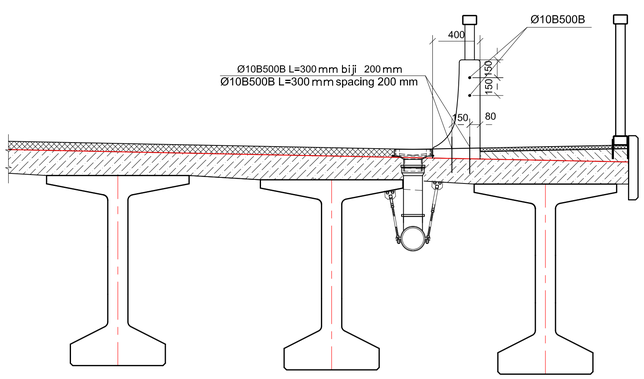
Cast-in-situ reinforced concrete (C40/50) slab - h =200 mm

xidis vakisis ganivi kveTi
Cross-section of bridge deck
masStabi
Scale 1:25



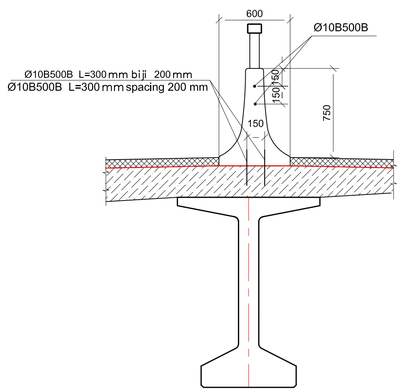
monoliTuri rkinabetonis filis da
monoliTuri rkinabetonis zRudaris daarmatureba
Reinforcing of cast-in-situ reinforced concrete slab and
cast-in-situ reinforced concrete barrier

masStabi
Scale 1:25



monoliTuri rkinabetonis filis da
monoliTuri rkinabetonis zRudaris daarmatureba
Reinforcing of cast-in-situ reinforced concrete slab and
cast-in-situ reinforced concrete barrier

masStabi
Scale 1:25

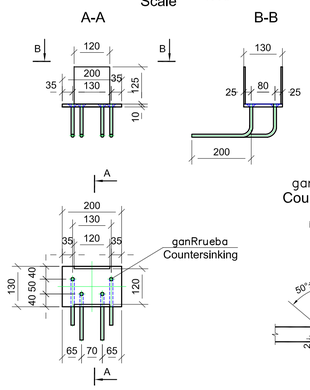


Casatanebeli detalebis raodenoba
moajiris erT seqciaze (L=3.0 m) – 4 cali
erTi Casatanebeli detalis wona :
furclovani foladi sisqiT 5 mm – 0.6 kg
furclovani foladi sisqiT 10 mm – 2.0 kg
armatura Ø10 B500B – 0.8 kg

Quantity of embedded details
for one steel railing section (L=3.0 m) - 4 units
Weight of one embedded detail :
Sheet steel thickness 5 mm - 0.6 kg
Sheet steel thickness 10 mm - 2.0 kg
Reinforcement Ø10 B500B - 0.8 kg

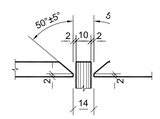
Casatanebeli detali (Cd)
Embedded detail (ED)

masStabi
Scale 1:10

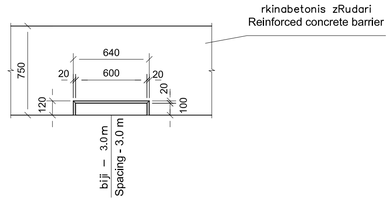


ganRruebis detali
Countersinking detail

masStabi
Scale 1:2



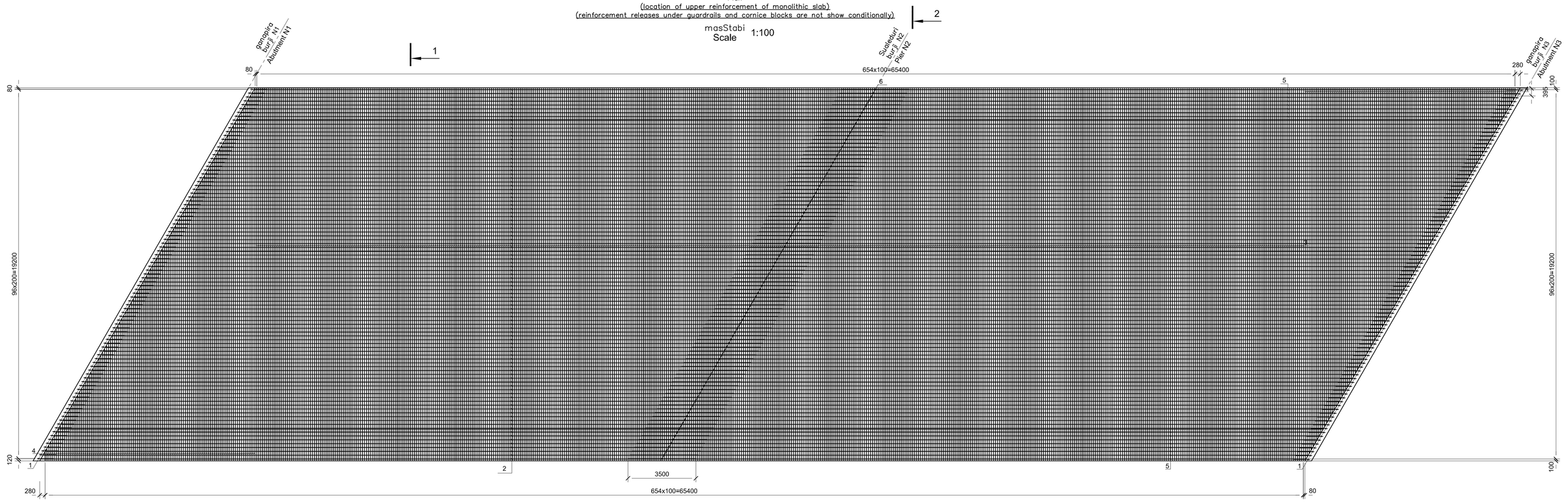
wylis asarinebeli xvreti (xedi trotuaris mxridan)
wylis asarinebeli xvretebis mosawyobad armaturis Reroebi moiWreba dabetonebamde
Opening for water discharge (view from sidewalk)
Reinforcement bars shall be cut prior to concreting in order to provide an opening for water discharge



ALT-E60-L1-B-7+00-088-01						Construction of Samtredia – Grigoleti road section of E-60 km 0 +000 – km 11 +500			
	RE	R.Harlander							
	Proj.Manag.	A. Valuikin				Overpass PK 7+00	Stage	Sheet	Sheets
	Checked by	H.Gorobinskaya					WD	1	1
ALTCOM Road Building	Exec. by	R.Garpolyuk				STRUCTURE OF BRIDGE DECK	"Road Building "Altcom" LLC		

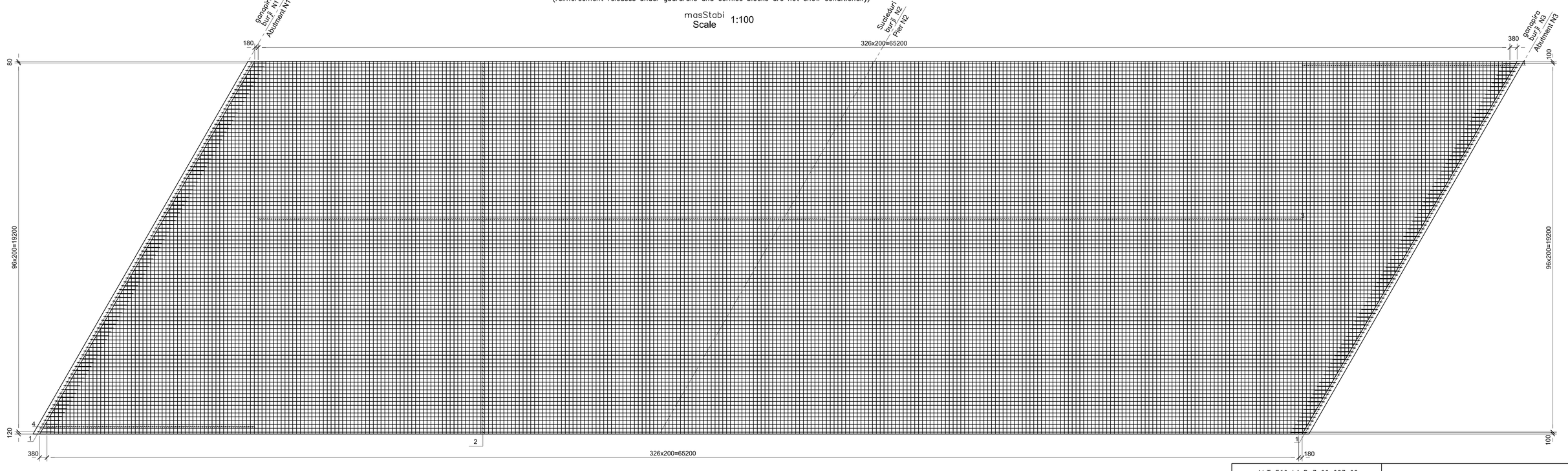
Plan
(location of upper reinforcement of monolithic slab)
(reinforcement releases under guardrails and cornice blocks are not show conditionally)

masStabi
Scale 1:100



Plan
(location of lower reinforcement of monolithic slab)
(reinforcement releases under guardrails and cornice blocks are not show conditionally)

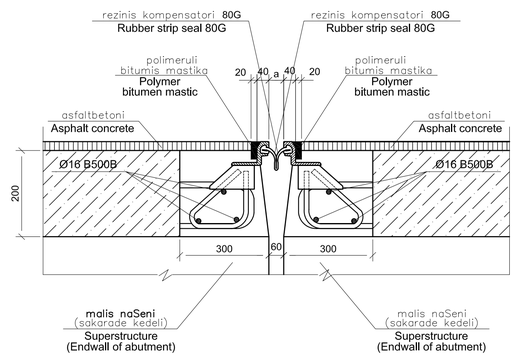
masStabi
Scale 1:100



ALT-E60-L1-B-7+00-087-02					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander				
	Proj.Manag	A. Valuikin			Overpass PK 7+00	Stage: WD; Sheet: 1; Sheets: 2
ALTCOM Road Building	Checked by	H.Gorobinskaya				
	Exec. by	R.Garpolyuk			STRUCTURE OF CAST-IN-SITU REINFORCED CONCRETE ZONES OF SUPERSTRUCTURE	"Road Building "Altcom" LLC

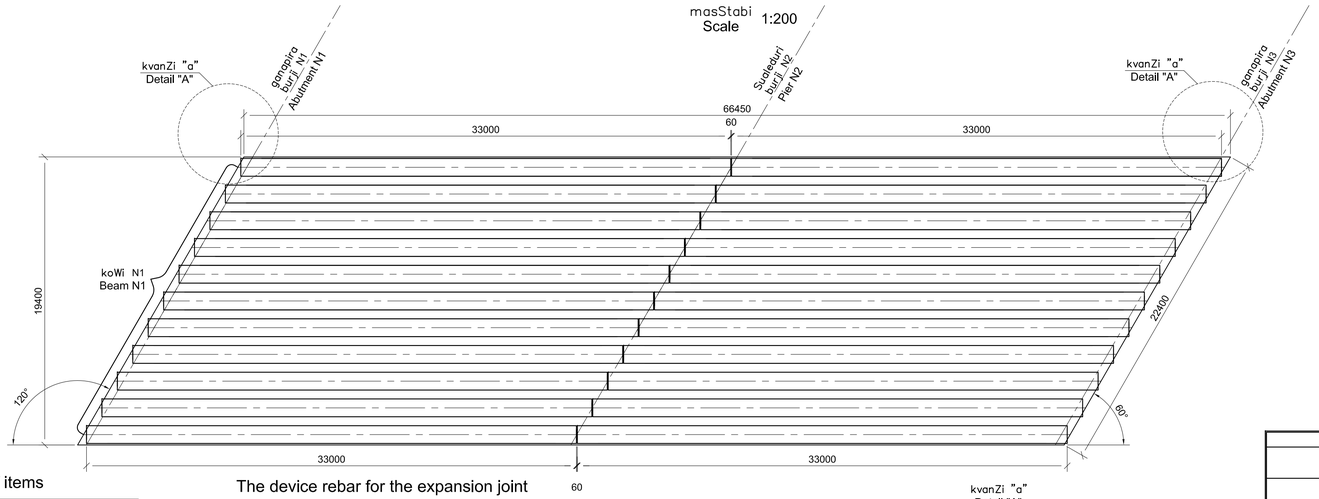
sadeformacio nakeri rezinis kompensatoriT
Expansion joint with rubber compensator

gadaadgilebis intervali 80 mm
Interval of movement 80 mm



ori malis gaerTianeba temperaturul uWr sistemaSi
Connection of two spans in continuous temperature system

masStabi Scale 1:200



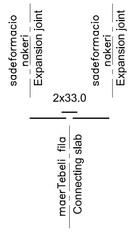
liTonis specifikacia
Steel specifications

	pozicia Position	eskizi Sketch mmmm	diametri an kveTi Diameter or section mmmm	sigrZe Length mmmm	raodenoba Quantity cali unit	saerTo sigrZe Total length mm
1	2	3	4	5	6	7
calkeuli Rerosebi Separate bars	1		20B500B	1580	194	306.52
	2		14B500B	65690	194	12743.9
	3		16B500B	19340	818	15820.1
	4	L=395-19270mm	16B500B	$L_{saS.}$=9832	334	3283.9
	5		8B500B	65690	16	1051.0
	6		20B500B	3500	97	339.5
	7		8B500B	3300	654	2158.2

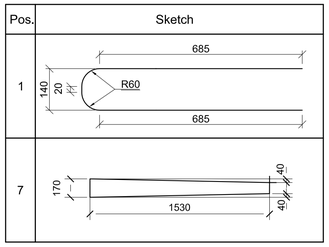
liTonis amokreba, kg
Selection of steel, kg

armaturis nakeTobis Reinforcement product				
armaturis foladi Reinforcement steel				
B500B Ø,mm		Ø,mm		jami Sum
8	14	16	20	
1	2	3	4	5
1267.6	15420.1	30184.3	1595.7	48467.7

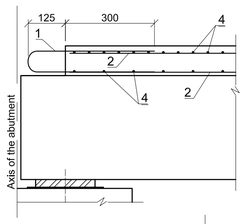
malebis gaerTianebis sqema
Scheme of connection of spans

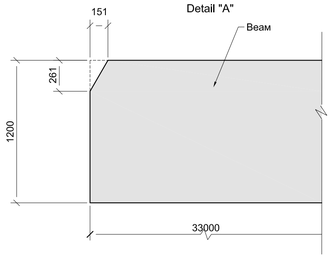


Register of items

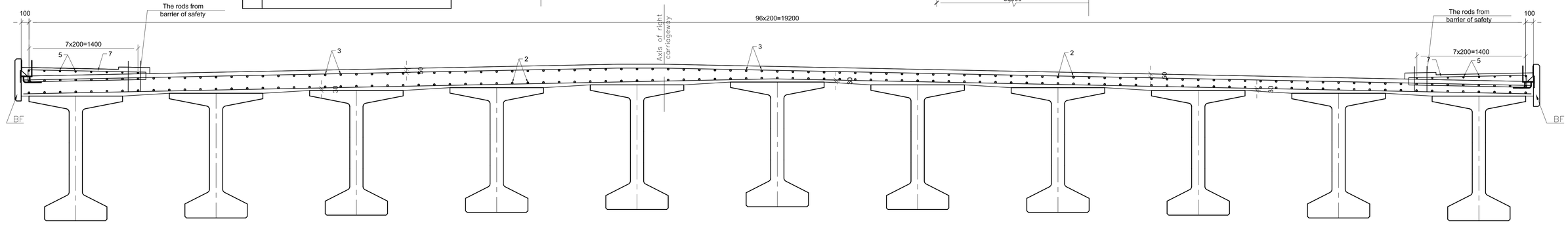


The device rebar for the expansion joint
1:10

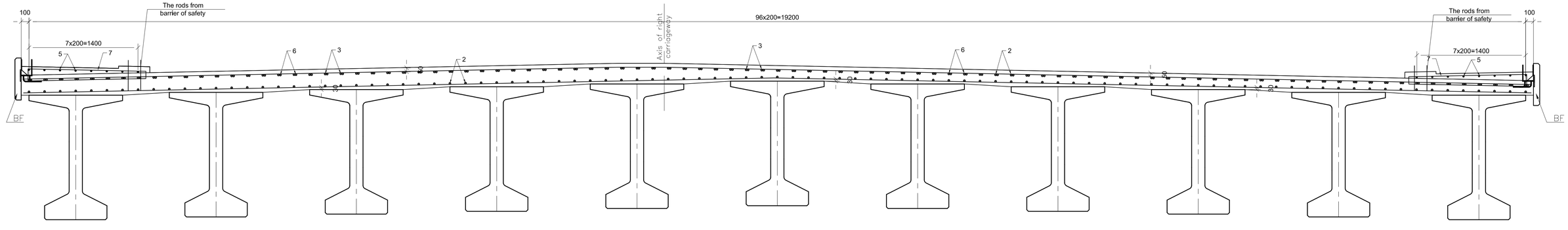




1-1
masStabi Scale 1:25



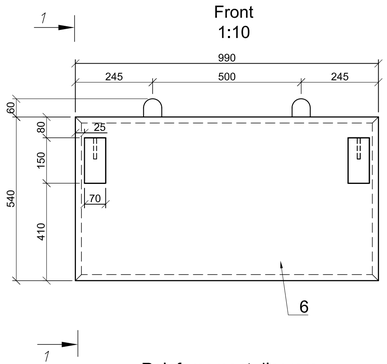
2-2
masStabi Scale 1:25



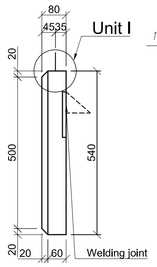
ALT-E60-L1-B-7+00-087-02					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander				
	Proj.Manag.	A. Valuikin			Overpass PK 7+00	Stage: WD; Sheet: 2; Sheets: 2
	Checked by	H.Gorobinskaya				
ALTCOM Road Building	Exec. by	R.Garpolyuk			STRUCTURE OF CAST-IN-SITU REINFORCED CONCRETE ZONES OF SUPERSTRUCTURE	"Road Building "Altcom" LLC

Intermediate block of facade (BF-1)

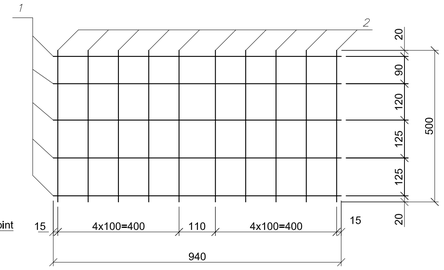
Front
1:10



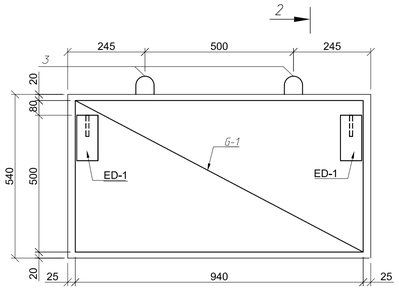
1-1



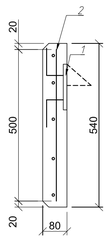
Grid G-1



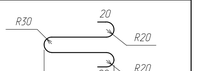
Reinforcement diagram



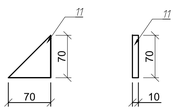
2-2



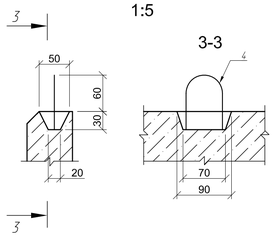
Register of items

Pos	Sketch
3	
10	

Embedded detail ED-2
1:5



Unit I
1:5



3-3

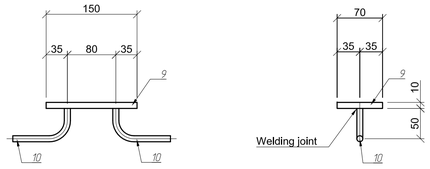
Register of steel consumption per element, kg

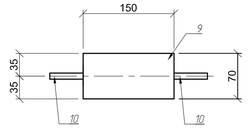
Mark of element	Reinforcement			Embedded items						Total
	BS 4449:2005 (B500B)		Total	EN 10025-2:2006			BS 4449:2005 (B500B)		Total	
	Ø8	Ø10		-10x150x70	-10x70x70	Total	Ø10	Total		
BF-1	0.54	6.00	6.53	1.66	0.19	1.85	0.36	0.36	2.21	8.74

Specification of elements, kg

Pos.	Name	Quantity	Weight of unit, kg	Weight of all, kg
BF-1	Intermediate block of facade			
G-1	Grid G-1	1	6.00	6.00
1	\10 B500B BS 4449:2005, L=940	5	0.58	2.90
2	\10 B500B BS 4449:2005, L=500	10	0.31	3.10
	Details	2	0.27	0.54
3	\8 B500B BS 4449:2005, L=680	1	0.27	0.27
ED-1	Embedded details ED-1	2	1.01	2.02
9	-10x150x70 EN 10025-2:2006	1	0.83	0.83
10	\10 B500B BS 4449:2005, L=140	2	0.09	0.18
ED-2	Embedded details ED-2	2	0.19	0.38
11	-10x70x70 EN 10025-2:2006	1	0.19	0.19
	Other materials			
6	Concrete C30/37,XC-4,XD-3,XF-3,XA-1,S4,D22			0.043 m³

Embedded detail ED-1
1:5





liTonis elementebis specifikacia erT seqciaze
Specification of metal detail per section

	pozicia Position	eskizi Sketch mmmm	diametri an kveTi Diameter or section mmmm	sigrZe Length mmmm	raodenoba Quantity cali unit	saerTo sigrZe Total length mm
1	2	3	4	5	6	7
L=3.0 m, m	1		120x80x5	3000	1	3.0
	2		80x40x3	290	4	1.16

liTonis amokreba erT seqciaze, kg
Selection of steel per section, kg

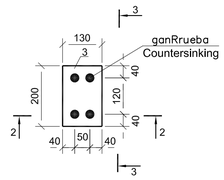
sworxazovani kveTis profili Rectangle shaped				
120x80x5	80x40x3	jami Sum	SeduRebis nakeri 1.5 % Welding joints 1.5 %	sul Total
1	2	3	4	5
43.7	6.09	49.79	0.74	50.5

elementis maxasiaTeblebi
Description of details

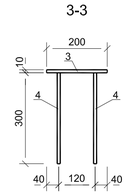
elementi Element	zomebi Dimensions sm cm	elementis wona Mass of element kg kg	raodenoba xidze Quantity for bridge cali unit
1	2	3	4
seqcia L=3.0 m Section L=3.0 m	300x37x12	93.3	66

Casatanebeli detali (Cd)
Embedded detail (ED)

masStabi
Scale 1:10

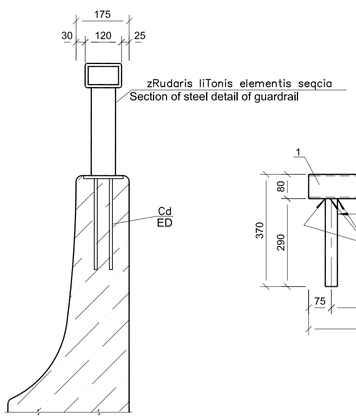


3-3



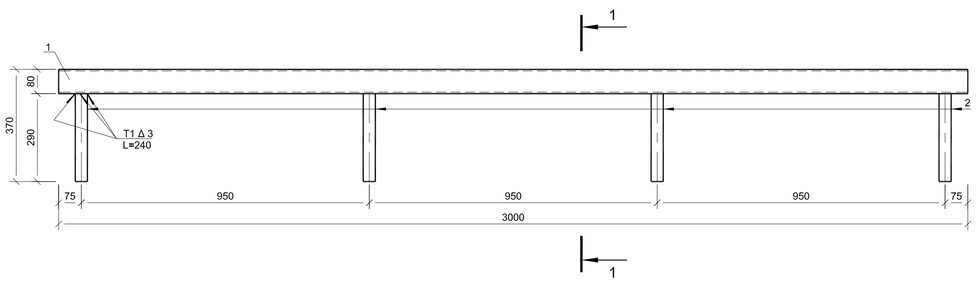
zRudaris liTonis elementis damagrebis detali
Section of steel detail of guardrail

masStabi
Scale 1:10



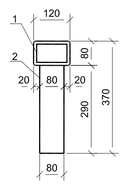
zRudaris liTonis elementi
Steel detail of guardrail

masStabi
Scale 1:10

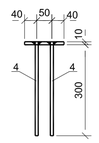


1-1

masStabi
Scale 1:10

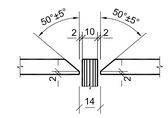


2-2



ganRruebis detali
Countersinking detail

masStabi
Scale 1:2



Casatanebeli detalebis raodenoba
zRudaris liTonis elementis erT seqciaze (L=3.0 m) — 3 cali
erTi Casatanebeli detalis wona :
furclovani foladi sisqiT 10 mm — 2.0 kg
armatura Ø10 B500B — 1.0 kg

Quantity of embedded details
per one section of steel detail of guardrail
(L=3.0 m) - 3 units
Weight of one embedded detail :
Sheet steel thickness 10 mm - 2.0 kg
Reinforcement Ø10 B500B - 1.0 kg

SeniSvna

1.zRudaris liTonis elementis konstruqcia daproeqtebulia individualurad.
2.seqciebis SeerTeba erTmaneTTan warmoebs eleqtroSeduRebiT.

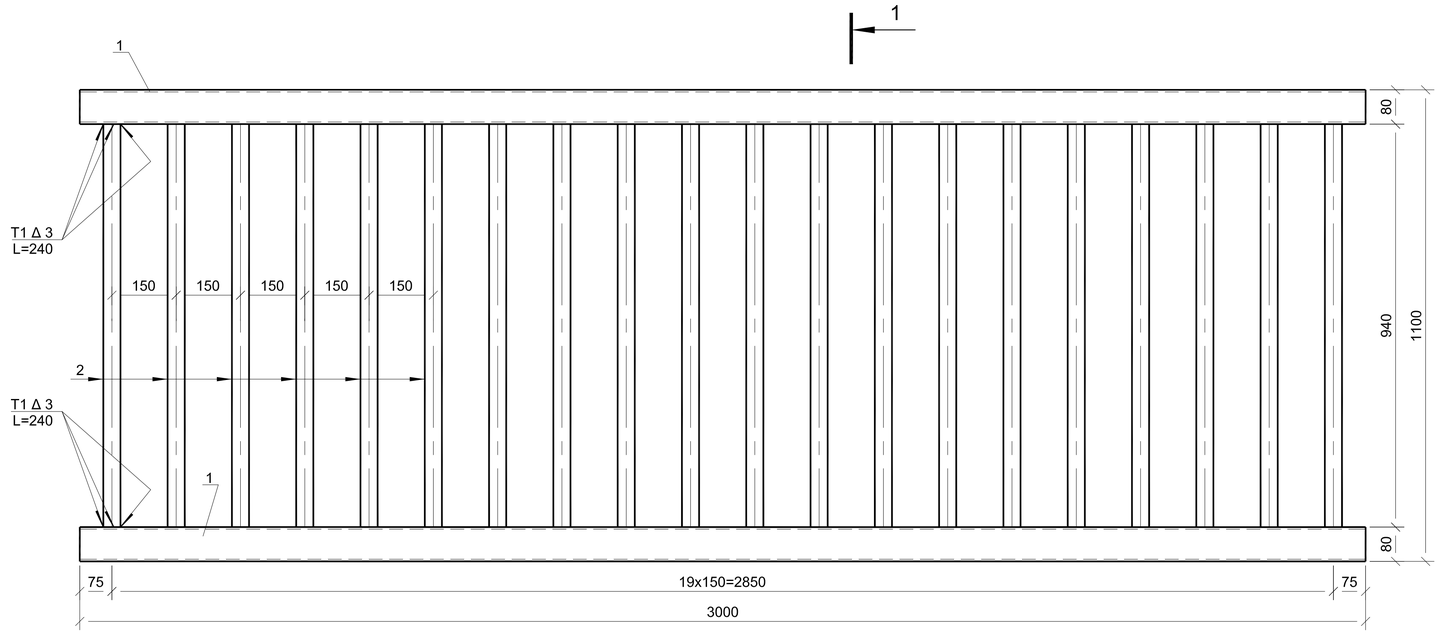
Notes

1.Structure of steel detail of guardrail is of individual design.
2.Sections are connected by means of electric welding.

ALT-E60-L1-B-7+00-89-01						Construction of Samtredia – Grigoleti road section of E-60 km 0 +000 – km 11 +500	
	RE	R.Harlander					
	Proj.Manag.	A. Valuikin				Overpass PK 7+00	Stage: WD; Sheet: 1; Sheets: 1
ALTCOM Road Building	Checked by	M.Gorobinskaya					
	Exec. by	R.Garpolyuk				STRUCTURE OF STEEL ELEMENT OF BARRIER AND CORNICE BLOCK	"Road Building "Altcom" LLC

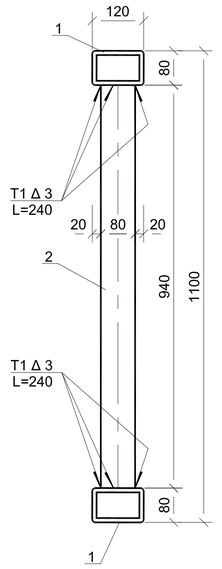
moajiris seqcia
Section of steel railing

masStabi
Scale 1:10



1-1

masStabi
Scale 1:10



liTonis elementebis specifikacia erT seqciaze
Specification of metal elements per section

	pozicia Position	eskizi Sketch mmmm	diametri an kveTi Diameter or section mmmm	sigrZe Length mmmm	raodenoba Quantity cali unit	saerTo sigrZe Total length m m
1	2	3	4	5	6	7
L=3.0 m. m	1	80 / 120	120x80x5	3000	2	6.0
	2	40 / 80	80x40x3	940	20	18.8

liTonis amokreba erT seqciaze, kg
Selection of steel per section, kg

sworxazovani kveTis profili Rectangle shaped				
120x80x5	80x40x3	jami Sum	SeduRebis nakeri 1.5 % Welding joints 1.5 %	sul Total
1	2	3	4	5
87.5	98.7	186.2	2.8	189.0

elementis maxasiaTeblebi
Description of elements

elementi Element	zomebi Dimensions sm cm	elementis wona Mass of element kg kg	raodenoba xidze Quantity for bridge cali unit
1	2	3	4
seqcia L=3.0 m Section L=3.0 m	300x110x12	189.0	44

SeniSvna

1.moajiris konstruqcia daproeqtebulia individualurad.
2.moajirebis seqciebis SeerTeba erTmaneTTan warmoebs eleqtro SeduRebiT.
3.moajiri magrdeba Casatanebel detalebze SeduRebis nakeriT T1 Δ 3.

Notes

1.Steel railing is of individual design.
2.Sections of steel railing are joined together by el. welding with grinding of joints.
3.Steel railing are installed along the anchorage of edge blocks and welding is done from both sides by longitudinal joints T1 Δ 3.

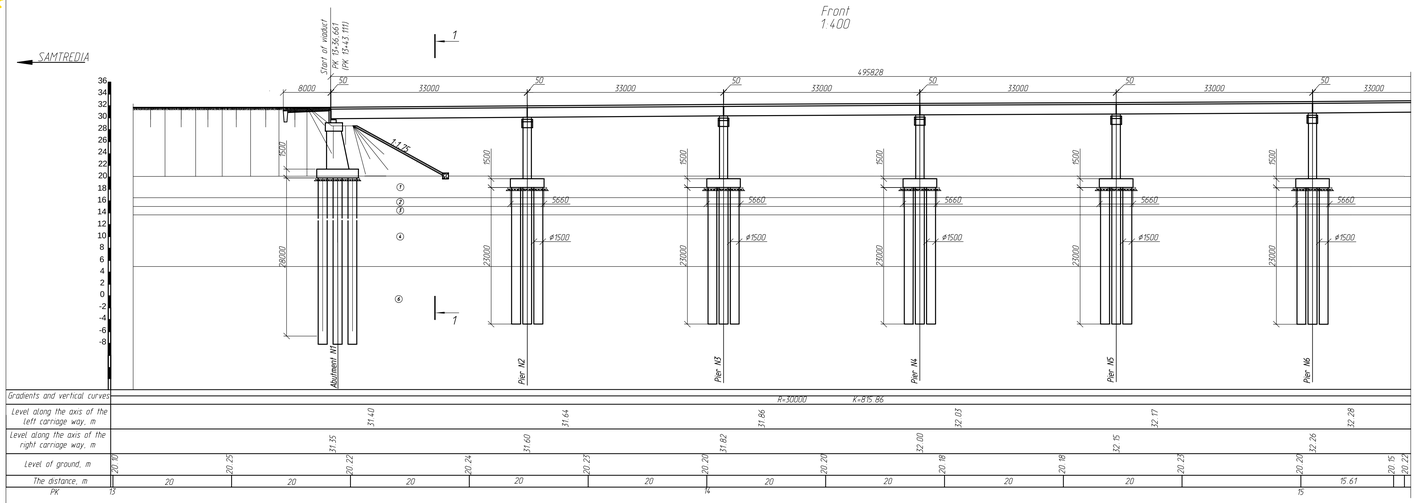
ALT-E60-L1-B-7+00-090-01					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	R.Harlander			
	Proj.Manag.	A. Valuikin	03.16		Overpass PK 7+00
	Checked by	H.Gorobinskaya	03.16		
ALTCOM Road Building	Exec. by	R.Garpolyuk	03.16		STRUCTURE OF STEEL RAILING

Stage	Sheet	Sheets
WD	1	1

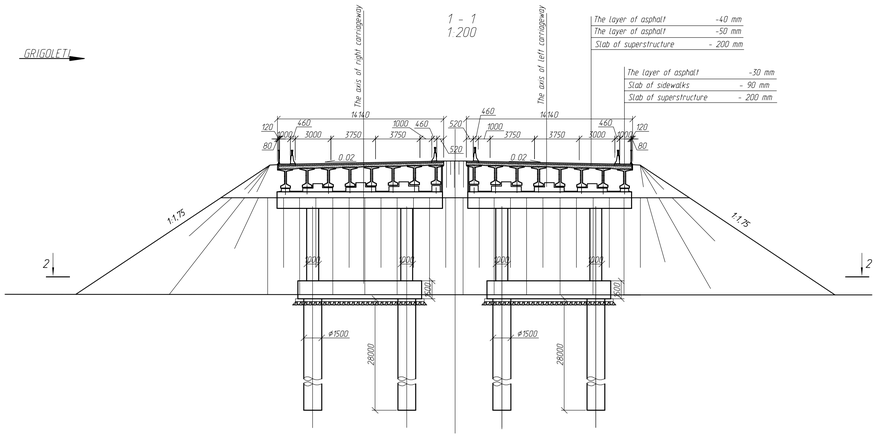
"Road Building "Altcom" LLC

B-2 VIADUCT AT PK15+87.8

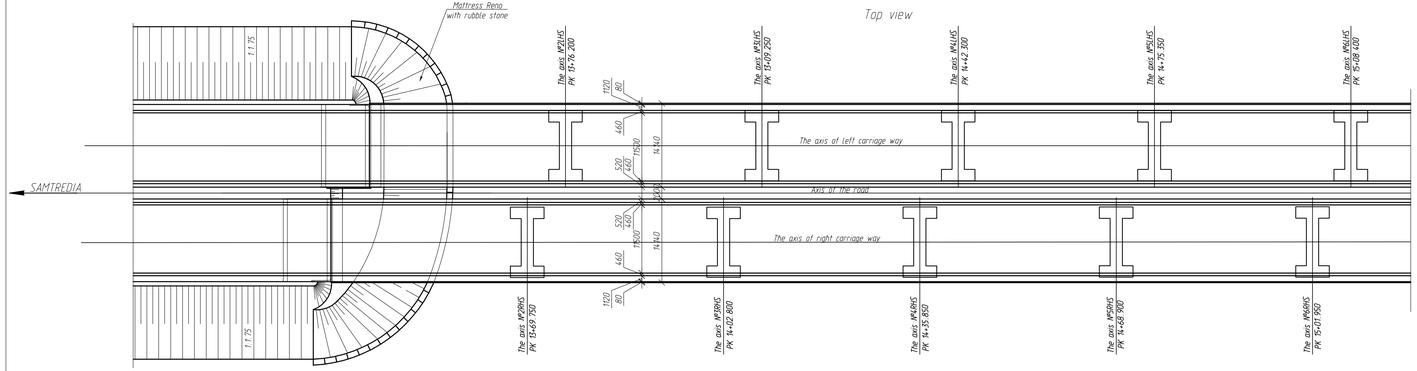
Front
1:400



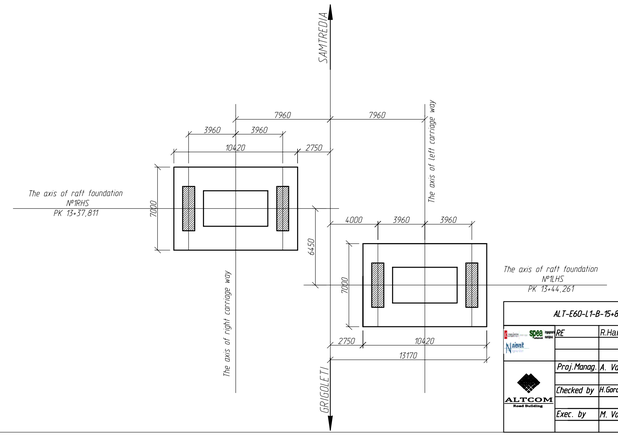
1 - 1
1:200



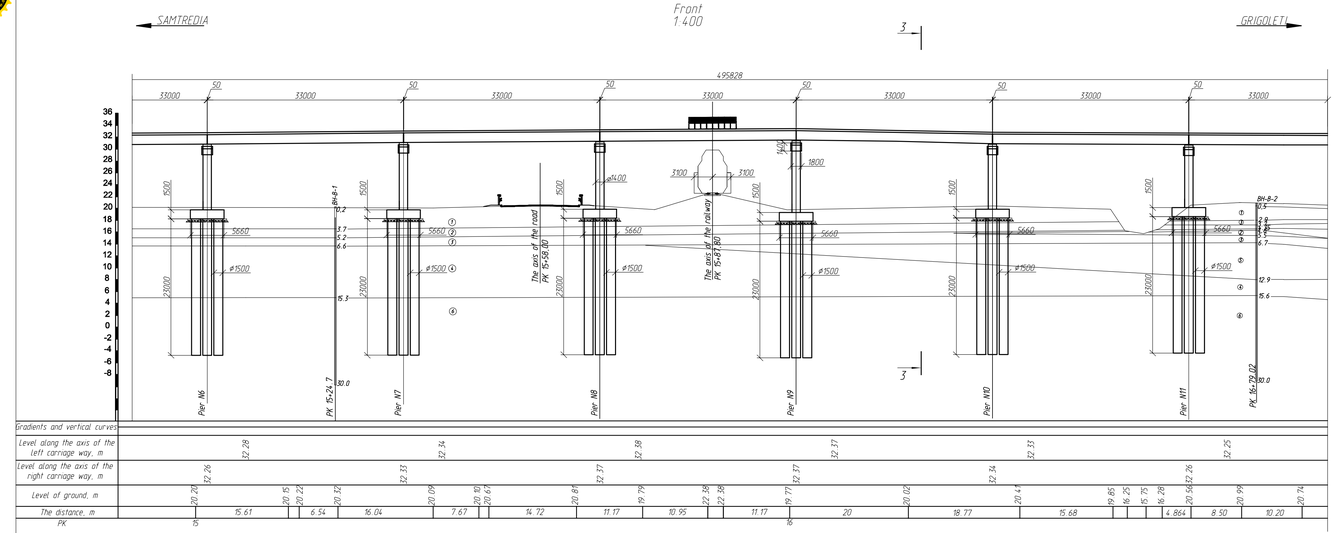
Top view

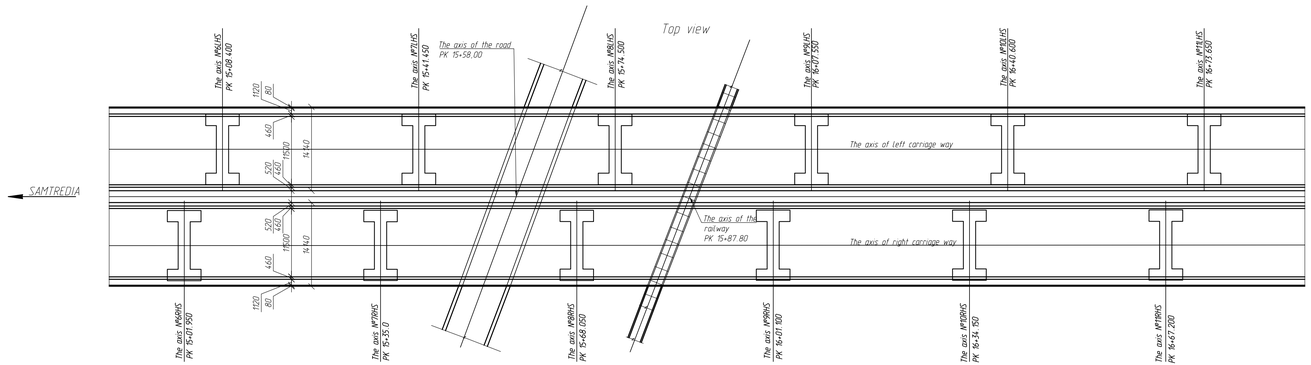


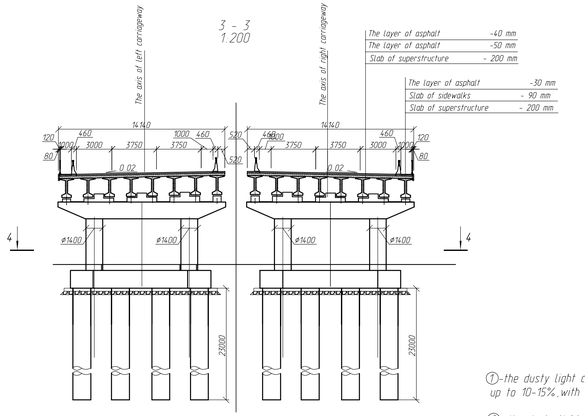
2 - 2
1:200

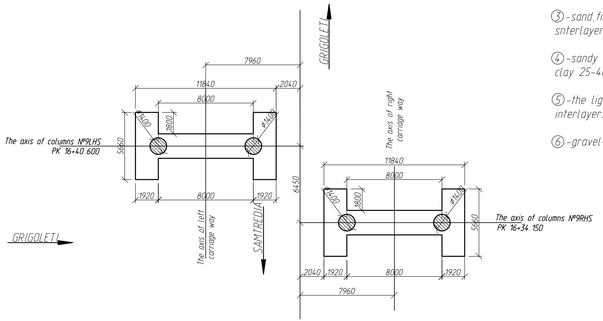


ALT-E60-L1-B-15+88-001					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	R.Harlander			
	Proj. Manag.	A. Valukin			
ALTCOM Road Building	Checked by	H.Gorobinskaya	Viaduct PK 15+87.80	Stage: WD; Sheet: 1; Sheets: 3	
	Exec. by	M. Varoshylov	General view of viaduct	"Road Building "Altcom" LLC	









(1)-the dusty light clay,brownish-gray,greenish-gray,plastic loamy soil,with interlayer of fine sand,sandy loam and loam up to 10-15%,with the inclusion of carbonates up to 15-25%;

(2)-the dusty light clay,brownish-gray,dark-gray light plastic,with interlayers of fine sand,sandy loam and loam up to 25-30%,with the inclusion of organic matter;

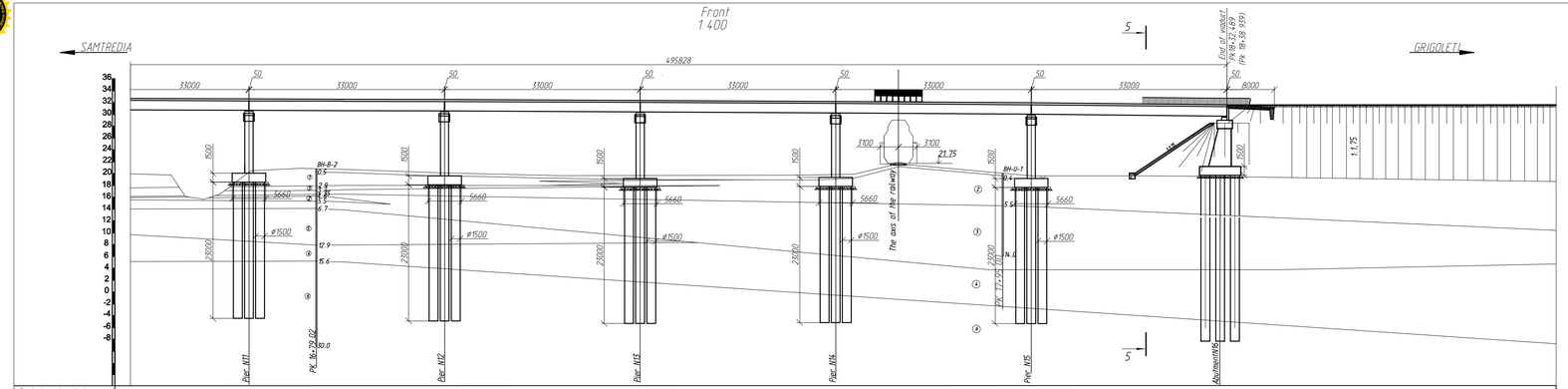
(3)-sand,fine,gray,dark gray,medium degree of water saturation and saturated with water,loase,with frequent thin snterlayers of dusty sand,sandyloam with loam 15-35%with inclusion of gravel up to 5%;

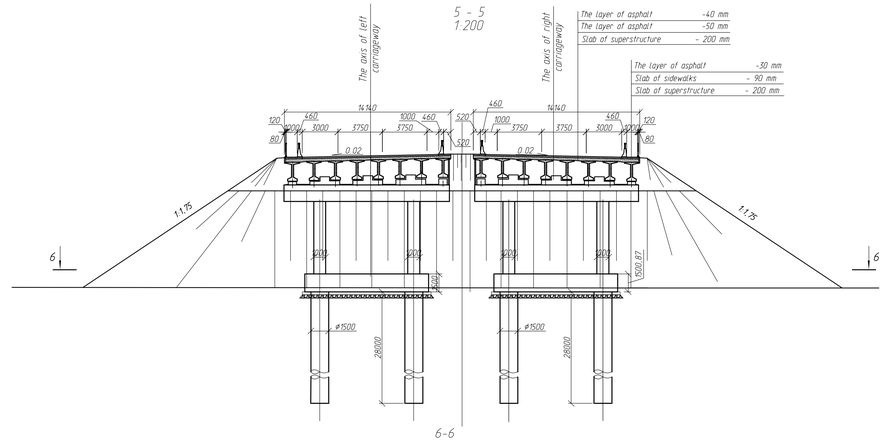
(4)-sandy dusty loam,gray,dark gray,with interlayers of plastic fluid,with lenses and interlayers of fine sand,loam and clay 25-40% with the inclusion of organic matter;

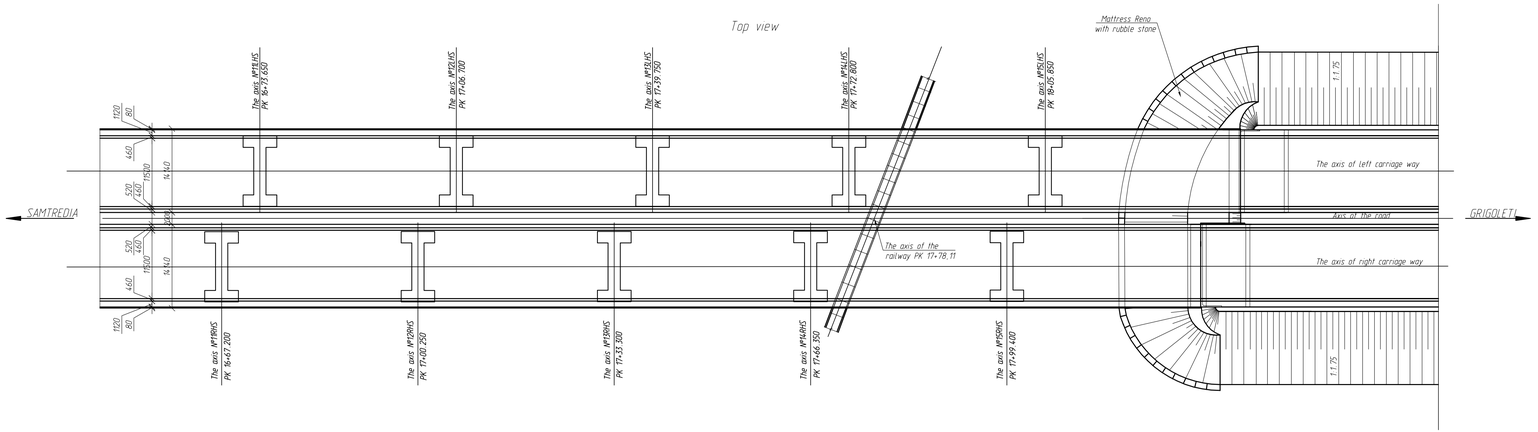
(5)-the light dusty clay,gray,dark gray,dusty,light plastic,with a dash and layers of organic matter (peat 15-20cm),with interlayers of sand,sandy loam and loam to 25-35%;

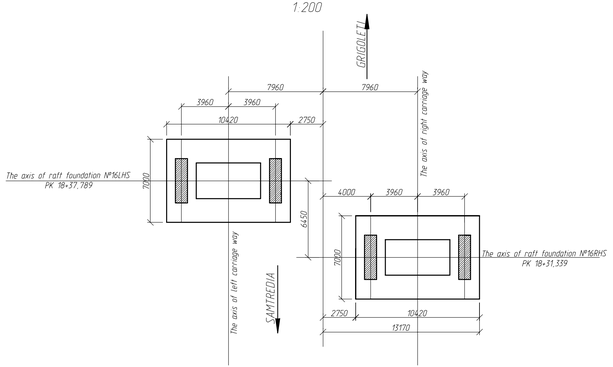
(6)-gravel-pebble soil,saturated with water,dense,sandy-clay and and loamy filler 25-35%,including boulders up to 10%;

ALT-E60-L1-B-15+88-001						Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
	RE	R.Harlander					
	Proj. Manag.	A. Valukin				Viaduct PK 15+87.80	Stage: WD; Sheet: 2; Sheets: 3
ALTCOM Road Building	Checked by	H.Gorobinskaya					
	Exec. by	M. Varashylov				General view of viaduct	"Road Building "Altcom" LLC









ALT-E60-L1-B-15+88-001						Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	R.Harlander				
	Proj. Manag.	A. Valukin				Viaduct PK 15+87.80
	Checked by	H.Gorobinskaya				
	Exec. by	M. Varashylov				General view of viaduct

Stage	Sheet	Sheets
WD	3	3

"Road Building "Altcom" LLC

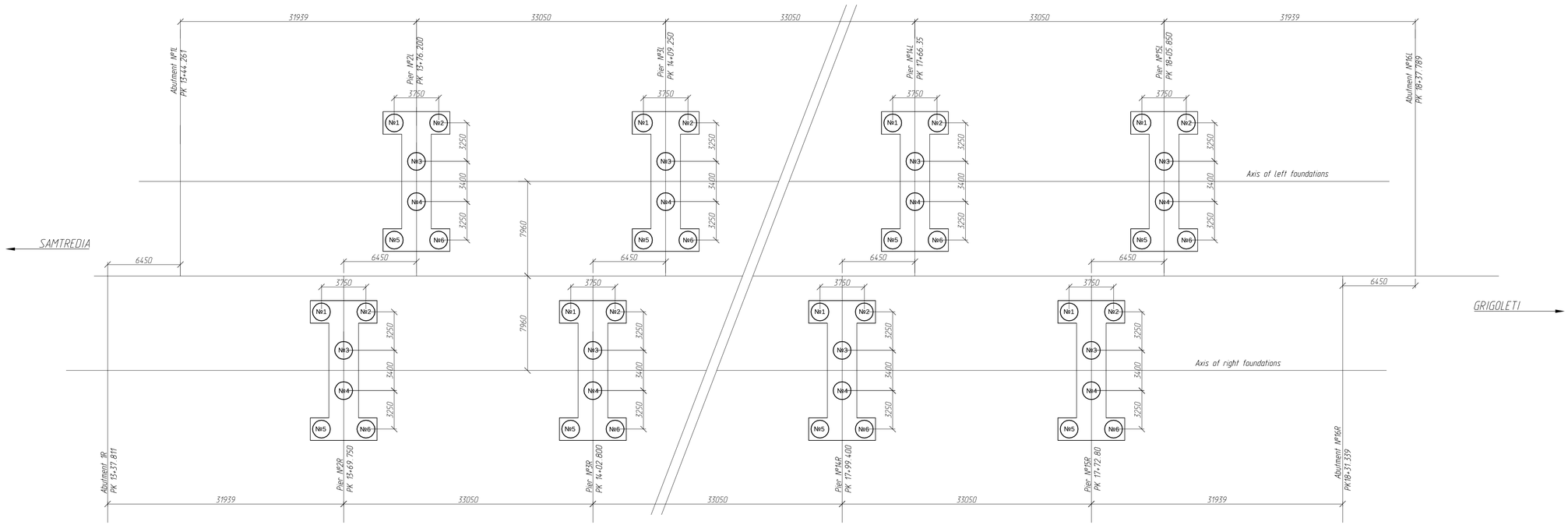


Table of coordinates of bored piles centers for right carriage way

Pier №	Pk	Coordinates of piles centres											
		1		2		3		4		5		6	
2R	13+69,750	x 4669356.3795	y 279945.0394	x 4669357.8133	y 279948.5044	x 4669354.0934	y 279948.0146	x 4669350.9517	y 279949.3146	x 4669347.2317	y 279948.8247	x 4669348.6656	y 279952.2898
3R	14+02,800	x 4669343.7427	y 279914.5007	x 4669345.1765	y 279917.9657	x 4669341.4566	y 279917.4758	x 4669338.3149	y 279918.7759	x 4669334.5949	y 279918.2860	x 4669336.0288	y 279921.7510
4R	14+35,850	x 4669331.1059	y 279883.9619	x 4669332.5397	y 279887.4270	x 4669328.8198	y 279886.9371	x 4669325.6781	y 279888.2371	x 4669321.9581	y 279887.7472	x 4669323.3920	y 279891.2123
5R	14+68,900	x 4669318.4691	y 279853.4232	x 4669319.9029	y 279856.8883	x 4669316.1829	y 279856.3984	x 4669313.0413	y 279857.6984	x 4669309.3213	y 279857.2085	x 4669310.7552	y 279860.6736
6R	15+01,950	x 4669305.8323	y 279822.8845	x 4669307.2661	y 279826.3496	x 4669303.5461	y 279825.8597	x 4669300.4045	y 279827.1597	x 4669296.6845	y 279826.6698	x 4669298.1183	y 279830.1349
7R	15+35,000	x 4669293.1955	y 279792.3458	x 4669294.5293	y 279795.8108	x 4669290.9093	y 279795.3210	x 4669287.7677	y 279796.6210	x 4669284.0477	y 279796.1311	x 4669285.4815	y 279799.5961
8R	15+68,050	x 4669280.5587	y 279761.8071	x 4669281.9925	y 279765.2721	x 4669278.2725	y 279764.7822	x 4669275.1309	y 279766.0822	x 4669271.4109	y 279765.5924	x 4669272.8447	y 279769.0574
9R	16+01,100	x 4669267.9219	y 279731.2683	x 4669269.3557	y 279734.7334	x 4669265.6357	y 279734.2435	x 4669262.4941	y 279735.5435	x 4669258.7741	y 279735.0536	x 4669260.2079	y 279738.5187
10R	16+34,150	x 4669255.2850	y 279700.7296	x 4669256.7189	y 279704.1947	x 4669252.9989	y 279703.7048	x 4669249.8573	y 279705.0048	x 4669246.1373	y 279704.5149	x 4669247.5711	y 279707.9800
11R	16+67,200	x 4669242.6482	y 279670.1909	x 4669244.0821	y 279673.6559	x 4669240.3621	y 279673.1661	x 4669237.2204	y 279674.4661	x 4669233.5005	y 279673.9762	x 4669234.9343	y 279677.4412
12R	17+00,250	x 4669230.0114	y 279639.6522	x 4669231.4453	y 279643.1172	x 4669227.7253	y 279642.6273	x 4669224.5836	y 279643.9273	x 4669220.8637	y 279643.4375	x 4669222.2975	y 279646.9025
13R	17+33,300	x 4669217.3746	y 279609.1134	x 4669218.8085	y 279612.5785	x 4669215.0885	y 279612.0886	x 4669211.9468	y 279613.3886	x 4669208.2269	y 279612.8987	x 4669209.6607	y 279616.3638
14R	17+66,350	x 4669204.7378	y 279578.5747	x 4669206.1716	y 279582.0398	x 4669202.4517	y 279581.5499	x 4669199.3100	y 279582.8499	x 4669195.5901	y 279582.3600	x 4669197.0239	y 279585.8251
15R	17+99,400	x 4669192.1010	y 279548.0360	x 4669193.5348	y 279551.5010	x 4669189.8149	y 279551.0112	x 4669186.6732	y 279552.3112	x 4669182.9533	y 279551.8213	x 4669184.3871	y 279555.2864

Table of coordinates of bored piles centers for left carriage way

Pier №	Pk	Coordinates of piles centres											
		1		2		3		4		5		6	
2L	13+76,200	x 4669339.2030	y 279945.1666	x 4669340.6368	y 279948.6316	x 4669336.9168	y 279948.1417	x 4669333.7752	y 279949.4418	x 4669330.0552	y 279948.9519	x 4669331.4891	y 279952.4169
3L	14+09,250	x 4669326.5662	y 279914.6278	x 4669328.0000	y 279918.0929	x 4669324.2800	y 279917.6030	x 4669321.1384	y 279918.9030	x 4669317.4184	y 279918.4132	x 4669318.8523	y 279921.8782
4L	14+42,300	x 4669313.9294	y 279884.0891	x 4669315.3632	y 279887.5542	x 4669311.6432	y 279887.0643	x 4669308.5016	y 279888.3643	x 4669304.7816	y 279887.8744	x 4669306.2154	y 279891.3395
5L	14+75,350	x 4669301.2926	y 279853.5504	x 4669302.7264	y 279857.0155	x 4669299.0064	y 279856.5256	x 4669295.8648	y 279857.8256	x 4669292.1448	y 279857.3357	x 4669293.5786	y 279860.8008
6L	15+08,400	x 4669288.6558	y 279823.0117	x 4669290.0896	y 279826.4767	x 4669286.3696	y 279825.9869	x 4669283.2280	y 279827.2869	x 4669279.5080	y 279826.7970	x 4669280.9418	y 279830.2620
7L	15+41,450	x 4669276.0190	y 279792.4730	x 4669277.4528	y 279795.9380	x 4669273.7328	y 279796.7481	x 4669270.5912	y 279796.2583	x 4669266.8712	y 279799.7233	x 4669268.3050	y 279799.5961
8L	15+74,500	x 4669263.3821	y 279761.9342	x 4669264.8160	y 279765.3993	x 4669261.0960	y 279764.9094	x 4669257.9544	y 279766.2094	x 4669254.2344	y 279765.7195	x 4669255.6682	y 279769.1846
9L	16+07,550	x 4669250.7453	y 279731.3955	x 4669252.1792	y 279734.8606	x 4669248.4592	y 279734.3707	x 4669245.3175	y 279735.6707	x 4669241.5976	y 279735.1808	x 4669243.0314	y 279738.6459
10L	16+40,600	x 4669238.1085	y 279700.8568	x 4669239.5424	y 279704.3218	x 4669235.8224	y 279703.8320	x 4669232.6807	y 279705.1320	x 4669228.9608	y 279704.6421	x 4669230.3946	y 279708.1071
11L	16+73,650	x 4669225.4717	y 279670.3181	x 4669226.9055	y 279673.7831	x 4669223.1856	y 279673.2932	x 4669220.0439	y 279674.5932	x 4669216.3240	y 279674.1034	x 4669217.7578	y 279677.5684
12L	17+06,700	x 4669212.8349	y 279639.7793	x 4669214.2687	y 279643.2444	x 4669210.5488	y 279642.7545	x 4669207.4071	y 279644.0545	x 4669203.6872	y 279643.5646	x 4669205.1210	y 279647.0297
13L	17+39,750	x 4669200.1981	y 279609.2406	x 4669201.6319	y 279612.7057	x 4669197.9120	y 279612.2158	x 4669194.7703	y 279613.5158	x 4669191.0504	y 279613.0259	x 4669192.4842	y 279616.4910
14L	17+72,800	x 4669187.5613	y 279578.7019	x 4669188.9951	y 279582.1669	x 4669185.2752	y 279581.6771	x 4669182.1335	y 279582.9771	x 4669178.4135	y 279582.4872	x 4669179.8474	y 279585.9523
15L	18+05,850	x 4669174.9245	y 279548.1632	x 4669176.3583	y 279551.6282	x 4669172.6384	y 279551.1383	x 4669169.4967	y 279552.4384	x 4669165.7767	y 279551.9485	x 4669167.2106	y 279555.4135

ALT-E60-L1-B-15+88-002

Construction of Samtredia - Grigoleti road section of E-60
km 0 +000 - km 11 +500

RE	R.Harlander		
Proj.Manag.	A. Valuikin		
Checked by	H.Gorabinskaya		
Exec. by	R.Garpolyuk		

Viaduct PK 15+87.80

Stage	Sheet	Sheets
WD	2	2

Staking of piles centres.
Piers

"Road Building "Altcom" LLC

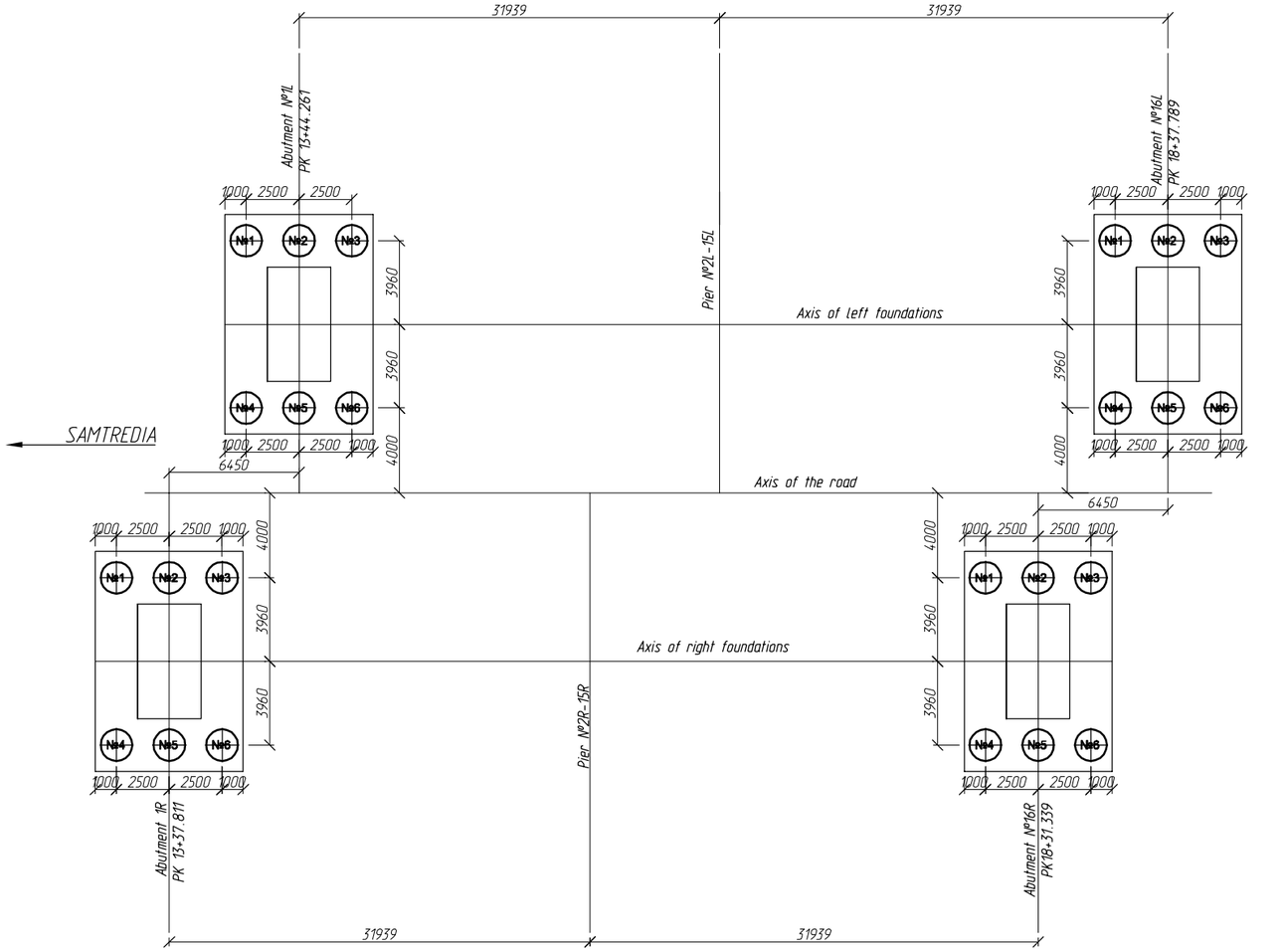


Table of coordinates of bored piles centers

Pile №		Abutment №1R	Abutment №1L	Abutment №16R	Abutment №16L
		PK 13+37.811	PK 13+44.261	PK 18+31.339	PK 18+37.789
1	x	4669367.4378	4669350.2613	4669178.7353	4669161.5587
	y	279974.3526	279974.4797	279518.3249	279518.452
2	x	4669368.3937	4669351.2171	4669179.6911	4669162.5146
	y	279976.6626	279976.7898	279520.6349	279520.7621
3	x	4669369.3495	4669352.173	4669180.647	4669163.4705
	y	2779978.9726	279979.0998	279522.945	279523.0721
4	x	4669360.1196	4669342.943	4669171.417	4669154.2405
	y	279977.3808	279977.508	279521.3531	279521.4803
5	x	4669361.0754	4669343.8989	4669172.3729	4669155.1964
	y	279979.6908	279979.818	279523.6632	279523.7903
6	x	4669362.0313	4669344.8548	4669173.3288	4669156.1523
	y	279982.0009	279982.1281	279525.9732	279526.1004

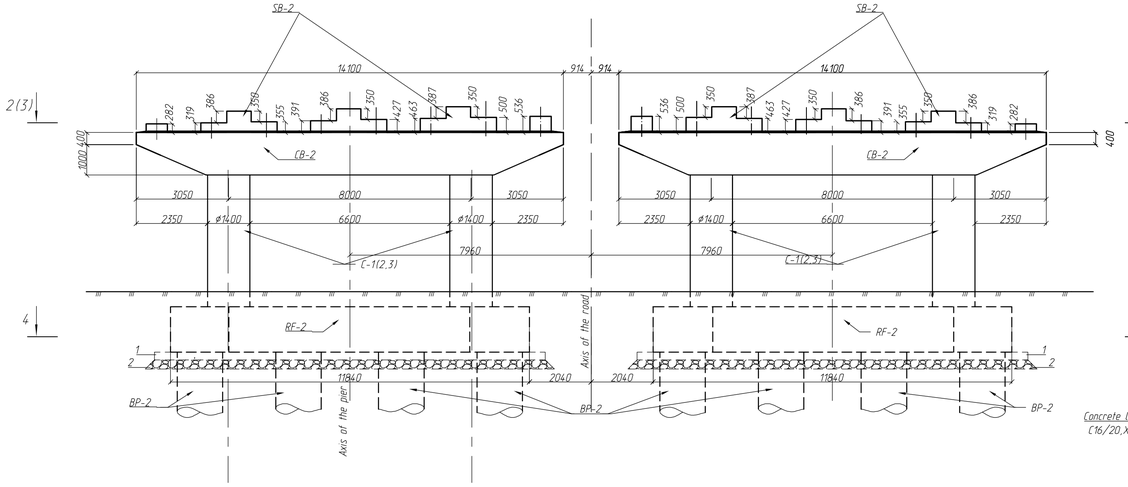
ALT-E60-L1-B-15+88-002					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
RE	R.Harlander				
Proj.Manag.	A. Valuikin				Viaduct PK 15+87.80
Checked by	H.Gorobinskaya				Staking of piles centres. Abutment
Exec. by	M. Voroshylov				

Stage	Sheet	Sheets
WD	1	2

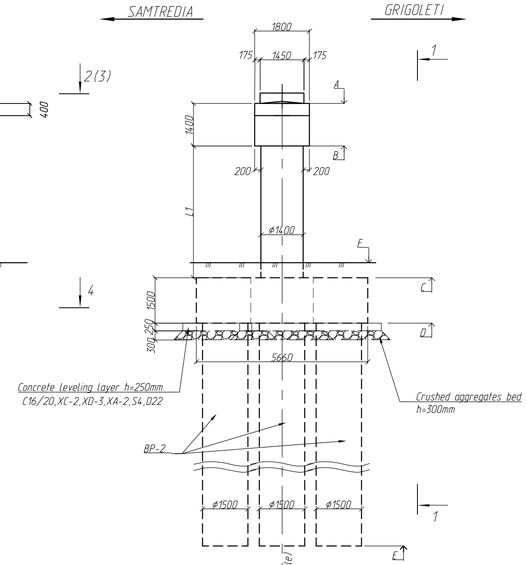
ALTCOM Road Building

"Road Building "Altcom" LLC

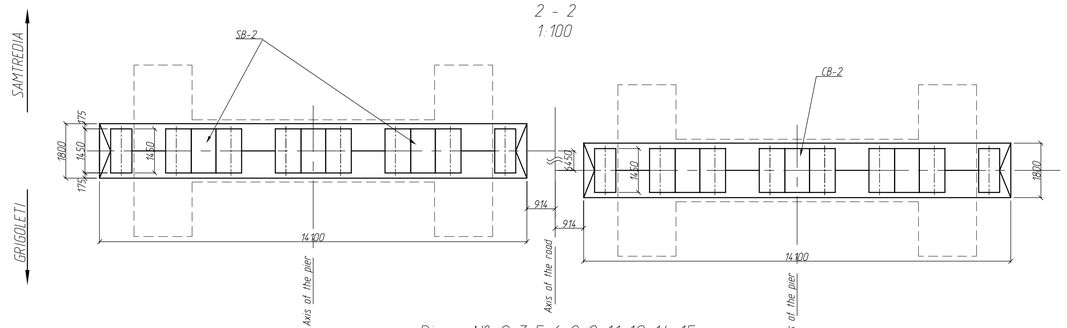
1 - 1
1:100



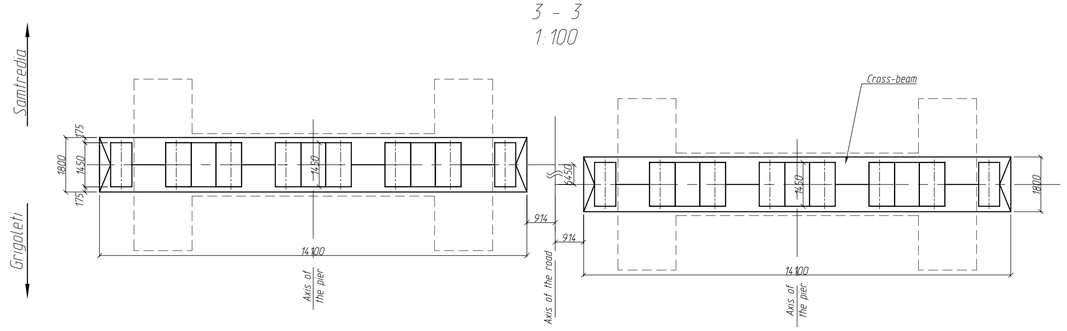
Front
1:100



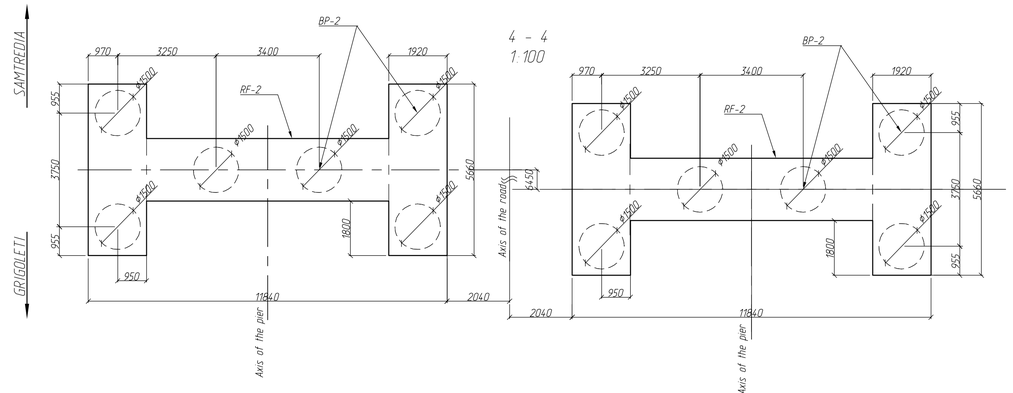
Piers № 4,7,10,13
2 - 2
1:100



Piers № 2,3,5,6,8,9,11,12,14,15
3 - 3
1:100



4 - 4
1:100



Layout and vertical position of piers at the right carriageway

Pier №	Layout (PK)	A	B	C	D	E	F	L1
2	13+69.75	29.219	27.819	19.819	18.319	-4.681	20.230	8000
3	14+02.80	29.439	28.039	20.039	18.539	-4.461	20.200	8000
4	14+35.85	29.619	28.219	19.719	18.219	-4.781	20.190	8500
5	14+68.90	29.769	28.369	19.869	18.369	-4.631	20.200	8500
6	15+01.95	29.879	28.479	19.979	18.479	-4.521	20.200	8500
7	15+35.00	29.949	28.549	19.549	18.049	-4.951	20.150	9000
8	15+68.05	29.989	28.589	19.589	18.089	-4.911	20.800	9000
9	16+01.10	29.989	28.589	19.589	18.089	-4.911	19.770	9000
10	16+34.15	29.959	28.559	19.559	18.059	-4.941	20.310	9000
11	16+67.20	29.879	28.479	19.979	18.479	-4.521	20.560	8500
12	17+00.25	29.779	28.379	19.879	18.379	-4.621	20.210	8500
13	17+33.30	29.629	28.229	19.229	17.729	-5.271	19.740	9000
14	17+66.35	29.449	28.049	19.549	18.049	-4.951	19.920	8500
15	17+99.40	29.229	27.829	19.329	17.829	-5.171	19.700	8500

Layout and vertical position of piers at the left carriageway

Pier №	Layout (PK)	A	B	C	D	E	F	L1
2	13+76.20	29.259	27.859	19.859	18.359	-4.641	20.230	8000
3	14+09.25	29.479	28.079	20.079	18.579	-4.421	20.200	8000
4	14+42.30	29.649	28.249	19.749	18.249	-4.751	20.180	8500
5	14+75.35	29.789	28.389	19.889	18.389	-4.611	20.220	8500
6	15+08.40	29.899	28.499	19.999	18.499	-4.501	20.180	8500
7	15+41.45	29.959	28.559	19.559	18.059	-4.941	20.090	9000
8	15+74.50	29.999	28.599	19.599	18.099	-4.901	19.790	9000
9	16+07.55	29.989	28.589	19.589	18.089	-4.911	19.860	9000
10	16+40.60	29.949	28.549	19.549	18.049	-4.951	20.340	9000
11	16+73.65	29.869	28.469	19.969	18.469	-4.531	20.800	8500
12	17+06.70	29.749	28.349	19.849	18.349	-4.651	20.050	8500
13	17+39.75	29.599	28.199	19.199	17.699	-5.301	19.750	9000
14	17+72.80	29.409	28.009	19.509	18.009	-4.991	19.900	8500
15	18+05.85	29.189	27.789	19.289	17.789	-5.211	19.700	8500

Specification of the piers at the right carriageway

Pos.	Description	Name	Quantity on the pier														Remark
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	
BP-2		Bored pile	6	6	6	6	6	6	6	6	6	6	6	6	6	6	84	40.80 m³
RF-2		Raft foundation	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	57.30 m³
C-1		Column	2	2	-	-	-	-	-	-	-	-	-	-	-	-	4	12.30 m³
C-2		Column	-	-	2	2	2	-	-	-	-	2	2	-	2	2	14	13.08 m³
C-3		Column	-	-	-	-	-	2	2	2	2	-	-	2	-	-	10	13.85 m³
CB-2		Cross-beam	1	1	1	1	1	1	1	1	1	1	1	1	1	1	28	31.4 m³
SB-2		Supporting bedding Stops against seismicity	8	8	8	8	8	8	8	8	8	8	8	8	8	8	112	6.6 m³
1		Concrete C16/20,XC-2,XD-3,XA-2,S4,D22	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	23.04m3	327.06m3	
2		Crushed aggregates 0-40 mm	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	27.65m3	387.1m3	

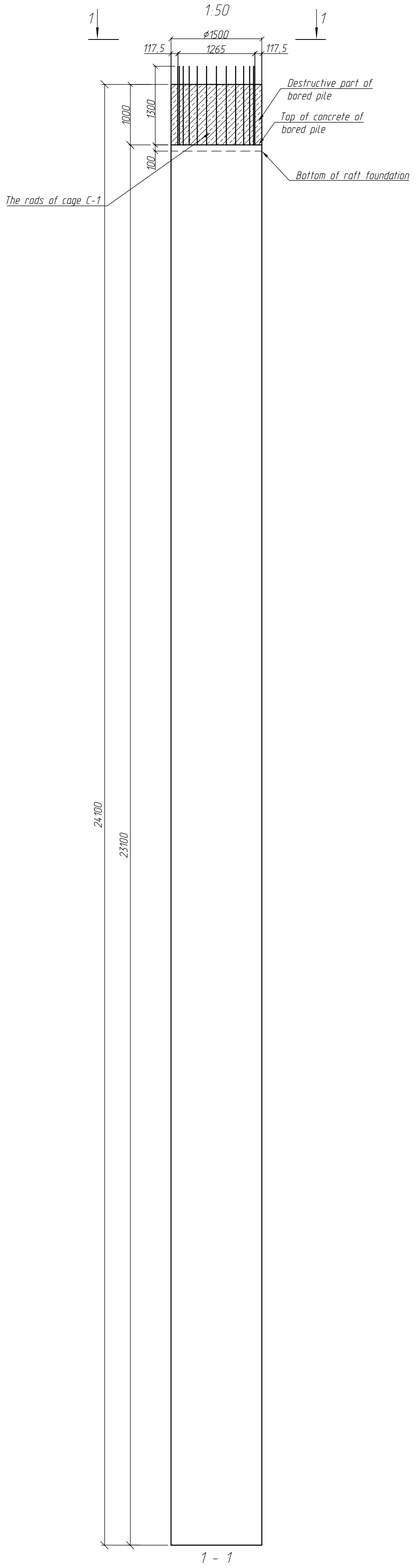
1. Specification of the piers at left carriageway is the same as right carriageway

ALT-E60-L1-B-15+88-003					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500
	RE	R.Harlander			
	Proj.Manag.	A. Valuikin	04.16		Viaduct PK 15+87.80
ALTCOM Road Building	Checked by	H.Garabinskaya	04.16		
	Exec. by	R.Garpolyuk	04.16		General view of intermediate piers

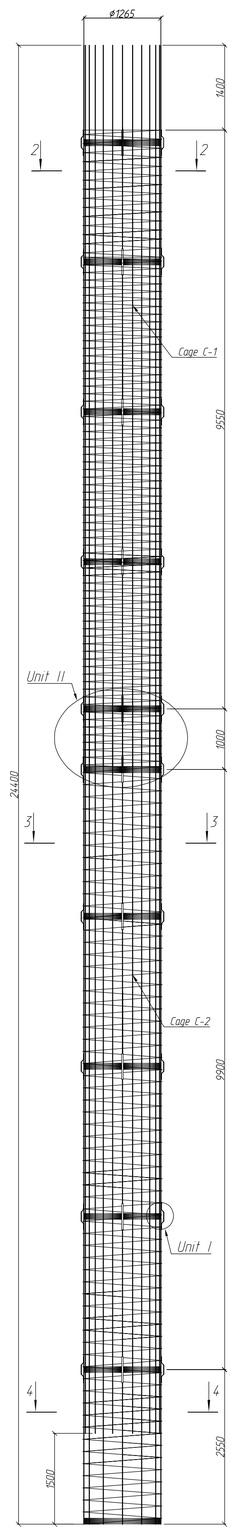
Stage	Sheet	Sheets
WD	1	1

"Road Building "Altcom" LLC

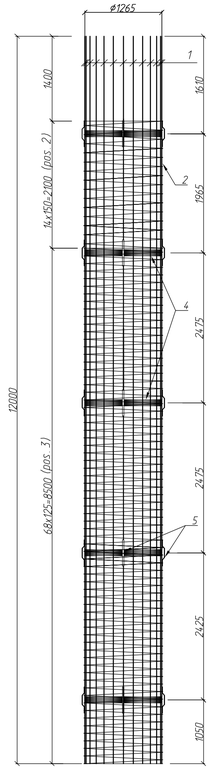
Falsework diagram
1:50



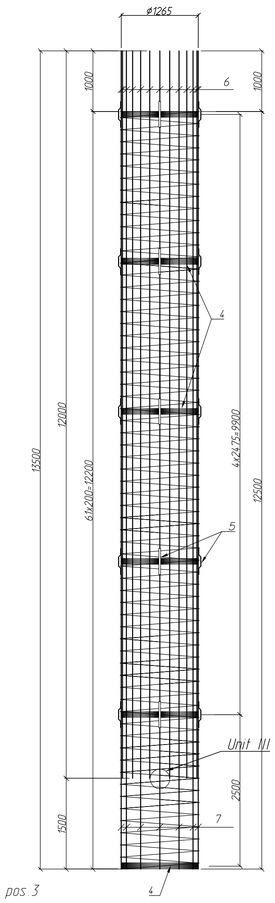
Reinforcement diagram
1:50



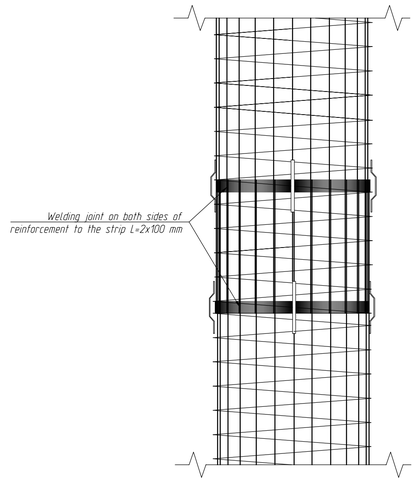
Cage C-1
1:50



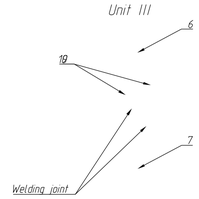
Cage C-2
1:50



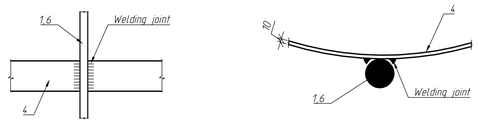
Unit II



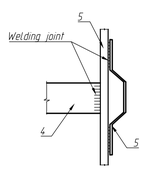
Unit III



Detail of welding pos.1,6 to pos.3

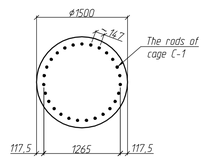


Unit I

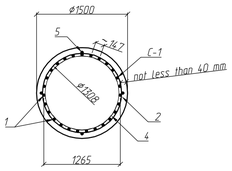


Detail of welding pos.7 to pos.3

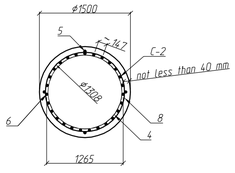
1 - 1



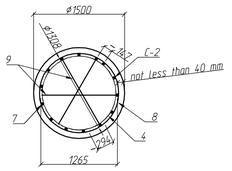
2 - 2



3 - 3



4 - 4



Register of steel consumption per element, kg

Mark of element	Reinforcement							Embedded items		Total
	BS 4449:2005 (B500B)						Total	EN 10025-2:2006	Total	
	ø8	ø10	ø12	ø16	ø25	ø32		-10x100		
BP-2	113.50	197.60	58.50	30.80	1369.45	2045.52	3815.45	333.96	333.96	4149.33

Specification of element, kg

Pos.	Name	Quantity	Weight of unit, kg	Weight of all, kg
	Prefabricated units:			
C-1	Cage C-1	1		2468.82
1	ø32 B500B BS 4449:2005, L=12000 mm	27	75.76	2045.52
2	ø12 B500B BS 4449:2005, L=65940 mm	1	58,50	58,50
3	ø10 B500B BS 4449:2005, L=320280 mm	1	197,60	197,60
4	-10x100x3862 EN 10025-2:2006	5	30.36	151.80
5	ø16 B500B BS 4449:2005, L=420 mm	20	0.77	15.40
C-2	Cage C-2	1		1680.51
6	ø25 B500B BS 4449:2005, L=12000 mm	27	46.20	1247.40
7	ø25 B500B BS 4449:2005, L=1500 mm	14	5.80	81.20
8	ø8 B500B BS 4449:2005, L=287310 mm	1	113.50	113.50
4	-10x100x3862 EN 10025-2:2006	6	30.36	182.16
5	ø16 B500B BS 4449:2005, L=420 mm	20	0.77	15.40
9	ø25 B500B BS 4449:2005, L=1208 mm	3	4.65	13.95
10	ø25 B500B BS 4449:2005, L=250 mm	28	0.96	26.90
	Other materials:			
11	Concrete C30/37,XC-2,XA-2,S4,D22			40,8 m³

Register of items

Pos.	Sketch
2	ø1308 — 14x150=2100 — ø12 B500B L=65940
3	ø1308 — 68x125=8500 — ø10 B500B L=320280
8	ø1308 — 61x200=12200 — ø8 B500B L=287310
4	ø1210 — 10 — Welding joint — 1230 — 100
5	40 — 100 — 40 — 16 — 45 — 60 — 100 — 100

1. The rods of longitudinal reinforcement (pos.1,6,7) and spiral (pos.2,3,8) in their places of intersection must be connected by the staggered manner using a binding wire.

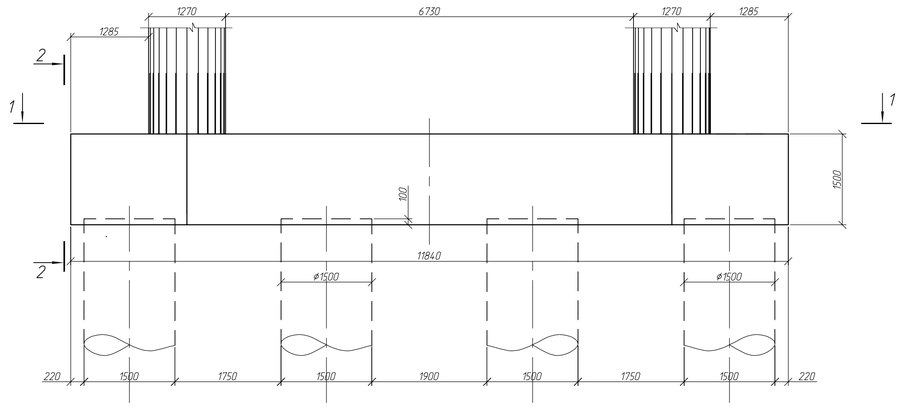
2. Reinforcement must be corresponds to BS 4449 and BS 4483 (in accordance with technical specification).

3. Concrete must be corresponds to BS 8500-1 and BS 8500-2 (in accordance with technical specification).

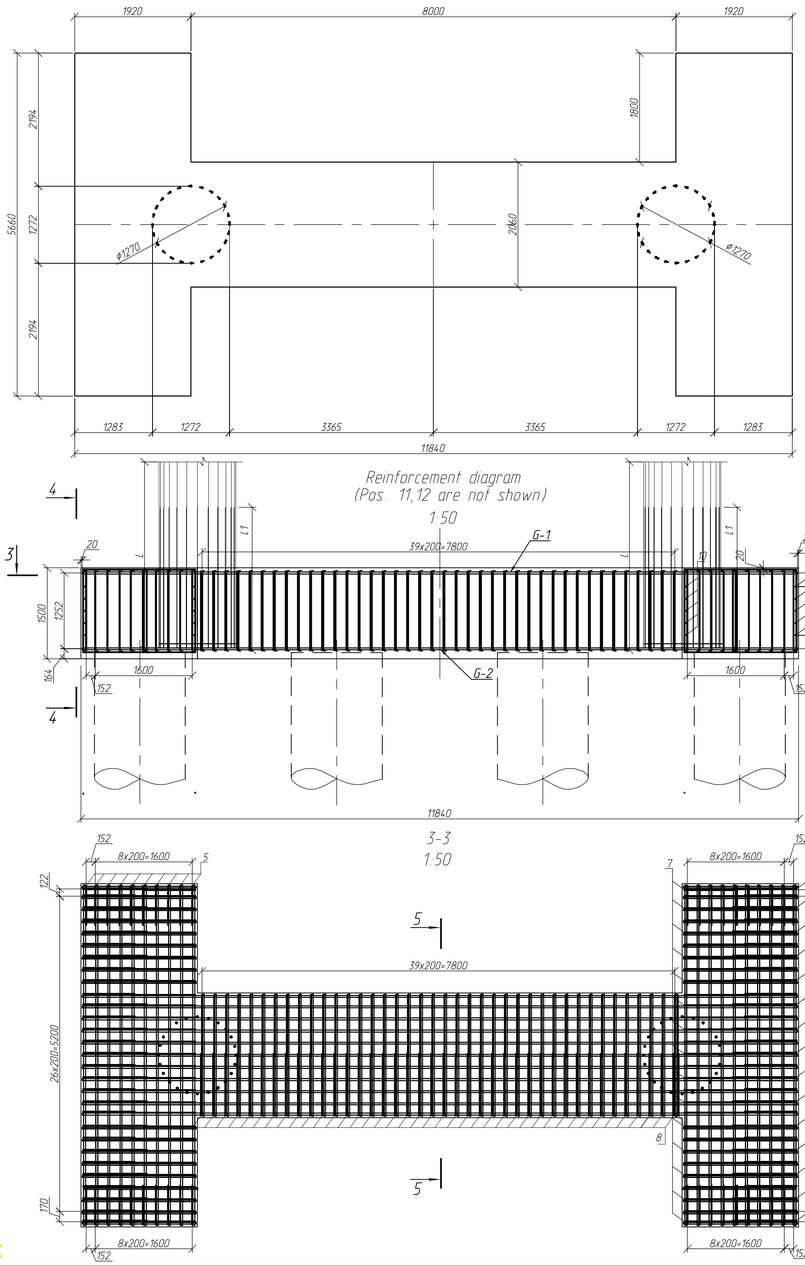
4. Welding points must be corresponds to BS 7123 (in accordance with technical specification).

ALT-E60-L1-B-15+88-004					Construction of Samtredia – Grigoleti road section of E-60 km 0 +000 – km 11 +500
RE	R.Harlander				
Proj.Manag.	A. Valuikin	02.16			Viaduct PK 15+87.80
Checked by	H.Gorabinskaya	02.16			Stage: WD; Sheet: 1; Sheets: 1
Exec. by	R.Garpolyuk	02.16			Cast-in-situ reinforced concrete bored piles of intermediate piers
					"Road Building "Altcom" LLC

Falsework diagram
1:50

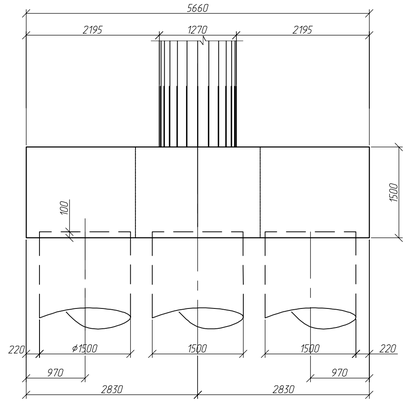


1-1
1:50

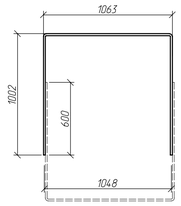


3-3
1:50

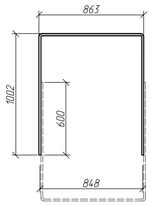
2 - 2
1:50



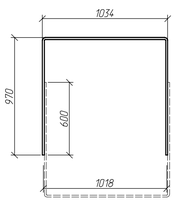
Pos. 6
1:50



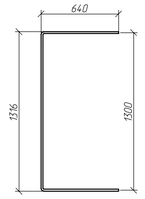
Pos. 7
1:50



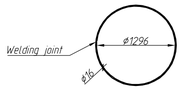
Pos. 8
1:50



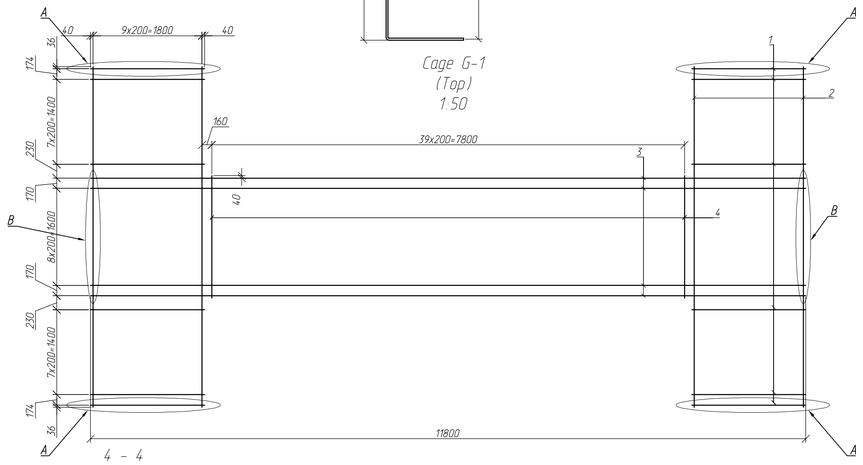
Pos. 5
1:50



Pos. 13
1:50

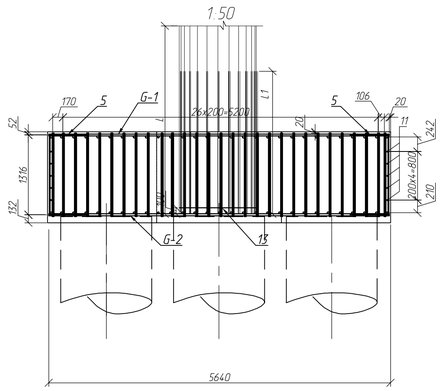


Cage G-1
(Top)
1:50

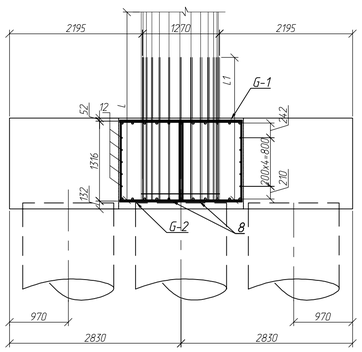


4 - 4

(Pos. 9 are not shown)
1:50



5-5
1:50



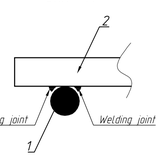
Register of steel consumption per element, kg

Mark of element	Reinforcement BS 4449:2005 (B500B) ø16	ø20	ø25	ø32	Total
RF-2	2351,00	732,48	389,34	3056,30	6529,12

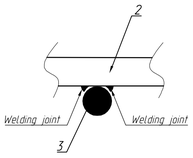
Specification of element, kg

Pos.	Name	Quantity	Weight of unit, kg	Weight of all, kg
	Prefabricated units			
C-1	Cage C-1	1		1894.39
1	ø20 B500B BS 4449:2005, L=1880 mm	36	4.64	167.04
2	ø32 B500B BS 4449:2005, L=5620 mm	20	35,46	709,20
3	ø32 B500B BS 4449:2005, L=11800 mm	11	74,45	818,95
4	ø20 B500B BS 4449:2005, L=2020 mm	40	4.98	199.20
C-2	Cage C-2	1		2283.73
1	ø20 B500B BS 4449:2005, L=1880 mm	36	4.64	167.04
2	ø32 B500B BS 4449:2005, L=5620 mm	20	35,46	709,20
3	ø32 B500B BS 4449:2005, L=11800 mm	11	74,45	818,95
4	ø20 B500B BS 4449:2005, L=2020 mm	40	4.98	199.20
15	ø25 B500B BS 4449:2005, L=5620 mm	18	21.63	389.34
	Details		0.00	0.00
5	ø16 B500B BS 4449:2005, L=2596 mm	40	4.10	164.00
6	ø16 B500B BS 4449:2005, L=3067 mm	116	4.84	561.44
7	ø16 B500B BS 4449:2005, L=2867 mm	116	4.52	524.32
8	ø16 B500B BS 4449:2005, L=2974 mm	160	4.69	750.40
9	ø16 B500B BS 4449:2005, L=5620 mm	10	8.88	88.80
10	ø16 B500B BS 4449:2005, L=1900 mm	20	3.00	60.00
11	ø16 B500B BS 4449:2005, L=1880 mm	20	2.97	59.40
12	ø16 B500B BS 4449:2005, L=8230 mm	10	13.00	130.00
13	ø16 B500B BS 4449:2005, L=4000 mm	2	6.32	12.64
	Other materials			
14	Concrete C30/37,XC-2,XD-3,XF-1,S4,D22			57.30 m³

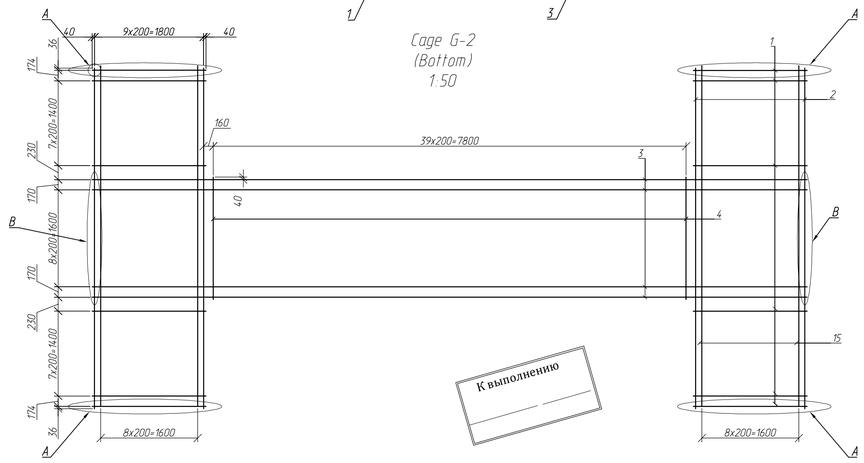
Unit "A"



Unit "B"



Cage G-2
(Bottom)
1:50



К выполнению

Table of variables

Pier №	Column	L, мм	L1, мм
2	C-1	10720	7000
3	C-1		
4	C-2	11220	7250
5	C-2		
6	C-2		
7	C-3	11720	7500
8	C-3		
9	C-3		
10	C-3		
11	C-2	11220	7250
12	C-2		
13	C-3	11720	7500
14	C-2	11220	7250
15	C-2		

1. Reinforcement must be corresponds to BS 4449 u BS 4483 (in accordance with technical specification).

2. Concrete must be corresponds to BS 8500-1 u BS 8500-2 (in accordance with technical specification).

3. Welding joints must be corresponds to BS 7123 (in accordance with technical specification).

ALT-E60-L1-B-15+88-005

RE	R.Harlander			
Proj.Manag	P.Myzuchenko	03.16		
Checked by	E.Garabinskaya	03.16		
Exec. by	R.Garpolyuk	03.16		

Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500

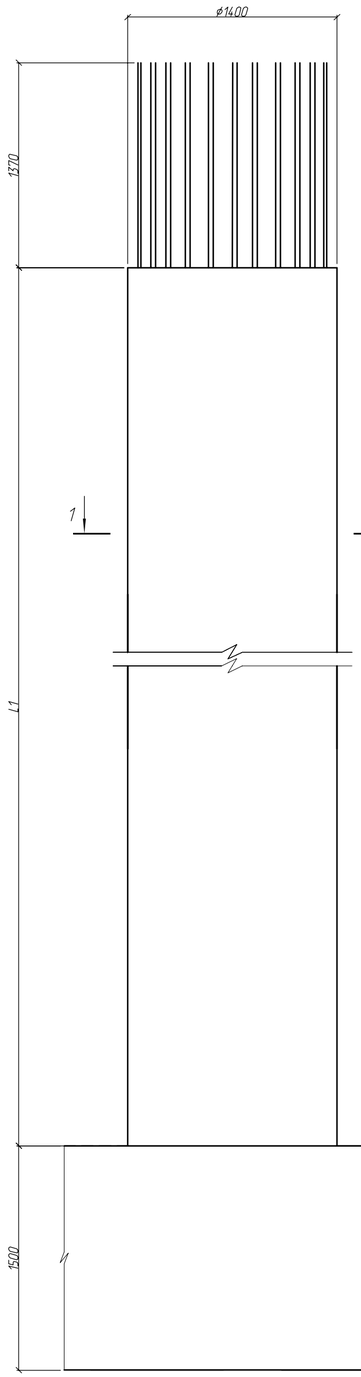
Viaduct PK 15+87.80

Stage	Sheet	Sheets
WD	1	1

Raft foundation RF-2

"Road Building "Altcom" LLC

Falsework diagram
C-1(2,3)
1:25



Reinforcement diagram
C-1(2,3)
1:25

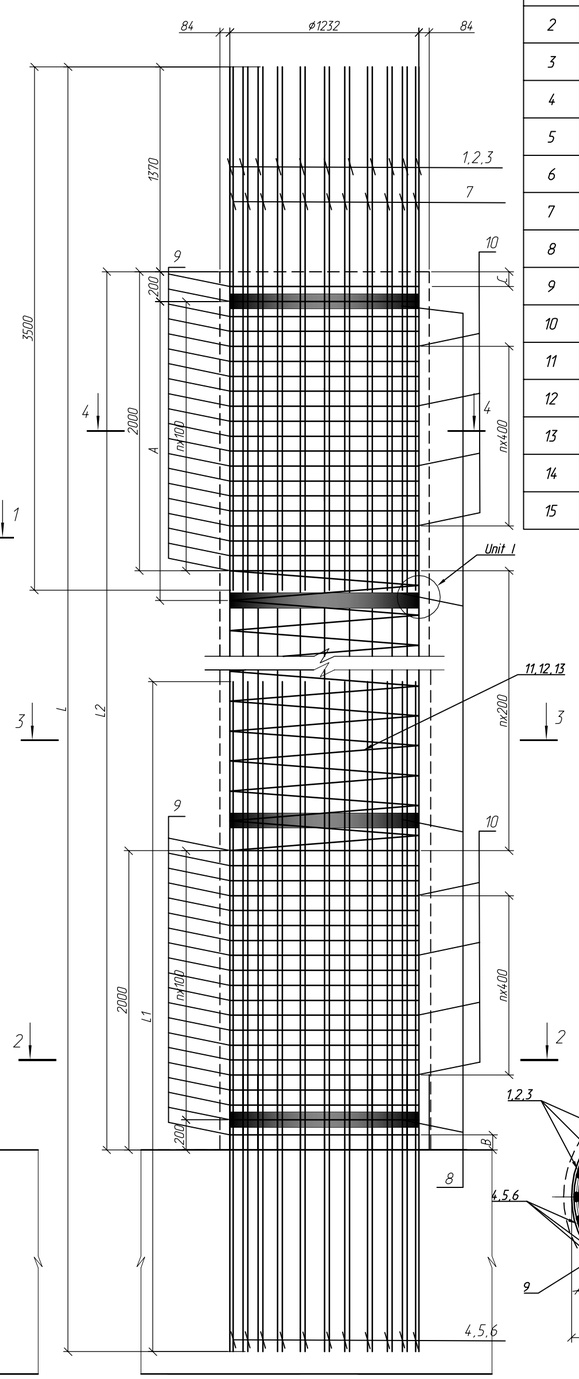
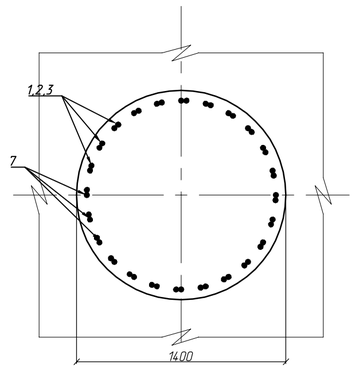


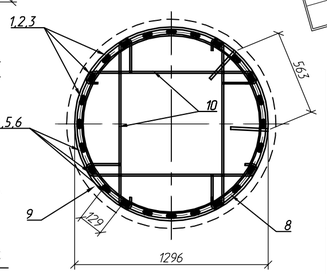
Table of variables

Pier №	Column	L, мм	L1, мм	L2, мм	A, мм	B,мм	C, мм	№ of steps n
2	C-1	10720	7000	8000	1900	100	100	27
3	C-1							
4	C-2	11220	7250	8500	2025	100	100	29
5	C-2							
6	C-2							
7	C-3	11720	7500	9000	2150	100	100	32
8	C-3							
9	C-3							
10	C-3							
11	C-2	11220	7250	8500	2025	100	100	29
12	C-2							
13	C-3	11720	7500	9000	2150	100	100	32
14	C-2	11220	7250	8500	2025	100	100	29
15	C-2							

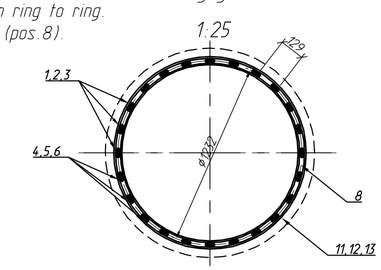
1-1
1:25



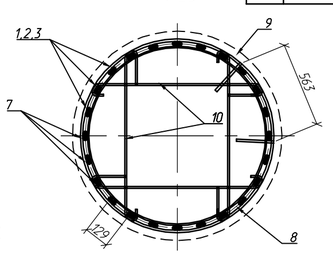
2-2
1:25



3-3
1:25



4-4
1:25



К выполнению

1. The rods pos.1, 2, 3 welded to the rings (pos.8) using one offset from ring to ring.
2. In places of slinging all rods (pos.1,2,3) must be welded to the rings (pos.8).
3. The quantity of columns on the piers:
   - right carrage way - 2 pieces;
   - left carrage way - 2 pieces;
4. Reinforcement must be corresponds to BS 4449 u BS 4483 (in accordance with technical specification).
5. Concrete must be corresponds to BS 8500-1 u BS 8500-2 (in accordance with technical specification).
6. Welding joints must be corresponds to BS 7123 (in accordance with technical specification).

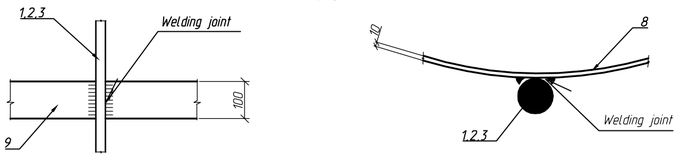
Register of steel consumption per element, kg

Mark of element				Embedded items	Total
				BS EN 10025-2:2004	
	ø12	ø20	ø16	ø32	-10x100	
C-1	142.23	207.36	270.00	2683.44	149,15	3452.18
C-2	149.35	207.36	270.00	2796.96	149,15	3572.82
C-3	160.03	207.36	270.00	2910.48	149,15	3697.02

Specification of element, kg

Pos.	Name	Column			Weight of unit, kg	Weight of all, kg
		C-1	C-2	C-3		
	Prefabricated units					
1	ø32 B500B BS 4449:2005, L=10720	24	-	-	67.64	1623.36
2	ø32 B500B BS 4449:2005, L=11220	-	24	-	70.800	1699.20
3	ø32 B500B BS 4449:2005, L=11720	-	-	24	73.95	1774.80
4	ø32 B500B BS 4449:2005, L=7000	24	-	-	44.17	1060.08
5	ø32 B500B BS 4449:2005, L=7250	-	24	-	45.74	1097.76
6	ø32 B500B BS 4449:2005, L=7500	-	-	24	47.32	1135.68
7	ø20 B500B BS 4449:2005, L=3500	24	24	24	8.64	207.36
8	- 10x100x3800 BS EN10025-2:2004	5	5	5	29.83	149.15
9	ø16 B500B BS 4449:2005, L=5645	40	40	40	8.91	356.40
10	ø12 B500B BS 4449:2005, L=1500	32	32	32	1.33	42.56
11	ø12 B500B BS 4449:2005, L=112240	1	-	-	99.67	99.67
12	ø12 B500B BS 4449:2005, L=120258	-	1	-	106.79	106.79
13	ø12 B500B BS 4449:2005, L=132283			1	117.47	117.47
	Other materials					
14	Concrete C25/30,XC-2,XD-3,XF-1,S4,D22	12,30	13,08	13,85	m³	

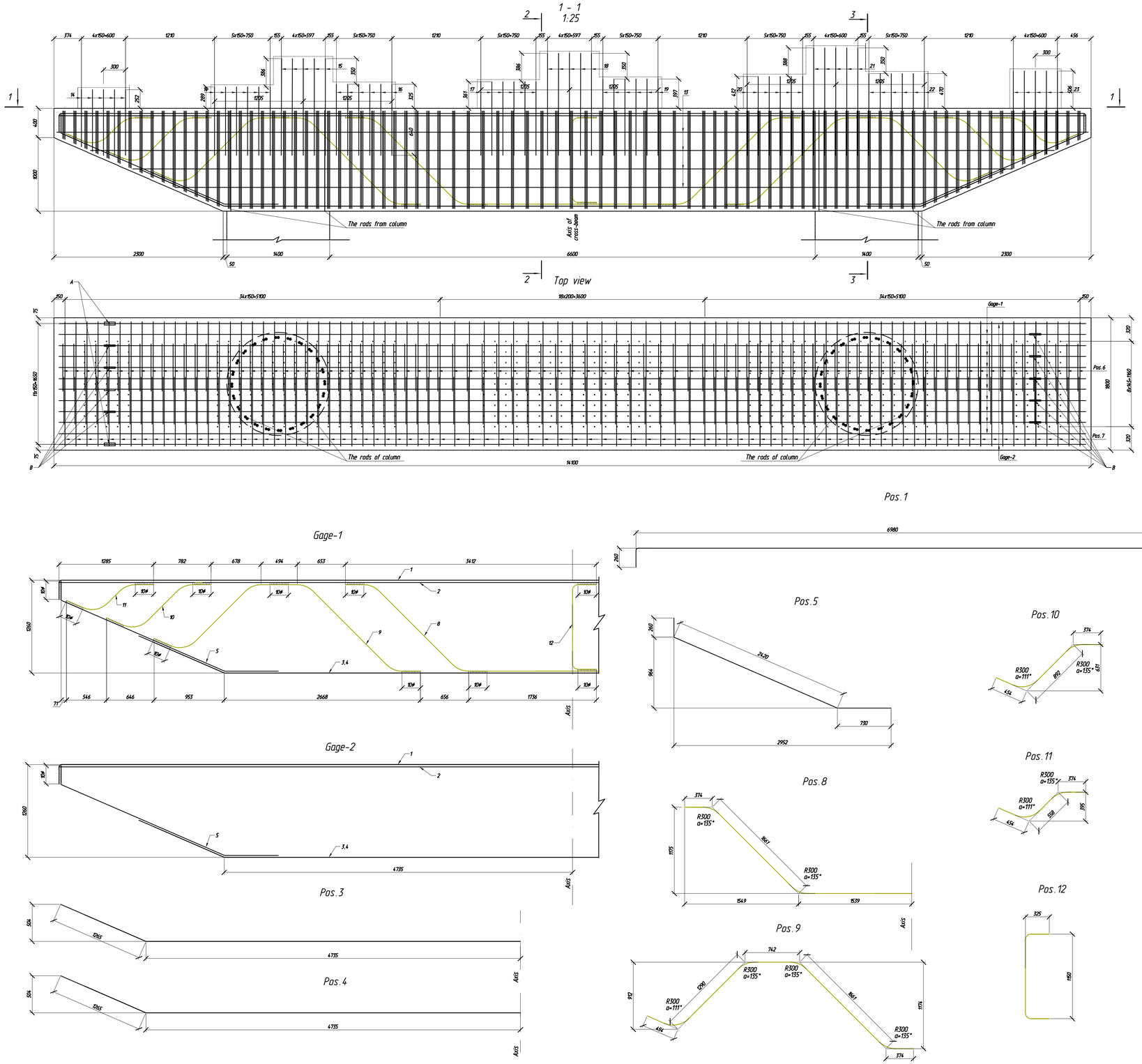
Unit I
1:10

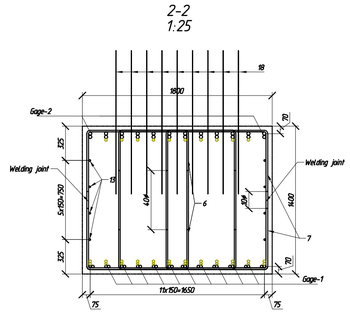


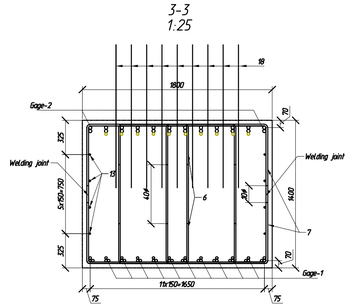
Register of items

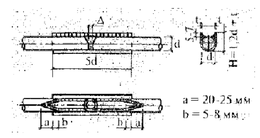
Pos.	Sketch	Pos.	Sketch	Pos.	Sketch
11	ø1276, 27x200=5400, ø12 B500B L=112240	13	ø1276, 29x200=5800, ø12 B500B L=120258	9	563, 250, ø16, ø1264
12	ø1276, 32x200=6400, ø12 B500B L=132283	8	ø1200, ø10, Welding point, ø1200, 100	10	228, 833, 78, 72, 84, 1051, 1083, 1139

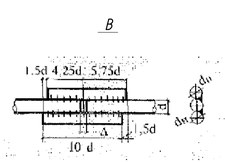
ALT-E60-L1-B-15+88-006					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
RE	R.Harlander					
Proj.Manag.	P.Myzuchenko	04.16			Viaduct PK 15+87.80	Stage: WD; Sheet: 1; Sheets: 1
Checked by	H.Gorabinskaya	04.16				
Exec. by	R.Garpolyuk	04.16			Structure of column of intermediate piers	"Road Building "Altcom" LLC

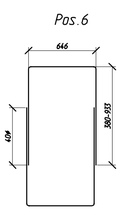


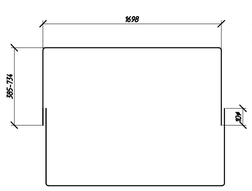












Register of steel consumption per element, kg

Mark of element	Reinforcement				Total
	BS4449:2005 (B500B)				
	⌀14	⌀16	⌀25	⌀32	
CB-2	1032.40	1997.17	2390.18	2153.40	7573.15

Specification of element, kg

Pos.	Name	Quantity	Weight of unit, kg	Weight of all, kg
	Prefabricated units			
C-1	Cage C-1	10	394.76	3947.60
1	⌀32 B500B BS 4449:2005, L=14480 mm	1	91.37	91.37
2	⌀32 B500B BS 4449:2005, L=13960 mm	1	88,08	88,08
3	⌀25 B500B BS 4449:2005, L=12000 mm	1	46,20	46,20
4	⌀25 B500B BS 4449:2005, L=12000 mm	1	46,20	46,20
5	⌀25 B500B BS 4449:2005, L=3410 mm	2	13.12	26.24
8	⌀25 B500B BS 4449:2005, L=3574 mm	2	13.76	27.52
9	⌀25 B500B BS 4449:2005, L=4975 mm	2	19.15	38.30
10	⌀25 B500B BS 4449:2005, L=1720 mm	2	6.62	13.24
11	⌀25 B500B BS 4449:2005, L=1386 mm	2	5.33	10.66
12	⌀25 B500B BS 4449:2005, L=1800 mm	1	6.93	6.93
C-2	Cage C-2	2	298.06	596.12
1	⌀32 B500B BS 4449:2005, L=14480 mm	1	91.37	91.37
2	⌀32 B500B BS 4449:2005, L=13960 mm	1	88,08	88,08
3	⌀25 B500B BS 4449:2005, L=12000 mm	1	46,20	46,20
4	⌀25 B500B BS 4449:2005, L=12000 mm	1	46,20	46,20
5	⌀25 B500B BS 4449:2005, L=3410 mm	2	13.12	26.24
	Details			
6	⌀14 B500B BS 4449:2005,L=1400-2505mm Laver=2400mm	356	2.90	1032.40
7	⌀16 B500B BS 4449:2005,L=2462-3160mm Laver=3050mm	178	4.81	856.18
13	⌀16 B500B BS 4449:2005, 10800-15300 / installation step 150 Laver=13110mm	8	20.71	163.68
14	⌀16 B500B BS 4449:2005, 809-964 / installation step 150 Laver=885mm	90	1.33	119.70
15	⌀16 B500B BS 4449:2005, L=1350 mm	54	2.07	111.78
16	⌀16 B500B BS 4449:2005, L=1000 mm	54	1.51	81.54
17	⌀16 B500B BS 4449:2005, L=1037mm	54	1.58	85.32
18	⌀16 B500B BS 4449:2005, L=1423 mm	54	2.07	111.78
19	⌀16 B500B BS 4449:2005, L=1073 mm	54	1.63	88.02
20	⌀16 B500B BS 4449:2005, L=1110mm	54	1.70	91.80
21	⌀16 B500B BS 4449:2005, L=1494mm	54	2.14	115.56
22	⌀16 B500B BS 4449:2005, L=1144 mm	54	1.74	93.96
23	⌀16 B500B BS 4449:2005, 1102-1181 / installation step 150 Laver=1141mm	45	1.73	77.85
	Other materials			
24	Concrete C30/37,XC-2,XD-3,XF-1,S4,D22			31,4 m³

1. Reinforcement must be corresponds to BS 4449 u BS 4483 (in accordance with technical specification).

2. Concrete must be corresponds to BS 8500-1 u BS 8500-2 (in accordance with technical specification).

3. Welding joints must be corresponds to BS 7123 (in accordance with technical specification).

4. The length of the rods pos.13 is given in the specification, taking into account the overlap of reinforcement - 40⌀16=640 mm.

ALT-E60-L1-8-15+88-007					Construction of Samtredia - Grigoleti road section of E-60 km 0 +000 - km 11 +500	
RE	R.Harlander					
Proj.Manag.	A. Valuikin	07.16			Viaduct PK 15+87.80	Stage: WD; Sheet: 1; Sheets: 1
Checked by	N.Garabinskaya	07.16				
Exec. by	R.Garpolyuk	07.16			Structure of crossbeam of intermediate piers	"Road Building "Altcom" LLC