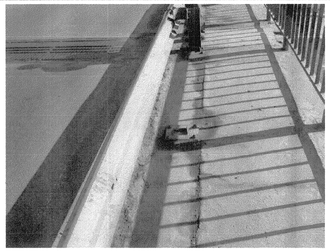
INTERVENTION WORK: A3- GUARD RAIL REPLACEMENT

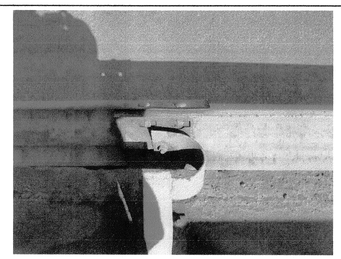
It needs to dismantle existing guard rail and assembling the new one with the following operations:
- removal of the guard rail connection screws;
- cutting with oxyacetylene flame of the posts;
- loading and transport of the material resulting from the demolition to an approved dump area.
- procurement, transport, storage and handling of the guard rail elements and other related materials and equipment;
- local transport and handling of the guard rail elements;
- assembling of the guard rail elements;
- supply and installation of the reflective elements;
- rust protective paint;
- final paint in two layers;
- verifications after execution in accordance to the design;
- sampling and laboratory testing;

Steel plates embedded in the reinforced concrete support beams are included.

DETERIORATION:



Inadequate height and damaged guard rail

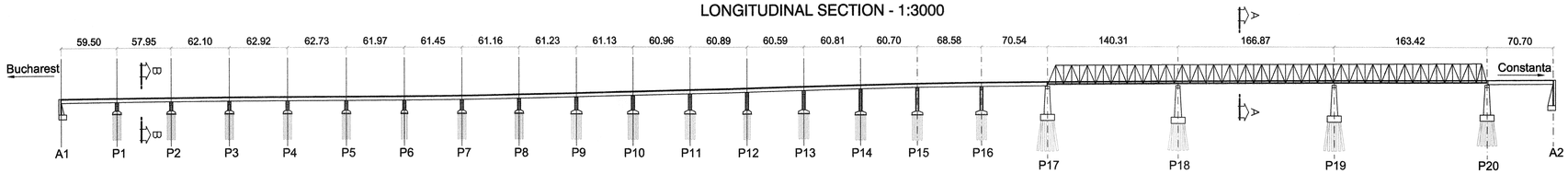


Corroded guard rail

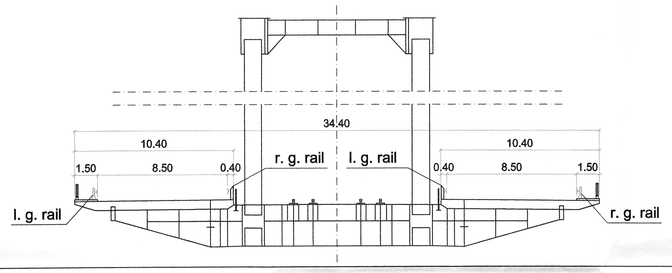
IVANESCU T. TOMA ROMANIA MUNT. DOLJ NR. 445 INGINER VERIFICATOR PROIECTE

GENERAL VIEWS

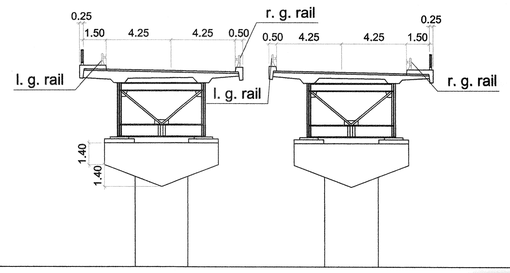
LONGITUDINAL SECTION - 1:3000



BRIDGE TRANSVERSAL SECTION (A-A) - 1:200



VIADUCT TRANSVERSAL SECTION (B-B) - 1:200

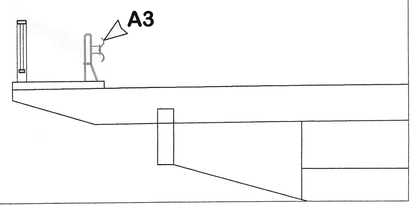


WORKING CODE LIST

CODE	MAINTENANCE AND REHABILITATION WORKS	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
	ROAD FINISHES AND EQUIPMENT										
A1	Painting of pedestrian parapet										
A2	Replacement of pedestrian parapet										
A3	Guard rail replacement							■			
A4	Electrical equipment replacement										
A5	Walkway slab substitution										
	PAVEMENTS										
B1	Roadway pavement and waterproofing replacement										
B2	Roadway superficial drainage rehabilitation										
B3	Walkway pavement replacement										
B4	Expansion joints replacement										
B5	Bearings replacement										
	CONCRETE REPAIR										
C1	Deck slab repair										
C2	Prestressed concrete beams repair										
C3	Pier caps concrete repair										
C4	Piers concrete repair										
C5	Tower leg concrete repair										
C6	Structural strengthening										
C7	Superstructure replacement										
	STEEL WORKS										
D1	Painting of steel structures										
D2	Stay cables maintenance										
D3	Strengthen of anchor bolts										
D4	Rehabilitation of inspection gantry and rails										
	EARTHWORKS										
E1	Ashlar stoneworks repair										
E2	Repair of strutture connection with embankment										
E3	Cone quarters rehabilitation										
E4	Rehabilitation of storm water collecting system										
E5	River bank improvement										

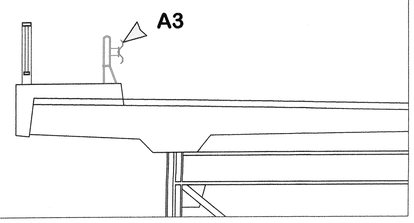
INTERVENTION DETAILS

Replacement of all bridge guard rail on both carriageways



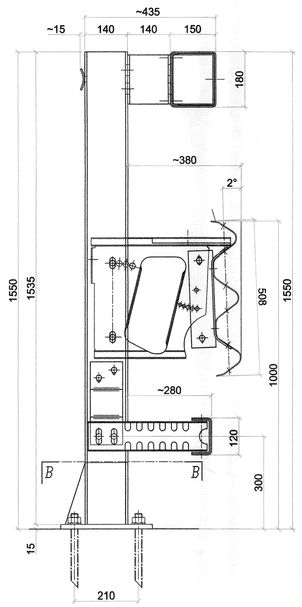
INTERVENTION ON BRIDGE GUARD RAIL - 1:50

Replacement of all viaduct guard rail on both carriageways

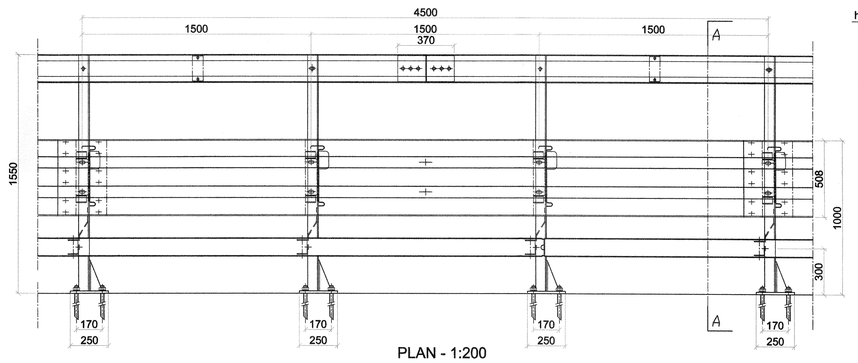


INTERVENTION ON VIADUCT GUARD RAIL - 1:50

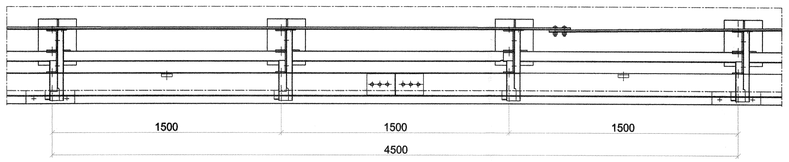
SECTION A-A - 1:100



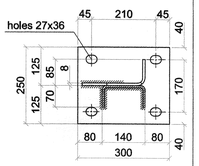
FRONT VIEW - 1:200



PLAN - 1:200



SECTION B-B - 1:100



All Dimensions are presented in millimeters (mm)

NEW GUARD RAIL DETAILS

INVESTOR/INVESTITOR

ROMANIAN NATIONAL COMPANY OF MOTORWAYS AND NATIONAL ROADS

COMPANIA NATIONALA DE AUTOSTRAZI SI DRUMURI NATIONALE DIN ROMANIA

DESIGNER/PROIECTANT

LOUIS BERGER GROUP inc.

CONSULTING SERVICES FOR DESIGN AND WORKS SUPERVISION OF 10 BRIDGES IN DOBROGEA AREA

TECHNICAL DESIGN

B07-BRIDGE A2 CERNAVODA

TD - B07 - 02

DESIGN TEAM LEADER
Vittorio Ascoli Marcheria

ORDINE INGEGNERI ROMA N° 12645

ROAD FINISHES AND EQUIPMENT

CONSULTANTS
SOLIDUS s.r.l. - Roma Italia
Francesco Del Tosto
Romano Tucci

A3
GUARD RAIL REPLACEMENT

scale	various	file name	TD - B07 - 02				
data / date	rev.	revision title		des	ver/chk	CP / PC	APPR. AUTHORITY
08 aug 2008	0	issue		SOLIDUS	ASCOLI		