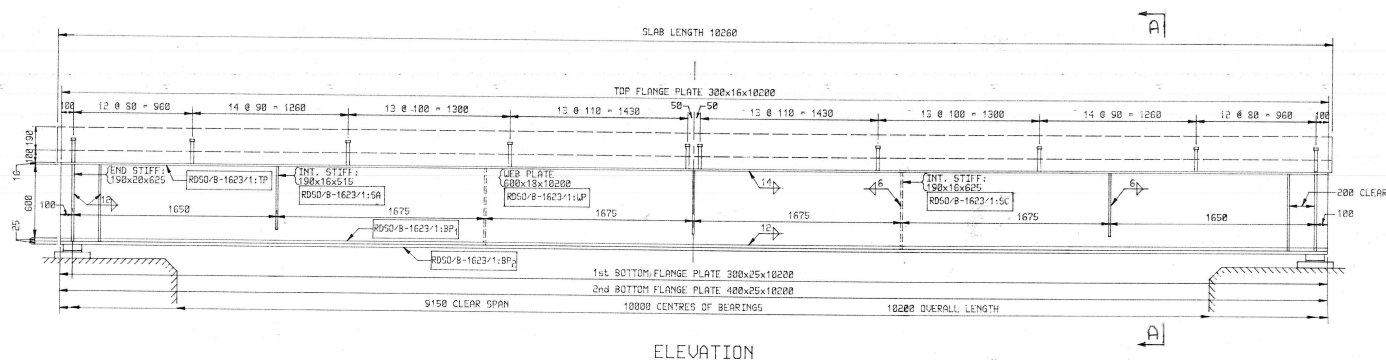


EXTRACT FROM AASHTO CL. 10.3.1.9 DIVISION II

10.3.1.9 WELDED STUD SHEAR CONNECTORS

10.3.1.9.1 SHEAR CONNECTOR STUDS SHALL CONFORM TO THE REQUIREMENTS OF COLD FINISHED CARBON STEEL BARS AND SHAPING: GRADE 1015, 1018 OR 1020, EITHER SEMI OR FULLY KILLED. IF FLUX RETAINING CAPS ARE USED, THE STEEL FOR THE CAPS SHALL BE OF A LOW

CARBON GRADE SUITABLE FOR WELDING AND SHALL COMPLY WITH COLD-ROLLED CARBON STEEL STRIP, ASTM A 109.

10.3.1.9.2 TENSILE PROPERTIES AS DETERMINED BY TESTS OF BAR STOCK AFTER DRAWING OR OF FINISHED STUDS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TENSILE STRENGTH (MIN.) 60,000 PSI
YIELD STRENGTH* (MIN.) 50,000 PSI
ELONGATION (MIN.) 24% IN 2 INCHES
REDUCTION OF AREA (MIN.) 50%

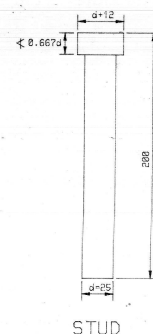
* As determined by a 0.2% offset method.

10.3.1.9.3 TENSILE PROPERTIES SHALL BE DETERMINED IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF ASTM A 370, MECHANICAL TESTING OF STEEL PRODUCTS. TENSILE TESTS OF FINISHED STUDS SHALL BE MADE ON STUDS WELDED TO TEST PLATES USING A TEST FIXTURE SIMILAR TO THAT SHOWN IN FIGURE 4-13.3 OF AASHTO 11. IF FRACTURE OCCURS OUTSIDE OF THE MIDDLE HALF OF THE GAGE LENGTH, THE TEST SHALL BE REPEATED.

10.3.1.9.4 FINISHED STUDS SHALL BE OF UNIFORM QUALITY AND CONDITION, FREE FROM INJURIOUS LAPS, FINS, SEAMS, CRACKS, TWISTS, BENDS OR OTHER INJURIOUS DEFECTS. FINISH SHALL BE AS PRODUCED BY COLD DRAWING, COLD ROLLING OR MACHINING.

10.3.1.9.5 THE MANUFACTURER SHALL CERTIFY THAT THE STUDS AS DELIVERED ARE IN ACCORDANCE WITH THE MATERIAL REQUIREMENTS OF THIS SECTION. CERTIFIED COPIES OF IN-PLANT QUALITY CONTROL TEST REPORTS SHALL BE FURNISHED TO THE ENGINEER UPON REQUEST.

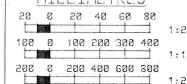
10.3.1.9.6 THE ENGINEER MAY SELECT, AT THE CONTRACTOR'S EXPENSE, STUDS OF EACH TYPE AND SIZE USED UNDER THE CONTRACT, AS NECESSARY FOR CHECKING THE REQUIREMENTS OF THIS SECTION.



STUD

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE DESIGN IS BASED ON AASHTO (AS PER CLAUSE 10.38 OF DIVISION I).
3. STUD MATERIAL AND TESTING: AS PER AASHTO CLAUSE 10.3.1.9 DIVISION II.
4. STUD WELDING IS BASED ON ASSUMPTION THAT THE SAME WILL BE WELDED USING STUD WELDING MACHINE. THE WELD SHALL HAVE A MINIMUM CROSS-SECTIONAL AREA EQUAL TO THE CROSS-SECTION OF THE STUD.
5. INSPECTION SHALL BE DONE BY RDSD/MINPROCEDURE AND TESTING OF STUD SHEAR CONNECTOR SHALL BE DECIDED IN CONSULTATION WITH RDSD.

MILLIMETRES



NOTE

SPECIFICATION

SCALE

ALT. DESCRIPTION DATE

RELATED DRAWINGS

S.No.	DESCRIPTION	REFERENCE
1.	DETAILS OF MAIN GIRDER	RDSD/B - 1623
2.	BEARING DETAILS & PART LIST	RDSD/B - 1623/1
3.	X-FRAME DETAILS & LIFTING ARRANGEMENT	RDSD/B - 1623/2
4.	ASSEMBLY DRAWING & SHIPPING LIST	RDSD/B - 1623/3
5.	DETAILS OF DECK SLAB	RDSD/B - 1623/4

THIS DRAWING IS THE PROPERTY OF
RESEARCH DESIGNS AND STANDARDS ORGANISATION
(MINISTRY OF RAILWAYS)
LUCKNOW - 226011 - INDIA
AND SHALL NOT BE USED, COPIED OR REPRODUCED IN
PART OR WHOLE WITHOUT PRIOR CONSENT IN WRITING.

R. D. S. O.
MODIFIED B.G. LOADING - 1987
COMPOSITE GIRDER - WELDED TYPE
9.15m SPAN
STRAIGHT TRACK
STUD SHEAR CONNECTOR
PROVISIONAL DATE - 15-3-93
RDSD/B - 1701

CALCULATION REGISTER No. 20-7302
PAGES DONE BY -
CHECKED BY -

DRAWN BY -
CHECKED BY -

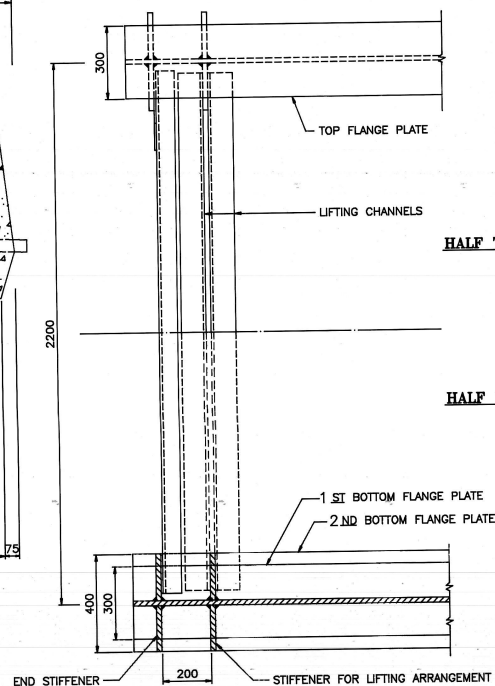
TRACED BY -
CHECKED BY -

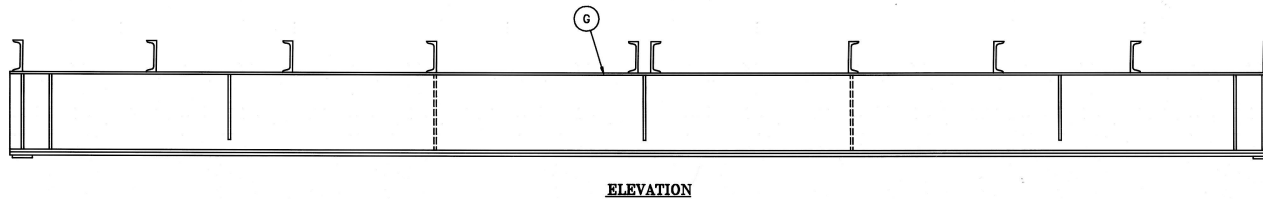
T.R. SUNDAR
RDSD/B - 1701

JDS/BBS/eng: 01/01/93

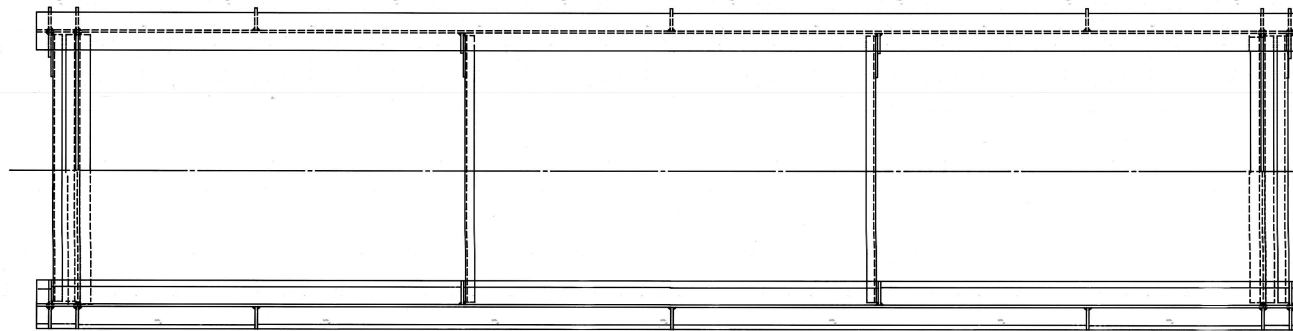
PL. CASI Dec. 7/93/57
BBS/1002 & BBS/1001

Calculation to Reg. No.
CASI/Dec. 17-3-93 5700/666

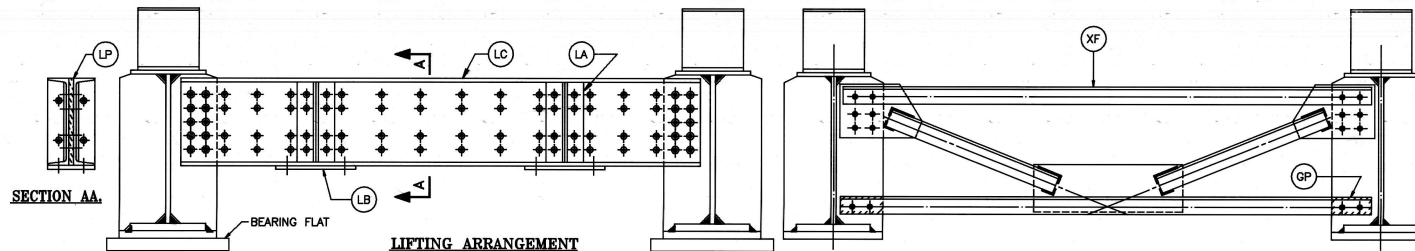




ELEVATION



HALF TOP & HALF BOTTOM PLAN

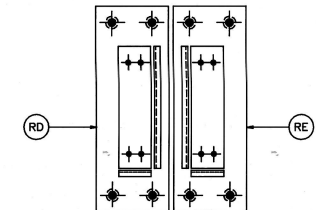


SECTION AA

LIFTING ARRANGEMENT

CROSS GIRDER

SHIPPING LIST						
NO. REQD:	DESCRIPTION	SIZE			SHIPPING MARK	
		L	B	D		
2	GIRDER COMPLETE	10200	500	966	G	
4	X-FRAME (WELDED UNIT)	2150	85	532	XF	
2 2	BED PLATES	800	280	80	RD	RE
16	ANCHOR BOLTS DIA 28	-	-	-		
2 2	LIFTING BEAM CHANNELS	2100	100	350	LC	
8 8	" " ANGLES	275	75	75	LA	
2 2	" " PAD PLATES	320	200	16	LB	
1 1	LIFTING PLATE BETWEEN CHANNELS	1800	16	350	LP	
184	TURNED AND FITTED BOLTS					
16	COUNTERSUNK BOLTS IN PAD PL.					
8	PACK PLATES	160	75	10	GP	



BED PLATE

RELATED DRAWINGS

S. NO.	DESCRIPTION	REFERENCE
1.	DETAILS OF MAIN GIRDER	RDSO/B-1623
2.	BEARING DETAILS & PART LIST	RDSO/B-1623/1
3.	X-FRAME DETAILS & LIFTING ARRANGEMENT	RDSO/B-1623/2
4.	DETAIL OF DECK SLAB	RDSO/B-1623/4

THIS DRAWING IS THE PROPERTY OF
RESEARCH DESIGNS AND STANDARDS ORGANISATION
(MINISTRY OF RAILWAYS)
LUCKNOW-226011, INDIA
AND SHALL NOT BE USED, COPIED OR REPRODUCED IN
PART OR WHOLE, WITHOUT PRIOR CONSENT IN WRITING.

R.D.S.O.

MODIFIED B.G. LOADING - 1987
COMPOSITE GIRDER-WELDED TYPE
9.15m SPAN
STRAIGHT TRACK
ASSEMBLY DRAWING & SHIPPING LIST

PROVISIONAL 8-8-91

RDSO/B-1623/3

(SHEET 4 OF 5)

DESCRIPTION	SYMBOL
FIELD RIVET	•
TURNED BOLTS	•
ANCHOR BOLT	•

- MEMBERS REQUIRED FOR TEMPORARY STAGING HAVE NOT BEEN INCLUDED IN THE SHIPPING LIST.
- WHILE TRANSPORTING PROPER CARE SHOULD BE TAKEN TO SEE THAT THE SHEAR CONNECTORS ARE NOT DAMAGED.
- SHIPPING MARKS ARE TO BE PAINTED IN WHITE LETTERS 100mm HIGH OR AS LARGE AS THE MEMBER WILL PERMIT ON EACH MEMBER BEFORE DESPATCH FROM THE WORKSHOP AS THUS (H)
- THE SHIPPING LIST IS SHOWN FOR SINGLE SPAN ONLY.
- ALL DIMENSIONS ARE IN MILLIMETRES.

NOTE

SPECIFICATION

NOT TO SCALE

1

REDRAWN USING
AUTOCAD # 11.

01.08.96

SCALE

ALT.

DESCRIPTION

DATE

CALCULATION REGISTER NO. - 39/90

PAGES DONE BY- R. SHYAM
CHECKED BY- T.R. SATHI

DRAWN BY- S.K. SHARMA
CHECKED BY- R. SHYAM

ADE/B&S-T.R. SURENDRANATH JDS/B&S- M. SATHEESH

DRAWN BY-
(ON AUTOCAD)
COMPARED BY-

APPROVED BY DS(B&S) ON n/p 26
CBS/DCC. ON 8.8.91

FLOPPY No. BSRF/0010

Rashmi Sharma

5 floppy disk BSRF/0010

