Supplementary Information

The following information is associated with Network Rail Standard:
NR CIV/SD/1323 Rev B

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TABLE OF MAIN GIRDER SIZES – SHALLOW GIRDERS, 200mm TO 300mm BALLAST

HEAVY GIRDERS

SPAN LIMIT (m)	ELEVATION	MID-SPAN SECTION	FLANGE/DECK PLATE TOP FLANGE	FLANGE/DECK PLATE GRADE	WEB THK	WEB GRADE	CAMBER (mm)	DECK STEEL WEIGHT (t)
4	℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	---- / 300 X 40 / 30 THICK DECK PLATE / ----	S355J2+N / S355J2+N	20	S355J2+N	8	7.07
7	℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	---- / 300 X 75 / 30 THICK DECK PLATE / ----	S355NL / S355J2+N	20	S355J2+N	14	12.66
10	8600; B; ℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	250 X 55 DOUBLER / 300 X 55 / 30 THICK DECK PLATE / ----	S355NL / S355NL / S355J2+N	25	S355J2+N	20	18.78
11	9250; B; ℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	250 X 60 DOUBLER / 300 X 65 / 30 THICK DECK PLATE / ----	S355NL / S355NL / S355J2+N	25	S355J2+N	22	21.28
12	10200; B; ℄ SPAN; SPAN	B; 900; TOP OF CONC SLAB; 220 constant	250 X 70 DOUBLER / 300 X 75 / 30 THICK DECK PLATE / ----	S355NL / S355NL / S355J2+N	25	S355J2+N	24	23.67
14	12300; B; ℄ SPAN; SPAN; REFER TO NOTES FOR ADDITIONAL LIMITS OF TRAFFIC / TONNAGE.	B; 900; TOP OF CONC SLAB; 220 constant	250 X 80 DOUBLER / 300 X 80 / 30 THICK DECK PLATE / ----	S355NL / S355NL / S355J2+N	25	S355J2+N	28	28.45
17	15000; B; ℄ SPAN; SPAN; REFER TO NOTES FOR ADDITIONAL LIMITS OF TRAFFIC / TONNAGE.	900; TOP OF CONC SLAB; 220 constant	250 X 80 DOUBLER / 300 X 80 / 30 THICK DECK PLATE / ----	S355NL / S355NL / S355J2+N	25	S355J2+N	34	34.22
20	STANDARD DESIGN NOT SUITABLE FOR THIS SITUATION AND DESIGNER TO DETERMINE DETAILS FOR INDIVIDUAL SCHEME.							

LIGHT GIRDERS

SPAN LIMIT (m)	ELEVATION	MID-SPAN SECTION	FLANGE/DECK PLATE TOP FLANGE	FLANGE/DECK PLATE GRADE	WEB THK	WEB GRADE	CAMBER (mm)	DECK STEEL WEIGHT (t)
4	℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	---- / 300 X 30 / 30 THICK DECK PLATE / ----	S355J2+N / S355J2+N	20	S355J2+N	8	6.84
7	℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	---- / 300 X 45 / 30 THICK DECK PLATE / ----	S355J2+N / S355J2+N	20	S355J2+N	14	11.74
10	8100; B; ℄; SPAN	900; TOP OF CONC SLAB; 220 constant	250 X 35 / 300 X 40 / 30 THICK DECK PLATE / ----	S355K2+N / S355K2+N / S355J2+N	20	S355J2+N	20	17.03
11	9100; B; ℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	250 X 40 / 300 X 45 / 30 THICK DECK PLATE / ----	S355J2+N / S355J2+N / S355J2+N	20	S355J2+N	22	19.11
12	9800; B; ℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	250 X 50 DOUBLER / 300 X 55 / 30 THICK DECK PLATE	S355NL / S355NL / S355J2+N	25	S355J2+N	24	21.98
14	11800; B; ℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	250 X 60 DOUBLER / 300 X 65 / 30 THICK DECK PLATE / ----	S355NL / S355NL / S355J2+N	25	S355J2+N	28	26.40
17	14500; B; ℄ SPAN; SPAN	900; TOP OF CONC SLAB; 220 constant	250 X 75 DOUBLER / 300 X 80 / 30 THICK DECK PLATE / ----	S355NL / S355NL / S355J2+N	25	S355J2+N	34	34.14
20	STANDARD DESIGN NOT SUITABLE FOR THIS SITUATION AND DESIGNER TO DETERMINE DETAILS FOR INDIVIDUAL SCHEME.							

DRAWING No. NR/CIV/SD/1323

NOTES

KEY

(1) SEE TABLE BELOW FOR SELECTION OF HEAVY GIRDERS AND LIGHT GIRDERS.

TRAFFIC \ ANNUAL TONNAGE x10^6	42–27	27–18	18–12	12–7
25t axles	HEAVY GIRDERS			
EC Mix	HEAVY GIRDERS	HEAVY GIRDERS	LIGHT GIRDERS	
Type 9 MUs	HEAVY GIRDERS			

B

ADDITIONAL LIMITS OF TRAFFIC/TONNAGE FOR HIGHLIGHTED SPANS:

DESCRIPTION	TRAFFIC	ANNUAL TONNAGE x10^6
14m HEAVY	25t axles	UPTO 27 MTPA
17m HEAVY	25t axles	UPTO 18 MTPA

B

1. REFER TO DRAWING NR/CIV/SD/1320 FOR NOTES.
2. FOR SPANS INTERMEDIATE TO THOSE SHOWN, SIZES & DIMENSIONS FOR THE NEXT GREATER SPAN STATED SHALL BE USED.
3. REFER TO USER MANUAL AND DRAWING NR/CIV/SD/1302 FOR FURTHER COMMENTARY ON CAMBER.
4. FOR SPANS LESS THAN THOSE SHOWN, WHERE THE TOP FLANGE DOUBLER PLATE SHOWN WOULD BE WITHIN 750mm OF THE CENTRE OF THE BEARING THE TOP FLANGE DOUBLER PLATE SHOULD BE CURTAILED 750mm FROM THE CENTRE OF THE BEARING.
5. DOUBLER PLATES, WHERE REQUIRED, DOUBLER PLATE CENTRELINE POSITIONED ALONG TOP FLANGE CENTRELINE.
6. A SINGLE FLANGE PLATE MAY REPLACE A FLANGE AND A DOUBLER PLATE PROVIDING THE SINGLE PLATE THICKNESS IS NOT LESS THAN THE SUM OF THE PLATE THICKNESSES IN THE TABLE NOR GREATER THAN 80mm AND THE STEEL GRADE IS NOT LESS THAN S355NL.
7. WEIGHT CALCULATION CONSIDERS THE MAIN GIRDERS AND FLOOR STEEL WEIGHT ONLY. IT ASSUMES LENGTH OF GIRDER 720mm LONGER THAN THE SPAN (TRUE OF SQUARE SPANS ONLY). INCLUDES 7.5% FOR CONNECTIONS.
8. CAMBER IS THAT REQUIRED AT THE END OF STEELWORK ERECTION.
9. THE VERTICAL DIMENSION GIVEN IS THE MAXIMUM WEB PLUS FLANGE(S) DIMENSION THAT WILL ENSURE 13mm OF TOLERANCE BETWEEN THE GIRDER AND THE STRUCTURE GAUGE (110mm ABOVE RAIL) WHERE THE MINIMUM BALLAST DEPTH UNDER TRACK WITH NO CANT IS 200mm AND THE DEPTH OF TRACK AND SLEEPER IS 368mm. THE GIRDER HAS BEEN DESIGNED FOR A MAXIMUM, UNFACTORED BALLAST LOAD FROM BALLAST 300mm DEEP.

Rev	Date	Description of revision	Design'd	C'kd
B	MAY 10	EUROCODE ISSUE	AGW	NY
A	APR 09	FIRST ISSUE	AGW	NY
P2	31.03.09	FINAL REVIEW FOR FORM B	DE	IP
P2	03.03.09	NETWORK RAIL REVIEW	DE	IP

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Approved	Paul Clark	Snr. Proj. Eng. Manager Infrastructure Investment Building and Civils	P.C.	MAY 10

Master copy with original signatures held by Network Rail HQ CIVIL ENGINEERING STANDARD DESIGN

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'U' TYPE UNDERBRIDGE STANDARD DRAWINGS

MAIN GIRDER SIZES SHALLOW GIRDERS 200mm BALLAST

Scale: AS SHOWN

Drawing Number: NR/CIV/SD/1323 B

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