| CAPITAL CITY RAILROAD RELOCATION AUTHORITY SPRINGFIELD, ILLINOIS | | | | | |
|---|---|---|---|---|---|
| FED. AID PROJECT NO. | CCRRA PROJECT NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| RRR-1 (7) | | ⊛ | SANGAMON | 106 | 53 |

⊛ Usable Segment No. 3, VB-1.



## INTERIOR GIRDER MOMENT TABLE

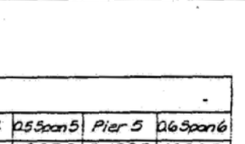
| | | 0.4 Span 1 | Pier 1 | 0.5 Span 2 | Pier 2 | 0.5 Span 3 | Pier 3 | 0.5 Span 4 | Pier 4 | 0.5 Span 5 | Pier 5 | 0.6 Span 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Is | ($in^4$) | 12680 | 14345 | 12680 | 16030 | 12680 | 17730 | 12680 | 17730 | 12680 | 24735 | 16205 |
| Ic(n=27) | ($in^4$) | 22990 | —— | 22990 | —— | 22990 | —— | 22990 | —— | 22990 | —— | 30705 |
| Ic(n=9) | ($in^4$) | 30540 | —— | 30540 | —— | 30540 | —— | 30540 | —— | 30540 | —— | 42550 |
| Ss | ($in^3$) | 583 | 656 | 583 | 729 | 583 | 801 | 583 | 801 | 583 | 1093 | 873 |
| Sc(n=27) | ($in^3$) | 735 | —— | 735 | —— | 735 | —— | 735 | —— | 735 | —— | 1087 |
| Sc(n=9) | ($in^3$) | 802 | —— | 802 | —— | 802 | —— | 802 | —— | 802 | —— | 1180 |
| | | | | | | | | | | | | |
| ℓ | (K/ι) | 1.105 | 1.50 | 1.105 | 1.50 | 1.105 | 1.50 | 1.105 | 1.50 | 1.105 | 1.50 | 1.105 |
| Mℓ | (K/ι) | 260 | 794 | 328 | 970 | 329 | 903 | 320 | 954 | 290 | 1492 | 736 |
| sℓ | (K/ι) | .395 | —— | .395 | —— | .395 | —— | .395 | —— | 395 | —— | .395 |
| Msℓ | ('K) | 102 | —— | 144 | —— | 138 | —— | 133 | —— | 137 | —— | 283 |
| Mℓ | ('K) | 607 | 451 | 731 | 537 | 730 | 592 | 734 | 603 | 800 | 718 | 1013 |
| MIMP | ('K) | 164 | 113 | 176 | 129 | 175 | 142 | 176 | 138 | 184 | 165 | 233 |
| $S_3$(M℄+I) | ('K) | 1285 | 940 | 1512 | .1110 | 1509 | 1224 | 1518 | 1235 | 1640 | 1472 | 2077 |
| Ma | ('K) | 2141 | 2254 | 2579 | 2704 | 2569 | 2765 | 2562 | 2846 | 2687 | 3853 | 4025 |
| Mu | ('K) | —— | 2541 | —— | 2745 | —— | 3086 | —— | 2986 | —— | 4118 | —— |
| fs ℓ non-comp. | (k.s.i.) | 5.4 | 14.5 | 6.8 | 16.0 | 6.8 | 13.5 | 6.6 | 14.3 | 6.0 | 16.4 | 10.1 |
| fs ℓ (comp.) | (k.s.i.) | 1.7 | —— | 2.3 | —— | 2.3 | —— | 2.2 | —— | 2.2 | —— | 3.1 |
| fs $S_3$(℄+I) | (k.s.i.) | 19.2 | 17.2 | 22.6 | 18.3 | 22.6 | 18.3 | 22.7 | 18.5 | 24.5 | 16.2 | 21.1 |
| fN (Total) | (k.s.i.) | 1.2 | 1.1 | 2.2 | 1.2 | 1.8 | 1.1 | 1.8 | 1.2 | 1.2 | 1.0 | 1.0 |
| fs (Overload) | (k.s.i.) | 27.5 | 32.8 | 33.9 | 35.5 | 33.5 | 32.9 | 33.3 | 34.0 | 33.9 | 33.6 | 35.3 |
| fs (Total) | (k.s.i.) | 35.8 | 42.6 | 44.1 | 46.2 | 43.6 | 42.8 | 43.3 | 44.2 | 44.1 | 43.7 | 45.9 |
| VR | (k) | 72 | —— | 64 | —— | 64 | —— | 65 | —— | 65 | —— | 71 |

## INTERIOR GIRDER REACTION TABLE

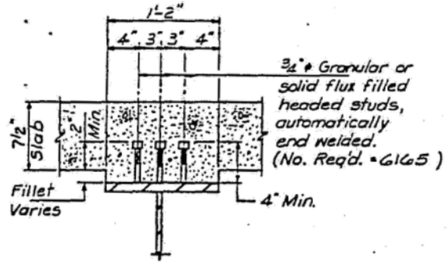
| | | N. Abut. | Pier 1 | Pier 2 | Pier 3 | Pier 4 | Pier 5 | S. Abut |
|---|---|---|---|---|---|---|---|---|
| Rℓ | (k) | 33 | 120 | 131 | 133 | 129 | 162 | 55 |
| R℄ | (k) | 50 | 68 | 73 | 81 | 76 | 81 | 53 |
| Imp. | (k) | 13 | 17 | 18 | 19 | 18 | 19 | 12 |
| R Total | (k) | 96 | 205 | 222 | 233 | 223 | 262 | 120 |

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).
Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs (Total & Overload).
VR is the maximum ℄ + Impact shear range in span.
Mu is the moment capacity for braced non-compact hybrid section ($F_{bu}$ = 5). $F_{bu}$ computed according to AASHTO Guide Spec. for Horizontally Curved Highway Bridges 2.12 & 2.19.
Ma (Applied Moment) = 1.3[Mℓ + Msℓ + $S_3$(M℄+I)].

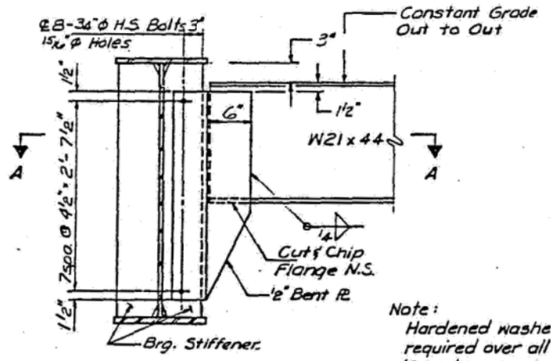
fN is the normal stress due to lateral flange bending.
fs (Overload) is the sum of the stresses due to Mℓ + Msℓ + $S_3$(M℄+I).
fs (Total) is the sum of the stresses due to 1.3[Mℓ + Msℓ + $S_3$(M℄+I)].
Girder 1 has largest moments and is used for Moment Table.



SECTION A-A

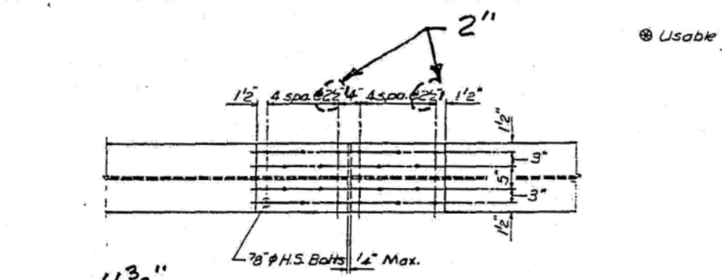



SHEAR CONNECTOR DETAIL

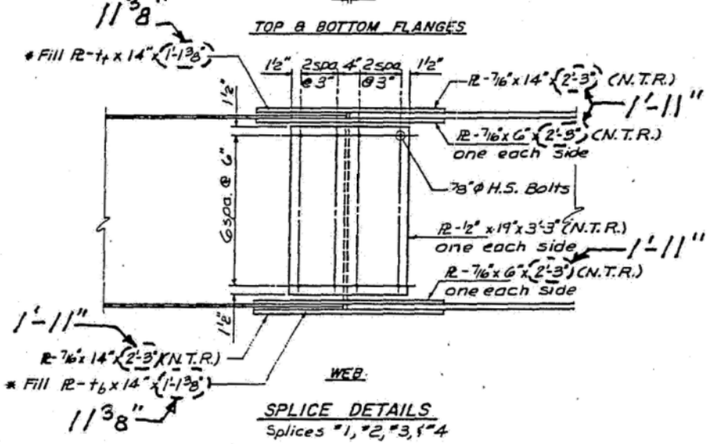



END DIAPHRAGM D-1

Note: Hardened washers shall be required over all 15/16"ϕ holes. (2 washers per bolt)




TOP & BOTTOM FLANGES

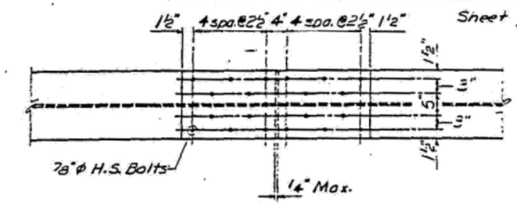



WEB

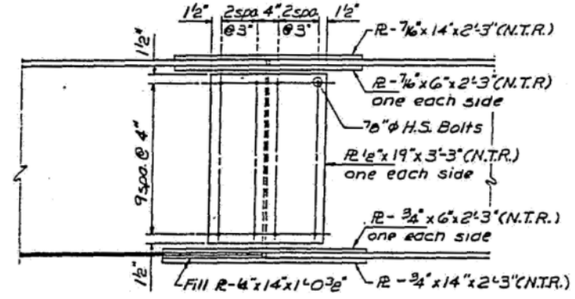
SPLICE DETAILS
Splices #1, #2, #3, & #4

* FILL Pl THICKNESS

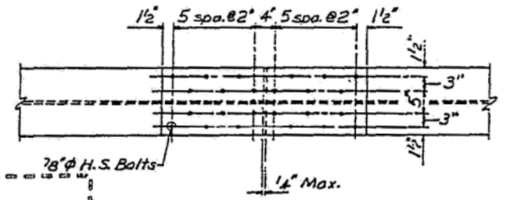
| Splice | $t_f$ | $t_b$ |
|---|---|---|
| #1 | 1/8" | 1/8" |
| #2 | 1/4" | 1/4" |
| #3 | 3/8" | 3/8" |
| #4 | 3/8" | 3/8" |




TOP FLANGE



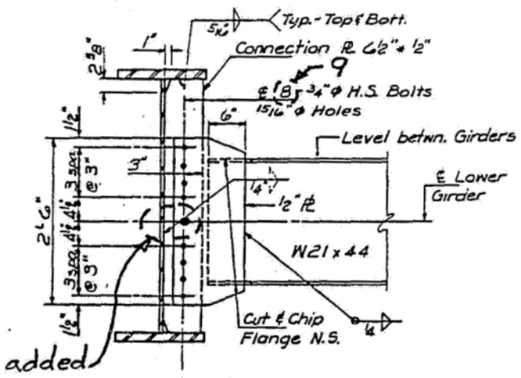

WEB




BOTTOM FLANGE

SPLICE DETAILS
Splice #5

AS REVISED




INTERIOR DIAPHRAGM D-2

Notes:
All Girder Splice Plates, except Fill Pl's are M-223, Grade 50 Steel.
All Splice Bolts shall have threads excluded from the shear planes.
N.T.R. refers to the supplemental requirements for notch toughness, Zone 2.

STRUCTURE NUMBER: 084-0185

**STRUCTURAL STEEL DETAILS**
**CHATHAM ROAD over**
**C.M.W. and N. & W. Railroads and FAP RTE 408**
**USABLE SEGMENT NO. 3, VB-1**
**- SANGAMON COUNTY**
**STATION 161+52.56**

T.E.H.
M.D.M.
D.B.(M.N.
T.E.H.

HANSON ENGINEERS INCORPORATED
SPRINGFIELD, PEORIA & ROCKFORD, ILLINOIS

PROJECT NO. 8553092
DATE 12-14-99

**FOR INFORMATION ONLY**

design firm no. 184001036
whks engineers + planners + land surveyors

| | | | |
|---|---|---|---|
| USER NAME = | DESIGNED - CEH | REVISED | |
| FILE NAME = | CHECKED - CWC | REVISED | |
| PLOT SCALE = | DRAWN - DLH | REVISED | |
| PLOT DATE = | CHECKED - CEH/CWC | REVISED | |

**STATE OF ILLINOIS**
**DEPARTMENT OF TRANSPORTATION**

**EXISTING PLANS**
**STRUCTURE NO. 084-0185**
SHEET NO. 15 OF 15 SHEETS

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 72 | • | SANGAMON | 163 | 152 |
| | | CONTRACT NO. 72B54 | | |
| | ILLINOIS FED. AID PROJECT | | | |

• (84-9-2&3)RS-2&MISC STRUC REP