

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

| LEVEL | VEHICLE | WEIGHT (W) (TONS) | CONTROLLING LOAD RATING # | MINIMUM RATING FACTORS (RF) | TONS = W x RF | STRENGTH I LIMIT STATE | | | | | | | | SERVICE III LIMIT STATE | | | | | | | | COMMENT NUMBER | | |
|--------------------------|--------------------------------------|----------------------|---------------------------------|-----------------------------------|---------------|---|------------------------------|---------------|------|-----------------|---|------------------------------|---------------|-------------------------|-----------------|---|---|------------------------------|---------------|------|-----------------|----------------|---|--|
| | | | | | | MOMENT | | | | SHEAR | | | | MOMENT | | | | | | | | | | |
| | | | | | | LIVE-LOAD FACTORS (γ _{LL}) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (FF) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (FF) | LIVE-LOAD FACTORS (γ _{LL}) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | | DISTANCE FROM LEFT END OF SPAN (FF) | |
| DESIGN LOAD RATING | HL-93 (INVENTORY) | N/A | 1 | 1.25 | -- | 1.75 | 0.91 | 1.58 | D | ER | 47.28 | 0.91 | 2.09 | D | ER | 71.27 | 0.80 | 0.91 | 1.25 | D | ER | 47.28 | | |
| | HL-93 (OPERATING) | N/A | | 2.04 | -- | 1.35 | 0.91 | 2.04 | D | ER | 47.28 | 0.91 | 2.65 | D | ER | 71.27 | N/A | -- | -- | -- | -- | -- | | |
| | HS-20 (INVENTORY) | 36.000 | 2 | 1.82 | 65.52 | 1.75 | 0.91 | 2.29 | D | ER | 47.28 | 0.91 | 2.59 | D | ER | 83.26 | 0.80 | 0.91 | 1.82 | D | ER | 47.28 | | |
| | HS-20 (OPERATING) | 36.000 | | 2.97 | 106.92 | 1.35 | 0.91 | 2.97 | D | ER | 47.28 | 0.91 | 3.29 | D | ER | 83.26 | N/A | -- | -- | -- | -- | -- | | |
| LEGAL LOAD RATING | SINGLE VEHICLE (SV) | SNSH | 13,500 | | 4.34 | 58.59 | 1.40 | 0.91 | 6.85 | D | ER | 47.28 | 0.91 | 7.47 | D | ER | 83.26 | 0.80 | 0.91 | 4.34 | D | ER | 47.28 | |
| | | SNGARBS2 | 20,000 | | 3.12 | 62.40 | 1.40 | 0.91 | 4.92 | D | ER | 47.28 | 0.91 | 5.49 | D | ER | 83.26 | 0.80 | 0.91 | 3.12 | D | ER | 47.28 | |
| | | SNAGRIS2 | 22,000 | | 2.90 | 63.80 | 1.40 | 0.91 | 4.58 | D | ER | 47.28 | 0.91 | 5.13 | D | ER | 83.26 | 0.80 | 0.91 | 2.90 | D | ER | 47.28 | |
| | | SNCOTTS3 | 27,250 | | 2.17 | 59.13 | 1.40 | 0.91 | 3.42 | D | ER | 47.28 | 0.91 | 3.90 | D | ER | 83.26 | 0.80 | 0.91 | 2.17 | D | ER | 47.28 | |
| | | SNAGGRS4 | 34,925 | | 1.77 | 61.82 | 1.40 | 0.91 | 2.79 | D | ER | 47.28 | 0.91 | 3.10 | D | ER | 83.26 | 0.80 | 0.91 | 1.77 | D | ER | 47.28 | |
| | | SNS5A | 35,550 | | 1.74 | 61.86 | 1.40 | 0.91 | 2.74 | D | ER | 47.28 | 0.91 | 3.09 | D | ER | 83.26 | 0.80 | 0.91 | 1.74 | D | ER | 47.28 | |
| | | SNS6A | 39,950 | | 1.57 | 62.72 | 1.40 | 0.91 | 2.48 | D | ER | 47.28 | 0.91 | 2.88 | D | ER | 83.26 | 0.80 | 0.91 | 1.57 | D | ER | 47.28 | |
| | SNS7B | 42,000 | | 1.50 | 63.00 | 1.40 | 0.91 | 2.37 | D | ER | 47.28 | 0.91 | 2.83 | D | ER | 83.26 | 0.80 | 0.91 | 1.50 | D | ER | 47.28 | | |
| | TRUCK TRACTOR SEMI-TRAILER (TTST) | TNAGRIT3 | 33,000 | | 1.92 | 63.36 | 1.40 | 0.91 | 3.04 | D | ER | 47.28 | 0.91 | 3.32 | D | ER | 83.26 | 0.80 | 0.91 | 1.92 | D | ER | 47.28 | |
| | | TNT4A | 33,075 | | 1.91 | 63.17 | 1.40 | 0.91 | 3.02 | D | ER | 47.28 | 0.91 | 3.20 | D | ER | 83.26 | 0.80 | 0.91 | 1.91 | D | ER | 47.28 | |
| | | TNT6A | 41,600 | | 1.55 | 64.48 | 1.40 | 0.91 | 2.45 | D | ER | 47.28 | 0.91 | 2.93 | D | ER | 83.26 | 0.80 | 0.91 | 1.55 | D | ER | 47.28 | |
| | | TNT7A | 42,000 | | 1.55 | 65.10 | 1.40 | 0.91 | 2.45 | D | ER | 47.28 | 0.91 | 2.84 | D | ER | 83.26 | 0.80 | 0.91 | 1.55 | D | ER | 47.28 | |
| | | TNT7B | 42,000 | | 1.57 | 65.94 | 1.40 | 0.91 | 2.48 | D | ER | 47.28 | 0.91 | 2.68 | D | ER | 83.26 | 0.80 | 0.91 | 1.57 | D | ER | 47.28 | |
| | | TNAGRIT4 | 43,000 | | 1.52 | 65.36 | 1.40 | 0.91 | 2.40 | D | ER | 47.28 | 0.91 | 2.61 | D | ER | 83.26 | 0.80 | 0.91 | 1.52 | D | ER | 47.28 | |
| TNAGT5A | | 45,000 | | 1.45 | 65.25 | 1.40 | 0.91 | 2.28 | D | ER | 47.28 | 0.91 | 2.59 | D | ER | 83.26 | 0.80 | 0.91 | 1.45 | D | ER | 47.28 | | |
| TNAGT5B | 45,000 | 3 | 1.43 | 64.35 | 1.40 | 0.91 | 2.26 | D | ER | 47.28 | 0.91 | 2.70 | D | ER | 83.26 | 0.80 | 0.91 | 1.43 | D | ER | 47.28 | | | |

LOAD FACTORS:

| DESIGN LOAD RATING FACTORS | LIMIT STATE | γ _{DC} | γ _{DW} |
|-------------------------------------|-------------|-----------------|-----------------|
| | STRENGTH I | 1.25 | 1.50 |
| | SERVICE III | 1.00 | 1.00 |

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO CENTERLINE BEARING AND IS MEASURED ALONG CONTROLLING GIRDER.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

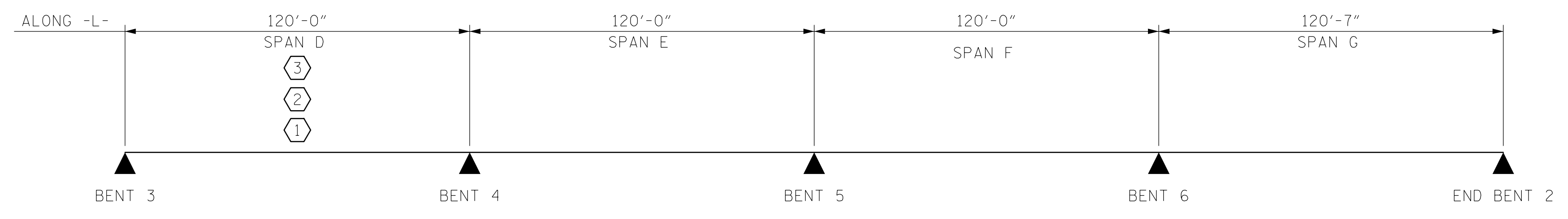
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

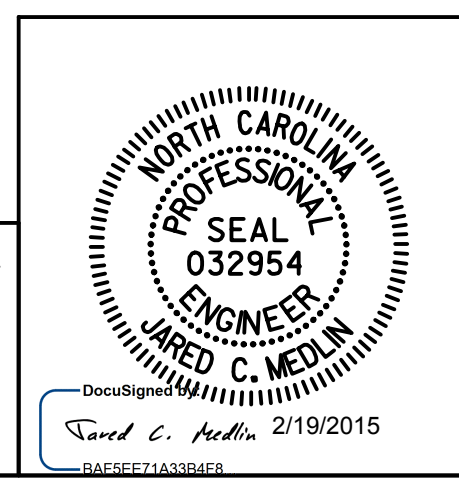
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. U-5008
MECKLENBURG COUNTY
 STATION: 20+45.05 -L- P.O.T. =
14+54.24 -Y4- P.O.T.
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 UNIT 2
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)



| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-8 |
| 1 | | | 3 | | | SHEETS 78 |
| 2 | | | 4 | | | |