

| LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS |   |                      |                                  |                                   |               |                              |                              |               |      |                    |   |                              |               |      |                    |   |                              |                              |               |      |                    |                |   |  |
|---|---|----------------------|----------------------------------|-----------------------------------|---------------|------------------------------|------------------------------|---------------|------|--------------------|---|------------------------------|---------------|------|--------------------|---|------------------------------|------------------------------|---------------|------|--------------------|----------------|---|--|
| LOAD TYPE   | VEHICLE                                 | WEIGHT (W)<br>(TONS) | CONTROLLING<br>LOAD RATING<br>⬢# | MINIMUM<br>RATING FACTORS<br>(RF) | TONS = W x RF | STRENGTH I LIMIT STATE       |                              |               |      |                    |   |                              |               |      |                    | SERVICE III LIMIT STATE                   |                              |                              |               |      |                    | COMMENT NUMBER |   |  |
|   |   |                      |                                  |                                   |               | LIVE-LOAD<br>FACTORS ( γ LL) | MOMENT                       |               |      |                    |   | SHEAR                        |               |      |                    |   | LIVE-LOAD<br>FACTORS ( γ LL) | MOMENT                       |               |      |                    |                |   |  |
|   |   |                      |                                  |                                   |               |                              | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER<br>LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER<br>LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) |                              | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER<br>LOCATION |                | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) |  |
| DESIGN<br>LOAD  | HL-93 (INVENTORY)                       | N/A                  | ⬢1                               | 1.394                             | --            | 1.75                         | 0.276                        | 1.57          | 50'  | EL                 | 24.5                                      | 0.531                        | 1.39          | 50'  | EL                 | 2.45                                      | 0.80                         | 0.276                        | 1.44          | 50'  | EL                 | 24.5           |   |  |
|   | HL-93 (OPERATING)                       | N/A                  |                                  | 1.807                             | --            | 1.35                         | 0.276                        | 2.03          | 50'  | EL                 | 24.5                                      | 0.531                        | 1.81          | 50'  | EL                 | 2.45                                      | N/A                          | --                           | --            | --   | --                 | --             |   |  |
|   | HS-20 (INVENTORY)                       | 36.000               | ⬢2                               | 1.667                             | 60.007        | 1.75                         | 0.276                        | 1.95          | 50'  | EL                 | 24.5                                      | 0.531                        | 1.67          | 50'  | EL                 | 2.45                                      | 0.80                         | 0.276                        | 1.79          | 50'  | EL                 | 24.5           |   |  |
|   | HS-20 (OPERATING)                       | 36.000               |                                  | 2.161                             | 77.787        | 1.35                         | 0.276                        | 2.52          | 50'  | EL                 | 24.5                                      | 0.531                        | 2.16          | 50'  | EL                 | 2.45                                      | N/A                          | --                           | --            | --   | --                 | --             |   |  |
| LEGAL<br>LOAD   | SINGLE VEHICLE<br>(SV)                  | SNSH                 | 13.500                           |                                   | 3.635         | 49.079                       | 1.4                          | 0.276         | 4.95 | 50'                | EL  | 24.5                         | 0.531         | 4.70 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 3.64 | 50'                | EL             | 24.5                                      |  |
|   |   | SNGARBS2             | 20.000                           |                                   | 2.871         | 57.420                       | 1.4                          | 0.276         | 3.91 | 50'                | EL  | 24.5                         | 0.531         | 3.42 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 2.87 | 50'                | EL             | 24.5                                      |  |
|   |   | SNAGRIS2             | 22.000                           |                                   | 2.778         | 61.109                       | 1.4                          | 0.276         | 3.78 | 50'                | EL  | 19.6                         | 0.531         | 3.21 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 2.78 | 50'                | EL             | 24.5                                      |  |
|   |   | SNCOTTS3             | 27.250                           |                                   | 1.814         | 49.418                       | 1.4                          | 0.276         | 2.47 | 50'                | EL  | 24.5                         | 0.531         | 2.36 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.81 | 50'                | EL             | 24.5                                      |  |
|   |   | SNAGGRS4             | 34.925                           |                                   | 1.577         | 55.063                       | 1.4                          | 0.276         | 2.15 | 50'                | EL  | 24.5                         | 0.531         | 2.01 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.58 | 50'                | EL             | 24.5                                      |  |
|   |   | SNS5A                | 35.550                           |                                   | 1.537         | 54.657                       | 1.4                          | 0.276         | 2.09 | 50'                | EL  | 24.5                         | 0.531         | 2.07 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.54 | 50'                | EL             | 24.5                                      |  |
|   |   | SNS6A                | 39.950                           |                                   | 1.438         | 57.430                       | 1.4                          | 0.276         | 1.96 | 50'                | EL  | 24.5                         | 0.531         | 1.91 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.44 | 50'                | EL             | 24.5                                      |  |
|   |   | SNS7B                | 42.000                           |                                   | 1.370         | 57.540                       | 1.4                          | 0.276         | 1.87 | 50'                | EL  | 24.5                         | 0.531         | 1.91 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.37 | 50'                | EL             | 24.5                                      |  |
|   | TRUCK TRACTOR<br>SEMI-TRAILER<br>(TTST) | TNAGRIT3             | 33.000                           |                                   | 1.761         | 58.118                       | 1.4                          | 0.276         | 2.40 | 50'                | EL  | 24.5                         | 0.531         | 2.25 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.76 | 50'                | EL             | 24.5                                      |  |
|   |   | TNT4A                | 33.075                           |                                   | 1.777         | 58.759                       | 1.4                          | 0.276         | 2.42 | 50'                | EL  | 24.5                         | 0.531         | 2.17 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.78 | 50'                | EL             | 24.5                                      |  |
|   |   | TNT6A                | 41.600                           |                                   | 1.480         | 61.558                       | 1.4                          | 0.276         | 2.01 | 50'                | EL  | 24.5                         | 0.531         | 2.08 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.48 | 50'                | EL             | 24.5                                      |  |
|   |   | TNT7A                | 42.000                           |                                   | 1.502         | 63.087                       | 1.4                          | 0.276         | 2.05 | 50'                | EL  | 24.5                         | 0.531         | 1.94 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.50 | 50'                | EL             | 24.5                                      |  |
|   |   | TNT7B                | 42.000                           |                                   | 1.566         | 65.773                       | 1.4                          | 0.276         | 2.13 | 50'                | EL  | 24.5                         | 0.531         | 1.84 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.57 | 50'                | EL             | 24.5                                      |  |
|   |   | TNAGRIT4             | 43.000                           |                                   | 1.486         | 63.902                       | 1.4                          | 0.276         | 2.02 | 50'                | EL  | 24.5                         | 0.531         | 1.77 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.49 | 50'                | EL             | 24.5                                      |  |
|   |   | TNAGT5A              | 45.000                           |                                   | 1.388         | 62.470                       | 1.4                          | 0.276         | 1.89 | 50'                | EL  | 24.5                         | 0.531         | 1.80 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.39 | 50'                | EL             | 24.5                                      |  |
|   |   | TNAGT5B              | 45.000                           | ⬢3                                | 1.360         | 61.206                       | 1.4                          | 0.276         | 1.85 | 50'                | EL  | 24.5                         | 0.531         | 1.68 | 50'                | EL  | 2.45                         | 0.80                         | 0.276         | 1.36 | 50'                | EL             | 24.5                                      |  |
| EMERGENCY<br>VEHICLE (EV)   | EV2                                     | 28.750               |                                  | 2.154                             | 61.929        | 1.3                          | 0.276                        | 2.97          | 50'  | EL                 | 24.5                                      | 0.531                        | 2.50          | 50'  | EL                 | 5.50                                      | 0.80                         | 0.276                        | 2.15          | 50'  | EL                 | 24.5           |   |  |
|   | EV3                                     | 43.000               | ⬢4                               | 1.392                             | 59.852        | 1.3                          | 0.276                        | 1.92          | 50'  | EL                 | 24.5                                      | 0.531                        | 1.69          | 50'  | EL                 | 5.50                                      | 0.80                         | 0.276                        | 1.39          | 50'  | EL                 | 24.5           |   |  |

LOAD FACTORS:

| DESIGN<br>LOAD<br>RATING<br>FACTORS | LIMIT STATE | γDC  | γDW  |
|-------------------------------------|-------------|------|------|
|                                     | 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.

⬡# CONTROLLING LOAD RATING

⬡1 DESIGN LOAD RATING (HL-93)

⬡2 DESIGN LOAD RATING (HS-20)

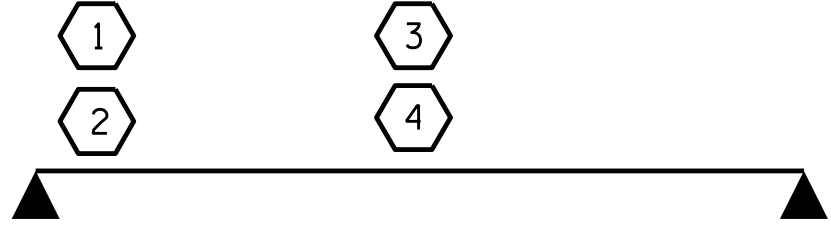
⬡3 LEGAL LOAD RATING \* \*

⬡4 EMERGENCY VEHICLE LOAD RATING \*\*

\* \* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

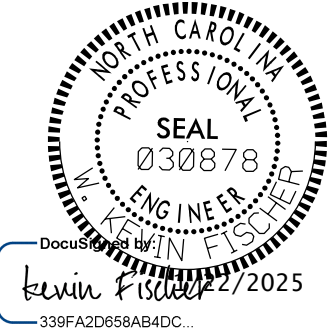
I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY  
FOR SPAN " B "

PROJECT NO. **DF18314.2044188**  
**HAYWOOD** COUNTY  
STATION: **12+67.00 -L-**

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
**LRFR SUMMARY FOR  
50' CORED SLAB UNIT  
90° SKEW**  
(NON-INTERSTATE TRAFFIC)

| REVISIONS |     |       |     |     | SHEET NO.          |
|-----------|-----|-------|-----|-----|--------------------|
| NO.       | BY: | DATE: | NO. | BY: |                    |
| 1         |     |       | 3   |     | S-5                |
| 2         |     |       | 4   |     | TOTAL SHEETS<br>21 |

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



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|  |                       |
|--|-----------------------|
| DRAWN BY : <u>E.C. PHELPS</u>                  | DATE : <u>10/2024</u> |
| CHECKED BY : <u>W.K. FISCHER</u>               | DATE : <u>11/2024</u> |
| DESIGN ENGINEER OF RECORD: <u>W.K. FISCHER</u> | DATE : <u>12/2024</u> |