

LOAD FACTORS:

| | | | |
|----------------------------|-------------|---------------|---------------|
| DESIGN LOAD RATING FACTORS | LIMIT STATE | γ_{DC} | γ_{DW} |
| | STRENGTH I | 1.25 | 1.50 |
| | SERVICE II | 1.00 | 1.00 |

| LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------------------------|---------------|---------------------------|-----------------------------|---------------|------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|------|----------------|
| LEVEL | VEHICLE | WEIGHT (TONS) | CONTROLLING LOAD RATING # | MINIMUM RATING FACTORS (RF) | TONS = W x RF | STRENGTH I LIMIT STATE | | | | | | | | | | SERVICE II LIMIT STATE | | | | | | | | COMMENT NUMBER |
| | | | | | | MOMENT | | | | | SHEAR | | | | | MOMENT | | | | | | | | |
| | | | | | | LIVE-LOAD FACTORS (LL) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | LIVE-LOAD FACTORS (LL) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | | |
| DESIGN LOAD RATING | HL-93 (INVENTORY) | N/A | 1 | 1.11 | -- | 1.75 | 0.751 | 1.62 | 1 | ER | 52.5 | 0.931 | 1.11 | 1 | I | 9.9 | 0.80 | 0.751 | 1.11 | 1 | ER | 52.5 | | |
| | HL-93 (OPERATING) | N/A | | 1.48 | -- | 1.35 | 0.751 | 2.11 | 1 | ER | 52.5 | 0.931 | 1.48 | 1 | I | 9.9 | N/A | - | - | - | - | - | | |
| | HS-20 (INVENTORY) | 36.000 | 2 | 1.55 | 55.8 | 1.75 | 0.751 | 2.29 | 1 | ER | 52.5 | 0.931 | 1.55 | 1 | I | 9.9 | 0.80 | 0.751 | 1.57 | 1 | ER | 52.5 | | |
| | HS-20 (OPERATING) | 36.000 | | 2.04 | 73.4 | 1.35 | 0.751 | 2.97 | 1 | ER | 52.5 | 0.931 | 2.04 | 1 | I | 9.9 | N/A | - | - | - | - | - | | |
| LEGAL LOAD RATING | SINGLE VEHICLE (SV) | SH | 12.500 | | 4.06 | 50.8 | 1.40 | 0.751 | 7.43 | 1 | ER | 52.5 | 0.931 | 5.48 | 1 | I | 9.9 | 0.80 | 0.751 | 4.06 | 1 | ER | 52.5 | |
| | | S3C | 21.500 | | 2.37 | 51.0 | 1.40 | 0.751 | 4.34 | 1 | ER | 52.5 | 0.931 | 3.15 | 1 | I | 9.9 | 0.80 | 0.751 | 2.37 | 1 | ER | 52.5 | |
| | | S3A | 22.750 | | 2.25 | 51.2 | 1.40 | 0.751 | 4.11 | 1 | ER | 52.5 | 0.931 | 2.98 | 1 | I | 9.9 | 0.80 | 0.751 | 2.25 | 1 | ER | 52.5 | |
| | | S4A | 26.750 | | 1.96 | 52.4 | 1.40 | 0.751 | 3.60 | 1 | ER | 52.5 | 0.931 | 2.57 | 1 | I | 9.9 | 0.80 | 0.751 | 1.96 | 1 | ER | 52.5 | |
| | | S5A | 30.500 | | 1.73 | 52.8 | 1.40 | 0.751 | 3.17 | 1 | ER | 52.5 | 0.931 | 2.32 | 1 | I | 9.9 | 0.80 | 0.751 | 1.73 | 1 | ER | 52.5 | |
| | | S6A | 34.500 | | 1.56 | 53.8 | 1.40 | 0.751 | 2.77 | 1 | ER | 52.5 | 0.931 | 2.07 | 1 | I | 9.9 | 0.80 | 0.751 | 1.56 | 1 | ER | 52.5 | |
| | | S7B | 38.500 | | 1.41 | 54.3 | 1.40 | 0.751 | 2.52 | 1 | ER | 52.5 | 0.931 | 1.91 | 1 | I | 9.9 | 0.80 | 0.751 | 1.41 | 1 | ER | 52.5 | |
| | S7A | 40.000 | 3 | 1.39 | 55.6 | 1.40 | 0.751 | 2.48 | 1 | ER | 52.5 | 0.931 | 1.93 | 1 | I | 9.9 | 0.80 | 0.751 | 1.39 | 1 | ER | 52.5 | | |
| | TRUCK TRACTOR SEMI-TRAILER (TTST) | T4A | 28.250 | | 1.92 | 54.2 | 1.40 | 0.751 | 3.52 | 1 | ER | 52.5 | 0.931 | 2.48 | 1 | I | 9.9 | 0.80 | 0.751 | 1.92 | 1 | ER | 52.5 | |
| | | T5B | 32.000 | | 1.69 | 54.1 | 1.40 | 0.751 | 3.09 | 1 | ER | 52.5 | 0.931 | 2.31 | 1 | I | 9.9 | 0.80 | 0.751 | 1.69 | 1 | ER | 52.5 | |
| | | T6A | 36.000 | | 1.54 | 55.4 | 1.40 | 0.751 | 2.82 | 1 | ER | 52.5 | 0.931 | 2.09 | 1 | I | 9.9 | 0.80 | 0.751 | 1.54 | 1 | ER | 52.5 | |
| | | T7A | 40.000 | | 1.42 | 56.8 | 1.40 | 0.751 | 2.60 | 1 | ER | 52.5 | 0.931 | 1.92 | 1 | I | 9.9 | 0.80 | 0.751 | 1.42 | 1 | ER | 52.5 | |
| | | T7B | 40.000 | | 1.49 | 59.6 | 1.40 | 0.751 | 2.73 | 1 | ER | 52.5 | 0.931 | 1.83 | 1 | I | 9.9 | 0.80 | 0.751 | 1.49 | 1 | ER | 52.5 | |

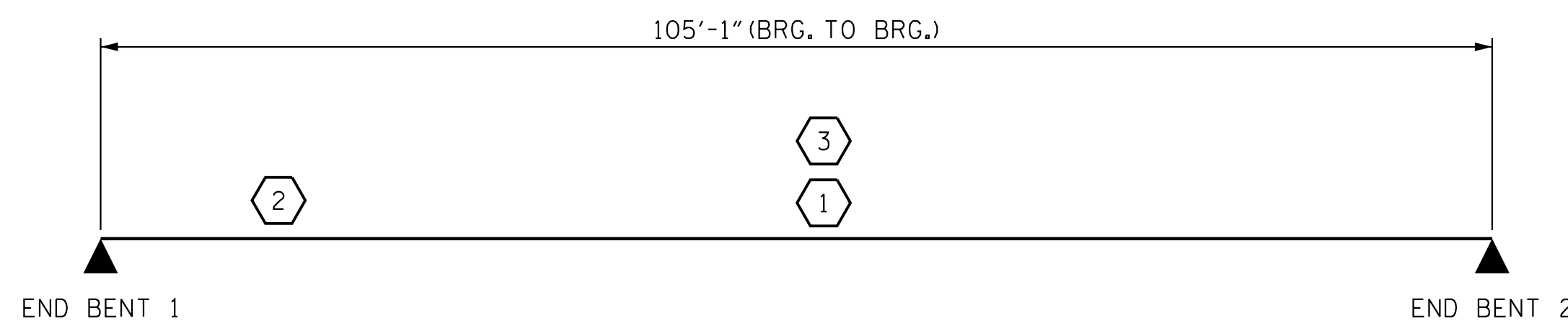
NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

| | |
|--|----------------------------|
| # | 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 | |

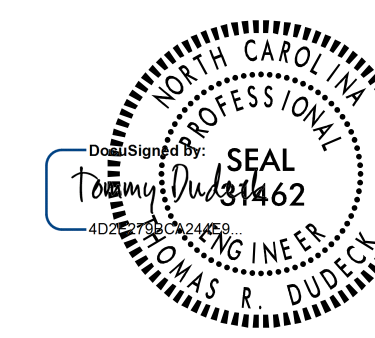


LRFR SUMMARY

PROJECT NO. U-2525C
GUILFORD COUNTY
STATION: 329+95.42 -L-

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
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DRAWN BY: N. D'AIUTO DATE: 09/29/16
CHECKED BY: M. B. ISENHOUR DATE: 10/13/16
DESIGN ENGINEER OF RECORD: T. R. DUDECK DATE: 01/12/18



1/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
STEEL GIRDERS
(INTERSTATE TRAFFIC)
(LL)

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S2-5 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 29 |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED