

LOAD FACTORS:

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

| LEVEL | VEHICLE | WEIGHT (W) (TONS) | CONTROLLING LOAD RATING # | MINIMUM RATING FACTORS (RF) | TONS = W x RF | STRENGTH I LIMIT STATE | | | | | | | | | | SERVICE II LIMIT STATE | | | | | COMMENT NUMBER | | | |
|--------------------|-----------------------------------|----------------------|---------------------------|-----------------------------|---------------|-------------------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|-------------------------------------|---------------------------|---------------|------|----------------|-----------------|-------------------------------------|--|
| | | | | | | LIVE-LOAD FACTORS (γ_{LL}) | MOMENT | | | | | SHEAR | | | | | LIVE-LOAD FACTORS (γ_{LL}) | MOMENT | | | | | | |
| | | | | | | | 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) | | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (FT) | |
| DESIGN LOAD RATING | HL-93 (INVENTORY) | N/A | ① | 1.09 | -- | 1.75 | 0.816 | 1.09 | A | E | 143.48 | 1.196 | 1.10 | A | I | 0.00 | 1.30 | 0.816 | 1.50 | A | E | 87.14 | | |
| | HL-93 (OPERATING) | N/A | | 1.42 | -- | 1.35 | 0.816 | 1.42 | A | E | 143.48 | 1.196 | 1.43 | A | I | 0.00 | 1.00 | 0.816 | 1.95 | A | E | 87.14 | | |
| | HS-20 (INVENTORY) | 36.00 | ② | 1.60 | 57.60 | 1.75 | 0.816 | 2.32 | A | E | 87.14 | 1.196 | 1.60 | A | I | 0.00 | 1.30 | 0.816 | 2.26 | A | E | 87.14 | | |
| | HS-20 (OPERATING) | 36.00 | | 2.07 | 74.52 | 1.35 | 0.816 | 3.00 | A | E | 87.14 | 1.196 | 2.07 | A | I | 0.00 | 1.00 | 0.816 | 2.94 | A | E | 87.14 | | |
| LEGAL LOAD RATING | SINGLE VEHICLE (SV) | SNSH | 13.500 | | 4.99 | 67.37 | 1.40 | 0.816 | 7.05 | A | E | 87.14 | 1.196 | 4.99 | A | I | 0.00 | 1.30 | 0.816 | 5.50 | A | E | 87.14 | |
| | | SNGARBS2 | 20.000 | | 3.46 | 69.20 | 1.40 | 0.816 | 5.01 | A | E | 87.14 | 1.196 | 3.46 | A | I | 0.00 | 1.30 | 0.816 | 3.91 | A | E | 87.14 | |
| | | SNAGRIS2 | 22.000 | | 3.19 | 70.18 | 1.40 | 0.816 | 4.65 | A | E | 87.14 | 1.196 | 3.19 | A | I | 0.00 | 1.30 | 0.816 | 3.63 | A | E | 87.14 | |
| | | SNCOTTS3 | 27.250 | | 2.48 | 67.58 | 1.40 | 0.816 | 3.51 | A | E | 87.14 | 1.196 | 2.48 | A | I | 0.00 | 1.30 | 0.816 | 2.74 | A | E | 87.14 | |
| | | SNAGGRS4 | 34.925 | | 1.68 | 58.67 | 1.40 | 0.816 | 2.84 | A | E | 87.14 | 1.196 | 1.68 | A | I | 0.00 | 1.30 | 0.816 | 2.22 | A | E | 87.14 | |
| | | SNS5A | 35.550 | | 1.68 | 59.72 | 1.40 | 0.816 | 2.80 | A | E | 87.14 | 1.196 | 1.68 | A | I | 0.00 | 1.30 | 0.816 | 2.18 | A | E | 87.14 | |
| | | SNS6A | 39.950 | | 1.51 | 60.32 | 1.40 | 0.816 | 2.53 | A | E | 87.14 | 1.196 | 1.51 | A | I | 0.00 | 1.30 | 0.816 | 1.97 | A | E | 87.14 | |
| | | SNS7B | 42.000 | | 1.47 | 61.74 | 1.40 | 0.816 | 2.41 | A | E | 87.14 | 1.196 | 1.47 | A | I | 0.00 | 1.30 | 0.816 | 1.88 | A | E | 87.14 | |
| | TRUCK TRACTOR SEMI-TRAILER (TTST) | TNAGRIT3 | 33.000 | | 2.16 | 71.28 | 1.40 | 0.816 | 3.08 | A | E | 87.14 | 1.196 | 2.16 | A | I | 0.00 | 1.30 | 0.816 | 2.40 | A | E | 87.14 | |
| | | TNT4A | 33.075 | | 1.78 | 58.87 | 1.40 | 0.816 | 3.06 | A | E | 87.14 | 1.196 | 1.78 | A | I | 0.00 | 1.30 | 0.816 | 2.39 | A | E | 87.14 | |
| | | TNT6A | 41.600 | | 1.52 | 63.23 | 1.40 | 0.816 | 2.48 | A | E | 87.14 | 1.196 | 1.52 | A | I | 0.00 | 1.30 | 0.816 | 1.94 | A | E | 87.14 | |
| | | TNT7A | 42.000 | | 1.50 | 63.00 | 1.40 | 0.816 | 2.48 | A | E | 87.14 | 1.196 | 1.50 | A | I | 0.00 | 1.30 | 0.816 | 1.93 | A | E | 87.14 | |
| | | TNT7B | 42.000 | | 1.45 | 60.90 | 1.40 | 0.816 | 2.50 | A | E | 87.14 | 1.196 | 1.45 | A | I | 0.00 | 1.30 | 0.816 | 1.95 | A | E | 87.14 | |
| | | TNAGRIT4 | 43.000 | | 1.40 | 60.20 | 1.40 | 0.816 | 2.42 | A | E | 87.14 | 1.196 | 1.40 | A | I | 0.00 | 1.30 | 0.816 | 1.89 | A | E | 87.14 | |
| TNAGT5A | 45.000 | | 1.37 | 61.56 | 1.40 | 0.816 | 2.31 | A | E | 87.14 | 1.196 | 1.37 | A | I | 0.00 | 1.30 | 0.816 | 1.80 | A | E | 87.14 | | | |
| TNAGT5B | 45.000 | | ③ | 1.34 | 60.30 | 1.40 | 0.816 | 2.28 | A | E | 87.14 | 1.196 | 1.34 | A | I | 0.00 | 1.30 | 0.816 | 1.78 | A | E | 87.14 | | |
| FATIGUE | HL-93 (INVENTORY) | $\gamma_{LL}=0.75$ | | | | | | | | | | | | | | | | | | | | | | |

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) **

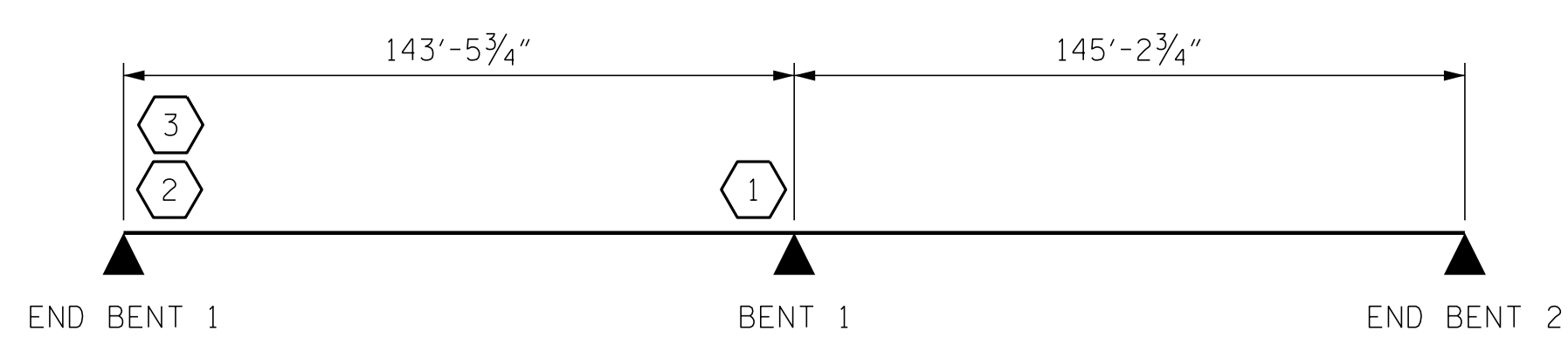
② DESIGN LOAD RATING (HS-20) **

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
E - EXTERIOR GIRDER



LRFR SUMMARY

PROJECT NO. I-5786
JOHNSTON COUNTY
STATION: 17+77.11 -Y1-

P:\2017\I-5786\Structures\GML\lzzleMill_Y1\I-5786-Y1_LRFR_WE.dgn 6/6/2017 6:11:39 AM

| | |
|-------------------------|-----------------------|
| ASSEMBLED BY : D. HODGE | DATE : 5/17 |
| CHECKED BY : B.C. HUNT | DATE : 5/17 |
| DRAWN BY : MAA 1/08 | REV. 11/2/08RR MAA/GM |
| CHECKED BY : GM/DI 2/08 | REV. 10/1/11 MAA/GM |

ENGINEER OF RECORD:

ETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

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

| REVISIONS | | | | | |
|-----------|-----|-------|-----|-----|-------|
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. S01-4
TOTAL SHEETS 32

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED